Biological Resource Assessment of
APN 3118-006-057
Lancaster, California

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Abstract

Development has been proposed for APN 3118-006-057, Lancaster, California. The approximately 5 acre (2 ha) study area was located west of 15th Street West and north of Avenue H, T7N, R12W, W1/2 of the SE1/4 of the SE1/4 of the SW1/4 of Section 4, S.B.B.M. Line transect surveys were conducted on 9 and 28 May 2022 to inventory biological resources. The study site was characteristic of a disturbed shadscale-mormon tea (*Atriplex confertifolia-Ephedra nevadensis*) habitat association with clay pan and dune topography. A total of 21 plant species and 10 wildlife species or their sign were observed during the line transect survey. No desert tortoises (*Gopherus agassizii*) or their sign were observed within the study area. No desert kit foxes (*Vulpes macrotis*) or their sign were observed during the line transect survey. Suitable habitat for Mohave ground squirrels (*Xerospermophilus mohavensis*) was not present within or adjacent to the study site. No burrowing owls (*Athene cunicularia*), or their sign were observed during the field survey. California ground squirrel burrows (*Citellus beecheyi*) were observed within the study site. California ground squirrel burrows can provide future cover sites for burrowing owls. The vegetation within the study site does not appear to provide suitable nesting sites for migratory birds. No Swainson's hawk (*Buteo swainsoni*) nesting has been documented within 5 miles of the study site within the last 5 years. Alkali mariposa lilies (*Calochortus striatus*) were observed within the study site. Habitat for this plant species occurs throughout and adjacent to the study area. No other sensitive plants, specifically, Joshua tree (*Yucca brevifolia*), Rosamond eriastrum (*Eriastrum rosamondense),* desert cymopterus (*Cymopterus deserticola*), or Barstow woolly sunflower (*Eriophyllum mohanense*) were observed during the field survey and are not expected due to the lack of suitable habitat. No other state or federally listed species are expected to occur within the proposed project area. Ephemeral washes, and clay pans were observed throughout the study area.

Recommended Protection Measures:

Consistent with the "Staff Report on Burrowing Owl Mitigation" a take avoidance (preconstruction) burrowing owl survey will be accomplished no more than 14 days prior to ground disturbance activities to ensure no owls have moved into the study site (CDFG 2012). If burrowing owls are found to have moved into the site methods noted within the Staff Report will be applied as appropriate.

An area that has any of the following characteristics which will be impacted by development: distinct bed, bank, channel, signs of scouring, evidence of water flow, may require a Lake and Streambed Alteration Agreement (LSA) from the California Department of Fish and Wildlife (CDFW) prior to development activities. This project will require consultation with CDFW to determine whether an LSA is required. A jurisdictional delineation of the wash system may be required as part of the LSA process. It would be determined through the LSA process whether mitigation for the wash system is required. Alkali mariposa lilies can be part of any mitigation and addressed during the LSA process. Consultation with Lahontan Water Quality Control Board (LWQCB) may be required to determine the need for a Section 401 water quality permit. This project may be able to use the LWQCB's General Permit R6T-2003-0004 for minor streambed/lakebed alteration projects because the federal Clean Water Act is not applicable.

Significance: Given the adjacent land uses, and highly impacted condition of the study area this project would not result in a significant adverse impact to biological resources.

Development has been proposed for APN 3118-006-057 (Figure 1). Development would include installation of access roads, parking, and utilities (water, sewer, electric, etc.). The entire project area would be cleared and regraded prior to construction activities.

An environmental analysis should be conducted prior to any development project. An assessment of biological resources is an integral part of environmental analyses (Gilbert and Dodds 1987). The purpose of this study was to provide an assessment of biological resources potentially occurring within, or utilizing the study site. Specific focus was on the presence/absence of protected, rare, threatened and endangered species of plants and wildlife that would be expected to use the existing habitat. Species of concern included the desert tortoise (*Gopherus agassizii*), Mohave ground squirrel *(Xerospermophilus mohavensis),* desert kit fox *(Vulpes macrotis)*, burrowing owl *(Athene cunicularia),* Swainson's hawk *(Buteo swainsoni),* Joshua tree (*Yucca brevifolia*), alkali mariposa lily (*Calochortus striatus*), desert cymopterus (*Cymopterus deserticola*), and Barstow woolly sunflower (*Eriophyllum mohanense*).

