# APPENDIX C

*Biological Reports*

# Arborist Report and Native Oak Inventory

## Gill Property

February 5, 2015

Cardno
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# Document Information

| | |
|---|---|
| Prepared for | Gill Property Development, LLC |
| Project Name | Gill Property |
| Project Manager | Shannon Karvonen |
| Date | February 5, 2015 |

Prepared for:

Gill Property Development, LLC

424 D Street Marysville, CA 95901

Prepared by:

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

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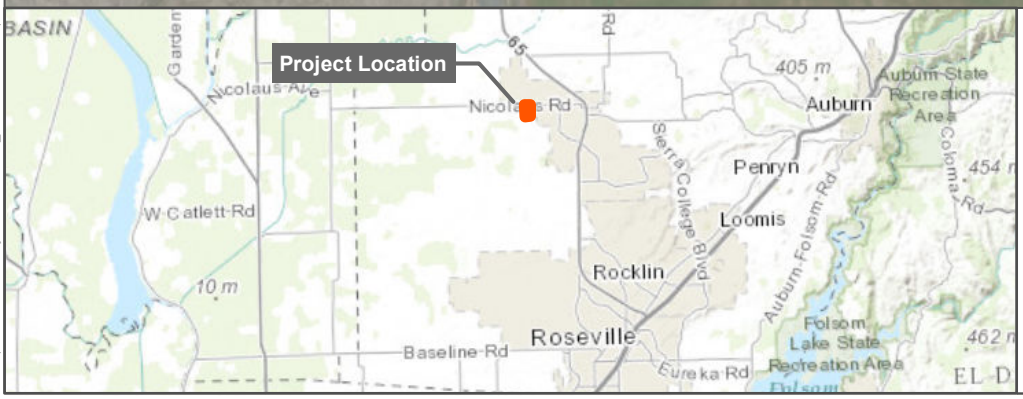
# 1 Introduction

## 1.1 Introduction

This Arborist Report and Native Oak Tree Inventory documents the results of an arborist survey conducted on the Gill Property Project in the City of Lincoln, within Placer County, California (Figure 1). The survey was performed on January 19, 2015 and January 21, 2015 by Cardno Biologist and International Society of Arboriculture (ISA) Certified Arborist Sam Bacchini (WE-10428A) and Staff Scientist Tera Omer. The purpose of the survey was to identify species, location, and current condition of trees within the Gill 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.


**LEGEND**

Study

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Scale in Feet

GILL PROPERTY

**Figure 1**

Site and Vicinity

# 2 Methodology

## 2.1 Survey Methods

An arborist survey was performed on January 19 and 21, 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 numbered metal tree tag was affixed to the north side, where possible, of each surveyed tree using a nail and hammer. 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 Study Area consists of non-native annual grasslands with a few scattered oaks and with riparian vegetation occurring along Markham Ravine. The majority of the trees surveyed occurred within the riparian portion of the Study Area.

A total of 73 trees were surveyed during the field visits. Of the 73 trees within the Study Area, 81 percent were valley oak (*Quercus lobata*) and 19 percent were interior live oak (*Quercus wislizenii*).

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

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

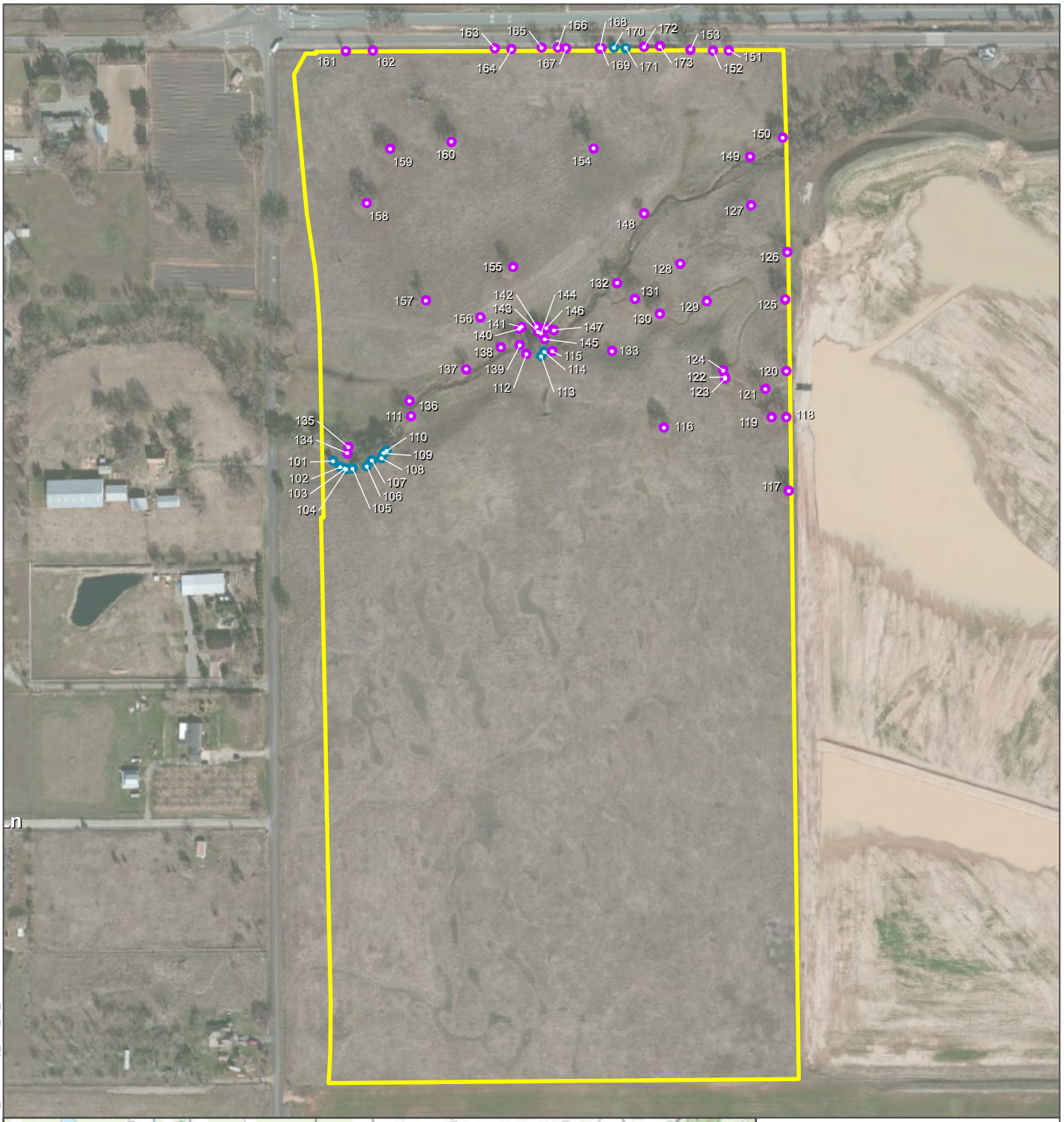
| Scientific Name** | Common Name | Condition Rating | | | | | | Number of Trees |
|---|---|---|---|---|---|---|---|---|
| | | Poor | Poor-Fair | Fair | Fair-Good | Good | Excellent | |
| *Quercus lobata* ** | Valley oak | 10 | 16 | 31 | 2 | 0 | 0 | 59 |
| *Quercus wislizenii*** | Interior live oak | 1 | 4 | 6 | 1 | 2 | 0 | 14 |
| | | | | | | | ***Total*** | ***73*** |

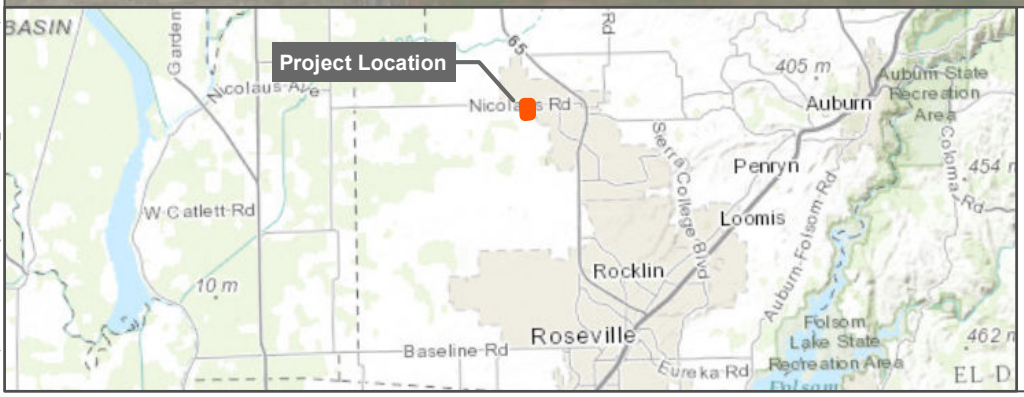
*Only trees with single trunk dbh greater than 6 inches or multi-trunk dbh greater than 10 inches are included in this table.

*Only tagged trees located within the Study Area are included in this table and totals

**Native species.

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




## LEGEND

- Interior Live Oak
- Valley Oak
- Study Area

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N

0 250 500

Scale in Feet

GILL PROPERTY

# Figure 2

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 and fair to 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 condition. Ten trees, nine valley oaks and one interior live oak, are in poor condition and removal is recommended. These include tree tag numbers 108, 111, 112, 117, 126, 139, 154, 155, 157, and 158. 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

Gill Property

APPENDIX

# A

## ARBORIST SURVEY DATA

| Tag # | Species | DBH (inches) | Height (feet) | Canopy Width (feet) | Condition* | Notes/Recommendations |
|---|---|---|---|---|---|---|
| 101 | Quercus wislizeni | 9 + 11 | 30 | 25 | F | Minor Dieback, Included bark, Slight Lean, Canker, Exposed roots, Open oozing wound |
| 102 | Quercus wislizeni | 8 + 6 + 4 | 30 | 35 | F | Minor Dieback, Included bark, Slight Lean, Exposed roots |
| 103 | Quercus wislizeni | 4 + 2 + 7 | 30 | 25 | F | Minor Dieback, Minor Limb Death, Slight Lean, Exposed roots |
| 104 | Quercus wislizeni | 13 + 10 | 40 | 30 | F | Minor Dieback, Minor Limb Death, Slight Lean, Exposed roots |
| 105 | Quercus wislizeni | 4 + 5 + 5 | 30 | 25 | F | Minor Dieback, Minor Limb Death, Exposed roots |
| 106 | Quercus wislizeni | 25 + 16 + 15 | 60 | 60 | P/F | Major Dieback, Major Limb Death, Included bark, Broken Branch, Hollow At Base, Leader death, Trunk cavity |
| 107 | Quercus wislizeni | 13.5 + 14 | 55 | 60 | P/F | Major Dieback, Major Limb Death, Included bark, Slight Lean, Broken Branch, Exfoliating bark |
| 108 | Quercus wislizeni | 18.5 + 14 | 60 | 45 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Broken Branch, Leader death, Trunk cavity |
| 109 | Quercus wislizeni | 27 + 12.5 + 21 | 65 | 60 | F | Minor Dieback, Minor Limb Death, Included bark, Bark Rot, Broken Branch, Exposed roots, Leader death |
| 110 | Quercus wislizeni | 43 | 65 | 60 | F | Major Dieback, Minor Limb Death, Included bark, Slight Lean, Broken Branch, Exposed roots |
| 111 | Quercus lobata | 27 + 15.5 | 60 | 60 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Broken Branch |
| 112 | Quercus lobata | 21.5 | 60 | 30 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Broken Branch, Exposed roots |
| 113 | Quercus wislizeni | 6 + 7 + 7 | 25 | 25 | P/F | Included bark, Severe Lean |
| 114 | Quercus wislizeni | 26 | 40 | 50 | P/F | Major Dieback, Major Limb Death, Included bark, Rot In Branch, Broken Branch, Exposed roots |
| 115 | Quercus lobata | 37 | 70 | 65 | P/F | Major Dieback, Major Limb Death, Included bark, Rot In Branch, Broken Branch, Burl |
| 116 | Quercus lobata | 39 | 70 | 70 | F | Major Dieback, Minor Limb Death, Included bark, Bark Rot, Broken Branch |
| 117 | Quercus lobata | 32 | 55 | 55 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Bark Rot, Exfoliating bark, |

| Tag # | Species | DBH (inches) | Height (feet) | Canopy Width (feet) | Condition* | Notes/Recommendations |
|---|---|---|---|---|---|---|
| | | | | | | Fissures, Open oozing wound, Rot in Trunk, Embedded fence |
| 118 | Quercus lobata | 21.5 | 45 | 35 | F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Canker, Exfoliating bark |
| 119 | Quercus lobata | 22 + 12.5 | 45 | 45 | F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Broken Branch |
| 120 | Quercus lobata | 34 | 50 | 55 | P/F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Broken Branch, Embedded fence |
| 121 | Quercus lobata | 41.5 | 50 | 45 | F | Minor Dieback, Major Limb Death, Included bark, Bark Rot |
| 122 | Quercus lobata | 31 | 60 | 50 | F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Broken Branch |
| 123 | Quercus lobata | 31 | 60 | 50 | F | Major Dieback, Major Limb Death, Included bark, Bark Rot |
| 124 | Quercus lobata | 14 + 11 | 30 | 40 | F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Broken Branch |
| 125 | Quercus lobata | 23 + 34 | 65 | 65 | F | Minor Dieback, Minor Limb Death, Included bark, Bark Rot, Embedded fence |
| 126 | Quercus lobata | 43 | 55 | 45 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Bark Rot, Rot In Branch, Exfoliating bark, Rot in Trunk |
| 127 | Quercus lobata | 9.5 + 9.5 | 35 | 25 | F/G | Minor Dieback, Minor Limb Death, Included bark |
| 128 | Quercus lobata | 8 | 40 | 20 | P/F | Major Dieback, Included bark |
| 129 | Quercus lobata | 6.5 + 4.5 | 30 | 25 | P/F | Major Dieback, Included bark |
| 130 | Quercus lobata | 29 | 45 | 40 | F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Exposed roots, Pruning Cut |
| 131 | Quercus lobata | 38 | 50 | 60 | P/F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Rot In Branch |
| 132 | Quercus lobata | 26 | 45 | 50 | F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Broken Branch, Exposed roots |
| 133 | Quercus lobata | 8.5 | 30 | 30 | F | Minor Dieback, Minor Limb Death, Included bark, Slight Lean, Bark Rot |
| 134 | Quercus lobata | 32 | 55 | 45 | P/F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Fissures, Leader death |

| Tag # | Species | DBH (inches) | Height (feet) | Canopy Width (feet) | Condition* | Notes/Recommendations |
|---|---|---|---|---|---|---|
| 135 | Quercus lobata | 28 | 55 | 60 | F | Major Dieback, Major Limb Death, Included bark, Severe Lean, Bark Rot |
| 136 | Quercus lobata | 7.5 + 7 | 30 | 25 | F | Minor Dieback, Included bark, Bark Damage, Embedded Fence |
| 137 | Quercus lobata | 18 | 50 | 40 | F | Minor Dieback, Minor Limb Death, Included bark |
| 138 | Quercus lobata | 12 | 35 | 30 | F/G | Minor Dieback, Included bark, Canker |
| 139 | Quercus lobata | 17 | 50 | 25 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Severe Lean |
| 140 | Quercus lobata | 6 | 30 | 15 | F | Minor Dieback, Included bark, Canker |
| 141 | Quercus lobata | 6 | 25 | 10 | F | Minor Dieback, Included bark |
| 142 | Quercus lobata | 9 | 45 | 25 | P/F | Minor Dieback, Included bark |
| 143 | Quercus lobata | 11 | 45 | 25 | F | Minor Dieback, Included bark, Slight Lean |
| 144 | Quercus lobata | 4 + 8 | 45 | 30 | F | Major Dieback, Included bark, Bark Rot, Fissures |
| 145 | Quercus lobata | 13 | 45 | 30 | P/F | Major Dieback, Major Limb Death, Included bark, Severe Lean |
| 146 | Quercus lobata | 4 + 6 | 35 | 25 | F | Minor Dieback, Included bark |
| 147 | Quercus lobata | 8 | 40 | 30 | F | Minor Dieback, Minor Limb Death, Leader death |
| 148 | Quercus lobata | 13 | 50 | 40 | P/F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Exposed roots, Rot in Trunk |
| 149 | Quercus lobata | 8.5 | 40 | 20 | F | Minor Dieback, Included bark, Exposed roots, Pruning Cut |
| 150 | Quercus lobata | 44 | 60 | 60 | P/F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Broken Branch, Fungus, Rot in Trunk, Embedded fence |
| 151 | Quercus lobata | 18 | 50 | 40 | P/F | Major Dieback, Minor Limb Death, Included bark, Bark Rot, Rot In Branch, Broken Branch |
| 152 | Quercus lobata | 50 | 70 | 70 | F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Broken Branch, Burl, Embedded fence |
| 153 | Quercus lobata | 40 | 70 | 60 | F | Major Dieback, Major Limb Death, Included bark, Broken Branch, Pruning Cut, Embedded fence |
| 154 | Quercus lobata | 50 | 85 | 55 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Rot In Branch, Broken Branch, Rot in Trunk, Woodpecker damage |

| Tag # | Species | DBH (inches) | Height (feet) | Canopy Width (feet) | Condition* | Notes/Recommendations |
|---|---|---|---|---|---|---|
| 155 | Quercus lobata | 55 | 55 | 45 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Bark Rot, Burl, Trunk cavity, Rot in Trunk, Woodpecker damage |
| 156 | Quercus lobata | 7 + 6 + 5 | 25 | 20 | F | Major Dieback, Included bark, Rot in Trunk |
| 157 | Quercus lobata | 40 | 60 | 45 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Bark Rot, Broken Branch, Fissures, Leader death, Rot in Trunk |
| 158 | Quercus lobata | 50 | 70 | 55 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Bark Rot, Broken Branch, Burl, Rot in Trunk |
| 159 | Quercus lobata | 50 | 60 | 60 | F | Minor Dieback, Minor Limb Death, Included bark, Slight Lean, Burl |
| 160 | Quercus lobata | 44 | 70 | 65 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Bark Rot, Broken Branch, Canker, Leader death, Open oozing wound, Rot in Trunk |
| 161 | Quercus lobata | 12 | 45 | 25 | F | Minor Dieback, Included bark, Bark Rot, Canker, Fissures |
| 162 | Quercus lobata | 16 | 45 | 30 | F | Minor Dieback, Included bark, Canker |
| 163 | Quercus lobata | 7 + 3.5 | 35 | 15 | F | Minor Dieback, Included bark |
| 164 | Quercus lobata | 6 + 4.5 | 20 | 15 | F | Minor Dieback, Included bark, Canker |
| 165 | Quercus lobata | 23 | 60 | 55 | P/F | Major Dieback, Minor Limb Death, Included bark, Burl, Canker |
| 166 | Quercus lobata | 16 | 45 | 40 | P/F | Major Dieback, Minor Limb Death, Included bark, Fissures |
| 167 | Quercus lobata | 15 | 40 | 35 | P/F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Fissures |
| 168 | Quercus lobata | 27 | 55 | 50 | P/F | Major Dieback, Major Limb Death, Included bark, Bark Rot, Burl, Pruning Cut |
| 169 | Quercus lobata | 21 | 45 | 35 | P/F | Major Dieback, Major Limb Death, Severe Lean |
| 170 | Quercus wislizeni | 2 + 2 + 2 + 6 + 6 + 6 + 5 + 5 + 4 + 5 | 40 | 40 | F/G | Included bark, Canker, Exposed roots, Sapsucker Damage |
| 171 | Quercus wislizeni | 4 + 4 + 2 | 30 | 25 | F | Included bark, Slight Lean, Exposed roots, Sapsucker Damage |

| Tag # | Species | DBH (inches) | Height (feet) | Canopy Width (feet) | Condition* | Notes/Recommendations |
|---|---|---|---|---|---|---|
| 172 | Quercus lobata | 8.5 | 40 | 30 | F | Minor Dieback, Minor Limb Death, Included bark, Exposed roots |
| 173 | Quercus lobata | 8.5 + 6.5 + 6 | 40 | 45 | F | Minor Dieback, Minor Limb Death, Included bark, Canker, Pruning Cut |

Gill 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).

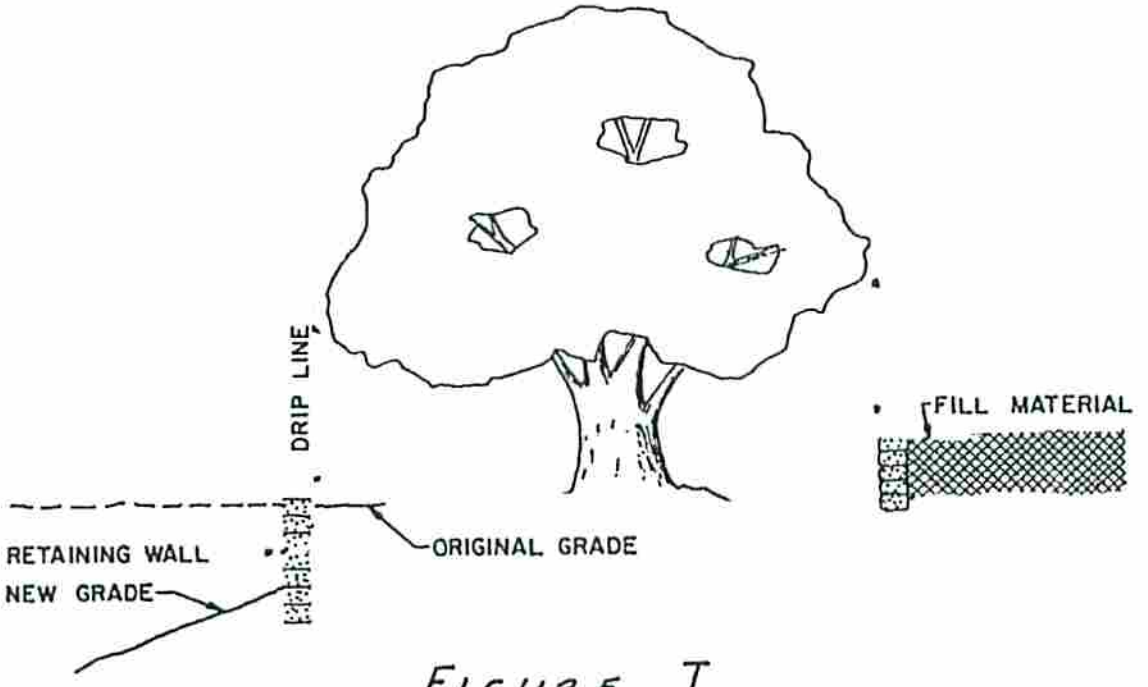

DRIP LINE
FILL MATERIAL
ORIGINAL GRADE
RETAINING WALL
NEW GRADE

FIGURE I

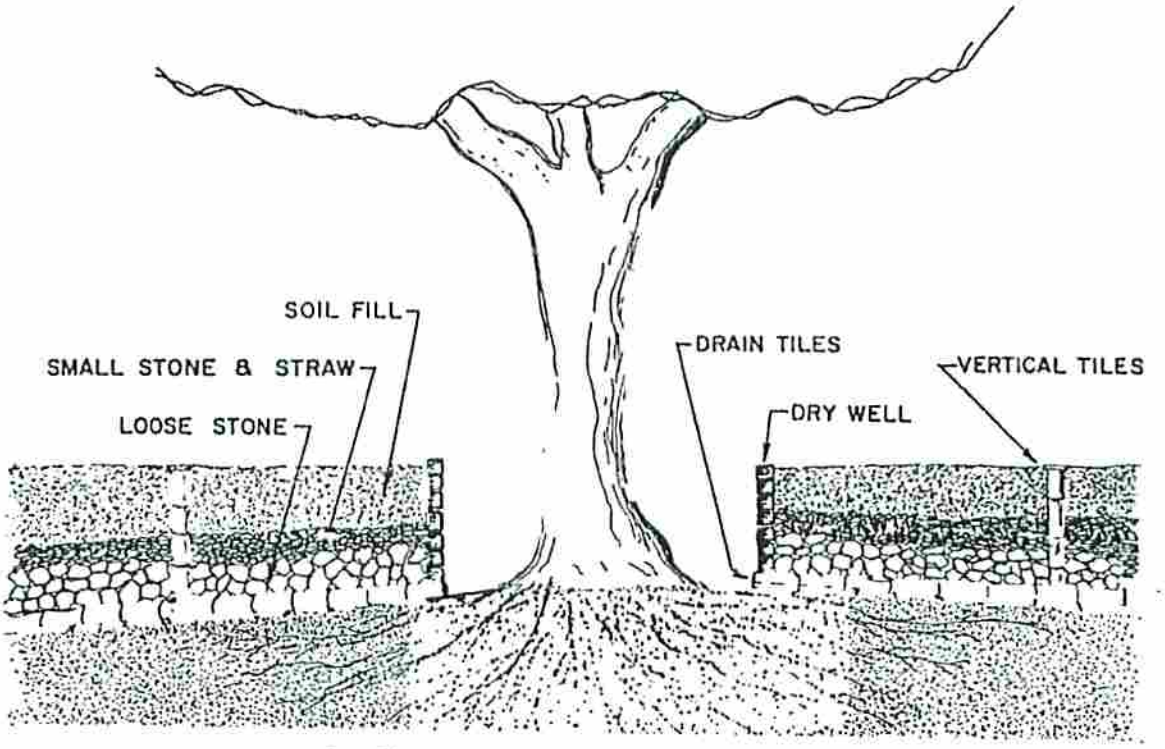
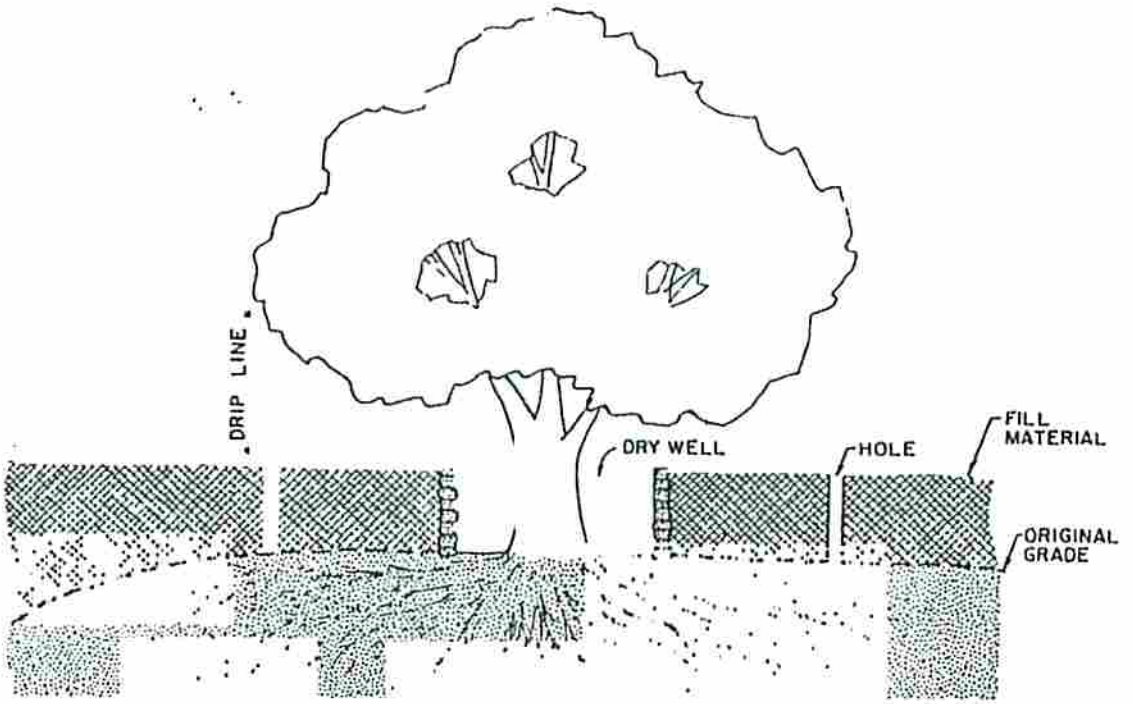
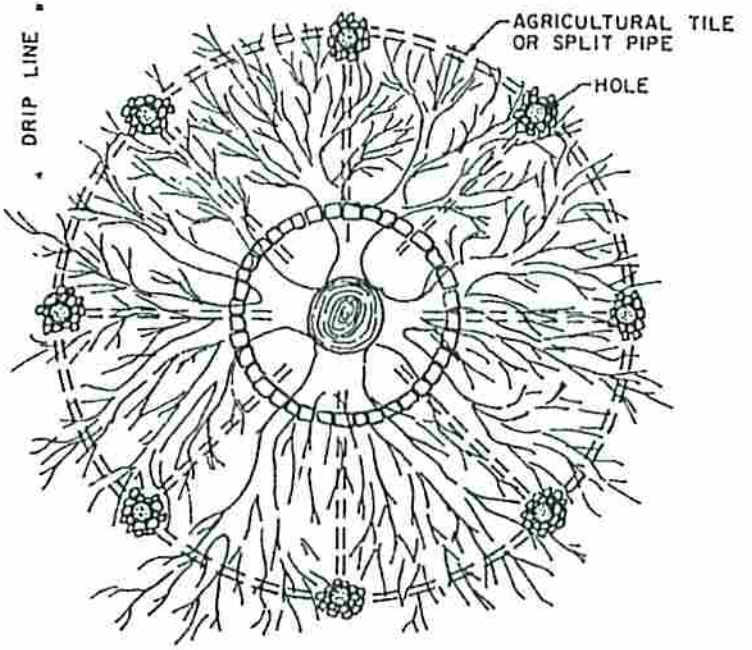

SOIL FILL
SMALL STONE & STRAW
LOOSE STONE
DRAIN TILES
DRY WELL
VERTICAL TILES

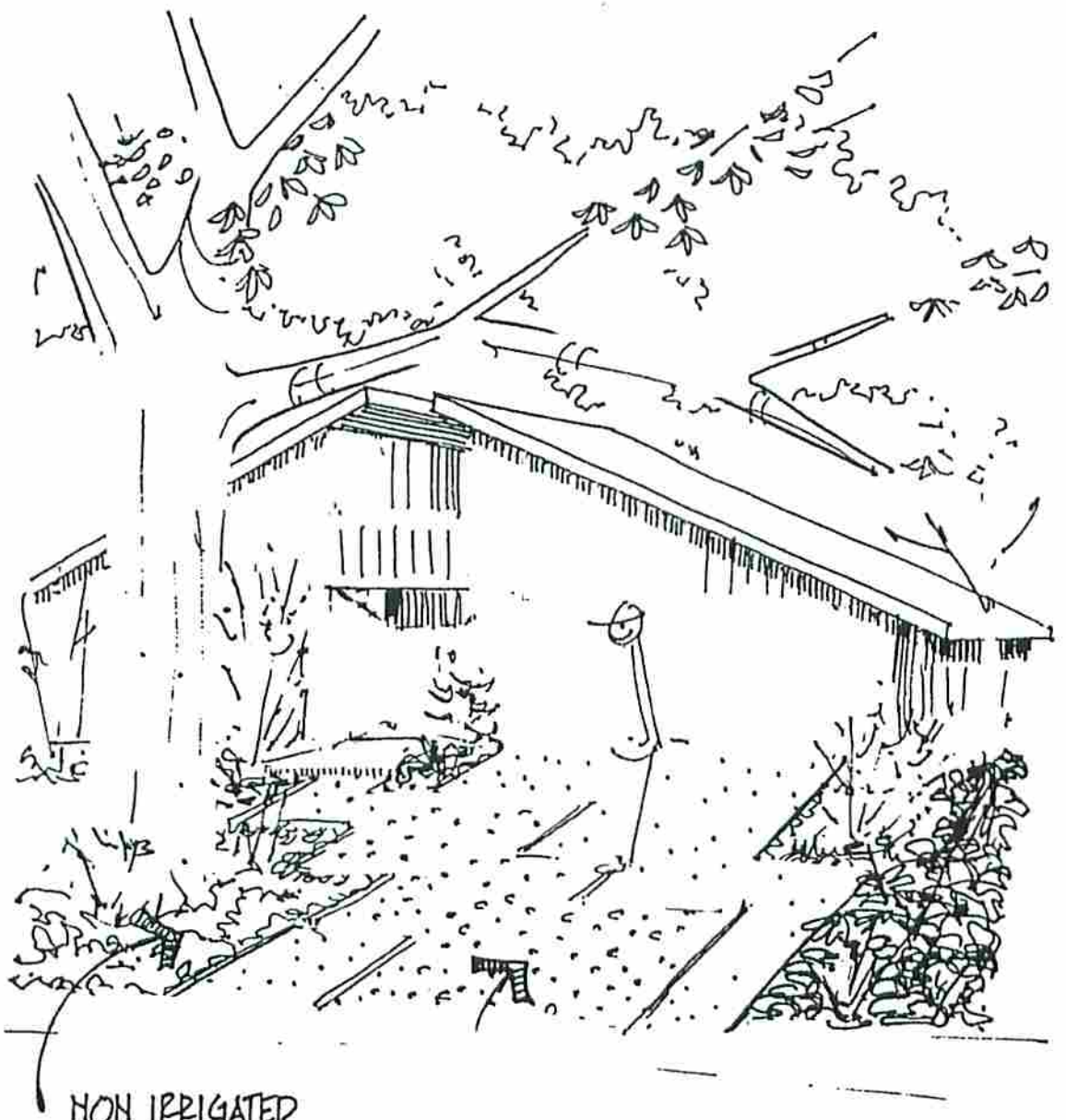
FIGURE 2




*R. Onga*

FIGURE 3




*R. Calloway*

Designing a landscape to save an oak.

