Appendix D

Biological Resources Species Data

ESA

Appendix D Part 1

United States Fish and Wildlife Service Species Data

ESA

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
FEDERAL BUILDING, 2800 COTTAGE WAY, ROOM W-2605
SACRAMENTO, CA 95825
PHONE: (916)414-6600 FAX: (916)414-6713

Consultation Code: 08ESMF00-2015-SLI-0329 April 16, 2015
Event Code: 08ESMF00-2015-E-01705
Project Name: Lincoln Village

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)

of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

The table below outlines lead FWS field offices by county and land ownership/project type. Please refer to this table when you are ready to coordinate (including requests for section 7 consultation) with the field office corresponding to your project, and send any documentation regarding your project to that corresponding office. Therefore, the lead FWS field office may not be the office listed above in the letterhead. Please visit our office's website (http://www.fws.gov/sacramento) to view a map of office jurisdictions.

Lead FWS offices by County and Ownership/Program

County	Ownership/Program	Species	Office Lead*
Alameda	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Alameda	All ownerships but tidal/estuarine	All	SFWO
Alpine	Humboldt Toiyabe National Forest	All	RFWO
Alpine	Lake Tahoe Basin Management Unit	All	RFWO
Alpine	Stanislaus National Forest	All	SFWO
Alpine	El Dorado National Forest	All	SFWO
Colusa	Mendocino National Forest	All	AFWO
Colusa	Other	All	By jurisdiction (see map)
Contra Costa	Legal Delta (Excluding ECCHCP)	All	BDFWO
Contra Costa	Antioch Dunes NWR	All	BDFWO
Contra Costa	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Contra Costa	All ownerships but tidal/estuarine	All	SFWO

El Dorado	El Dorado National Forest	All	SFWO
El Dorado	LakeTahoe Basin Management Unit		RFWO
Glenn	Mendocino National Forest	All	AFWO
Glenn	Other	All	By jurisdiction (see map)
Lake	Mendocino National Forest	All	AFWO
Lake	Other	All	By jurisdiction (see map)
Lassen	Modoc National Forest	All	KFWO
Lassen	Lassen National Forest	All	SFWO
Lassen	Toiyabe National Forest	All	RFWO
Lassen	BLM Surprise and Eagle Lake Resource Areas	All	RFWO
Lassen	BLM Alturas Resource Area	All	KFWO
Lassen	Lassen Volcanic National Park	All (includes Eagle Lake trout on all ownerships)	SFWO
Lassen	All other ownerships	All	By jurisdiction (see map)

Marin	Tidal wetlands/marsh adjacent to Bays	Salt marsh species, delta smelt	BDFWO
Marin	All ownerships but tidal/estuarine	All	SFWO
Mendocino	Russian River watershed	All	SFWO
Mendocino	All except Russian River watershed	All	AFWO
Napa	All ownerships but tidal/estuarine	All	SFWO
Napa	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Nevada	Humboldt Toiyabe National Forest	All	RFWO
Nevada	All other ownerships	All	By jurisdiction (See map)
Placer	Lake Tahoe Basin Management Unit	All	RFWO
Placer	All other ownerships	All	SFWO
Sacramento	Legal Delta	Delta Smelt	BDFWO
Sacramento	Other	All	By jurisdiction (see map)
San Francisco	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO

San Francisco	All ownerships but tidal/estuarine	All	SFWO
San Mateo	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
San Mateo	All ownerships but tidal/estuarine	All	SFWO
San Joaquin	Legal Delta excluding San Joaquin HCP	All	BDFWO
San Joaquin	Other	All	SFWO
Santa Clara	Tidal wetlands/marsh adjacent to San Francisco Bay	Salt marsh species, delta smelt	BDFWO
Santa Clara	All ownerships but tidal/estuarine	All	SFWO
Shasta	Shasta Trinity National Forest except Hat Creek Ranger District (administered by Lassen National Forest)	All	YFWO
Shasta	Hat Creek Ranger District	All	SFWO
Shasta	Bureau of Reclamation (Central Valley Project)	All	BDFWO
Shasta	Whiskeytown National Recreation Area	All	YFWO
Shasta	BLM Alturas Resource Area	All	KFWO

Shasta	Caltrans	By jurisdiction	SFWO/AFWO
Shasta	Ahjumawi Lava Springs State Park	Shasta crayfish	SFWO
Shasta	All other ownerships	All	By jurisdiction (see map)
Shasta	Natural Resource Damage Assessment, all lands	All	SFWO/BDFWO
Sierra	Humboldt Toiyabe National Forest	All	RFWO
Sierra	All other ownerships	All	SFWO
Solano	Suisun Marsh	All	BDFWO
Solano	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Solano	All ownerships but tidal/estuarine	All	SFWO
Solano	Other	All	By jurisdiction (see map)
Sonoma	Tidal wetlands/marsh adjacent to San Pablo Bay	Salt marsh species, delta smelt	BDFWO
Sonoma	All ownerships but tidal/estuarine	All	SFWO
Tehama	Mendocino National Forest	All	AFWO
	Shasta Trinity National Forest		

Tehama	except Hat Creek Ranger District (administered by Lassen National Forest)	All	YFWO
Tehama	All other ownerships	All	By jurisdiction (see map)
Yolo	Yolo Bypass	All	BDFWO
Yolo	Other	All	By jurisdiction (see map)
All	FERC-ESA	All	By jurisdiction (see map)
All	FERC-ESA	Shasta crayfish	SFWO
All	FERC-Relicensing (non-ESA)	All	BDFWO
***Office Leads:**			
AFWO=Arcata Fish and Wildlife Office			
BDFWO=Bay Delta Fish and Wildlife Office			
KFWO=Klamath Falls Fish and Wildlife Office			
RFWO=Reno Fish and Wildlife Office			
YFWO=Yreka Fish and Wildlife Office			

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: Lincoln Village

Official Species List

Provided by:

Sacramento Fish and Wildlife Office
FEDERAL BUILDING
2800 COTTAGE WAY, ROOM W-2605
SACRAMENTO, CA 95825
(916) 414-6600

Consultation Code: 08ESMF00-2015-SLI-0329
Event Code: 08ESMF00-2015-E-01705

Project Type: Development

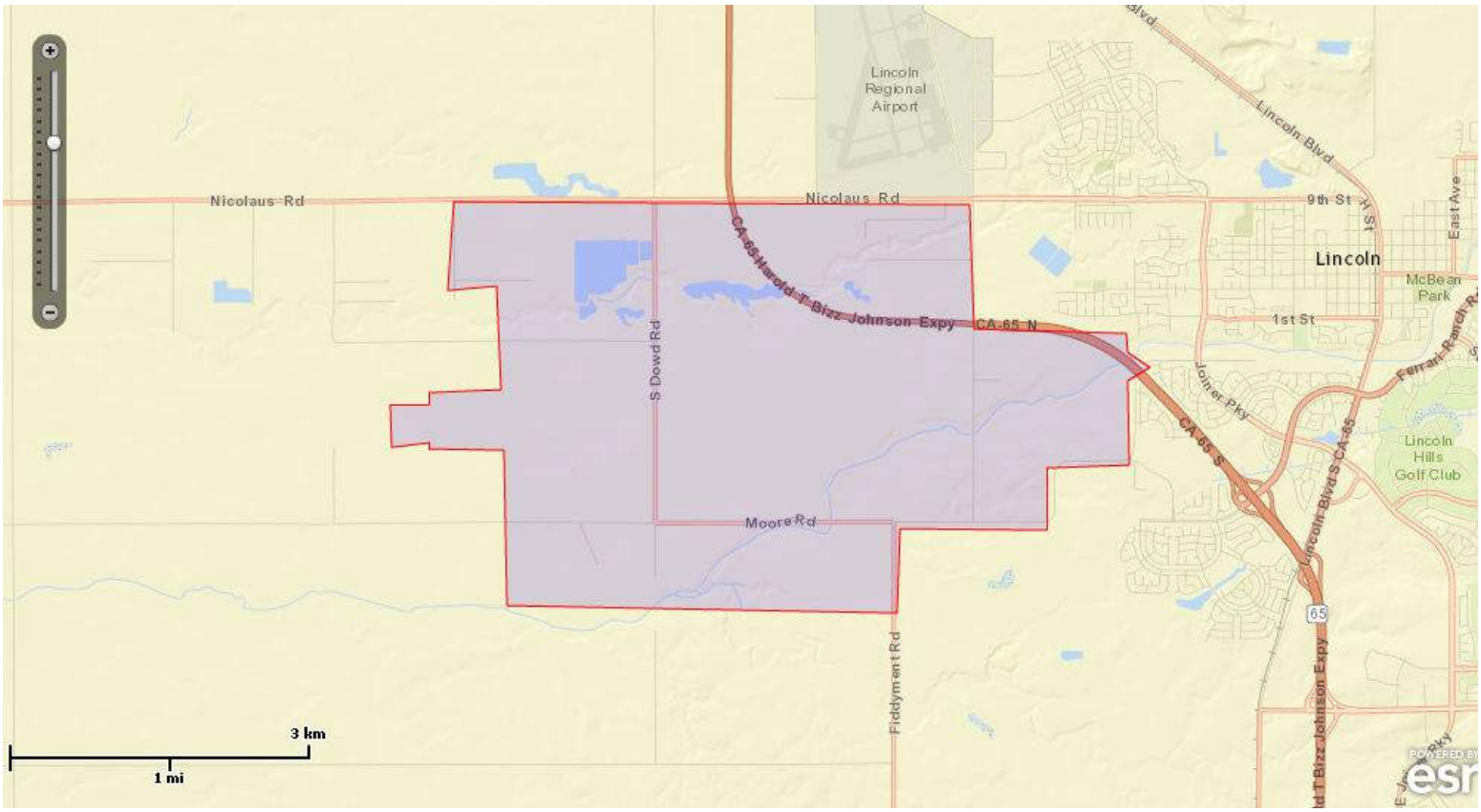
Project Name: Lincoln Village
Project Description: Implementation of the Lincoln Village 5 Specific Plan

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

United States Department of Interior
Fish and Wildlife Service

Project name: Lincoln Village

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-121.4003413 38.8970072, -121.3404315 38.89674, -121.3399165 38.8855167, -121.3222354 38.8851158, -121.3220637 38.8833787, -121.3194888 38.8820491, -121.3220637 38.8808464, -121.3218921 38.8732291, -121.3315051 38.8729618, -121.3315051 38.8673485, -121.3484996 38.8674822, -121.3488429 38.8598634, -121.3941615 38.860525, -121.3945048 38.8745655, -121.4032596 38.8746925, -121.4032596 38.8752271, -121.4075511 38.8748261, -121.4077142 38.8787083, -121.403251 38.8787083, -121.4032596 38.8797707, -121.3948396 38.8800447, -121.3953546 38.8893983, -121.401028 38.8889907, -121.4003413 38.8970072)))

Project Counties: Placer, CA

United States Department of Interior
Fish and Wildlife Service

Project name: Lincoln Village

Endangered Species Act Species List

There are a total of 9 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	**Status**	**Has Critical Habitat**	**Condition(s)**
California red-legged frog *(Rana draytonii)* Population: Entire	Threatened	Final designated	
Birds			
Yellow-Billed Cuckoo *(Coccyzus americanus)* Population: Western U.S. DPS	Threatened	Proposed	
Crustaceans			
Conservancy fairy shrimp *(Branchinecta conservatio)* Population: Entire	Endangered	Final designated	
Vernal Pool fairy shrimp *(Branchinecta lynchi)* Population: Entire	Threatened	Final designated	
Vernal Pool tadpole shrimp *(Lepidurus packardi)* Population: Entire	Endangered	Final designated	
Fishes			

Delta smelt *(Hypomesus transpacificus)* Population: Entire	Threatened	Final designated	
steelhead *(Oncorhynchus (=salmo) mykiss)* Population: Northern California DPS	Threatened	Final designated	
Insects			
Valley Elderberry Longhorn beetle *(Desmocerus californicus dimorphus)* Population: Entire	Threatened	Final designated	
Reptiles			
Giant Garter snake *(Thamnophis gigas)* Population: Entire	Threatened		

Critical habitats that lie within your project area

The following critical habitats lie fully or partially within your project area.

Crustaceans	Critical Habitat Type
Vernal Pool fairy shrimp *(Branchinecta lynchi)* Population: Entire	Final designated

Appendix D Part 2

California Department of Fish and Wildlife Natural Diversity Database

ESA

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (Lincoln (3812183) or Roseville (3812173) or Pleasant Grove (3812174) or Sheridan (3812184))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Endangered	G2G3	S1S2	SSC
Alkali Meadow Alkali Meadow	CTT45310CA	None	None	G3	S2.1	
Alkali Seep Alkali Seep	CTT45320CA	None	None	G3	S2.1	
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S2	SSC
Andrena subapasta an andrenid bee	IIHYM35210	None	None	G1G2	S1S2	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Balsamorhiza macrolepis big-scale balsamroot	PDAST11061	None	None	G2	S2	1B.2
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G1	S1	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S2S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Chloropyron molle ssp. hispidum hispid salty bird's-beak	PDSCR0J0D1	None	None	G2T2	S2	1B.1
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	PMJUN011L2	None	None	G2T2	S2	1B.1
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S2S3	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Navarretia myersii ssp. myersii pincushion navarretia	PDPLM0C0X1	None	None	G1T1	S1	1B.1
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Northern Volcanic Mud Flow Vernal Pool Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	G1	S1.1	
Oncorhynchus mykiss irideus steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC

Record Count: 29

Appendix D Part 3

California Native Plant Society Rare and Endangered Plant Inventory

ESA

CNPS California Native Plant Rare and Endangered Plant Inventory

Plant List

5 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 38121H3

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	1B.2	S2	G2
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2	S2	G2
Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	annual herb	1B.2	S1	G2T1
Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	annual herb	1B.1	S1	G1T1

Suggested Citation

CNPS, Rare Plant Program. 2015. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 16 April 2015].

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The California Lichen Society

CNPS California Native Plant Rare and Endangered Plant Inventory

Plant List

2 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 38121G4

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2	S2	G2

Suggested Citation

CNPS, Rare Plant Program. 2015. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 16 April 2015].

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CNPS California Native Plant Rare and Endangered Plant Inventory

Plant List

7 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 38121G3

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	1B.2	S2	G2
Chloropyron molle ssp. hispidum	hispid bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.1	S2	G2T2
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2	S2	G2
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	Juncaceae	annual herb	1B.1	S2	G2T2
Legenere limosa	legenere	Campanulaceae	annual herb	1B.1	S2	G2
Navarretia nigelliformis ssp. nigelliformis	adobe navarretia	Polemoniaceae	annual herb	4.2	S3	G4T3

Suggested Citation

CNPS, Rare Plant Program. 2015. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 16 April 2015].

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CNPS California Native Plant Rare and Endangered Plant Inventory

Plant List

1 matches found. *Click on scientific name for details*

Search Criteria

Found in Quad 38121H4

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU

Suggested Citation

CNPS, Rare Plant Program. 2015. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 16 April 2015].

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Appendix D Part 4

Arborist Report and Native Oak Inventory for Moore Road Property

ESA

Arborist Report and Native Oak Inventory

Moore Road Property

March 2, 2015

Cardno
Shaping the Future

Document Information

Prepared for	Praxis Properties
Project Name	Moore Road Property
Project Manager	Shannon Karvonen
Date	March 2, 2015

Prepared for:
Praxis Properties
5701 Lonetree Blvd, Suite 102, Rocklin, CA 95765

Prepared by:

Cardno
Shaping the Future

Cardno Inc.
701 University Ave Suite 200, Sacramento, CA 95825

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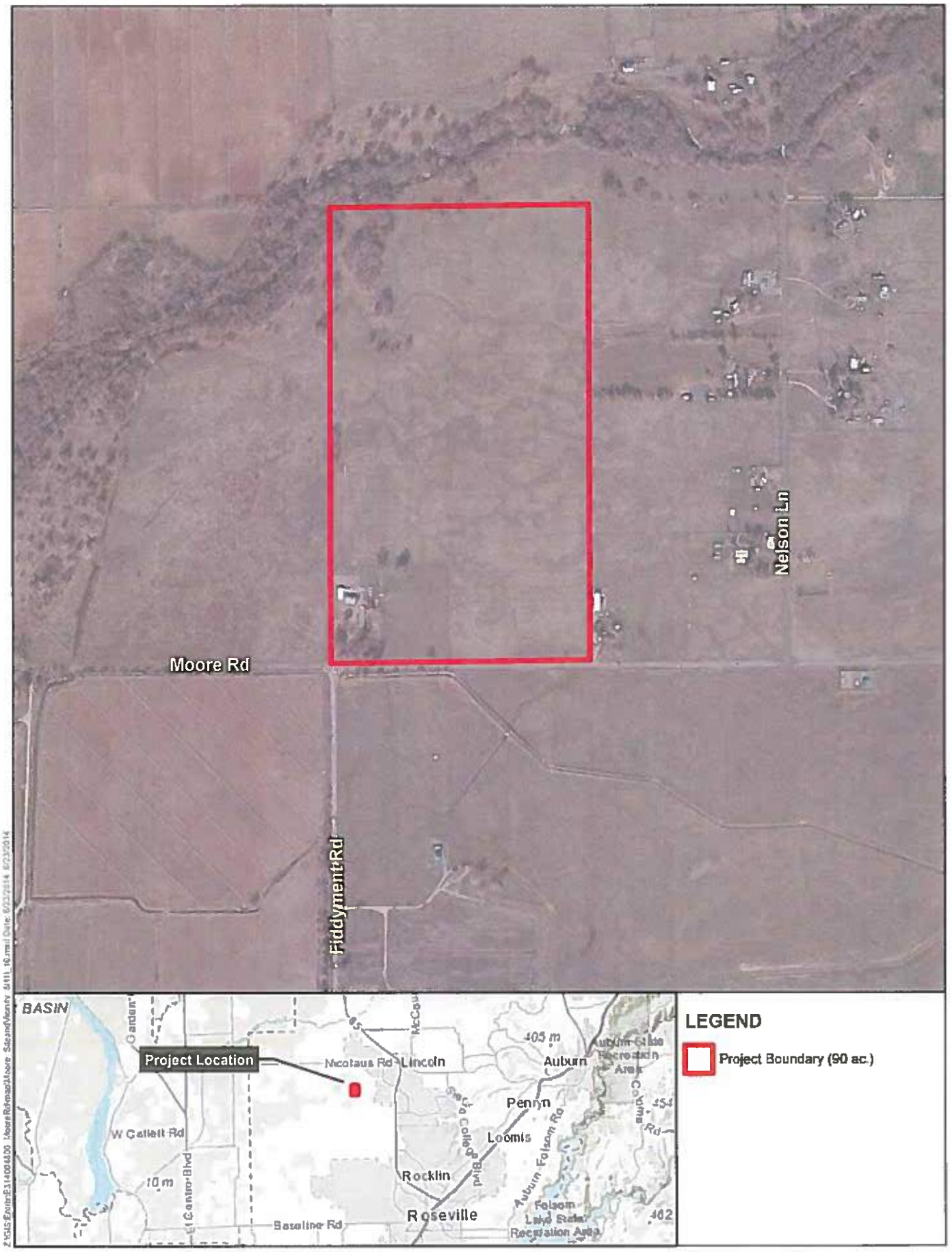
1 Introduction

1.1 Introduction

This Arborist Report and Native Oak Tree Inventory documents the results of an arborist survey conducted on the Moore Road Property Project in the City of Lincoln, within Placer County, California (Figure 1). The survey was performed on January 21, 2015 and February 4, 2015 by Cardno Biologist and International Society of Arboriculture (ISA) Certified Arborist Sam Bacchini (WE-10428A), Staff Scientist Tera Omer, and Assistant Staff Scientist Alexandra Topor. The purpose of the survey was to identify species, location, and current condition of trees within the Moore Road Property Project (Study Area), and to provide tree care recommendations, if warranted.

1.2 Arborist's Disclaimer

Trees are important living organisms that, as part of the natural and built environments, provide countless biological and aesthetic benefits. Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and to attempt to reduce the risk of living near trees. Arborists cannot detect every condition that could possibly lead to structural failure of a tree or anticipate all environmental factors that could contribute to failure; as a living organism, a tree's condition may change at any time. Though trees can be managed, they cannot be controlled. This report does not include an assessment of the potential for branch falls or tree falls, although a recommendation for tree removal might be made where trees appear to be in imminent risk of failure. This report is solely intended for the purpose of 1) guiding mitigation requirements for oak trees that are proposed for removal and 2) summarizing damage avoidance/minimization measures for construction activities near trees.



MOORE ROAD

Figure 1

Site and Vicinity

Cardno ENTRIX

N

0 1,000 2,000

Scale in Feet

2 Methodology

2.1 Survey Methods

An arborist survey was performed on January 21, 2015 and February 4, 2015, and consisted of walking the property and identifying trees greater than 6 inches in diameter at breast height (dbh; 4.5 feet above ground level), or greater than 10 inches aggregate dbh for trees with multiple trunks. In accordance with the City of Lincoln's Guidelines for Development around Oak Trees, the following data was collected: species, dbh, approximate height, approximate canopy width, general health condition, and any other characteristics of note. Conditions were determined based on the following scale: poor, fair to poor, fair, fair to good, good, and excellent.

A pre-printed, numbered metal tree tag was affixed to the north side, where possible, of each surveyed tree using a nail and hammer, except where tree tags existed from a previous arborist survey. For reference, trees discussed in this report are identified by the corresponding tag number affixed to the tree in the field. Tree locations were recorded by a survey crew following the arborist survey and have been plotted on a map of the property. Tree locations were recorded by a handheld Trimble Geo 6000 XT (2012 Series) Global Positioning System (GPS) unit capable of sub-meter accuracy and plotted onto a map of the Study Area.

2.2 Regulatory Background

Several laws and regulations at the State, County, and City level govern development around trees. For the purposes of this report, the property will be evaluated using the City of Lincoln regulations.

2.2.1 City of Lincoln Guidelines

The City of Lincoln Guidelines for Development around Oak Trees (the "Guidelines") state that the applicant for any project falling within the scope of the Guidelines (i.e. rezone, parcel map, development permit, subdivision map, conditional use permit, and/or Design Review Board approval or variance) will provide the Design Review Board with:

> "A tree survey with the accurate location, number, size, diameter (measured four and one- half feet above ground), approximate height, and approximate canopy diameter of all oak trees on the project."

The Guidelines state that the survey must be part of the total development plan and must identify any tree or trees which could be affected by proposed development. The Guidelines define a "tree" as "any living oak tree having at least one trunk of six inches or more in diameter measured at four and one-half above ground, or a multi-trunked oak tree having an aggregate diameter of ten inches or more, measured at four and one-half feet above ground."

3 Results

The trees onsite were primarily confined to the margins of fields, a residential lot, and the riparian area in the northwest corner of the Study Area.

A total of 126 oak trees were surveyed during the field visits. All the surveyed oak trees were valley oak (*Quercus lobata*). Other tree species observed in the Study Area include blue gum eucalyptus (*Eucalyptus globulus*), white mulberry (*Morus alba*), silktree (*Albizia julibrissin*), American plum (*Prunus americana*), olive (*Olea europaea*), elm species (*Ulmus* sp.), and an almond species (*Prunus* sp.).

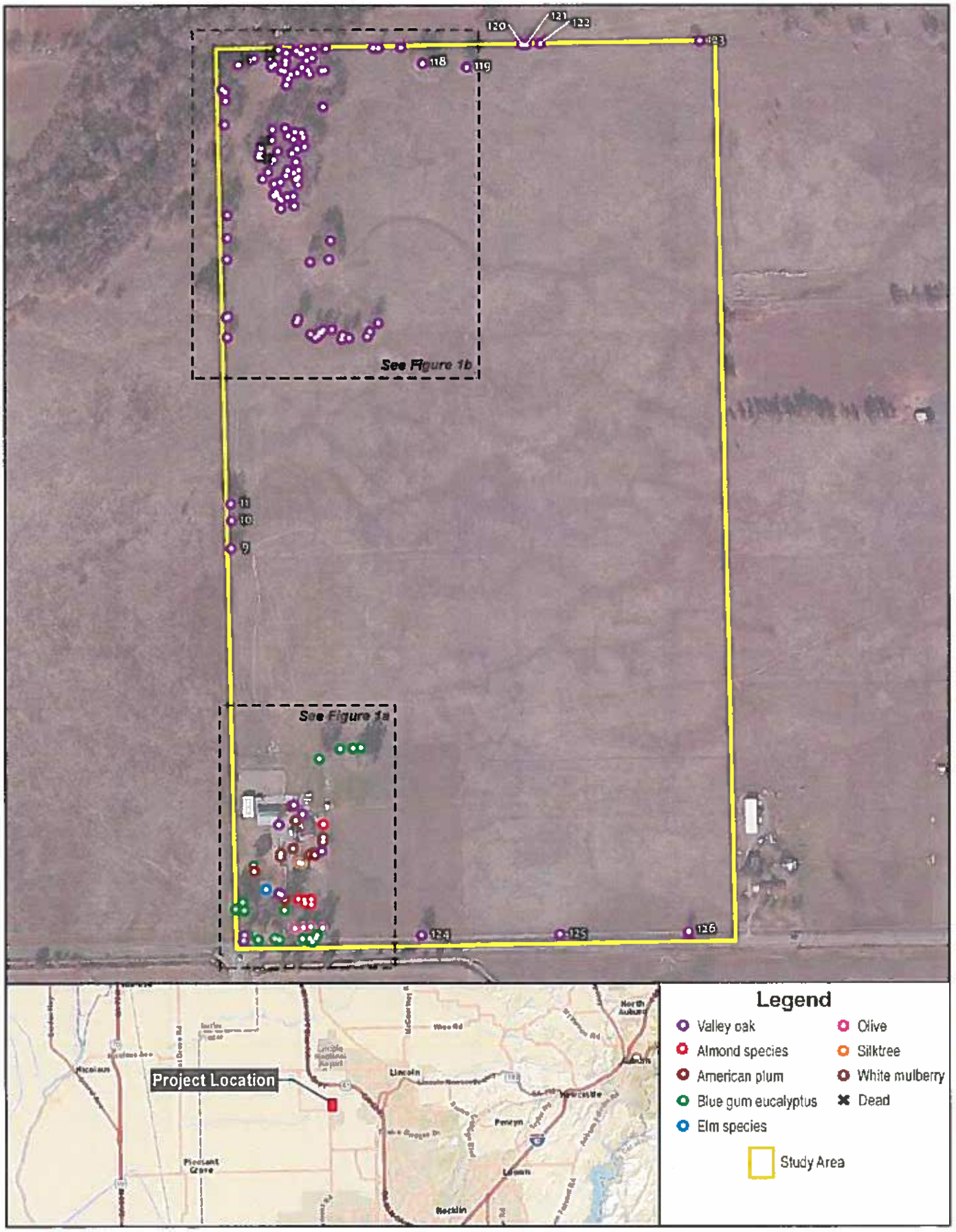
Table 1 below summarizes the occurrence and condition rating of all oak trees observed within the Study Area.

Table 1 Condition Ratings and Frequency of Occurrence of Oak Trees within the Study Area*

Scientific Name**	Common Name	Condition Rating						Number of Trees
		Poor	Poor-Fair	Fair	Fair-Good	Good	Excellent	
Quercus lobata **	Valley oak	5	38	72	7	4	0	126
							Total	**126**

*Only trees with single trunk dbh greater than 6 inches or multi-trunk dbh greater than 10 inches are included in this table.
**Native species.

Figure 2 shows the locations of the trees based on the GPS data collected at the base of each tree. The tree numbers are consistent with the tree tags located on each tree.