Study Area

The approximately 5 acre (2 ha) study area was located west of 15th Street West and north of Avenue H, T7N, R12W, W1/2 of the SE1/4 of the SE1/4 of the SW1/4 of Section 4, S.B.B.M. (Figure 2). Avenue H formed the southern boundary of the study site. Single-family housing existed to the south of Avenue H (Figure 3). A dirt road formed the western boundary of the study site. Similarly disturbed habitat as the study site was present to the west, north, and east of the study site. The Avenue H retention basin for the Amargosa Creek drainage existed a short distance to the west of the study site. Highway 14 was situated west of the retention basin.

Methods

Line transects were conducted to determine habitat suitability for sensitive species and inventory plant and wildlife species occurring within the study site (Cooperrider et al. 1986, Davis 1990). Line transects were approximately 660 feet (201 m) long and spaced about 30 feet (10 m) apart (U.S. Fish & Wildlife Service 2010). The California Department of Fish and Game (2012) prepared recommendations for burrowing owl survey methodology. This guidance was used in developing the survey methodology appropriate for this specific study site. The entire site was surveyed, and adjacent areas were evaluated for burrowing owls (CDFG 2012). A habitat assessment was conducted for Mohave ground squirrels to determine whether habitat was present for the species (CDFW 2019, Leitner and Leitner 2017).

All observations of plant and animal species were recorded in field notes. Field guides were used to aid in the identification of plant and animal species (Arnett and Jacques 1981, Blatt 2019, Borror and White 1970, Burt and Grossenheider 1976, Gould 1981, Jaeger 1969, Knobel 1980, Robbins et al. 1983, Stark 2000,). Observations were aided with the use of 10x42 binoculars.