FIGURE 4

# Arborist Report and Native Oak Inventory

## Peery Property

January 30, 2015

Cardno
Shaping the Future

# Document Information

| | |
|---|---|
| Prepared for | Peery-Arrillaga |
| Project Name | Peery Property |
| Project Manager | Shannon Karvonen |
| Date | January 30, 2015 |

Prepared for:

Peery-Arrillaga

2450 Watson Court, Palo Alto, CA 94303

Prepared by:


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

# Table of Contents



# Appendices



# Tables



# Figures

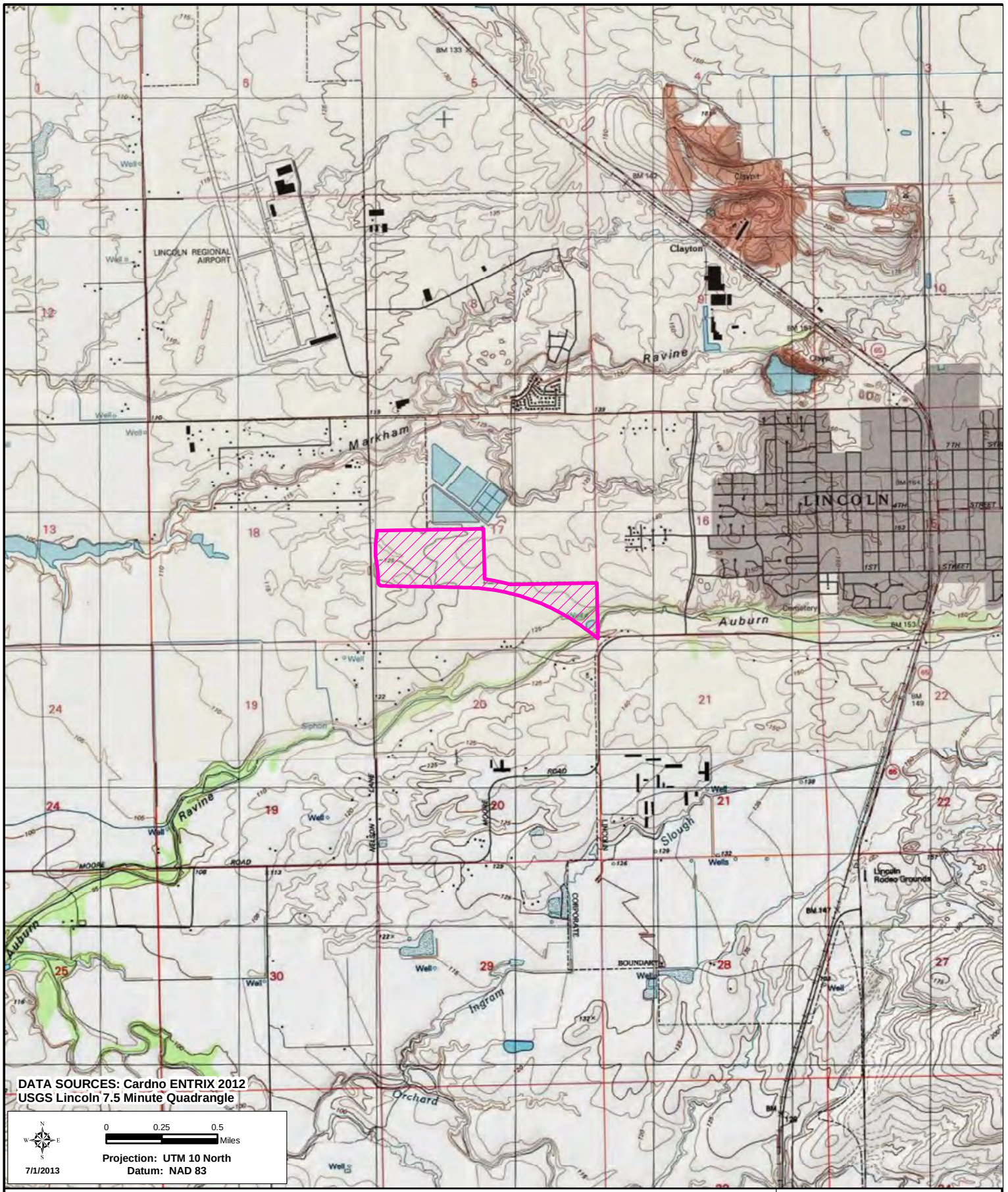
# 1 Introduction

## 1.1 Introduction

This Arborist Report and Native Oak Tree Inventory documents the results of an arborist survey conducted on the Peery Property in the City of Lincoln, within Placer County, California (Figure 1). The survey was performed on December 9, 2014, December 10, 2014, and January 19, 2015 by Cardno Biologist and International Society of Arboriculture (ISA) Certified Arborist Sam Bacchini (WE-10428A) and Staff Scientist Tera Omer. The purpose of the survey was to identify species, location, and current condition of trees within the Peery 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.




Y:\GIS\Entrix\3340700_Scheiber\map\Peery_ProjSite_8i11i_10.mxd

# 2 Methodology

## 2.1 Survey Methods

An arborist survey was performed on December 9, 2014, December 10, 2014, and January 19, 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 numbered metal tree tag was affixed to the north side, where possible, of each surveyed tree using a nail and hammer. 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 Study Area consists of four vegetation communities; agricultural, non-native annual grassland, oak woodland, and riparian. The majority of the trees surveyed occurred within the oak savannah and the riparian portions of the Study Area.

A total of 109 trees were surveyed during the field visits. Of those 109 trees, 100 were affixed with a preprinted numbered metal tree tag. The remaining nine trees not affixed with a tag number were unreachable due to dense blackberry thickets around their bases. GPS locations and tree size and condition data were gathered for these trees by visually estimating DBH and offsetting GPS points.

Of the 109 trees within the Study Area, 67 percent were valley oak (*Quercus lobata*), 11 percent were Northern California black walnut (*Juglans hindsii)*, eight percent were White mulberry (*Morus alba),* and seven percent were interior live oak (*Quercus wislizenii*). The remaining seven percent were blue oak (*Quercus douglasii*), Fremont cottonwood (*Populus fremontii*), plum (*Prunus* sp.), and weeping willow (*Salix babylonica*).

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

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

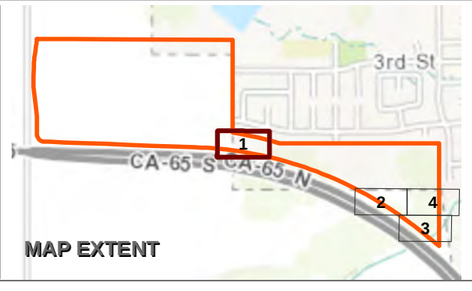
| Scientific Name** | Common Name | Condition Rating | | | | | | Number of Trees |
|---|---|---|---|---|---|---|---|---|
| | | Poor | Poor-Fair | Fair | Fair-Good | Good | Excellent | |
| *Quercus douglasii* ** | Blue oak | 2 | 0 | 1 | 1 | 0 | 0 | 4 |
| *Quercus lobata* ** | Valley oak | 16 | 16 | 17 | 23 | 0 | 0 | 72 |
| *Quercus wislizenii*** | Interior live oak | 2 | 4 | 1 | 1 | 0 | 0 | 8 |
| | | | | | ***Subtotal of Native Oak Species*** | | | ***84*** |
| *Juglans hindsii* ** | Northern California black walnut | 4 | 4 | 4 | 0 | 0 | 0 | 12 |
| *Morus alba* | Mulberry | 3 | 5 | 1 | 0 | 0 | 0 | 9 |
| *Populus fremontii*** | Fremont Cottonwood | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| *Prunus* sp. | Plum species | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| *Salix babylonica* | Weeping Willow | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | | | | | | | ***Total*** | **109** |

*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.






**LEGEND**

Project Boundary (17.0 ac.)

**Tree Type**

- Non-native, Plum
- Non-native, Weeping willow
- Non-native, White mulberry
- Non-oak, Fremont's cottonwood
- Non-oak, Northern California black walnut
- Oak, Blue Oak
- Oak, Interior live oak
- Oak, Valley oak

N

0 50 100

Scale in Feet

Cardno

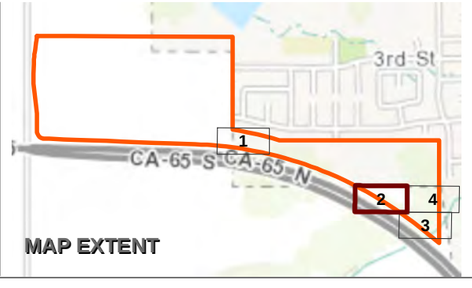
PEERY PROPERTY

**Figure 2**

*Page 1 of 4*

**Tree Survey**



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- Oak, Blue Oak
- Oak, Interior live oak
- Oak, Valley oak

N

0 50 100

Scale in Feet

Cardno

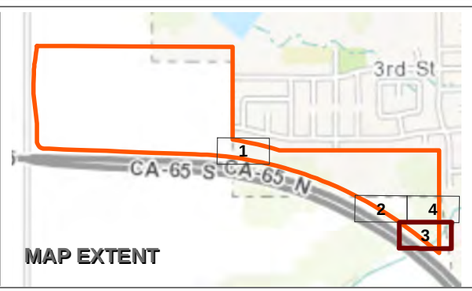
PEERY PROPERTY

**Figure 2**

*Page 2 of 4*

**Tree Survey**






**LEGEND**

Project Boundary (17.0 ac.)

**Tree Type**

- Non-native, Plum
- Non-native, Weeping willow
- Non-native, White mulberry
- Non-oak, Fremont's cottonwood
- Non-oak, Northern California black walnut
- Oak, Blue Oak
- Oak, Interior live oak
- Oak, Valley oak

N

0 50 100

Scale in Feet

Cardno

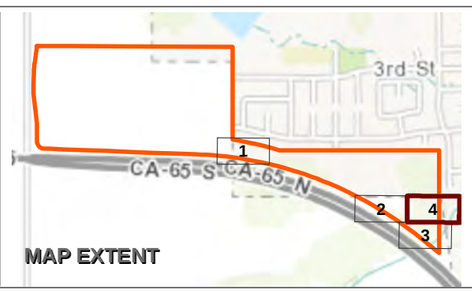
PEERY PROPERTY

**Figure 2**

***Page 3 of 4***

**Tree Survey**






**LEGEND**

Project Boundary (17.0 ac.)

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- Non-native, Plum
- Non-native, Weeping willow
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- Non-oak, Northern California black walnut
- Oak, Blue Oak
- Oak, Interior live oak
- Oak, Valley oak

N

0 50 100

Scale in Feet

Cardno

PEERY PROPERTY

**Figure 2**

*Page 4 of 4*

**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. Twenty-seven trees, including 16 valley oaks, four Northern California black walnuts, two Mulberries, two interior live oaks, two blue oaks, and a *Prunus* sp., are in poor condition and removal is recommended. These include tree tag numbers 6, 9, 14, 31, 35, 36, 37, 38, 39, 40, 41, 44, 45, 48, 49, 54, 61, 66, 79, 81, 88, 89, 91, 99, 100, and two untagged trees (indicated in table and on map). 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

Peery Property

APPENDIX

# A

## ARBORIST SURVEY DATA

| Tag # | Species | DBH (inches) | Height (feet) | Canopy Width (feet) | Condition* | Notes/Recommendations |
|---|---|---|---|---|---|---|
| 1 | *Quercus lobata* | 39.5 | 40 | 55 | F/G | Minor Limb Death, Included bark |
| 2 | *Salix babylonica* | 34 + 14 | 25 | 35 | F/G | Minor Dieback, Included bark |
| 3 | *Quercus lobata* | 8 | 20 | 15 | F/G | Included bark |
| 4 | *Morus alba* | 4 + 6 + 2 + 5.5 + 2 | 20 | 20 | F | Minor Dieback, Included bark, Pruning Cut |
| 5 | *Morus alba* | 4 + 4 + 2 + 2 + 2 | 20 | 15 | P/F | Minor Dieback, Included bark, Bark Damage |
| 6 | *Morus alba* | 5 + 8 + 3 + 2.5 | 25 | 15 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Bark Damage, Fissures, Split Trunk |
| 7 | *Morus alba* | 5 + 6 | 20 | 15 | P | **Removal Recommended**. Minor Dieback, Included bark, Fissures, Rot in Trunk |
| 8 | *Morus alba* | 2.5 + 4.5 + 3.5 + 4 + 3 + 2.5 | 20 | 15 | P/F | Minor Dieback, Included bark, Bark Damage |
| 9 | *Morus alba* | 5 + 4 + 2.5 | 15 | 10 | P | **Removal Recommended**. Major Dieback, Included bark, Bark Damage |
| 10 | *Morus alba* | 7.5 + 3.5 + 4 + 4 + 3 | 15 | 15 | P/F | Minor Dieback, Included bark |
| 11 | *Morus alba* | 5.5 + 4.5 + 3.5 + 2 + 8 | 15 | 20 | P/F | Major Dieback, Included bark, Fissures, Rot in Trunk |
| 12 | *Morus alba* | 16 | 20 | 25 | P/F | Major Dieback, Included bark, Fissures |
| 13 | *Quercus lobata* | 60 | 50 | 65 | F/G | Minor Dieback, Minor Limb Death, Included bark, Broken Branch |
| 14 | *Prunus* sp. | 14.5 + 18 | 20 | 25 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Split Trunk |
| 15 | *Quercus douglasii* | 34.5 | 50 | 50 | F/G | Minor Dieback, Included bark, Broken Branch, Pruning Cut |
| 16 | *Quercus lobata* | 47 | 50 | 60 | F/G | Minor Dieback, Included bark, Slight Lean, Broken Branch |
| 17 | *Quercus lobata* | 46.5 | 55 | 60 | F/G | Minor Dieback, Minor Limb Death, Included bark, Rot In Branch, Broken Branch |
| 18 | *Quercus lobata* | 16.5 | 40 | 35 | F/G | Minor Dieback, Minor Limb Death, Slight Lean |
| 19 | *Quercus wislizeni* | 20 | 35 | 30 | P/F | Major Dieback, Minor Limb Death, Included bark, Rot in Trunk |
| 20 | *Quercus lobata* | 30 | 40 | 30 | F | Minor Dieback, Included bark |
| 21 | *Quercus lobata* | 33 | 40 | 35 | F/G | Minor Dieback, Included bark |

| Tag # | Species | DBH (inches) | Height (feet) | Canopy Width (feet) | Condition* | Notes/Recommendations |
|---|---|---|---|---|---|---|
| 22 | *Quercus lobata* | 35 | 40 | 30 | F | Minor Dieback, Included bark, Rot In Branch, Broken Branch |
| 23 | *Quercus lobata* | 23 | 35 | 30 | F/G | Minor Dieback, Included bark, Broken Branch |
| 24 | *Quercus lobata* | 22.5 | 30 | 30 | F | Minor Dieback, Minor Limb Death, Included bark, Slight Lean |
| 25 | *Quercus lobata* | 14.5 | 25 | 20 | F/G | Minor Dieback, Included bark, Slight Lean |
| 26 | *Quercus lobata* | 28 | 30 | 30 | F/G | Minor Dieback, Included bark, Slight Lean |
| 27 | *Quercus lobata* | 12.5 | 20 | 20 | F/G | Minor Dieback, Included bark, Slight Lean |
| 28 | *Quercus lobata* | 10 | 25 | 10 | F | Minor Dieback, Sparse Canopy |
| 29 | *Quercus lobata* | 11.5 | 30 | 15 | F | Minor Dieback, Sparse Canopy, Slight Lean |
| 30 | *Quercus lobata* | 19.5 | 40 | 20 | F/G | Minor Dieback, Minor Limb Death, Included bark, Slight Lean |
| 31 | *Quercus lobata* | 8 | 15 | 20 | P | **Removal Recommended**. Minor Dieback, Included bark, Sparse Canopy, Crown Death |
| 32 | *Populus fremontii* | 24 | 25 | 20 | F | Minor Dieback, Minor Limb Death, Included bark, Burl |
| 33 | *Quercus wislizeni* | 18 | 15 | 30 | P/F | Minor Dieback, Minor Limb Death, Included bark, Severe Lean |
| 34 | *Quercus lobata* | 15.5 | 35 | 25 | F/G | Minor Dieback, Included bark, Slight Lean |
| 35 | *Quercus lobata* | 7.5 + 6 | 20 | 15 | P | **Removal Recommended**. Minor Dieback, Included bark, Fissures, Rot in Trunk, Embedded fence |
| 36 | *Quercus lobata* | 30 | 45 | 35 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Crown Death, Exposed roots, Fissures, Rot in Trunk, Embedded fence |
| 37 | *Quercus lobata* | 21 | 45 | 25 | P | **Removal Recommended**. Minor Dieback, Included bark, Exposed roots, Rot in Trunk |
| 38 | *Quercus lobata* | 8 | 15 | 10 | P | **Removal Recommended**. Major Dieback, Included bark, Fissures, Rot in Trunk, Embedded fence |
| 39 | *Quercus douglasii* | 17 | 35 | 30 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Sparse Canopy, Rot In Branch |
| 40 | *Quercus lobata* | 28 | 50 | 35 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Exposed roots, Fungus |
| 41 | *Quercus douglasii* | 10.5 | 20 | 20 | P | **Removal Recommended**. Major Dieback, Severe Lean |
| 42 | *Quercus lobata* | 8.5 | 25 | 10 | F | Minor Dieback, Minor Limb Death, Nest in canopy |

| Tag # | Species | DBH (inches) | Height (feet) | Canopy Width (feet) | Condition* | Notes/Recommendations |
|---|---|---|---|---|---|---|
| 43 | *Quercus lobata* | 13.5 | 25 | 20 | F/G | Minor Dieback, Included bark, Slight Lean |
| 44 | *Quercus lobata* | 9.5 | 25 | 15 | P | **Removal Recommended**. Minor Dieback, Major Limb Death, Included bark, Exposed roots, Rot in Trunk |
| 45 | *Quercus lobata* | 9.5 | 10 | 25 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Bark Damage, Rot in Trunk |
| 46 | *Quercus wislizeni* | 14.5 | 25 | 20 | F/G | Minor Dieback, Included bark, Severe Lean |
| 47 | *Quercus lobata* | 15.5 | 30 | 20 | F/G | Minor Dieback, Included bark |
| 48 | *Quercus wislizeni* | 6.5 | 15 | 15 | P | **Removal Recommended**. Major Dieback, Included bark, Severe Lean |
| 49 | *Quercus lobata* | 8.5 | 25 | 10 | P | **Removal Recommended**. Minor Dieback, Broken Branch, Rot in Trunk |
| 50 | *Quercus lobata* | 15.5 | 40 | 25 | P/F | Minor Dieback, Included bark, Broken Branch, Blackberry bushes, Nest in canopy |
| 51 | *Quercus lobata* | 9 | 25 | 10 | F | Minor Dieback, Sparse Canopy, Slight Lean, Nest in canopy |
| 52 | *Quercus lobata* | 6.5 | 20 | 10 | F | Minor Dieback, Slight Lean |
| 53 | *Quercus lobata* | 20 | 45 | 20 | P/F | Minor Dieback, Included bark, Rot In Branch, Rot in Trunk |
| 54 | *Quercus wislizeni* | 9.5 | 20 | 20 | P | Major Dieback, Major Limb Death, Severe Lean, Exfoliating bark, Nearly Dead |
| 55 | *Quercus lobata* | 16.5 | 45 | 25 | F/G | Minor Dieback, Included bark, Slight Lean |
| 56 | *Quercus lobata* | 14 | 30 | 20 | P/F | Minor Dieback, Minor Limb Death, Included bark, Bark Damage |
| 57 | *Quercus douglasii* | 7.5 | 20 | 15 | F | Minor Dieback, Minor Limb Death, Included bark |
| 58 | *Quercus lobata* | 24.5 | 45 | 30 | F | Minor Dieback, Minor Limb Death, Included bark, Slight Lean |
| 59 | *Quercus lobata* | 6.5 | 20 | 10 | F | Minor Dieback, Minor Limb Death |
| 60 | *Quercus lobata* | 18.5 | 35 | 30 | F | Minor Dieback, Slight Lean |
| 61 | *Quercus lobata* | 9 | 25 | 10 | P | **Removal Recommended**. Major Dieback, Minor Limb Death, Slight Lean |
| 62 | *Quercus lobata* | 11.5 | 25 | 20 | P/F | Minor Dieback, Included bark, Sparse Canopy, Slight Lean |
| 63 | *Quercus lobata* | 13.5 | 40 | 20 | F/G | Minor Dieback, Minor Limb Death, Slight Lean |
| 64 | *Quercus lobata* | 17.5 | 40 | 25 | F | Minor Dieback, Slight Lean, Nest in canopy |
| 65 | *Quercus lobata* | 9.5 | 25 | 15 | P/F | Minor Dieback |

| Tag # | Species | DBH (inches) | Height (feet) | Canopy Width (feet) | Condition* | Notes/Recommendations |
|---|---|---|---|---|---|---|
| 66 | *Quercus lobata* | 47.5 | 55 | 65 | P | **Removal Recommended**. Minor Dieback, Major Limb Death, Included bark, Rot In Branch, Burl, Fissures, Fungus, Woodpecker damage, Nest in canopy |
| 67 | *Quercus lobata* | 6.5 | 25 | 10 | F/G | Minor Dieback, Included bark |
| 68 | *Quercus lobata* | 17 | 40 | 25 | F/G | Minor Dieback, Slight Lean |
| 69 | *Quercus lobata* | 23.5 | 50 | 30 | F | Minor Dieback, Included bark, Slight Lean |
| 70 | *Quercus lobata* | 13 | 25 | 25 | P/F | Minor Dieback, Included bark, Slight Lean, Bark Damage |
| 71 | *Quercus lobata* | 9.5 | 25 | 15 | P/F | Major Dieback, Included bark, Rot In Branch |
| 72 | *Quercus lobata* | 16.5 | 50 | 25 | F/G | Minor Dieback, Included bark, Blackberry bushes |
| 73 | *Quercus lobata* | 8.5 | 25 | 10 | P/F | Minor Dieback, Minor Limb Death, Included bark, Blackberry bushes |
| 74 | *Quercus lobata* | 19 | 50 | 25 | P/F | Major Dieback, Minor Limb Death, Included bark, Blackberry bushes |
| 75 | *Quercus wislizeni* | 11 | 25 | 25 | P/F | Minor Dieback, Included bark, Rot in Trunk, Blackberry bushes |
| 76 | *Quercus lobata* | 18 | 45 | 35 | F | Minor Dieback, Minor Limb Death, Included bark, Rot In Branch |
| 77 | *Quercus lobata* | 15 | 25 | 25 | P/F | Minor Dieback, Minor Limb Death, Included bark, Slight Lean, Rot In Branch |
| 78 | *Quercus lobata* | 38 | 60 | 70 | F/G | Minor Dieback, Minor Limb Death, Included bark, Blackberry bushes |
| 79 | *Quercus lobata* | 6.5 | 30 | 10 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Nearly Dead, Blackberry bushes |
| 80 | *Quercus lobata* | 28 | 50 | 45 | F | Minor Dieback, Included bark, Slight Lean, Blackberry bushes |
| 81 | *Juglans hindsii* | 8.5 | 15 | 10 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Nearly Dead, Rot in Trunk, Blackberry bushes |
| 82 | *Juglans hindsii* | 7 | 15 | 20 | P/F | Minor Dieback, Minor Limb Death, Severe Lean, Rot In Branch |
| 83 | *Juglans hindsii* | 14.5 | 25 | 25 | F | Minor Limb Death, Slight Lean, Burl |
| 84 | *Juglans hindsii* | 6 | 10 | 10 | P/F | Minor Dieback, Minor Limb Death, Rot In Branch, Burl |
| 85 | *Quercus lobata* | 34.5 | 55 | 50 | F/G | Minor Dieback, Included bark, Slight Lean, Fungus |
| 86 | *Juglans hindsii* | 6.5 | 15 | 15 | P/F | Minor Dieback, Major Limb Death, Severe Lean |

| Tag # | Species | DBH (inches) | Height (feet) | Canopy Width (feet) | Condition* | Notes/Recommendations |
|---|---|---|---|---|---|---|
| 87 | *Quercus lobata* | 21 | 45 | 40 | F | Minor Dieback, Minor Limb Death, Included bark, Slight Lean |
| 88 | *Juglans hindsii* | 7 | 20 | 15 | P | **Removal Recommended**. Major Dieback, Severe Lean, Rot in Trunk |
| 89 | *Juglans hindsii* | 6 | 15 | 15 | P | **Removal Recommended**. Major Dieback, Severe Lean, Rot In Branch |
| 90 | *Juglans hindsii* | 7 | 20 | 10 | P/F | Major Dieback, Slight Lean |
| 91 | *Juglans hindsii* | 6.5 | 15 | 10 | P | **Removal Recommended**. Major Dieback, Crown Death |
| 92 | *Quercus lobata* | 15 | 40 | 30 | F/G | Minor Dieback, Slight Lean |
| 93 | *Quercus wislizeni* | 17 | 45 | 35 | P/F | Minor Dieback, Included bark, Sparse Canopy, Canker, Exfoliating bark |
| 94 | *Quercus lobata* | 15 | 45 | 35 | P/F | Minor Dieback, Minor Limb Death, Included bark, Slight Lean |
| 95 | *Quercus lobata* | 22.5 | 50 | 45 | F | Minor Dieback, Minor Limb Death, Included bark, Severe Lean |
| 96 | *Quercus lobata* | 16 | 45 | 25 | P/F | Minor Dieback, Major Limb Death, Included bark, Broken Branch |
| 97 | *Quercus lobata* | 6 | 35 | 15 | P/F | Minor Dieback, Minor Limb Death, Included bark, Pruning Cut |
| 98 | *Quercus wislizeni* | 17 | 35 | 30 | F | Included bark, Slight Lean, Sapsucker Damage, Nest in canopy |
| 99 | *Quercus lobata* | 12 | 35 | 20 | P | **Removal Recommended**. Major Dieback, Major Limb Death, Included bark, Slight Lean, Broken Branch |
| 100 | *Quercus lobata* | 6.5 | 30 | 10 | P | **Removal Recommended**. Minor Dieback, Major Limb Death, Severe Lean |
| untagged | *Juglans hindsii* | 7.5 | n/a | n/a | F | No Notes |
| untagged | *Juglans hindsii* | 10 | n/a | n/a | F | No Notes |
| untagged | *Juglans hindsii* | 7.5 | n/a | n/a | F | No Notes |
| untagged | *Quercus lobata* | 15 | 45 | 30 | P/F | Labeled UT1 on Arborist Map. Minor Dieback, Major Limb Death, Included bark, Broken Branch |
| untagged | *Prunus* sp. | multi trunk | n/a | n/a | F | Blackberry bushes |
| untagged | *Quercus lobata* | 7 | 25 | 5 | P | **Removal Recommended**. Labeled UT2 on Arborist Map. Crown Death, Open oozing wound |

| Tag # | Species | DBH (inches) | Height (feet) | Canopy Width (feet) | Condition* | Notes/Recommendations |
|---|---|---|---|---|---|---|
| untagged | *Quercus lobata* | 12 | 4 | 20 | P/F | Labeled UT3 on Arborist Map. Minor Dieback, Minor Limb Death, Included bark, Slight Lean |
| untagged | *Quercus lobata* | 10 | 35 | 25 | P/F | Labeled UT4 on Arborist Map. Minor Dieback, Major Limb Death, Broken Branch, Blackberry bushes |
| untagged | *Quercus lobata* | 13 | 35 | 25 | P | **Removal Recommended**. Labeled UT5 on Arborist Map. Minor Dieback, Major Limb Death, Broken Branch, Crown Death, Blackberry bushes |

Peery 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).

