Appendix C Rare Plant Surveys and Report

Appendix

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Botanical Survey

Hercules Site Hesperia APNs

041-421-208 and 041-421-209

Prepared for

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Table of Contents

Table of Tables

Table of Figures

Appendices

CERTIFICATION

I hereby certify that the statements furnished below and in the attached exhibits present 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.

Ricardo Montijo

July 29, 2022
Date

1 INTRODUCTION

Hernandez Environmental Services (HES) performed biological surveys for a development project in Hesperia. The project site is located within unincorporated San Bernardino County, California, and is designated as San Bernardino County Assessor's Parcel Numbers (APNs) 041-421-208 and 041-421-209. The survey consisted of 100% coverage of the 26-acre parcel plus an additional 100-foot buffer around the perimeter of project site.

1.1 Project Site Location

The approximate 26-acre project site is located south of Mojave Street, north of Hercules Street, west of Hesperia Road and east of Third Street County, California (Figures 1 and 2, Location Map and Vicinity Map, respectively). Specifically, the project site is located within Section 16, Township 4 North, Range 4 West of the Hesperia 7.5-minute United States Geological Survey (USGS) topographic quadrangle.

1.2 Project Description

The proposed project consists of the construction of a new campus for Pathways to College Charter School and will consist of a 21,400 square foot (SF) main building, 130 parking spaces, a playground, and recreational areas. Beyond the site limits, the project will require roadside improvements and water and sewer lines on Third Avenue and Mojave Street. Approximately 14.11 total acres are expected to be impacted by development.

The San Bernardino County has identified the need for rare plant surveys for Rare Species. HES biologists conducted rare plant surveys to capture seasonal annual species.

1.2.1 Adjacent Lands

Adjacent lands consist of rural industrial/residential areas to the east and west and vacant land in areas to the south and north (Figure 2). Figure 3 shows the distribution of soils on the site.