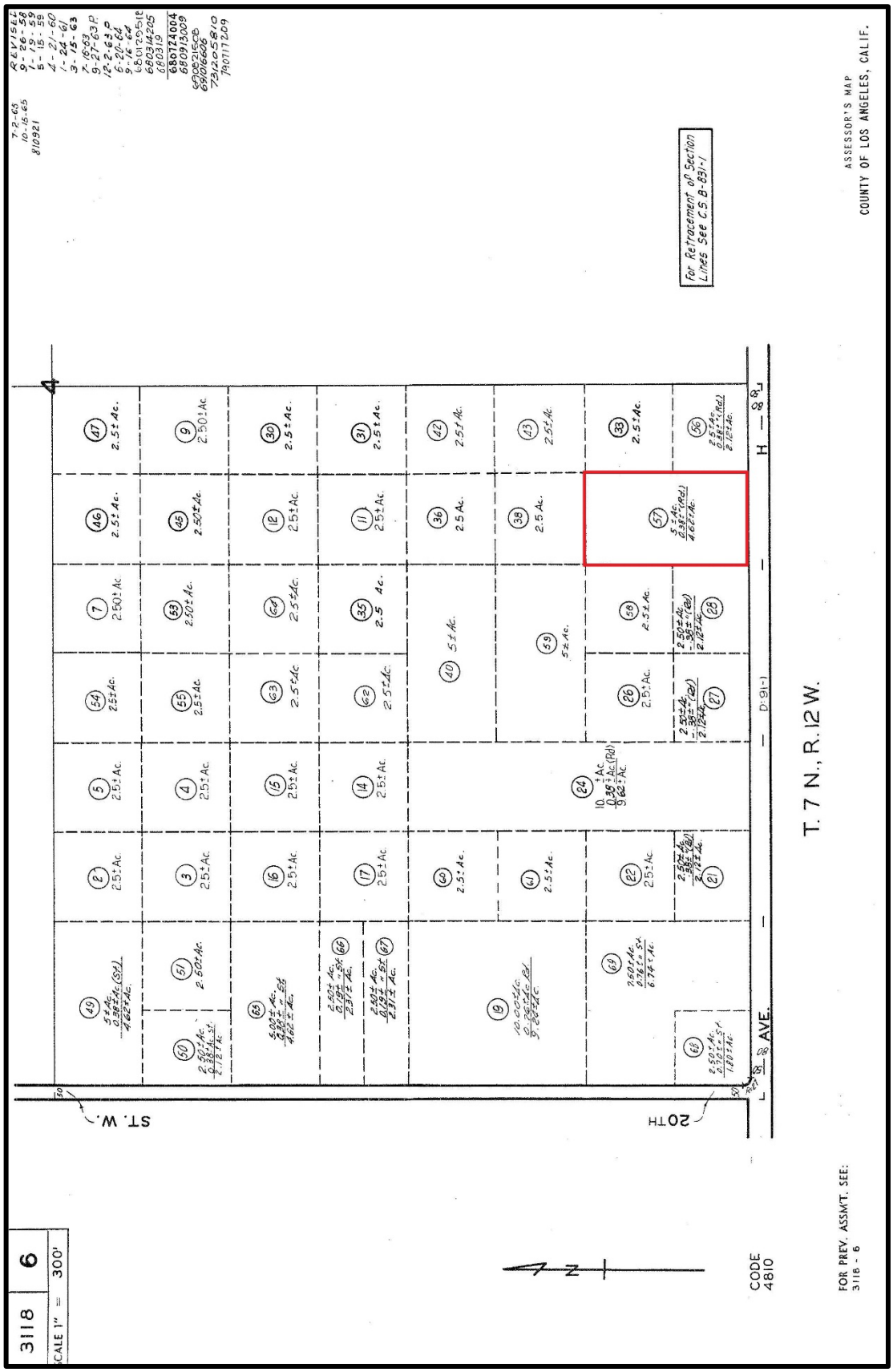

Figure 1. Location of proposed project site as depicted on APN map.