Cardno

N

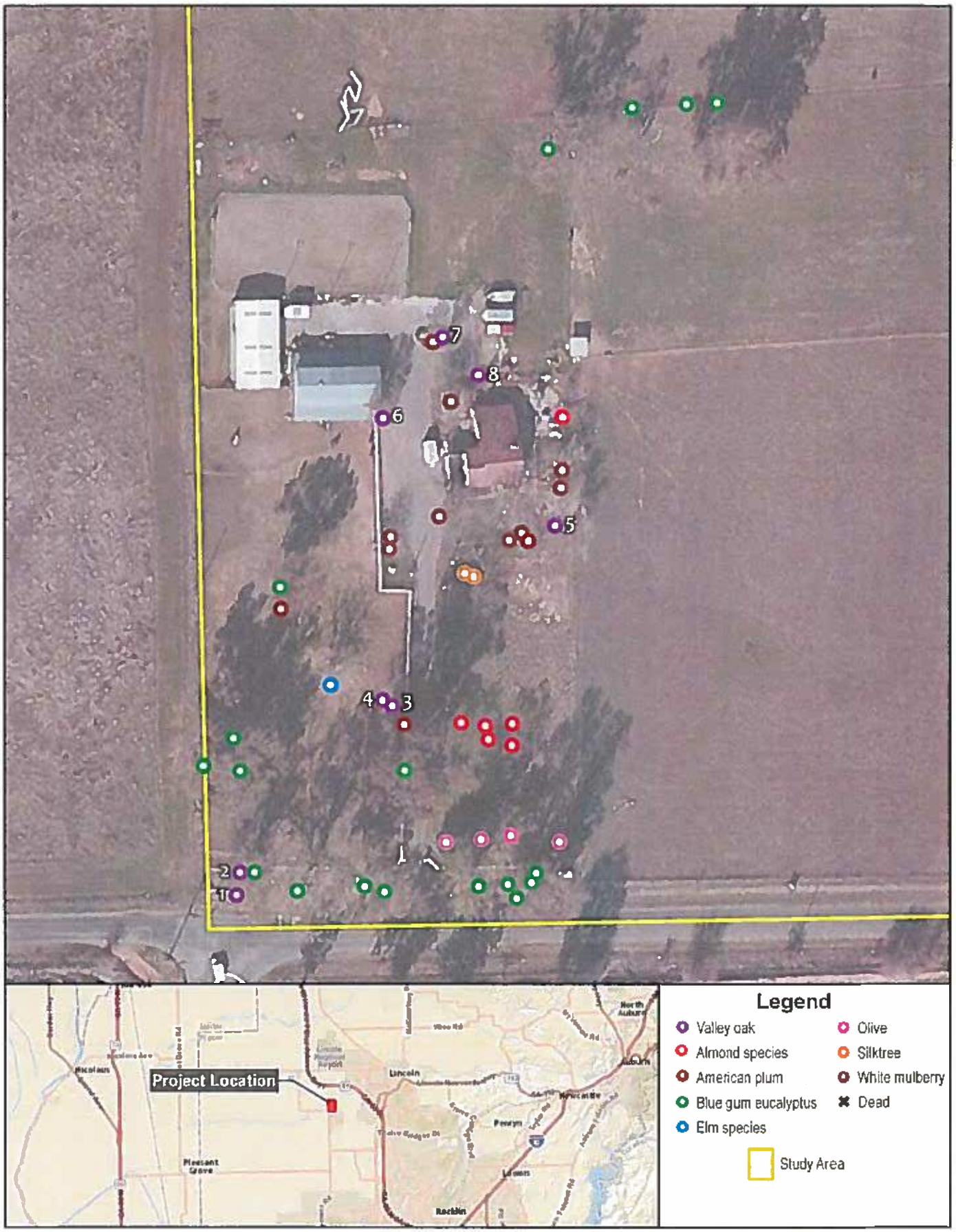
0 300 600

Scale in Feet

MOORE ROAD

Figure 2a

Tree Survey



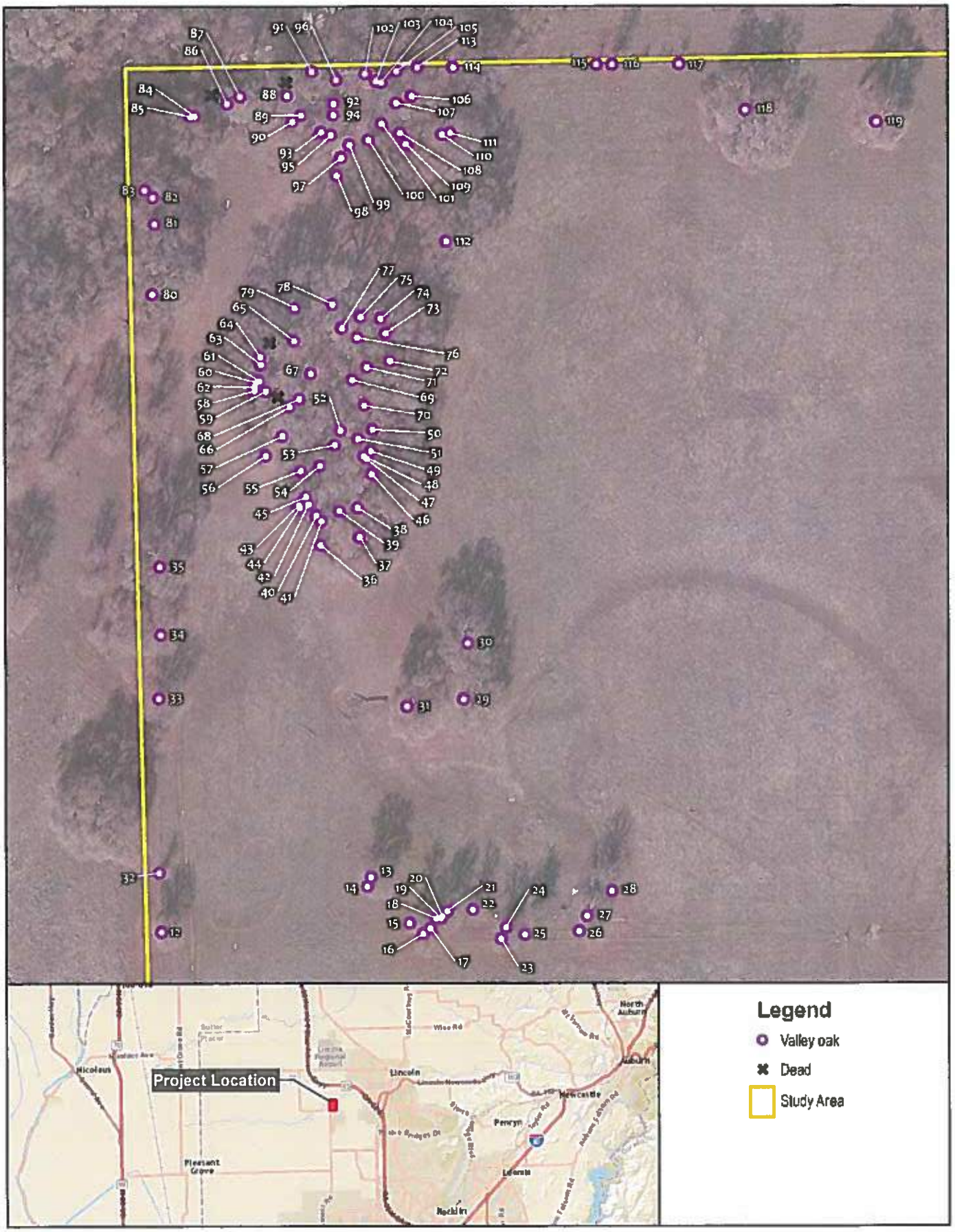
Cardno
Shaping the Future

N

0 50 100 150
Scale in Feet

MOORE ROAD

Figure 2b
Tree Survey



Cardno

N

0 50 100 150 200

Scale in Feet

MOORE ROAD

Figure 2c

Tree Survey

4 Discussion and Recommendations

Before evaluating potential impacts that may occur during development, it is important to consider the quality of tree resources and the potential for individual trees to function well over an extended length of time. In general, trees slated for preservation on development sites must be carefully selected to ensure they survive development impacts, adapt to a new environment, and perform well in the landscape. Therefore, evaluation of suitability for preservation takes into account the following factors:

1. Tree health – healthy, vigorous trees are better able to tolerate impacts such as soil compaction, root injury, and soil grade and moisture changes.
2. Species – there is a wide variation in the response of individual tree species to construction impacts. Additionally, each species has a different longevity and some trees respond better to impacts when young versus mature.
3. Structural integrity – trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees are unsuitable for preservation in areas where people or property are potentially affected by falling branches or trees.

The majority of trees were in fair to good and good condition, and many are suitable for preservation onsite.

Native oak trees are an important aspect of the natural environment in the Lincoln area. Thus, the City of Lincoln affords special protection to native oak trees during the planning and implementation of development projects. Additionally, mitigation of removed and/or damaged oaks may also be required by the City of Lincoln.

The following sections provide preservation measures, specific recommendations, and potential oak tree mitigation measures that may be applicable.

4.1 General Preservation Measures

The goal of tree preservation is not merely tree survival during development, but maintenance of tree health and beauty for many years. The following recommendations will help ensure trees slated for preservation will remain healthy and viable in the landscape:

1. No grading, excavation, construction or storage of materials shall occur within the Tree Protection Zone, which is defined as a circle equal to the dripline plus 1 foot. Any modifications must be approved by a Certified Arborist.
2. No underground services including utilities, sub-drains, water or sewer shall be placed in the Tree Protection Zone unless approved by a Certified Arborist.
3. Any herbicides utilized must be safe for use around trees and labeled for that use.
4. Irrigation systems must be designed so that no trenching will occur within the Tree Protection Zone.
5. Any root pruning required for construction purposes shall receive the prior approval, and be supervised by, a Certified Arborist.
6. Any additional tree pruning needed for clearance during construction must be approved by a Certified Arborist.

If injury should occur to any tree during construction, it should be evaluated as soon as possible by a Certified Arborist so that appropriate treatments can be applied.

4.2 Specific Recommendations

The majority of trees were in fair and fair to good condition. Five trees are in poor condition and removal is recommended. These include tree tag numbers 65, 97, 98, 104, and 105. It is recommended these trees be removed to prevent potential hazards to humans unless they will be retained as part of the planned open space. If this is the case, these snags and other trees could be retained as valuable wildlife habitat.

Other recommendations include minor thinning of canopy growth and removal of deadwood; refer to the attached data table in Appendix A for specific notes and recommendations on each individual tree documented during the survey.

4.3 Oak Tree Restoration/Replacement

Oak trees in good condition that are removed or irrevocably harmed during construction activities may require replacement, in-kind, of oak trees and/or payment into the City of Lincoln's tree mitigation fund.

5 Definitions and References

5.1 Definitions

Dbh – Diameter at breast height. This corresponds to the trunk diameter measured approximately 4.5 feet above ground level.

Certified Arborist – an individual deemed qualified as a tree specialist based on education, knowledge, and experience by the International Society of Arboriculture.

Dripline – the extent of the tree's canopy.

Tree Protection Zone – a circle equal to the dripline plus 1 foot.

Trunk – assessment of the tree's main trunk from ground level generally to the point of the primary crotch structure.

Limbs – assessment of both smaller and larger branching, generally from primary crotch structure to branch.

Foliage – tree's leaves

Overall condition – describes overall condition of the tree in terms of structure and vigor. Includes ratings that range from Poor to Excellent. Ratings of excellent condition are rarely given.

5.2 References

City of Lincoln 2050 General Plan adopted March 2008.

City of Lincoln Zoning Ordinance.

City of Lincoln Guidelines for Developing Around Oak Trees

Moore Road Property

APPENDIX A

ARBORIST SURVEY DATA

Tag #	Species	DBH (inches)	Height (feet)	Canopy Width (feet)	Condition*	Notes/Recommendations
1	Quercus lobata	8	30	15	P/F	Major Dieback, Included bark, Bark Damage, Embedded fence
2	Quercus lobata	14	40	30	F	Minor Dieback, Minor Limb Death, Included bark, Slight Lean
3	Quercus lobata	6	25	10	F	Minor Dieback, Included bark, Broken Branch
4	Quercus lobata	9.5	30	20	P/F	Minor Limb Death, Included bark, Slight Lean
5	Quercus lobata	15.5	40	35	P/F	Minor Dieback, Included bark, Slight Lean, Fissures
6	Quercus lobata	17	60	45	F	Minor Dieback, Included bark, Canker, Open oozing wound
7	Quercus lobata	10	40	25	F	Minor Dieback, Included bark, Canker
8	Quercus lobata	5 + 5 + 3 + 3 + 2	35	20	P/F	Major Dieback, Minor Limb Death, Included bark, Leader death, Embedded fence
9	Quercus lobata	35	70	65	F	Major Dieback, Major Limb Death, Included bark, Embedded fence
10	Quercus lobata	36	70	70	F	Major Dieback, Minor Limb Death, Included bark, Bark Rot, Burl, Embedded fence
11	Quercus lobata	35	75	70	F	Minor Dieback, Minor Limb Death, Included bark, Slight Lean, Poison Oak
12	Quercus lobata	19 + 13	50	45	P/F	Minor Dieback, Minor Limb Death, Included bark, Fissures, Embedded fence
13	Quercus lobata	23	60	50	F	Major Dieback, Minor Limb Death, Included bark
14	Quercus lobata	12	40	25	P/F	Major Dieback, Minor Limb Death, Included bark, Slight Lean
15	Quercus lobata	18.5	65	40	P/F	Major Dieback, Major Limb Death, Included bark, Broken Branch
16	Quercus lobata	19.5	65	50	P/F	Major Dieback, Major Limb Death, Included bark, Bark Rot, Broken Branch
17	Quercus lobata	8.5	50	30	P/F	Major Dieback, Major Limb Death, Slight Lean, Broken Branch
18	Quercus lobata	10	65	55	P/F	Major Dieback, Major Limb Death, Broken Branch, Embedded fence
19	Quercus lobata	10 + 5	55	35	P/F	Major Dieback, Major Limb Death, Included bark, Embedded fence
20	Quercus lobata	6	25	15	P/F	Major Dieback, Severe Lean
21	Quercus lobata	13	50	45	P/F	Major Dieback, Major Limb Death, Included bark, Slight Lean,

Tag #	Species	DBH (inches)	Height (feet)	Canopy Width (feet)	Condition*	Notes/Recommendations
						Embedded fence
22	Quercus lobata	16.5	60	40	F	Major Dieback, Minor Limb Death, Included bark, Exposed roots
23	Quercus lobata	10	35	35	P/F	Minor Dieback, Minor Limb Death, Severe Lean
24	Quercus lobata	20.5	60	50	F	Minor Dieback, Minor Limb Death, Included bark, Bark Rot
25	Quercus lobata	28	60	40	F	Major Dieback, Included bark, Bark Damage, Excessive galls
26	Quercus lobata	16	50	40	F	Minor Dieback, Minor Limb Death, Included bark, Bark Damage
27	Quercus lobata	23	55	45	F	Major Dieback, Minor Limb Death, Included bark, Exposed roots, Fissures
28	Quercus lobata	25	55	45	F	Minor Dieback, Included bark
29	Quercus lobata	37.5	45	40	F	Minor Dieback, Minor Limb Death, Bark Damage, Burl, Woodpecker damage
30	Quercus lobata	29.5 + 38	55	50	F	Minor Dieback, Minor Limb Death, Included bark, Bark Damage, Exposed roots, Embedded fence
31	Quercus lobata	47.5	50	50	F/G	Minor Dieback, Minor Limb Death, Included bark, Bark Damage, Burl, Exposed roots, Nest in canopy
32	Quercus lobata	10.5	25	20	F	Minor Dieback, Minor Limb Death, Embedded fence
33	Quercus lobata	7 + 18.5 + 19	35	30	P/F	Major Dieback, Minor Limb Death, Included bark, Bark Damage, Bark Rot, Embedded fence, Poison Oak
34	Quercus lobata	17	35	30	F	Minor Dieback, Minor Limb Death, Included bark, Slight Lean, Broken Branch, Fissures, Embedded fence
35	Quercus lobata	54	60	60	G	Minor Dieback, Minor Limb Death, Included bark, Bark Damage, Broken Branch, Burl
36	Quercus lobata	29.5	50	45	F	Minor Dieback, Included bark, Exposed roots, Fissures
37	Quercus lobata	34	55	50	F	Minor Dieback, Included bark, Slight Lean, Broken Branch
38	Quercus lobata	35	60	45	F	Minor Dieback, Minor Limb Death, Sparse Canopy, Slight Lean, Bark Damage, Exposed roots, Nest in canopy
39	Quercus lobata	21.5	40	40	F	Minor Dieback, Minor Limb Death, Sparse Canopy, Bark Damage, Broken Branch, Fissures
40	Quercus lobata	17	30	35	P/F	Minor Dieback, Minor Limb Death, Included bark, Severe Lean, Bark Damage, Bark Rot, Fissures
41	Quercus lobata	32.5	50	40	F	Minor Dieback, Included bark, Slight Lean, Bark Damage,

Tag #	Species	DBH (inches)	Height (feet)	Canopy Width (feet)	Condition*	Notes/Recommendations
						Broken Branch
42	Quercus lobata	27	50	45	F	Slight Lean, Bark Damage, Bark Rot, Broken Branch
43	Quercus lobata	11.5	30	25	F	Minor Dieback, Minor Limb Death, Bark Damage, Broken Branch, Burl, Fissures
44	Quercus lobata	12	40	35	F	Minor Dieback, Minor Limb Death, Slight Lean, Bark Damage, Broken Branch, Open oozing wound
45	Quercus lobata	13	40	30	F	Minor Dieback, Minor Limb Death, Bark Damage, Broken Branch, Fissures
46	Quercus lobata	20.5	35	30	F	Minor Dieback, Included bark, Slight Lean, Bark Damage, Rot In Branch, Broken Branch
47	Quercus lobata	31	50	50	F	Minor Dieback, Minor Limb Death, Included bark, Severe Lean, Bark Damage, Rot In Branch, Broken Branch, Burl, Exposed roots
48	Quercus lobata	10	40	20	F	Sparse Canopy, Bark Damage
49	Quercus lobata	23.5	45	40	F	Included bark, Sparse Canopy, Slight Lean, Bark Damage, Bark Rot
50	Quercus lobata	15 + 19	40	30	P/F	Minor Dieback, Major Limb Death, Included bark, Bark Damage, Bark Rot, Rot In Branch, Broken Branch
51	Quercus lobata	24	45	40	F	Minor Dieback, Minor Limb Death, Sparse Canopy, Severe Lean
52	Quercus lobata	30	50	50	F	Minor Dieback, Minor Limb Death, Included bark, Bark Damage, Exposed roots
53	Quercus lobata	22	50	40	F	Minor Dieback, Bark Damage, Burl, Open oozing wound
54	Quercus lobata	32	55	45	F	Included bark, Sparse Canopy, Rot In Branch, Broken Branch, Fissures
55	Quercus lobata	36	50	50	P/F	Major Dieback, Major Limb Death, Included bark, Bark Damage, Bark Rot, Rot In Branch, Broken Branch, Fissures
56	Quercus lobata	46	55	45	P/F	Major Dieback, Major Limb Death, Included bark, Sparse Canopy, Bark Damage, Leader death
57	Quercus lobata	49	60	55	F	Minor Dieback, Included bark, Bark Damage, Broken Branch
58	Quercus lobata	43	60	60	F/G	Minor Dieback, Minor Limb Death, Slight Lean, Broken Branch
59	Quercus lobata	10	45	30	F	Minor Dieback, Minor Limb Death, Bark Damage, Bark Rot, Rot In Branch, Broken Branch
60	Quercus lobata	29.5	55	50	F	Minor Limb Death, Slight Lean, Bark Damage, Broken Branch

Tag #	Species	DBH (inches)	Height (feet)	Canopy Width (feet)	Condition*	Notes/Recommendations
61	Quercus lobata	16	50	40	F	Minor Dieback, Minor Limb Death, Bark Damage, Fissures
62	Quercus lobata	24	25	40	P/F	Major Dieback, Major Limb Death, Severe Lean, Bark Damage
63	Quercus lobata	29.5	60	55	F	Minor Dieback, Minor Limb Death, Included bark, Bark Damage
64	Quercus lobata	43.5	65	55	F/G	Minor Dieback, Minor Limb Death, Bark Damage
65	Quercus lobata	10	25	15	P	**Removal Recommended.** Major Dieback, Major Limb Death, Bark Damage, Bark Rot, Rot In Branch, Broken Branch, Crown Death, Top Dead
66	Quercus lobata	22	50	45	F	Minor Dieback, Included bark, Bark Damage, Nest in canopy
67	Quercus lobata	29.5	50	40	F	Sparse Canopy, Burl
68	Quercus lobata	16	45	40	F	Bark Damage, Broken Branch
69	Quercus lobata	19.5	50	35	P/F	Major Dieback, Major Limb Death, Bark Damage, Bark Rot
70	Quercus lobata	19	45	40	P/F	Major Dieback, Major Limb Death, Included bark, Bark Damage
71	Quercus lobata	55	60	55	F	Minor Dieback, Minor Limb Death, Included bark, Fissures, Woodpecker damage
72	Quercus lobata	19	45	40	P/F	Major Dieback, Major Limb Death, Slight Lean, Bark Damage, Bark Rot, Rot In Branch, Broken Branch
73	Quercus lobata	36.5	55	50	P/F	Major Dieback, Minor Limb Death, Sparse Canopy, Severe Lean, Bark Damage, Crown Death
74	Quercus lobata	8	25	15	P/F	Minor Dieback, Minor Limb Death, Bark Damage
75	Quercus lobata	41	50	45	F	Minor Limb Death, Included bark, Bark Damage, Bark Rot, Broken Branch, Burl, Nest in canopy
76	Quercus lobata	37.5	55	50	F/G	Minor Dieback, Minor Limb Death, Included bark, Burl
77	Quercus lobata	9.5	25	15	F	Minor Dieback, Minor Limb Death, Bark Damage, Top Dead
78	Quercus lobata	44	60	50	F/G	Minor Dieback, Minor Limb Death, Included bark, Bark Damage, Broken Branch, Fissures
79	Quercus lobata	40	50	50	F	Included bark, Rot In Branch, Broken Branch
80	Quercus lobata	53	65	60	F	Minor Dieback, Minor Limb Death, Included bark, Broken Branch, Blackberry bushes, Poison Oak
81	Quercus lobata	32.5	55	50	F	Minor Dieback, Included bark, Bark Damage, Rot In Branch, Broken Branch, Burl, Blackberry bushes, Embedded fence, Poison Oak

Tag #	Species	DBH (inches)	Height (feet)	Canopy Width (feet)	Condition*	Notes/Recommendations
82	Quercus lobata	12	35	25	P/F	Sparse Canopy, Blackberry bushes, Embedded fence
83	Quercus lobata	8	30	25	P/F	Major Dieback, Included bark, Slight Lean, Blackberry bushes, Embedded fence, Poison Oak
84	Quercus lobata	29	35	50	P/F	Minor Dieback, Minor Limb Death, Severe Lean, Poison Oak
85	Quercus lobata	30	35	40	P/F	Major Dieback, Minor Limb Death, Severe Lean, Blackberry bushes, Embedded fence
86	Quercus lobata	24	40	40	F	Minor Dieback, Minor Limb Death, Severe Lean, Broken Branch, Poison Oak
87	Quercus lobata	27	45	40	F	Minor Dieback, Minor Limb Death, Fissures, Blackberry bushes, Embedded fence, Nest in canopy
88	Quercus lobata	41	55	50	F/G	Minor Dieback, Minor Limb Death, Bark Damage, Blackberry bushes
89	Quercus lobata	29	50	40	F	Minor Dieback, Minor Limb Death, Included bark, Broken Branch
90	Quercus lobata	22	50	35	F	Minor Dieback, Bark Damage, Exfoliating bark
91	Quercus lobata	20	45	35	P/F	Minor Dieback, Slight Lean, Bark Rot, Rot In Branch, Blackberry bushes, Embedded fence, Poison Oak
92	Quercus lobata	9.5	30	15	P/F	Major Dieback, Major Limb Death, Poison Oak
93	Quercus lobata	35	50	40	F	Minor Dieback, Slight Lean, Bark Damage, Fissures, Blackberry bushes, Poison Oak
94	Quercus lobata	25.5	45	40	F	Minor Dieback, Minor Limb Death, Slight Lean, Broken Branch, Blackberry bushes
95	Quercus lobata	29	50	45	P/F	Major Dieback, Sparse Canopy, Bark Damage, Broken Branch, Blackberry bushes, Poison Oak
96	Quercus lobata	39	60	55	P/F	Slight Lean, Bark Damage, Exfoliating bark, Blackberry bushes, Embedded fence, Poison Oak
97	Quercus lobata	7.5	25	20	P	**Removal Recommended.** Major Dieback, Major Limb Death, Bark Damage, Bark Rot, Rot In Branch, Broken Branch
98	Quercus lobata	18	30	20	P	**Removal Recommended.** Major Dieback, Major Limb Death, Bark Damage, Bark Rot, Trunk cavity, Rot in Trunk
99	Quercus lobata	36.5	50	40	P/F	Minor Dieback, Minor Limb Death, Included bark, Slight Lean, Bark Damage, Blackberry bushes, Embedded fence, Poison Oak
100	Quercus lobata	13	40	35	F	Minor Dieback, Minor Limb Death, Bark Damage

Tag #	Species	DBH (inches)	Height (feet)	Canopy Width (feet)	Condition*	Notes/Recommendations
101	Quercus lobata	23	50	40	P/F	Minor Dieback, Bark Damage, Fissures, Open oozing wound, Blackberry bushes, Embedded fence, Poison Oak
102	Quercus lobata	12	40	30	F	Slight Lean, Bark Damage, Bark Rot, Open oozing wound, Blackberry bushes
103	Quercus lobata	18	45	40	F	Minor Dieback, Slight Lean, Bark Damage, Bark Rot, Open oozing wound, Blackberry bushes
104	Quercus lobata	23	40	30	P	**Removal Recommended**. Nearly Dead
105	Quercus lobata	9	20	20	P	**Removal Recommended**. Nearly Dead
106	Quercus lobata	16.5	40	35	F	Sparse Canopy, Blackberry bushes
107	Quercus lobata	32	45	40	F	Minor Dieback, Minor Limb Death, Broken Branch, Blackberry bushes
108	Quercus lobata	26	55	50	F	Minor Dieback, Minor Limb Death, Included bark, Bark Damage, Broken Branch, Burl, Fissures
109	Quercus lobata	18	45	45	F	Minor Dieback, Slight Lean, Bark Damage, Bark Rot, Broken Branch
110	Quercus lobata	46	60	55	F/G	Minor Dieback, Included bark, Broken Branch
111	Quercus lobata	22.5	45	30	F	Minor Dieback, Included bark, Slight Lean, Bark Damage, Broken Branch
112	Quercus lobata	56	70	65	G	Minor Dieback, Included bark, Broken Branch
113	Quercus lobata	8.5	25	20	F	Sparse Canopy, Rot In Branch, Broken Branch, Blackberry bushes, Embedded fence
114	Quercus lobata	37	55	50	P/F	Minor Dieback, Minor Limb Death, Included bark, Rot in Branch, Broken Branch, Leader death, Blackberry bushes, Embedded fence, Poison Oak
115	Quercus lobata	6	20	15	F	Sparse Canopy, Embedded fence
116	Quercus lobata	13	30	20	F	Included bark, Sparse Canopy, Embedded fence
117	Quercus lobata	7	20	10	F	Minor Dieback, Sparse Canopy, Embedded fence
118	Quercus lobata	58	75	70	G	Minor Dieback, Minor Limb Death, Included bark, Broken Branch, Boards attached to trunk
119	Quercus lobata	52	70	65	G	Minor Dieback, Included bark, Burl
120	Quercus lobata	12.5	30	25	F	Sparse Canopy, Bark Damage, Embedded fence
121	Quercus lobata	14	30	25	P/F	Bark Damage, Bark Rot, Rot In Branch, Exfoliating bark, Rot in Trunk, Embedded fence

Tag #	Species	DBH (inches)	Height (feet)	Canopy Width (feet)	Condition*	Notes/Recommendations
122	Quercus lobata	10.5	25	20	F	Minor Dieback, Included bark, Embedded fence
123	Quercus lobata	21.5	30	25	F	Minor Dieback, Minor Limb Death, Included bark, Fissures, Embedded fence
124	Quercus lobata	28	45	35	F	Minor Dieback, Minor Limb Death, Included bark, Bark Damage, Embedded fence, Poison Oak
125	Quercus lobata	7 + 6	25	15	F	Minor Dieback, Minor Limb Death, Included bark, Bark Damage, Fissures, Embedded fence
126	Quercus lobata	26	35	30	P/F	Minor Dieback, Included bark, Bark Damage, Bark Rot, Broken Branch, Exfoliating bark, Embedded fence

Moore Road Property

APPENDIX B

CITY OF LINCOLN GUIDELINES FOR DEVELOPING AROUND OAK TREES

CITY OF LINCOLN

Guidelines for Development around Oak Trees

ORDINANCE NO. 459B

AN ORDINANCE ADDING CHAPTER 18.43 TO THE LINCOLN MUNICIPAL CODE HAVING TO DO WITH THE PRESERVATION OF OAK TREES WITHIN THE CITY

Section 1. Section 18.43.000 is hereby added to the Lincoln Municipal Code to read as follows:

Section 18.43.000. Purpose. The City Council hereby finds and determines that the oak trees within the City are beneficial to the health and welfare of the citizens of Lincoln in that they preserve and promote natural beauty, reduce soil erosion, enhance property values, improve air quality, help maintain climatic balance, decrease wind velocities, abate noise, aid in water absorption, and help reduce energy consumption for air cooling by providing shade and that preservation of these oak trees are in the public interest.

It shall be the policy of the City of Lincoln to preserve all oak trees possible through its development review process while at the same time recognizing individual rights to develop private property.

Section 2. Section 18.43.010 is hereby added to the Lincoln Municipal Code to read as follows:

Section 18.43.010. Guidelines. City Council may adopt guidelines to regulate the preservation of oak trees located within the City limits. After adoption of the guidelines, the Planning Commission, the City Council and/or the Design Review Committee, as the case may be, shall utilize these guidelines in reviewing applications for projects including but not limited to rezonings, subdivision maps, parcel maps, development permits, conditional use permits, design review board approvals, and variances and shall impose conditions of approval on such projects consistent with said guidelines.

Section 3. Section 18.43.020 is hereby added to the Lincoln Municipal Code to read as follows:

Section 18.43.020. Enforcement. Inspection for compliance with the conditions of project approval relating to the preservation of oak trees shall be part of the City's regular project inspections.

Whenever the City building official or City planner determines that construction activities are not in compliance with the conditions of project approval, the building official shall issue a stop work order which shall prohibit any further development activity until the violation(s) have been corrected. The stop work order shall set forth in writing the violation(s) and shall list the remedies to be taken to correct the violation(s).

Section 4. Section 18.43.030 is hereby added to the Lincoln Municipal Code to read as follows:

Section 18.43.030. Restoration and replacement of trees. If it is determined pursuant to the procedure set forth in section 18.54.080 that an oak tree(s) has been removed or irrevocably harmed such that its death is imminent in violation of the conditions of project approval, the City may require one or more of the following to correct the violation:

A. Replacement of the oak tree(s) removed or irrevocably harmed in violation of the conditions of project approval by planting replacement specimen trees of no less than 15 gallons in size , having a total combined diameter at the time of planting equal to the diameter of the removed tree(s).

B. If the project site is not capable of supporting all the required replacement trees, a fee shall be paid to the City equal to the retail cost at the time of the violation of the replacement trees required pursuant to subdivision A, but which cannot be accommodated on the project site. Such fees shall be deposited in a separate fund and used to plant new trees in the City, to maintain existing trees owned by the City and to maintain trees located within the City's right-of-way.

C. In addition to the remedies set forth in subdivision A and B, the City shall have recourse to any penalty which may be imposed under this title for failure to comply with conditions of project approval.

Section 5. Within fifteen (15) days of its passage, the City Clerk shall cause a copy of this Ordinance to be

published once in the News Messenger, a newspaper of general circulation within the City.

PASSED AND ADOPTED this 22ND day of MAY, 1984, by the following roll call vote:

AYES: COUNCILMAN: BABCOCK, KELLAR, MCCARTNEY, STEFANI, FLOCCHINI

NOES: COUNCILMAN: NONE

ABSENT: COUNCILMAN: NONE

Mayor

ATTEST:

City Clerk

APPROVED AS TO FORM:

City Attorney

CITY OF LINCOLN

GUIDELINES FOR DEVELOPMENT AROUND OAK TREES

The City of Lincoln having many Oak Trees, the preservation of which is beneficial to the health and welfare of the citizens of Lincoln, to preserve and promote natural beauty, reduce soil erosion, enhance property values, improve air quality, help maintain climatic balance, decrease wind velocities, abate noise, aid in water absorption, and help to reduce energy consumption for air cooling by providing shade, has developed the following guidelines for development.

It is the intent and purpose of these guidelines to assist developers and contractors in understanding the design and construction measures which are necessary to preserve the many oak trees which are located within the City limits.

It shall be the policy of the City of Lincoln to preserve all trees possible through its development review process, while at the same time recognizing individual rights to develop private property.

The Planning Commission will impose these standards and measures or modifications thereof as conditions on projects including but not limited to a rezone, a parcel map, development permit, subdivision map, a conditional use permit, Design Review Board approval or variance.

NOTE: ALL APPLICANTS WILL BE REQUIRED TO FOLLOW THE CITY OF LINCOLN'S GUIDELINES FOR DEVELOPMENT AROUND OAK TREES!!! PLEASE REVIEW THE ATTACHED GUIDELINES DURING THE INITIAL PHASES OF YOUR DESIGN.

Guidelines for Development Around Oak Trees

These guidelines will apply to the following types of trees: Cork Oaks, Valley Oaks, Blue Oaks, Oracle Oaks, Interior Live Oaks, and all other species of Oaks.

Definitions

Drip Line: An area delineated by the projection of the outermost branch tips of a tree down to the ground surface.

Root Respiration: The process by which oak tree roots and other plant roots extract several gases normally found in soil air which are important to oaks. Oxygen and nitrogent which are essential to root respiration for oaks are directly related to the process of active water absorption and nutrient accumulation.

Tree: As used in these standards and measures, a "tree" shall mean any living oak tree having at least one trunk of six inches or more in diameter measured four and one-half (4½) feet above the ground, or a multi-trunked oak tree having an aggregate diameter of ten inches or more, measured four and one-half (4½) feet above the ground.

The applicant for any project falling within the scope of these guidelines will provide the Design Review Board with:

> A tree survey with the accurate location, number, size (diameter measured four and one-half (4½) feet above the ground), approximate height, and approximate canopy diameter of all oak trees on the project.

This survey must be a part of the total development plan and must identify any tree or trees which could be affected by the proposed development.

Any tree or trees proposed for removal must be identified and reasons for removal stated.

Guidelines

The following guidelines to mitigate damage to oak trees by land development shall be followed unless otherwise approved by the City of Lincoln.

1. All trees to be preserved shall be flaged and staked off around the drip line during construction.

2. No grade cuts should occur within the drip lines of oak trees. If grades must be lowered outside the drip line; suitably designed slopes and/or retaining walls are to be installed. (Refer to Figure 1 attached. For additional information contact City staff.)

3. No grading of the site shall commence until the staking has been reviewed and approved by the City Building Official or City Engineer.

4. No soil compaction shall occur within the drip lines of oak trees. During the construction phase of the project; stakes spaced at fifteen (15) feet center to center shall be installed and maintained coincidental to the drip lines of oak trees to be preserved. Within these stakes, no construction shall be allowed, including but not limited to vehicular parking, traffic and/or material storage.

5. No fills should occur within the drip lines of oak trees without properly designed tree wells incorporating porous fill material and/or aerating tile. (Refer to attached Figure 2.)