Figure 1. Vicinity Map

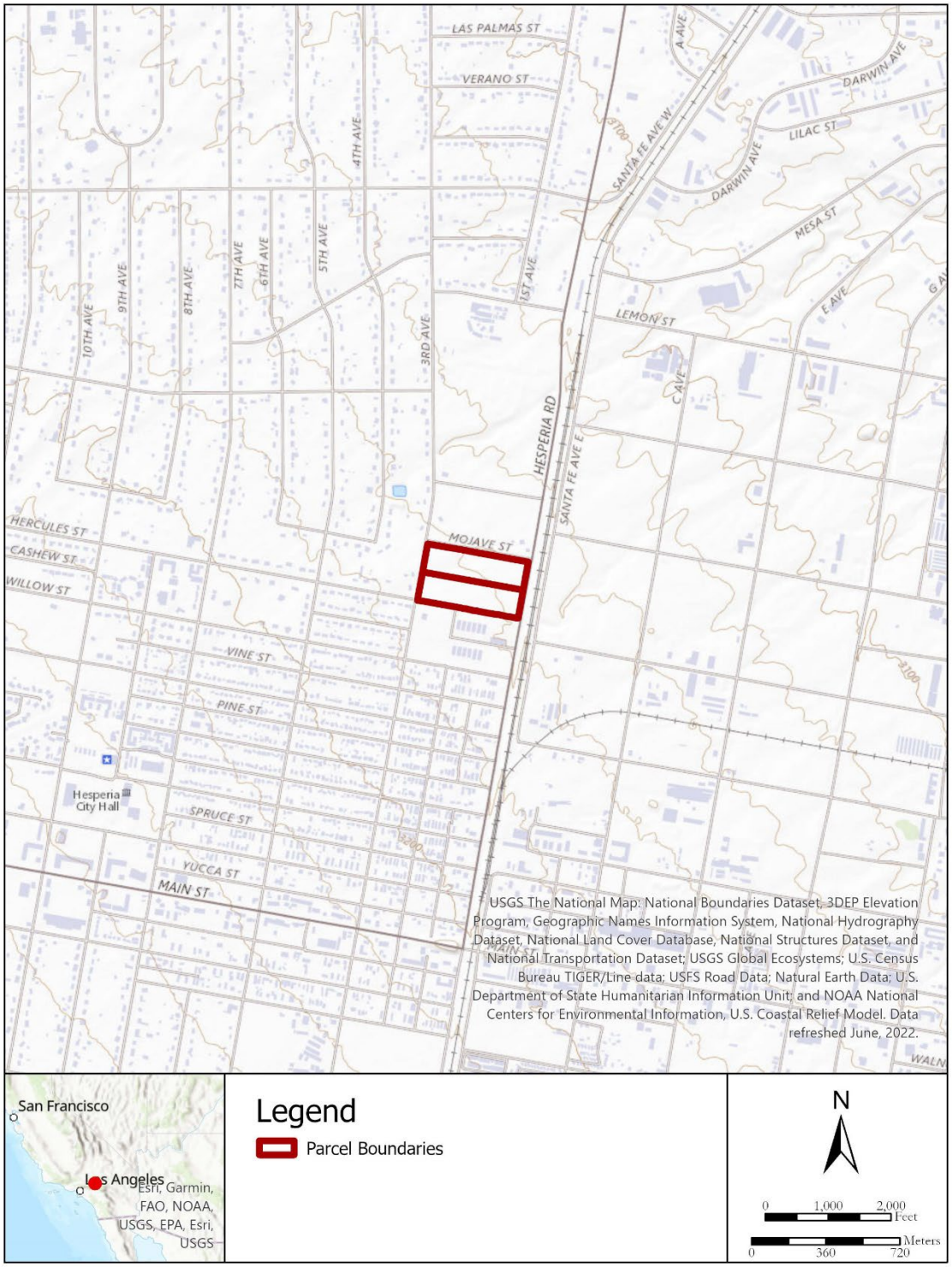


Figure 2. Location Aerial Map

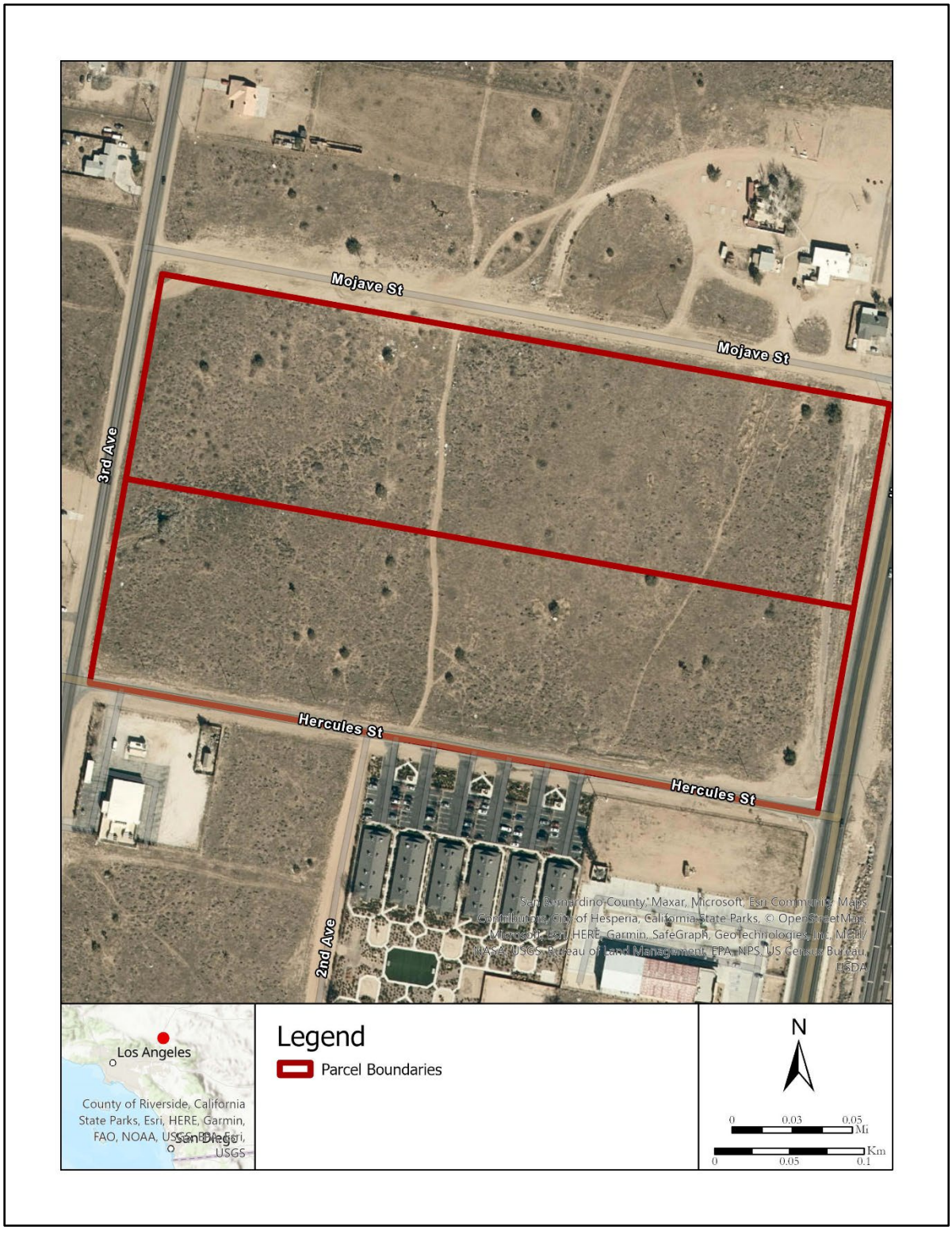
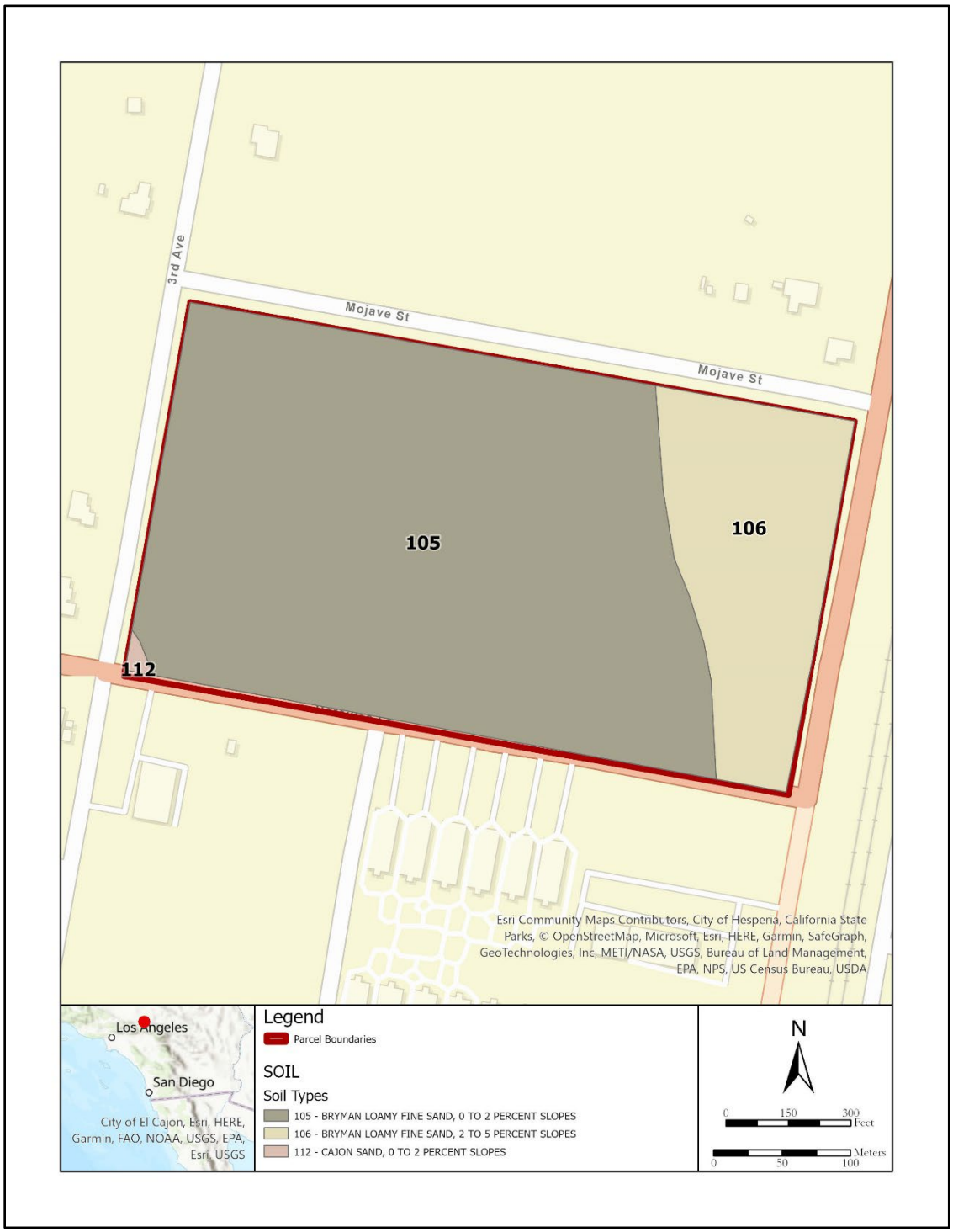