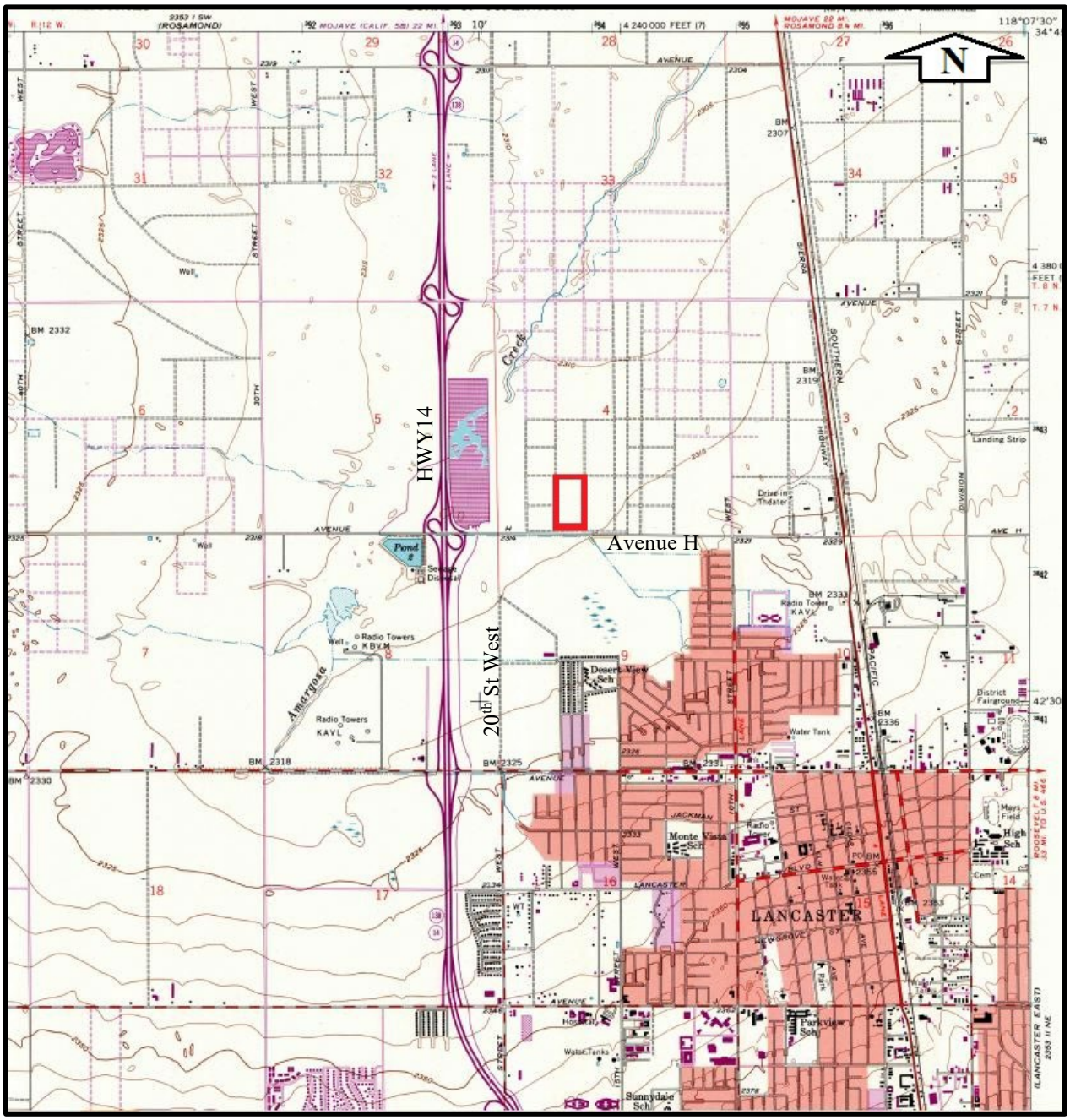

Figure 2. Approximate location of study area as depicted on excerpt from USGS Quadrangle, Lancaster West, California, 7.5' 1974.