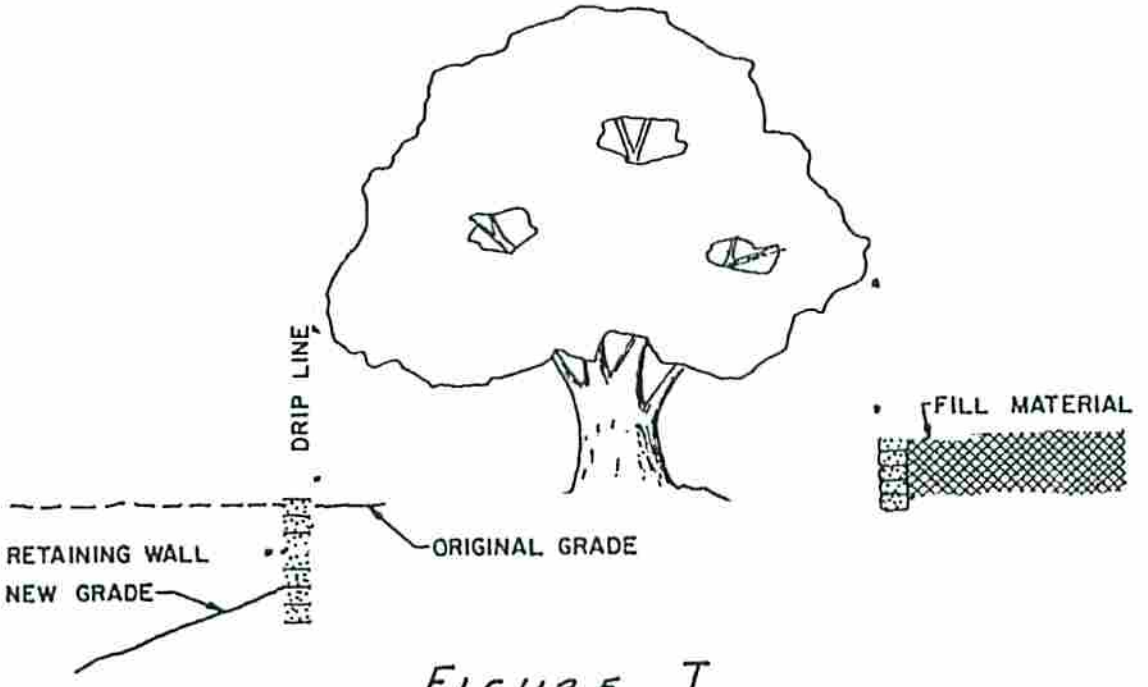

DRIP LINE
FILL MATERIAL
ORIGINAL GRADE
RETAINING WALL
NEW GRADE

FIGURE I

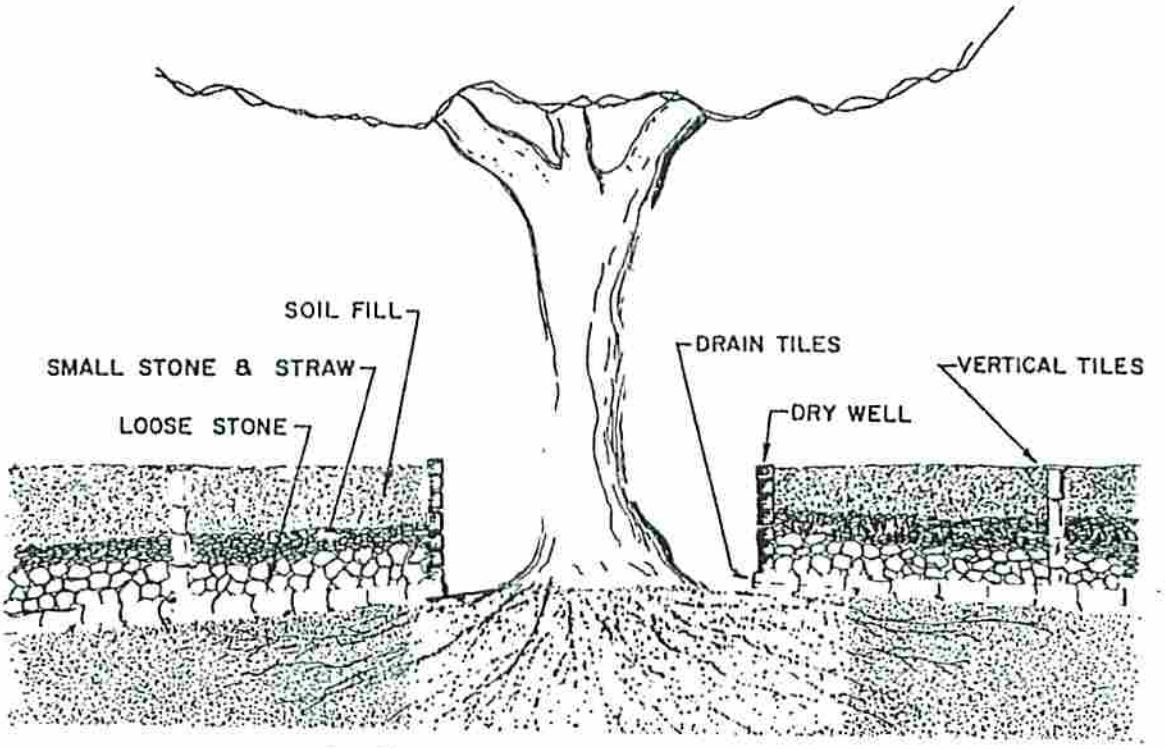
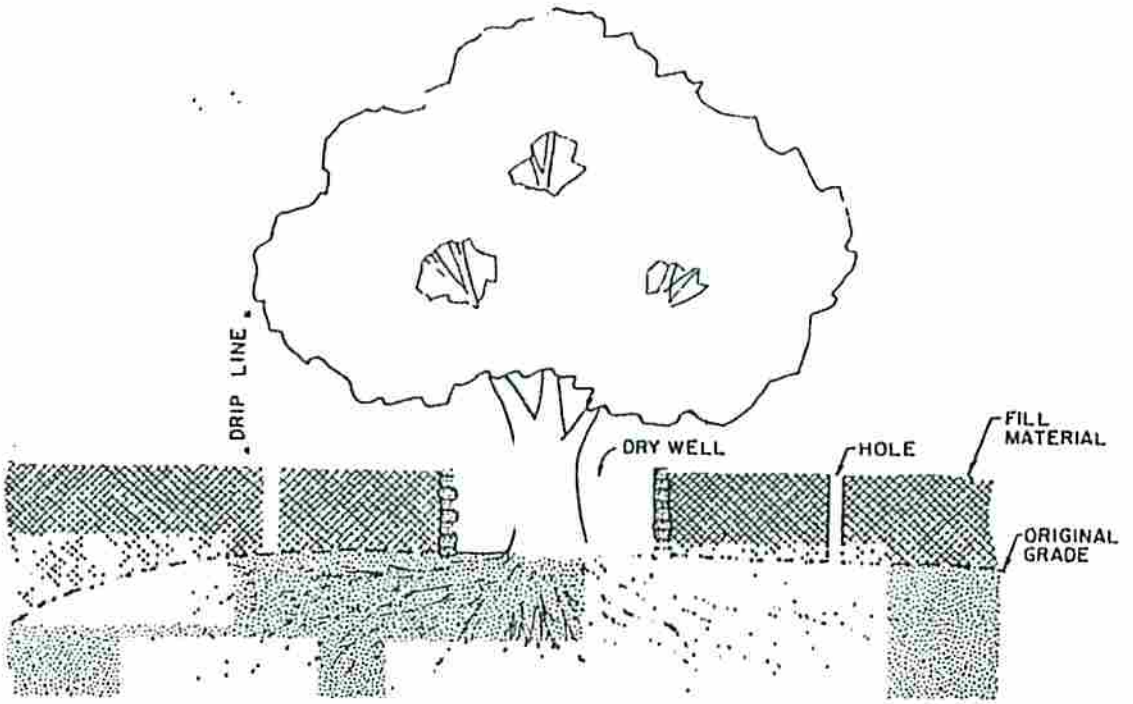
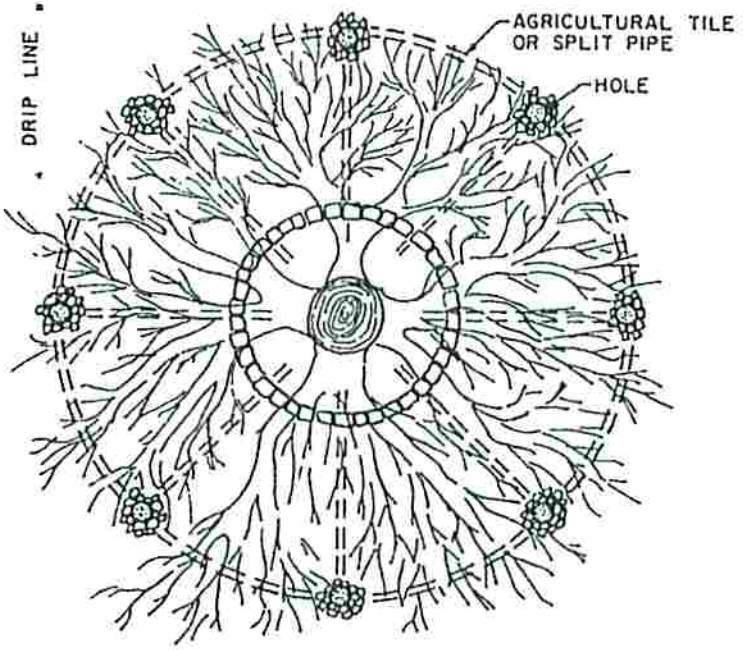

SOIL FILL
SMALL STONE & STRAW
LOOSE STONE
DRAIN TILES
DRY WELL
VERTICAL TILES

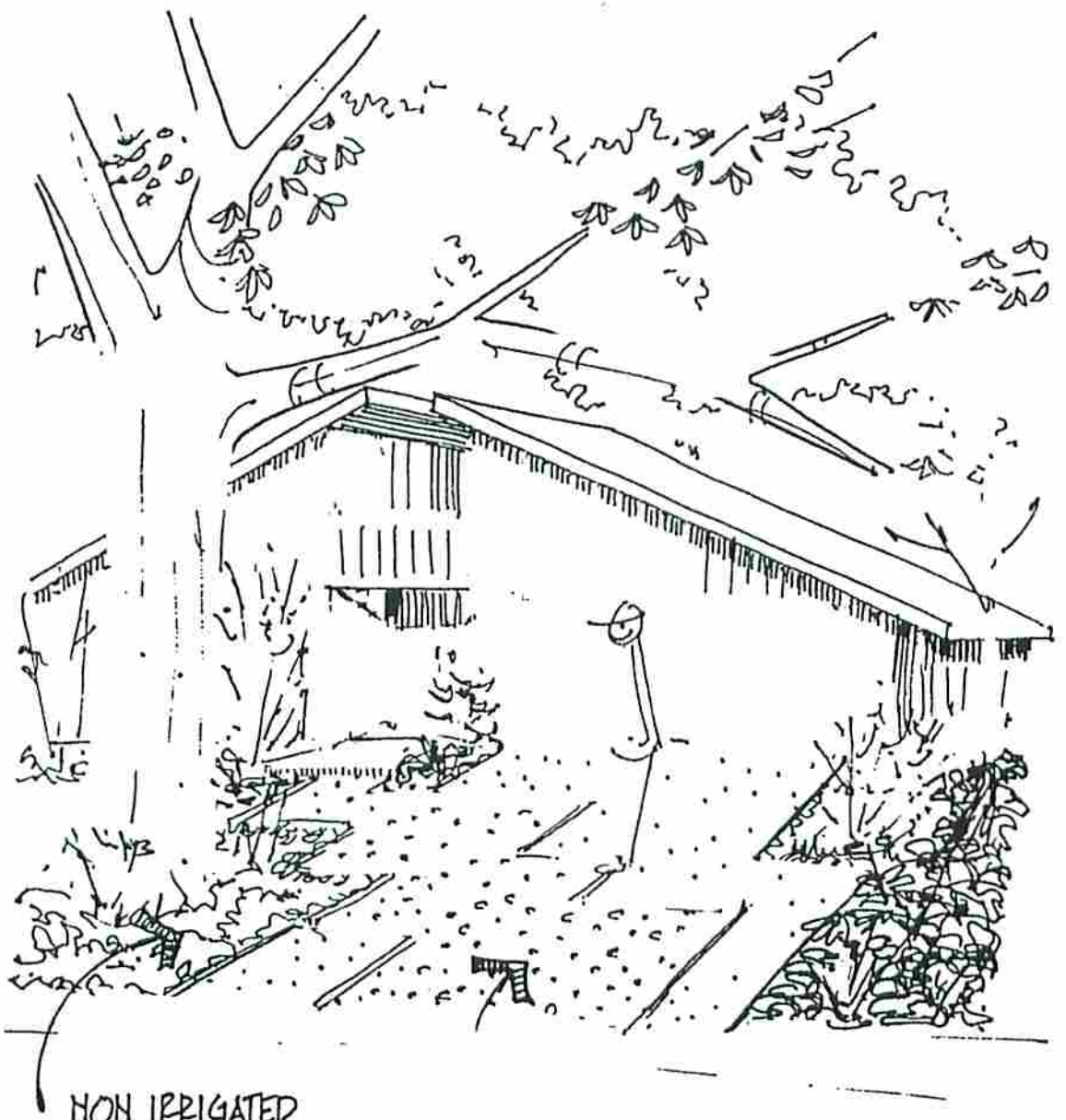
FIGURE 2




*R. Onga*

FIGURE 3




*R. Calloway*

Designing a landscape to save an oak.

FIGURE 4

# Biological Resources Impact and Mitigation Report

## SUD-B Northeast Quadrant Specific Plan

March 12, 2015

Cardno
Shaping the Future

# Document Information

| | |
|---|---|
| Prepared for | Gill Property Development, LLC and Peery-Arrillaga |
| Project Name | SUD-B Northeast Quadrant Specific Plan |
| Project Manager | Shannon Karvonen |
| Date | March 12, 2015 |

Prepared for:

Gill Property Development, LLC
424 D Street Marysville, CA 95901

Peery-Arrillaga
2450 Watson Court, Palo Alto, CA 94303

Prepared by:

Cardno
Shaping the Future

Cardno
701 University Avenue, Suite 200, Sacramento, CA 95825

# Table of Contents

# Appendices



# Tables



# Figures



# Acronyms

| | |
|---|---|
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CFWC | California Fish and Wildlife Commission |
| CNDDB | California Natural Diversity Data Base |
| CNPS | California Native Plant Society |
| CRF | Code of Federal Regulations |
| CSC | Species of Special Concern |
| CVRWQCB | Central Valley Regional Water Quality Control Board |
| CWA | California Water Agency |
| EIR | Environmental Impact Report |
| FESA | Federal Endangered Species Act |

| | |
|---|---|
| GGS | Giant garter snake |
| MBTA | Migratory Bird Treaty Act |
| msl | Mean Sea Level |
| NMFS | National Marine Fisheries Service |
| RWQCB | Regional Water Quality Control Board |
| SWRCB | State Water Resources Control Board |
| VELB | Valley elderberry longhorn beetle |
| USACE | U.S. Army Corps of Engineers |
| USFWS | U.S. Fish and Wildlife Service |

# 1 Introduction

This Biological Resources Impact and Mitigation Report addresses the potential effects on biological resources resulting from development associated with the SUD-B Northeast Quadrant Specific Plan (Project Area). The analysis includes pertinent baseline information, including: (1) a description of Project Area site habitats; (2) a description of special-status plant and wildlife species that could potentially occur in the area; and (3) federal, state, and regional regulations pertaining to plant and wildlife species and the regulatory agencies that enforce these standards.

Several site-specific studies have been prepared for the two project areas that comprise the SUD-B Northeast Quadrant, which include the Gill Property and the Peery Property. Data presented in those studies are summarized in this report, and the impact analysis is based on those studies. The reader is referred to the Methods of Analysis section for additional information.

It should also be noted that the SUD-B Northeast Quadrant overlaps with the study area for the recently completed Nelson Lane Road Widening and Bridge Replacement Project (SPK 2012-01017) because the Nelson Lane project included an analysis of a 250-foot buffer. The wetland features occurring in portions of both the Peery and Gill properties that overlap with the Nelson Lane project were verified separately during the permitting process for the Nelson Lane project, but are included in the impacts analysis for the SUD-B Northeast Quadrant project. Some of the features in the overlap area were already mitigated for under the Nelson Lane project. Details of the previously mitigated features are discussed below under Section 7- Project Impacts and Mitigation Measures.

The following terms are used throughout this report:

- SUD-B Northeast Quadrant Specific Plan (Project Area): The entire 186.1-acre project area
- Gill Property: The 72.6-acre Gill Property project area
- Peery Property: The 113.5-acre Peery Property project area

The purpose of this report is to support the preparation of the SUD-B Northeast Quadrant Environmental Impact Report (EIR).

# 2 Project Description

## 2.1 Project Location

The Project Area is located in Placer County, California, within the City of Lincoln Sphere of Influence. The Project Area is bounded by Nicolaus Road on the north, Nelson Lane on the west, and the Hwy 65 Bypass on the south. The eastern boundary is comprised of residential development and undeveloped land (Figure 1).

The Gill Property is comprised of one parcel (APN 021292001000) and is located at the approximate latitude 38.8959° north and longitude -121.3381° west (Figure 1), and on the USGS 7.5 minute topographic quadrangle map for Lincoln, California, in Sections 17, Township 12 North, Range 6 East, Mount Diablo Baseline & Meridian.

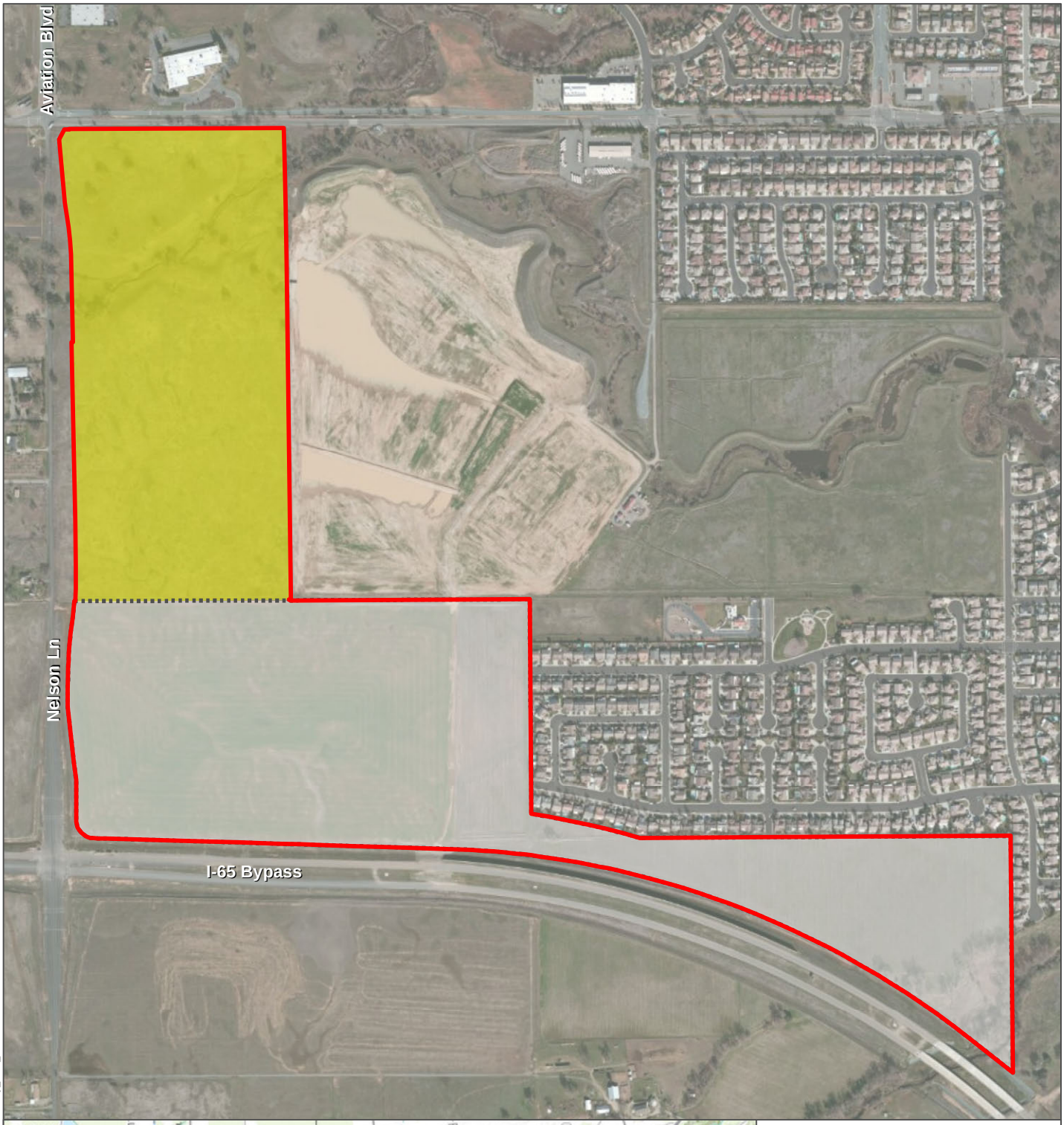
The Peery Property is comprised of a western parcel (APN 021262034) (approximately 79 acres) that is roughly rectangular in shape and an eastern parcel (APN 021262035) (approximately 33 acres) is roughly triangular in shape. A third parcel (APN 009031028) is located in between the western and eastern parcels and totals about one acre (Figure 1). These parcels are located in Section 17, Township 12 North, Range 6 East of the Lincoln U.S. Geological Survey (USGS) 7.5 minute topographic quadrangle map (Latitude 038° 53′ 17.31″ North; Longitude -121° 20′ 09.22″ West.

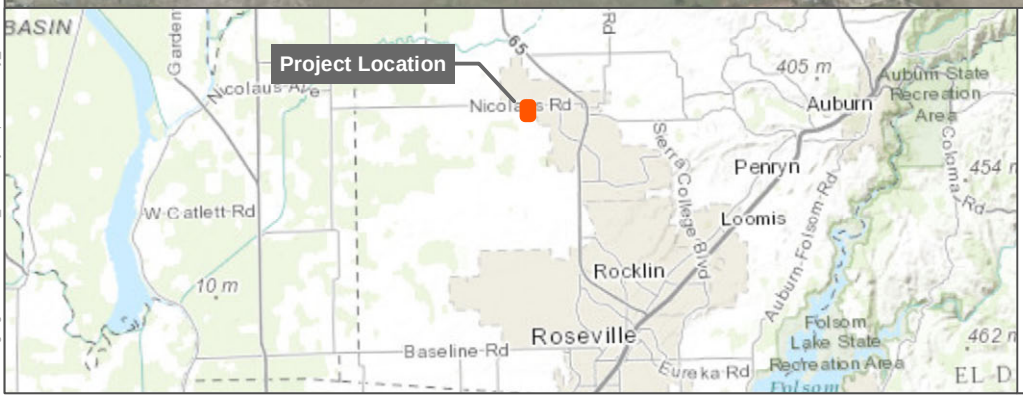
## 2.2 Project Description

The Project Area is located in the City of Lincoln Sphere of influence, with an application to annex into the City limits already in progress. The area has been identified in the City of Lincoln General Plan for commercial and residential development based upon its excellent access to Nelson Lane, the nearby Highway 65 Bypass, and adjacency to the existing Lincoln utilities network and services. The Land Use Plan is compatible with the existing surrounding land uses, the Placer County Airport Land Use Compatibility Plan, and neighboring developments.

The Gill Property Project Area is comprised of 79.04 acres located on the west border of the City of Lincoln between Nicolaus Road and the Highway 65 Bypass. Approximately 38.8 acres of Commercial Development and 20.5 acres of Low Density Residential Development at 5.2 dwelling units per acre are proposed on the project site with 1.1 acres of major roads. The project also sets aside 12.2 acres of Open Space and Landscape Corridors, including all of Markham Ravine that bisects the northern portion of the project site.

The Peery Property Project Area is comprised of 113.9 acres in 3 parcels located on the west border of the City of Lincoln north of the Highway 65 Bypass. Approximately 35.4 acres of Commercial Development and 63.9 acres of Low Density Residential Development at 4.5 dwelling units per acre are proposed on the project site with 3.3 acres of major roads. The project also sets aside 3.0 acres for Parks and 8.0 acres of Open Space and Landscape Corridors, including the entire Auburn Ravine corridor that passes through the southeast corner of the project site.




**LEGEND**

- SUD-B Northeast Quadrant (186.10 ac)
- Gill Property (72.60 ac)
- Peery Property (113.50 ac)

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Cardno Shaping the Future

N

0 1,000 2,000

Scale in Feet

**SUD-B NORTHEAST QUADRANT SPECIFIC PLAN**

# Figure 1

Site and Vicinity

# 3 Environmental Setting

## 3.1 Project Site Habitats

The habitat types and land uses on the project site include non-native annual grassland, oak woodland, and riparian. The associated habitats are described in this section.

### 3.1.1 Non-native Annual Grassland

The majority of both the Gill and Peery portions of the project area consist of non-native annual grassland. However, due to differing land management practices, there are substantial differences in the character of this habitat between the two properties. These differences are explained below.

The Gill Property does not appear to have been disked recently, and retains what appears to be the natural historic topography. Typical species observed in this community, include medusa head grass (*Elymus caput-medusae*), wild oat (*Avena fatua*), soft chess (*Bromus hordeaceus*), foxtail barley (*Hordeum murinum ssp. leporinum*), purple needle grass (*Stipa pulchra*), chicory (*Cichorium intybus*), climbing bedstraw (*Galium porrigens*), and annual fireweed (*Epilobium brachycarpum*). Other species observed during the survey included red stemmed filaree (*Erodium cicutarium*), cutleaf geranium (*Geranium dissectum*), Bithynian vetch (*Vicia bithynica*), purple vetch (*Vicia benghalensis*), miniature lupine (*Lupinus bicolor*), fiddleneck (*Amsinckia menziesii*), black mustard (*Brassica nigra*), English plantain (*Plantago lanceolata*), shepherd's purse (*Capsella bursa-pastoris*), field bindweed (*Convolvulus arvensis*), shamrock clover (*Trifolium dubium*), rose clover (*Trifolium hirtum*), and yellow star thistle (*Centaurea solstitialis*). Since the topography appears to be undisturbed, the boundaries of wetland features occurring there (primarily vernal pools) remain clear and distinct. The plant species found in these wetland features is described below in Section 3.2.1.

The entire western portion and most of the eastern portion of the Peery Property have been disked, seeded, and mowed annually for hay production for over 40 years. The western portion, which retains much of the natural topography, is dry farmed, while the eastern portion has been laser leveled, and was subject to flood irrigation for many years. The primary vegetative cover in the Peery Property consists of stubble from oat grass, but other species were commonly observed including Fitch's tarweed (*Centromadia fitchii*), corn spurry (*Spergula arvensis*), yellow flower tarplant (*Holocarpha virgata*), turkey mullein (*Croton setigerus*), and vinegarweed (*Trichostema lanceolatum*). These latter species were generally sparse, and associated primarily with the seasonal wetlands or edges of the property. The wetland features within the Peery Property are degraded due to the long history of annual cultivation for hay production. The boundaries of features located there have become indistinct, and they no longer appear to support vernal pool plant species.

### 3.1.2 Oak Woodland

A small portion of the southeast corner of the Peery Property contains oak woodland. This is a narrow band along the upland portion of the Auburn Ravine corridor and along the adjacent portion of the Hwy 65 Bypass, and consists of approximately 100 trees consisting primarily of valley oak (*Quercus lobata*) along with a few blue oak (*Quercus douglasi*), interior live oak (*Quercus wislizenii*) and northern California black walnut (*Juglans hindsii*). The understory consists primarily of non-native grassland species including wild oats, ripgut brome (*Bromus diandrus*), Medusahead grass, prickly lettuce (*Lactuca serriola*), wild radish (*Raphanus sativus*), wild mustard (*Brassica* sp.), broad leaf filaree (*Erodium botrys*), English plantain, vetch (*Vicia* sp.), Spanish lotus (*Acmispon americanus* var. *americanus*), field bindweed, and cutleaf geranium.

Scattered mature valley oaks are present in the grassland habitat in the northern portion of the Gill Property. Most of these trees are located north of Markham Ravine, but a few are present to the south.

### 3.1.3 Riparian

Riparian vegetation occurs along Markham Ravine in the Gill Property. The canopy layer consists primarily of valley oak, with a few interior live oaks, northern California black walnut, and willow (*Salix* sp.) present as well. The understory is fairly sparse, but a few patches of Himalayan blackberry (*Rubus armeniacus*) are present. A narrow herbaceous understory included species such as fiddle dock (*Rumex pulcher*), common rush (*Juncus effusus*), sedges (*Carex* sp.), rough cocklebur (*Xanthium strumarium*), and curly dock (*Rumex crispus*) occurs along the banks in clumps, but otherwise the herbaceous layer consists of grasses and forbs similar to the adjacent grassland. Common cattails (*Typha latifolia*) and floating primrose (*Ludwigia peploides*) are present along the banks of Markham Ravine.

Riparian vegetation also occurs along Auburn Ravine in the southeast corner of the triangle portion of the Peery Property. The main channel is separated from the oak woodland area by a levee. The channel side of the levee and the opposite bank are vegetated by riparian woodland including Northern California black walnut (*Juglans hindsii*), willow, and valley oak, with an understory of Himalayan blackberry, pokeberry (*Phytolacca americana*) and a variety of annual grasses and forbs similar to that found in the oak woodland.

## 3.2 Wetlands and Other Waters

### 3.2.1 Gill Property

A Jurisdictional Delineation Report was completed by Cardno, in June 2012 and July 2014 to determine the Waters of the U.S. or Waters of the State, including wetlands were present in the Gill Property area (Appendix A). The report determined that 94 vernal pools, two vernal swales, Markham Ravine, an ephemeral swale tributary to Markham Ravine, a seasonal drainage tributary to Markham Ravine, and two wetlands in the Markham Ravine flood plain are present in the Gill Property area.

A summary of wetland type and acreages for Gill Property area are presented in Table 1. Figure 2 depicts the locations of wetlands and other waters within the Gill Property.