Table 1. Rare Plants Evaluated for this Project

Common Name	Scientific Name
Beaver Dam Breadroot	*Pediomelum castoreum*
Booth's Evening-Primrose	*Eremothera boothii ssp. boothii*
Desert Cymopterus	*Cymopterus deserticola*
Mojave Tarplant	*Deinandra mohavensis*
Palmer's Mariposa-lily	*Calochortus palmeri var. palmeri*
Pinyon Rockcress	*Boechera dispar*
Plummer's Mariposa-lily	*Calochortus plummerae*
Sagebrush Loeflingia	*Loeflingia squarrosa var. artemisiarum*
San Bernardino Aster	*Symphyotrichum defoliatum*
San Bernardino Mountains Dudleya	*Dudleya abramsii ssp. affinis*
Short-Joint Beavertail	*Opuntia basilaris var. brachyclada*
Southern Mountains Skullcap	*Scutellaria bolanderi ssp. austromontana*
White Pygmy-Poppy	*Canbya candida*
White-Bracted Spineflower	*Chorizanthe xanti var. leucotheca*
Joshua Tree	*Yucca brevifolia*

The following report summarizes the results of botanical surveys on the property in the spring of 2022.

Figure 3. Soils



2 METHODS

2.1 Background Analysis

HES reviewed pertinent plant occurrence records prior to undertaking field surveys. The analysis included a review of records from the following sources:

- A review of collection records from participating herbaria in California available through the Consortium of California Herbaria, 2022;
- Documented rare plant occurrences compiled in the California Natural Diversity Data Base (CNDDB) by the California Department of Fish and Wildlife, 2022;
- A review of documented occurrences of common and rare plants for California in Calflora, 2022;
- Species descriptions from the Jepson Online Interchange, 2022;
- Soils data from the Natural Resources Conservation Service and available from the Web Soil Survey, 2022; and,
- Aerial photographs from Google Earth, ESRI, Digital Globe, GeoEye, US Department of Agriculture, US Geological Survey, i-cubed, Aerogrid and Getmapping.

The biologists compiled the background analysis yielded data in a Geographic Information System (GIS) using ArcGIS Pro. The biologists modified and uploaded these data to ArcGIS online for use with ESRI Field Maps in the field as geographic reference and for collecting field data.

2.2 Field Surveys

A biologist conducted botanical surveys on three non-consecutive days during the 2022 growing season. The biologist conducted the initial survey on 1 May 2022, under clear skies with ambient temperature reaching the low to mid-70s by noon. He conducted subsequent surveys on 7 and 18 May 2022, with temperatures peaking in the low 90's on the 18th.

Rainfall was below average for the period from July 2021 to May 2022 (Table 2).