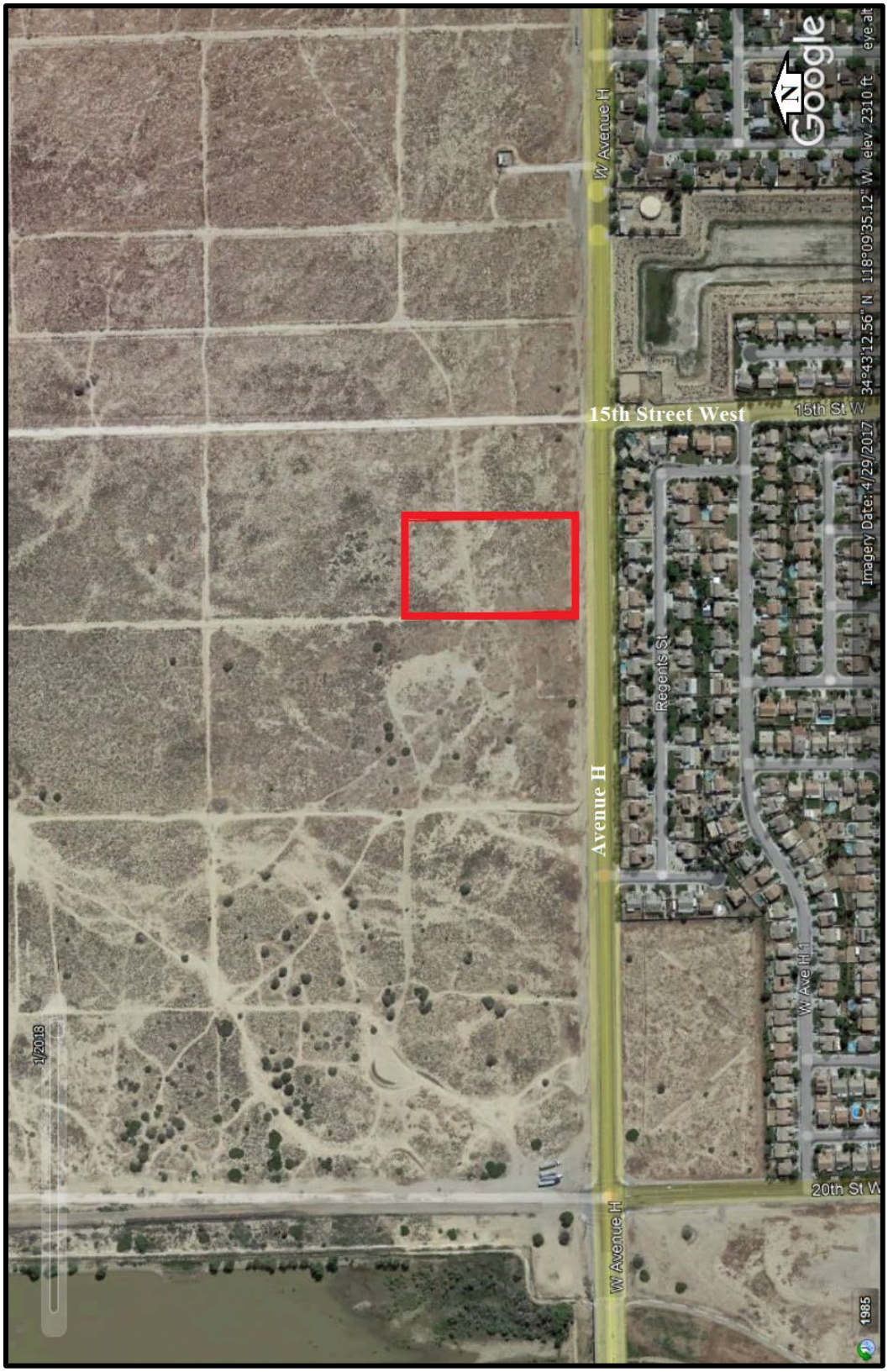

Figure 3. Approximate location of study area, Google Earth 2018, showing surrounding land use.

Observations of animal tracks, scat, and burrows were also utilized to determine the presence of wildlife species inhabiting the study site (Cooperrider et al. 1986, Halfpenny 1986, Lowrey 2006, Murie 1974). Historical aerial photographs, California Natural Diversity Database, Calflora, eBird and the USGS topographic map of the study area and surrounding vicinity, and previous survey results were reviewed (Hagan 2017a-b, 2020, 2021, 2022a-b). Photographs of the study site were taken (Figure 4).

Results

A total of 12 line transects were walked on 9 and 28 May 2022. Weather conditions consisted of warm temperatures (estimated 70 degrees F), 50% cloud cover, and high winds. No blue line streams were found on the USGS topographic map within the study area. Aerial photography did indicate potential for ephemeral washes within the study area. Ephemeral washes and clay pans were observed within the study site. Clay sandy loam and silty clay surface soil textures were observed throughout the study area. Cryptobiotic soils were prevalent within the study area. Topography of the site ranged from 2,310 to 2,312 feet (704 to 705 m) above sea level.

The study site was characteristic of a disturbed shadscale-mormon tea (*Atriplex confertifolia-Ephedra nevadensis*) habitat association with clay pan and dune topography (Barbour et al. 2007). A total of 21 plant species were observed during the line transect survey (Table 1). Shadscale and mormon tea were the dominant perennial shrub within the study site. Ground coverage by annual plant species was minimal. The most dominate ground cover consisted of cryptobiotic soils. Alkali mariposa lilies were in flower on 9 May 2022 within the study site. No Joshua trees, Rosamond eriastirum, desert cymopterus, or Barstow woolly sunflowers were observed within the study site.

A total of 10 wildlife species, or their sign were observed during the line transect survey (Table 2). No desert tortoises or their sign were observed during the field survey. No burrowing owls or their sign were observed within the study site. California ground squirrel (*Citellus beecheyi*) burrows were observed within the study area. No suitable habitat for Mohave ground squirrels was present within the study site. No desert kit foxes, or their sign were observed during the field survey. No Swainson's hawks were observed during the field survey. No nesting for Swainson's hawk has been documented within 5 miles over the last 5 years of the study site (eBird 2022).