6. New drainage patterns shall not be established which divert surface water toward the drip lines of oak trees. Additionally, new footings, curbs and walls adjacent to the drip lines of oak trees shall not act as dams which trap water.

7. No trenching should occur within the drip lines of oak trees. If it is absolutely necessary to install underground utilities within the drip line of an oak tree, the trench shall be either bored or drilled.

8. Paving with non-porous material should not occur within the drip lines of oak trees. Only properly designed paving with porous materials which promote adequate percolation and the proper exchange of gases will be allowed within the drip lines of oak trees. (Refer to attached Figure 3.)

9. Landscaping beneath oak trees may include non-plant materials such as boulders, cobbles, wood chips, etc. The only plant species which shall be planted within the drip lines of oak trees are those which are tolerant of the natural semi-arid environs of the oak tree. (Refer to attached Figure 4.)

10. No irrigation system shall be installed in such a manner that it irrigates the ground within the drip lines of oak trees.

11. Pruning of oak trees shall be performed by experience personnel and shall be only to remove dead, weakened, diseased, or dangerous branches. The removal of branches to clear building elements is to be discouraged.

12. No chemical substance, oil, fuel, concrete mix, or other deleterious substance shall be placed or allowed to flow into or over the drip line area of any tree or trees.

13. Prior to the installation of any landscaping, the developer shall call for a site inspection by the Building Official. In addition, the developer shall also call for an inspection of the landscaping once installed before the building will be finaled.

14. For additional information on techniques used to conform to the above guidelines, please contact City staff or consult with an Arborist or licensed Landscape Architect. Additional background information may also be obtained from literature kept on file by the City of Lincoln.

The determination of the Planning Commission in establishing conditions to mitigate damage to oak trees will be based upon the following criteria:

1. Whether or not the preservation of the tree would unreasonably compromise an owner's development of land.

2. The condition of the tree with respect to disease, general health, damage, danger of falling, and whether or not the tree acts as a host for an organism which is parasitic to another species of tree which is in danger of being exterminated by the parasite.

3. The approximate age of the tree compared with the average life span for that species.

4. Age of tree with regard to whether or not removal of the tree would encourage healthier, more vigorous growth of younger similar trees in the area.

5. The number of existing trees in the area and the effect of the trees removal upon public health, safety, prosperity, beauty, and general welfare of the area.

6. The number of healthy trees that a given parcel of land will support, with and without the proposed development.

7. The effect of tree removal on soil stability/erosion, particularly near water courses or on steep slopes.

8. The potential for the tree to be a public nuisance or interface with utility service as well as its proximity to existing structures.

9. Present and future shade potential with regard to solar heating and cooling.

10. Whether or not there are any alternatives that would allow for the preservation of the tree.

11. Any other information the body finds pertinent to the decision, including, if necessary, information obtained at a public hearing..

Replacement/Conditions of Restoration

If it is determined that a violation of the conditions of approval has occurred resulting in the loss of an oak tree(s), the City may require conditions of restoration.

(a) Such restoration shall include a requirement to replace any oak tree removed without authorization, the replacement shall consist of specimen trees (no less than 15 gallon) having a total combined diameter equal to the diameter of the removed tree(s).

(b) If the project site is not capable of supporting all the required replacement trees, a damage fee shall be paid to the City which is equivalent to the retail cost of the number of trees that cannot be accommodated. Such damage fees shall be deposited in a fund and used to plant new trees in the City, to maintain existing trees owned by the City and to maintain trees located within the City's right-of-way.

Enforcement

The above guidelines and any exceptions made thereto by the City shall become development conditions which will be made a part of the City's regular project inspections. Whenever the City Building Official or City Planner determines that construction activity is at variance or in conflict with the above guidelines, the Building Official may issue a Stop Work Order which shall prohibit any additional development activity until steps have been taken to correct the violations. The Stop Work Order shall set forth in writing the alleged violations and may list the remedies to be taken to correct the violation. If trees have been improperly removed or irrevocably harmed such that their death is immient, the City may require restoration (see above).

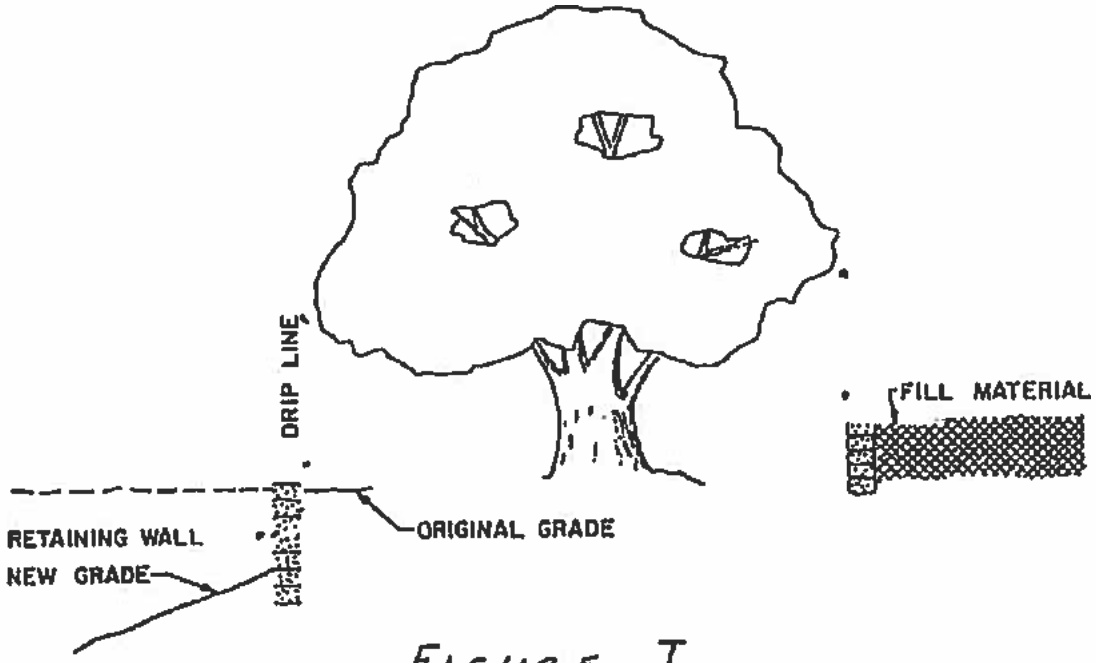

DRIP LINE
FILL MATERIAL
ORIGINAL GRADE
RETAINING WALL
NEW GRADE

FIGURE I

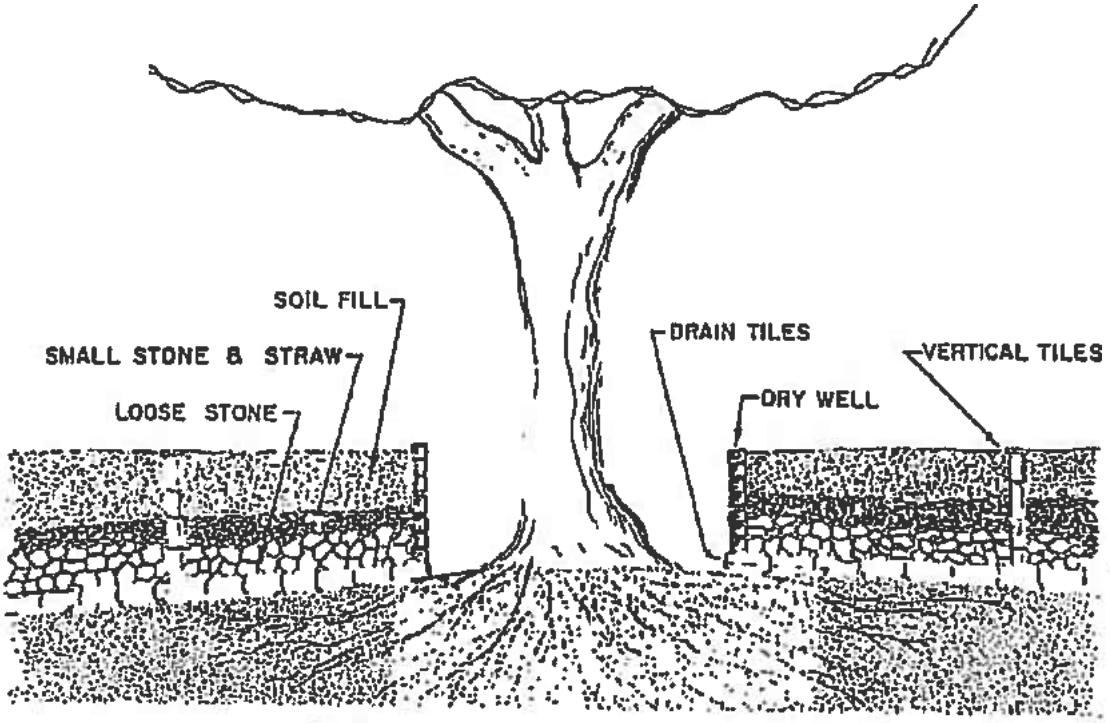
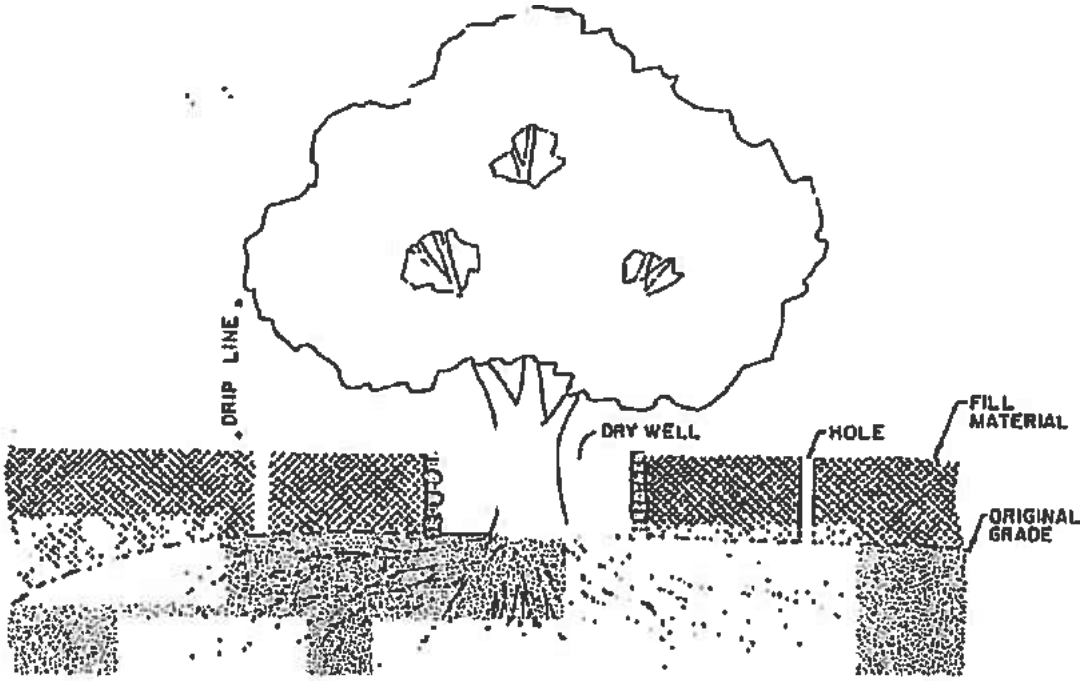
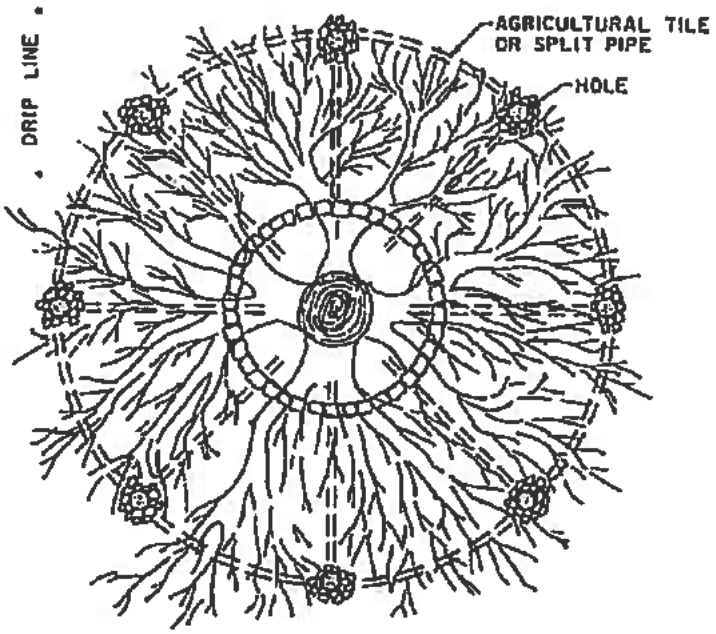

SOIL FILL
SMALL STONE & STRAW
LOOSE STONE
DRAIN TILES
DRY WELL
VERTICAL TILES

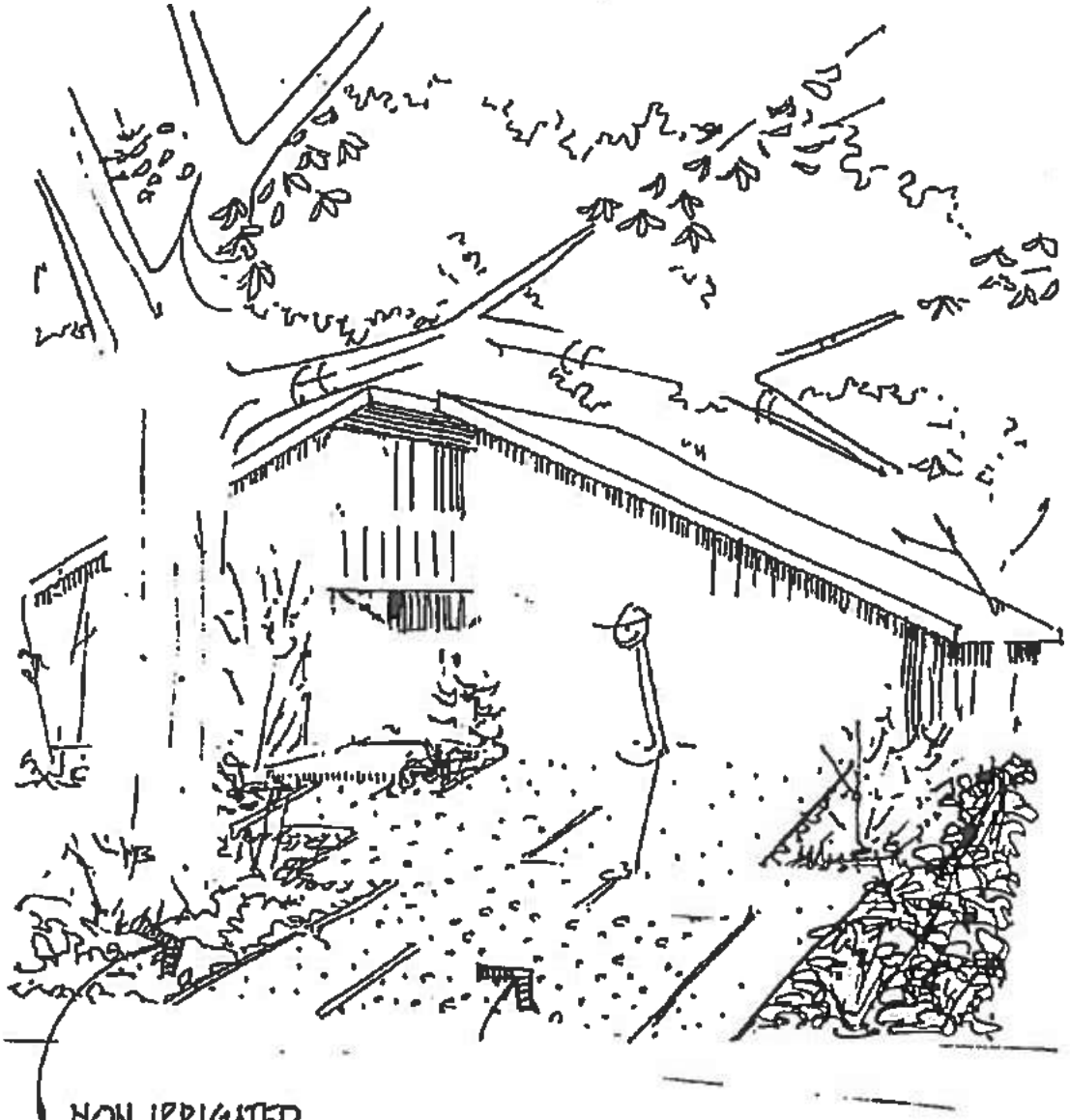
FIGURE 2





R. Onga

FIGURE 3



NON IRRIGATED LANDSCAPING AROUND OAK TREE

RIVER GRAVEL (OR ANY PERVIOUS SURFACE OFFERING AIR & WATER TO THE ROOT ZONE)

R. Calloway

Designing a landscape to save an oak.

FIGURE 4

Appendix D Part 5

Biological Resources Assessment

ESA

Biological Resources Assessment for the Lincoln Village 5 & SUD-B Specific Plan

Placer County, California

Prepared For:

Richland Developers, Inc.

March 18, 2015

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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Attachment B - U.S. Fish and Wildlife Service List for the Lincoln, CA Quadrangle and Placer County

Attachment C - Representative Site Photos

1.0 INTRODUCTION

At the request of Richland Developers, Inc., ECORP Consulting, Inc. (ECORP) has conducted a biological resource assessment for the Lincoln Village 5 & Special Use District (SUD)-B Specific Plan, Placer County, California (County). The Study Area examined for this this biological resource assessment is the 4,785-acre Lincoln Village 5 & SUD-B Specific Plan located in an unincorporated portion of Placer County, immediately west of the City of Lincoln and south of Highway 65.

The purpose of the assessment was to collect information on the biological resources present within the Study Area and to determine any potential biological constraints to construction.

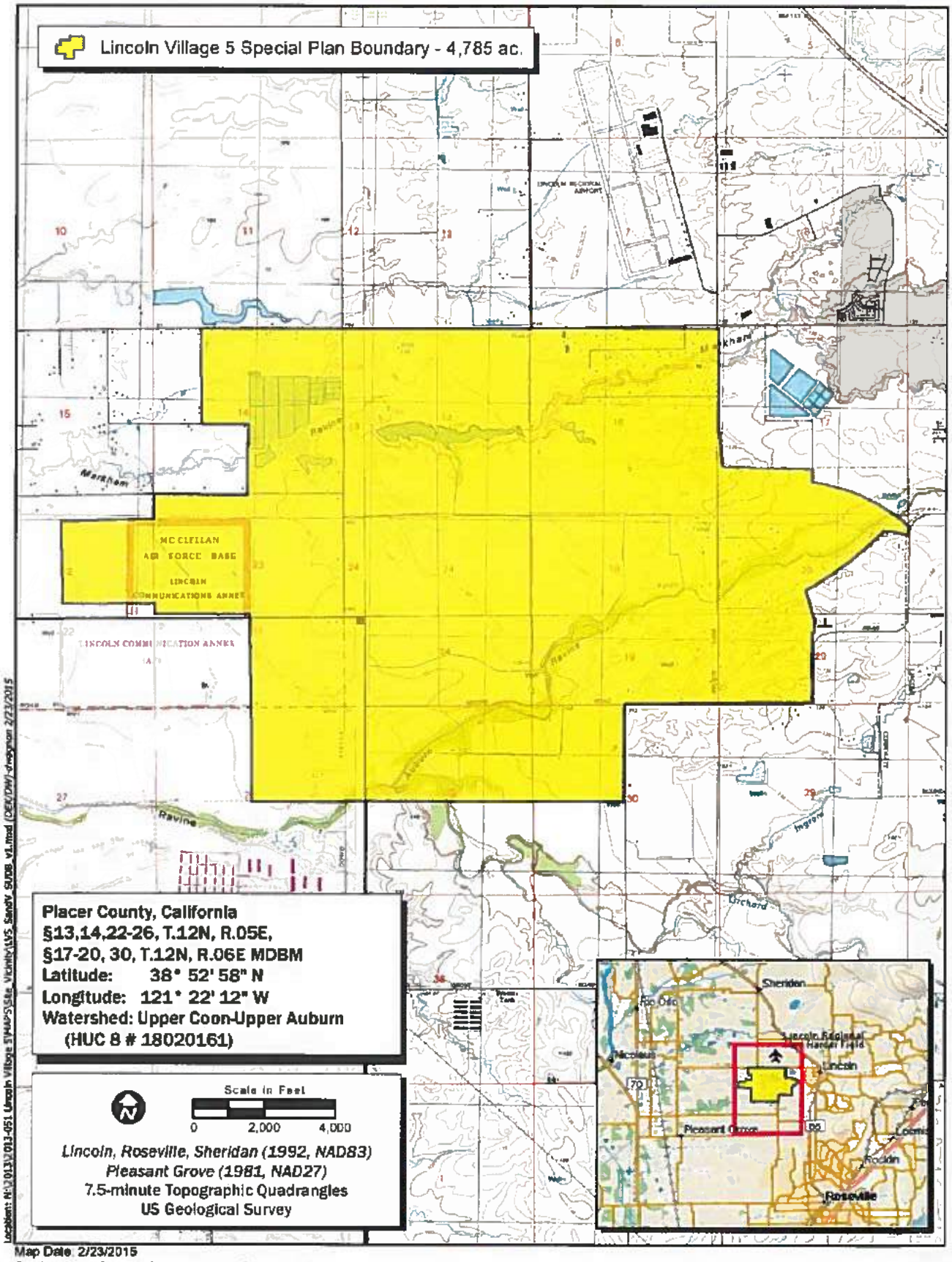
1.1 Project Location

The location of the proposed Village 5 & SUD-B Specific Plan (Plan) corresponds to portions of Sections 13, 14, 22-26, Township 12 North, and Range 5 East (MDBM), as well as a portion of Section 17-20 and 30, Township 12 North, and Range 6 East (MDBM) of the "Lincoln, California," "Roseville, California," "Pleasant Grove, California" and "Sheridan, California" 7.5-minute quadrangles (U.S. Department of the Interior, Geological Survey [USGS] 1981, 1992a, 1992b, and 1992c) (Figure 1. *Project Vicinity and Location*). The approximate center of the site is located at 38° 52' 58" North and 121° 22' 12" West within the Upper Coon-Upper Auburn Watershed (#18020161, USGS 1978).

1.2. Project Setting

The Study Area is located within the adopted Sphere of Influence of the City of Lincoln (Figure 2. *Project Setting and Components*). The Study Area is near the Lincoln Regional Airport, residential homes, and agricultural land to the north; the City of Lincoln, residential homes, agricultural land, and vacant land to the east; the City of Lincoln Wastewater Treatment and Reclamation Facility and agricultural land to the south; and agricultural land to the west. The Study Area is south of the Lincoln Regional Airport and a portion of the Study Area is within the Airport's flyover zone. The Study Area is also traversed by Auburn and Markham Ravines and bisected by Highway 65.

The Study Area encompasses an approximately 1,015.4-acre Phase 1 project (Figure 2). Phase 1 is a standalone project, with independent utility from the remainder of the Village 5 & SUD-B Specific Plan and its phases of development. The Phase 1 project includes all necessary infrastructure to fully support it without needing other phases of the Village 5 & SUD-B Specific Plan to support its utility and value. The associated infrastructure is all located within the Study Area. Several field studies have been conducted within an 800.54-acre portion of the Phase 1 project in order to support detailed regulatory permitting. Specific information from these surveys for Phase 1 is provided where available. This level of analysis has not been conducted in the remainder of the Study Area and is so noted in this document.



Location: N:\2013\2013-051 Lincoln Village 5\MAPS\Site_Vicinity\US_SandV_SUB_v1.mxd (CEK/DW) -dwagner 2/23/2015

Map Date: 2/23/2015

Service Layer Credits: Copyright:© 2013 DeLorme

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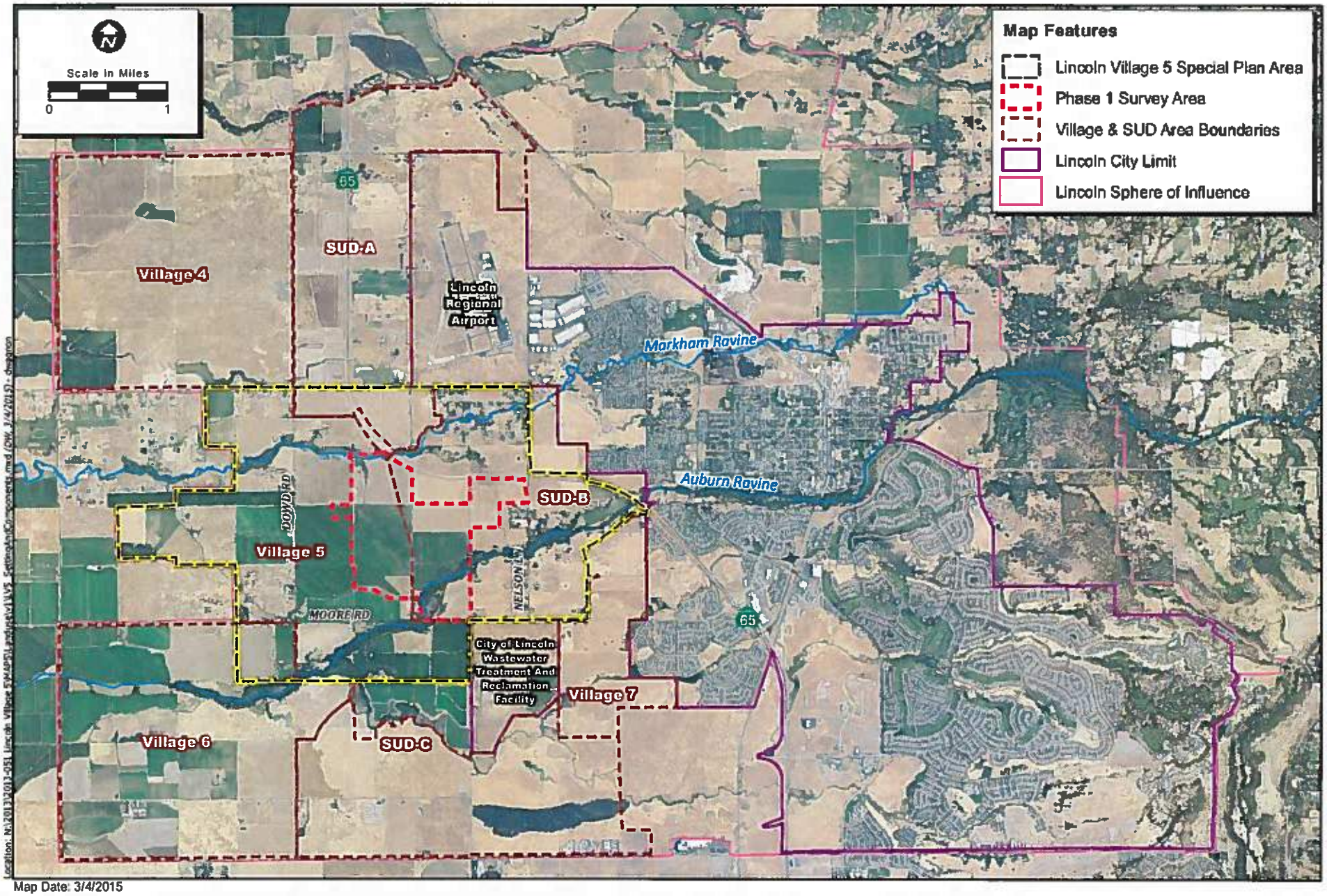
Figure 1. Project Vicinity and Location

2013-051 Lincoln Village 5



Map Date: 3/4/2015
Photo Source: NAIP 2012

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Figure 2. Project Setting and Components

2013-051 Lincoln Village 5

1.3 Project Description

The Plan is a ±4,785-acre mixed use planned community that incorporates feasible smart growth principles. The Plan includes residential dwelling units of low, medium, and high density residential on ±2,303 acres. The Plan also includes ±434 acres of retail and commercial uses, three schools, public and private parks and new roads and future right-of-way. Approximately 33 percent of the Plan (±1,571 acres) is open space including parks, linear trail corridors, agricultural and open space preserves and natural open spaces. Approximately ±844 acres are designated as open space preserve; this area is consistent with the regional open space planning goals of the draft Placer County Conservation Plan (PCCP), which strives to make 50,000 to 60,000 acres within the proposed PCCP plan area part of a reserve system to preserve approximately 50percent of Placer County's remaining vernal pool habitat. The open space preserve is bordered by natural open space areas. Passive uses are allowed within the natural open space, but the area is intended to protect the integrity of the features within the open space preserve.

1.4 Biological Setting

The Study Area is located within a rural area in western Placer County. The Study Area is located in the Sacramento Valley subregion, Great Valley region of the California Floristic Province (Baldwin, et al. 2012). This area is characterized by Mediterranean climate typical of the Great Valley of California. The annual precipitation in Sacramento (approximately 15 miles to the southwest) is 19.87 inches (with the wettest period during November through March), and average daily temperatures ranging from 47.7°F in December to 77.4°F in July (NOAA 2002). The local topography is flat to gently rolling. The Study Area is currently undeveloped and is situated at an elevation range of 85-125 feet above mean sea level (MSL).

The habitat types occurring within the Study Area include annual grasslands, seasonal wetlands, vernal pools, marsh, irrigated rice fields, and riparian habitat at an elevational range of approximately 85 feet to 125 feet above MSL. Known or potential biological constraints within the Study Area include sensitive habitats associated with Auburn Ravine, Markham Ravine, vernal pools, marshes, other potential Waters of the U.S.; potential habitat for special-status vernal pool and other plant and animal species; potential foraging and nesting habitat for Swainson's hawk, a state-listed species, and other special-status species.

2.0 REGULATORY SETTING

This section describes the federal, State, and local regulations that regulate the biological resources considered in this analysis.

2.1 Federal Regulations

The federal regulations governing the biological resources at the Project site include the federal Endangered Species Act (FESA), Migratory Bird Treaty Act (MBTA), and Clean Water Act (CWA).

2.1.1 Federal Endangered Species Act

FESA protects plants and animals that are listed as endangered or threatened by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). Section 9 of FESA prohibits the taking of endangered wildlife, where taking is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50CFR 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 USC 1538). Under Section 7 of FESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion (BO), the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of FESA provides for issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan is developed.

2.1.2 Migratory Bird Treaty Act

The MBTA implements international treaties between the U.S. and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

2.1.3. Federal Clean Water Act

The purpose of the federal CWA is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into "Waters of the U.S." without a permit from the United States Army Corps of Engineers (USACE). The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b). The United States Environmental Protection Agency (EPA) also has authority over wetlands and may override a USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board.

2.2 State Regulations

The State regulations governing the biological resources at the Project site include the California Endangered Species Act (CESA), Fish and Game Code, Section 4700 for Fully Protected Species, the Native Plant Protection Act (NPPA), Fish and Game Code, Section 1602 for Streambed Alteration (SAA) and Section 15064.7 of the California Environmental Quality Act (CEQA) Guidelines.

2.2.1 California Endangered Species Act

CESA generally parallels the main provisions of FESA, but unlike its federal counterpart, CESA applies the take prohibitions to species proposed for listing (called "candidates" by the State). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with California Fish and Wildlife (CDFW), formerly California Fish and Game (CDFG), to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat.

2.2.2 Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of CESA and FESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under CESA and/or FESA. The regulations that implement the Fully Protected Species Statute (Fish and Game Code Section 4700) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any State agency from issuing incidental take permits for fully protected species, except for necessary scientific research.

2.2.3 Native Plant Protection Act

The NPPA of 1977, administered by CDFW, (Fish and Game Code Sections 1900-1913) was created with the intent to "preserve, protect and enhance rare and endangered plants in this State." The Fish and Wildlife Commission has the authority to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. The CESA of 1984 (Fish and Game Code Section 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code.