Table 2. Rainfall average (in inches) for the period of July 2021 to May 2022 and known average rainfall for the same months from 1981 to 2010[1]

Month	Rainfall Measured	Season-To-Date Rainfall	Cumulative Average Rainfall	Departure from Average
July 2021	0	0	0.19	-0.19
August 2021	0	0	0.20	-0.20
September 2021	0	0	0.18	-0.18
October 2021	0	0	0.36	-0.36
November 2021	0	0	0.47	-0.47
December 2021	0	0	1.02	-1.02
January 2022	0	0	0	0
February 2022	0	0	1.22	-1.22
March 2022	0	0	0.88	-0.88
April 2022	0	0	0.35	-0.35
May 2022	0	0	0.14	-0.14

The surveyor noted weather and site conditions and recorded plants detected. Surveyors collected plants not readily identified in the field and keyed them out later. The biologists systematically surveyed the property by walking all accessible portions affording all habitats sufficient coverage to be defensible and properly inventoried. Appendix A is a complete list of plants observed of this report. All plant nomenclature in this report follows Baldwin *et al.* (2012) as updated.

[1] https://www.usclimatedata.com/climate/victorville/california/united-states/usca1197

3 RESULTS

3.1 Preliminary Analysis

The biologist walked parallel transects on the property and along the major roads. Some, but not many annual, plants occur on the property. This is, in part, due to the frequent disturbance by offroad vehicles, but is also likely due to poor rainfall and hotter summers.

The following are descriptions of plants compiled from distribution and biological data used to evaluate the potential presence of the species during the preliminary analysis. Table 3 summarizes the results of this analysis and Figure 4 shows rare plants near the project site.

3.1.1 Beaver Dam Breadroot

Beaver Dam Breadroot is a perennial member of the Pea Family (Fabaceae) that grows in a variety of arid conditions in the deserts of California, Arizona, and Nevada. It has been reported from nearby sites.

3.1.2 Booth's Evening-Primrose

This species occurs in the Mojave Desert in open places, sandy or gravelly slopes, and washes. Populations of this species are known from within or near the Mojave River.

3.1.3 Desert Cymopterus

Desert cymopterus is a perennial of the Carrot Family (Apiaceae). It grows in sandy soils on bajadas dominated by creosote scrub and is endemic to California.

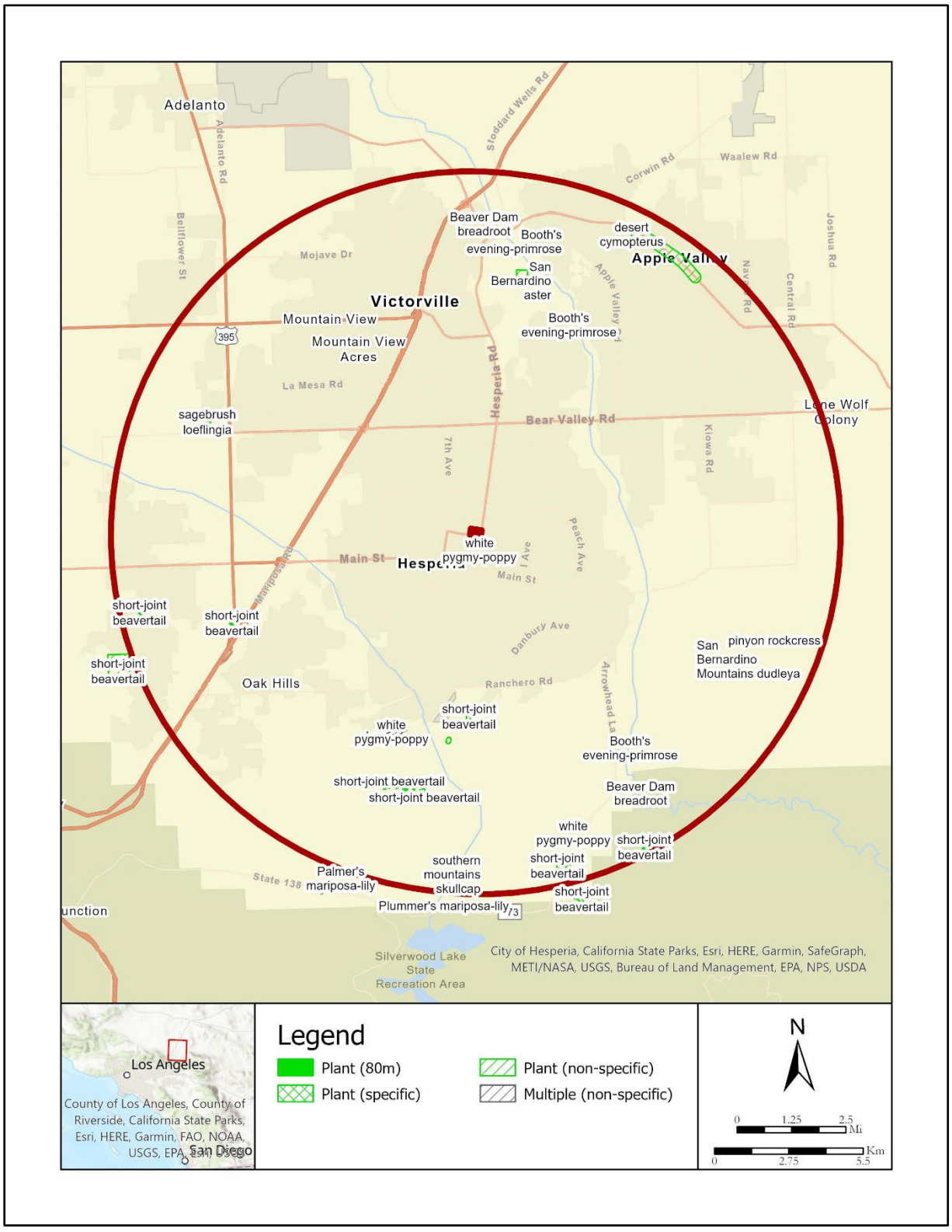
3.1.4 Mojave Tarplant

Peninsular Ranges, San Jacinto Mountains, and at the southwestern edge of the Mojave Desert. This species grows in the Mohave River, just below confluence with Deep Creek, within five miles of the project site.