Vehicle tracks were observed within the study area. A small dirt road, oriented east-west, bisected the study site. Construction debris, broken asphalt, and concrete were observed within the study site. A large amount of household trash and debris were observed within the study site.

Discussion

It is likely that most annual species were visible during the time the field survey was performed. Cryptobiotic crusts are known by several labels such as cryptogamic crusts, and lichen crusts. These crusts have an important niche in the environment but have not been well mapped. Aerial photography indicates habitat around the study area is similar to the study site and is likely to support cryptogamic crusts similar to the study site. Healthy cryptogamic crusts

Figure 4. Representative photographs of the study area. Top photo is an overview which also shows the dominance of cryptobiotic soil, bottom is representative of alkali mariposa lilies observed within the study site.

Table 1. List of plant species that were observed during the line transect survey of APN 3118-006-057, Lancaster, California.

Common Name	Scientific Name
Mormon tea	*Ephedra nevadensis*
Shadscale	*Atriplex confertifolia*
Cotton thorn	*Tetradymia spinosa*
Greasewood	*Sarcobatus vermiculatus*
Silverscale	*Atriplex argentea*
Arrow scale	*Atriplex phyllostegia*
Rabbit brush	*Chrysothamnus nauseosis*
Alkali rye	*Elymus cinereus*
Cooper goldenbush	*Haplopappus cooperi*
Desert straw	*Stephanomeria pauciflora*
Turkey mullein	*Eremocarpus setigerus*
Alkali mariposa lily	*Calochortus striatus*
Alkali sacaton	*Sporobolus airodes*
Nevada blue grass	*Poa secunda*
Russian thistle	*Salsola iberica*
Yellow star thistle	*Centaurea melitensis*
Red stemmed filaree	*Erodium cicutarium*
Saltgrass	*Distichlis spicata*
Red brome	*Bromus rubens*
Squirrel-tail grass	*Hordeum jubatum*
Cheatgrass	*Bromus tectorum*

Table 2. List of wildlife species, or their sign, that were observed during the line transect survey of APN 3118-006-057, Lancaster, California.

Common Name	Scientific Name
Rodents	Order: Rodentia
California ground squirrel	*Citellus beecheyi*
Desert cottontail	*Sylvilagus auduboni*
Black-tailed jackrabbit	*Lepus californicus*
Coyote	*Canis latrans*
Domestic dog	*Canis familiaris*
Ring-neck dove	*Streptopelia capicola*
Common raven	*Corvus corax*
Grasshopper	Order: Orthoptera
Spider	Order: Araneida

Table 3. List of wildlife species that may occur within the proposed study area, APN 3118-006-057, Lancaster, California.

Common Name	Scientific Name
Deer mouse	*Peromyscus maniculatus*
Mourning dove	*Zenaida macroura*
Rock dove	*Columba livia*
Horned lark	*Eremophila alpestris*
Northern mockingbird	*Mimus polyglottos*
House finch	*Carpodacus mexicanus*
Fly	Order: Diptera
Cabbage white butterfly	*Pieris rapae*

fix carbon and nitrogen and trap dust effectively preventing windblown sand (Pietrasiak, 2015). These cryptobiotic crusts have a high-water holding capacity and enables moisture to be retained within the soils and used by desert vegetation for a longer period of time (Pietrasiak, 2015). Lichen morphological types with a more discontinuous cover (crustose, squamulose) allow water, gases, and seedlings to pass through to the soil surface (Rosentreter, et.al, 2007). Although not observed, several wildlife species would be expected to occur within the study site (Table 3).

Human impacts are expected to increase as urban development continues to occur in the area. Burrowing animals within the study site are not expected to survive construction activities. More mobile species, such as lagomorphs (rabbits and hares), coyotes (*Canis latrans*), and birds are expected to survive, but they will have less cover and foraging habitat available. Sensitive plant species are expected to be extirpated as further water flow is diverted.

The desert tortoise is a state endangered and federal threatened listed species. The study site was located within the geographic range of the desert tortoise. The study site was not located in critical habitat designated for the Mojave population of the desert tortoise. Desert tortoises were not present within the study area. No protection measures are recommended for desert tortoises.