2.2.4 California Streambed Alteration Notification/Agreement

Section 1602 of the Fish and Game Code requires that an SAA be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFW reviews the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the Applicant is the SAA.

Often, projects that require an SAA also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the SAA may overlap.

2.2.5 CEQA Significance Criteria

Section 15064.7 of CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines (Title 14 California Code of Regulations (CCR) Section 15000 et seq.). Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
- conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.3 Local Regulations

The state regulations governing the biological resources at the project site include the City of Lincoln General Plan and Tree Protection Ordinance as well as the Placer County General Plan and Conservation Plan (Draft).

2.3.1 City of Lincoln General Plan

The goals of the Open Space and Conservation Element of the City of Lincoln General Plan (City of Lincoln 2008) that may be pertinent to the proposed Project are:

Goal OSC-1. *To designate, protect, and encourage natural resources, open space, and recreation lands in the city, protect and enhance a significant system of interconnected natural habitat areas, and provide opportunities for recreation activities to meet citizen needs.*

Goal OSC-4. *To preserve and enhance local streams, creeks, and aquifers.*

Goal OSC-5. *To preserve and protect existing biological resources including both wildlife and vegetative habitat.*

2.3.2 Placer County General Plan

The Goals of the Natural Resources Element of the Placer County General Plan (Placer County 1994) that may be pertinent to the proposed Project are:

Goal 6.A. *To protect and enhance the natural qualities of Placer County's rivers, streams, creeks and groundwater;*

Goal 6.B. *To protect wetland communities and related riparian areas throughout Placer County as valuable resources;*

Goal 6.C. *To protect, restore, and enhance habitats that support fish and wildlife species so as to maintain populations at viable levels;*

Goal 6.D. *To preserve and protect the valuable vegetation resource of Placer County; and*

Goal 6.E. *To preserve and enhance open space lands to maintain the natural resources of the County.*

2.3.3 Placer County Conservation Plan

The PCCP covers approximately 201,000 acres of western Placer County and seeks to establish a conservation reserve program made up of areas of existing reserve, desired acquisitions, and areas for future development. This conservation reserve system would preserve many acres of vernal pool habitat (approximately 50 percent of the County's remaining stock of these fragile, seasonal ecosystems). These areas occur in the unincorporated County and the City of Lincoln. The proposed PCCP is designed to ensure that land will be managed to continue to support the survival and wellbeing of the covered species, as well as the survival of hundreds of other species dependent on the same habitat. By proactively addressing the long-term conservation and development needs of the County, the proposed PCCP will strengthen local control over land use and provides greater flexibility in meeting the County's social and economic needs for the future (Placer County 2013).

The Plan is consistent with the PCCP because it would preserve all lands associated with the Markham and Auburn ravine floodplains, which are designated as reserve lands under the County Aquatic Resources Program and the PCCP.

2.3.4 Placer County Tree Preservation

Placer County Code, Article 12.16 Tree Preservation, seeks to preserve trees wherever feasible. The County reviews all proposed development activities where trees are present on either public or private property, while at the same time recognizing individual rights to develop private property in a reasonable manner. A tree permit may be required for removal of trees associated with the Lincoln Village 5 & SUD-B Special Plan development.

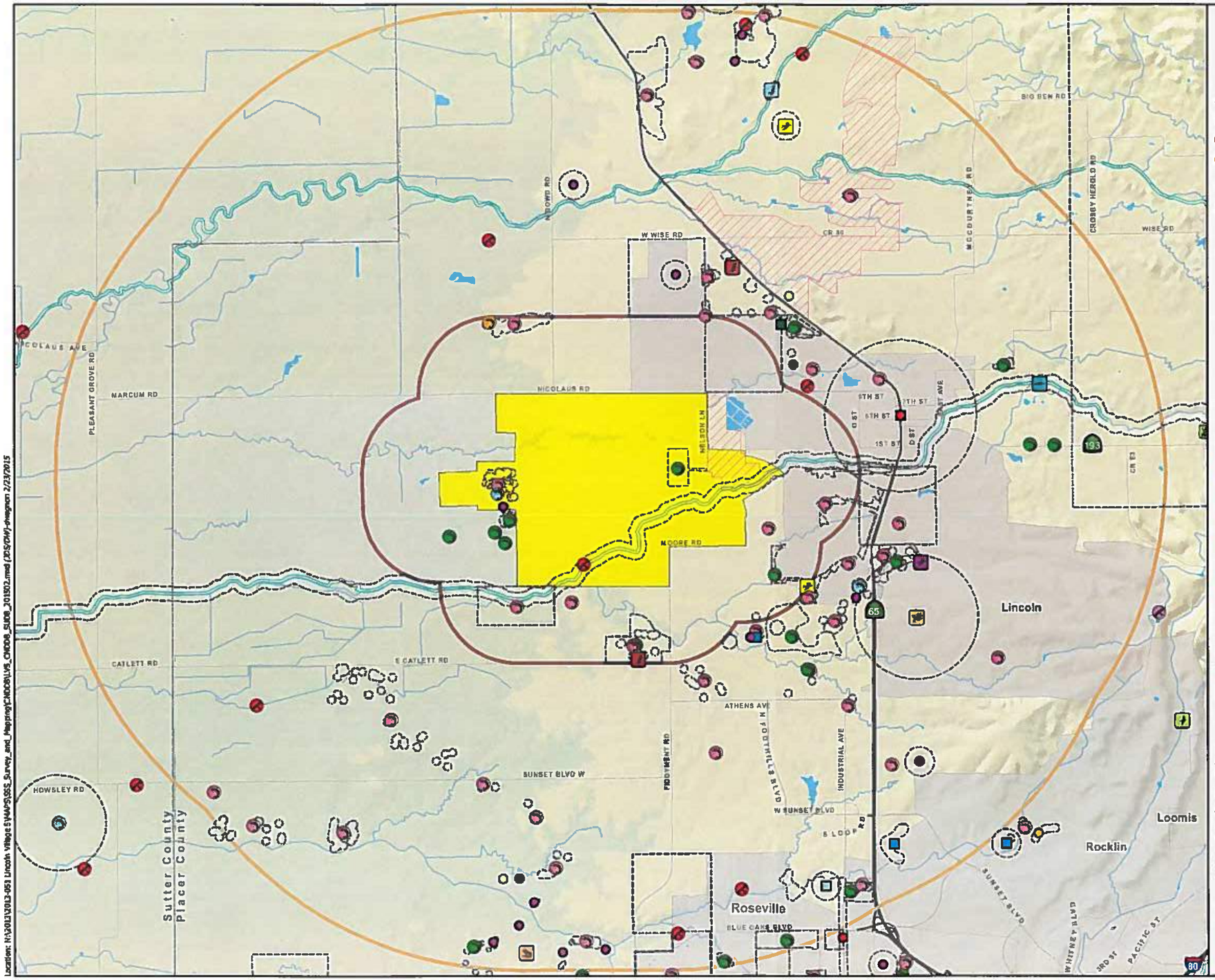
3.0 METHODS

Prior to preparing this biological resource assessment, the CDFW's California Natural Diversity Database (CNDDB) (Figure 3. *CNDDB Occurrences of Special Status Species Locations)* (CDFW 2015) and California Native Plant Society Electronic Inventory (Attachment A) (CNPS 2015) were queried to determine the special-status species that had been documented in the topographic quadrangle that encompasses this Study Area. Additional data regarding the potential occurrence of special-status species were gathered from various online websites and databases such as Calflora and USFWS species lists (Attachment B). Soil types were determined using the United States Department of Agriculture National Resource Conservation Service Web Soil Survey (NRCS 2015).

Resource data for this biological resource assessment were collected from various species or taxa-specific field surveys conducted in and around the Project site. These include:

- Dry season survey for federally listed vernal pool branchiopods for the Lincoln Village 5, Phase 1 Project (ECORP 2014a)
- Wetland delineation for the Lincoln Village 5, Phase 1 Project (ECORP 2014b)
- Special-status species plant and elderberry shrub (*Sambucus* spp.)surveys for the Lincoln Village 5, Phase 1 Project (ECORP 2014c)

Figure 3.
CNDDB Occurrences of Special-Status Species



Distance From Project

- 1 mile
- 5 miles

Boundaries

- Lincoln Village 5 Special Plan Boundary [1]

CNDDB Occurrences [2]

- CNDDB Polygon Extent [2]

Plants

- Big-scale Balsamroot
- Hispid Salty Bird's-beak
- Dwarf Downingia
- Boggs Lake Hedge-hyssop
- Ahart's Dwarf Rush
- Red Bluff Dwarf Rush
- Legenere
- Pincushion Navarretia

Invertebrates

- California Linderiella
- Conservancy Fairy Shrimp
- Vernal Pool Fairy Shrimp
- Vernal Pool Tadpole Shrimp
- Ricksecker's Water Scavenger Beetle

Fish

- Steelhead - Central Valley DPS

Reptiles/Amphibians

- Western Pond Turtle ^
- Western Spadefoot

Birds

- Osprey
- Swainson's Hawk
- California Black Rail
- Great Blue Heron
- Burrowing Owl
- Grasshopper Sparrow
- Song Sparrow (Modesto Population) *
- Tricolored Blackbird

Critical Habitat [3]

- Central Valley Steelhead
- Vernal Pool Fairy Shrimp

This map may include multiple species' occurrences at each location, some of which may not be visible on this graphic. The CNDDB occurrences shown may not reflect the actual location of the occurrence.

**** Species occurrence is represented solely by a polygon. The centroid point is not visible within the map extents.***

^ Location is suppressed. Placement only indicates presence on quad.

[1] Project Boundary: Cunningham Engineering
[2] CDFG California Natural Diversity Database (CNDDB), Feb. 2015 Update (GIS Shapefile)
[3] USFWS 2006, NMFS/NOAA 2005
CNDDB Occurrences Located on USGS 7.5' Quadrangles: Gold Hill, Lincoln, Nicolaus, Pleasant Grove, Rocklin,Roseville, Sheridan.

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Miles
0 1 2

2013-051 Lincoln Village 5

Map Date: 2/23/2015

Location: H:\2013\2013-051 Lincoln Village 5\MAPS\SS_Survey_and_Mapping\CNDDB\V5_CNDDB_SUB8_201502.mxd (JDS/CWF)-dwagner 2/23/2015

3.1 Special-Status Species

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under FESA;
- are listed or candidates for future listing as threatened or endangered under CESA;
- meet the definitions of endangered or rare under Section 15380 of the CEQA Guidelines;
- are identified as a species of special concern by CDFW;
- are birds identified as birds of conservation concern by the USFWS;
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR] 1 and 2);
- are plants listed as rare under the California Native Plant Protection Act (Fish and Game Code of California, Section 1900 et seq.); or
- are fully protected in California in accordance with the Fish and Game Code of California, Sections 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Only species that fall into one of the above- listed groups were considered for this assessment. While other species (i.e., CRPR 3 or 4 species, species tracked by the CNDDB) are sometimes found in database searches or within the literature, these were not included within this analysis.

Using information from the CNDDB, the literature review, and limited observations in the field, a list of special-status plant and animal species that have the potential to occur in the Study Area were generated (Table 1. *Special-Status Species*). Each of these species was assessed for their potential to occur within the Study Area based on the following criteria guidelines:

Present	Species was observed during a site visit or is known to occur within the site boundary based on documented occurrences within the CNDDB.
Potential to Occur	Habitat (including soils and elevation requirements) for the species occurs within the site boundary.
Low Potential to Occur	Marginal or limited amounts of habitat occur and/or the species is not known to occur in the vicinity based on CNDDB records and other available documentation.
Absent	No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur in the vicinity based on CNDDB records and other available documentation.

Table 1. Special-Status Species Potentially Occurring in the Lincoln Village 5 Study Area.

Common Name	Scientific Name	Species Status	Habitat Description	Approximate Survey Dates	Potential to occur in the Study Area
Plants					
Big-scale balsamroot	*Balsamorhiza macrolepis* var. *macrolepis*	1B.2	Chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentine soils (295' - 5,102')	March-June	Low potential - Not found during 2013 and 2014 surveys of Phase 1 area. Remainder of Village 5/SUD-B area not surveyed to date.
Hispid bird's-beak	*Chloropyron molle* ssp. *hispidum*	1B.1	Alkaline meadows and seeps, playas, and valley and foothill grassland (3' - 509')	June-September	Absent - Habitat not present
Dwarf downingia	*Downingia pusilla*	2B.2	Vernal pools and mesic areas in valley and foothill grassland (3' - 1,460')	**March-May**	Potential – On-site CNDDB occurrence 61 from 1995. Not found during 2013 and 2014 surveys at Phase 1 Project.
Boggs Lake hedge-hyssop	*Gratiola heterosepala*	CE, 1B.1	Clay soils in vernal pools and in marshes and swamps on lake margins (33' - 7,792')	April-August	Potential - Not found during 2013 and 2014 surveys of Phase 1 area. Remainder of Village 5/SUD-B area not surveyed to date.
Ahart's dwarf rush	*Juncus leiospermus* var. *ahartii*	1B.1	Mesic areas in valley and foothill grassland (98' - 751'	March-May	Potential - Not found during 2013 and 2014 surveys of Phase 1 area. Remainder of Village 5/SUD-B area not surveyed to date.
Red Bluff dwarf rush	*Juncus leiospermus var. leiospermus*	1B.1	Vernally mesic areas in chaparral, cismontane woodland, valley and foothill grassland, meadows and seeps, and vernal pools (115' - 3,346')	**March-May**	Potential - Not found during 2013 and 2014 surveys of Phase 1 area. Remainder of Village 5/SUD-B area not surveyed to date.
Legenere	*Legenere limosa*	1B.1	Vernal pools (3' - 2,887')	**April-June**	Potential - Not found during 2013 and 2014 surveys of Phase 1 area. Remainder of Village 5/SUD-B area not surveyed to date.
Pincushion navarretia	*Navarretia myersii ssp. myersii*	1B.1	Vernal pools, often on acidic soils (66' - 1,083')	April-May	Potential - Not found during 2013 and 2014 surveys of Phase 1 area. Remainder of Village 5/SUD-B area not surveyed to date.
Navarretia nigelliformis ssp. nigelliformis	*Adobe navarretia*	4.2	Occurs in valley and foothill grassland vernally mesic conditions.	April-June	Absent – Habitat not present.
Tahoe yellow-cress	*Rorippa subumbellata*	FC	Decomposed granitic beaches. Lower montane coniferous forest Meadows and seeps	May-September	Absent – Outside known range, which encompasses Lake Tahoe.
Stebbins morning-glory	*Calystegia stebbinsii*	FE	Requires serpentine/gabbroic soils. Occurs in chaparral, cismontane woodland.	April - July	Absent - Habitat not present
Pine Hill ceanothus	*Caenothus roderickii*	FE	Requires serpentine/gabbroic soils. Occurs	April - June	Absent - Habitat not present

Common Name	Scientific Name	Species Status	Habitat Description	Approximate Survey Dates	Potential to occur in the Study Area
			in chaparral, cismontane woodland.		
El Dorado bedstraw	*Galium californicum ssp. sierrae*	FE	Requires gabbroic soils. Occurs in chaparral, cismontane woodland, and lower montane coniferous forest.	May - June	Absent - Habitat not present.
Layne's butterweed	*Senecio layneae*	FT	Serpentinite or gabbroic, rocky. Occurs in Chaparral and Cismontane woodland.	April - August	Absent - Habitat not present.
Slender Orcutt grass	*Orcuttia tenuis*	FT, CE, 1B.1	Often gravelly vernal pools (115' - 5,774')	May-October	Potential - Not found during 2013 and 2014 surveys of Phase 1 area. Remainder of Village 5/SUD-B area not surveyed to date.
Sacramento Orcutt grass	*Orcuttia viscida*	FT, CE, 1B.1	Vernal pools (98' - 328')	April-July	Absent - Habitat not present
Sanford's arrowhead	*Sagittaria sanfordii*	1B.2	Assorted shallow freshwater marshes and swamps (0' - 2,133')	May-October	Potential - Not found during 2013 and 2014 surveys of Phase 1 area. Remainder of Village 5/SUD-B area not surveyed to date.
Invertebrates					
Conservancy fairy shrimp	*Branchinecta conservatio*	FE	Large, deep, turbid vernal pools or playa pools.	November-April	Absent - Habitat not present
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Vernal pools/wetlands	November-April	Present – On-site CNDDB Occurrences 319 from 2013. The northeastern corner of the Study Area supports critical habitat for this species. Detected during 2013 dry season sampling at Phase 1 Project
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	Vernal pools/wetlands	November-April	Present – On-site CNDDB Occurrence 27 from 2006. Not found during 2013 surveys at Phase 1 area.
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT, FPD	Elderberry shrubs	any season	Potential - Habitat limited due to agricultural activities. Not found during 2013 and 2014 surveys at Phase 1 area.
Fish					
Chinook salmon (Central Valley fall-run ESU)	*Oncorhynchus tshawytscha*	FT, CT	Undammed rivers, streams, creeks	fall	Absent - Habitat not present
Steelhead (CA Central Valley ESU)	*Oncorhynchus mykiss*	FT	Undammed rivers, streams, creeks	any season	Present – Auburn Ravine upstream to Gold Hill dam. Auburn Ravine is designated critical habitat for this species throughout the Study Area. On-site CNDDB occurrence 4 detected in 2007.

Common Name	Scientific Name	Species Status	Habitat Description	Approximate Survey Dates	Potential to occur in the Study Area
Lahontan cutthroat trout	*Oncorhynchus clarki henshawi*	FT	Endemic or native to the Lahontan basin of northern Nevada, eastern California, and southern Oregon.	Any season	Absent - Outside of known distribution of the species.
Delta smelt	*Hypomesus transpacificus*	FT, CE	Sac-San Joaquin delta		**Absent - Outside of known distribution of the species.**
Amphibians					
California tiger salamander (Central California DPS)	*Ambystoma californiense*	FT, CT, CSC	Vernal pools, wetlands (breeding) and adjacent grassland or oak woodland; needs underground refuge (e.g., ground squirrel, gopher burrows). Largely terrestrial as adults.	**March-May**	Absent - Outside of known distribution of the species
Western spadefoot	*Spea hammondii*	CSC	California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	**March-May**	**Potential – Suitable habitat present onsite. Observed in vernal pool during Phase 1 area surveys. Remainder of Study Area not surveyed.**
Mountain yellow-legged frog	*Rana muscosa*	FC	Lakes, ponds, marshes, meadows, and streams at elevations ranging from 4,500 to 12,000 feet, but can occur as low as 3,500 feet.	May 1-November 1	Absent - Outside of known distribution of the species.
California red-legged frog	*Rana draytonii*	FT, CSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1-November 1	Absent - Outside of known distribution of the species.
Reptiles					
Northwestern pond turtle	***Actinemys marmorata***	CSC	The only extant freshwater turtle in California. The northwestern and southwestern subspecies intergrade in central California. This turtle requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	**April-October**	**Potential - Study Area not surveyed.**
Giant garter snake	*Thamnophis gigas*	FT, CT	Freshwater ditches, sloughs, and marshes in the Central Valley. Almost extirpated from the southern parts of its range.	April-October	Absent - Outside of known distribution of the species.

Common Name	Scientific Name	Species Status	Habitat Description	Approximate Survey Dates	Potential to occur in the Study Area
Birds					
Tricolored blackbird (nesting colony)	*Agelaius tricolor*	BCC, CSC	Marsh, grassland	April-June	Potential - Study Area not surveyed.
Grasshopper sparrow	*Ammodramus savannarum*	CSC	Grassland	May-July	Potential - Study Area not surveyed.
Burrowing owl	*Athene cunicularia*	BCC, CSC	Grassland	March-August	Potential - Study Area not surveyed.
Oak titmouse	*Baeolophus inornatus*	BCC	Oak woodland, riparian	March-July	Potential - Study Area not surveyed.
Swainson's hawk (nesting)	*Buteo swainsoni*	CT, BCC	Grassland, riparian	March-August	Present – On-site CNDDB Occurrence 1484 from 2001. Study Area not surveyed.
Northern harrier (nesting)	*Circus cyaneus*	CSC	Marsh, grassland	April-September	Potential - Study Area not surveyed.
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FC, CE, BCC	Riparian	June 15-August 15	Potential - Study Area not surveyed.
White-tailed kite (nesting)	*Elanus leucurus*	CFP	Woodland, grassland	March-June	Potential - Study Area not surveyed.
Greater sandhill crane	*Grus canadensis tabida*	CT	Seasonal wetlands, irrigated pastures, alfalfa and corn fields	December-February	Low Potential - Study Area not surveyed.
Loggerhead shrike	*Lanius ludovicianus*	BCC, CSC	Grassland, woodland	March-July	Potential - Study Area not surveyed.
California black rail	*Laterallus jamaicensis coturniculus*	CT, BCC, CFP	Marsh	March-July	Absent - Habitat not present.
Yellow-billed magpie (nesting)	*Pica nuttalii*	BCC	Oak woodland, riparian	February-July	Potential - Study Area not surveyed.
Nuttall's woodpecker	*Picoides nuttallii*	BCC	Oak woodland, riparian	March-July	Potential - Study Area not surveyed.
Purple martin	*Progne subis*	CSC	Riparian woodland, oak woodland, cavity nester	April-Aug	Potential - Study Area not surveyed.
Great egret (rookery)	*Ardea alba*	*	Rookery sites (marsh, riparian)	March-July	Potential - Study Area not surveyed.
Great blue heron (rookery)	*Ardea herodias*	*	Rookery sites (marsh, riparian)	February-July	Potential - Study Area not surveyed.
Snowy egret (rookery)	*Egretta thula*	*	Rookery sites (marsh, riparian)	March-July	Potential - Study Area not surveyed.
Black-crowned night heron (rookery)	*Nycticorax nycticorax*	*	Rookery sites (trees, marsh, riparian)	February-July	Potential - Study Area not surveyed.
Golden eagle (nesting and wintering)	*Aquila chrysaetos*	BCC, CFP	Grassland	nest (February-August); winter CV (October-February)	Potential - Study Area not surveyed.

Common Name	Scientific Name	Species Status	Habitat Description	Approximate Survey Dates	Potential to occur in the Study Area
Short-eared owl (nesting)	*Asio flammeus*	CSC	Marsh, grassland	March-July (nesting)	Potential - Study Area not surveyed.
Ferruginous hawk (wintering)	*Buteo regalis*	SSC	Grassland	November-February	Potential - Study Area not surveyed.
Prairie falcon (nesting)	*Falco mexicanus*	BCC	Grassland	October-February	Potential - Study Area not surveyed.
Long-billed curlew (nesting)	*Numenius americanus*	BCC	Grassland, pasture	September-March	Potential - Study Area not surveyed.
Mammals					
American badger	*Taxidea taxus*	CSC	Drier open stages of moist shrub, forest, and herbaceous habitats with friable soils	year round res. (breeds summer-early fall)	Potential - Study Area not surveyed.
Fisher	*Martes pennanti*	FC	Occur in the northern coniferous and mixed forests of Canada and northern United States	Year round.	Absent - Outside of known distribution of the species
Pallid bat	*Antrozous pallidus*	CSC	Mines, man-made structures, rock outcrops, and woodland near open grasslands for foraging	April-September	Low Potential - Study Area not surveyed.
Townsend's big-eared bat	*Corynorhinus townsendii*	CSC	Caves, mines, buildings, rock crevices, trees	April-September	Low Potential - Study Area not surveyed.

Status Codes:

FE = Federal ESA listed, Endangered.
FT = Federal ESA listed, Threatened.
FPD = Listed under Federal ESA, but formally proposed for delisting.
FC = Candidate for federal ESA listing as Threatened or Endangered.
BCC = U.S. Fish and Wildlife Service Bird of Conservation Concern (USFWS 2008).
CE = California ESA or Native Plant Protection Act listed, Endangered.
CT = California ESA or Native Plant Protection Act listed, Threatened.
CC = Candidate for California ESA listing as Endangered or Threatened.
CSC = California Department of Fish and Game Species of Special Concern (CDFG 2011).
* Rookeries are tracked and are of special interest to the California Department of Fish and Wildlife (CDFW).
CFP = Fish and Game Code of California Fully Protected Species (§3511-birds, §4700-mammals, §5050-reptiles/amphibians).
1B.1 = California Rare Plant Rank/Rare or Endangered in California and elsewhere, seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat).
1B.2 = California Rare Plant Rank/Rare or Endangered in California and elsewhere, fairly threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat).
1B.2 = California Rare Plant Rank/Rare or Endangered in California and elsewhere, fairly threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat).
2B.2 = California Rare Plant Rank/Rare or Endangered in California, more common elsewhere, fairly threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat).

4.0 RESULTS

Representative site photos are shown in Attachment C.

4.1 Site Characteristics and Land Use

Site characteristics and land use is summarized from the Lincoln Village 5 & SUD-B Specific Plan (City of Lincoln 2014).

The Study Area is comprised of 141 parcels and many different landowners. The applicant, Richland Developers, Inc., owns and/or controls approximately 1,541 acres (approx. 32 percent of the total) within the Plan boundaries. The Study Area has been used historically for ranching or farming. The property appears to be heavily disturbed as a result of agricultural use.

The current land uses on the properties within the Study Area include grazing, rice farming, small ranches, and rural residential homes. Adjacent land uses to the Study Area include:

- west: Agricultural land
- north: Lincoln airport, residential homes, open space, agricultural land
- east: Residential homes, agricultural land, vacant land
- south: Lincoln Wastewater treatment facility, agricultural land

4.2 Plant Communities

Annual grassland is the most common habitat type within the Study Area. Riparian woodland is also found in association with the Auburn and Markham Ravines (City of Lincoln 2014).

Within the Lincoln Village 5, Phase 1 Project, the following plant communities were described in detail (ECORP 2014c). Similar plant communities are anticipated throughout the Study Area.

4.2.1 Nonnative Annual Grassland

The nonnative annual grasslands on-site are dominated by a variety of species, including wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), Italian ryegrass (*Festuca perennis*), medusahead grass (*Elymus caput-medusae*), and wild radish (*Raphanus sativus*). Other species commonly occurring in this community include filaree (*Erodium cicutarium*), winter vetch (*Vicia villosa*), hairy hawkbit (*Leontodon saxatilis*), rose clover (*Trifolium hirtum*), sticky tarweed (*Holocarpha virgata*), cultivated wheat (*Triticum aestivum*), Valley tassels (*Castilleja attenuata*), Spanish lotus (*Acmispon americanus*), and milkweed (*Asclepias* species) (ECORP 2014c).

4.2.2 Rice Fields

The Phase 1 project is comprised largely of "laser-leveled" rice fields. This method involves carefully leveling a field and grading to a constant grade from one end of the field to the other. This method of rice farming allows for maximum efficiency in flood irrigation, and generally requires one irrigation point and one drain point for each field. "Checks" (long, linear bermed areas across each field) with

doors or gates between each to allow for irrigation flexibility are often installed, which is the case for all rice fields within Phase 1 (ECORP 2014d).

The goal of a laser-leveled rice field is to maximize uniformity in surface elevation and limit variations in topography in order to promote efficiency; as such, these fields are constructed such that they are very flat and slightly sloped to promote efficient draining.

Rice has been grown consistently on the property with the exception of two years (2006 and 2007) during which time wheat was grown. The rice is not flooded for the purposes of rice stubble control as it is in other nearby rice growing areas such as the Natomas Basin. To control rice stubble, the farmer burns approximately 25 percent (allowed maximum) of the stubble and discs the remainder. The fields are flooded through a series of excavated irrigation canals and ditches. Water enters the property from the dam at Auburn Ravine and exits at Markham Ravine.

4.2.3 Riparian Woodland

Much of the upland area adjacent to Auburn Ravine, and to a lesser extent Markham Ravine, supports riparian woodland habitat. These woodlands are dominated by native trees, shrubs, and vines including valley oak (*Quercus lobata*), California wild grape (*Vitis californica*), and poison oak (*Toxicodendron diversilobum*) (City of Lincoln 2014).

4.3 Wildlife

The Study Area is located within an area of pastures and undeveloped grasslands, with scattered rural residences and agricultural operations. This area is considered important for wintering raptors in the Central Valley (Jones & Stokes 2003).

Wildlife occurrence as described below is based on site conditions and existing plant communities, information on surrounding development proposals and site visits to the Phase 1 project.

The grassland community within the Study Area, supports numerous birds, including mourning dove (*Zenaida macroura*), Western meadowlark (*Sturnella neglecta*), savannah sparrow (*Passerculus sandwichensis*), and foraging habitat for tricolored blackbirds (*Agelaius tricolor*). Other wildlife species likely to occur in the grassland community include western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis catenifer*), deer mouse (*Peromyscus maniculatus*), California vole (*Microtus californicus*), and coyote (*Canis latrans*).

Trees may provide suitable nesting habitat for a variety of birds. Within the Study Area, trees are limited to Markham and Auburn Ravines and residential in-holdings. Riparian woodlands in the Study Area likely provide nesting and cover habitat for a variety of wildlife species including mourning dove, black phoebe (*Sayornis nigricans*), western wood pewee (*Contopus sordidulus*), California towhee (*Melozone crissalis*), song sparrow (*Melospiza melodia*), opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), deer mouse, broad-footed mole (*Scapanus latimanus*), striped skunk (*Mephitis mephitis*), and gray fox (*Urocyon cinereoargenteus*) (City of Lincoln 2014). Beaver activity was observed in the vicinity of the Phase 1 Project.

The rice fields within the Phase 1 Project support a variety of wintering waterfowl that likely includes Northern pintail (*Anas acuta*), tundra swan (*Cygnus columbianus*), greater white-fronted geese

(*Anser albifrons*), American widgeon (*Anas americana*), and green-winged teal (*Anas carolinensis*), among many others.

4.4 Soils

According to the Web Soil Survey (USDA, NRCS 2015), eleven soil units, or types, have been mapped within the Study Area (Figure 4. *Natural Resources Conservation Service Soil Classifications*). These are: (104) Alamo-Fiddyment complex, 0-5% slopes, (140) Cometa sandy loam, 1-5% slopes, (141) Cometa – Fiddyment complex, 1-5% slopes, (142) Cometa-Ramona sandy loams, 1-5% slopes, (162) Kilaga loam, (174) Ramona sandy loam, 0-2% slopes, (175) Ramona sandy loam, 2-9% slopes, (181) San Joaquin sandy loam, 1-5% slopes, (182) San Joaquin-Cometa sandy loams, 1-5% slopes, (193) Xerofluvents, occasionally flooded, and (194) Xerofluvents, frequently flooded. Only the frequently flooded Xerofluvents had hydric components, while the rest of the soils units may contain hydric inclusions.

4.5 Waters of the U.S.

The majority of the Study Area has not been subject to a jurisdictional delineation of Waters of the U.S. This section describes the results of a wetland assessment using National Wetland Inventory maps and SCARI data to identify potential wetlands in the Study Area. A wetland delineation potential Waters of the U.S./State was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008a) for the Phase 1 project and those results are discussed below. The results of both the assessment and delineation are shown in Figure 5. *SCARI, NWI, and Wetland Delineation Features.*

4.5.1 Waters of the U.S. Assessment

Wetlands/Waters of the U.S. for the Study Area are described in the Special Plan (City of Lincoln 2014). These features include vernal pools, seasonal wetlands and seasonal wetland swales, riparian wetlands and the Auburn and Markham Ravines.

Vernal Pool

In general, vernal pools are topographic basins that are underlain with an impermeable or semi-permeable hardpan or duripan layer. Direct rainfall and surface runoff inundate the pools during the wet season. The pools remain inundated and/or the soil maintains saturation through spring and is dry by late spring through the following wet season. Vernal pools are found in the northeastern and southeastern corners of the Study Area.