3.1.5 Palmer's Mariposa-lily

This plant grows in dry, rocky chaparral and yellow-pine forest. Documented occurrences closest to the project are from approximately five miles south of the project site.

Figure 4. Rare Plants within 10 miles of the Project



3.1.6 Pinyon Rockcress

This species occurs on rocky canyon walls and gravelly slopes to 7,000 feet in Joshua tree and pinyon-juniper woodlands and creosote bush scrub. Populations near the project area are in the Cushenbury Springs area and along the north slope of the San Bernardino Mountains. There no canyon walls or gravelly slopes on the project site.

3.1.7 Plummer's Mariposa-lily

Palmer’s mariposa lily occurs in meadows and vernally moist places in yellow-pine forest and chaparral. There are no suitable conditions for this plant on the project site.

3.1.8 Sagebrush Loeflingia

Sagebrush loeflingia occurs in the Great Basin Floristic Province and the Mojave Desert, growing in sandy flats and dunes from 2,300 to 3,930 feet. There are no suitable growing conditions for this species on the property.

3.1.9 San Bernardino Aster

San Bernardino aster occurs in grasslands and disturbed places below 6,700 feet. Collection records indicate the presence of the species from Victorville, Mohave Narrows, and other area within ten (10) miles north of the project site. The project site does not support suitable conditions for this species.

3.1.10 San Bernardino Mountains Dudleya

San Bernardino Mountains dudleya occurs on outcrops of granitic or quartzite and rarely limestone material at elevations above 5,900 feet. It is unlikely to occur within the project site or nearby.

3.1.11 Short-Joint Beavertail

Short-joint beavertail, a variety of the more widespread desert beavertail, occurs in desert scrub, chaparral, and pinyon juniper woodland. It is known from three miles west and south of the project site. Although cactus was found (Photograph 1), no beavertails were found.

3.1.12 Southern Mountains Skullcap

This species occurs in gravelly soils, near stream banks, in oak or pine woodlands. Historic locations include the Mojave River and Victorville. Recent records are from the Silverwood Lake area, at least eight (8) miles south of the project site.

3.1.13 White Pygmy-Poppy

White pygmy-poppy occurs in a variety of habitats with dry sandy ground throughout the Mojave Desert. This species has been recorded close to the project site in the Mohave River located 1.5 miles east of the site.

3.1.14 White-Bracted Spineflower

White-bracted spineflower is an uncommon species of sandy to gravelly places in saltbush scrub and pinyon-juniper woodlands. This species is known from several locations on the north side of the San Bernardino Mountains.

3.1.15 Joshua Tree

Joshua tree is a tall lily that grows in different plant associations, but that is often found with white bursage (*Ambrosia dumosa*). The County of San Bernardino affords this species special protection during projects and California may is evaluating it for protection under the California Endangered Species Act (CESA). This species occurs on the property.

3.1.16 Summary of Rare Plant Findings

Table 3 summarizes potential occurrence of rare plants on the site based on the preliminary, desk-top analysis.

Table 3. Preliminary Analysis Results Summary

Species	**Likelihood of Occurrence**
BEAVER DAM BREADROOT	May Occur
BOOTH'S EVENING-PRIMROSE	Unlikely to Occur
DESERT CYMOPTERUS	Unlikely to Occur
MOJAVE TARPLANT	Unlikely to Occur
PALMER'S MARIPOSA-LILY	Unlikely to Occur
PINYON ROCKCRESS	Unlikely to Occur
PLUMMER'S MARIPOSA-LILY	Unlikely to Occur
SAGEBRUSH LOEFLINGIA	Unlikely to Occur
SAN BERNARDINO ASTER	Unlikely to Occur
SAN BERNARDINO MOUNTAINS DUDLEYA	Unlikely to Occur
SHORT-JOINT BEAVERTAIL	Unlikely to Occur
SOUTHERN MOUNTAINS SKULLCAP	Unlikely to occur
WHITE PYGMY-POPPY	May Occur
WHITE-BRACTED SPINEFLOWER	Unlikely to Occur
JOSHUA TREE	Occurs

4 Results

4.1.1 Vegetation

Vegetation on the property shows signs of previous disturbance, including recent severe disturbance. The dominant vegetation present is a mix of *Larrea tridentata - Ambrosia dumosa* Shrubland Alliance and *Ephedra nevadensis - Lycium andersonii - Grayia spinosa* Shrubland Alliance with remnants of Joshua Tree (*Yucca brevifolia*) and California Juniper (*Juniperus californicus*). Non-native species like mustard (*Brassica* and *Hirschfeldia*), non-native grasses *Bromus diandrus* and *Schismus barbatus*), some landscaping (oleander, tamarisk, tree of heaven, and silk tree) along the western and eastern property edges. Disking is evident throughout that has likely prevented native plant persistence on the site.