The Mohave ground squirrel (MGS) is a state listed threatened species. The study site was located within the geographic range of the MGS. The western limit of the geographic range of the MGS is currently thought to be Highway 14. MGS habitat consists of a variety of desert scrub habitats, to include a specific assemblage of required shrub and annual species within those habitats (CDFW 2019, Leitner and Leitner 2017). None of the required habitat elements occur within, adjacent, or near the project site (Figure 4, Table 1). MGS are not present within the study area. No protection measures are recommended for MGS.

Burrowing owls are considered a species of special concern by the California Department of Fish and Wildlife (CDFW). No burrowing owls or their sign were observed within the study area. California ground squirrel burrows were observed within the study area. California ground squirrel burrows can provide future cover sites for burrowing owls.

Many species of birds and their active nests are protected under the Migratory Bird Treaty Act. Swainson's hawk observations noted on eBird are strongly correlated with large open fields, active agricultural fields, and areas of water (eBird 2022). No Swainson's hawk nesting is noted in eBird or in the CNDDB in the urban areas of Lancaster. Although Swainson's hawks have been documented at the Avenue H retention basin no Swainson's hawk nests have been documented there or within 5 miles of the study over the last 5 years (CNDDB 2022). Vegetation within the study site does not appear suitable for nesting migratory birds. No protection measures are recommended for nesting migratory birds to include Swainson's hawk.

Based on the results of the field survey, other than alkali mariposa lilies, no sensitive plant species are expected to occur within the study area and no protection measures are recommended. No other state or federal listed species are expected to occur within the study site (CDFW 2020, 2021, U.S. Fish & Wildlife Service 2016).

Landscape design should incorporate the use of native plants to the maximum extent feasible. Native plants that have food and cover value to wildlife should be used in landscape design (Adams and Dove 1989). Diversity of native plants should be maximized in landscape design (Adams and Dove 1989).

Recommended Protection Measures:

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Significance: Given the adjacent land uses, and highly impacted condition of the study area this project would not result in a significant adverse impact to biological resources.

Literature Cited

Adams, L.W. and L.E. Dove. 1989. Wildlife reserves and corridors in the urban environment. National Institute for Urban Wildlife, Columbia, MD. 91pp.

Arnett, R.H., Jr. and R.L. Jacques, Jr. 1981. Simon and Schuster's guide to insects. Simon and Schuster, Inc. New York. 511pp.

Barbour, M.G., Keeler-Wolf, T. and A.A. Schoenherr, Eds. 2007. Terrestrial vegetation of california. University of California Press, Third Edition. 712pp.

Blatt, Jeffrey 2019. Yosemite butterflies (1.0.16) [mobile application software]. Developer: butterflies@coyotetracks.com., https://play.google.com/store/apps/details?id=com.coyotetracks.yosemitebutterflies&hl=en_US

Borror, D.J. and R.E. White. 1970. A field guide to insects. Houghton Mifflin Company, Boston. 404pp.

Burt, W.H. and R.P Grossenheider. 1976. A field guide to the mammals. Houghton Mifflin Company, Boston. 289pp.

Calflora: Information on California plants for education, research and conservation. [web application]. 2022. Berkeley, California: The Calflora Database [a non-profit organization]. Accessed 1 June 2022