Vernal pools in the Study Area range from well-defined basins with distinct boundaries to those with indistinct boundaries that have been altered over time through previous agricultural use. Dominant plants within the vernal pools include American pilwort (*Pilularia americana*) and Carter's buttercup (*Ranunculus bonariensis*).

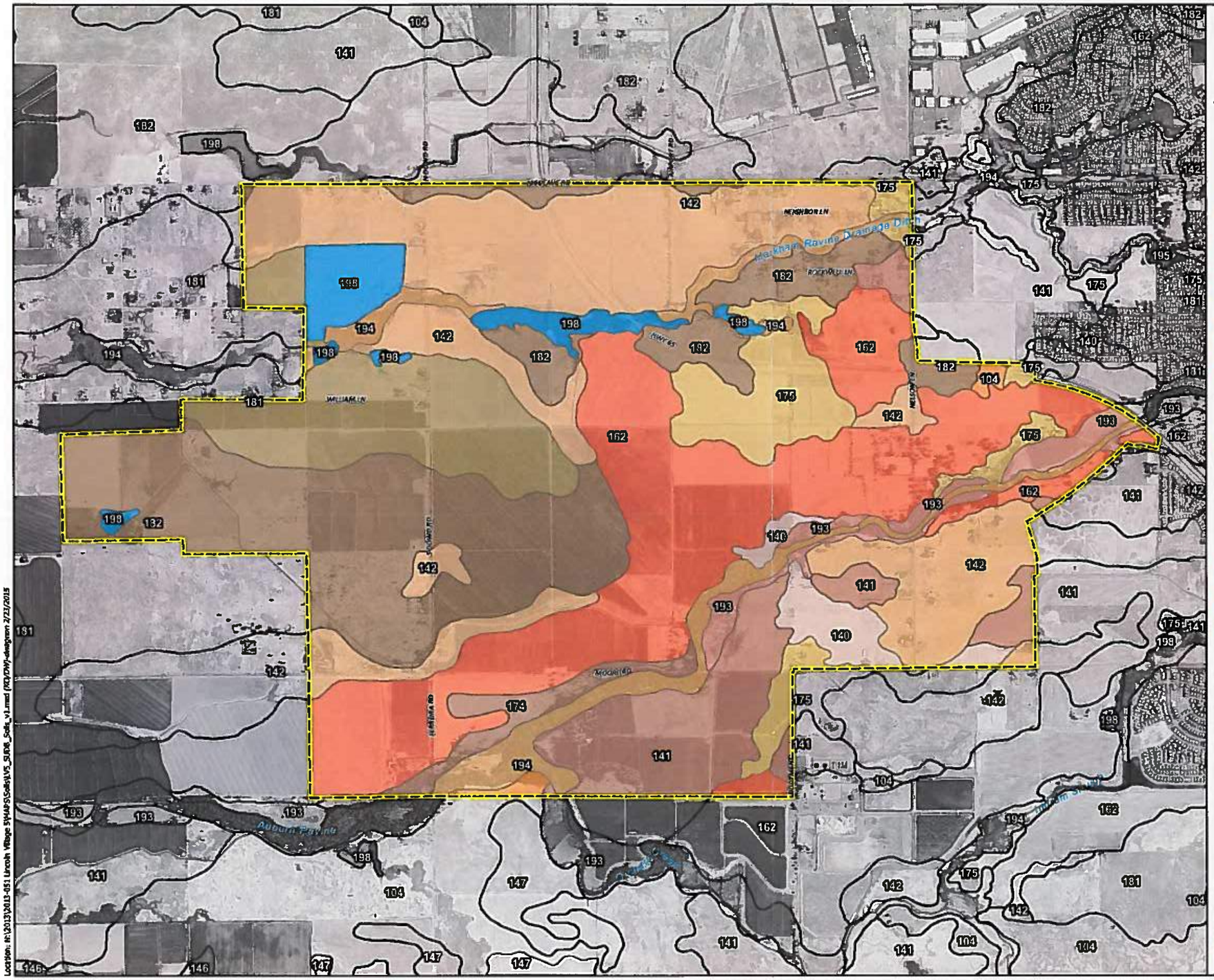


Figure 4.
Natural Resources Conservation Service Soil Classifications

Map Features

Specific Plan Area

Series Number - Series Name

- 104 - Alamo-Fiddyment complex, 0 to 5 percent slopes
- 140 - Cometa sandy loam, 1 to 5 percent slopes
- 141 - Cometa-Fiddyment complex, 1 to 5 percent slopes
- 142 - Cometa-Ramona sandy loams, 1 to 5 percent slopes
- 162 - Kilaga loam
- 174 - Ramona sandy loam, 0 to 2 percent slopes
- 175 - Ramona sandy loam, 2 to 9 percent slopes
- 181 - San Joaquin sandy loam, 1 to 5 percent slopes
- 182 - San Joaquin-Cometa sandy loams, 1 to 5 percent slopes
- 193 - Xerofluvents, occasionally flooded
- 194 - Xerofluvents, frequently flooded
- 198 - Water

Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database for Placer County, CA.

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: H:\2013\2013-051 Lincoln Village 5\HAP\Soils\V5_SURG_Soils_v1.mxd (RD/DW)-diagram 2/23/2015

2013-051 Lincoln Village 5

Photo Source: NAIP 2012

Map Date: 2/23/2015

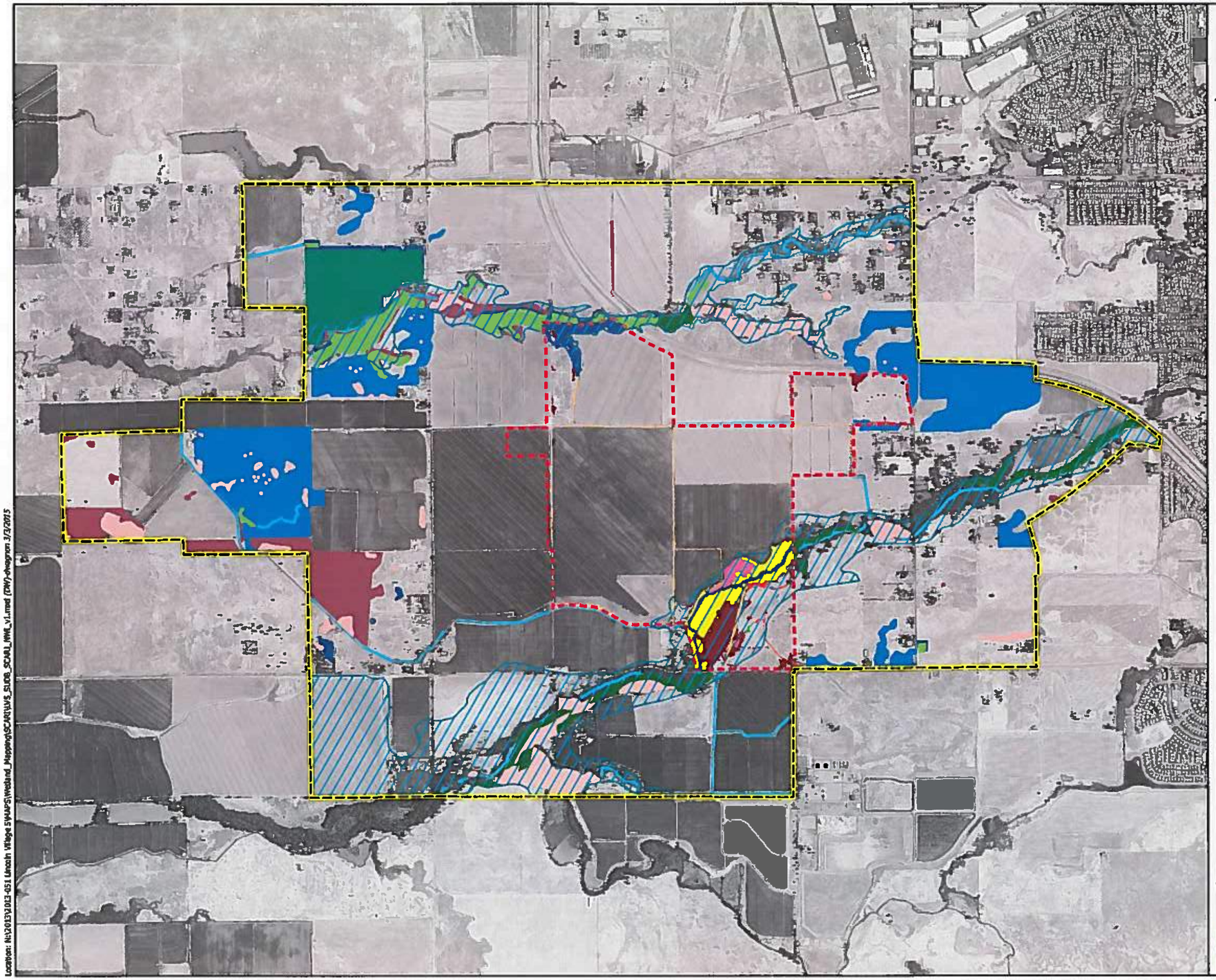


Figure 5
SCARI, NWI, and Wetland Delineation Features

Map Features

- Lincoln Village 5 Special Plan Area
- Phase 1 Survey Area
- FEMA 100 Year Flood Plain

Phase 1 Wetland Delineation [1]

Wetlands

- Vernal Pool
- Seasonal Wetland
- Seasonal Wetland Swale
- Marsh
- Riparian Wetland

Other Waters

- Intermittent Drainage
- Creek
- Irrigation Canal

NWI Features [2]

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other

SCARI Features [3]

- Open Water/Fringe
- Other Depressional
- Riverine
- Vernal Pool

NOTE: NWI and SCARI features within Phase 1 survey area not shown.

[1] Phase 1 Wetland Delineation, ECORP
[2] National Wetland Inventory, USFWS
[3] Six County Aquatic Resources Inventory, USACE

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Location: N:\2013\2013-051 Lincoln Village 5\MAPS\Wetland_Mapping\SCARI\LV5_SUB8_SCARI_NWI_v1.mxd (DW)-dwagner 3/3/2015

2013-051 Lincoln Village 5

Scale in Feet
0 1,500 3,000

Photo Source: NAIP 2012

Map Date: 3/3/2015

Seasonal Wetland/Seasonal Wetland Swales

Seasonal wetlands are ephemerally wet due to accumulation of surface runoff and rainwater within low-lying areas. Inundation periods tend to be relatively short and they are commonly dominated by nonnative annual, and sometimes perennial, hydrophytic species. Seasonal wetland swales are linear wetland features that do not exhibit an ordinary high water mark. Typical seasonal wetlands in the Study Area are dominated by low-growing grasses and annual herbs such as annual hairgrass (*Deschampsia danthonioides*), perennial ryegrass (*Lolium perenne*), and Bermuda grass (*Cynodon dactylon*). Typical drainage swales are dominated by little quaking grass (*Briza minor*), filaree (*Erodium cicutarium*), toad rush (*Juncus bufonius*), white meadowfoam (*Limnanthes alba*), and hyssop loosestrife (*Lythrum hyssopifolia*). When inundated, these seasonal wetlands and drainage swales provide habitat for aquatic invertebrates and amphibians. For most of the remainder of the year, wildlife use is similar to that of typical Central Valley nonnative annual grassland habitat.

Auburn Ravine

Auburn Ravine borders the southern portion of the Study Area in a northeast/southwest alignment. The ravine's most significant feature is its perennial stream, which originates approximately ten miles to the east near the City of Auburn, and ultimately flows through the City of Lincoln to the East Side Canal. Through the Study Area, Auburn Ravine supports dense riparian woodland and riparian wetlands within low-lying sections of its floodplain. These wetlands are dominated by mugwort, perennial ryegrass, and common bedstraw (*Galium aparine*), cut-leaved geranium and creeping wild rye.

The canopy of the riparian woodland is dominated by Valley oak and Fremont cottonwood (*Populus fremontii*) with cigar tree (*Catalpa bignonioides*) and box-elder (*Acer negundo*) also occurring frequently. Common shrubs and vines in the understory include poison oak (*Toxicodendron diversilobum*), Himalayan blackberry (*Rubus armeniacus*), and California wild grape. Herbaceous species in the understory are largely the same as those observed in the nonnative annual grasslands on-site.

Markham Ravine

Markham Ravine is a perennial stream located in the northern portion of Village 5 in an east/west alignment. The floodplain of Markham Ravine supports riparian wetlands similar in species composition to those of Auburn Ravine. Small patches of riparian woodland also exist along the banks of Markham Ravine.

4.5.2 Delineated Wetlands/Waters of the U.S.

Wetland delineations were conducted for the Phase 1 project in April and October 2013 and August 2014 (ECORP 2014b). Vernal pools, seasonal wetlands, seasonal wetland swales, riparian wetlands, and marsh wetlands as well as creeks, irrigation ditches, and intermittent drainages were identified (Figure 5). The acreages of these features are presented in Table 2 and described below.

Table 2. Potential Wetlands/Waters of the U.S.

Type	Acreage[1]
Wetlands	
Vernal Pool	0.819
Seasonal Wetland	18.009
Seasonal Wetland Swale	2.298
Marsh	6.810
Riparian Wetland	26.503
Other Waters	
Intermittent Drainage	0.164
Creek	17.654
Irrigation Canal/Ditch	6.367
Total	78.625

[1]Acreages represent a calculated estimation and are subject to modification following the Corps' verification process. The acreage value for each feature and type has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

Vernal Pool

Vernal pools were found in the northeastern and southeastern corners of the Phase 1 Project. Dominant plants within the on-site vernal pools include slender popcorn-flower (*Plagiobothrys stipitatus*).

Seasonal Wetland

Seasonal wetlands in the Phase 1 Project were dominated by creeping wild-rye, meadow barley (*Hordeum brachyantherum*), annual bluegrass (*Poa annua*), Italian ryegrass, mannagrass (*Glyceria declinata*), and Bermuda grass.

Seasonal Wetland Swale

The dominant plant species identified within the seasonal wetland swale was Mediterranean barley (*Hordeum marinum* var. *gussoneanum*). Other plants found within the swale included fiddle dock (*Rumex pulcher*), chicory (*Cichorium intybus*) and Bermuda grass. At the time the sample point data was taken, the swale had been heavily grazed.

Marsh

Two marshes are located in the southern portion of the Phase 1 Project. One is located north and adjacent to Auburn Ravine and the other is located south of Auburn Ravine and adjacent to a seasonal wetland feature. Dominant vegetation within representative marsh includes lady's thumb (*Persicaria maculosa*).

Riparian Wetland

The riparian wetlands were mapped within the seasonally inundated floodplain and margins above the OHWM of Auburn Ravine. Dominant vegetation within a representative riparian wetland included Valley oak, sandbar willow (*Salix exigua*), arroyo willow (*Salix lasiolepis*), Himalayan blackberry, and dallisgrass (*Paspalum dilatatum*).

Creek

Two creeks were mapped within the Phase 1 Project. Markham Ravine runs along the northern edge of the Phase 1 Project, supporting primarily emergent marsh vegetation along its edges, while Auburn Ravine cuts through the southeastern corner of the Phase 1 Project, and supports an adjacent riparian woodland.

Intermittent Drainage

One intermittent drainage was found within the southern portion of the Phase 1 Project. The intermittent drainage was unvegetated and the edges were dominated by hyssop loosestrife, creeping spikerush (*Eleocharis macrostachya*), toad rush, and purslane speedwell (*Veronica peregrina*).

Irrigation Canal

Irrigation canals throughout Phase 1 Project convey irrigation water to and from the rice fields. Dominant plant species identified within the irrigation canals included tall flatsedge (*Cyperus eragrostis*), hairy willow-herb (*Epilobium ciliatum*), mannagrass, and broad-leaf cattail.

4.6 Special-Status Plants

A number of special-status plants may occur within the Study Area. Targeted species include big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis)*, Hispid bird's-beak (*Chloropyron molle* ssp. *hispidum)*, dwarf downingia (*Downingia pusilla*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Ahart's dwarf rush (*Juncus leiospermus* ssp. *ahartii*), Red Bluff dwarf rush (*Juncus leiospermus* ssp. *leiospermus*), legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii* ssp. *myersii*), slender Orcutt grass (*Orcuttia tenuis*), Sacramento Orcutt grass (*Orcuttia viscida*), and Sanford's arrowhead (*Sagittaria sanfordii*). According to the CNDDB, some of these special-status species have been documented to occur within five miles of the Study Area (Figure 3. *CNDDB Occurrences of Special-Status Species*) (CDFW 2015).

Adobe navarretia (*Navarretia nigelliformis spp. nigelliformis)*, Stebbins morning glory (*Calystegia stebbinsii*) , Pine Hill ceanothus (*Ceanothus roderickii*) El Dorado bedstraw (*Galium calfornicum ssp. sierrae*), Layne's butterweed (*Senecio layneae*) are not expected to occur due to lack of suitable habitat or the Study Area is outside the known range of the species. These species are not further addressed in this report.

Protocol-level special-status plant surveys of the Phase 1 project were conducted during the 2013 and 2014 growing seasons (ECORP 2014c). No special-status plants have been found within the Phase 1 Project Area. To date, no special-status plant surveys have been conducted within the remainder of the Study Area.

4.6.1 Big-Scale Balsamroot

The big-scale balsamroot is not listed pursuant to either FESA or CEQA, but is designated as a CRPR 1B.2 species. This species is an herbaceous perennial that occurs in chaparral, cismontane woodlands, valley and foothill grasslands, and occasionally on serpentine soils (CNPS 2014). The

big-scale balsamroot blooms from March through June and is known to occur at elevations ranging from 295 to 5,100 feet above MSL (CNPS 2014). The big-scale balsamroot is endemic to California; the current range of this species includes Alameda, Amador, Butte, Colusa, El Dorado, Lake, Mariposa, Napa, Placer, Santa Clara, Shasta, Solano, Sonoma, Tehama, Tuolumne counties (CNPS 2014).

One occurrence of big-scale balsamroot has been reported within one mile and one occurrence within five-miles of the Study Area (CDFW 2015). The annual grasslands throughout the Study Area support suitable habitat for this species. Big-scale balsamroot was not observed on the Phase 1 Project Area during surveys in 2013 and 2014 (ECORP 2014c). The remainder of the Study Area has not been surveyed for this species.

4.6.2 Hispid Bird's-beak

The hispid bird's-beak is designated as a CRPR 1B.1 species. This species is an herbaceous, hemiparasite annual that occurs on alkaline soils in meadows and seeps, playas, and valley and foothill grasslands. The hispid bird's-beak blooms from June through September and is known to occur at elevations ranging from 3 to 508 feet above MSL (CNPS 2014). The hispid bird's-beak is endemic to California; the current range of this species includes Alameda, Fresno, Kern, Merced, Placer, and Solano counties (CNPS 2014).

There are no occurrences of this species within five miles of the project (CDFW 2015). This species was not surveyed in the Phase 1 Project Area due to lack of suitable habitat, nor is not anticipated in the remainder of the Survey Area.

4.6.3 Dwarf Downingia

The dwarf downingia is designated as a CRPR 2B.2 species. This species is a small herbaceous annual that occurs in vernal pools and mesic areas in valley and foothill grasslands (CNPS 2014). This species also appears to have an affinity for slight disturbance since it has been found in man-made features such as tire ruts, scraped depressions, stock ponds, and roadside ditches (USFWS 2005). This species blooms from March through May and is known to occur at elevations ranging from 3 to 1,460 feet above MSL (CNPS 2014). The current range of this species in California includes Amador, Fresno, Merced, Napa, Placer, Sacramento, San Joaquin, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties (CNPS 2014).

One occurrence of dwarf downingia has been reported within the Study Area (CNDDB Occurrence 61) as well as 15 additional occurrences within a five-mile radius (CDFW 2015). The vernal pools, seasonal wetlands, and seasonal wetland swales throughout the Study Area support suitable habitat for this species. Big-scale balsamroot was not observed in the Phase 1 Project Area during surveys in 2013 and 2014 (ECORP 2014c). The remainder of the Study Area has not been surveyed for this species.

4.6.4 Boggs Lake Hedge-Hyssop

Boggs Lake hedge-hyssop is listed as endangered pursuant to CEQA and is designated as a CRPR 1B.2 species. This species is a small, semi-aquatic, herbaceous annual that occurs on clay soils in vernal pools, marshes, and swamps of lake margins (CNPS 2014, CDFW 2014). Boggs Lake hedge-

hyssop blooms from April through August and is known to occur at elevations ranging from 32 to 7,792 feet above MSL (CNPS 2014). The current range of this species in California includes Fresno, Lake, Lassen, Madera, Merced, Modoc, Placer, Sacramento, Shasta, Siskiyou, San Joaquin, Solano, and Tehama counties (CNPS 2014, CDFW 2014).

Two occurrences of Boggs Lake hedge-hyssop have been reported within five miles of the site (CDFW 2015). The vernal pools, seasonal wetlands, and seasonal wetland swales throughout the Study Area support suitable habitat for this species. Boggs Lake hedge-hyssop was not observed on the Phase 1 Project Area during surveys in 2013 and 2014 (ECORP 2014c). The remainder of the Study Area has not been surveyed for this species.

4.6.5 Ahart's Dwarf Rush

Ahart's dwarf rush is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in mesic areas in valley and foothill grasslands (CNPS 2014). This species also appears to have an affinity for slight disturbance since it has been found on farmed fields and gopher turnings (USFWS 2005). Ahart's dwarf rush blooms from March through May and is known to occur at elevations ranging from 98 to 751 feet above MSL (CNPS 2014, USFWS 2005). Ahart's dwarf rush is endemic to California; the current range of this species includes Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba counties (CNPS 2014).

One occurrence of Ahart's dwarf rush has been reported within five miles of the site (CDFW 2015). The vernal pools, seasonal wetlands, and seasonal wetland swales throughout the Study Area support suitable habitat for this species. Ahart's dwarf rush was not observed in the Phase 1 Project Area during surveys in 2013 and 2014 (ECORP 2014c). The remainder of the Study Area has not been surveyed for this species.

4.6.6 Red Bluff Dwarf Rush

Red Bluff dwarf rush is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in vernally mesic areas in chaparral, cismontane woodland, meadows, seeps, valley and foothill grasslands, and vernal pools (CNPS 2014). Red Bluff dwarf rush blooms from March through June and is known to occur at elevations ranging from 114 to 4001 feet above MSL (CNPS 2014). Red Bluff dwarf rush is endemic to California; the current range of this species includes Butte, Placer, Shasta, and Tehama counties (CNPS 2014).

One occurrence of Red Bluff dwarf rush has been reported within five miles of the site (CDFW 2015). The vernal pools, seasonal wetlands, and seasonal wetland swales throughout the Study Area support suitable habitat for this species. Red Bluff dwarf rush was not observed in the Phase 1 Project Area during surveys in 2013 and 2014. (ECORP 2014c). The remainder of the Study Area has not been surveyed for this species.

4.6.7 Legenere

Legenere is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in a variety of seasonally inundated environments including wetlands, wetland swales, marshes, vernal pools, artificial ponds, and floodplains of intermittent drainages (CNPS 2014, USFWS 2005). Legenere blooms from April through June and is known to occur at elevations ranging from 3 to

2,624 feet above MSL (CNPS 2014). Legenere is endemic to California; the current range of this species includes Alameda, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, San Joaquin, Shasta, San Mateo, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties (CNPS 2014) and is believed to be extirpated from Stanislaus County (CNPS 2014).

Three occurrences of legenere have been reported within five miles of the site (CDFW 2015). The vernal pools, seasonal wetlands, and seasonal wetland swales throughout the Study Area support suitable habitat for this species. Legenere was not observed in the Phase 1 Project Area during surveys in 2013 and 2014 (ECORP 2014c). The remainder of the Study Area has not been surveyed for this species.

4.6.8 Pincushion Navarretia

Pincushion navarretia is not listed pursuant to either FESA or CEQA, but is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in vernal pools that are often acidic (CNPS 2014). Pincushion navarretia blooms in April through May and is known to occur at elevations ranging from 65 to 1,082 feet above MSL (CNPS 2014). Pincushion navarretia is endemic to California; the current range of this species includes Amador, Calaveras, Merced, Placer, and Sacramento counties (CNPS 2014).

One occurrence of pincushion navarretia has been reported within one mile of the site (CDFW 2015). The vernal pools, seasonal wetlands, and seasonal wetland swales throughout the Study Area support suitable habitat for this species. Pincushion navarretia was not observed in the Phase 1 Project Area during surveys in 2013 and 2014. (ECORP 2014c). The remainder of the Study Area has not been surveyed for this species.

4.6.9 Slender Orcutt Grass

Slender Orcutt grass is listed as threatened and endangered pursuant to FESA and CEQA, respectively, and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in vernal pools (CNPS 2014) primarily on substrates of volcanic origin (Crampton 1959, Corbin and Schoolcraft 1989; as cited in USFWS 2003). This species is known to occur in the same type of vernal pool complexes as Sacramento Orcutt grass in Sacramento County; however, these species have not been observed co-existing in the same vernal pool (USFWS 2003). The median area of pools occupied by populations studied by Stone et al. (1988, as cited in USFWS 2003) was 1.6 acres and ranged from 0.2 acre to 111.0 acres (USFWS 2003). Slender Orcutt grass blooms from May through October and is known to occur at elevations ranging from 115 to 5,775 feet above MSL (CNPS 2014). Slender Orcutt grass is endemic to California; the current range for this species includes Butte, Lake, Lassen, Modoc, Plumas, Sacramento, Shasta, Siskiyou, and Tehama counties (CNPS 2014).

While no documented occurrences of slender Orcutt grass have been reported within five miles of the site, (CDFW 2015), this species was still considered a target species due to the presence of suitable habitat within the site. The vernal pools in the Survey Area support suitable habitat for this species. Slender Orcutt grass was not observed in the Phase 1 Project Area during surveys in 2013 and 2014 (ECORP 2014c). The remainder of the Study Area has not been surveyed for this species.

4.6.10 Sacramento Orcutt Grass

Sacramento Orcutt grass is listed as endangered pursuant to both FESA and CEQA and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in vernal pools (CNPS 2014). The median area of occupied pools discovered prior to 1988 was 0.69 acre and ranged from 0.25 acre to 2.03 acres (USFWS 2003). Sacramento Orcutt grass blooms from April through September and is known to occur at elevations ranging from 98 to 328 feet above MSL (CNPS 2014). Sacramento Orcutt grass is endemic to California and to the southeastern Sacramento Valley (Keeler-Wolf et al. 1998, as cited in USFWS 2003), with all known occurrences restricted to Sacramento County. Known occurrences of this species within the general region are limited to a small area east of Mather Field, Phoenix Field Ecological Reserve, Phoenix Park (introduced population), and an area near Rancho Seco Lake (USFWS 2003).

There are no documented occurrences of this species in the vicinity and it is not expected to occur in the Study Area.

4.6.11 Sanford's Arrowhead

Sanford's arrowhead is not listed pursuant to FESA or CEQA, but is designated as a CRPR 1B.2 species. This species is a rhizomatous, herbaceous perennial that occurs in shallow marshes and freshwater swamps (CNPS 2014). Sanford's arrowhead blooms from May through October and is known to occur at elevations ranging from sea level to 2,132 feet above MSL (CNPS 2014). Sanford's arrowhead is endemic to California; the current range of this species includes Butte, Del Norte, El Dorado, Fresno, Merced, Mariposa, Orange, Placer, Sacramento, San Bernardino, San Joaquin, Shasta, Solano, Tehama, and Ventura counties, but is believed to be extirpated from Orange and Ventura counties (CNPS 2014).

While no documented occurrences of Sanford's arrowhead have been reported within five miles of the site, (CDFW 2015), this species was still considered a target species due to the presence of suitable habitat within the site. The creek and canals throughout the site support suitable habitat for this species. Sanford's arrowhead was not observed in the Phase 1 Project Area during surveys in 2013 and 2014 (ECORP 2014c). The remainder of the Study Area has not been surveyed for this species.

4.7 Special-Status Wildlife

A number of special-status invertebrates, fish, amphibians, reptiles, and birds may occur within the Study Area. Some special-status species have been found during targeted species surveys within the Phase 1 project (ECORP 2014a). In addition, according to the CNDDB, these and other special-status species have been documented to occur within five miles of the Study Area (CDFW 2015). These are discussed in more detail below.

4.7.1 Invertebrates

Three listed branchiopod species have the potential to occur within the Study Area. These are the federally endangered conservancy fairy shrimp (*Branchinecta conservatio*), the federally threatened vernal pool fairy shrimp, and the federally endangered vernal pool tadpole shrimp (*Lepidurus packardi*) (collectively "listed large branchiopods"). ECORP conducted dry season surveys on the

Phase 1 Project Area in September and October 2014 (ECORP 2014a). During the survey, eggs belonging to the genus *Branchinecta* were found in two vernal pools surveyed. Since these pools occur in two of the disjunct areas on the site, further sampling was terminated and the assumption was made that federally listed large branchiopods occur within the Phase 1 project. Given the similarity of the Phase 1 project conditions to the remainder of the Study Area, it is expected that federally listed large branchiopods are also present within the Study Area.

Conservancy Fairy Shrimp

Conservancy fairy shrimp is federally listed as endangered under FESA. This species has a relatively long maturation (36 days) and reproductive (46 days) period, and is typically found with other large branchiopod species with long maturation and reproductive periods such as vernal pool tadpole shrimp and California fairy shrimp (*Linderiella occidentalis*) (Helm 1998). This species often co-occurs with endemic vernal pool grasses such as Colusa grass (*Neostafia colusana*) and Orcutt grasses (*Orcuttia* spp.) (Helm 1998). The recorded overall longevity of the population within a pool is 114 days (as measured from the first hatching to the last death of an individual within the pool) (Helm 1998). Conservancy fairy shrimp is most often found in large (3,900 to 7,500 meters square) clay bottom vernal pools to very large (356,253 meters square) vernal lakes on Anita, Pescadero, or Peters clay soils on High Terrace, Basin Rim, and Volcanic Mudflow landforms (Helm 1998). The conservancy fairy shrimp inhabits highly turbid vernal pools that are often large, such as the 89-acre (36-hectare) Olcott Lake at Jepson Prairie (Helm 1998). Pools that are occupied by the species typically have very low conductivity, total dissolved solids, and alkalinity (USFWS 1994).

The conservancy fairy shrimp is currently known from eight disjunct localities in California, including Butte and Tehama counties, in one large playa pool at the Sacramento National Wildlife Refuge in Glenn County, in one vernal pool in western Placer County at the Mariner Conservation Bank, in one playa pool at the Glide Tule Elk Reserve in Yolo County, at Jepson prairie and surrounding areas in Solano County, and in Eastern and Western Merced County (Helm pers. comm.).

The historical factors that led to the listing of conservancy fairy shrimp are primarily the loss of habitat due to urban development and conversion of native habitat to agriculture (USFWS 1994). The continued loss of vernal pool terrain throughout the Central Valley from urban development and agriculture continues the decline of this species.

There is one documented occurrence of this species within five miles of the Study Area (CDFW 2015) at the Mariner Conservation Bank. This species typically occurs in large, turbid vernal pools, which are not known to be present within the Study Area. Extensive surveys have occurred in Placer County for other projects in recent years, and this species has not been detected outside of the Mariner Conservation Bank. For these reasons, the Study Area is not expected to support this species.

Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp is federally listed as threatened under FESA.

Fairy shrimp are ephemeral crustaceans. The population remains in the dry basin as cysts (embryonic eggs) when the temporary water bodies that they inhabit dry up. These cysts can

withstand harsh conditions (e.g., summer heat, freezing, desiccation) while they await winter rains to fill their basin. After the appropriate conditions (e.g., water temperature, water depth) are present, the cysts hatch instars (immature fairy shrimp), that quickly mature and mate to ensure the next generation.

This species has a short average maturation period (18 days), and a short average number of days to reproduction (39 days), which explains its ability to survive in some of the most ephemeral wetland habitats (Helm 1998). This species generally cannot withstand warm water (24°C), which may explain why it is typically observed during the cooler months (i.e., January, February, and early March) (Helm 1998).