**Table 1 Jurisdictional Wetlands and Other Waters within the Gill Property**

| **Gill Property** | |
|---|---|
| **Wetlands and Other Waters Type*** | **Acreages** |
| Vernal Pool 01 | 1.237 |
| Vernal Pool 02 | 0.022 |
| Vernal Pool 03 | 0.010 |
| Vernal Pool 04 | 0.030 |
| Vernal Pool 05 | 0.023 |
| Vernal Pool 06 | 0.013 |
| Vernal Pool 07 | 0.040 |
| Vernal Pool 08 | 0.017 |
| Vernal Pool 09 | 0.017 |
| Vernal Pool 10 | 0.015 |
| Vernal Pool 11 | 0.012 |
| Vernal Pool 12 | 0.017 |
| Vernal Pool 13 | 0.014 |
| Vernal Pool 14 | 0.010 |
| Vernal Pool 15 | 0.016 |
| Vernal Pool 16 | 0.214 |
| Vernal Pool 17 | 0.024 |
| Vernal Pool 18 | 0.010 |

| | |
|---|---|
| Vernal Pool 19 | 0.023 |
| Vernal Pool 20 | 0.029 |
| Vernal Pool 21 | 0.011 |
| Vernal Pool 22 | 0.013 |
| Vernal Pool 23 | 0.042 |
| Vernal Pool 24 | 0.032 |
| Vernal Pool 25 | 0.032 |
| Vernal Pool 26 | 0.016 |
| Vernal Pool 27 | 0.005 |
| Vernal Pool 28 | 0.129 |
| Vernal Pool 29 | 0.268 |
| Vernal Pool 30 | 0.030 |
| Vernal Pool 31 | 0.048 |
| Vernal Pool 32 | 0.025 |
| Vernal Pool 33 | 0.064 |
| Vernal Pool 34 | 0.025 |
| Vernal Pool 35 | 0.021 |
| Vernal Pool 36 | 0.024 |
| Vernal Pool 37 | 0.014 |
| Vernal Pool 38 | 0.009 |
| Vernal Pool 39 | 0.018 |
| Vernal Pool 40 | 0.033 |
| Vernal Pool 41 | 0.014 |
| Vernal Pool 42 | 0.008 |
| Vernal Pool 42 | 0.005 |
| Vernal Pool 43 | 0.019 |
| Vernal Pool 44 | 0.020 |
| Vernal Pool 45 | 0.005 |
| Vernal Pool 46 | 0.014 |
| Vernal Pool 47 | 0.028 |
| Vernal Pool 48 | 0.023 |
| Vernal Pool 49 | 0.151 |
| Vernal Pool 50 | 0.075 |
| Vernal Pool 51 | 0.036 |
| Vernal Pool 52 | 0.027 |
| Vernal Pool 53 | 0.022 |
| Vernal Pool 54 | 0.030 |
| Vernal Pool 55 | 0.017 |
| Vernal Pool 56 | 0.021 |
| Vernal Pool 57 | 0.157 |
| Vernal Pool 58 | 0.153 |
| Vernal Pool 59 | 0.106 |
| Vernal Pool 60 | 0.066 |
| Vernal Pool 61 | 0.037 |
| Vernal Pool 62 | 0.068 |
| Vernal Pool 63 | 0.055 |
| Vernal Pool 64 | 0.045 |
| Vernal Pool 65 | 0.008 |
| Vernal Pool 66 | 0.030 |
| Vernal Pool 67 | 0.055 |
| Vernal Pool 68 | 0.005 |
| Vernal Pool 69 | 0.017 |
| Vernal Pool 70 | 0.096 |

| | |
|---|---|
| Vernal Pool 71 | 0.034 |
| Vernal Pool 72 | 0.008 |
| Vernal Pool 73 | 0.016 |
| Vernal Pool 74 | 0.008 |
| Vernal Pool 75 | 0.017 |
| Vernal Pool 76 | 0.008 |
| Vernal Pool 77 | 0.561 |
| Nelson Vernal Pool 03 | 0.011 |
| Nelson Vernal Pool 04 | 0.079 |
| Nelson Vernal Pool 05 | 0.027 |
| Nelson Vernal Pool 06 | 0.044 |
| Nelson Vernal Pool 07 | 0.001 |
| Nelson Vernal Pool 08/12 | 0.026 |
| Nelson Vernal Pool 09 | 0.006 |
| Nelson Vernal Pool 10 | 0.103 |
| Nelson Vernal Pool 11 | 0.130 |
| Nelson Vernal Pool 13 | 0.026 |
| Nelson Vernal Pool 14 | 0.023 |
| Nelson Vernal Pool 17 | 0.002 |
| Nelson Vernal Pool 18 | 0.002 |
| Nelson Vernal Pool 19 | 0.017 |
| Nelson Vernal Pool 20 | 0.009 |
| Nelson Vernal Pool 24 | 0.027 |
| Nelson Vernal Pool 25 | 0.068 |
| Nelson Vernal Swale 16 | 0.041 acres/ 263 feet |
| Nelson Vernal Swale 23 | 0.033 acres/ 141 feet |
| Seasonal Wetland 01 | 0.072 |
| Seasonal Wetland 02 | 1.237 |
| Drainage | 0.617acres/ 1173.4feet |
| Ephemeral Drainage | 0.207 acres/ 927.1 feet |
| Markham Ravine | 0.013 acres/ 187.1 feet |
| Nelson Markham Ravine | 0.238 acres/ 540 feet |
| | |
| **Total Wetlands and Other Waters** | **7.386 acres/ 3231.6 linear feet** |

* Features identified as “Nelson” were verified as part of the Nelson Lane Bridge Replacement Project wetland delineation

The wetland delineation was submitted to the U.S. Army Corps of Engineers (USACE) on July 2, 2014. A revised wetland map was submitted to the USACE on March 3, 2015. Final verification from the USACE is still in progress at the time of this writing.

Verified wetland delineations are considered valid by the USACE for up to five years. After five years, a reverification request must be submitted to the USACE, at which time changes in site conditions (if any) can be reported (whether they are increases or reductions in the acreage of wetlands).

#### *3.2.1.1 Vernal Pool*

There are 96 wetland features in the Gill Property portion that were mapped as vernal pools or vernal swales, totaling 4.831 acres. These features are distinct depressions of varying depths and size. A fire occurring in the early summer of 2013 cleared many of the vernal pools of invasive upland grasses. The pools affected by the fire had a high diversity of vernal pool plants such as Great Valley button celery (*Eryngium castrense*), smooth goldfields (*Lasthenia glaberrima*), vernal pool goldfields (*Lasthenia fremontii*), popcornflower (*Plagiobothrys stipitatus*), white meadowfoam (*Limnanthes alba*), hyssop loosestrife (*Lythrum hyssopifolium*), Pillwort (*Pilularia americana*), Owl's clover (*Castilleja campestris*), creeping spike rush (*Eleocharis macrostachya*), vernal pool buttercup (*Ranunculus bonariensis*), and

spinyfruit buttercup (*Ranunculus muricatus*). The vernal pools that were unaffected by the 2013 fire were mostly overgrown with invasive upland plant species such as Medusa head, red stemmed filaree, common wild oats, soft chess, and foxtail barley. All vernal pools had distinct boundaries and had generally similar appearance and soil types, most pools were inundated with water.

#### *3.2.1.2 Seasonal Wetland*

Three seasonal wetland features totaling 1.48 acres are mapped within the floodplain of Markham Ravine. These features consist of W-01 (0.561 acre), WC-02 (0.072 acre), and FPW-01 (0.847 acre). These features occur in the floodplain of Markham Ravine and result from inundation during high water events, becoming isolated when high water recedes. FPW-01 and W-01 are located on the north side of Markham Ravine while w-02 is located on the south side of Markham Ravine. W-01 is on the northeastern edge of the Gill Property, near Nicolaus Road, and extends outside of the study area to the east. The boundaries of these features were determined based on vegetation and flow patterns. The plant species observed in these features included meadow fescue (*Festuca pratensis*), curly dock, common rush, and little rattlesnake grass (*Briza minor*).

#### *3.2.1.3 Ephemeral Swale*

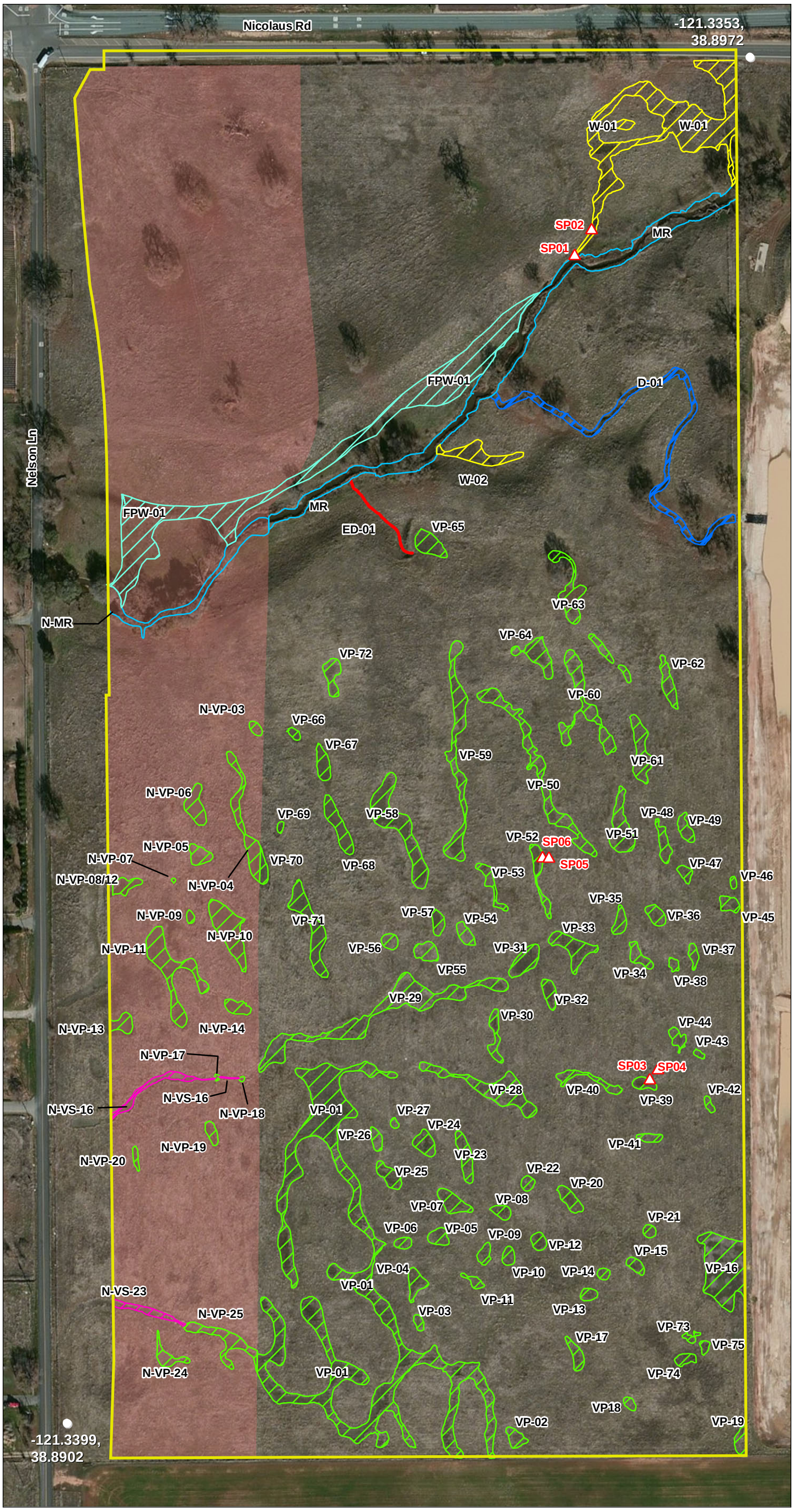
A single ephemeral drainage is located in the Gill Property near the western portion of Markham Ravine draining from the upland portion of the site, south of Markham Ravine, flowing north/northwest to the Markham Ravine creek channel. The ephemeral swale is approximately 87.1 linear feet and 0.013 acre. This feature does not have a distinct bed or bank, and is vegetated with similar upland grasses and forbs found in the adjacent uplands.

#### *3.2.1.4 Seasonal Drainage*

This drainage feature originates from a culvert on the eastern edge of the property and flows generally northwest to Markham Ravine. This is a natural, meandering feature that originally extended into the adjacent property to the east, prior to the construction of a large detention basin on that property. The culvert was placed to drain overflow water from the detention basin on the neighboring property to Markham Ravine. The drainage feature is approximately 0.207 acre and 927.1 linear feet long with an average width of three feet. The feature has a distinct bed and bank, and contains hydrophytic vegetation such as common rush, sedges, nut sedge (*Cyperus eragrostis*), curly dock, and rough cocklebur.

#### *3.2.1.5 Markham Ravine*

Markham Ravine is a perennial stream that flows from east to west, bisecting the site. Approximately 727 linear feet of this feature pass through the Gill Property with an approximate average width of 26 feet and covering 0.855 acre. The vegetation community along Markham Ravine is riparian with a sparse understory, and is described in more detail above.




**WETLANDS**

- Floodplain Wetland
- Vernal Pool
- Vernal Swale
- Wetland

**OTHER WATERS OF THE U.S.**

- Drainage
- Ephemeral Drainage
- Markham Ravine

**OTHER FEATURES**

- Project Site
- Soil Pit
- Previously Evaluated (Nelson Lane Bridge Replacement SPK SPK-2012-01017)

**Wetland Delineation****

*Note: Nelson features extracted from Nelson Lane Bridge Replacement SPK-2012-01017*

| Wetlands** | |
|---|---|
| **ID** | **Acres** |
| **Floodplain Wetland** | |
| **Gill** | |
| FPW-01 | 0.847 |
| **Nelson** | |
| (none) | 0.000 |
| **Vernal Pool** | |
| **Gill** | |
| VP-01 | 1.237 |
| VP-02 | 0.022 |
| VP-03 | 0.010 |
| VP-04 | 0.030 |
| VP-05 | 0.023 |
| VP-06 | 0.013 |
| VP-07 | 0.040 |
| VP-08 | 0.017 |
| VP-09 | 0.017 |
| VP-10 | 0.015 |
| VP-11 | 0.012 |
| VP-12 | 0.017 |
| VP-13 | 0.014 |
| VP-14 | 0.010 |
| VP-15 | 0.016 |
| VP-16 | 0.214 |
| VP-17 | 0.024 |
| VP-18 | 0.010 |
| VP-19 | 0.023 |
| VP-20 | 0.029 |
| VP-21 | 0.011 |
| VP-22 | 0.013 |
| VP-23 | 0.042 |
| VP-24 | 0.032 |
| VP-25 | 0.032 |
| VP-26 | 0.016 |
| VP-27 | 0.005 |
| VP-28 | 0.129 |
| VP-29 | 0.268 |
| VP-30 | 0.030 |
| VP-31 | 0.048 |
| VP-32 | 0.025 |
| VP-33 | 0.064 |
| VP-34 | 0.025 |
| VP-35 | 0.021 |
| VP-36 | 0.024 |
| VP-37 | 0.014 |
| VP-38 | 0.009 |
| VP-39 | 0.018 |
| VP-40 | 0.033 |
| VP-41 | 0.014 |
| VP-42 | 0.008 |
| VP-43 | 0.005 |
| VP-44 | 0.019 |
| VP-45 | 0.020 |
| VP-46 | 0.005 |
| VP-47 | 0.014 |
| VP-48 | 0.028 |
| VP-49 | 0.023 |
| VP-50 | 0.151 |
| VP-51 | 0.075 |
| VP-52 | 0.036 |
| VP-53 | 0.027 |
| VP-54 | 0.022 |
| VP-55 | 0.030 |
| VP-56 | 0.017 |
| VP-57 | 0.021 |
| VP-58 | 0.157 |
| ***(continued)*** | |

| ***(continued)*** | |
|---|---|
| VP-59 | 0.153 |
| VP-60 | 0.106 |
| VP-61 | 0.066 |
| VP-62 | 0.037 |
| VP-63 | 0.068 |
| VP-64 | 0.055 |
| VP-65 | 0.045 |
| VP-66 | 0.008 |
| VP-67 | 0.030 |
| VP-68 | 0.055 |
| VP-69 | 0.005 |
| VP-70 | 0.017 |
| VP-71 | 0.096 |
| VP-72 | 0.034 |
| VP-73 | 0.008 |
| VP-74 | 0.016 |
| VP-75 | 0.008 |
| VP-76 | 0.017 |
| VP-77 | 0.008 |
| **Nelson** | |
| N-VP-03 | 0.011 |
| N-VP-04 | 0.079 |
| N-VP-05 | 0.027 |
| N-VP-06 | 0.044 |
| N-VP-07 | 0.001 |
| N-VP-08/12 | 0.026 |
| N-VP-09 | 0.006 |
| N-VP-10 | 0.103 |
| N-VP-11 | 0.130 |
| N-VP-13 | 0.026 |
| N-VP-14 | 0.023 |
| N-VP-17 | 0.002 |
| N-VP-18 | 0.002 |
| N-VP-19 | 0.017 |
| N-VP-20 | 0.009 |
| N-VP-24 | 0.027 |
| N-VP-25 | 0.068 |
| **Vernal Swale** | |
| **Gill** | |
| (none) | 0.000 |
| **Nelson** | |
| N-VS-16 | 0.041 |
| N-VS-23 | 0.033 |
| **Wetland** | |
| **Gill** | |
| W-01 | 0.561 |
| W-02 | 0.072 |
| **Nelson** | |
| (none) | 0.000 |

| OTHER WATERS** | |
|---|---|
| **ID** | **Acres** |
| **Drainage** | |
| **Gill** | |
| D-01 | 0.207 |
| **Nelson** | |
| (none) | 0.000 |
| **Ephemeral Drainage** | |
| **Gill** | |
| ED-01 | 0.013 |
| **Nelson** | |
| (none) | 0.000 |
| **Markham Ravine** | |
| **Gill** | |
| MR | 0.617 |
| **Nelson** | |
| N-MR | 0.146 |

**Wetland Delineation - Acreage Summary**

| | Gill | Nelson | All features |
|---|---|---|---|
| **Wetlands** | | | |
| Floodplain Wetland | 0.847 | 0.000 | **0.847** |
| Vernal Pool | 4.156 | 0.601 | **4.757** |
| Vernal Swale | 0.000 | 0.074 | **0.074** |
| Wetland | 0.633 | 0.000 | **0.633** |
| ***Subtotal:*** | ***5.636*** | ***0.675*** | ***6.311*** |
| **Other Waters** | | | |
| Drainage | 0.207 | 0.000 | **0.207** |
| Ephemeral Drainage | 0.013 | 0.000 | **0.013** |
| Markham Ravine | 0.617 | 0.146 | **0.763** |
| ***Subtotal:*** | ***0.837*** | ***0.146*** | ***0.983*** |
| **TOTAL** | **6.473** | **0.821** | **7.294** |

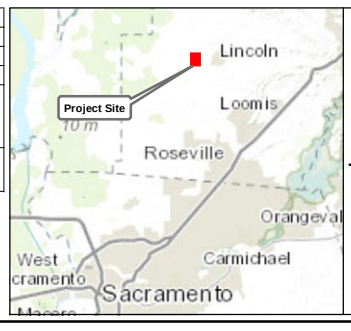
**NOTES**

Gross Site Acreage: 72.6 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
Alexandra Topor, Cardno

**Delineation Date:**
4/3/2014

**Preparation Date:**
4/20/2014 M.Nugent

**Revision Date:**
3/12/2015 K.Gabel

Cardno

Gill Property

**Figure 2**

**Wetland Delineation***

1 inch = 200 feet

**Projection: Cal. Stateplane, Zone 2**
**Datum: NAD 83**

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### 3.2.2 Peery Property

A Jurisdictional Delineation Report was completed by Cardno, in June and December 2012 to determine if Waters of the U.S. or Waters of the State, including wetlands were present in the Peery Property area (Appendix A). The report determined that 42 seasonal wetland pools, five seasonal wetland swales, one wet meadow, one irrigation pond, one ditch, one ephemeral drainage and Auburn Ravine are present in the Peery Property area.

A summary of wetland type and acreages for Peery Property area are presented in Table 2. Figure 3 depicts the locations of wetlands and other waters within the Peery Property area.

**Table 2 Jurisdictional Wetlands and Other Waters within the Peery Property**

| **Peery Property** | |
|---|---|
| **Wetlands and Other Waters Type*** | **Acreages/ Linear Feet** |
| Seasonal Wetland 02 | 0.041 |
| Seasonal Wetland 03 | 0.005 |
| Seasonal Wetland 04 | 0.150 |
| Seasonal Wetland 05 | 0.014 |
| Seasonal Wetland 06 | 1.372 |
| Seasonal Wetland 07 | 0.011 |
| Seasonal Wetland 08 | 0.033 |
| Seasonal Wetland 10 | 0.423 |
| Seasonal Wetland 11 | 0.234 |
| Seasonal Wetland 12 | 0.014 |
| Seasonal Wetland 13 | 0.075 |
| Seasonal Wetland 14 | 0.013 |
| Seasonal Wetland 15 | 0.088 |
| Seasonal Wetland 16 | 0.212 |
| Seasonal Wetland 17 | 0.130 |
| Seasonal Wetland 18 | 0.008 |
| Seasonal Wetland 19 | 0.067 |
| Seasonal Wetland 21 | 0.016 |
| Seasonal Wetland 22 | 0.010 |
| Seasonal Wetland 23 | 0.019 |
| Seasonal Wetland 24 | 0.098 |
| Seasonal Wetland 25 | 0.086 |
| Seasonal Wetland 26 | 0.030 |
| Seasonal Wetland 27 | 0.025 |
| Seasonal Wetland 28 | 0.012 |
| Seasonal Wetland 29 | 0.007 |
| Seasonal Wetland 30 | 0.006 |
| Seasonal Wetland 31 | 0.003 |
| Seasonal Wetland 32 | 0.028 |
| Seasonal Wetland 33 | 0.035 |
| Seasonal Wetland 34 | 0.001 |
| Seasonal Wetland 35 | 0.008 |
| Seasonal Wetland 36 | 0.005 |
| Seasonal Wetland 37 | 0.007 |
| Seasonal Wetland 38 | 0.002 |
| Nelson Seasonal Wetland | 0.014 |
| Nelson Seasonal Wetland 27 | 0.086 |

| | |
|---|---|
| Nelson Seasonal Wetland 29 | 0.017 |
| Nelson Seasonal Wetland 30 | 0.005 |
| Nelson Seasonal Wetland 33 | 0.025 |
| Nelson Seasonal Wetland 45 | 0.003 |
| Nelson Seasonal Wetland 46 | 0.002 |
| Wetland Swale 01 | 0.980 |
| Wetland Swale 09 | 0.455 |
| Wetland Swale 20 | 0.244 |
| Wetland Swale 39 | 0.118 |
| Nelson Seasonal Wetland Swale 28 | 0.181 acres/ 305 linear feet |
| Wet Meadow 01 | 1.687 |
| Irrigation Pond | 0.358 |
| Ditch | 0.057 acres/ 815 linear feet |
| Ephemeral Drainage | 0.030 acres/ 60 linear feet |
| Auburn Ravine | 0.315 acres/ 430 linear feet |
| | |
| **Total Wetlands and Other Waters** | **7.865 acres/ 1610 linear feet** |

* Features identified as "Nelson" were verified as part of the Nelson Lane Bridge Replacement Project wetland delineation

The wetland delineation was revised based on input from the USACE verification visit, and was resubmitted to the USACE on October 6, 2014. At the direction of the USACE, Cardno revised this wetland map a second time and resubmitted it to the USACE on February 23, 2015. Based on the delineation, it is estimated that there is a total of 7.865 acres of wetlands within the Peery Property. Final verification from the USACE is still in progress at the time of this writing.

Verified wetland delineations are considered valid by the USACE for up to five years. After five years, a reverification request must be submitted to the USACE, at which time changes in site conditions (if any) can be reported (whether they are increases or reductions in the acreage of wetlands).

#### *3.2.2.1 Seasonal Wetlands*

There are 42 features in the Peery Property portion of the property mapped as seasonal wetland pools totaling 3.448 acres. The majority of these features occur in the western portion of the Peery Property, while only five small seasonal wetland features are present in the eastern portion. These features were likely to have been vernal pools in the past, but decades of disking and planting for dry farmed hay and other crops has degraded these features to the point where they no longer appear to support vernal pool plant species. While oat grass was the dominant species observed in these features, there was generally a higher amount of barren ground in the basins of these features, and turkey mullein and vinegarweed were also present within the boundaries of these features.

#### *3.2.2.2 Seasonal Wetland Swales*

The five seasonal wetland swales mapped in the Peery Property totaling 1.978 acres were also, like the seasonal wetlands, likely to have been vernal swales in the past, but no longer support vernal pool plant species due to the decade's long history of agricultural disturbances. Three of these features occur in the western portion of the Peery property, while one runs along the eastern side of the eastern parcel. Species observed within these features were the same as those observed within the seasonal wetlands.

#### *3.2.2.3 Wet Meadow*

A large wet meadow area totaling 1.687 acres was mapped in the southeast corner of the Peery Property adjacent to Auburn Ravine, but separated from it by a levee. This feature is a shallow basin that surrounds the irrigation pond described below, and is densely vegetated with a variety of facultative and obligate wetland plant species including water pepper (*Persicaria hydropiperoides*), umbrella sedge,

Baltic rush (*Juncus balticus*), dallis grass (*Paspalum dilatatum*), and bull thistle (*Cirsium vulgare*). This feature appears to have received water from one of two wells located in the southeast corner of the Peery Property, and likely receives water during flood irrigation of the adjacent graded field.

#### *3.2.2.4 Irrigation Pond*

An irrigation pond occurs within the above described wet meadow. This feature covers approximately 0.358 acre, and consists of a low spot within the larger wet meadow area. As with the wet meadow, it appears to receive its water primarily from nearby wells that were used to flood irrigate the adjacent hay field. Vegetation in this feature consists primarily of cattail along with some water pepper and umbrella sedge.

#### *3.2.2.5 Ditch*

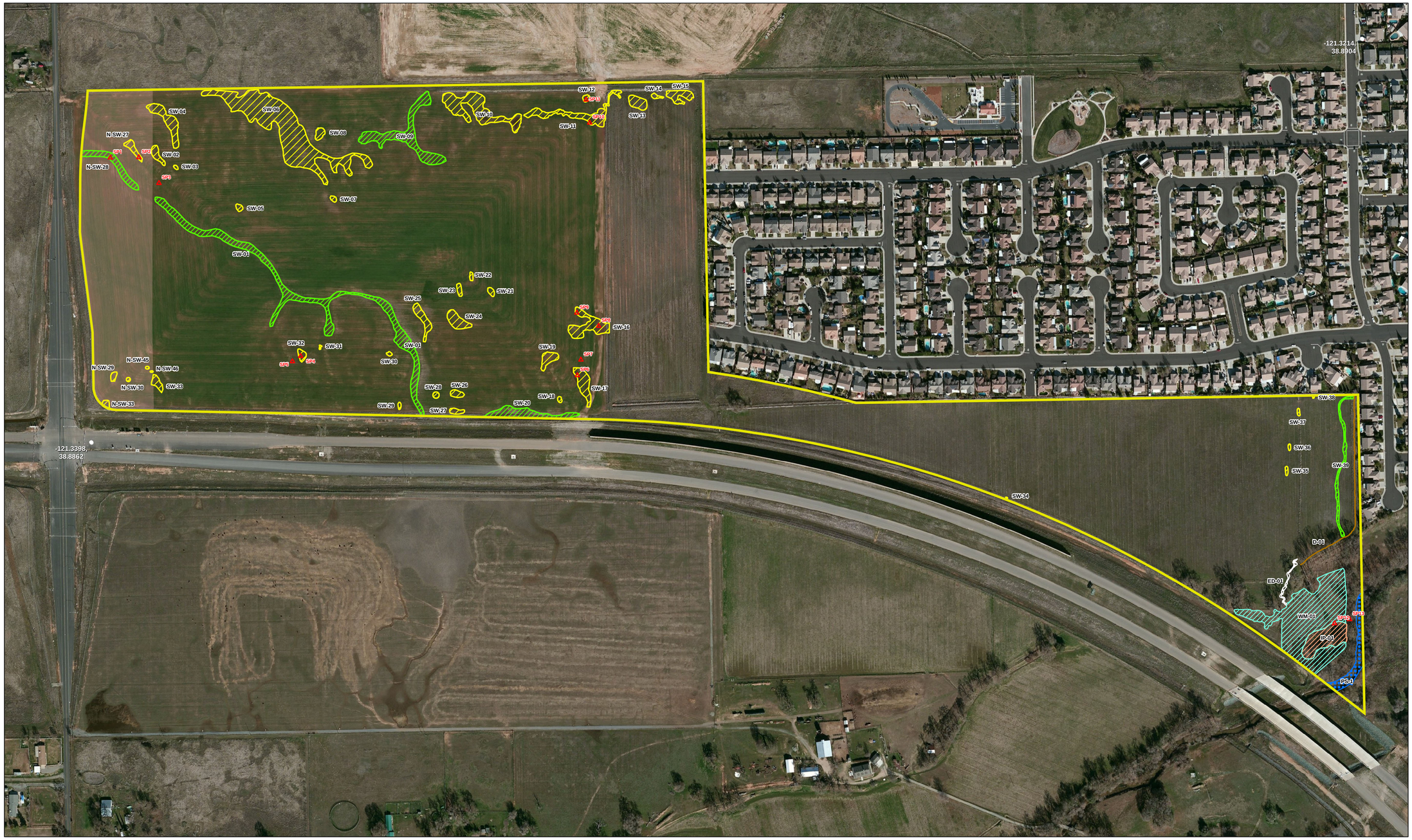
An irrigation ditch occurs along the eastern boundary edge of the Peery Property. The ditch originated from a culvert on the north edge and flows south then west to the ephemeral drainage. This feature is vegetated with non-native annual grassland species.

#### *3.2.2.6 Ephemeral Drainage*

The ephemeral drainage occurs at the southeastern edge of the eastern hay field. It appears to originate near a well that is also at the edge of the hay field, and flows into the wet meadow adjacent to Auburn Ravine. This feature is scoured from water flow, unvegetated, and appears to convey flows from the adjacent field to the wet meadow and irrigation pond during flood irrigation.