California Department of Fish and Game. 2012. Staff report on burrowing owl mitigation. Calif. Dept. of Fish and Wildlife, Wildlife Branch, Sacramento, CA. 36pp.
California Department of Fish and Wildlife. 2019. A conservation strategy for the mohave ground squirrel. Calif. Dept. of Fish and Wildlife, https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=171301&inline . 129pp.
California Department of Fish and Wildlife. 2020. State and federally listed endangered and threatened animals in california. Calif. Dept. of Fish and Wildlife California Natural Diversity Database, Sacramento, CA. 32pp.
California Department of Fish and Wildlife. 2021. State and federally listed endangered, threatened, and rare plants of california. Calif. Dept. of Fish and Wildlife California Natural Diversity Database, Sacramento, CA. 25pp.
California Natural Diversity Database (CNDDB) 2020. Lancaster west quadrangle. Calif. Dept. of Fish and Wildlife California Natural Diversity Database, Sacramento, CA. 36pp.
Cooperrider, A.L., Boyd, R.J. and H.R. Stuart, Eds. 1986. Inventory and monitoring of wildlife habitat. U.S. Dept. of Inter., Bur. Land Manage. Service Center, CO. 858pp.
Davis, D.E. 1990. Handbook of census methods for terrestrial vertebrates. CRC Press, Boca Raton, FL. 397pp.
eBird. 2022. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available: http://www.ebird.org. (Accessed: May 28, 2022).
Gilbert, F.F. and D.G. Dodds. 1987. The philosophy and practice of wildlife management. Krieger Publishing Company, Malabar, FL. 279pp.
Gould, F.W. 1981. Grasses of southwestern united states. Univ. of Arizona Press, Tucson, AZ. 343pp.
Hagan, M. 2017a. Biological resources assessment of apn 3105-001-042, lancaster, california. Mark Hagan, 44715 17th Street East, Lancaster, California, 93535. 12pp.
Hagan, M. 2017b. Biological resources assessment of apn 3107-016-005, lancaster, california. Mark Hagan, 44715 17th Street East, Lancaster, California, 93535. 13pp.
Hagan, M. 2020. Biological resource assessment of apns 3121-034-006 and 3121-036-069, lancaster, California. Mark Hagan, 44715 17th Street East, Lancaster, California. 13pp.
Hagan, M. 2021. Biological resource assessment of apn 3114-010-011, lancaster, California. Mark Hagan, 44715 17th Street East, Lancaster, California. 16pp.
Hagan, M. 2022a. Biological resource assessment of apn 3114-012-020, lancaster, California. Mark Hagan, 44715 17th Street East, Lancaster, California. 15pp.
Hagan, M. 2022b. Biological resource assessment of apns 3114-012-068 and 069, lancaster, California. Mark Hagan, 44715 17th Street East, Lancaster, California. 12pp.
Halfpenny, J. 1986. A field guide to mammal tracking in western america. Johnson Publishing Company, Boulder, CO. 161pp.
Jaeger, E.C. 1969. Desert wild flowers. Stanford Univ. Press, Stanford, CA. 322pp.
Knobel, E. 1980. Field guide to the grasses, sedges and rushes of the united states. Dover Publications Inc. New York, NY 83pp.
Leitner, B.M. and P. Leitner 2017. Diet of the mohave ground squirrel (*xerospermophilus mohavensis*) in relation to season and rainfall. Western North American Naturalist 77(1):1-13. Barbara M. Leitner, 2 Parkway Court, Orinda, CA 94563.
Lowery, J.C. 2006. The tracker's field guide. The Globe Pequot Press, Gilford, CT 408pp.

Pietrasiak, N. 2015. Field guide to classify biological soil crusts for ecological site evaluation. Land and Soil Management Community of Practice, http://www.nswskn.com/wp-content/uploads/2015/07/18-Nov-2014-CoP-DailySoilsDigest.pdf , accessed 14 March 2020. 37pp.

Murie, O.J. 1974. A field guide to animal tracks. Houghton Mifflin Company, Boston. 375pp.

Robbins, C.S., Bruun, B. and H.S. Zim. 1983. A field guide to identification: birds of north america. Golden Press, NY. 360pp.

Rosentreter, R., M. Bowker, and J. Belnap. 2007. A Field Guide to Biological Soil Crusts of Western U.S. Drylands. U.S. Government Printing Office, Denver, Colorado. 104pp.Stark, M. 2000. A flower-watchers guide to wildflowers of the western mojave desert. Published by Milt Stark. Lancaster, CA 160pp.

U.S. Fish & Wildlife Service. 2010. Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*), 2010 field season. U.S. Fish & Wildl. Serv., 18pp.

U.S. Fish & Wildlife Service. 2016. Listed species believed to or known to occur in California. 8pp. http://ecos.fws.gov/tess_public/reports/species-listed-by-state-report?state=CA&status=listed , accessed 22 April 2018.