Vernal pool fairy shrimp are most often observed in vernal pools (79percent of observations); however, they have also been observed in other natural and artificial habitats, including seasonal wetlands, alkali pools, ephemeral drainages, stock ponds, roadside ditches, railroad ditches, vernal swales, and rock outcrop vernal pools (Helm 1998). The species occurs on many geologic formations and landforms. This species is most often found in small (less than 200 meters square) and shallow (five centimeters deep) habitats, although it also can occur in large and deep vernal pools (Helm 1998, Helm and Vollmar 2002).

Vernal pool fairy shrimp have one of the broadest distributions of the California endemic fairy shrimp species. It occurs most of the length of the Central Valley, from the Millville Plains and Stillwater Plains in Shasta County south to Pixley in Tulare County, and the eastern margin of the central Coast Range from San Benito County south to Ventura County (Helm 1998, Eng et al. 1990, Sugnet and Associates 1991). Disjunct populations occur on the Santa Rosa Plateau and near Rancho Santa Rosa, California in Riverside County (Eriksen and Belk 1999). The species also occurs within the Medford area of southern Oregon (Helm and Fields 1998).

Threats to vernal pool fairy shrimp include agricultural conversion and development that result in habitat loss. Habitat loss also occurs through changes in natural hydrology, incompatible livestock grazing, pollution by storm water, and disturbance from recreational activities (USFWS 2005).

There are three reported occurrences of the vernal pool fairy shrimp within the Study Area (CNDDB Occurrence No's. 319; 423; and 158) as well as numerous occurrences within a one- and five-mile radius of the Study Area (CDFW 2015). Upon further investigation, it was determined that one of these occurrences is in the western portion of the Study Area (CNDDB Occurrence 319). There is also vernal pool fairy shrimp critical habitat on the easternmost portion of the Study Area (USFWS 2006).

Vernal Pool Tadpole Shrimp

The vernal pool tadpole shrimp is federally listed as endangered under FESA. The vernal pool tadpole occurs in seasonally inundated basins. The species' cysts (embryonic eggs) lie dormant in the basin when basins are dry. After winter rainwater fills the pools, populations of the species re-emerge from their cysts (Lanway 1974, Ahl 1991). Unlike the cysts of many of the fairy shrimp species, the cysts of vernal pool tadpole shrimp do not require a freezing or drying period to hatch (Ahl 1991). Adult tadpole shrimp can have multiple generations during a single ponding period and are often present in vernal pools until the pools dry up in late spring (Helm 1998). Vernal pool

tadpole shrimp mature slowly and are long lived in comparison to other California endemic branchiopod species (Helm 1998, Ahl 1991).

The vernal pool tadpole shrimp occurs in small (two meters square) to very large (356,253 meters square) vernal pools with a variety of depths and volumes of water during ponding (Helm 1998, Helm and Vollmar 2002). The species is associated with vernal pools and other seasonally inundated basins on the following geomorphologic surfaces: alluvial fan, basin, basin rim, floodplain, marine terrace, high terrace, stream terrace, very high terrace, low terrace, and volcanic mudflow landforms.

The vernal pool tadpole shrimp has been observed in stock ponds, vernal pools, grass-bottom swales, mud-bottomed pools, roadside ditches, railroad ditches, and other seasonal inundated wetlands. The vernal pool tadpole shrimp has been found with other California endemic branchiopods, including California fairy shrimp, vernal pool fairy shrimp, longhorn fairy shrimp (*Branchinecta longiantenna*), and conservancy fairy shrimp (Helm 1998, Helm Biological Consulting, LLC 2009).

The vernal pool tadpole shrimp is found in the Central Valley from Stillwater Plains and Millville Plains in Shasta County, south to Kings County (Bohonak et al. 2012, Helm 1998, USFWS 1992), and from one single wetland complex on the San Francisco Bay National Wildlife Refuge in the City of Fremont, Alameda County (USFWS 1994, Helm Biological Consulting 2002).

The largest threats to vernal pool tadpole shrimp are loss of habitat through urbanization. Other threats include encroachment of nonnative annual grasses, agricultural conversion, and parasitism by flukes (*Trematoda*) of an undetermined species (Ahl 1991). Some populations are also threatened by pesticide drift from adjacent farmlands (USFWS 2005).

There is an occurrence of vernal pool tadpole shrimp within the Study Area (CNDDB Occurrence No. 27), as well as numerous additional occurrences within a one- and five-mile radius of the Study Area (CDFW 2015). This occurrence was located in a man-made roadside ditch southwest of the intersection of Pleasant Grove Road and is presumed extant. Many of the seasonal wetlands, seasonal wetland swales, vernal pools, and farmed wetlands within the Study Area represent potentially suitable habitat for this species and this species is likely present.

Valley Elderberry Longhorn Beetle

The Valley Elderberry Longhorn Beetle ([VELB] *Desmocerus californicus dimorphus*) is listed as threatened in accordance with FESA (USFWS 1980). The VELB is completely dependent on its host plant, elderberry (*Sambucus* species), which occurs in riparian and other woodland and scrub communities (USFWS 1999). Elderberry plants located within the range of the beetle, with one or more stems measuring 1.0 inch or greater in diameter at ground level are considered to be habitat for the species (USFWS 1999). The adult flight season extends from late March through June. During that time, the adults feed on foliage and perhaps flowers, mate, and females lay eggs on living elderberry plants (Barr 1991). The first instar larvae bore into live elderberry stems, where they develop for one to two years feeding on the pith. The fifth instar larvae create exit holes in the stems and then plug the holes and remain in the stems through pupation (Talley et al. 2007). The

beetle's current distribution is patchy throughout California's Central Valley, from Shasta County to Kern County, and associated foothills up to an elevation of approximately 3,000 feet (USFWS 1999).

Elderberry plant surveys have not been conducted in the Survey Area. No elderberry plants were found during surveys for the Phase 1 project (ECORP 2014e). The Markham and Auburn ravines provide suitable habitat for elderberry plants, and these areas are largely preserved by the proposed Special Plan (City of Lincoln 2014).

4.7.2 Fish

Central Valley steelhead (*Oncorhynchus mykiss*), and fall-run Chinook salmon (*Oncorhynchus tshawytscha*) are reported within the Auburn Ravine, in the southeast portion of the Study Area. The project is outside the known distribution of Delta smelt and Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) and this species is not further discussed.

Central Valley Steelhead

Central Valley Steelhead is designated as a federally listed threatened species. Existing wild steelhead stocks in the Central Valley are mostly confined to the upper Sacramento River and its tributaries, including Antelope, Deer, and Mill creeks and the Yuba River. Populations may also exist in Big Chico and Butte creeks and a few wild steelhead are produced in the American and Feather rivers (McEwan and Jackson 1996). Recent snorkel surveys (1999 to 2002) indicate that steelhead are also present in Clear Creek (Good et al. 2005). Naturally-spawning populations may also exist in many other streams but have been undetected due to lack of monitoring programs (IEP Steelhead Project Work Team 1999).

The life history of steelhead is similar to that of Chinook salmon with two major exceptions: steelhead do not necessarily die after spawning, and juveniles may spend up to four years in freshwater before migrating to the ocean. Chinook salmon juvenile emigration through the Sacramento River and the Sacramento-San Joaquin Delta typically occurs from November through May, while the emigration of juvenile steelhead smolts normally occurs from late March through May.

Central Valley (Evolutionarily Significant Units [ESU]) steelhead, the anadromous form of rainbow trout, typically spawn in tributaries to mainstem rivers from December through March, often ascending significant distances. Following spawning, adults normally migrate back to the ocean. Productive steelhead habitat is characterized by complexity, primarily in the form of large and small woody debris. Cover is an important habitat component for juvenile steelhead both as velocity refugia and as a means of avoiding predation (Meehan and Bjornn 1991).

Steelhead require gravel and cobble substrates (0.6 to 13 centimeter diameter) with limited amounts of fine sediments (sand, silt, and clay) for spawning. In general, water temperatures less than 16.1°C (61°F) are necessary for successful incubation and hatching of steelhead eggs. Fry and older juveniles require adequate instream cover (cobble or boulders, large woody debris, undercut banks, or submerged and overhanging vegetation for protection from predators).

No surveys have been conducted for this species in the Study Area. This species is reported within the Auburn Ravine within the Study Area (CNDDB Occurrence 4) (CDFW 2015). The Auburn Ravine

is also designated critical habitat for the Central Valley steelhead and steelhead are expected in the Study Area (NMFS 2015). The Village 5 & SUD-B Specific Plan locates the Auburn Ravine and Markham Ravine within its open space preserve land use. These areas are further bordered by natural open space and rural residential or country estate land uses, which support 0.5 to 2.0 dwelling units per acre; therefore, direct impacts or disturbance are not anticipated. Measures developed to minimize potential downstream indirect effects to federally listed fish species resulting from water quality impacts (e.g., increased sedimentation, temperature increase, and storm water and pollution runoff) will be mandated in the Study Area's Storm Water Pollution and Prevention Plan and implemented as a condition of Study Area construction approval and compliance.

Fall Run Chinook Salmon

Small numbers of this species have been found in Auburn Ravine and juvenile salmon raised at the Feather and American River hatcheries have reportedly been stocked in Auburn Ravine (County of Placer 2004, Ch. 4 p.114).

Chinook rely on suitable water temperature and substrate for successful spawning and incubation. Rearing habitat for juveniles includes riffles, runs, pools, and inundated floodplains. In streams, Chinook are opportunistic feeders. They eat aquatic insects, terrestrial insects and bottom invertebrates. Larger fish tend to eat larger pray. Juvenile Chinook are significantly affected by predatory nonnative fish. (County of Placer 2004, Ch. 4 p.115).

Degradation and loss of habitat have contributed substantially to the decline of Chinook salmon. Shasta and other dams have blocked access to much of their historical spawning and rearing habitat. Other factors affecting the species include modified water temperatures, entrainment in diversions, contaminants, and nonnative species. (County of Placer 2004).

No surveys have been conducted for this species in the Study Area. The Village Specific Plan locates the Auburn Ravine and Markham Ravine within its open space preserve land use. These areas are further bordered by natural open space and rural residential or country estate land uses, which support 0.5 to 2.0 dwelling units per acre. Therefore, direct impacts or disturbance are not anticipated. Measures developed to minimize potential downstream indirect effects to federally listed fish species are described above for the Central Valley steelhead.

4.7.3 Amphibians and Reptiles

The Study Area may support potentially suitable habitat for one special status amphibian species and one special status reptilian species, specifically the Western spadefoot (*Spea hammondii*), Northwestern pond turtle (*Actinemys marmorata*), and giant garter snake (*Thamnophis gigas*). Surveys for the Western spadefoot and northwestern pond turtle have not been performed within the Study Area.

The Study Area is not within the current known range of the California tiger salamander (*Ambystoma californiense*), the California red-legged frog (*Rana draytonii*), the mountain yellow-legged frog (*Rana muscosa)*, and giant garter snake. As such, these species are considered absent from the Study Area and are not discussed further.

Western Spadefoot

The Western spadefoot is designated as a CDFW species of special concern. Necessary habitat components of the Western spadefoot include suitable underground retreats and breeding ponds. Suitable breeding sites include temporary rain pools such as vernal pools and seasonal wetlands, or pools within portions of intermittent drainages (Jennings and Hayes 1994). The Western spadefoots spend most of their adult life within underground burrows or other suitable refugia, such as rodent burrows. In California, Western spadefoots are known to occur from the Redding area in Shasta County southward to northwestern Baja California, at elevations below 4,475 feet (Jennings and Hayes 1994).

There is one occurrence of Western spadefoot within five miles south of Study Area (CDFW 2015). This occurrence included one adult crossing Phillip Road at a bend, approximately 1.5 miles west of the junction of Fiddyment Road and 0.3 miles west where Phillip Road parallels Pleasant Grove Creek. The population is presumed to be extant.

Surveys for this species have not been performed in the Study Area but wetlands within these sites may represent potentially suitable habitat.

Northwestern Pond Turtle

The Northwestern pond turtle is designated as a CDFW species of special concern. Northwestern pond turtles occur in a variety of fresh and brackish water habitats including marshes, lakes, ponds, and slow moving streams (Jennings and Hayes 1994). This species is primarily aquatic; however, they typically leave aquatic habitats in the fall to reproduce and to overwinter (Jennings and Hayes 1994). Deep, still water with abundant emergent woody debris, overhanging vegetation, and rock outcrops is optimal for basking and thermoregulation. Although adults are habitat generalists, hatchlings and juveniles require specialized habitat for survival through the first few years. Hatchlings require shallow water habitat with relatively dense submergent or short emergent vegetation in which to forage.

Northwestern pond turtles are typically active between March and November. Mating generally occurs during late April and early May and eggs are deposited between late April and early August (Jennings and Hayes 1994). Eggs are deposited within excavated nests in upland areas, with substrates that typically have high clay or silt fractions, usually in the vicinity of aquatic habitats (Jennings and Hayes 1994). The majority of nesting sites are located within 650 feet (200 meters) of the aquatic habitat; however, sites have been documented as far as 1,310 feet (400 meters) from the aquatic habitat.

There are no documented occurrences of Northwestern pond turtle within five miles of the Study Area (CNDDB 2015). Portions of Auburn and Markham Ravines within the Study Area may represent Northwestern pond turtle habitat. Surveys for this species have not been performed within the Study Area.

4.7.4 Birds

The Study Area may support potentially suitable habitat for special status bird species as described below.

Tricolored Blackbird

The tricolored blackbird is designated as a species of special concern by the CDFW. This colonial nesting species is distributed widely throughout the Central Valley, Coast Range, and into Oregon, Washington, Nevada, and Baja California (Beedy and Hamilton 1999). Tricolored blackbird nests in colonies that can range from several pairs to several thousand pairs, depending on prey availability, the presence of predators, or level of human disturbance. This nomadic species typically nests in emergent marsh, riparian thickets, and blackberry brambles, usually with some nearby standing water or ground saturation. Open grassland and agricultural fields are typical foraging areas, with nesting generally occurring from April through June.

There is one occurrence of tricolored blackbird within one mile and an additional occurrence within five miles of the Study Area (CDFW 2015). Tricolored blackbird surveys or habitat assessments have not been performed for the Study Area but suitable habitat is present.

Grasshopper Sparrow

The grasshopper sparrow (*Ammodramus savannarum*) is designated as a species of special concern by the CDFW. The grasshopper sparrow is an uncommon and local summer resident and breeder along the western edge of the Sierra Nevada and most coastal counties south to Baja California (where resident) (Small 1994). This species generally inhabits moderately open grasslands and prairies with patchy bare ground and scattered shrubs (Vickery 1996). Grasshopper sparrow is more likely to occupy large tracts of habitat than small fragments (Vickery 1996). Breeding generally occurs from early April to mid-July, with a peak in May and June.

There is one occurrence of grasshopper sparrow within five miles of the Study Area (CDFW 2015). Grasshopper sparrow surveys or habitat assessments have not been performed for the Study Area, but the on-site annual grassland community provides potential nesting habitat.

Burrowing Owl

The burrowing owl is designated as a bird of conservation concern by the USFWS and a species of special concern by the CDFW. Burrowing owls inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. They can also inhabit developed areas such as golf courses, cemeteries, roadsides within cities, airports, vacant lots in residential areas, school campuses, and fairgrounds (Haug et al. 1993). This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel, but may also use man-made structures such as cement culverts or pipes, cement, asphalt, or wood debris piles, or openings beneath cement or asphalt pavement (CDFW 2012). The breeding season typically occurs 1 February through 31 August (CDFW 2012).

There is one occurrence of burrowing owl within one mile of the Study Area and additional occurrence within five miles of the Study Area (CDFW 2015). Burrowing owl surveys or habitat assessments have not been performed, but the annual grasslands within the Study Area represent potential habitat for burrowing owl.

Oak Titmouse

The oak titmouse (*Baeolophus inornatus*) is considered a USFWS bird of conservation concern. Their range encircles San Joaquin Valley, extending east from the coast through Kern County onto the western slope of the Sierra Nevada north to Shasta County. Scattered and local populations occur north of Humboldt County near the coast and locally in Siskiyou County (CDFG 1998). The oak titmouse is usually found in association with oak trees, but may also be found in conifers (Cicero 2000). Nesting occurs during March through July. The oak titmouse roosts in cavities in trees or snags (CDFG 1998). Potential nesting habitat includes the trees in the Auburn and Markham Ravines. To date, no bird surveys have been performed for the Study Area.

Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is listed as a threatened species and is protected pursuant to CESA. This species nests in North America (Canada, western U.S., and Mexico) and typically winters from South America north to Mexico. However, a small population has been observed wintering in the Sacramento-San Joaquin River Delta (Bechard et al. 2010). In California, the nesting season for Swainson's hawk ranges from mid-March to late August.

Swainson's hawk nests within tall trees in a variety of wooded communities including riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas, among others. Foraging habitat includes open grassland, savannah, low-cover row crop fields, and livestock pastures. In the Central Valley, Swainson's hawks typically feed on a combination of California vole, California ground squirrel (*Spermophilus beecheyi*), ring-necked pheasant (*Phasianus colchicus*), many passerine birds, and grasshoppers (*Melanoplus* spp.). Swainson's hawks are opportunistic foragers and will readily forage in association with agricultural mowing, harvesting, discing, and irrigating (Estep 1989). The removal of vegetative cover by such farming activities results in more readily available prey items for this species.

There is one occurrence of Swainson's hawk in the Study Area (CNDDB occurrence 1484) as well as seven additional records within five miles of the Study area (CDFW 2015). Potential nesting habitat for Swainson's hawk includes the larger trees along the Auburn and Markham Ravines. To date, no bird surveys have been performed within the Study Area.

Northern Harrier

The Northern harrier is considered to be a species of special concern by the CDFW. This species is known to nest within the Central Valley, along the Pacific Coast, and in northeastern California. The Northern harrier is a ground-nesting species and typically nests in emergent wetland/marsh, open grasslands, or savannah communities usually in areas with dense vegetation (Macwhirter and Bildstein 1996). Foraging occurs within a variety of open environments such as marshes, agricultural fields, and grasslands. Nesting occurs during April through September. To date, no bird surveys have been performed in the Study Area, but potential nesting and foraging habitat for Northern harrier include the annual grasslands on-site.

Western Yellow-billed Cuckoo

The Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is listed as an endangered species pursuant to CESA, is proposed for listing under FESA, and is a USFWS bird of conservation concern. Typical nesting habitat includes dense riparian thicket/woodland. This migratory species arrives from its wintering grounds in South America during June and departs from California during September (Small 1994). In northern California, current nesting populations occur along the upper Sacramento River (Tehama, Butte, Colusa, Glenn and Sutter counties), Feather River, and the Butte Sink (Sutter and Butte counties) (Small 1994). A habitat assessment or surveys have not been conducted for the riparian corridors along the Auburn and Markham ravines. While these locations may contain suitable habitat, no nesting sites are known from Placer County. However, this does not preclude the potential for the rare occurrence of a migrant Western yellow-billed cuckoo.

White-tailed Kite

The white-tailed kite is protected under Section 3511 of the California Fish and Game Code. This species is a common resident in the Central Valley and the entire length of the California coast (Dunk 1995). In northern California, white-tailed kite typically nests from March through June. Nesting occurs in trees within riparian, oak woodland, savannah, and agricultural communities that are found in or near foraging areas such as open grasslands, meadows, farmlands, savannahs, and emergent wetlands. Potential nesting habitat includes the trees along Auburn and Markham Ravines, while the annual grassland represents potential foraging habitat. To date, no bird surveys have been performed for the Study Area.

Greater Sandhill Crane

The greater sandhill crane (*Grus canadensis tabida*) is listed as a threatened species by the CDFW and protected pursuant to CEQA and the Fish and Game Code of California. This subspecies nests in northeastern California (Modoc, Siskiyou, Lassen, and Shasta counties and formerly in the Sierra Valley, Sierra and Plumas counties) (Small 1994) and winters in the Central Valley. It prefers to winter in treeless grasslands, partially flooded croplands, and wetlands (CDFG 1990). The greater sandhill crane has a low potential to occur within the Study Area as foraging habitat is marginal.

Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus)* is considered a bird of conservation concern by the USFWS and a species of special concern by the CDFW. Loggerhead shrikes nest throughout California except the northwestern corner, montane forests, and high deserts (Small 1994). Loggerhead shrikes nest in small trees and shrubs in open country with short vegetation such as pastures, old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian areas, and open woodlands (Yosef 1996). The nesting season extends from March through June.

Potential nesting habitat includes the smaller trees along Markham and Auburn ravines. To date, no bird surveys have been performed within the Study Area.

California Black Rail

The California black rail (*Laterallus jamaicensis coturniculus*) is listed as a threatened species and protected pursuant to CESA, is fully protected pursuant to California Fish and Game Code Section 3511, and is a USFWS bird of conservation concern. Typical habitat for black rails includes coastal saltmarsh, delta emergent marsh, and interior freshwater emergent marsh. Black rails in the Sierra Nevada foothills are found in perennial wetlands dominated by rushes (*Juncus* spp.) and cattails (*Typha* spp.) and nesting habitat is characterized by water depths of less than 1.2 inches (Placer County 2004). The California black rail is a year-round resident in the San Francisco Bay region and a discontinuous resident breeding population in the Sierra Nevada foothills, within Placer, Yuba, Butte, and Nevada counties (CDFW 2014). Nesting typically occurs during March through July (Eddleman et al. 1994). There is one record of 3 to 4 individuals from 2003 in western Placer County, near Camp Far West Reservoir, which is north of the Study Area at the County boundary. There are no historical records of this species in Placer County (Placer County 2004). Given the limited extent of this species in Placer County, preservation of the marsh within the Phase 1 project, this species is not expected to be affected.

Yellow-Billed Magpie

The yellow-billed magpie (*Pica nuttallii*) is considered a USFWS bird of conservation concern. This endemic species is a year-long resident of the Central Valley and Coast Ranges from San Francisco Bay to Santa Barbara County. Yellow-billed magpie builds large, bulky nests in trees in a variety of open woodland habitats, typically near grassland, pastures, or cropland. Nest building begins in late-January to mid-February, and may take up to six to eight weeks to complete (Koenig and Reynolds 2009). The young leave the nest about 30 days after hatching (Koenig and Reynolds 2009). Yellow-billed magpies are highly susceptible to West Nile Virus, which may have been the cause of death to thousands of magpies during 2004-2006 (Koenig and Reynolds 2009). To date, no bird surveys have been performed within the Study Area. Potential nesting habitat includes the smaller trees along Markham and Auburn ravines.

Nuttall's Woodpecker

The Nuttall's woodpecker (Swainson's hawk) is considered a USFWS bird of conservation concern. They are resident from Siskiyou County south to Baja California. Nuttall's woodpeckers nest in tree cavities primarily within oak woodlands, but also can be found in riparian woodlands (Lowther 2000). Breeding occurs from March through June. To date, no bird surveys have been performed within the Study Area. Potential nesting habitat includes the smaller trees along Markham and Auburn ravines.

Purple Martin

The purple martin (*Progne subis*) is a CDFW species of special concern but has no federal special status. It occurs within the foothills of the Sierra Nevada and the Coast Range to the Pacific Coast, with several small sub-populations occurring within the city limits of Sacramento. The purple martin typically nests in woodlands where tree cavities are utilized to raise broods. To date, no bird surveys have been performed within the Study Area. Potential nesting habitat includes the smaller trees along Markham and Auburn ravines.

Heron/Great Rookeries

The great egret (*Ardea alba*), great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), and black-crowned night heron (*Nycticorax nycticorax*) are colonial nesting birds that typically nest in trees and/or riparian areas. While these species are not formally listed and protected pursuant to either CESA or FESA, their rookeries are of interest to CDFW and are subject to CEQA review. The nearest recorded rookery site is within four miles of the Study Area (CDFW 2015).

Wintering Special-Status Birds

Several special-status birds may forage within the Study Area during the non-nesting season. These include golden eagle (*Aquila chrysaetos*), short-eared owl (*Asio flammeus*), ferruginous hawk, prairie falcon (*Falco mexicanus*), and long-billed curlew (*Numenius americanus*). These species do not nest in the Central Valley but may occur as post-breeding dispersers, migrants, or winter residents.

4.7.5 Mammals

The annual grassland community found within the Study Area represents marginally suitable habitat for regionally occurring special-status mammals, including American badger (*Taxidea taxus*) and two bat species: pallid bat (*Antrozous pallidus*) and Townsend's big-eared bat (*Corynorhinus townsendii*).

American Badger

The American badger is designated as a species of special concern by the CDFW. In California, American badgers ranged throughout the state except for the humid coastal forests of northwestern California in Del Norte County and the northwestern portion of Humboldt County (Long 1973; unpublished data). No current data exist on the status of American badger populations in California, but they have declined or disappeared in large sections of the state (Zeiner et al. 1990). American badgers occupy diverse habitats. The principal requirements seem to be sufficient food, friable soils, and relatively open, uncultivated ground, and they prefer grasslands, savannas, and mountain meadows near timberline. Badgers prey primarily on burrowing rodents (Zeiner et al. 1990). American badgers dig burrows in friable soil for cover and frequently reuse old burrows, although some may dig a new den each night, especially in summer (Messick and Hornocker 1981).

There are no documented occurrences of American badger in the project vicinity. This species has a low potential to occur within the Study Area. To date, no surveys for this species or its burrows have been performed for the Study Area.

Bats

The pallid bat is a CDFW species of special concern; Townsend's big-eared bat is both a CDFW species of special concern and a candidate species proposed for listing under CEQA. Targeted surveys for bats have not occurred but these bat species may occur within the Study Area. Potential roosting habitat within the Study Area includes the larger trees along Markham and Auburn ravines and the rural residence-associated dilapidated barn and trees in the Study Area.

4.7.6 Wildlife Movement/Corridors

The Study Area is located in an undeveloped landscape with irrigated pastures and annual grassland (non-irrigated) and used for livestock grazing (primarily cattle) and actively farmed wheat and rice fields. The annual grassland community in this region has been documented as an important resource for wintering raptors (Jones & Stokes 2003). The Study Area has the potential to support ephemeral wetlands and intermittent drainages that likely support wildlife (e.g., waterfowl, waders, and shorebirds) movement during the wet season and less so during the dry summer/fall months. The flooded rice fields support waterfowl, waders, and shorebirds during the flooded periods and raptor foraging habitat during the drier harvest and post-harvest period. The adjacent Markham and Auburn ravines also support wildlife movement throughout the year. The proposed Village 5 Special Plan identifies proposed open space preserve within the Markham and Auburn ravines. Once development occurs, the urbanized portion of the Study Area may support feral and urban wildlife, but most wildlife use will be restricted to the open space preserve and associated natural open space.

5.0 RECOMMENDATIONS

5.1 Waters of the U.S.

The Study Area supports Waters of the U.S. Wetland delineations have only been performed on the Phase 1 project. The following mitigation measures are recommended to minimize potential impacts to Waters of the U.S.:

- A permit authorization to fill wetlands under the Section 404 of the federal Clean Water Act (Section 404 Permit) must be obtained from the USACE prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit to ensure no-net-loss of wetland function and values. An application for a Section 404 Permit for the Phase 1 portion of the Study Area has been prepared and submitted to the USACE and includes direct, avoided, and preserved acreages to Waters of the U.S. Mitigation for impacts to Waters of the U.S. within the Study Area is proposed at the following ratio: 1:1 creation for direct impacts; however final mitigation requirements will be developed in consultation with the USACE.
- Prior to development of the other phases of the Study Area, conduct a jurisdictional wetland delineation to identify Waters of the U.S to ensure no-net-loss of wetland function and values. A Section 404 Permit must be obtained prior to discharging any dredged or fill materials into any Waters of the U.S.

5.2 Special-Status Plants

The Study Area may support potential habitat for several special-status plants (Section 4.6). Dwarf downingia is recorded within the Study Area (CDFW 2015). No special-status plants were found during protocol-level surveys conducted in 2013 and 2014 (ECORP 2014c) for the Phase 1 project. Special-status plant surveys have not been performed within the remainder of the Study Area. The following mitigation measures are recommended to minimize potential impacts to special-status plants:

- Perform focused special-status plant surveys according to CDFW, CNPS, and USFWS protocols (CDFG 2000, CNPS 2001, Cypher 2002, USFWS 1996) for the remainder of the Study Area as future phases are proposed. Surveys will be timed according to the blooming period for target species and known reference populations will be visited prior to surveys to confirm the species is blooming where known to occur.
- The USFWS generally considers survey results valid for approximately three years; therefore, follow-up surveys may be necessary to avoid take of any special-status plant species. This will be determined during consultation with USFWS. The presence or absence of special-status plant species shall be determined through rare plant surveys conducted according to CDFW, CNPS and USFWS protocols (CDFG 2000, CNPS 2001, Cypher 2002, USFWS 1996). Surveys will be timed according to the blooming period for target species and known reference populations will be visited prior to surveys to confirm the species is blooming where known to occur.
- If no special-status plants are found, no further measures pertaining to special-status plants are necessary.
- If special-status plant species are found within the Study Area, avoidance zones may be established around plant populations to clearly demarcate areas for avoidance. Avoidance measures and buffer distances may vary between species and the specific avoidance zone. Distance will be determined in coordination with appropriate resource agencies (CDFW and USFWS).
- If special-status plant species are found within the Study Area and avoidance of the species is not possible, then additional measures such as seed collection and/or transplantation may be developed in consultation with the appropriate agencies (CDFW and USFWS).

5.3 Native Tree Preservation

Trees may occur within the Study Area that warrant protection/mitigation under the City of Lincoln Oak Tree Preservation Ordinance (Municipal Code Title 18, Zoning-Chapter 18.69) or Placer County Code, Article 12.16. An arborist survey has not been completed for the Study Area. Since the majority of on-site trees are associated with the Auburn and Markham ravines and would be preserved, the following additional mitigation measures will ensure that there are no significant impacts to protected oak trees:

- If trees are proposed for removal, conduct an arborist survey for the proposed areas of development within the Study Area to determine if it supports any protected trees.
- If protected trees are present and proposed for impact, prepare City of Lincoln tree permit application and/or Placer County Tree removal permit application.

5.4 Invertebrates

The Study Area may support potential habitat for three federally listed branchiopod species: conservancy fairy shrimp, vernal pool fairy shrimp, and tadpole shrimp (listed large branchiopods). Vernal pool fairy shrimp and tadpole shrimp are reported within the Study Area (CDFW 2015) and vernal pool fairy shrimp eggs were detected in dry samples collected within the Phase 1 Project area.

The following mitigation measures will ensure that there are no significant impacts to listed large branchiopods:

- Prior to issuing a Section 404 permit, the USACE will initiate Section 7 consultation with the USFWS to address potential impacts to federally protected species. As part of the application for a Section 404 Permit for the various phases of the Study Area, a Biological Assessment (BA) will be prepared for the USFWS and submitted to the USACE to be used in the development of a BO, and includes direct, indirect, avoided, and preserved acreages to vernal pool fairy shrimp habitat. Mitigation for impacts to vernal pool fairy shrimp habitat will be developed in consultation with the USFWS. The BO will be incorporated into Section 404 Permit for the Study Area phase. A Section 404 Permit must be obtained prior to impacting any vernal pool fairy shrimp habitat.

Elderberry shrubs were not detected on the Phase 1 project. However, surveys have not been performed for the remainder of the Study Area. The following mitigation measures will ensure that there are no significant impacts to the VELB:

- Conduct an elderberry survey within the Study Area according to USFWS protocol (USFWS 1999).
- If no elderberry shrubs supporting stems greater than one inch in diameter are found, no further measures pertaining to this species are necessary.
- If elderberry shrubs supporting stems greater than one inch in diameter are present and are proposed for impact, address potential impacts to the VELB during development of the BA. Mitigation, if any, for any impacts to VELB will be identified in the BO issued by the USFWS.