#### *3.2.2.7 Auburn Ravine*

Auburn Ravine is a perennial stream that flows from northeast to southwest passing under the Hwy 65 Bypass as it leaves the Peery Property. Approximately 500 linear feet of this feature define the eastern boundary of the Peery Property with an approximate average width of 20 feet. The vegetation community along Auburn Ravine is riparian with a sparse to dense understory, and is described in more detail under Riparian Woodland above.




| PEERY WETLANDS** | | |
|---|---|---|
| **Wetland Type** | **ID** | **Acres** |
| Seasonal Wetland Pool | SW-02 | 0.041 |
| Seasonal Wetland Pool | SW-03 | 0.005 |
| Seasonal Wetland Pool | SW-04 | 0.150 |
| Seasonal Wetland Pool | SW-05 | 0.014 |
| Seasonal Wetland Pool | SW-06 | 1.372 |
| Seasonal Wetland Pool | SW-07 | 0.011 |
| Seasonal Wetland Pool | SW-08 | 0.033 |
| Seasonal Wetland Pool | SW-10 | 0.423 |
| Seasonal Wetland Pool | SW-11 | 0.234 |
| Seasonal Wetland Pool | SW-12 | 0.014 |
| Seasonal Wetland Pool | SW-13 | 0.075 |
| Seasonal Wetland Pool | SW-14 | 0.013 |
| Seasonal Wetland Pool | SW-15 | 0.088 |
| Seasonal Wetland Pool | SW-16 | 0.212 |
| Seasonal Wetland Pool | SW-17 | 0.130 |
| Seasonal Wetland Pool | SW-18 | 0.008 |
| Seasonal Wetland Pool | SW-19 | 0.067 |
| Seasonal Wetland Pool | SW-21 | 0.016 |
| Seasonal Wetland Pool | SW-22 | 0.010 |
| Seasonal Wetland Pool | SW-23 | 0.019 |
| Seasonal Wetland Pool | SW-24 | 0.098 |
| Seasonal Wetland Pool | SW-25 | 0.086 |
| Seasonal Wetland Pool | SW-26 | 0.030 |
| Seasonal Wetland Pool | SW-27 | 0.025 |
| Seasonal Wetland Pool | SW-28 | 0.012 |
| Seasonal Wetland Pool | SW-29 | 0.007 |
| Seasonal Wetland Pool | SW-30 | 0.006 |
| Seasonal Wetland Pool | SW-31 | 0.003 |
| Seasonal Wetland Pool | SW-32 | 0.028 |
| Seasonal Wetland Pool | SW-33 | 0.035 |
| Seasonal Wetland Pool | SW-34 | 0.001 |
| Seasonal Wetland Pool | SW-35 | 0.008 |
| Seasonal Wetland Pool | SW-36 | 0.005 |
| Seasonal Wetland Pool | SW-37 | 0.007 |
| Seasonal Wetland Pool | SW-38 | 0.002 |
| | **SUBTOTAL** | **3.288** |
| Seasonal Wetland Swale | SW-01 | 0.980 |
| Seasonal Wetland Swale | SW-09 | 0.455 |
| Seasonal Wetland Swale | SW-20 | 0.244 |
| Seasonal Wetland Swale | SW-39 | 0.118 |
| | **SUBTOTAL** | **1.797** |
| Wet Meadow | WM-01 | 1.687 |
| Irrigation Pond | IP-01 | 0.358 |
| | **TOTAL** | **7.130** |

| NELSON WETLANDS** | | |
|---|---|---|
| **Wetland Type** | **ID** | **Acres** |
| Seasonal Wetland Pool | N-SW-27 | 0.047 |
| Seasonal Wetland Pool | N-SW-29 | 0.017 |
| Seasonal Wetland Pool | N-SW-30 | 0.005 |
| Seasonal Wetland Pool | N-SW-33 | 0.019 |
| Seasonal Wetland Pool | N-SW-45 | 0.003 |
| Seasonal Wetland Pool | N-SW-46 | 0.001 |
| | **SUBTOTAL** | **0.092** |
| Seasonal Wetland Swale | N-SW-28 | 0.167 |
| | **TOTAL** | **0.259** |

| OTHER WATERS** | | |
|---|---|---|
| **Wetland Type** | **ID** | **Acres** |
| Ditch | D-01 | 0.057 |
| Ephemeral Drainage | ED-01 | 0.030 |
| Perennial Stream | PS-1 | 0.315 |
| | **TOTAL** | **0.402** |

| | |
|---|---|
| **TOTAL WATERS OF THE U.S.*** | **7.791** |

**WETLANDS**

- Seasonal Wetland Pool
- Seasonal Wetland Swale
- Wet Meadow
- Irrigation Pond

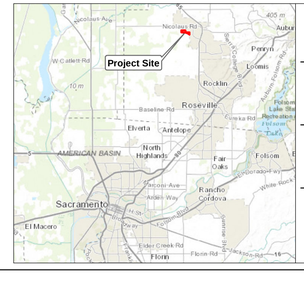
**OTHER WATERS OF THE U.S.**

- Ditch
- Ephemeral Drainage
- Perennial Stream

**OTHER FEATURES**

- Soil Pit
- Project Site
- Previously Evaluated (Nelson Lane Bridge Replacement SPK SPK-2012-01017)

| NOTES |
|---|
| Gross Site Acreage: 113.5 ac. |
| Aerial Photo Source: © April, 2012 Microsoft Corporation and its data suppliers |
| Topographic Data Source: Fraji Design Group. Vertical Datum: NGVD 29 |
| |
| |
| |
| *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:**
Ammon Rice, Cardno
Sam Bacchini, Cardno

**GIS Specialist:**
Kevin Gabel, Cardno

**Preparation Date:**
25 October 2012

**Revision Date:**
13 March 2015

Cardno
Shaping the Future

Peery Property

# Figure 3

## Wetland Delineation*

0 50 100 200 300 400 Feet

SCALE: 1 inch = 200 feet

Projection: Cal. Stateplane, Zone 2
Datum: NAD 83

C:\sharegis\gisnt\3340700_Scheiber_Peery\map\Peery_Wetland_Delineation_USACE_34i22i_12.mxd 3/13/2015

# 4 Special Status Species

The potential occurrence of special-status plant and wildlife species within the project site and surrounding area has been determined through a review of the California Department of Fish and Wildlife's (CDFW) Natural Diversity Data Base (CNDDB), the U.S. Fish and Wildlife Service's (USFWS) online species list database, and a series of field surveys.

For the purposes of this section, special-status species include:

- species listed, proposed, or candidate species for listing as Threatened or Endangered by the USFWS pursuant to the Federal Endangered Species Act (FESA) of 1969, as amended;
- species designated as Species of Concern by the USFWS (note: although this status designation does not itself trigger any FESA requirements, many of the species that have this designation meet the definition of rare, threatened or endangered under CESA);
- species listed as Rare, Threatened, or Endangered by the CDFW pursuant to the California Endangered Species Act (CESA) of 1970, as amended;
- species designated as Fully Protected under Sections 3511 (birds), 4700 (mammals), and 5050 (reptiles and amphibians) of the California Fish and Game Code;
- species designated by the CDFW as California Species of Concern;
- plant species listed as Category 1B and 2 by the California Native Plant Society (CNPS); and
- species not currently protected by statute or regulation, but considered rare, threatened or endangered under CEQA (Section 15380).

Queries of the CNDDB and USFWS species lists show that there is potential for 39 special status species to occur in the vicinity of the Project Area. This includes seven invertebrates, four fish, two amphibians, two reptiles, two mammals, 13 birds, and nine plants. Additionally, there were four sensitive habitats and three critical habitats for species known to occur in the vicinity identified in the Project Area. However, based on the available habitat at the project site, it has been determined that only 24 of these species have potential to occur on the project site and, therefore, could be affected by the project. This includes five invertebrates, three fish, one amphibian, one reptile, two mammals, nine birds, and four plants.

These species, along with their protection status and likelihood of occurrence on the site, are listed in Table 2. A rating of "observed" indicates that the species has been observed on the site; "high" indicates that the species has not been observed, but sufficient information is available to indicate suitable habitat and conditions are present on-site and the species is expected to occur on-site; "moderate" indicates that it is not known if the species is present, but suitable habitat exists on-site; "low" indicates that species was not found during biological surveys conducted to date on the site and would not be expected given the species' known regional distribution or the quality of habitats located on the site; and "none" indicates that the species would not be expected to occur in the project site because either the site is not within the known range of the species, or there is no suitable habitat present there. Species in the "low" and "none" categories are not discussed further in this section, because it is highly unlikely that they occur in the project site, so there would be no impact on them. Descriptions of each of these species are provided below.

The following biological field studies were prepared for the Project Area:

- *Wetland Delineation and Preliminary Jurisdictional Determination Nelson Lane Bridge Replacement Project (Bridge No. 19C0082)*, Cardno ENTRIX, June 2012
- *Jurisdictional Delineation Report –Gill Annexation*, Cardno ENTRIX, July 2014 (Appendix A)

- *Arborist Report and Native Oak Tree Inventory – Gill Property,* Cardno Inc., January 27, 2015
- *Jurisdictional Delineation Report – Peery Ranch*, Cardno ENTRIX, December 2012 (Appendix B);
- *2012-2013 90-Day Report of Findings Regarding Branchiopod Surveys – Peery Property*, Cardno ENTRIX, August 2013 (Appendix C); and
- *2013-2014 90-Day Report of Findings Regarding Branchiopod Surveys – Peery Property, Cardno ENTRIX,* June 16, 2014 *(*Appendix D*)*
- *Arborist Report and Native Oak Tree Inventory – Peery Property,* Cardno Inc., January 27, 2015

**Table 3 Special-Status Plant and Wildlife Species[1] Potentially Occurring Within Project Area**

| ***Scientific Name*** **Common Name** | **Status[2]** | **Habitat Requirements[3]** | **Likelihood of Occurrence Within the Project Area[4]** |
|---|---|---|---|
| **Invertebrates** | | | |
| *Andrena subapasta* Andrenid bee | **Fed:** none **CA:** none **Other:** CNDDB: G1G2/S1S2 | Collects pollen primarily from *Arenaria californica* but also *Triphysaria eriantha*, and *Lasthenia* sp. Nests in uplands near vernal pools. | **Low:** Vernal pools provided potentially suitable habitat in the Project Area. *Arenaria californica*, *Triphysaria eriantha*, and *Lasthenia* sp. not observed during site visits. The nearest occurrence record in CNDDB is over 15 miles to the southeast. |
| *Branchinecta conservatio* Conservancy fairy shrimp | **Fed:** FE **CA:** none **Other:** CNDDB: G1/S1 | Occurs in large, turbid vernal pools and seasonal playas in grassland habitats. | **None:** No suitable large alkaline playa pool present in the Project Area. |
| *Branchinecta lynchi* vernal pool fairy shrimp | **Fed:** FT **CA:** none **Other:** CNDDB: G3/S2S3 | Occurs in small swales, earth slumps or basalt-flow depressions with grassy or muddy bottoms in grasslands, but are also found in water pooled in sandstone outcrops and in alkaline vernal pools. | **Present:** This species was observed in the Peery Property during the 2012-2013 wet-season branchiopod surveys. |
| *Desmocerus californicus dimorphus* valley elderberry longhorn beetle | **Fed:** FT **CA:** none **Other:** CNDDB: G3T2/S2 | Entirely dependent on elderberry shrubs (*Sambucus* spp.) for all stages of its life cycle. Occurs in or near riparian habitats where their elderberry host plant is present. | **None:** No elderberry shrubs are present in the project area. The closest CNDDB record for this species is 6.75 miles to the northwest. |
| *Hydrochara rickseckeri* Ricksecker's water scavenger beetle | **Fed:** none **CA:** none **Other:** CNDDB: G2?/S2? | Found in the Sacramento and San Joaquin Rivers in flowing or standing waters. | **None:** No suitable flowing or perennial water present in the Project Area. |
| *Lepidurus packardi* Vernal pool tadpole shrimp | **Fed:** FE **CA:** none **Other:** CNDDB: G3/S2S3 | Occurs in a variety of seasonal wetlands such as vernal pools, clay flats, alkaline pools, ephemeral stock tanks, road side ditches, and road ruts. Pools range in size from small, clear, well vegetated vernal pools to highly turbid alkali scald pools to large winter lakes. | **Moderate:** Vernal pool habitat could potentially provide suitable habitat for this species. This species not observed during the 2012-2013 and 2013-2014 wet-season branchiopod surveys on the Peery Property. The closest CNDDB record for this species is 2.5 miles to the west of the Project Area. |

**Table 3 Special-Status Plant and Wildlife Species[1] Potentially Occurring Within Project Area**

| *Scientific Name* Common Name | Status[2] | Habitat Requirements[3] | Likelihood of Occurrence Within the Project Area[4] |
|---|---|---|---|
| *Linderiella occidentalis* California linderiella | **Fed:** none **CA:** none **Other:** CNDDB: G2G3/S2S3 | Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity and conductivity. | **Present:** This species was observed in the Peery Property during the 2012-2013 wet-season branchiopod surveys. |
| **Fish** | | | |
| *Hypomesus transpacificus* Delta smelt | **Fed:** FT **CA:** SE **Other:** CNDDB: G1/S1 AFS: T | Requires shallow, open waters of the estuary where salinities range from 2-7 ppt. Spawn and rear sloughs and shallow edge waters of channels in upper Delta and Sacramento River, Suisun Marsh and Bay. | **None:** No suitable habitat present in Project Area. |
| *Oncorhynchus mykiss* Central Valley steelhead | **Fed:** FT **CA:** none **Other:** CNDDB: G5T2Q/S1 AFS: T | Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water and sufficient dissolved oxygen. Passes through the San Francisco Bay during migrations to upstream spawning habitat. | **High:** Auburn Ravine is part of the critical habitat mapped by the USFWS for this species. Barriers to passage make Markham Ravine unsuitable. |
| *Oncorhynchus tshawytscha* Central Valley spring-run Chinook salmon | **Fed:** FT **CA:** ST **Other:** CNDDB: G5/S1 AFS: T | Requires clean, cold water over gravel beds with water temperatures between 6 and 14 C, and sufficient dissolved oxygen for spawning. Passes through the San Francisco Bay during migrations to upstream spawning habitat. | **Present:** Auburn Ravine provides suitable habitat for this species. This species was observed within Auburn Ravine within the Project Area during one of the visits related to the wetland delineation for the Peery Property. Barriers to passage make Markham Ravine unsuitable. |
| *Oncorhynchus tshawytscha* Sacramento River winter-run Chinook salmon | **Fed:** FE **CA:** SE **Other:** CNDDB: G5/S1 AFS: E | | |
| **Amphibians** | | | |
| *Rana draytonii* California red-legged frog | **Fed:** FT **CA:** SSC **Other:** CNDDB: G3G4/S4 | Slow-flowing portions of perennial streams, ephemeral streams, and hillside seeps that maintain pool environments (including ponds) or saturated soils throughout the summer months. | **None:** Project Area is outside the currently known range of the species. All Sierra populations of this species occur above 800 feet above mean sea level**.** |
| *Spea hammondii* Western spadefoot | **Fed:** none **CA:** SSC **Other:** CNDDB: G3/S3 | Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools containing minimal numbers of bullfrogs, fish, or crayfish are necessary for breeding. | **Low:** Grassland and riparian habitats provide potential habitat within the Project Area. The nearest occurrence record in CNDDB is 7.5 miles to the south. |
| **Reptiles** | | | |
| *Actinemys marmorata* Western pond turtle | **Fed:** none **CA:** none **Other:** CNDDB: G3G4/S3 | Permanent or nearly permanent water in a wide variety of aquatic habitats. Requires basking sites. Nest sites may be found up to 0.5 km from water | **Moderate:** Auburn Ravine and Markham Ravine provide suitable habitat. Species not observed during any field visits. The closest CNDDB record for this species is 5.5 miles to the east of the Project Area. |

**Table 3 Special-Status Plant and Wildlife Species[1] Potentially Occurring Within Project Area**

| *Scientific Name* Common Name | Status[2] | Habitat Requirements[3] | Likelihood of Occurrence Within the Project Area[4] |
|---|---|---|---|
| *Thamnophis gigas* Giant garter snake | **Fed:** FT **CA:** ST **Other:** CNDDB: G2/S2 | Historically occurred in cattail and tule marshes on the central valley floor. Has since adapted to a variety of artificial drainages, particularly those associated with rice farming. Requires open water supporting fish and/or amphibian prey, with vegetative cover in the water and on the banks. Also requires adjacent uplands for aestivation. Does not occur in major rivers. | **None:** This species has never been recorded in Placer County and all known populations occur well below 90 feet amsl. |
| **Mammals** | | | |
| *Antrozous pallidus* Pallid bat | **Fed:** none **CA:** SSC **Other:** CNDDB: G5/S3 | Found in grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. Inhabits open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, and under bridges. | **Low:** Potential roosting habitat present in oak trees and under Nelson Lane Bridge. Nearest CNDDB occurrence is over 15 miles to the southeast. |
| *Corynorhinus townsendii* Townsend's big-eared bat | **Fed:** none **CA:** SCT **Other:** CNDDB: G3G4/S2 | Found in caves, buildings, and tree cavities for night roosts. Maternity and hibernation colonies typically are in caves and mine tunnels. | **Low:** Potential roosting habitat present in larger oak trees and under the Hwy 65 Bypass and Nelson Lane Bridges. Nearest CNDDB occurrence is 9 miles to the east. |
| **Birds** | | | |
| *Agelaius tricolor* Tricolored blackbird | **Fed:** none **CA:** SE **Other:** CNDDB: G2G3/S1S2 | Nests in dense stands of tules, cattails or blackberries that is adjacent to open grasslands or agricultural fields. Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony. | **Low:** Potentially suitable habitat present within the blackberry bushes and marsh habitat in the riparian areas of the Project Area. Nearest CNDDB occurrence is 1.5 miles to the south. Species not seen during site visits. |
| *Ammodramus savannarum* Grasshopper sparrow | **Fed:** none **CA:** SSC **Other:** CNDDB: G5/S2 | Consists of moderately open grasslands and prairies with patchy bare ground. | **Low:** Potential foraging habitat present in the grassland habitat. Species not seen during site visits. |
| *Athene cunicularia* Burrowing owl | **Fed:** none **CA:** SSC **Other:** CNDDB: G4/S3 | Nests in small mammal burrows that are in or adjacent to open dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel. | **Low:** Potential foraging habitat present in the grassland habitat. No burrows present within the Project Area. Nearest CNDDB occurrence is 2.8 miles to the south. Species not seen during site visits. |
| *Buteo swainsoni* Swainson's hawk | **Fed:** none **CA:** ST **Other:** CNDDB: G5/S3 | Forages in a wide variety of open habitats such as grasslands, open scrub, and agricultural fields. Nests in large, typically riparian trees, but will occasionally utilize ornamental species such as Eucalyptus if they are near foraging habitat. | **High:** The grasslands and crop of nonnative grasses provide suitable foraging habitat for this species, the trees within the riparian corridor provide potential nesting habitat for this species. Nearest CNDDB occurrence is 1.0 mile to the northeast. Species has been observed during site visits. |

**Table 3 Special-Status Plant and Wildlife Species[1] Potentially Occurring Within Project Area**

| *Scientific Name* Common Name | Status[2] | Habitat Requirements[3] | Likelihood of Occurrence Within the Project Area[4] |
|---|---|---|---|
| *Circus cyaneus* Northern harrier | **Fed:** none **CA:** SSC **Other:** CNDDB: G5/S3 | Found in coastal salt and fresh-water marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas. | **None:** No suitable nesting or foraging habitat is present within the Project Area. |
| *Coccyzus americanus occidentalis* Western yellow- billed cuckoo | **Fed:** FT **CA:** none **Other:** CNDDB: none | Found in riparian corridors along the Sacramento, Feather, and Amargosa Rivers. | **None:** No suitable riparian habitat present in Project Area. |
| *Elanus leucurus* White-tailed kite | **Fed:** none **CA:** FP **Other:** CNDDB: G5S3S4 | Rolling foothills and valley margins with scattered oaks, and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching. | **Moderate:** This species is relatively common in the region, but was not observed during the survey. No evidence of a nesting colony was observed during the survey. Nearest CNDDB occurrence is 5.25 miles to the southeast. Species not seen during site visits. |
| *Laterallus jamaicensis coturniculus* California black rail | **Fed:** none **CA:** ST **Other:** CNDDB: G3G4T1/S1 | Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that does not fluctuate during the year and dense vegetation for nesting habitat. | **None:** No suitable marsh or water habitat present in the Project Area. |
| *Melospiza melodia* Song sparrow ("Modesto" population) | **Fed:** none **CA:** SSC **Other:** CNDDB: G5/S3? | Found in moderately open grasslands and prairies with patchy bare ground. | **Low:** Grasslands provide potential habitat. Nearest CNDDB occurrence is 12 miles to the northeast. Species not seen during site visits. |
| *Pandion haliaetus* Osprey | **Fed:** none **CA:** none **Other:** CNDDB: G5/S4 CDFW: WL | Found on ocean shore, bays, fresh-water lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water. | **Moderate:** Trees within the riparian habitat provides suitable nesting habitat. The closest CNDDB record for this species is 6.2 miles to the southeast of the Project Area |
| *Progne subis* Purple martin | **Fed:** none **CA:** SSC **Other:** CNDDB: G5/S3 | Found in a variety of wooded, low-elevations habitats. Uses valley foothill and montane hardwood, valley foothill and montane hardwood-conifer, and riparian habitats. Also occurs in coniferous habitats, including closed-cone pine-cypress, ponderosa pine, Douglas-fir, and redwood. | **Moderate:** Trees within the riparian habitat provides suitable nesting habitat. There are no CNDDB occurrences for this species within 10 miles of the Project Area. |
| *Riparia riparia* Bank swallow | **Fed:** none **CA:** ST **Other:** CNDDB: G5/S5 | (Nesting) colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting cavity. | **None:** No suitable nesting habitat in the Project Area. |
| *Setophaga petechia* Yellow warbler | **Fed:** none **CA:** SSC **Other:** CNDDB: G5/S3S4 | Found in riparian forests, but also in open shrubbery in conifer forests. Prefers willows, cottonwoods, aspens, sycamores, and alders for nesting and foraging. | **Low:** Potential habitat present in the riparian habitats. Nearest CNDDB occurrence is over 15 miles to the north. |
| **Plants** | | | |

**Table 3 Special-Status Plant and Wildlife Species[1] Potentially Occurring Within Project Area**

| *Scientific Name* Common Name | Status[2] | Habitat Requirements[3] | Likelihood of Occurrence Within the Project Area[4] |
|---|---|---|---|
| *Balsamorhiza macrolepis* Big-scale balsamroot | **Fed:** none **CA:** none **Other:** CNDDB: G2/S2 RPR: 1B.2 | Occurs in chaparral, valley and foothill grassland, cismontane woodland. Blooms from March to June. Ranges in elevations from 90 to 1,555 meters | **None:** Project Area outside elevation range of species. |
| *Chloropyron molle* ssp. *hispidum* Hispid salty bird's-beak | **Fed:** none **CA:** none **Other:** CNDDB: G2T2/S2 RPR: 1B.2 | Found in alkaline soils in meadows and seeps, playas, and valley and foothill grasslands. Blooms from June to September. Ranges in elevations from 1 to 155 meters. | **None:** Though suitable habitat may be present in the grasslands onsite, alkaline soils are not present. |
| *Downingia pusilla* Dwarf downingia | **Fed:** none **CA:** none **Other:** CNDDB: GU/S2 RPR: 2B.2 | Occurs in valley and foothill grasslands (mesic sites), and vernal pools. Blooms from March to May. Ranges in elevations from 1 to 445 meters. | **Moderate:** Potential habitat present in the grassland and vernal pool habitat within the Project Area. There are seven CNDDB occurrences for this species within three miles of the Project Area. Species not seen during site visits. |
| *Gratiola heterosepala* Boggs Lake hedge-hyssop | **Fed:** none **CA:** SE **Other:** CNDDB: G2/S2 RPR: 1B.2 | Found in clay soils associated with marshes and swamps, lake margins, and vernal pools. Blooms from April to August. Ranges in elevations from 10 to 2,375 meters. | **None:** No marsh or swamp habitat present in the Project Area. Vernal pools could potentially provide habitat, but due to the lack of clay soils the presence of this species highly unlikely. |
| *Juncus leiospermus* var. *ahartii* Ahart's dwarf rush | **Fed:** none **CA:** none **Other:** CNDDB: G2T1/S1 RPR: 1B.2 | Found in mesic areas of valley and foothill grasslands. Blooms from March to May. Ranges in elevations from 30 to 229 meters. | **Moderate:** Potential habitat present within the grassland habitat within the Project Area. Nearest CNDDB occurrence is 1.1 miles to the north. Species not seen during site visits. |
| *Juncus leiospermus* var. *leiospermus* Red Bluff dwarf rush | **Fed:** none **CA:** none **Other:** CNDDB: G2T2/S2 RPR: 1B.1 | Found in vernally mesic areas of chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools. Blooms from March to May. Ranges in elevations from 35 to 1,250 meters. | **Moderate:** Potential habitat present in the grassland and vernal pool habitat within the Project Area. Nearest CNDDB occurrence is 5.5 miles to the south. Species not seen during site visits. |
| *Legenere limosa* Legenere | **Fed:** none **CA:** none **Other:** CNDDB: G2/S2 RPR: 1B.1 | Occurs in vernal pools. Blooms from April to June. Ranges in elevations from 1 to 880 meters. | **Moderate:** Potential habitat present in the Project Area Nearest CNDDB occurrence is 2.4 miles to the south. Species not seen during site visits. |
| *Navarretia myersii* ssp. *myersii* Pincushion navarretia | **Fed:** none **CA:** none **Other:** CNDDB: G1T1/S1 RPR: 1B.1 | Found in vernal pools, often on acidic soils. Blooms from April to May. Ranges in elevations from 20 to 330 meters. | **None:** Though suitable habitat may be present in the grasslands onsite, acidic soils are not present. |

**Table 3 Special-Status Plant and Wildlife Species[1] Potentially Occurring Within Project Area**

| *Scientific Name* Common Name | Status[2] | Habitat Requirements[3] | Likelihood of Occurrence Within the Project Area[4] |
|---|---|---|---|
| *Wolffia brasiliensis* Brazilian watermeal | **Fed:** none **CA:** none **Other:** CNDDB: G5/S1 RPR: 2B.3 | Occurs in shallow freshwater marshes and swamps. Blooms from April to December. Ranges in elevations from 20 to 100 meters. | **None:** No suitable marsh or swamp habitat present in the Project Area. |
| **Critical Habitat** | | | |
| Central Valley steelhead | | Project Area within critical habitat. | |
| Vernal pool fairy shrimp | | Project Area within critical habitat. | |
| Vernal pool tadpole shrimp | | Not present in the Project Area, and nearest critical habitat located 15 miles to the north of Project Area. | |
| **Sensitive Habitats** | | | |
| Alkali Meadow | | Not present in the Project Area. | |
| Alkali Seep | | Not present in the Project Area. | |
| Northern Hardpan Vernal Pool | | Not present in the Project Area. | |
| Northern Volcanic Mud Flow Vernal Pool | | Not present in the Project Area. | |

*Notes:*

1. Special-status Plant and Wildlife Species: Plant and Wildlife that were included in this table have a ranking of G3/S3.3 and/or CNPS 2.3, or higher, and were either observed within the Project area by a Cardno biologist, previous survey reports, or contained within the query of the: 1) CNDDB (August 2014); 2) USFWS Endangered Species List (August 2014); and/or 3) CNPS Online Inventory (August 2014).
2. *Status:*

Federal
FE Federally listed as "Endangered"
FT Federally listed as "Threatened"
BGPA Bald Eagle Golden Eagle Protection Act.
MBTA Migratory Bird Treaty Act.

State
SE State listed as "Endangered"
ST State listed as "Threatened"
SFP State designated "Fully Protected" or "Protected"
SSC State designated "Species of Special Concern"

Other
CNPS: Rare Plant Rank
1B.1 Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2 Plants rare, threatened, or endangered in California and elsewhere, fairly threatened in California

*CNDDB:*
Global
G1 Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres.
G2 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres.
G3 21-100 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres.
G4 Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat.
G5 Population or stand demonstrably secure to ineradicable due to being commonly found in the world.

State

**Table 3 Special-Status Plant and Wildlife Species[1] Potentially Occurring Within Project Area**

| *Scientific Name* Common Name | Status[2] | Habitat Requirements[3] | Likelihood of Occurrence Within the Project Area[4] |
|---|---|---|---|

S1 Less than 6 EOs OR less than 1,000 individuals OR less than 2,000 acres
S1.1 very threatened
S1.2 threatened
S2 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
S2.1 very threatened
S2.2 threatened
S3 21-100 EOs or 3,000-10,000 individuals OR 10,000-50,000 acres
S3.1 very threatened
S3.2 threatened

3. Unless otherwise noted, "Habitat and Seasonal Distribution in California" is derived from the "General" and "Micro" habitat requirements provided by the CNDDB (February 2009). Blooming period for plant species is derived from the CNPS Online Inventory. Note, moss life forms do not include a blooming period. (October 2008).
4. Likelihood of occurrence evaluations:
A rating of "present" indicates that the species has been observed in the Project area.
A rating of "moderate" indicates that it is not known if the species is present, but suitable habitat exists in the Project area.
A rating of "low" indicates that it is not known if the species is present, and limited suitable habitat exists in the Project area.

Source:
California Department of Fish and Wildlife – California Natural Diversity Database, 2013.
U.S. Fish and Wildlife Service Threatened and Endangered Species database, 2014.

## 4.1 Special-Status Plant Species

Four special-status plant species have the potential of occurring within the Project Area, Dwarf Downingia (*Downingia pusilla*), Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*), and Legenere (*Legenere limosa*). These species were not observed during any field visits, but potential habitat is present in the Gill Property, so a seasonally timed, focused botanical survey of the Project Area should be conducted to determine if these species are present.

## 4.2 Special-Status Animal Species

Several special-status animal species have the potential of occurring in the Project Area. These species include vernal pool fairy shrimp, vernal pool tadpole shrimp, California linderiella, Central Valley steelhead, Chinook salmon (Central Valley spring and winter runs), northwestern pond turtle, Swainson's hawk, white-tailed kite, osprey, and purple martin.

### 4.2.1 Vernal Pool Crustaceans

Vernal pool crustaceans occurring within the Project Area include vernal pool fairy shrimp (*Branchinecta lynchi*) (FT) and California linderiella (*Linderiella occidentalis*) (SSC). Vernal pool tadpole shrimp (*Lepidurus packardi*) (FE) has the potential to occur, but was not observed during protocol-level surveys. These small crustaceans are adapted to survive the annual flooding and drying of vernal pools and other seasonal wetlands in valley or foothill grasslands by hatching from encysted eggs embedded in the soil in the bottom of the pools when the pools fill with rainwater. After reaching maturity, they breed, release their eggs into the water, and die as the vernal pool dries up. The dormant eggs are protected by thick outer coverings that resist cold, heat, and desiccation.

No protocol-level branchiopod surveys have been completed on the Gill Property, but presence of vernal pool fairy shrimp, vernal pool tadpole shrimp, and California linderiella can be assumed based on the CNDDB records and vernal pool habitat present. Additionally, the majority of the Gill Property occurs within a Critical Habitat unit for vernal pool fairy shrimp. Protocol-level branchiopod surveys were conducted on the Peery Property during the 2012-2013 and 2013-2014 wet-season by Cardno and identified the presence of California linderiella and vernal pool fairy shrimp. The wet-season surveys did not identify vernal pool tadpole shrimp within the Peery Property area, but the species could still be present since they may not hatch during low rain years.

### 4.2.2 Central Valley Steelhead (*Oncorhynchus mykiss*)

Central Valley steelhead was federally listed as a threatened species in March, 1998 (63 FR 13347). This ESU includes all naturally spawned populations of steelhead in the Sacramento and San Joaquin rivers and their tributaries, including portions of Auburn Ravine. Critical habitat was designated in September 2005 and became effective January 2, 2006 (70 FR 542487). The project is within the American River hydrologic unit of designated critical habitat for this species (70 FR 52614). Steelhead begin their migration from the ocean when winter rains provide large amounts of cold water for migration and spawning. They typically spawn in tributaries to mainstem rivers, often long distances from the ocean. Juvenile steelhead generally spend 1 to 2 years in freshwater before migrating to the ocean. Prior to dam construction, diversion, and other watershed changes, steelhead ranged throughout the tributaries of the Sacramento and San Joaquin rivers. The reach of Auburn Ravine that passes through the project site is within critical habitat for this species. The segment of Markham Ravine that passes through the project area would not support Central Valley steelhead as impassible barriers downstream of the project area would prevent their access.

### 4.2.3 Chinook Salmon, Central Valley Spring and Sacramento River Winter ESU (*Oncorhynchus tshawytscha*)

The Central Valley spring-run Chinook Salmon ESU is federally listed as threatened and Sacramento River winter-run Chinook ESU is federally listed as endangered (64 FR 14308 and 59 FR 13836). Critical habitat for these Chinook species was designated in 2000 (65 FR 7764). Salmonids are typically categorized as being "spring-run," "fall-run," “late fall-run,” or "winter-run" with respect to the time of year they return to spawn in freshwater (Shapovalov and Taft 1954). "Spring-run" fish return from the ocean to streams as sexually immature adults during the spring or summer months, then sexually mature in freshwater and spawn the following fall. "Fall-run," “late fall-run,” and "winter-run" salmonids return from the ocean to streams as sexually mature adults in the fall or winter, respectively, and do not over-summer before spawning (Shapovalov and Taft 1954; Moyle 2002).

Chinook salmon spawns in freshwater and juveniles rear for 3 to 15 months before emigrating to the ocean to mature. Chinook spend 1 to 4 years in the ocean before returning either as sexually mature adults ready to spawn, or as maturing adults which hold in freshwater streams for multiple months before spawning, then die after spawning. Central Valley spring-run Chinook salmon enter rivers as immature adults in spring and early summer and then spawn in early fall. Sacramento River winter-run Chinook salmon also enter rivers as immature adults, but do so earlier than Central Valley spring-run Chinook; returning from the ocean in winter and spring then spawning in early summer (Moyle 2002).

The reach of Auburn Ravine that passes through the project site provides suitable habitat for these species. Chinook Salmon were observed within the Auburn Ravine during field surveys. The segment of Markham Ravine that passes through the project area would not support Chinook salmon as impassible barriers downstream of the project area would prevent their access.