4.1.2 Rare Plants

Table 3 summarizes the initial review results for the sensitive plants. Table 4 summarizes the results of the surveys. There are no rare plants on the highly disturbed site.

Table 4. Field Survey Results Summary

Species	Likelihood of Occurrence
BEAVER DAM BREADROOT	May Occur (Survey was conducted in a very low rainfall year)
BOOTH'S EVENING-PRIMROSE	Presumed Absent
DESERT CYMOPTERUS	Presumed Absent
MOJAVE TARPLANT	Presumed Absent
PALMER'S MARIPOSA-LILY	Presumed Absent
PINYON ROCKCRESS	Presumed Absent
PLUMMER'S MARIPOSA-LILY	Presumed Absent
SAGEBRUSH LOEFLINGIA	Presumed Absent
SAN BERNARDINO ASTER	Presumed Absent
SAN BERNARDINO MOUNTAINS DUDLEYA	Presumed Absent
SHORT-JOINT BEAVERTAIL	Presumed Absent
SOUTHERN MOUNTAINS SKULLCAP	Presumed Absent
WHITE PYGMY-POPPY	May Occur (Survey was conducted in a very low rainfall year)
WHITE-BRACTED SPINEFLOWER	Presumed Absent
JOSHUA TREE	Occurs

5.0 REFERENCES

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APPENDIX A

Flora Observed

PLANTS	
Common Name	**Scientific Name**
Ephedra Family	**EPHEDRACEAE**
Mormon Tea	*Ephedra nevadensis*
Juniper Family	**JUNIPERACEAE**
Cheesebush	*Ambrosia salsola*
DICOTS **DICOTYLEDONS**	
Common Name	**Scientific Name**
Sunflower Family	**ASTERACEAE**
Flatspine Ambrosia	*Ambrosia acanthicarpa*
Cheesebush	*Ambrosia salsola*
Interior Goldenbush	*Ericameria cooperii*
Rubber Rabbitbrush	*Ericameria nauseosa* var.*hololeuca*
Sticky Lessingia	*Lessingia glandulifera* var. *glandulifera*
Slender Stephanomeria	*Steohanomeria exigua* var. *exigua*
Longspine Cottonthorn	*Tetradymia axillaris* var. *longispina*

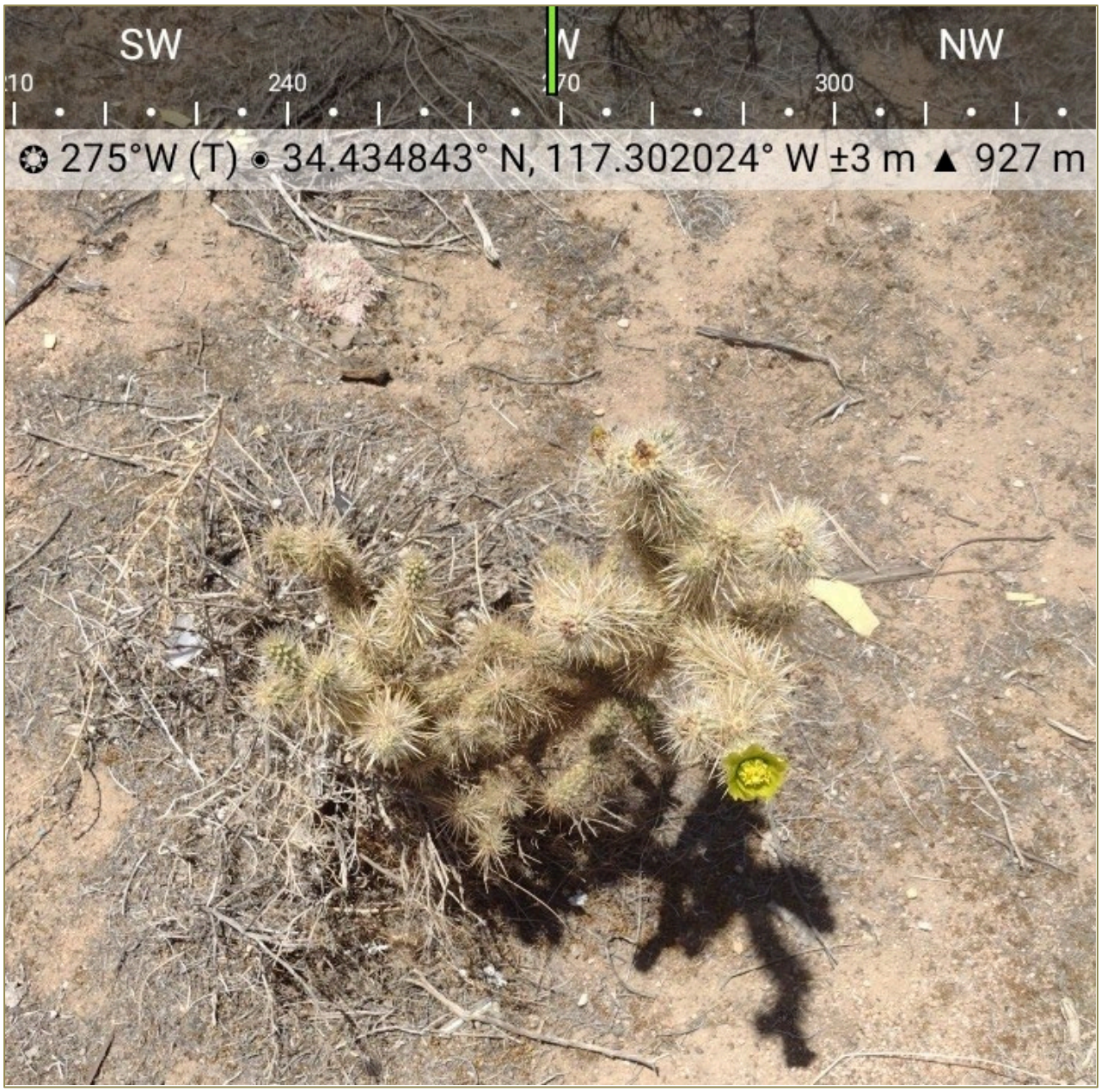
Amaranth Family	**AMARANTHACEAE**
Tumbleweed	*Amaranthus albus*
Borage Family	**BORAGINACEAE**
Fiddleneck	*Amsinckia tessellata*
Wingnut Cryptantha	*Cryptantha pectocarya* var. *pectocarya*
Mustard Family	**BRASSICACEAE**
Short-pod Mustard*	*Hirschfeldia incana*
Goosefoot Family	**CHENOPODIACEAE**
Four-winged Saltbush	*Atriplex canescens*
Winterfat	*Krascheninnikovia lamata*
Spiny Hopsage	*Grayia spinosa*
Russian Thistle*	*Salsola tragus*
Legume Family	**FABACEAE**
Mojave Lupine	*Erodium cicutarium*
Geranium Family	**GERANIACEAE**
Red-stemmed Filaree*	*Erodium cicutarium*
Mint Family	**LAMIACEAE**
Mexican Skullcap	*Scuttelaria mexicana*