5.5 Central Valley Steelhead

The Auburn Ravine supports critical habitat for Central Valley steelhead. If road crossings, drainage outfalls, vegetation clearing, or other infrastructure is proposed within the Auburn Ravine Preserve, the following mitigation measures will ensure that there are no significant impacts to protected steelhead:

- Prior to issuing a Section 404 permit, the USACE will initiate Section 7 consultation with the NMFS to address potential impacts to federally protected species. As part of the application for a Section 404 Permit for the various phases of the Study Area, a Biological Assessment will be prepared for the NMFS and submitted to the USACE to be used in the development of a BO. Mitigation for impacts to steelhead will be developed in consultation with the NMFS. The BO will be incorporated into Section 404 Permit for the Study Area phase. A Section 404 Permit must be obtained prior to impacting Auburn Ravine

5.6 Northwestern Pond Turtle

Markham and Auburn ravines may support Northwestern pond turtle. To date, no surveys for this species have been performed within these sites. The following mitigation measures will ensure that there are no significant impacts to protected northwestern pond turtles:

- If potential Northwestern pond turtle habitat is proposed for impact by a construction activity, conduct a pre-construction survey for Northwestern pond turtle. The survey should be performed within 24 hours of the start of construction.
- If no Northwestern pond turtles are found, no further measures pertaining to this species are necessary.
- If Northwestern pond turtles are found within an area proposed for impact, a qualified biologist shall relocate the Northwestern pond turtle to a suitable location away from the proposed construction, in consultation with CDFW.

5.7 Western Spadefoot

The Study Area supports wetland features that may represent potential habitat for the Western spadefoot (CDFW species of special concern). Targeted surveys for this species have not been performed in the Study Area. The following mitigation measures will ensure that there are no significant impacts to protected Western spadefoots:

- Perform preconstruction surveys for Western spadefoot within the limits of construction to detect adults, larvae, and/or egg masses, within 14 days prior to the start of construction. If adults, larvae, or egg masses are found, relocate to suitable habitat within on-site or off-site preserve(s), in consultation with CDFW.
- If no Western spadefoots are found, no further measures pertaining to this species are necessary.

5.8 Nesting Raptors

All raptors and their active nests are protected under the California Fish and Game Code and federal MBTA. To ensure that there are no impacts to protected active nests, the following mitigation measures are recommended:

- Conduct a pre-construction nesting bird survey of all suitable habitats within the limits of construction of the Study Area and all accessible areas within 300 feet of the limits of construction activity within 14 days of the initiation of construction activity during the nesting season (1 February through 31 August).
- If no active raptor nests are found, no further measures pertaining to raptors nests are necessary.
- If active nests are found, the active nests will be monitored for the first 24 hours prior to any construction-related activity to establish a behavioral baseline. A no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a qualified biologist in accordance with CDFW's recommendations for buffer distances relative to the species identified. Once construction activities commence within the Study Area, all nests will be monitored by a qualified biologist to detect any behavioral changes as a result of construction. If behavioral changes are observed that may result in adverse effects to the success of breeding, the work causing that change shall cease and consultation with CDFW shall be initiated to identify potential avoidance and minimization measures. Pre-construction raptor nesting surveys are not required for construction activity outside the nesting season.

5.9 Burrowing Owl

Targeted surveys for this species have not been performed in the Study Area. To minimize impacts to protected burrowing owls and their burrows, the following mitigation measures are recommended:

- If possible, initiate construction activities during the non-breeding season, 1 September through 31 January.
- Conduct a take avoidance (pre-construction) burrowing owl survey of all suitable habitats within the limits of construction of the Study Area and all accessible areas within 150 meters (492 feet) of the limits of construction within 14 days of the initiation of construction activity, according to the Staff Report on Burrowing Owl Mitigation (CDFW 2012). If no burrowing owls or sign are observed, construction may proceed.
- If burrowing owls or sign are found, implement avoidance setbacks according to CDFW (2012).
- If avoidance setbacks are infeasible, coordinate with CDFW to conduct passive relocation according to protocol outlined in the Staff Report on Burrowing Owl Mitigation (CDFW 2012). If passive relocation methods are employed, the project impact site should be rendered inhospitable for further burrowing owl re-occupation.

5.10 Swainson's Hawk

Swainson's hawks are reported within the Study Area (CDFW 2015). Targeted surveys for this species have not been performed in the Study Area. To minimize impacts to protected Swainson's hawks and their nests, the following mitigation measures are recommended:

- If possible, initiate site construction activities during the non-breeding season, 1 September - through 28 February.
- Conduct a pre-construction nesting bird survey of all suitable habitats within the limits of construction of the Study Area and all accessible areas within 0.5 mile of the limits of construction within 14 days of the initiation of construction activity during the nesting season (1 March through -31 August).
- If no active Swainson's hawk nests are found, no further measures pertaining to Swainson's hawk nests are necessary.
- If active nests are found, the active nests will be monitored for the first 24 hours prior to any construction-related activity to establish a behavioral baseline. A no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a qualified biologist in accordance with CDFW's recommendations. Once construction activities commence on-site, all nests will be monitored by a qualified biologist to detect any behavioral changes as a result of construction within the Study Area. If behavioral changes are observed that may result in adverse effects to the success of breeding, the work causing that change shall cease and consultation with CDFW shall be initiated to identify potential avoidance and minimization measures. Pre-construction Swainson's hawk nesting surveys are not required for construction activity outside the nesting season.

- The annual grassland community within the Study Area represents potential foraging habitat for Swainson's hawk. Mitigation to offset the loss of this habitat may be required and should be established pursuant to the CDFW-established formula for Swainson's hawk foraging habitat replacement.

5.11 Western Yellow-billed Cuckoo

There is potential Western yellow-billed cuckoo habitat within Auburn Ravine. However, because the habitat within Auburn Ravine would be preserved no additional mitigation measures are required.

5.12 Nuttall's Woodpecker/Loggerhead Shrike/Yellow-billed Magpie/Oak Titmouse/Grasshopper Sparrow

The Study Area support potential nesting habitat for one special-status woodpecker and five special-status passerine bird species: Nuttall's woodpecker (USFWS conservation concern), loggerhead shrike (USFWS conservation concern and CDFW species of special concern) yellow-billed magpie (USFWS conservation concern), oak titmouse (USFWS conservation concern), and grasshopper sparrow (CDFW species of special concern). To ensure that there are no impacts to protected active nests of these species, the following mitigation measures are recommended:

- Conduct a pre-construction nesting bird survey of all suitable habitats within the limits of construction within the Study Area and all accessible areas within 50 feet of the limits of construction within 14 days of the initiation of construction activity during the nesting season (Nuttall's woodpecker, March-July; loggerhead shrike, March-May; yellow-billed magpie, late February-mid-July; oak titmouse, March-July; grasshopper sparrow, May-July).
- If no active special-status bird nests are found, no further measures pertaining to special-status birds are necessary.
- If active nests are found, the active nests will be monitored prior to any construction-related activity to establish a behavioral baseline. A no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a qualified biologist in consultation with CDFW. Once construction activities commence on-site, all nests will be monitored by a qualified biologist to detect any behavioral changes as a result of construction of the Proposed Project. If behavioral changes are observed that may result in adverse effects to the success of breeding, the work causing that change shall cease and consultation with CDFW shall be initiated to identify potential avoidance and minimization measures. Pre-construction bird nesting surveys are not required for construction activity outside the nesting season.

5.13 Migratory Bird Treaty Act Birds

Many birds, including commonly occurring species, are protected under the California Fish and Game Code and the Federal MBTA. A complete list of protected birds can be found in 50 CFR 10.13. As such, to ensure that there are no impacts to protected birds or their active nests, the following mitigation measures are recommended:

- Conduct a pre-construction nesting bird survey of all suitable habitats within the limits of construction within the Study Area and all accessible areas within 50 feet of the limits of

construction within 14 days of the initiation of construction activity during the nesting season (1 February - 31August).

- If no protected birds are found, no further measures pertaining to protected birds are necessary.
- If active nests are found, the active nests will be monitored prior to any construction-related activity to establish a behavioral baseline. A no-disturbance buffer around the nest shall be established. The buffer distance shall be established by a qualified biologist in consultation with CDFW. Once construction activities commence on-site, all nests will be monitored by a qualified biologist to detect any behavioral changes as a result of construction of the Proposed Project. If behavioral changes are observed that may result in adverse effects to the success of breeding, the work causing that change shall cease and consultation with CDFW shall be initiated to identify potential avoidance and minimization measures. Pre-construction bird nesting surveys are not required for construction activity outside the nesting season.

5.14 Mammals

The annual grasslands within the Study Area have a low potential to support habitat for American badger.

To ensure that there are no impacts to American badgers and their burrows, the following mitigation measures are recommended:

- In conjunction with pre-construction burrowing owl surveys (Section 5.8), conduct pre-construction surveys for American badgers, including burrows. If no American badgers or sign are observed, construction may proceed.
- If no American badgers/active burrows are found, no further measures pertaining to this species are necessary.
- If American badgers are found on-site during the surveys, avoid direct and indirect impacts to burrows by establishing a no-disturbance buffer of 100 feet around burrows, in consultation with CDFW.

A number of trees associated with Markham Ravine and the riparian forest associated with Auburn Ravine represent potential roosting habitat for two special-status bats. However, because these forested areas are preserved within the Markham and Auburn ravines no additional mitigation measures are required.

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LIST OF ATTACHMENTS

Attachment A - California Native Plant Society Electronic Inventory List for the Lincoln, Sheridan, Pleasant Grove, and Roseville, CA Quadrangles

Attachment B - U.S. Fish and Wildlife Service List for the Lincoln, CA Quadrangle and Placer County

Attachment C - Representative Site Photos

Attachment A

California Native Plant Society Electronic Inventory List for the Lincoln, Sheridan, Pleasant Grove, and Roseville, CA Quadrangles

CNPS California Native Plant Society

Rare and Endangered Plant Inventory

Plant List

Search Criteria

Found in Quad 38121H3

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	1B.2	S2	G2
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2	S2	G2
Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	annual herb	1B.2	S1	G2T1
Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	annual herb	1B.1	S1	G1T1

Search Criteria

Found in Quad 38121G4

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2	S2	G2

Search Criteria

Found in Quad 38121G3

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	1B.2	S2	G2
Chloropyron molle ssp. hispidum	hispid bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.1	S2	G2T2
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2	S2	G2
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	Juncaceae	annual herb	1B.1	S2	G2T2
Legenere limosa	legenere	Campanulaceae	annual herb	1B.1	S2	G2
Navarretia nigelliformis ssp. nigelliformis	adobe navarretia	Polemoniaceae	annual herb	4.2	S3	G4T3

Search Criteria

Found in Quad 38121H4

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	2B.2	S2	GU

Suggested Citation

CNPS, Rare Plant Program. 2015. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 25 February 2015].

ATTACHMENT B

U.S. Fish and Wildlife Service List for the Lincoln, CA Quadrangle and Placer County

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 150225034536

Current as of: February 25, 2015

Quad Lists

Listed Species

Invertebrates

- *Branchinecta conservatio*
  - Conservancy fairy shrimp (E)
- *Branchinecta lynchi*
  - Critical habitat, vernal pool fairy shrimp (X)
  - vernal pool fairy shrimp (T)
- *Desmocerus californicus dimorphus*
  - valley elderberry longhorn beetle (T)
- *Lepidurus packardi*
  - vernal pool tadpole shrimp (E)

Fish

- *Hypomesus transpacificus*
  - delta smelt (T)
- *Oncorhynchus mykiss*
  - Central Valley steelhead (T) (NMFS)
  - Critical habitat, Central Valley steelhead (X) (NMFS)
- *Oncorhynchus tshawytscha*
  - Central Valley spring-run chinook salmon (T) (NMFS)
  - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- *Rana draytonii*
  - California red-legged frog (T)

Reptiles

- *Thamnophis gigas*
  - giant garter snake (T)
  -

Quads Containing Listed, Proposed or Candidate Species:

LINCOLN (528A)

County Lists

Listed Species

Invertebrates

- *Branchinecta conservatio*
  - Conservancy fairy shrimp (E)

- *Branchinecta lynchi*
  - Critical habitat, vernal pool fairy shrimp (X)
  - vernal pool fairy shrimp (T)

- *Desmocerus californicus dimorphu*
  - Critical habitat, valley elderberry longhorn beetle (X)
  - valley elderberry longhorn beetle (T)

- *Lepidurus packardi*
  - Critical habitat, vernal pool tadpole shrimp (X)
  - vernal pool tadpole shrimp (E)

Fish

- *Hypomesus transpacificus*
  - delta smelt (T)

- *Oncorhynchus (=Salmo) clarki henshawi*
  - Lahontan cutthroat trout (T)

- *Oncorhynchus mykiss*
  - Central Valley steelhead (T) (NMFS)
  - Critical habitat, Central Valley steelhead (X) (NMFS)

- *Oncorhynchus tshawytscha*
  - Central Valley spring-run chinook salmon (T) (NMFS)
  - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- *Ambystoma californiense*
  - California tiger salamander, central population (T)

- *Rana draytonii*
  - California red-legged frog (T)
  - Critical habitat, California red-legged frog (X)

- *Rana sierrae*
  - Mountain yellow legged frog (PX)

Reptiles

- *Thamnophis gigas*
  - giant garter snake (T)

Birds

- *Coccyzus americanus occidentalis*
  - Western yellow-billed cuckoo (T)

Plants

- *Calystegia stebbinsii*
  - Stebbins's morning-glory (E)
- *Ceanothus roderickii*
  - Pine Hill ceanothus (E)
- *Galium californicum ssp. sierrae*
  - El Dorado bedstraw (E)
- *Orcuttia viscida*
  - Critical habitat, Sacramento Orcutt grass (X)
  - Sacramento Orcutt grass (E)
- *Senecio layneae*
  - Layne's butterweed (=ragwort) (T)

Candidate Species

Amphibians

- *Rana muscosa*
  - mountain yellow-legged frog (C)

Mammal

- *Martes pennanti*
  - fisher (C)

Plant

- *Rorippa subumbellata*
  - Tahoe yellow-cress (C)

Key:

- (E) *Endangered* - Listed as being in danger of extinction.
- (T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
- (P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- *Critical Habitat* - Area essential to the conservation of a species.
- (PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
- (C) *Candidate* - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by**projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.
See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formalconsultation with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection.

They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts.More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 26, 2015.

ATTACHMENT C

Representative Site Photos

1. View of Markham Ravine in the northwest portion of the Study Area. 1 January 2014

2. View of the Markham Ravine Pond. 30 April 2014

3. Annual grassland vegetation community. 30 April 2014

4. Seasonal wetland and associated swale in bloom. 30 April 2014

5. Vernal pool wetland. 30 April 2014

6. Typical irrigation ditch in the study area. 30 April 2014

7. Rice field vegetation community. 30 April 2014

8. Cattle grazing land use in the study area. 30 April 2013

9. Rice fields after discing. 30 April 2013

10. Riparian community associated with Auburn Ravine. 6 May 2014

11. View of Auburn Ravine. 15 August 2014

12. View of seasonal wetlands within annual grassland communities. 3 October 2014

Appendix D Part 6

Wetland Determination and Preliminary Jurisdictional Determination for Moore Road Property

ESA

Wetland Delineation and Preliminary Jurisdictional Determination

Moore Road Property

February 4, 2015

Cardno
Shaping the Future

Document Information

Prepared for	Praxis Properties
Project Name	Moore Road Property
Project Manager	Shannon Karvonen
Date	February 4, 2015

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Acronyms

CWA	Clean Water Act
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OBL	Obligate
OHW	Ordinary High Water
OHWM	Ordinary High Water Mark
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1 Introduction

Cardno conducted a wetland delineation for the Moore Road Property (Project). The Project is comprised of one parcel (APN 02140002000) within Placer County, California. The Project is located at approximately latitude of 38.8717° north and longitude of -121.3466° west (Figure 1), and on the northern edge of the Roseville, California USGS 7.5 minute topographic quadrangle map, in Sections 19, Township 12 North, Range 6 East, Mount Diablo Baseline & Meridian.

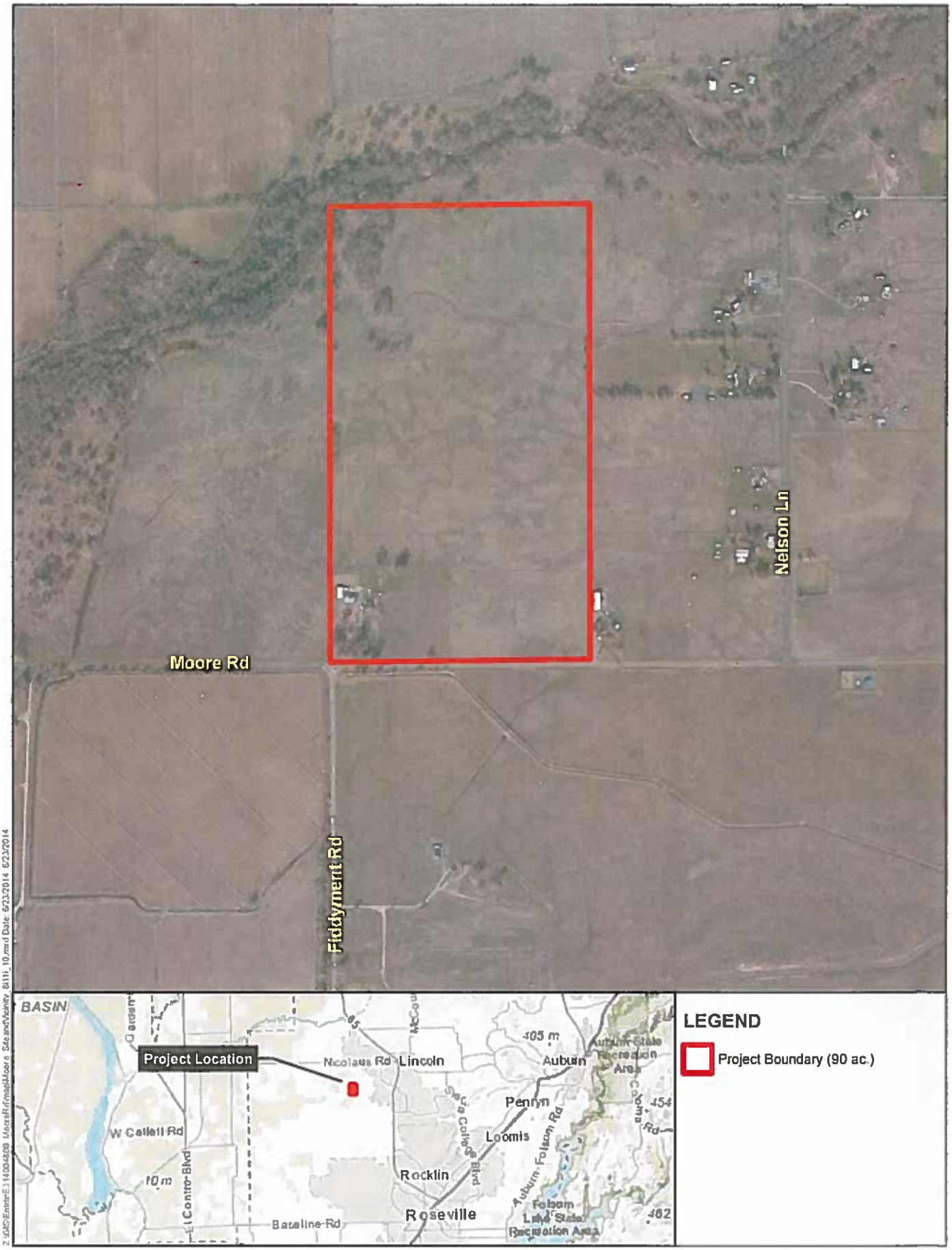
This report presents the results of the field evaluation and provides a preliminary discussion regarding wetlands and other Waters of the United States as defined by the Clean Water Act (CWA).

Cardno biologists conducted a delineation of wetlands and other Waters of the United States occurring in the Study Area (Study Area), which includes all anticipated Project components, as shown in Figure 1.

This delineation of Waters of the United States contains the following:

- A narrative describing the methodology used to delineate the wetlands and Waters of the United States in the Study Area.
- A narrative description of existing field conditions, hydrology, soils descriptions, and plant communities present in the Study Area.
- Maps, including a USGS map with the Project location, a soils map, and aerial imagery showing the delineated wetlands and Waters of the United States in the Study Area.

The narrative and supporting graphics listed above accompany the wetland delineation map. This map was prepared using locations of wetland indicators, mapping conventions and symbols, reference block, scale, property lines (when available), Study Area boundaries, and topography.



MOORE ROAD

Cardno ENTRIX

N

0 1,000 2,000

Scale in Feet

Figure 1

Site and Vicinity

2 Regulatory Framework

2.1 Federal Jurisdiction of Wetlands and Other Waters of the United States

2.1.1 Section 404 of the Clean Water Act

Under Section 404 of the CWA, the U.S. Environmental Protection Agency (EPA) and the USACE have regulatory and permitting authority regarding discharge of dredged or fill material into "navigable Waters of the United States". The scope of the USACE jurisdiction was further refined in Rapanos v. U.S. and Carabell v. U.S. Guidance (EPA, 2008). The USACE asserts jurisdiction over the following waters:

- Traditional navigable waters;
- Wetlands adjacent to traditional navigable waters;
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and,
- Wetlands that directly abut such tributaries.

The USACE determines jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

- Non-navigable tributaries that are not relatively permanent;
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent; and,
- Wetlands adjacent to but that does not directly abut a relatively permanent non-navigable tributary.

A significant nexus exists when it is demonstrated that the tributary and/or wetland along with any other, similarly situated wetlands, has "more than a speculative or insubstantial effect on the chemical, physical and biological integrity of a traditional navigable water."

The USACE generally will not assert jurisdiction over the following features:

- Swales or erosional features (e .g., gullies, small washes characterized by low volume, infrequent, or short duration flow); or
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

2.2 State Jurisdiction of Wetlands and Other Waters

2.2.1 Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCB) regulate activities in Waters of the State, under the Dickey Water Pollution Act of 1949 and the Porter-Cologne Act of 1969. Waters of the State include Waters of the United States., and are defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." Additionally, the RWQCB regulates discharges of fill and dredged material under Section 401 of the CWA and the Porter-Cologne Act through the State Water Quality Certification Program. The State Water Quality Certification Program regulates proposed federally permitted activity which may result in a discharge to water bodies including discharges of dredged or fill material permitted by the USACE under section 404 of the CWA (e.g., navigational dredging; flood control channelization; levee construction; channel clearing; and fill of wetlands or other water bodies for land development), and

ensures consistency with the Federal CWA, California Environmental Quality Act (CEQA), California Endangered Species Act (ESA), and the Porter-Cologne Act.

The Central Valley RWQCB has jurisdiction over the Study Area. Because Waters of the State are defined more broadly than Waters of the United States., projects that do not require a federal permit may still result in dredge or fill in Waters of the State. Such projects may be regulated by the RWQCB under Waste Discharge Requirements or Certifications of Waste Discharge Requirements.

3 Methodology

The Study Area for this delineation encompasses all anticipated construction areas in the vicinity of the Project Area (Appendix A). On May 29 2014, a Cardno biologist collected field data and delineated potential USACE and RWQCB jurisdictional boundaries in the Study Area. For each sampling site, the site location was recorded and the geographic coordinates (longitude and latitude) were collected. A handheld Trimble Geo 6000 XT (2012 Series) Global Positioning System (GPS) unit capable of sub-meter accuracy was used to digitally record the boundaries of each potential jurisdictional wetland area identified in the Study Area. Vegetative communities were classified pursuant to the California Wildlife Habitat Relationship (CWHR) scheme (Mayer and Laudenslayer 1988). Plant species were identified using the *Jepson Manual of Higher Plants of California* (Baldwin Ed., 2012). Representative photographs of the Study Area are in Appendix B.

GPS data were subsequently downloaded from the GPS unit, differentially corrected using Trimble Pathfinder Office software and converted to GIS shapefiles. These shapefiles were then overlaid on aerial base maps of the Study Area, showing the location of wetlands in relation to topographical features. GPS data were corrected as necessary based on the distance and bearing from known topographic features and facilities, and the acreage of each wetland or other water in the Study Area was calculated.

In some locations, due to thick riparian vegetation or lack of visibility from the base station, GPS positions were off-set and a measuring tape was used to determine the distance from the offset location. The recorded OHWM limits were imported into ArcGIS and cross-referenced with mapped topography to delineate wetland and other waters which are subject to the jurisdiction of the USACE.

3.1 Waters of the United States

3.1.1 Potential Section 404 Jurisdictional Wetlands

The delineation of Waters of the United States was conducted in accordance with the *1987 U.S. Army Corps of Engineers Wetlands Delineation Manual* (USACE, 1987) (Wetland Delineation Manual), *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (USACE, 2007), and *Regional Supplement to the U.S. Army Corps of Engineers Wetland Delineation Manual: Arid West Region 2.0* (USACE, 2008) (Regional Supplement). A Level 2, routine wetland delineation, was conducted (as defined in the Wetland Delineation Manual) which consisted of an onsite inspection and evaluation of three parameters that identify and delineate the boundaries of wetlands, including (1) the dominance of wetland vegetation; (2) the presence of hydric soils; and (3) hydrologic conditions that result in periods of inundation or saturation on the surface as a result of flooding or ponding.

The *National List of Plant Species That Occur in Wetlands: California (Region 0)* (Reed, 1988), was consulted as a guideline, however, per USACE regulatory notice dated May 10, 2012 the draft *North American Digital Flora: National Wetland Plant List* (Lichvar, 2013) was used to determine the wetland indicator status of plants identified in the Study Area. The *U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) Web Soil Survey for Placer County, Western Area California* (Soil Survey Staff, 2013) and the *National List of Hydric Soils* (NRCS, 2013) were used to preliminarily identify soil types in the Study Area.

Data on vegetation, soils, and hydrologic characteristics were recorded in the field on data forms for the Arid West Region (Appendix C).

3.1.1.1 Vegetation

A visual assessment was made of all plant species located in and around the Study Area. Habitat was classified based on A Guide to Habitat Classification of California (Mayer, 1988) and vegetation series

were defined based on *A Manual of California Vegetation, Second Edition* (Sawyer, et al., 2009). Plant species were identified using *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin Ed., 2012) and analyzed to determine the presence or absence of hydrophytic vegetation. The procedure for determining the presence of hydrophytic vegetation followed that identified in the Regional Supplement. Specifically, it involves the following assessment for each sample plot:

1. Apply Indicator 1 (Dominance Test). If the plant community passes the dominance test, then the vegetation is hydrophytic and no further vegetation analysis is required.
    a. If the plant community fails the dominance test and indicators of hydric soil and/or wetland hydrology are absent, then hydrophytic vegetation is absent unless the site meets the requirements for a problematic wetland vegetation.
    b. If the plant community fails the dominance test, but indicators of hydric soil and wetland hydrology are both present, proceed to Step 2.
2. Apply Indicator 2 (Prevalence Index). This and the following step assume that at least one indicator of hydric soil and one primary or two secondary indicators of wetland hydrology are present.
    a. If the plant community satisfies the prevalence index, then the vegetation is hydrophytic. No further vegetation analysis is required.
    b. If the plant community fails the prevalence index, proceed to Step 3.
3. Apply Indicator 3 (Morphological Adaptations).
    a. If the indicator is satisfied, then the vegetation is hydrophytic.
    b. If none of the indicators are satisfied, then hydrophytic vegetation is absent unless indicators of hydric soil and wetland hydrology are present and the site meets the requirements for a problematic wetland situation.

Wetland indicator species include those listed as Obligate (OBL), Facultative Wetland (FACW), or Facultative (FAC) in the National List of Plant Species that Occur in Wetlands: California (Region 0). Vegetation was described in terms of both species and percent coverage per strata. Sample plots that had vegetation that met the above criteria were identified as hydrophytic. A list of plant species observed within the Study Area and the wetland indicator status is available in Appendix D.

3.1.1.2 Soils

The Soil Survey of Placer County was used to identify potential soils (map units) present in the vicinity of the Study Area (Figure 2). Soils were examined by digging a test pit to a depth of 20 inches, where feasible, to determine if soils exhibited hydric characteristics. In some cases loose soil, groundwater, or a restrictive layer prohibited the digging of 20 inch test pits, and pits were dug to a depth sufficient to identify hydric indicators. The determination of hydric soils was based on soil texture, matrix color, and/or the presence of other hydric soil indicators such as mottles.

The NRCS maintains a list of hydric soil indicators that are known to occur in the United States. Soil samples were collected and described according to the methodology provided in the Regional Supplement. Soil chroma and values were determined by using a standard Munsell soil color chart (Munsell, 2009). Hydric soils were determined to be present if any of the soil samples met one or more of the hydric soil indicators described by the NRCS.

3.1.1.3 Hydrology

The USACE jurisdictional wetland hydrology criterion is satisfied if an area is inundated or saturated for a period of time sufficient to create anoxic soil conditions during the growing season (a minimum of 14 consecutive days in the Arid West Region). Evidence of wetland hydrology can include primary indicators,

such as visible inundation or saturation, drift deposits, oxidized root channels, and salt crusts, or secondary indicators such as the FAC-neutral test, or the presence of a shallow aquitard. The Regional Supplement contains 18 primary hydrology indicators and nine secondary hydrology indicators.

The presence of these primary or secondary indicators was used to determine whether each sample point met the wetland hydrology criteria. A minimum of one primary indicator or two secondary indicators are required to meet the wetland hydrology criterion.

3.1.2 Potential Section 404 Other Waters

The Study Area was evaluated for the presence of "other waters," including lakes, rivers, and perennial or intermittent streams. Potential "other waters" may be identified by the presence of a defined river or streambed, a bank, or evidence of flow, or the absence of emergent vegetation in ponds and lakes. The extent of other waters was mapped to the ordinary high water mark (OHWM) as defined by the USACE Regulatory Guidance Letter No. 05-05 Ordinary High Water Mark Identification (USACE, 2005).

CWA regulations define the OHWM at 33 CFR 328.3(e) as the following:

- The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

3.2 Waters of the State

Although the SWRCB and RWQCB are in the process of establishing a formal wetland delineation protocol and wetland definition for Waters of the State, these agencies have typically accepted the USACE delineation protocol. However, these agencies do regulate "isolated waters" and non-navigable waters under the Porter-Cologne Act. Therefore, the methods described in Section 3.1 (Waters of the United States) were used to determine potential Waters of the State, but it was assumed that all wetlands and waters delineated using the USACE methods fall in the state's jurisdiction under the Porter-Cologne Act.

4 Study Area

The Study Area is approximately 90 acres and is generally flat, with elevation ranging from approximately 110 feet above sea level (asl) at Moore Road up to 127 feet asl at the north end of the property. Land uses in the general vicinity consist of agricultural, rural residential, and undeveloped pasture land. Representative photographs of the Study Area are located in Appendix B. Vegetation communities consist primarily of non-native annual grasslands with a few scattered oaks, with riparian vegetation occurring along Auburn Ravine.

4.1 Vegetation

4.1.1 Non-native Annual Grassland

The majority of the Study Area consists of non-native annual grassland. Typical species observed in this community, many of which are associated with periodically disturbed sites, include medusa head grass (*Elymus caput-medusae*), wild oat (*Avena fatua*), Italian rye grass (*Festuca perennis*), Mediterranean barley (*Hordeum marinum gussoneanum*), Bermuda grass (*Cynodon dactylon*), and soft chess brome (*Bromus hordeaceus*). Other species observed during the survey included yellow tarweed (*Holocarpha virgata*), yellow star thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), hawkbit (*Leontodon saxatilis*), wild radish (*Raphanus raphanistrum*), field bindweed (*Convolvulus arvensis*), rose clover (*Trifolium hirtum*), big heron bill (*Erodium botrys*), and prostrate knotweed (*Polygonum aviculare*).