### 4.2.4 Northwestern Pond Turtle (*Actinemys marmorata*)

Northwestern pond turtle is a State Species of Special Concern. Northwestern pond turtle occurs in ponds and slow moving streams and rivers throughout western California, and requires a reliable source of water. Although this species was not observed at the Project Area, the aquatic habitat within Auburn Ravine and Markham Ravine provides suitable habitat for this species. The CNDDB contains an occurrence record for northwestern pond turtle 5.5 miles to the east of the Project Area.

### 4.2.5 Swainson’s Hawk (*Buteo swainsoni*)

The listing of Swainson's hawk as a State threatened species was based on the sharp reduction in riparian woodlands and forests throughout the State over the last 100 years and the consequent reduction in populations of Swainson's hawks that depend on riparian woodlands for nesting. Swainson’s hawks are

open-country birds that forage in grasslands and agricultural fields, especially after disking or harvest. Swainson's hawks can forage as much as 20 miles from the nest and observations of this species in the project vicinity are not uncommon. Suitable nest trees are present along Auburn Ravine and Markham Ravine and within the surrounding area. This species was observed in the project area in the spring of 2014 during the construction of the Nelson Lane project.

### 4.2.6 White-tailed Kite (*Elanus leucurus*)

The white-tailed kite is a "fully protected" raptor in California. White-tailed kites feed on rodents, small reptiles, and large insects in fresh emergent wetlands, annual grasslands, pastures, and ruderal vegetation. They breed between February and October. Unlike other raptors, kites often roost, and occasionally nest, communally; therefore, disturbance of a relatively small roost or nesting area could affect a large number of birds. The Project Area provides potential foraging and nesting habitat for white-tailed kite. Suitable foraging habitat for this species occurs in the grasslands and nesting habitat occurs in the trees along Auburn Ravine. The CNDDB contains no occurrence records for white-tailed kite within five miles of the Project Area.

### 4.2.7 Osprey (*Pandion haliaetus*)

Ospreys are protected under the MBTA. Ospreys are found on ocean shores, bays, freshwater lakes, and large streams. Ospreys require large trees within 15 miles of a water body to build large nests. They feed mainly on fish, but also are known to hunt small rodents. The Project Area provides potential nesting habitat for osprey in the trees along Auburn Ravine, but foraging habitat is limited. The nearest CNDDB occurrence is approximately 5.25 miles to the southeast of the Project Area.

### *4.2.8* Purple Martin (*Progne subis)*

Purple martin is a California Species of Special Concern and is protected under the MBTA. Purple martin is found in a variety of wooded, low-elevations habitats. Purple martin use valley foothill and montane hardwood, valley foothill and montane hardwood-conifer, and riparian habitats. The riparian habitat within the Project Area may provide potential nesting habitat and the grassland and riparian habitats provide foraging habitat for this species. The CNDDB contains no occurrence records for purple martin within ten miles of the Project Area.

## 4.3 Wildlife Movement

Auburn Ravine and Markham Ravine provide a significant corridor for wildlife movement in the vicinity of the Project Area. These streams provide potential wildlife movement corridors between other, offsite areas of suitable habitat. The associated pond, vernal pools, and riparian habitats could provide habitat for other wildlife species, such as ducks, egrets, and other waterfowl. Oak and willow trees could provide important shelter, nesting and foraging habitat for both common and special-status wildlife migratory species in the region. The hay fields that comprise the majority of the Project Area may provide foraging habitat for some wildlife species, but due to the level of regular human disturbance, this habitat is less suitable for wildlife movement.

# 5 Regulatory Context

## 5.1 Federal

### 5.1.1 Endangered Species Act (FESA)

The FESA, enacted in 1973, prohibits the taking, possession, sale or transport of endangered species. Under the FESA, the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as threatened or endangered (16 United States Code [USC] 1533[c]). FESA is administered by both the National Marine Fisheries Service (NMFS) and the USFWS. NMFS is accountable for animals that spend most of their lives in marine waters, including marine fish, most marine mammals, and anadromous fish such as Pacific salmon. The USFWS is accountable for all other federally-listed plants and animals.

Pursuant to the requirements of FESA, a federal agency reviewing a project within its jurisdiction must determine whether any federally listed threatened or endangered species could be present in the project site and determine whether the project will have a potentially significant impact on such species. In addition, federal agencies are required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3], [4]).

Projects that would result in “take” of any federally-listed threatened or endangered species are required to obtain authorization from NMFS and/or USFWS through either Section 7 (interagency consultation) or section 10(a) (incidental take permit) of FESA, depending on whether the federal government is involved in permitting or funding the project. The Section 7 authorization process is used to determine if a project with a federal nexus would jeopardize the continued existence of a listed species and what mitigation measures would be required to avoid jeopardizing the species. The Section 10(a) process allows take of endangered species or their habitat in non-federal activities.

### 5.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 Code of Federal Regulations (CFR) Section 10.13. The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country, and is enforced in the United States by the USFWS. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50 CFR 20. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors).

### 5.1.3 Federal Clean Water Act

#### *5.1.3.1 Section 404*

The objective of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Section 301 prohibits the discharge of any pollutant into the Nation's waters without a permit, and Section 402 establishes the permit program. Under Section 404 of the CWA, the US Army Corps of Engineers (USACE) has the authority to regulate activity that could discharge fill or dredge material or otherwise adversely modify wetlands or other waters of the U.S. The USACE implements the federal policy embodied in Executive Order 11990, which, when implemented, is intended to result in no net loss of wetland values or function.

#### *5.1.3.2 Section 401*

The State Water Resources Control Board (SWRCB) has authority over wetlands through Section 401 of the CWA, as well as the Porter-Cologne Act, California Code of Regulations Section 3831(k), and California Wetlands Conservation Policy.

The CWA requires that an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the United States) first obtain a certificate from the appropriate state agency stating that the fill is consistent with the State's water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for permits is delegated by the SWRCB to the nine regional boards. The Central Valley Regional Water Quality Control Board (CVRWQCB) is the appointed authority for Section 401 compliance in the project site. A request for certification or waiver is submitted to the regional board at the same time that an application is filed with the USACE. The regional board has 60 days to review the application and act on it. Because no USACE permit is valid under the CWA unless "certified" by the state, these boards may effectively veto or add conditions to any USACE permit.

## 5.2 State

### 5.2.1 California Endangered Species Act (CESA)

The CESA was enacted in 1984. Under the CESA, the California Fish and Wildlife Commission (CFWC) has the responsibility for maintaining a list of threatened species and endangered species. CDFW also maintains lists of species of special concern. A Species of Special Concern (CSC) is a species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:

- is extirpated from the State or, in the case of birds, in its primary seasonal or breeding role;
- is listed as Federally-, but not State-, threatened or endangered;
- meets the State definition of threatened or endangered but has not formally been listed;
- is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status;
- has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for State threatened or endangered status.

CESA prohibits the take of California listed animals and plants in most cases, but CDFW may issue incidental take permits under special conditions. Pursuant to the requirements of CESA, a State agency reviewing a project within its jurisdiction must determine whether any state-listed endangered or threatened species could be present in the project site and determine whether the project would have a potentially significant impact on such species. In addition, CDFW encourages consultation on any project that could affect a listed or candidate species.

### 5.2.2 Fish and Game Code – Sections 3503, 3503.5, 3513

Fish and Game Code Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Fish and Game Code Section 3503.5 protects all birds-of-prey (raptors) and their eggs and nests. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the Migratory Bird Treaty Act.

### 5.2.3 Fish and Game Code Sections 3511, 4700, 5050, and 5515

Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code designate certain species as "fully protected." Fully protected species, or parts thereof, may not be taken or possessed at any time, and no provision of the CFWC or any other law may be construed to authorize the issuance of permits of licenses to take any fully protected species. No such permits or licenses heretofore issued may have any force or effect for any such purpose, except that the CFGC may authorize the collecting of such species for necessary scientific research. Legally imported and fully protected species or parts thereof may be possessed under a permit issued by CDFW.

### 5.2.4 CDFW Streambed Alteration Agreements

Under Sections 1600-1616 of the California Fish and Game Code, the CDFW regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. The limits of CDFW's jurisdiction are defined in the code as the "… *bed, channel or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit* ..." (Section 1601). In practice, the CDFW usually marks its jurisdictional limit at the top of the stream or bank, or at the outer edge of the riparian vegetation, whichever is wider.

### 5.2.5 CDFW Wetlands Protection Regulations

The CDFW derives its authority to oversee activities that affect wetlands from state legislation. This authority includes Sections 1600-1616 of the Fish and Game Code (lake and streambed alteration agreements), Section 30411 of the California Coastal Act (CDFW becomes the lead agency for the study and identification of degraded wetlands within the Coastal Zone), CESA (protection of state listed species and their habitats - which could include wetlands), and the Keene-Nejedly California Wetlands Preservation Act of 1976 (states a need for an affirmative and sustained public policy program directed at wetlands preservation, restoration, and enhancement). In general, the CDFW asserts authority over wetlands within the state either through review and comment on USACE Section 404 permits, review and comment on CEQA documents, preservation of state listed species, or through stream and lakebed alteration agreements.

### 5.2.6 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act established the SWRCB and each Regional Water Quality Control Board (RWQCB) as the principal state agencies for coordinating and controlling water quality in California. Responsibility for the protection of water quality in California rests with the SWRCB and nine RWQCBs. The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations. Pursuant to the Act, each of California's nine regional boards must prepare and periodically update basin plans that set forth water quality standards for surface and groundwater, as well as actions to control point and non-point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to achieve wetlands protection through enforcement of water quality standards.

The Porter-Cologne Water Quality Control Act provides that "All discharges of waste into the waters of the State are privileges, not rights." Waters of the State are defined in Section 13050(e) of the Porter-Cologne Water Quality Control Act as "…any surface water or groundwater, including saline waters, within the boundaries of the state." All dischargers are subject to regulation under the Porter-Cologne Water Quality Control Act, including both point and nonpoint source dischargers. The CVRWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within its jurisdiction, which would include the project site. As noted above, the CVRWQCB is the appointed authority for Section 401 compliance in the project site. If the USACE determines that they have no regulatory authority on the project site and they also determine that a CWA Section 404 permit is

not required, the project proponent could still be responsible for obtaining the appropriate CWA Section 401 permit or waiver from CVRWQCB for impacts to Waters of the State.

### 5.2.7 California Environmental Quality Act

Although threatened and endangered species are protected by specific federal and state statutes, California Environmental Quality Act (CEQA) Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals, and allows a public agency to undertake a review to determine if a significant effect on a species that has not yet been listed by either the USFWS or CDFW (i.e., species of concern) would occur. Whether a species is rare, threatened, or endangered can be legally significant because, under CEQA Guidelines Section 15065, an agency must find an impact to be significant if a project would "substantially reduce the number or restrict the range of an endangered, rare, or threatened species." Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

## 5.3 Local

### 5.3.1 Placer Legacy Open Space and Agricultural Conservation Program

The Placer Legacy Open Space and Agricultural Conservation Program (Placer Legacy Program) is an innovative and nationally significant endeavor initiated by the County as a basis to realize its objective of comprehensive planning for preservation of biological resources, agricultural lands, and open space, and to serve as a model for future endeavors by similar communities in the United States.

The Placer Legacy Program has established a number of objectives; including preserving the diversity of plant and animal communities and protecting endangered and other special-status plant and animal species. A core interest of the Placer Legacy Program is to enable the County to make itself a willing buyer to persons wishing to sell interest in lands having value for conservation purposes.

The City of Lincoln is currently involved in the development of the Plan and is evaluating its participation in the Placer County Conservation Plan (PCCP), which is a NCCP/HCP program. The PCCP is still under development. A public review draft Plan was published in February 2011, but no CEQA document associated with the plan has yet been prepared. Until an EIR is prepared and certified, the Plan cannot be adopted.

### 5.3.2 City of Lincoln General Plan

The City of Lincoln has adopted new 2050 General Plan goals and policies that relate to biological resources. No inconsistencies with either the policies were identified. However, while City staff has done its best to ascertain consistency, the City Council makes the ultimate decision regarding consistency with the General Plan.

### 5.3.3 City of Lincoln Cutting and Removal of Oak Trees

Chapter 18.43 of the City of Lincoln Municipal Code regulates all projects with the potential to affect any protected trees. Section 18.43.010 (Guidelines) describes guidelines for development around existing oak trees in order to protect those trees from harm during and after construction. Section 18.43.020 (Enforcement) establishes the City's authority to inspect construction sites for violations of the tree protection guidelines and enforce those regulations. Section 18.43.030 (Restoration and Replacement of Oak Trees) provides that if an oak tree has been removed or irrevocably harmed in violation of the conditions of individual project approval, the City may require the planting of replacement trees or fee payment to the City.

# 6 Impacts and Mitigation Measures

## 6.1 Methods of Analysis

The project setting was developed by reviewing available published information on wetlands and "other waters of the U.S." and special-status species or their habitat known to occur in the Project Area vicinity. The information review included:

- A query of the CNDDB and USFWS species list databases for the Lincoln, Wheatland, Sheridan, Pleasant Grove, Roseville, Rocklin, Gold Hill, Wolf, and Camp Far West USGS 7.5 minute quadrangle maps;
- A review of the habitat requirements of the special-status species determined to have potential to occur in the project site through the above queries.

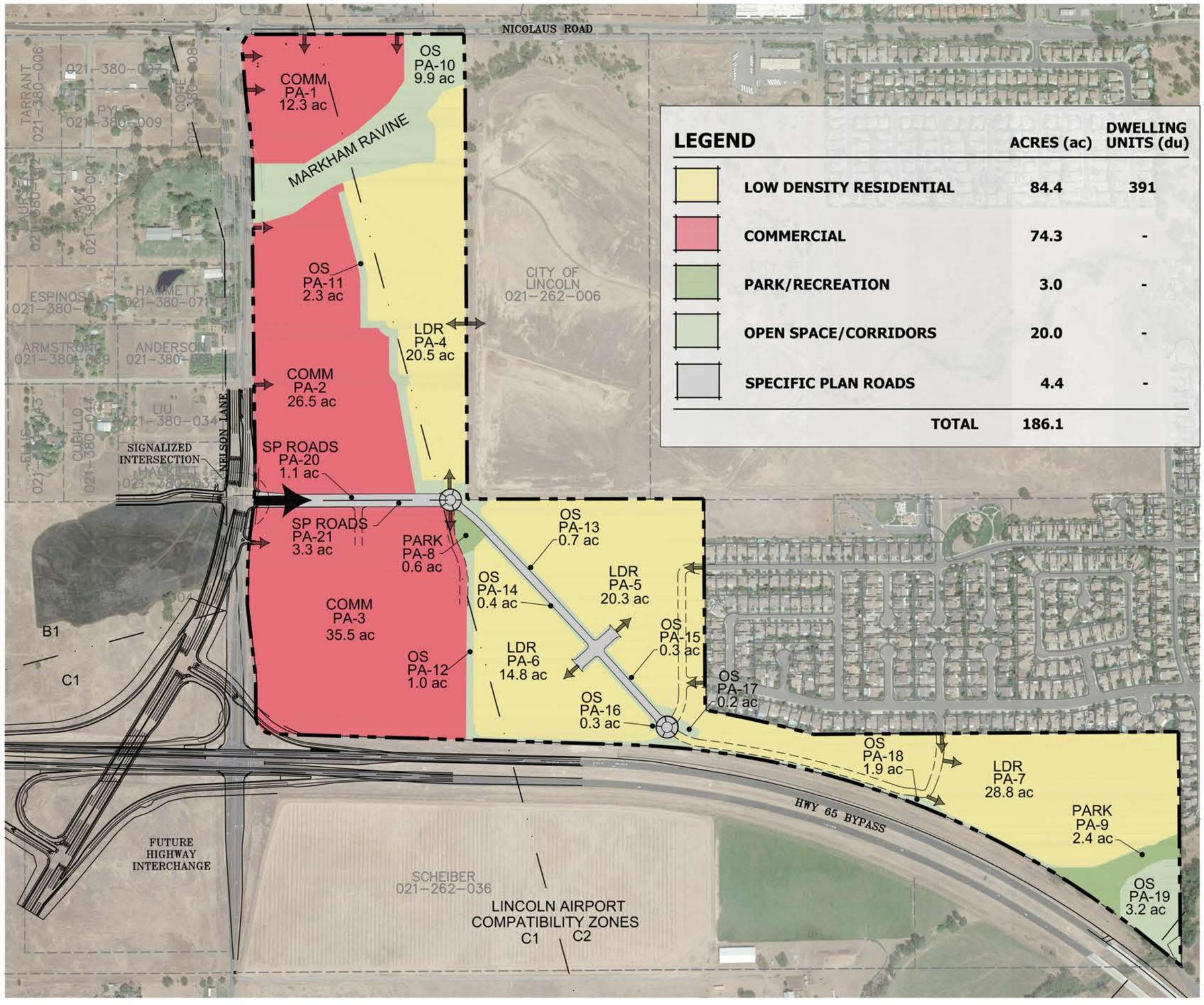
Results of the CNDDB and USFWS queries are provided in Appendix E. A list of species likely to occur in and/or be affected by the proposed Project was derived from the CNDDB and USFWS database queries, and is provided in Table 2. This list represents those species identified in the review as having the highest likelihood to occur in the Project Area (i.e., within the known range, or with potential habitat present). This data review was supplemented with a field surveys in 2012 through 2014 to determine which of these species actually occurs or whether potential habitat for these species is present in the project site.

The following site-specific studies were prepared for the Project Area:

- *Jurisdictional Delineation Report –Gill Annexation*, Cardno Inc., July 2014 (Appendix A)
- *Arborist Report and Native Oak Tree Inventory – Gill Property,* Cardno Inc., January 27, 2015
- *Jurisdictional Delineation Report – Peery Ranch,* Cardno ENTRIX, December 2012 (Appendix B);
- *2012-2013 90-Day Report of Findings Regarding Branchiopod Surveys – Peery Property*, Cardno ENTRIX, August 2013 (Appendix C);
- *2013-2014 90-Day Report of Findings Regarding Branchiopod Surveys – Peery Property,* Cardno ENTRIX, June 16, 2014 (Appendix D); and
- *Arborist Report and Native Oak Tree Inventory – Peery Property,* Cardno Inc., January 27, 2015

Potential impacts of the proposed project on biological resources were identified by first comparing the habitat requirements of those species identified during the above data reviews to the habitat available on and adjacent to the Project Area site. Species identified by these sources as potentially occurring in the area, but for which there is either no suitable habitat or the Project Area site is outside the known range of the species, are not addressed further. For the species and habitat that are known or could be present at the Project Area site, a determination was then made as to what effect the loss of that potential habitat would have on those species.

The SUD-B Northeast Quadrant Specific Plan Land Use Map (Figure 4) was used to assist in quantifying impacts to biological resources.




| LEGEND | ACRES (ac) | DWELLING UNITS (du) |
|---|---|---|
| LOW DENSITY RESIDENTIAL | 84.4 | 391 |
| COMMERCIAL | 74.3 | - |
| PARK/RECREATION | 3.0 | - |
| OPEN SPACE/CORRIDORS | 20.0 | - |
| SPECIFIC PLAN ROADS | 4.4 | - |
| TOTAL | 186.1 | |

Figure 4

N
W E
S
0 400' 800'

# SUD-B NorthEast Quadrant Land Use Map

## Frayji Design Group, Inc.

City of Lincoln, California December 11, 2014

FRAYJI DESIGN GROUP, INC.
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CIVIL ENGINEERING • PLANNING • SURVEYING

Job# 17300

I:\Drafting\17300-Peery Property_Lincoln\Exhibits\SP Map-rev12-10-14.dwg, 12/11/2014 2:29:50 PM, jhelm

## 6.2 Standards of Significance

For the purposes of the Project EIR, impacts on biological resources are considered significant if the proposed 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 the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands defined by section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or by 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 the provisions of an approved local, regional or state policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

# 7 Project Impacts and Mitigation Measures

## 7.1 MM-1 The proposed project would result in the filling or adverse modification of jurisdictional wetlands/other "waters of the U.S."

### 7.1.1 Wetlands and Other Waters

Wetland delineation reports have been prepared for the Project Area. Reports are in the process of being verified by the USACE, but an approximate total of 15.251 acres of wetlands and other waters of the U.S. occur within the Project Area. Based on the current Project Land Use Map, approximately 11 acres of wetlands and other waters will be filled due to grading or other activities related to development.

It should be noted that wetlands within the Nelson Lane Bridge Project buffer area and the State Route 65 Interchange Project buffer area were mitigated for at various levels, and this mitigation will be taken into consideration during the permitting process with the state and federal agencies.

The fill of these wetlands and other waters of the U.S. as a result of the proposed project would be considered a ***significant impact***.

### 7.1.2 Mitigation Measures

Implementation of the following mitigation measures would reduce this impact to a ***less-than significant level*** by ensuring that the project achieves no net loss of wetlands through preservation and/or compensation. This could be achieved through the Section 404 permit process.

MM-1.1

*a) Prior to grading permit issuance, the developer shall acquire the appropriate CWA Section 404 permit for the construction of the proposed project and the filling of wetlands and other waters of the U. S. in the Project Area. This analysis assumes that more than 0.5 acre of wetlands or other waters of the U.S. will be impacted, so an individual permit under Section 404 of the Clean Water Act would be required. As part of the individual permit, National Environmental Protection Act (NEPA) compliance and a Section 404(b)(1) Alternatives Analysis must be completed. A copy of the approved Section 404 permit shall be provided to the Planning Department prior to issuance of a grading permit.*

*b) In addition to the CWA Section 404 Wetland Fill permit, a CWA Section 401 water quality certification will also be required in conjunction with the Section 404 permit.*

*c) If wetlands or waters to be lost include streams or lakes subject to CDFW jurisdiction, then a Streambed Alteration Agreement shall be obtained from CDFW, pursuant to Section 1600 of the California Fish and Game Code, for any activities affecting the bed, bank, or associated riparian vegetation. If required, the project developer shall coordinate with CDFW in developing appropriate mitigation, and shall abide by the conditions of any executed permits for any work related to on-site streams or associated riparian areas.*

*Compensation*

*d) Wetlands and waters of the U.S. lost as a result of development of the Project Area shall be replaced on a "no-net-loss" basis in accordance with USACE regulations. The following process shall be used in planning for replacement:*

*e) For wetlands that will be created on site in open space areas, a conceptual on-site wetlands mitigation plan shall be arranged for by the developer, including an agreed-upon replacement ratio of wetlands with the USACE. The mitigation plan shall quantify the total jurisdictional*

*acreage lost, describe creation/replacement ratio for acres filled, annual success criteria, potential mitigation-sites, and monitoring and maintenance requirements.*

*f) The plan shall be prepared by a qualified biologist pursuant to, and through consultation with, the USACE.*

*g) The plan may include funding mechanisms for future maintenance of the wetland and riparian habitat, which may include an endowment or other funding from the project developer.*

*h) For those acres of wetlands or waters lost to development of the proposed project that cannot be replaced on site, the project proponent shall compensate for the loss of wetland habitat through the purchase of mitigation credits at a USACE-approved mitigation bank or otherwise USACE-approved location. The ratio of compensation shall be determined in consultation with the USACE as part of the 404-permit process, but shall not be less than 1:1.*

## 7.2 MM-2 The proposed project could result in the loss of special-status vernal pool crustaceans and/or degradation and/or loss of their habitat.

### 7.2.1 Vernal Pool Crustaceans

Biological surveys conducted in the Project Area determined that potential vernal pool crustacean habitat is present on the site. No protocol-level wet-season surveys have been completed on the Gill Property, but the presence of special-status vernal pool crustaceans may be assumed (unless protocol-level surveys are completed at a future date, as approved by the USFWS). Protocol-level wet-season surveys have identified the presence of vernal pool fairy shrimp and California linderiella in the Peery Property area. Development of the site would result in the loss of this habitat, and the species contained therein through grading and other ground disturbing activities that remove the habitat and alter the hydrology of the area. Since take of threatened or endangered species or their habitat is prohibited by law, development of the Project Area would result in ***significant impact*** on vernal pool crustaceans.

### 7.2.2 Mitigation Measures

Implementation of the following mitigation measures would reduce the impact on vernal pool crustaceans to a ***less-than-significant level***.

MM-2.1

*a. If suitable habitat for vernal pool crustaceans cannot be avoided, the project applicant shall comply with applicable federal ESA regulation.*

*b. The project proponent shall be responsible for offsetting for the loss of any vernal pool crustacean habitat. The extent of any necessary compensatory mitigation shall be determined by the project proponent in consultation with the USFWS. Typically recommended mitigation for the loss of vernal pool crustacean habitat has been at a ratio of 1:1 acres for preservation and 2:1 acres for creation.*

## 7.3 MM-4 The proposed project could result in the loss of Central Valley steelhead or Chinook salmon and/or degradation of their habitat

### 7.3.1 Steelhead and Chinook Salmon

The reach of Auburn Ravine that passes through the Project Area is designated as Critical Habitat for Central Valley steelhead and represents migration and potential spawning habitat for this species along with Chinook salmon, which was observed there during biological surveys of the site. Construction of drainage improvements and the proposed development could affect Central Valley steelhead and Chinook salmon in Auburn Ravine by potentially affecting water quality. Central Valley steelhead is listed

as threatened under FESA and take of this species or its habitat is prohibited. Chinook salmon Central Valley Spring ESU are federally listed as threatened and Sacramento River winter-run Chinook ESU is federally listed as endangered. Damage to, or loss of Central Valley steelhead or Chinook salmon or their habitat through excavation, siltation or other pollution of the habitat, the potential loss of individual Central Valley steelhead or Chinook salmon Central Valley spring-run/Sacramento River winter-run ESU or their habitat would be considered a ***significant impact***.

### 7.3.2 Mitigation Measures

Implementation of the following mitigation measures would reduce this impact to a ***less-than significant*** level by protecting Central Valley steelhead and Chinook salmon Central Valley spring-run/Sacramento River winter-run ESU and their habitat in Auburn Ravine through avoidance of the low-flow period and protection of water quality.

MM-4.1

*For any work that would involve disturbance of Auburn Ravine the City shall ensure grading permits and/or improvements plans, as appropriate, include the following requirements:*

*a) To the extent feasible, the project shall be designed to avoid direct or indirect impacts to Auburn Ravine, or to the water quality flowing to Auburn Ravine.*

*If work in Auburn Ravine cannot be avoided, then the following mitigation measures shall apply.*

*b) Restrict work in Auburn Ravine to low-flow periods between June 15 and October 15 to avoid effects on adult or juvenile steelhead and salmon life stages during their migratory seasons.*

*c) Store all equipment outside of all waterways. Install a silt fence around the perimeter of all waterways where construction is to occur adjacent to waterways. The staging areas shall be situated a minimum of 50 feet from existing drainages.*

*d) Install Environmentally Sensitive Area (ESA) fences in the vicinity of work along Auburn Ravine. The ESA fencing shall be delineated on the final plans and the fence shall be installed and remain on-site until the project is completed.*

*e) Install silt fences and/or fiber rolls on the slopes adjacent to the work area to prevent silt from entering Auburn Ravine.*

*f) If dewatering is necessary along portions of Auburn Ravine, use appropriate temporary coffer dams to dewater the construction sites and divert water through the area during the construction period to prevent impeding creek flow or water flow through the work areas. If dewatering at a site is required, a qualified biologist shall be present during the dewatering period to inspect and ensure that steelhead will not be trapped within the temporary coffer dams. If steelhead are found, a qualified biologist will capture and relocate these fish to an appropriate area away from the construction site. The project applicant or their representative shall submit for approval the dewatering and fish capture and relocation plans to the NOAA and CDFW once the design plans are finalized.*

*g) Maintain erosion controls during the construction periods.*

*h) At the completion of the construction project, remove from the streambed all materials used to maintain flow and divert water from the area during the construction period, including coffer dams, pipes, filter fabric, and gravel.*

*i) Dispose of all excess soil at an approved upland site.*

*j) Remove all project-introduced material once the work is complete.*

*k) Recontour any disturbed stream channel areas, to the extent practicable, to pre-project conditions or better.*

*l) Use reflectors on portable light trees to focus the light on the work area and to minimize the amount of light spilling over to adjacent areas during any night work.*

## 7.4 MM-5 The proposed project could result in the loss and/or degradation of rare plant populations.

### 7.4.1 Rare Plant

No protocol-level botanical surveys have been conducted within the Project Area. Based on field visits of the project site, presence of special-status plant habitat appears to be unlikely due to the long history of intensive cultivation. However, presence of suitable habitat for special-status plants cannot be ruled out until botanical surveys have been conducted. If special-status plants are found in the Project Area, then this habitat might be lost due to filling, grading, or other activities related to development. The loss of special-status plants or their habitat as a result of grading and other ground disturbance related to development of the Project Area would be considered a ***significant impact***.

### 7.4.2 Mitigation Measures

Implementation of the following mitigation measure would reduce impacts on special-status plants to a ***less-than-significant level*** by ensuring that any special-status plants in the Project Area are identified, if present, and by replacing the amount, type, and value of habitat lost to project construction through an accredited mitigation bank.

MM-5.1

*a. The project applicant shall retain a qualified biologist to determine if suitable habitat for rare plants exists within the project site. If no suitable habitat for rare plants is found, no further mitigation will be required.*

*b. The surveys will be conducted during the appropriate blooming periods (May to November). These plant surveys shall be conducted in accordance with 2009 California Department of Fish and Wildlife (CDFW) rare plant survey protocols. The results of the survey shall be summarized in a report and submitted to CDFW and USFWS, and would be valid for two years.*

*c. If rare plants are present and cannot be avoided, the project applicant shall comply with applicable state regulation.*

## 7.5 MM-6 The proposed project could result in the loss of western pond turtles and/or degradation of their habitat.

### 7.5.1 Western Pond Turtle

Potential habitat for western pond turtle exists in the project site. This species inhabits slow-moving portions of stream courses and will also use adjacent uplands for nesting and hibernation. The perennial stream of Auburn Ravine, Markham Ravine, as well as the irrigation pond on the project site provide potential habitat for this species. Although western pond turtle has not been documented in the project site, the CNDDB contains one occurrence record for this species within four miles of the project boundary. The riparian corridor will be generally avoided and placed into open space. However, construction activities may occur within the irrigation pond that could be occupied by western pond turtle. Western pond turtle is a state species of concern, and loss of individual western pond turtle would be considered a ***significant impact***.

### 7.5.2 Mitigation Measures

Implementation of the following mitigation measures would reduce impacts on the western pond turtle to a ***less-than-significant level*** by determining if any western pond turtles are present, and either protecting them in place or relocating them.

MM-6.1

a) *Prior to any work in suitable habitat, the developer shall arrange for a pre-construction survey for western pond turtles to be conducted by a qualified biologist not more than 48 hours prior to the commencement of site disturbance. If any western pond turtles are detected, they shall be relocated to a suitable body of water in Placer County to the satisfaction of the CDFW.*

b) *If western pond turtles (WPT) are determined to be present within the stream or pond, and the feature is to be retained, exclusionary fencing shall be used to prevent the turtle(s) from entering construction area. The location of the fence shall be determined by a qualified biologist. Any turtles found in or near the construction zone shall be relocated to an appropriate area of suitable habitat a minimum of 100 feet from any active construction zone. Measures shall be implemented to ensure that the drainages or stock ponds will continue to provide adequate habitat for the WPT by protecting water quality and ensuring that the reduction of drainage from the project site does not substantially diminish the water levels in the pond.*

c) *If the stream or irrigation pond cannot be retained, the project applicant shall relocate any WPT found during surveys in a manner developed by a qualified biologist and approved by the CDFW.*

## 7.6 MM-7 The proposed project could result in the direct loss or disturbance of nesting birds protected by the MBTA, including raptors (birds-of-prey).