Buckwheat Family	**POLYGONACEAE**
California Buckwheat	*Eriogonum fasciculatum* var. *polifolium*
Flat-topped Buckwheat	*Eriogonum plumatella*
Nightshade Family	**SOLANACEAE**
Anderson's Wolfberry	*Lycium andersonii*
Wand Buckwheat	*Eriogonum elongatum* var. *elongatum*
Caltrop Family	**ZYGOPHYLLACEAE**
Creosote	*Larrea tridentata*
MONOCOTS **MONOCOTYLEDONS**	
Lily Family	**LILIACEAE**
Joshua Tree	*Yucca brevifolia*
Grass Family	**POACEAE**
Soft Chess	*Bromus hordaceus*
Cheatgrass*	*Bromus tectorum*
Wall Barley*	*Hordeum murinum*
Mediterranean Grass*	*Schismus barbatus*
Crested Needlegrass	*Stipa coronata*

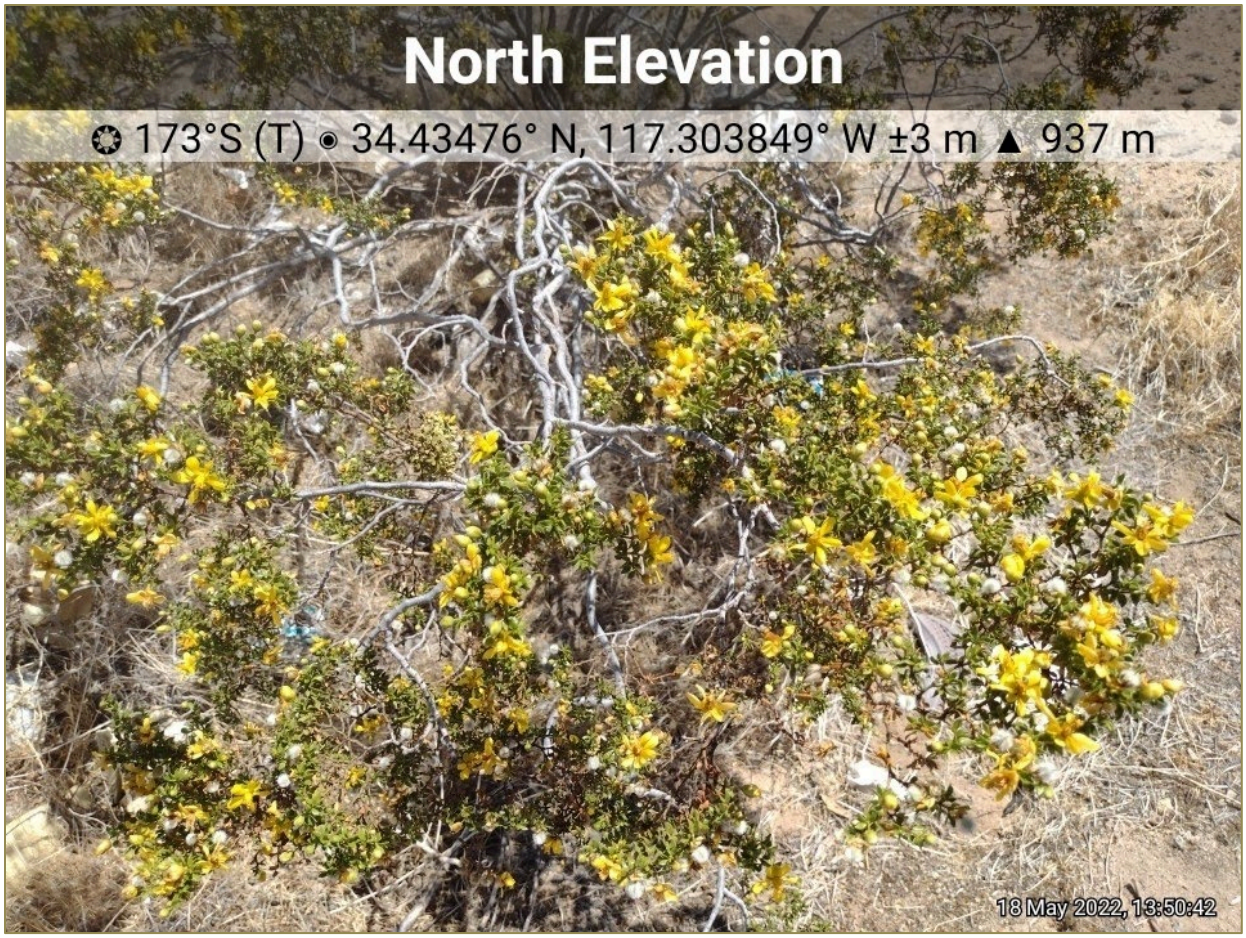
* Asterisk indicates non-native species.