Within the non-native annual grassland habitat are a number of seasonal wetlands consisting of pools and channels. Many of the pools are likely to be degraded vernal pools based on the aerial signatures and the abundance of this wetland type in the surrounding region. However, due to the time of year the survey was conducted and the extensive invasive annual grasses present, few vernal pool plant species could be identified. One vernal pool species that was observed included coyote thistle (*Eryngium castrense*).

4.1.2 Riparian

Riparian vegetation in the Study Area occurs in the top northwest corner where Auburn Ravine borders the project boundary. The canopy consists of valley oaks (*Quercus lobata)* and northern California black walnut (*Juglans hindsii*). The understory consists of sparse wetland vegetation species including umbrella sedge (*Cyperus eragrostis*), rabbitsfoot grass (*Polypogon monspeliensis*), fiddle dock (*Rumex pulcher*), common spikerush (*Eleocharis macrostachya*), and mugwort (*Artemisia douglasiana*) along with upland species such as poison oak (*Toxicodendron diversilobum*), broadleaf milkweed (*Asclepias latifolia*), and harvest Brodiaea (*Brodiaea elegans*).

4.1.3 Ruderal

Ruderal vegetation consists of weedy non-native grasses and forbs that grow in area that are subject to disturbance on a fairly regular basis. Ruderal vegetation in the study area occurs along road shoulders, unpaved access roads, and along the edges of residential lot and horse pasture. Plant species typical of this vegetation community include species found in non-native annual grasslands such as ripgut brome, wild oat, prickly lettuce (*Lactuca serriola*), English plantain (*Plantago lanceolata*), wild mustard (*Brassica* sp.), and wild radish, but generally in much lower densities that what is found in grassland communities.

4.1.4 Urban

Urban areas include a rural residence at 3527 Moore Road. The residence includes a single family house, two barns, a small parking lot, and a horse arena.

4.2 Soils

The soil map units and miscellaneous land types in the Study Area and vicinity are described in soil report for the *Placer County, California, Western Part* (USDA Soil Conservation Service, 2013). Soil map units that occur in the Study Area are shown in Figure 2 and include Cometa sandy loam, 1 to 5 percent slope; Cometa- Fiddyment complex, 1 to 5 percent slope; Cometa-Ramona sandy loams, 1 to 5 percent slope; Xerofluvents, occasionally flooded; and Xerofluvent, frequently flooded. Descriptions of each of these soil types are provided below.

Cometa sandy loam, 1 to 5 percent slopes

Cometa sandy loam soils are moderately deep, moderately well to well drained soils found on gentle sloping terrace and slightly dissected older stream terraces. Comera sandy loam soils are moderately well or well drained, with slow to medium runoff, and very slow permeability. Within Placer County, the soils are listed as a hydric soil within depressions (USDA 2010).

Cometa-Fiddyment complex, 1 to 5 percent slopes

The Cometa-Fiddyment complex series consists of moderately deep, moderately well to well drained soils found on nearly level to rolling low terraces and hills, or on slightly dissected older stream terraces. Cometa-Fiddyment complex soils are moderately well or well drained with slow to medium runoff and very slow permeability. Within Placer County, Cometa-Fiddyment complex soils are listed as a hydric soil within depressions (USDA 2010).

Cometa-Ramona sandy loam, 1 to 5 percent slopes

The Cometa soil is a deep, well drained claypan soil that formed in alluvium, mainly from granitic sources. The Ramona soil is very deep and well drained and is formed in alluvium from predominately granitic sources. Within Placer County, Cometa-Ramona sandy loam is listed as a hydric soil within depressions (USDA 2010).

Ramona sandy loam, 2 to 9 percent slopes

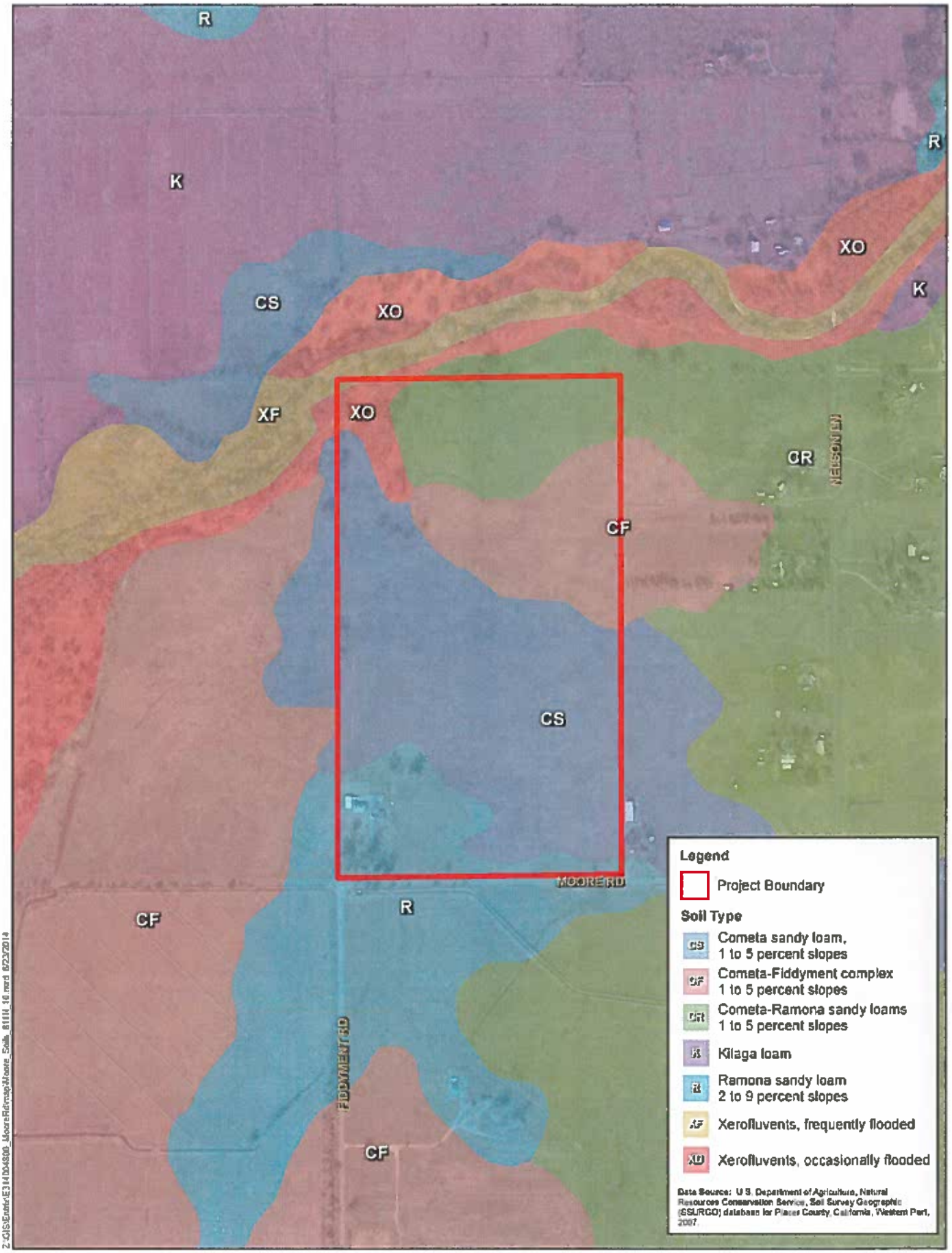
The Ramona soils are nearly level to moderately steep. They are on terraces and fans at elevations of 250 to 3,500 feet. They formed in alluvium derived mostly from granitic and related rock sources. Ramona sandy loam is well-drained with slow to rapid runoff, and moderately slow permeability. Within Placer County, Ramona sandy loam is listed as a hydric soil within drainage ways (USDA 2010).

Xerofluvents, occasionally flooded

The xerofluvents, occasionally flooded soils occur near rivers or streams or on alluvial fans. They are occasionally flooded by stream overflow during rain events. Xerofluvents, occasionally flooded soils are moderately well drained. Within Placer County, Xerofluvents, occasionally flooded soils are listed as a hydric soil within drainage ways (USDA 2010).

Xerofluvents, frequently flooded

Xerofluvents are found on flood plains along rivers or streams or on alluvial fans, mostly in areas with Mediterranean climates. Flooding is most common in winter, but some of the soils are flooded in spring due to melting snow in the nearby mountains. Vegetation communities on Xerofluvents typically consist of mixed forest or grass and shrubs. Xerofluvents, frequently flooded soil type is found adjacent to stream channels and consist of narrow bands of somewhat poorly drained recent alluvium. Areas containing this soil type are typically subject to frequent flooding and channelization. Within Placer County, Xerofluvents, frequently flooded soils are listed as a hydric soil within drainage ways (USDA 2010).



MOORE ROAD

Cardno ENTRIX

N

0 500 1,000 1,500

Scale in Feet

Figure 2

Soils

4.3 Hydrology

The Study Area lies within the Lower Bear Watershed, and appears to be a part of a larger historic vernal pool/swale complex that encompassed much of the surrounding region prior to development for urban or agricultural uses. While generally flat, the topography in the Study Area appears to slope from east to west, and north to south. The source of the water for the vernal pools and vernal swales in the area appears to be primarily from precipitation and surface runoff from adjacent uplands. The ephemeral drainage appears to receive runoff from adjacent uplands to the east, and flows to the seasonal freshwater forested wetland, and then to an agricultural aqueduct that connects to Auburn Ravine. The U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) mapped the seasonal pond feature in the northwest corner of the project area as freshwater forested/shrub wetlands (USFWS 2010).

5 Results and Discussion

Cardno biologists Sam Bacchini and Alexandra Topor delineated wetlands and other waters in the Study Area on May 29, 2014. Wetlands and Other Waters present in the Study Area (see Appendix A) include thirteen vernal pools, three vernal swales, a seasonal freshwater forested wetland, and an ephemeral drainage channel. The banks of the ephemeral drainage were inspected for OHWM indicators using the methods described in Section 2 above. Representative photographs of the Study Area are located in Appendix B.

5.1 Vernal Pool (0.682 acre)

There are 13 wetland features in the Study Area that were mapped as vernal pools, totaling 0.682 acre. These features are distinct depressions of varying depths and size. Due to the lack of grazing and disturbance of the adjacent grassland, all the vernal pools are heavily overgrown with nonnative grassland plant species. The boundaries of the pools are still evident but are poorly defined. All pools were similar in appearance and had consistent soil morphology and hardpan. At the time of the survey all the pools were dry. Data taken in the field was augmented with digitization of boundaries on wet season aerial images due to the difficulty of determining boundaries in the field.

5.2 Vernal Swale (3.484 acres)

Three (3) features in the Study Area are mapped as vernal swales totaling 3.484 acres. All three swales are vegetated with nonnative grassland species that have obscured their boundaries. Vernal Swale 01 flows across the middle of the Study Area from east to west. This feature receives water from the adjacent grazing land to the east and flows to an agricultural irrigation cannel on the parcel of land to the west of the Study Area. Vernal Swale 02 flows from the eastern boundary of the Study Area to a culvert that runs under Moore Road along the southern edge of the Study Area. Vernal Swale 03 is a less distinct than the other vernal swales and is located to the north of the residential house in the Study Area. This feature appears to collect precipitation and runoff from the surrounding grasslands and flows west to the neighboring parcel of land. The vegetation, soils, and hydrological indicators of the vernal swales are consistent with the vernal pool morphology.

5.3 Seasonal Freshwater Forested Wetland (3.118 acres)

A seasonal freshwater forested wetland is located in the northwest corner of the Study Area totaling 3.118 acres. This feature is a wide, shallow depression within an oak forest that fills with water seasonally via the ephemeral drainage and overflow from Auburn Ravine. Due to shade from the dense canopy cover, and the heavy leaf litter, herbaceous the understory is very sparse. Wetland plant species dominate the understory and include umbrella plant, rabbitsfoot grass, fiddle dock, mugwort, and common spikerush. Other species present in nearby uplands include poison oak, and broadleaf milkweed.

5.4 Ephemeral Drainage (0.391 acre)

A single ephemeral drainage channel flows from the eastern edge of the Study Area to the seasonal freshwater forest wetland in the northwestern corner, totaling 0.391 acre. The ephemeral drainage has a distinct bed and bank and appears to receive runoff from adjacent uplands and paved surfaces to the east.

Table 1 Wetland and Other Waters in the Study Area

Wetlands	IDs	Acres
Vernal Pool 01	VP01	0.271
Vernal Pool 02	VP02	0.104
Vernal Pool 03	VP03	0.012
Vernal Pool 04	VP04	0.023
Vernal Pool 05	VP05	0.053
Vernal Pool 06	VP06	0.050
Vernal Pool 07	VP07	0.010
Vernal Pool 08	VP08	0.011
Vernal Pool 09	VP09	0.047
Vernal Pool 10	VP10	0.071
Vernal Pool 11	VP11	0.017
Vernal Pool 12	VP12	0.005
Vernal Pool 13	VP13	0.008
Vernal Swale 01	VS01	1.943
Vernal Swale 02	VS02	1.404
Vernal Swale 03	VS03	0.137
Seasonal Freshwater Forested Wetland	SFFW01	3.118
Total Wetlands		**7.284 Acres**
Other Waters		**Acres**
Ephemeral Drainage	ED01	0.391
Total Other Waters		**0.391 Acres**

6 Findings

Based on the area delineated, the Study Area contains approximately 7.284-acres wetland and 0.391 acre of other waters of the U.S. (Appendix A) that appear to be subject to the USACE's jurisdiction pursuant to the Clean Water Act for the following reasons:

- The vernal pools, vernal swales, and seasonal freshwater forested wetland in the Study Area meet the USACE's three-parameter wetland criteria (hydrophytic vegetation, hydric soils, and wetland hydrology); and
- The ephemeral drainage is hydrologically linked to a series of canals that convey water to the Sacramento River. Thus, the wetland has a significant nexus to a relatively permanent water that flows directly to a Traditional Navigable Water.

Acreages of wetlands and other Waters of the United States in the Study Area are summarized in Table 1 and depicted graphically in Appendix A.

As this report is a preliminary jurisdictional determination, we assume that the USACE's has jurisdiction over all features included in the delineation map. Additionally, while the state may have independent jurisdiction criteria, we assume the state has jurisdiction over these mapped features as well.

No additional wetlands or waters were identified in the Study Area. All wetlands and waters with the Study Area meet the broader criteria for Water of the State and should be considered RWQCB jurisdiction.

7 Supplemental Information

7.1 Directions to the Study Area

From Sacramento, California, take Interstate-80 (I-80) East toward Roseville. Take exit for Highway 65 and head north until you reach Nelson Lane. Turn left (south) onto Nelson Lane and follow for approximately 1.2 miles to Moore Road. Turn right onto Moore Road and continue to 3103 Moore Road (the first house on the right). The Study area begins left (west) of 3103 Moore Road.

7.2 Contact Information

Applicant

Ron Smith

Praxis Properties

5701 Lonetree Blvd, Suite 102

Rocklin, CA 95765

(916) 257-0802

Ronsmithllc@gmail.com

Delineator

Sam Bacchini

Cardno, Inc.

701 University Ave, Suite 200

Sacramento, California 95825

(916) 386-3850

sam.bacchini@cardno.com

8 References

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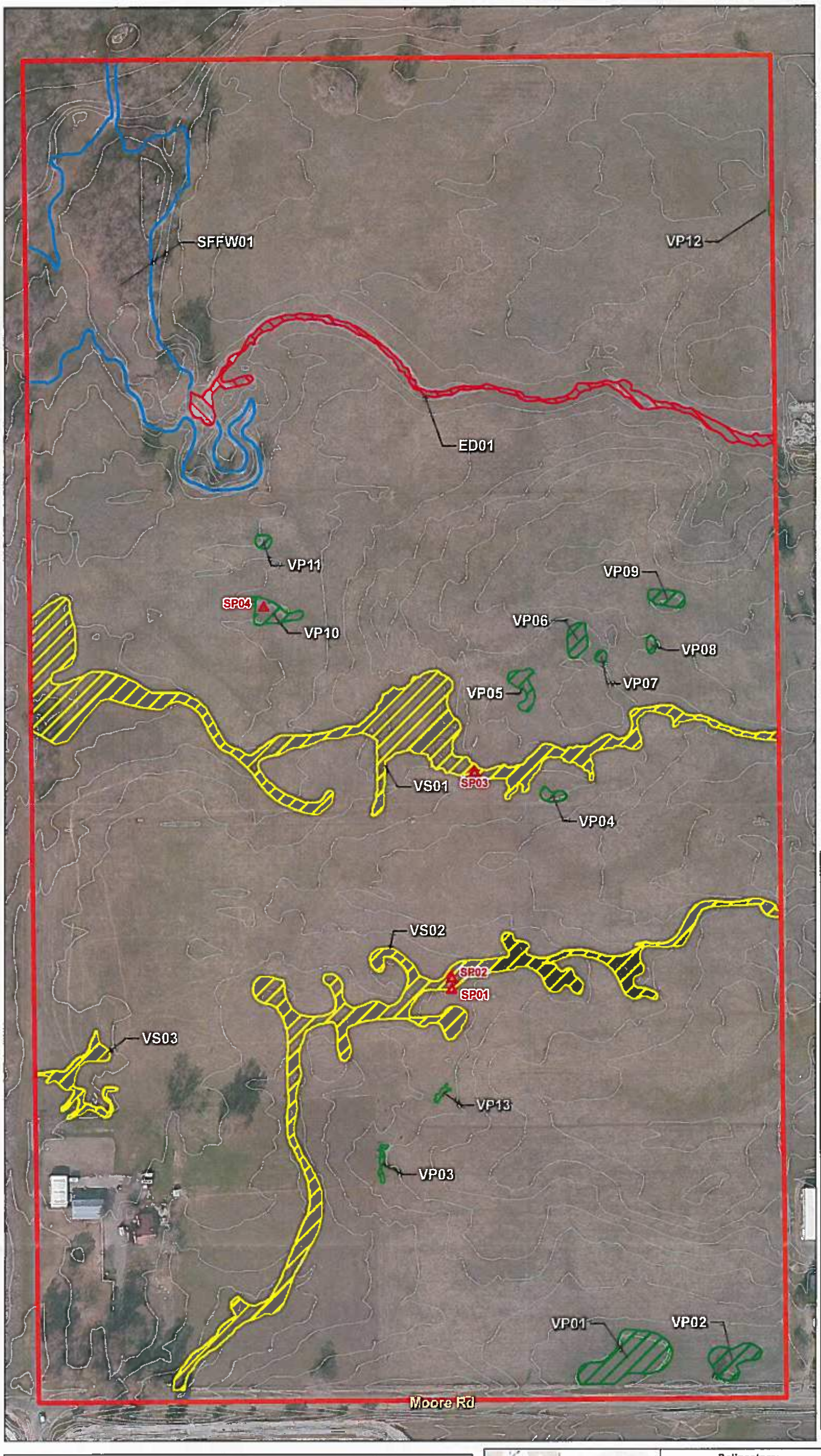
Moore Road Property

APPENDIX A

WETLANDS AND OTHER WATERS MAP



WETLANDS AND OTHER WATERS OF THE U.S.

- Ephemeral Drainage
- Seasonal Freshwater Forest Wetland
- Vernal Pool
- Vernal Swale

OTHER FEATURES

- Project Boundary
- Sample Point
- Contour Line

WETLANDS**		
Wetland Type	ID	Acres
Seasonal Freshwater Forest Wetland	SFFW01	3.118
	SUBTOTAL	3.118
Vernal Pool	VP01	0.271
	VP02	0.104
	VP03	0.012
	VP04	0.023
	VP05	0.053
	VP06	0.050
	VP07	0.010
	VP08	0.011
	VP09	0.047
	VP10	0.071
	VP11	0.017
	VP12	0.005
	VP13	0.008
	SUBTOTAL	0.682
Vernal Swale	VS01	1.943
	VS02	1.404
	VS03	0.137
	SUBTOTAL	3.484
	TOTAL	7.284

OTHER WATERS**		
Wetland Type	ID	Acres
Ephemeral Drainage	ED01	0.391
	TOTAL	0.391

TOTAL WETLANDS AND OTHER WATERS OF THE U.S.*	7.675

NOTES

Gross Site Acreage: +/- 90 ac.

Aerial Photo Source: © February, 2012 Microsoft Corporation and its data suppliers

*This exhibit depicts information and data produced in strict accord with the U.S. Army Corps of Engineers wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and conforms to specifications per the Corps Sacramento District. However, wetland boundaries have not been legally surveyed and may be subject to minor adjustments if exact locations are required.

**The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.

Delineators:
Sam Bacchini, Cardno ENTRIX
Alexandra Topor, Cardno ENTRIX

Delineation Date:
5/29/2014

Preparation Date:
6/30/2014 M. Nugent

Revision Date:
2/4/2015 K.Gabel

Cardno

Moore Road
Appendix A
Wetland Delineation*

1 inch = 200 feet
Projection: Cal. Stateplane, Zone 2
Datum: NAD 83

C:\shared\gis\E3\4004500_MooreRd\map\Moore_WetlandDelineation_19117I_02.mxd

Moore Road Property

APPENDIX B

REPERSENTATIVE SITE PHOTOGRAPHS

Photo 1: Representative site photo of non-native grassland that dominates the Study Area.

Photo 2: Representative photo of vernal pools located in the Study Area. Vernal pools were overgrown with non-native upland species, but had distinct boundaries.

Photo 3: Vernal pool 01 and 02, located on along the southern boundary, show evidence of grazing. Vernal pool plant species observed within these pools.

Photo 4: Ephemeral drainage located in the northern section of the Study Area. The ephemeral drainage had green vegetation near its connection with the seasonal freshwater forest wetland.

Photo 5: Representative photo of vernal swale within Study Area. Vernal swales were overgrown with non-native upland species, but boundaries were visible.

Photo 6: The seasonal freshwater forest wetland in the northwest corner of the Study Area consists of a shallow depression within an oak forest.

Photo 7: Wetland vegetation dominates the parts of the seasonal freshwater forest wetland not shaded by oak forest. The seasonal freshwater forest wetland is most likely filled by overflow from Markham Ravine and from runoff from the ephemeral drainage.

Moore Road Property

APPENDIX C

DATA SHEETS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Moore Road Property | City/County: Lincoln/Placer | Sampling Date: 5/29/14

Applicant/Owner: Praxis Properties | State: CA | Sampling Point: SP01

Investigator(s): Sam Bacchini and Alexandra Tepor | Section, Township, Range: S19, T12N, R6E

Landform (hillslope, terrace, etc.): flat grassland | Local relief (concave, convex, none): concave | Slope (%): 0-2

Subregion (LRR): C Mediterranean California | Lat: 38.870353° | Long: -121.346452° | Datum: NAD83

Soil Map Unit Name: Cometa sandy loam, 1 to 5 percent slope | NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	Is the Sampled Area within a Wetland?	Yes ☒ No ☐
Hydric Soil Present?	Yes ☐ No ☒		
Wetland Hydrology Present?	Yes ☒ No ☐		

Remarks: Within vernal swale. Hydrophitic vegetation and wetland hydrology present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: n/a)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: n/a)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 1m2)			
1. *Hordeum marinum gussoneanum*	50	yes	FAC
2. *Trifolium hirtum*	10	no	UPL
3. *Festuca perennis*	20	no	UPL
4. *Leontodon saxatilis*	10	no	FACU
5.			
6.			
7.			
8.			
50% = ____, 20% = ____	90	= Total Cover	
Woody Vine Stratum (Plot size: n/a)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 10	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Hydrophytic vegetation dominates this sample point.

Project Site: Moore Road Property

SOIL

Sampling Point: SP01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	5YR 3/4	90	5YR 4/6	10	C	M	silty clay	
3"=bottom								

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 3

Hydric Soils Present? Yes ☐ No ☒

Remarks: Hardpan reached at 3 inches. Hydric soils not observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches):		
Water Table Present?	Yes ☐	No ☒	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☒	Depth (inches):		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No surface water or saturation present, but drainage patterns and saturation visible on aerial imagery was observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Moore Road Property | City/County: Lincoln/Placer | Sampling Date: 5/29/14

Applicant/Owner: Praxis Properties | State: CA | Sampling Point: SP02

Investigator(s): Sam Bacchini and Alexandra Topor | Section, Township, Range: S19, T12N, R5E

Landform (hillslope, terrace, etc.): flat grassland | Local relief (concave, convex, none): concave | Slope (%): 0-2

Subregion (LRR): C Mediterranean California | Lat: 38.870414° | Long: -121.346451° | Datum: NAD83

Soil Map Unit Name: Cometa sandy loam, 1 to 5 percent slope | NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	Is the Sampled Area within a Wetland? Yes ☐ No ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	

Remarks: Upland point from SP01, no hydrophytic vegetation, hydric soils, or wetland hydrology present

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: n/a)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: n/a)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 1m2)			
1. *Elymus caput-medusae*	60	yes	UPL
2. *Erodium botrys*	10	no	FACU
3. *Holocarpha virgata*	10	no	UPL
4. *Bromus hordeaceus*	10	no	FACU
5. *Festuca perennis*	10	no	UPL
6.			
7.			
8.			
50% = ____, 20% = ____	100	= Total Cover	
Woody Vine Stratum (Plot size: n/a)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum ____		% Cover of Biotic Crust ____	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species	20	x4 =	80
UPL species	80	x5 =	400
Column Totals:	100 (A)		440 (B)

Prevalence Index = B/A = 4.4

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: Vegetation dominated by upland plant species

Project Site: Moore Road Property

SOIL

Sampling Point: SP02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	5YR 3/4	100					silty clay	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: soil rejection at 12"

Depth (Inches): 12

Hydric Soils Present? Yes ☐ No ☒

Remarks: Hydric soils not observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches):		
Water Table Present?	Yes ☐	No ☒	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☒	Depth (inches):		

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No surface water, water table, saturation or primary hydrology indicators observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Moore Road Property | City/County: Lincoln/Placer | Sampling Date: 5/29/14

Applicant/Owner: Praxis Properties | State: CA | Sampling Point: SP03

Investigator(s): Sam Bacchini and Alexandra Topor | Section, Township, Range: S19, T12N, R5E

Landform (hillslope, terrace, etc.): flat grassland | Local relief (concave, convex, none): concave | Slope (%): 0-2

Subregion (LRR): C Mediterranean California | Lat: 38.871531° | Long: -121.346280° | Datum: NAD83

Soil Map Unit Name: Cometa sandy loam, 1 to 5 percent slope | NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	Is the Sampled Area within a Wetland? Yes ☒ No ☐
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks: Within wetland swale. no hydrophytic vegetation or hydric soils present

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: n/a)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: n/a)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 1m2)			
1. *Holocarpha virgata*	20	yes	UPL
2. *Trifolium hirtum*	7	no	UPL
3. *Bromus hordeaceus*	8	no	FACU
4. *Festuca perennis*	7	no	UPL
5. *Hordeum marinum gussoneanum*	20	yes	FAC
6. *Leontodon saxatilis*	30	yes	FACU
7.			
8.			
50% = ____, 20% = ____	90	= Total Cover	
Woody Vine Stratum (Plot size: n/a)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 10	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	20	x3 =	60
FACU species	36	x4 =	144
UPL species	34	x5 =	170
Column Totals:	90 (A)		374 (B)

Prevalence Index = B/A = 4.1

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: Vegetation dominated by upland plant species

Project Site: Moore Road Property

SOIL

Sampling Point: SP03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	5YR 3/3	60	5YR 4/6	40	C	M	silty clay	
4"=bottom								

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 4

Hydric Soils Present? Yes ☐ No ☒

Remarks: Hydric soils not observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches):		
Water Table Present?	Yes ☐	No ☒	Depth (inches):		
Saturation Present? (includes capillary fringe)	Yes ☐	No ☒	Depth (inches):		

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Primary indicators observed but no surface water, water table, saturation or primary hydrology indicators observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Moore Road Property | City/County: Lincoln/Placer | Sampling Date: 5/28/14

Applicant/Owner: Praxis Properties | State: CA | Sampling Point: SP04

Investigator(s): Sam Bacchini and Alexandra Topor | Section, Township, Range: S19, T12N, R6E

Landform (hillslope, terrace, etc.): flat grassland | Local relief (concave, convex, none): concave | Slope (%): 0-2

Subregion (LRR): C Mediterranean California | Lat: 38.872438° | Long: -121.347736° | Datum: NAD83

Soil Map Unit Name: Cometa sandy loam, 1 to 5 percent slope | NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks: **Within vernal pool. Hydrophitic vegetation and wetland hydrology present.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: n/a)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: n/a)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 1m2)			
1. *Hordeum marinum gussoneanum*	60	yes	FAC
2. *Festuca perennis*	20	no	UPL
3. *Trifolium hirtum*	10	no	UPL
4. *Elymus caput-medusae*	5	no	UPL
5. *Bromus hordeaceus*	5	no	FACU
6.			
7.			
8.			
50% = ____, 20% = ____	100	= Total Cover	
Woody Vine Stratum (Plot size: n/a)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum ____	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Hydrophytic vegetation dominate this sample point.

Project Site: Moore Road Property

SOIL

Sampling Point: SP04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	5YR 3/3	60	5YR 4/6	40	C	M	silty clay	
4"=bottom								

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR C)
- ☐ 2 cm Muck (A10) (LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 4

Hydric Soils Present? Yes ☐ No ☒

Remarks: Hardpan reached at 4 inches. Hydric soils not observed

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☒ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): ____
Water Table Present?	Yes	☐	No	☒	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): ____

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Primary indicators observed but no surface water, water table, saturation or primary hydrology indicators observed

Moore Road Property

APPENDIX D

PLANT SPECIES OBSERVED WITHIN STUDY AREA

Family	Scientific Name	Common Name	Wetland Indicator
Anacardiaceae	*Toxicodendron diversilobum*	Poison oak	FACU
Apiaceae	*Eryngium castrense*	Coyote thistle	FACW
Apocynaceae	*Asclepias latifolia*	Broadleaf milkweed	UPL
Asteraceae	*Anthemis cotula*	Mayweed	FACU
Asteraceae	*Artemisia douglasiana*	Mugwort	FAC
Asteraceae	*Carduus pycnocephalus*	Italian thistle	UPL
Asteraceae	*Centaurea solstitialis*	Yellow star thistle	UPL
Asteraceae	*Holocarpha virgata*	Yellow tarweed	UPL
Asteraceae	*Leontodon saxatilis*	Hawkbit	FACU
Brassicaceae	*Raphanus raphanistrum*	Wild radish	UPL
Brassicaceae	*Brassica* sp.	Wild mustard	UPL
Convolvulaceae	*Convolvulus arvensis*	field bindweed	UPL
Cyperaceae	*Cyperus eragrostis*	Umbrella sedge	FACW
Cyperaceae	*Eleocharis macrostachya*	Common spike rush	UPL
Fabaceae	*Trifolium hirtum*	Rose clover	UPL
Fagaceae	*Quercus lobata*	Valley oak	FACU
Geraniaceae	*Erodium botrys*	Big heron bill	FACU
Juglandaceae	*Juglans hindsii*	Northern California black walnut	FAC
Poaceae	*Bromus hordeaceus*	Soft chess	FACU
Poaceae	*Cynodon dactylon*	Bermuda grass	FACU
Poaceae	*Elymus caput-medusae*	Medusa grass	UPL
Poaceae	*Festuca perennis*	Italian rye grass	UPL
Poaceae	*Hordeum marinum gussoneanum*	Mediterranean barley	FAC
Poaceae	*Polypogon monspeliensis*	Rabbits foot grass	FACW
Polygonaceae	*Polygonum aviculare*	Prostrate knotweed	FACW
Polygonaceae	*Rumex pulcher*	Fiddle dock	FAC
Themidaceae	*Brodiaea elegans*	Harvest Brodiaea	FACU