### 7.6.1 Nesting Birds and Raptors

Shrubs and trees in the Project Area could provide nesting habitat for protected raptors and migratory birds. Most of the existing trees and shrubs are within the riparian corridor and are will be retained as part of an open space plan of the proposed project. Tree and shrub removal associated with the proposed project could result in "take" caused by the direct mortality of adult or young birds, nest destruction, or disturbance of nesting native bird species (including migratory birds and other special-status species) resulting in nest abandonment and/or the loss of reproductive effort. Bird species are protected by both state (CDFW Code Sections 3503 and 3513) and federal (Migratory Bird Treaty Act of 1918) laws. Disruption of nesting birds, resulting in the abandonment of active nests, or the loss of active nests through structure removal would be considered a ***significant impact***.

### 7.6.2 Mitigation Measures

Implementation of the following mitigation measures would reduce this impact to a ***less-than significant level*** by ensuring that nesting birds are identified, and that the birds would not be disturbed during the nesting season.

MM-7.1

a) *If construction is proposed during the breeding season (March 1-August 30), a pre-construction raptor nest survey shall be conducted within 30 days prior to the beginning of construction activities by a qualified biologist in order to identify active nests in the project site vicinity. If no active nests are found during the pre-construction survey, no further mitigation is required.*

*b) If active nests are found, a 500-foot temporary buffer shall be established for raptors (other than Swainson's Hawk, see MM-8). If project related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season (March 1-August 30), then an on-site biologist/monitor experienced with raptor behavior shall be retained by the project proponent to monitor the nest, and shall along with the project proponent, consult with the CDFW to determine the best course of action necessary to avoid nest abandonment or take of individuals. Work may be allowed to proceed within the temporary nest disturbance buffer if raptors are not exhibiting agitated behavior such as defensive flights at intruders, getting up from a brooding position, or flying off the nest. The designated on-site biologist/monitor shall be on-site daily while construction related activities are taking place and shall have the authority to stop work if raptors are exhibiting agitated behavior. In consultation with the CDFW, and depending on the behavior of the raptors, over time it may be determined that the on-site biologist/monitor may no longer be necessary due to the raptors' acclimation to construction related activities. Any trees containing nests that must be removed as a result of project implementation shall be removed during the non-breeding season (September 1-Febrary 28),*

*c) A report shall be submitted to the City of Lincoln, following the completion of the raptor nesting survey that includes, at a minimum, the following information:*

*a. A description of methodology including dates of field visits, the names of survey personnel with resumes, and a list of references cited and persons contacted.*

*b. A map showing the location(s) of any protected raptor or nests observed on the project site.*

*d) If construction is to occur between March 1 and August 30, the project applicant shall conduct a pre-construction breeding-season migratory bird survey of the project site within 30 days of construction onset. Surveys shall be conducted within 100 feet of proposed ground disturbance. The survey shall be conducted by a qualified biologist to determine if any migratory birds are nesting on or directly adjacent to the project site. If the survey does not identify any protected raptor or migratory bird nests on the project site, no further mitigation would be required.*

*e) Should any active nests be located on the project site, the project applicant, in consultation with the City of Lincoln and CDFW, shall avoid all protected migratory bird nest sites located in the project site disturbance area(s) during the breeding season (approximately March 1 through August 30) while the nest is occupied with adults and/or young. This avoidance could consist of delaying construction in close proximity to the nest during the nesting season. Any occupied nest shall be monitored by a qualified biologist to determine when the nest is no longer used. If the construction cannot be delayed, avoidance shall include the establishment of a 250-foot non-disturbance buffer zone around the nest site. Any reduction in the size of the buffer zone shall be determined in consultation with the City and CDFW. The buffer zone shall be delineated by highly visible temporary construction fencing.*

## 7.7 MM-8 The proposed project could result in the loss of nesting Swainson's hawk.

### 7.7.1 Swainson's Hawk

The CNDDB contains one nesting records for Swainson's hawk within one mile of the Project Area. The large trees within the riparian portion of the Project Area have the potential of being suitable nest sites for Swainson's hawks, and the species was observed in the project area in the spring of 2014. Swainson's hawk could establish nests in one or more of these trees prior to construction the individual phases of the proposed project. Should this occur, project related ground disturbance within ¼ mile of the nest tree, or tree removal associated with the proposed project, could result in "take" caused by the direct mortality of

adult or young Swainson's hawk, nest destruction, or disturbance of nesting Swainson's hawk, resulting in nest abandonment and/or the loss of reproductive effort. Swainson's hawk is state listed as threatened pursuant to the CESA, which prohibits "take" of this species. Disruption of nesting Swainson's hawk, resulting in the abandonment of active nests, or the loss of active nests or nest trees through removal would be considered a ***significant impact***.

### 7.7.2 Mitigation Measures

Implementation of the following mitigation measures to be implemented by the Project Applicant, would reduce the Project's impact on nesting migratory birds to a ***less-than-significant level*** through ensuring that nesting Swainson's hawks are protected from disturbance during the nesting season, and that any nest trees are replaced.

MM-8.1

a) *The project applicant shall retain a qualified biologist to conduct a Swainson's hawk nesting survey within the area to be disturbed, extending out to ¼ mile. The survey shall be conducted during the nesting season of the same calendar year that construction is expected to begin, and prior to the issuance of any grading permits. If this survey does not identify any nesting Swainson's hawk in the area within the project site that will be disturbed plus the ¼-mile radius, no further mitigation would be required.*

b) *Should any active Swainson's hawk nests be located within ¼ mile of the disturbance area, no intensive new disturbances (e.g. heavy equipment operation associated with construction, use of cranes or draglines, etc.) or other project-related activities that could cause nest abandonment or forced fledging, shall be initiated within the ¼-mile (buffer zone) of an active nest between March 1 - September 15 (or until August 15 if a Management Authorization or Biological Opinion is obtained for the project). The buffer zone should be increased to 1/2 mile in nesting areas away from urban development (i.e. in areas where disturbance [e.g. heavy equipment operation associated with construction, use of cranes or draglines, new rock crushing activities] is not a normal occurrence during the nesting season).*

c) *Nest trees should not be removed to the extent feasible. If a nest tree must be removed, a Management Authorization (including conditions to off-set the loss of the nest tree) must be obtained with the tree removal period specified in the Management Authorization, generally from October 1 to February 1. If construction or other project related activities that could cause nest abandonment or forced fledging are necessary within the buffer zone, then the project applicant shall retain a qualified biologist to monitor the nest site (to determine if the nest is abandoned).*

d) *If an active nest is abandoned and if the nestlings are still alive, the project sponsor shall fund the recovery and hacking (controlled release of captive reared young) of the nestling(s). Routine disturbances such as agricultural activities, commuter traffic, and routine facility maintenance activities within ¼ mile of an active nest shall not be prohibited.*

e) *The project proponent shall be responsible for offsetting the loss of any Swainson's hawk nesting trees. The extent of any necessary compensatory mitigation shall be determined by the project proponent in consultation with the CDFW. Past recommended mitigation for the loss of nesting trees has been at a ratio of three trees for each nest tree removed during the non-nesting season.*

## 7.8 MM-9 The proposed project could result in the loss of foraging habitat for Swainson's hawk, white tailed kite, osprey, purple martin, and other raptors.

### 7.8.1 Raptor Foraging Habitat

Swainson's hawk, white tailed kite, burrowing owl, and other raptors forage (search for food) over non-native annual grassland, agricultural fields, and other open habitats that support prey species. These habitats are present on the majority of the project site. Swainson's hawk forages up to 10 miles from their nests, and the CNDDB contains records for this species within two miles of the project site. Implementation of the proposed project could result in the loss of up to 187 acres of foraging habitat for these species in the project site. This is considered a ***significant impact***.

### 7.8.2 Mitigation Measures

Implementation of the following mitigation measure would reduce this impact to a ***less-than significant level*** through the acquisition and preservation of suitable foraging habitat.

MM-9.1

a) *The project applicant, in consultation with CDFW; shall mitigate for loss of any Swainson's Hawk foraging habitat at a ratio of one acre of suitable foraging habitat for every one acre utilized by the proposed project. Project proponents shall provide for the long-term endowment of compensatory mitigation lands by funding a management endowment (the interest on which shall be used for managing the mitigation lands) at a per acre rate (adjusted annually for inflation and varying interest rates). The project proponent shall submit a letter of approval from CDFW for the mitigation program for Swainson's impacts to the City of Lincoln prior to the issuance of grading permits; or*

b) *Purchase conservation easements or fee title to suitable Swainson's hawk foraging habitat to protect the habitat from urban development; or*

c) *Purchase Swainson's hawk habitat credits at an agency-approved mitigation bank.*

## 7.9 MM-10 The proposed project could result in the loss of oak trees protected under Chapter 18.43 of the City of Lincoln Municipal Code

### 7.9.1 Oak Tree

Trees present in the Project Area are located primarily within the riparian corridors along Markham Ravine and Auburn Ravine. Arborist surveys of Gill Property and Peery Property have been completed and have identified native oaks. If the Project results in removal of these native oaks, the Project would be in violation with Chapter 18.43 of the City of Lincoln Municipal Code. This would be considered a ***significant impact***.

### 7.9.2 Mitigation Measures

Implementation of the following Mitigation Measures would reduce the severity of this impact to a ***less than significant level*** through compliance with Chapter 18.43 of the City of Lincoln Municipal Code.

MM-10.1

a) *Project applicant should, to the extent feasible, design the project to retain protected trees after development is complete. If these trees cannot be retained in place, then the following mitigation measure shall apply.*

b) *The project proponent shall replace protected trees to be removed as a result of the proposed project in compliance with Chapter 18.43 of the City of Lincoln Municipal Code.*

## 7.10 MM-11 The proposed project could result in substantial interference with the movement of resident and migratory wildlife species.

### 7.10.1 Wildlife Movements

The Auburn Ravine and Markham Ravine corridors provide movement corridors for common and special-status species as described above. These habitats include open water and some marsh habitat. In addition, this area could provide habitat for other wildlife species, such as ducks, egrets, and other waterfowl. The riparian habitat along Auburn Ravine provide important shelter, nesting and foraging habitat for both common and special-status wildlife species in the region.

The proposed project could impede the movement of wildlife through the Project Area site through the creation of urbanized landscapes that act as barriers. While the proposed project design includes an open space corridor that follows Auburn Ravine to retain wildlife movement corridors through the site and retain connectivity with adjacent and regional areas of wildlife habitat, the installation of culverts and construction along the ravine could result in additional barriers to wildlife movement through those corridors. These barriers could force common and special-status wildlife species to cross roadways or move through urban areas to cross from one area of natural habitat to another.

The CDFW, pursuant to Section 1602 of the Fish and Game Code, regulates any diversion or obstruction of natural flow or changes in the channel, bed, or bank of any river, stream or lake. Any construction activities within the stream would require a Streambed Alteration Agreement. In addition, the USACE has jurisdiction over any construction activities that occur within waters of the U.S. (see impact MM-1). Project site waterways would be considered a water of the U.S. and any work within the channel would require approval from the USACE. The CVRWQCB would also have jurisdiction under Section 401 of the CWA and would require a certification.

Alteration of project site corridors during construction of the open space would be considered a ***significant impact***, as it could restrict use of this habitat as movement corridors by special-status and other wildlife species.

### 7.10.2 Mitigation Measures

Implementation of the following Mitigation Measures would reduce the severity of this impact to a ***less than significant level*** through the maintenance of a clear corridor along Auburn Ravine and Markham Ravine.

MM-11.1

a) *To the extent feasible, construction of the open space shall be designed to minimize the restriction of wildlife movement through the project site. This would include design measures that provide the greatest amount of space feasible underneath bridge or culvert structures such that wildlife species are not forced to cross roadways or move into urban areas to move from one area of natural habitat to another.*

b) *In addition to pre-construction surveys for special-status species, as described in Mitigation Measures above, the project applicant shall obtain all necessary permits to alter project site waterways, including a CDFW Streambed Alteration Agreement, a USACE Section 404 permit, a Regional Water Quality Control Board Section 401 Certification and a SWPPP and any FESA/CESA take permits, should special-status species be identified.*

APPENDIX

# A

## JURISDICTIONAL DELINEATION REPORT –GILL PROPERTY

# Wetland Delineation and Preliminary Jurisdictional Determination

## Gill Property

March 6, 2015

Cardno
Shaping the Future

# Document Information

| | |
|---|---|
| Prepared for | Gill Property Development, LLC |
| Project Name | Gill Property |
| Project Manager | Shannon Karvonen |
| Date | March 6, 2015 |

Prepared for:

Gill Property Development, LLC
424 D Street, Marysville, CA 95901

Prepared by:

Cardno
701 University Ave Suite 200, Sacramento, CA 95825

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# Figures



# Acronyms

| | |
|---|---|
| FAC | Facultative |
| FACU | Facultative Upland |
| FACW | Facultative Wetland |
| NRCS | Natural Resource Conservation Service |
| 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 Gill Property (Project). The Project is comprised of one parcel (APN 021292001000) within the City of Lincoln, Placer County, California. The Project is located at the approximate latitude 38.8959° north and longitude -121.3381° west (Figure 1), and on the USGS 7.5 minute topographic quadrangle map for Lincoln, California, in Sections 17, Township 12 North, Range 6 East, Mount Diablo Baseline & Meridian.

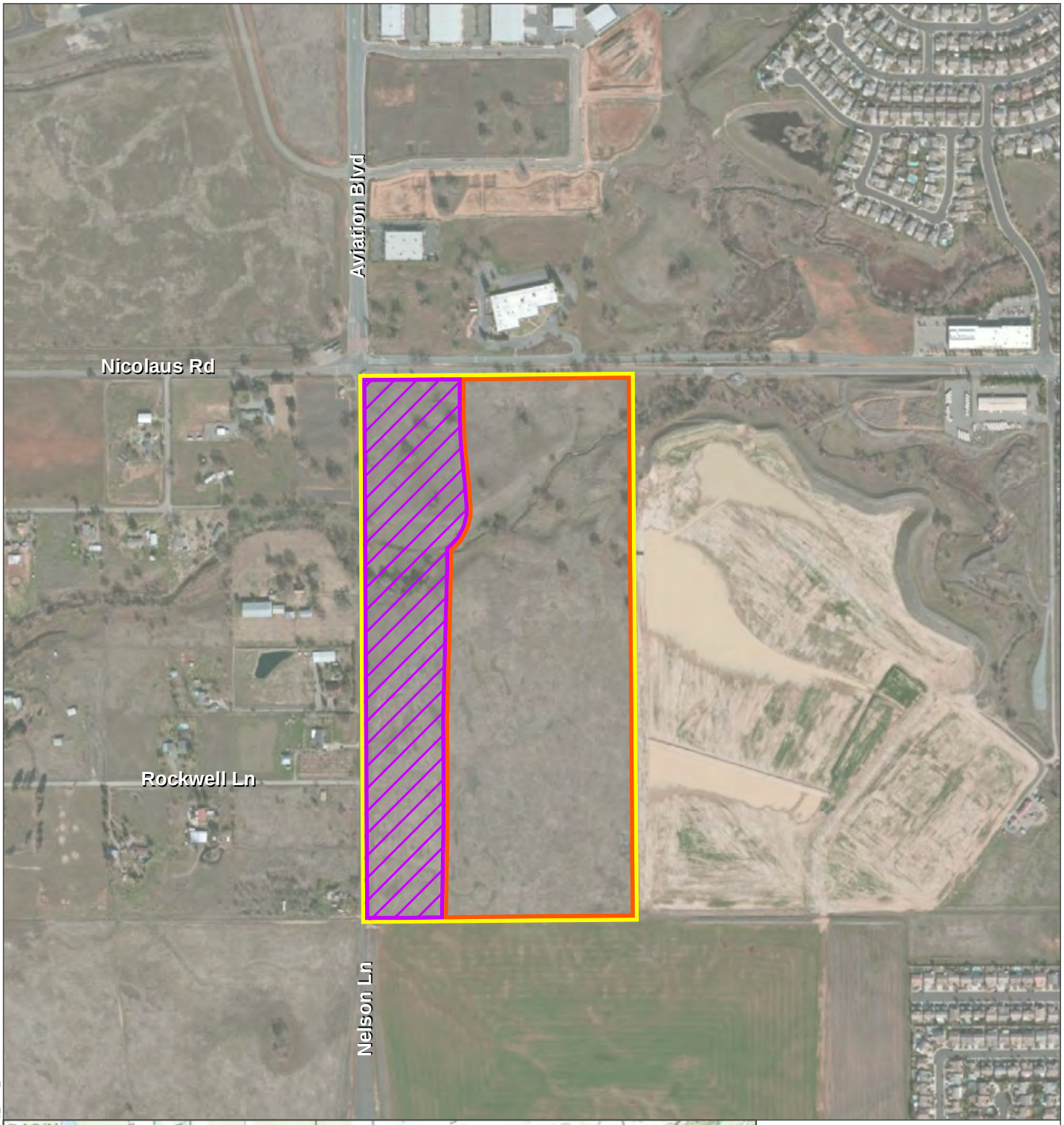
A previous Wetland Delineation and Preliminary Jurisdictional Determination for the Nelson Lane Bridge Replacement Project (Bridge No. 19C0082) was conducted by Cardno in June of 2012 and overlapped the western portion of this Project. This previously delineated area was excluded from this wetland delineation and not part of the Study Area (Study Area), Figure 1 shows the Project and Study Area boundary.

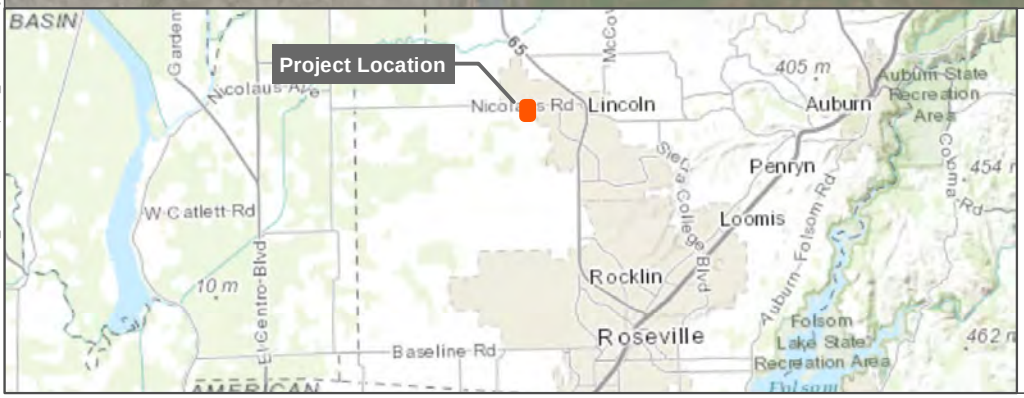
This report presents the results of the field evaluation and provides a preliminary discussion regarding wetlands and other Waters of the United States as defined by the Clean Water Act (CWA) within the Study Area.

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 horizontal survey control, locations of wetland indicators, mapping conventions and symbols, reference block, scale, property lines (when available), Study Area boundaries, and topography.




## LEGEND

- Study Area
- NAPOTS
- Project Boundary

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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 April 3, 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 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.

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.

The following geomorphic OHWM indicators, as described in the U.S. Army Corps of Engineers (USACE) publication A Field Guide to the Identification of the OHWM in the Arid West Region of the Western United States (Lichvar & McColley 2008), were used to delineate the OHWM of other Waters of the United States:

1. **Benches**: Formed by the removal of previously aggraded sediment, and located near the below/at ordinary high water (OHW) boundary and potentially near the at/above boundary.
2. **Drift**: Organic debris larger than twigs. Tends to be oriented in the direction of flow, and often collects behind/in obstructions or is simply deposited by receding flow.
3. **Exposed Root Hairs Below Intact Soil Layer**: Exposed by erosion of sediment. Tend to be located along the above/at OHW boundary or where benches have formed.
4. **Change in Particle Size Distribution**: Transition from coarser to finder sediment common, and likely to occur near the at/below OHW boundary.
5. **Upper Limit of Sand-Sized Particles**: Deposited due to reduced flow competence, and tends to be concentrated near the at/below OHW boundary but may extend to the above OHW boundary.
6. **Valley Flat**: Formed by the deposition of fine-grained sediment during over-bank flow, and located adjacent to low-flow feature(s) and extends to the break in slope (when present) near the at/above OHW boundary.

### 3.1.3 Areas Excluded from Section 404 Jurisdiction

Some areas that meet the technical criteria for wetlands or other waters may not be jurisdictional under the CWA. Included in this category are (1) some man-induced wetlands, which are areas that have developed at least some characteristics of naturally occurring wetlands due to either intentional or incidental human activities, and (2) "isolated" wetlands, or non-navigable waters which are not connected or adjacent to a navigable Waters of the United States through either a hydrologic or economic connection. Per SWANCC v. United States, examples of man-induced wetlands include, but are not limited to, irrigated wetlands, impoundments (such as stock ponds for livestock), drainage ditches constructed in uplands, wetlands resulting from filling of formerly deep water habitats, dredged material disposal areas, and wetlands resulting from stream channel realignment. Isolated wetlands include

wetland areas which do not have a surface or groundwater connection to, and are not adjacent to navigable Waters of the United States.

## 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 53 acres, and consists of the area surveyed for wetland features and the boundaries of adjacent uplands (Figure 3). The Study Area is generally flat, with elevation ranging from approximately 105 feet above sea level (asl) at Markham Ravine up to 130 feet asl in the upland portions to the north and south. Land uses in the general vicinity consist of undisturbed and undeveloped grassland. 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 Markham Ravine.

## 4.1 Vegetation

### 4.1.1 Non-native Annual Grassland

Typical species observed in this community, include medusa head grass (*Elymus caput-medusae*), wild oat (*Avena fatua*), soft chess (*Bromus hordeaceus*), foxtail barley (*Hordeum murinum ssp. leporinum*), purple needle grass (*Stipa pulchra*), chicory (*Cichorium intybus*), climbing bedstraw (*Galium porrigens*), and annual fireweed (*Epilobium brachycarpum*). Other species observed during the survey included red stemmed filaree (*Erodium cicutarium*), cutleaf geranium (*Geranium dissectum*), Bithynian vetch (*Vicia bithynica*), purple vetch (*Vicia benghalensis*), miniature lupine (*Lupinus bicolor*), fiddleneck (*Amsinckia menziesii*), black mustard (*Brassica nigra*), English plantain (*Plantago lanceolata*), shepherd's purse (*Capsella bursa-pastoris*), field bindweed (*Convolvulus arvensis*), shamrock clover (*Trifolium dubium*), rose clover (*Trifolium hirtum*), and yellow star thistle (*Centaurea solstitialis*).

### 4.1.2 Riparian

Riparian vegetation in the project area occurs in a narrow band along Markham Ravine. The canopy layer consists primarily of valley oak, with a few interior live oaks, northern California black walnut, and willow (*Salix* sp.) present as well. The understory is fairly sparse, but a few patches of Himalayan blackberry (*Rubus armeniacus*) are present. A narrow herbaceous understory included species such as fiddle dock (*Rumex pulcher*), common rush (*Juncus effusus*), sedges (*Carex* sp.), rough cocklebur (*Xanthium strumarium*), and curly dock (*Rumex crispus*) occurs along the banks in clumps, but otherwise the herbaceous layer consists of grasses and forbs similar to the adjacent grassland. Common cattails (*Typha latifolia*) and floating primrose (*Ludwigia peploides*) are present along the banks of Markham Ravine

## 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-Fiddyment complex; Cometa-Ramona sandy loams, 1 to 5 percent slope; Ramona sandy loam, 2 to 9 percent slope; and Xerofluvents, frequently flooded. Descriptions of each of these soil types are provided below.

**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 loams, 1 to 5 percent slopes**

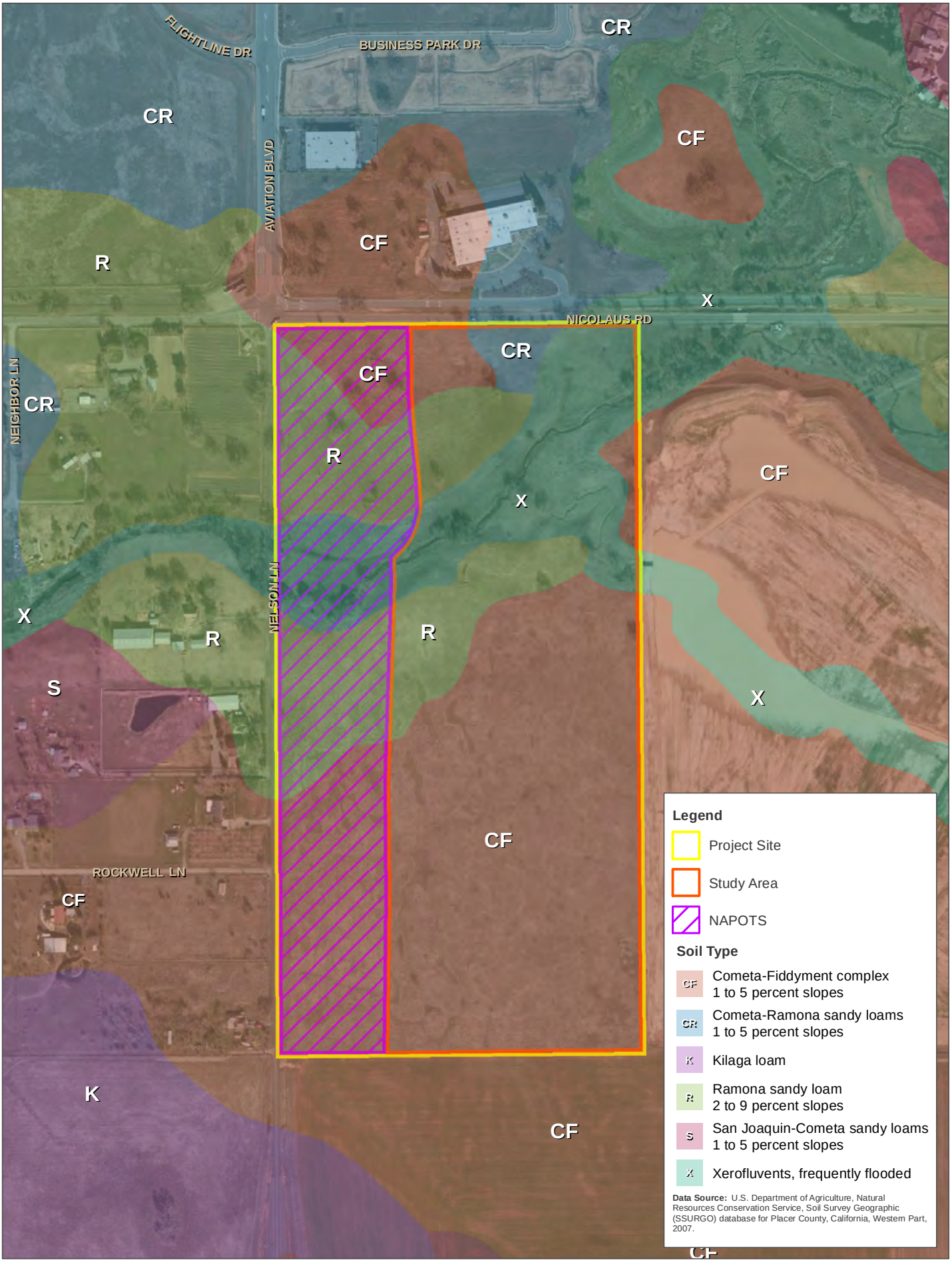
Cometa- Ramona sandy loam series are found on terraces between one to five percent and between 20 and 3,500 feet above mean sea level. They are formed from alluvium derived granite and have a restricted layer over 80 inches down. Cometa- Ramona are considered well- drained and within Placer County is listed as a hydric soil within drainage ways (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, 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).

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Cardno Shaping the Future

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0 500 1,000 1,500

Scale in Feet

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**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 towards Markham Ravine. The source of the water for the vernal pools and seasonal wetlands in the area appears to be from precipitation, and runoff from paved surfaces in the roadside ditches. Markham Ravine receives water from upstream sources, as well as overland flow from the adjacent watershed. Water was flowing in Markham Ravine at the time of the survey.

# 5 Results and Discussion

Cardno biologists Sam Bacchini, and Alexandra Topor delineated wetlands and other waters in the Study Area on April 3, 2014. A Wetland Delineation Map and Report was created from the data gathered and submitted to the USACE on May 29, 2014 for verification. An onsite meeting between Cardno and the USACE was conducted on February 9, 2015. Several additional wetland features were added and other features' boundaries were revised. An updated wetland delineation map was then produced and submitted to the Corps on March 3, 2015.

Wetlands and Other Waters present in the Study Area (see Appendix A, and Figure 3) included, Markham Ravine, an ephemeral swale tributary to Markham Ravine, a seasonal drainage tributary to Markham Ravine, two wetlands in the Markham Ravine flood plain, and seventy seven vernal pools. The banks of the stream were inspected for OHWM indicators using the methods described in Section 2 above, and GPS points were recorded along the banks. Representative photographs of the Study Area are located in Appendix B.

## 5.1 Vernal Pool (4.156 acres)

There are 77 wetland features in the Study Area that were mapped as vernal pools, totaling 4.156 acres. These features are distinct depressions of varying depths and size. A fire occurring in the early summer of 2013 cleared many of the vernal pools of invasive upland grasses. The pools affected by the fire had a high diversity of vernal pool plants such as Great Valley button celery (*Eryngium castrense*), smooth goldfields (*Lasthenia glaberrima*), vernal pool goldfields (*Lasthenia fremontii*), popcornflower (*Plagiobothrys stipitatus*), white meadowfoam (*Limnanthes alba*), hyssop loosestrife (*Lythrum hyssopifolium*), Pillwort (*Pilularia americana*), Owl's clover (*Castilleja campestris*), creeping spike rush (*Eleocharis macrostachya*), vernal pool buttercup (*Ranunculus bonariensis*), and spinyfruit buttercup (*Ranunculus muricatus*). The vernal pools that were unaffected by the 2013 fire were mostly overgrown with invasive upland plant species such as Medusa head, red stemmed filaree, common wild oats, soft chess, and foxtail barley. All vernal pools had distinct boundaries and had generally similar appearance and soil types, most pools were inundated with water.

## 5.2 Seasonal Wetland (0.633 acre)

Three seasonal wetland features totaling 1.48 acres are mapped within the floodplain of Markham Ravine. These features consist of W-01 (0.561 acre), WC-02 (0.072 acre), and FPW-01 (0.847 acre). These features occur in the floodplain of Markham Ravine and result from inundation during high water events, becoming isolated when high water recedes. FPW-01 and W-01 are located on the north side of Markham Ravine while w-02 is located on the south side of Markham Ravine. W-01 is on the northeastern edge of the Study Area, near Nicolaus Road, and extends outside of the study area to the east. The boundaries of these features were determined based on vegetation and flow patterns. The plant species observed in these features included meadow fescue (*Festuca pratensis*), curly dock, common rush, and little rattlesnake grass (*Briza minor*).