APPENDIX B

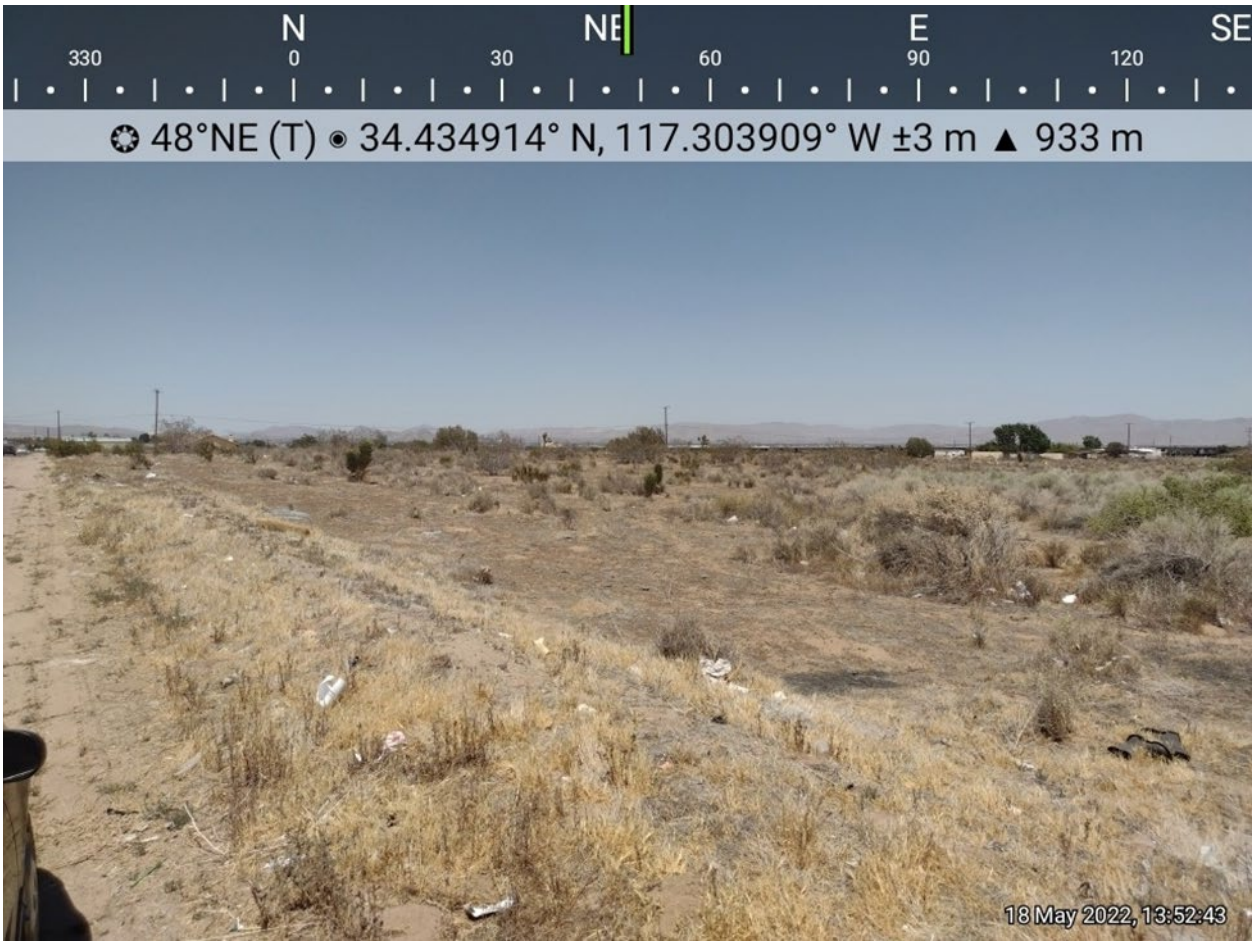
Site Photographs



Photograph 1. Silver cholla (*Opuntia echinocarpa*) was found near the northcentral limits of the parcels.



Photograph 2. Creosote bush (*Larrea tridentata*) was in flower by the last survey in mid-May.



Photograph 3. This northeast-facing view shows the project site's condition. Invasive forbs and grasses are intermixed with native shrubs in low densities.

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Photograph 4. This southeast-facing view shows the willow and cottonwood riparian woodlands in the southern half of the project site. Photograph faces northeast.

Photograph 5. *Juniperus californicus* is a perennial that grows in the southeastern corner of the property adjacent to four-wing saltbush (*Atriplex canescens*). Photograph faces east.