## 5.3 Ephemeral Swale (0.013 acre/ 187 linear feet)

A single ephemeral drainage is located in the Study Area near the western portion of Markham Ravine draining from the upland portion of the site, south of Markham Ravine, flowing north/northwest to the Markham Ravine creek channel. The ephemeral swale is approximately 87.1 linear feet and 0.013 acre. This feature does not have a distinct bed or bank, and is vegetated with similar upland grasses and forbs found in the adjacent uplands.

## 5.4 Seasonal Drainage (0.207 acre/ 927 linear feet)

This drainage feature originates from a culvert on the eastern edge of the property and flows generally northwest to Markham Ravine. This is a natural, meandering feature that originally extended into the adjacent property to the east, prior to the construction of a large detention basin on that property. The culvert was placed to drain overflow water from the detention basin on the neighboring property to Markham Ravine. The drainage feature is approximately 0.207 acre and 927.1 linear feet long with an average width of three feet. The feature has a distinct bed and bank, and contains hydrophytic vegetation such as common rush, sedges, nut sedge (*Cyperus eragrostis*), curly dock, and rough cocklebur.

## 5.5 Markham Ravine (0.617 acre/ 1,173 linear feet)

Markham Ravine is a perennial stream that flows from east to west, bisecting the site. Approximately 1,173.4 linear feet of this feature pass through the Study Area with an approximate average width of 26 feet and covering 0.616 acre. The vegetation community along Markham Ravine is riparian with a sparse understory, and is described in more detail above in Section 4.1.2.

**Table 1 Wetland and Other Waters in the Study Area**

| Wetlands | Acres |
|---|---|
| VP-01 | 1.237 |
| VP-02 | 0.022 |
| VP-03 | 0.010 |
| VP-04 | 0.030 |
| VP-05 | 0.023 |
| VP-06 | 0.013 |
| VP-07 | 0.040 |
| VP-08 | 0.017 |
| VP-09 | 0.017 |
| VP-10 | 0.015 |
| VP-11 | 0.012 |
| VP-12 | 0.017 |
| VP-13 | 0.014 |
| VP-14 | 0.010 |
| VP-15 | 0.016 |
| VP-16 | 0.214 |
| VP-17 | 0.024 |
| VP-18 | 0.010 |
| VP-19 | 0.023 |
| VP-20 | 0.029 |
| VP-21 | 0.011 |
| VP-22 | 0.013 |
| VP-23 | 0.042 |
| VP-24 | 0.032 |
| VP-25 | 0.032 |
| VP-26 | 0.016 |
| VP-27 | 0.005 |
| VP-28 | 0.129 |
| VP-29 | 0.268 |
| VP30 | 0.030 |
| VP-31 | 0.048 |
| VP-32 | 0.025 |
| VP-33 | 0.064 |
| VP-34 | 0.025 |

| Wetlands | Acres |
|---|---|
| VP-35 | 0.021 |
| VP-36 | 0.024 |
| VP-37 | 0.014 |
| VP-38 | 0.009 |
| VP-39 | 0.018 |
| VP-40 | 0.033 |
| VP-41 | 0.014 |
| VP-42 | 0.008 |
| VP-43 | 0.005 |
| VP-44 | 0.019 |
| VP-45 | 0.020 |
| VP-46 | 0.005 |
| VP-47 | 0.014 |
| VP-48 | 0.028 |
| VP-49 | 0.023 |
| VP-50 | 0.151 |
| VP-51 | 0.075 |
| VP-52 | 0.036 |
| VP-53 | 0.027 |
| VP-54 | 0.022 |
| VP-55 | 0.030 |
| VP-56 | 0.017 |
| VP-57 | 0.021 |
| VP-58 | 0.157 |
| VP-59 | 0.153 |
| VP-60 | 0.106 |
| VP-61 | 0.066 |
| VP-62 | 0.037 |
| VP-63 | 0.068 |
| VP-64 | 0.055 |
| VP-65 | 0.045 |
| VP-66 | 0.008 |
| VP-67 | 0.030 |
| VP-68 | 0.055 |
| VP-69 | 0.005 |
| VP-70 | 0.017 |
| VP-71 | 0.096 |
| VP-72 | 0.034 |
| VP-73 | 0.008 |
| VP-74 | 0.016 |
| VP-75 | 0.008 |
| VP-76 | 0.017 |
| VP-77 | 0.008 |
| Wetland 1 | 0.561 |
| Wetland 2 | 0.072 |
| **Total Wetlands** | **5.636 Acres** |
| **Other Waters** | **Acres/Linear Feet** |
| Markham Ravine | 0.617acres/ 1173.4feet |
| Drainage | 0.207 acres/ 927.1 feet |
| Ephemeral Drainage | 0.013 acres/ 187.1 feet |
| **Total Other Waters** | **0.837 Acres/2287.6 Linear Feet** |

# 6 Findings

Based on the findings of this delineation, the Study Area contains approximately 5.636-acre wetland and 0.837 acres (2287.6 linear feet) of other waters of the U.S. (Appendix A) that appear to be subject to the Corps' jurisdiction pursuant to the Clean Water Act for the following reasons:

- The vernal pools and seasonal wetlands in the Study Area meet the Corps' three-parameter wetland criteria (hydrophytic vegetation, hydric soils, and wetland hydrology); and
- Markham Ravine 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:

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 right on Nelson Lane and the project area is on the left of Nelson Lane. To reach the Study Area walk 250 feet east from Nelson Lane.

## 7.2 Contact Information

Applicant

Chris Gill

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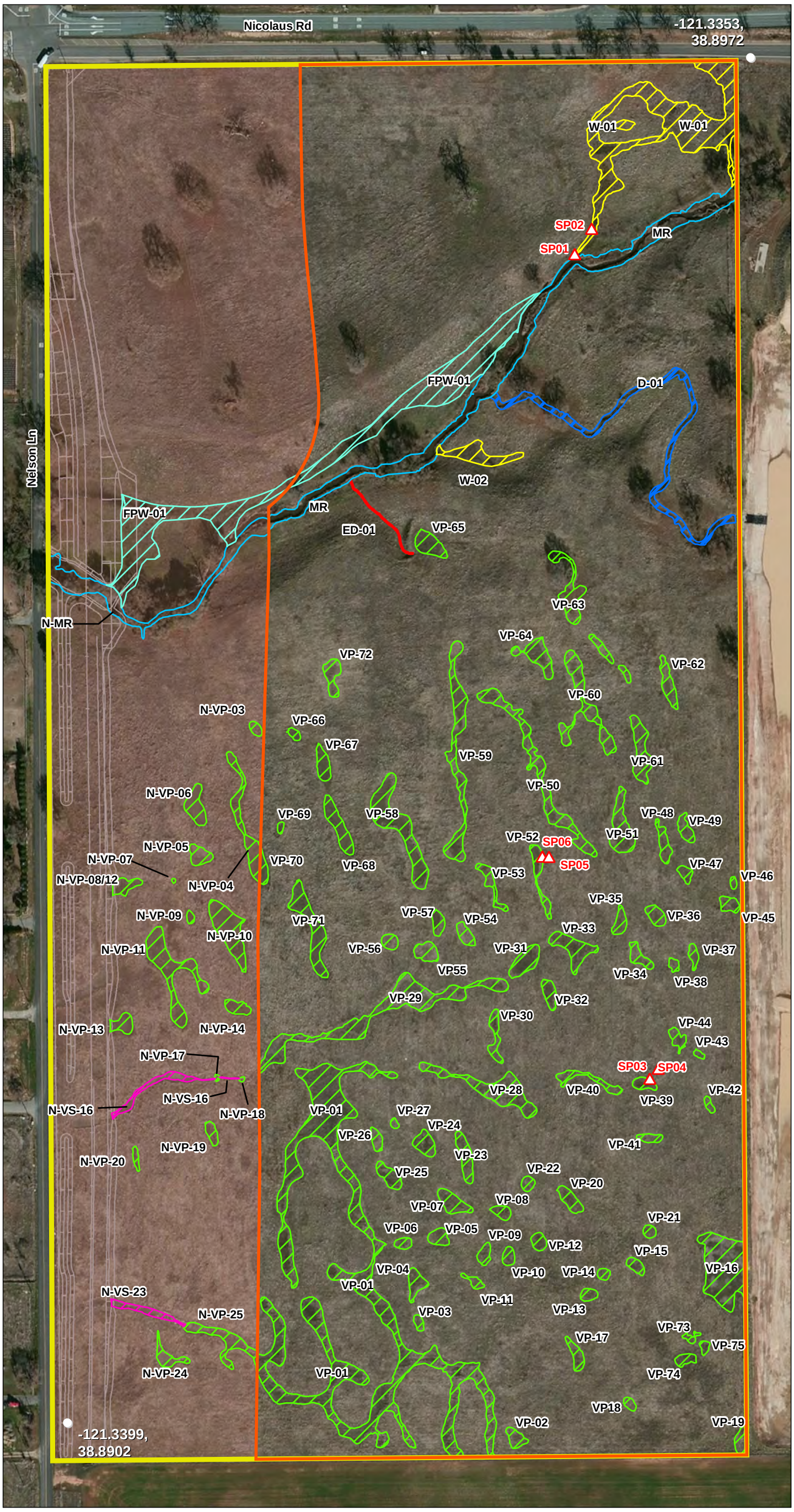
APPENDIX

# A

## WETLANDS AND OTHER WATERS MAP




**WETLANDS**

- Floodplain Wetland
- Vernal Pool
- Vernal Swale
- Wetland

**OTHER WATERS OF THE U.S.**

- Drainage
- Ephemeral Drainage
- Markham Ravine

**OTHER FEATURES**

- Project Site
- Study Area
- Previously Evaluated (Nelson Lane Bridge Replacement SPK SPK-2012-01017)
- Soil Pit
- Site Plan (Nelson)

**Wetland Delineation****

*Note: Nelson features extracted from Nelson Lane Bridge Replacement SPK-2012-01017*

| Wetlands** | |
|---|---|
| **ID** | **Acres** |
| **Floodplain Wetland** | |
| **Gill** | |
| FPW-01 | 0.847 |
| **Nelson** | |
| (none) | 0.000 |
| **Vernal Pool** | |
| **Gill** | |
| VP-01 | 1.237 |
| VP-02 | 0.022 |
| VP-03 | 0.010 |
| VP-04 | 0.030 |
| VP-05 | 0.023 |
| VP-06 | 0.013 |
| VP-07 | 0.040 |
| VP-08 | 0.017 |
| VP-09 | 0.017 |
| VP-10 | 0.015 |
| VP-11 | 0.012 |
| VP-12 | 0.017 |
| VP-13 | 0.014 |
| VP-14 | 0.010 |
| VP-15 | 0.016 |
| VP-16 | 0.214 |
| VP-17 | 0.024 |
| VP-18 | 0.010 |
| VP-19 | 0.023 |
| VP-20 | 0.029 |
| VP-21 | 0.011 |
| VP-22 | 0.013 |
| VP-23 | 0.042 |
| VP-24 | 0.032 |
| VP-25 | 0.032 |
| VP-26 | 0.016 |
| VP-27 | 0.005 |
| VP-28 | 0.129 |
| VP-29 | 0.268 |
| VP-30 | 0.030 |
| VP-31 | 0.048 |
| VP-32 | 0.025 |
| VP-33 | 0.064 |
| VP-34 | 0.025 |
| VP-35 | 0.021 |
| VP-36 | 0.024 |
| VP-37 | 0.014 |
| VP-38 | 0.009 |
| VP-39 | 0.018 |
| VP-40 | 0.033 |
| VP-41 | 0.014 |
| VP-42 | 0.008 |
| VP-43 | 0.005 |
| VP-44 | 0.019 |
| VP-45 | 0.020 |
| VP-46 | 0.005 |
| VP-47 | 0.014 |
| VP-48 | 0.028 |
| VP-49 | 0.023 |
| VP-50 | 0.151 |
| VP-51 | 0.075 |
| VP-52 | 0.036 |
| VP-53 | 0.027 |
| VP-54 | 0.022 |
| VP-55 | 0.030 |
| VP-56 | 0.017 |
| VP-57 | 0.021 |
| VP-58 | 0.157 |
| *(continued)* | |

| *(continued)* | |
|---|---|
| VP-59 | 0.153 |
| VP-60 | 0.106 |
| VP-61 | 0.066 |
| VP-62 | 0.037 |
| VP-63 | 0.068 |
| VP-64 | 0.055 |
| VP-65 | 0.045 |
| VP-66 | 0.008 |
| VP-67 | 0.030 |
| VP-68 | 0.055 |
| VP-69 | 0.005 |
| VP-70 | 0.017 |
| VP-71 | 0.096 |
| VP-72 | 0.034 |
| VP-73 | 0.008 |
| VP-74 | 0.016 |
| VP-75 | 0.008 |
| VP-76 | 0.017 |
| VP-77 | 0.008 |
| **Nelson** | |
| N-VP-03 | 0.011 |
| N-VP-04 | 0.079 |
| N-VP-05 | 0.027 |
| N-VP-06 | 0.044 |
| N-VP-07 | 0.001 |
| N-VP-08/12 | 0.026 |
| N-VP-09 | 0.006 |
| N-VP-10 | 0.103 |
| N-VP-11 | 0.130 |
| N-VP-13 | 0.026 |
| N-VP-14 | 0.023 |
| N-VP-17 | 0.002 |
| N-VP-18 | 0.002 |
| N-VP-19 | 0.017 |
| N-VP-20 | 0.009 |
| N-VP-24 | 0.027 |
| N-VP-25 | 0.068 |
| **Vernal Swale** | |
| **Gill** | |
| (none) | 0.000 |
| **Nelson** | |
| N-VS-16 | 0.041 |
| N-VS-23 | 0.033 |
| **Wetland** | |
| **Gill** | |
| W-01 | 0.561 |
| W-02 | 0.072 |
| **Nelson** | |
| (none) | 0.000 |

| OTHER WATERS** | |
|---|---|
| **ID** | **Acres** |
| **Drainage** | |
| **Gill** | |
| D-01 | 0.207 |
| **Nelson** | |
| (none) | 0.000 |
| **Ephemeral Drainage** | |
| **Gill** | |
| ED-01 | 0.013 |
| **Nelson** | |
| (none) | 0.000 |
| **Markham Ravine** | |
| **Gill** | |
| MR | 0.617 |
| **Nelson** | |
| N-MR | 0.238 |

**Wetland Delineation - Acreage Summary**

| | Gill | Nelson | All features |
|---|---|---|---|
| **Wetlands** | | | |
| Floodplain Wetland | 0.847 | 0.000 | **0.847** |
| Vernal Pool | 4.156 | 0.601 | **4.757** |
| Vernal Swale | 0.000 | 0.074 | **0.074** |
| Wetland | 0.633 | 0.000 | **0.633** |
| ***Subtotal:*** | ***5.636*** | ***0.675*** | ***6.311*** |
| **Other Waters** | | | |
| Drainage | 0.207 | 0.000 | **0.207** |
| Ephemeral Drainage | 0.013 | 0.000 | **0.013** |
| Markham Ravine | 0.617 | 0.238 | **0.855** |
| ***Subtotal:*** | ***0.837*** | ***0.238*** | ***1.075*** |
| **TOTAL** | **6.473** | **0.913** | **7.386** |

**NOTES**

Gross Site Acreage: +/- 79 ac. (Study Area is +/- 53 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
Alexandra Topor, Cardno

**Delineation Date:**
4/3/2014

**Preparation Date:**
4/20/2014 M.Nugent

**Revision Date:**
n/a

Cardno

Gill Annexation

**Appendix A**

**Wetland Delineation***

N W E S

0 50 100 200 Feet

1 inch = 200 feet

**Projection: Cal. Stateplane, Zone 2**
**Datum: NAD 83**

C:__TRANSFER\ToZ\E314004400_GillAnnexation\map\Gill_WetlandDelineation_11i17i_02.mxd 3/2/2015

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# APPENDIX B

## REPERSENTATIVE SITE PHOTOGRAPHS

Photo 1: Typical nonnative grassland and vernal pool habitat found in Study Area

Photo 2: Typical view of riparian habitat by Markham Ravine

Photo 3: Typical view of Markham Ravine flood plain

Photo 4: Drainage from Markham Ravine into Wetland 1

Photo 5: Typical view of Wetland 1

Photo 6: Wetland 2

Photo 7: Typical view of vernal pool that was unaffected by the 2013 grass fire

Photo 8: Typical view of vernal pool that was affected by the 2013 grass fire

Photo 9: Drainage, near Markham Ravine outlet

Photo 10: Ephemeral Drainage, near Markham Ravine inlet

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# APPENDIX C

## DATA SHEETS

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Gill Annexation | City/County: Lincoln/Placer | Sampling Date: 04/03/14

Applicant/Owner: Genesis Engineering | State: CA | Sampling Point: SP01

Investigator(s): Sam Bacchini | Section, Township, Range: Section 17, Township 12N, Range 6E

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

Subregion (LRR): C Mediterranean California | Lat: 38.896364° | Long: -121.389688° | Datum: NAD83

Soil Map Unit Name: Cometa-Fiddyment complex; Cometa-Romona sandy loams, 1 to 5 percent slope; Ramona sandy loam, 2 to 9 percent slope; and Xerofluvents, frequently flooded | 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 ☒ | | |
| Hydric Soil Present? | Yes ☐ | No ☒ | **Is the Sampled Area within a Wetland?** | **Yes ☐ No ☒** |
| Wetland Hydrology Present? | Yes ☐ | No ☒ | | |

Remarks: **Currently in a drought year, however, vegetation and hydrology were not problematic.**

**VEGETATION – Use scientific names of plants.**

| Tree Stratum (Plot size:_____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. _____ | | | |
| 2. _____ | | | |
| 3. _____ | | | |
| 4. _____ | | | |
| 50% = _____, 20% = _____ | | = Total Cover | |
| **Sapling/Shrub Stratum** (Plot size:_____) | | | |
| 1. _____ | | | |
| 2. _____ | | | |
| 3. _____ | | | |
| 4. _____ | | | |
| 5. _____ | | | |
| 50% = _____, 20% = _____ | | = Total Cover | |
| **Herb Stratum** (Plot size:1M2) | | | |
| 1. *Elymus caput-medusae* | 58 | yes | UPL |
| 2. *Bromus hordeaceus* | 7 | no | FACU |
| 3. *Rumex crispus* | 7 | no | FAC |
| 4. *Galium porrigens* | 7 | no | UPL |
| 5. *Erodium cicutarium* | 7 | no | UPL |
| 6. *Geranium dissectum* | 7 | no | UPL |
| 7. *Astragalus sp.* | 7 | no | - |
| 8. _____ | | | |
| 50% = _____, 20% = _____ | 100 | = Total Cover | |
| **Woody Vine Stratum** (Plot size:_____) | | | |
| 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 | 7 | x3 = | 21 |
| FACU species | 7 | x4 = | 28 |
| UPL species | 79 | x5 = | 395 |
| Column Totals: | 93 (A) | | 435 (B) |

Prevalence Index = B/A = 4.68

**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: Gill Annexation

**SOIL** Sampling Point: SP01

**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 |
| 0-16 | 7.5yr 3/3 | 100 | | | | | sandy loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[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: n/a

Depth (Inches): _____

**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: Gill Annexation | City/County: Lincoln/Placer | Sampling Date: 04/03/14

Applicant/Owner: Genesis Engineering | State: CA | Sampling Point: SP02

Investigator(s): Sam Bacchini | Section, Township, Range: Section 17, Township 12N, Range 6E

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

Subregion (LRR): C Mediterranean California | Lat: 38.896364° | Long: -121.389688° | Datum: NAD83

Soil Map Unit Name: Cometa-Fiddyment complex; Cometa-Romona sandy loams, 1 to 5 percent slope; Ramona sandy loam, 2 to 9 percent slope; and Xerofluvents, frequently flooded | 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 ☐ | | |
| Hydric Soil Present? | Yes ☐ | No ☒ | **Is the Sampled Area within a Wetland?** | **Yes ☐ No ☒** |
| Wetland Hydrology Present? | Yes ☒ | No ☐ | | |

Remarks: **Currently in a drought year, however, vegetation and hydrology were not problematic.**

**VEGETATION – Use scientific names of plants.**

| Tree Stratum (Plot size:_____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. _____ | | | |
| 2. _____ | | | |
| 3. _____ | | | |
| 4. _____ | | | |
| 50% = _____, 20% = _____ | | = Total Cover | |
| **Sapling/Shrub Stratum** (Plot size:_____) | | | |
| 1. _____ | | | |
| 2. _____ | | | |
| 3. _____ | | | |
| 4. _____ | | | |
| 5. _____ | | | |
| 50% = _____, 20% = _____ | | = Total Cover | |
| **Herb Stratum** (Plot size:1M2) | | | |
| 1. *Festuca pratensis* | 90 | yes | FACU |
| 2. *Rumex crispus* | 10 | no | FAC |
| 3. _____ | | | |
| 4. _____ | | | |
| 5. _____ | | | |
| 6. _____ | | | |
| 7. _____ | | | |
| 8. _____ | | | |
| 50% = _____, 20% = _____ | 100 | = Total Cover | |
| **Woody Vine Stratum** (Plot size:_____) | | | |
| 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: Vegetation dominated by wetland plant species

Project Site: Gill Annexation

**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 |
| 0-16 | 7.5yr 3/1 | 80 | 7.5yr 4/4 | 20 | C | M | 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: n/a

Depth (Inches): _____

**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: Surface water, water table, saturation or primary hydrology indicators observed

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Gill Annexation | City/County: Lincoln/Placer | Sampling Date: 04/03/14

Applicant/Owner: Genesis Engineering | State: CA | Sampling Point: SP03

Investigator(s): Sam Bacchini | Section, Township, Range: Section 17, Township 12N, Range 6E

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

Subregion (LRR): C Mediterranean California | Lat: 38.896364° | Long: -121.389688° | Datum: NAD83

Soil Map Unit Name: Cometa-Fiddyment complex; Cometa-Romona sandy loams, 1 to 5 percent slope; Ramona sandy loam, 2 to 9 percent slope; and Xerofluvents, frequently flooded | 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 ☒ | | |
| Hydric Soil Present? | Yes ☐ | No ☒ | **Is the Sampled Area within a Wetland?** | **Yes ☐ No ☒** |
| Wetland Hydrology Present? | Yes ☐ | No ☒ | | |

Remarks: **Currently in a drought year, however, vegetation and hydrology were not problematic.**

**VEGETATION – Use scientific names of plants.**

| Tree Stratum (Plot size:_____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 50% = _____, 20% = _____ | | = Total Cover | |
| **Sapling/Shrub Stratum** (Plot size:_____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 50% = _____, 20% = _____ | | = Total Cover | |
| **Herb Stratum** (Plot size:1M2) | | | |
| 1. *Elymus caput-medusae* | 55 | yes | UPL |
| 2. *Holocarpha virgata* | 5 | no | UPL |
| 3. *Vulpia bromoides* | 20 | no | FAC |
| 4. *Erodium cicutarium* | 10 | no | UPL |
| 5. *Vicia sp.* | 5 | no | - |
| 6. *Geranium dissectum* | 5 | no | UPL |
| 7. | | | |
| 8. | | | |
| 50% = _____, 20% = _____ | 100 | = Total Cover | |
| **Woody Vine Stratum** (Plot size:_____) | | | |
| 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 | 20 | x3 = | 60 |
| FACU species | | x4 = | |
| UPL species | 75 | x5 = | 375 |
| Column Totals: | 95 (A) | | 435 (B) |

Prevalence Index = B/A = 4.58

**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: Gill Annexation

**SOIL**

Sampling Point: SP03

**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 |
| 0-16 | 7.5yr 3/4 | 100 | | | | | clay loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[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: n/a

Depth (Inches): _____

**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: Gill Annexation | City/County: Lincoln/Placer | Sampling Date: 04/03/14

Applicant/Owner: Genesis Engineering | State: CA | Sampling Point: SP04

Investigator(s): Sam Bacchini | Section, Township, Range: Section 17, Township 12N, Range 6E

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

Subregion (LRR): C Mediterranean California | Lat: 38.896364° | Long: -121.389688° | Datum: NAD83

Soil Map Unit Name: Cometa-Fiddyment complex; Cometa-Romona sandy loams, 1 to 5 percent slope; Ramona sandy loam, 2 to 9 percent slope; and Xerofluvents, frequently flooded | 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 ☒ | | |
| Hydric Soil Present? | Yes ☒ | No ☐ | **Is the Sampled Area within a Wetland?** | **Yes ☐ No ☒** |
| Wetland Hydrology Present? | Yes ☒ | No ☐ | | |

Remarks: **Currently in a drought year, however, vegetation and hydrology were not problematic.**

**VEGETATION – Use scientific names of plants.**

| Tree Stratum (Plot size:_____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 50% = _____, 20% = _____ | | = Total Cover | |
| **Sapling/Shrub Stratum** (Plot size:_____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 50% = _____, 20% = _____ | | = Total Cover | |
| **Herb Stratum** (Plot size:1M2) | | | |
| 1. *Elymus caput-medusae* | 45 | yes | UPL |
| 2. *Festuca pratensis* | 20 | yes | FACU |
| 3. *Plagiobothrys stipitatus* | 20 | yes | FACW |
| 4. *Ranunculus aquatilis* | 10 | no | OBL |
| 5. *Trifolium dubium* | 5 | no | UPL |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 50% = _____, 20% = _____ | 100 | = Total Cover | |
| **Woody Vine Stratum** (Plot size:_____) | | | |
| 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: | 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 | 10 | x1 = | 10 |
| FACW species | 20 | x2 = | 40 |
| FAC species | 20 | x3 = | 60 |
| FACU species | 20 | x4 = | 120 |
| UPL species | 50 | x5 = | 250 |
| Column Totals: | 100 (A) | | 480 (B) |

Prevalence Index = B/A = 4.8

**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: Gill Annexation

**SOIL** Sampling Point: SP04

**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 |
| 0-6 | 7.5yr 3/2 | 90 | 7.5yr 4/4 | 10 | C | M | clay loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[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): 6

**Hydric Soils Present?** **Yes** ☒ **No** ☐

Remarks: Hydric soils 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: Surface water, water table, saturation or primary hydrology indicators observed

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Gill Annexation | City/County: Lincoln/Placer | Sampling Date: 04/03/14

Applicant/Owner: Genesis Engineering | State: CA | Sampling Point: SP05

Investigator(s): Sam Bacchini | Section, Township, Range: Section 17, Township 12N, Range 6E

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

Subregion (LRR): C Mediterranean California | Lat: 38.896364° | Long: -121.389688° | Datum: NAD83

Soil Map Unit Name: Cometa-Fiddyment complex; Cometa-Romona sandy loams, 1 to 5 percent slope; Ramona sandy loam, 2 to 9 percent slope; and Xerofluvents, frequently flooded | 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 ☐ | | |
| Hydric Soil Present? | Yes ☐ | No ☒ | **Is the Sampled Area within a Wetland?** | **Yes ☐ No ☒** |
| Wetland Hydrology Present? | Yes ☐ | No ☒ | | |

Remarks: **Currently in a drought year, however, vegetation and hydrology were not problematic.**

**VEGETATION – Use scientific names of plants.**

| Tree Stratum (Plot size:_____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 50% = _____, 20% = _____ | | = Total Cover | |
| **Sapling/Shrub Stratum** (Plot size:_____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 50% = _____, 20% = _____ | | = Total Cover | |
| **Herb Stratum** (Plot size:1M2) | | | |
| 1. *Vulpia bromoides* | 60 | yes | FAC |
| 2. *Erodium cicutarium* | 15 | no | UPL |
| 3. *Briza minor* | 10 | no | FAC |
| 4. *Lupinus bicolor* | 5 | no | UPL |
| 5. *Vicia sp.* | 6 | no | - |
| 6. *Holocarpha virgata* | 2 | no | UPL |
| 7. *Centaurea solstitialis* | 2 | no | UPL |
| 8. | | | |
| 50% = _____, 20% = _____ | 100 | = Total Cover | |
| **Woody Vine Stratum** (Plot size:_____) | | | |
| 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: Vegetation dominated by wetland species

Project Site: Gill Annexation

**SOIL**

Sampling Point: SP05

**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 |
| 0-16 | 7.5yr 3/4 | 100 | | | | | clay loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[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: n/a

Depth (Inches): _____

**Hydric Soils Present?** **Yes** ☐ **No** ☒

Remarks: No hydric soils 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: Gill Annexation | City/County: Lincoln/Placer | Sampling Date: 04/03/14

Applicant/Owner: Genesis Engineering | State: CA | Sampling Point: SP06

Investigator(s): Sam Bacchini | Section, Township, Range: Section 17, Township 12N, Range 6E

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

Subregion (LRR): C Mediterranean California | Lat: 38.896364° | Long: -121.389688° | Datum: NAD83

Soil Map Unit Name: Cometa-Fiddyment complex; Cometa-Romona sandy loams, 1 to 5 percent slope; Ramona sandy loam, 2 to 9 percent slope; and Xerofluvents, frequently flooded | 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 ☐ | | |
| Hydric Soil Present? | Yes ☒ | No ☐ | **Is the Sampled Area within a Wetland?** | **Yes ☒ No ☐** |
| Wetland Hydrology Present? | Yes ☒ | No ☐ | | |

Remarks: **Currently in a drought year, however, vegetation and hydrology were not problematic.**

**VEGETATION – Use scientific names of plants.**

| Tree Stratum (Plot size:_____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 50% = _____, 20% = _____ | | = Total Cover | |
| **Sapling/Shrub Stratum** (Plot size:_____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 50% = _____, 20% = _____ | | = Total Cover | |
| **Herb Stratum** (Plot size:1M2) | | | |
| 1. *Plagiobothrys stipitatus* | 25 | yes | FACW |
| 2. *Lasthenia glaberrima* | 20 | yes | OBL |
| 3. *Ranunculus aquatilis* | 25 | yes | OBL |
| 4. *Eryngium castrense* | 10 | no | OBL |
| 5. *Lythrum hyssopifolium* | 10 | no | OBL |
| 6. *Pilularia americana* | 5 | no | OBL |
| 7. *Erodium cicutarium* | 5 | no | UPL |
| 8. | | | |
| 50% = _____, 20% = _____ | 100 | = Total Cover | |
| **Woody Vine Stratum** (Plot size:_____) | | | |
| 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: | 3 | (A) |
| Total Number of Dominant Species Across All Strata: | 3 | (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: Vegetation dominated by wetland species

Project Site: Gill Annexation

**SOIL** Sampling Point: SP06

**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 | 7.5yr 3/2 | 80 | 7.5yr 4/4 | 20 | C | M | 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: n/a

Depth (Inches): _____

**Hydric Soils Present?** **Yes** ☒ **No** ☐

Remarks: Hydric soils 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: Surface water, water table, saturation or primary hydrology indicators observed

Gill Property

# APPENDIX D

## PLANT SPECIES OBSERVED WITHIN STUDY AREA

| Family | Scientific Name | Common Name | Wetland Indicator |
|---|---|---|---|
| Apiaceae | *Eryngium castrense* | Great Valley button celery | OBL |
| Asteraceae | *Agoseris sp.* | Chicory species | |
| Asteraceae | *Centaurus solstitialis* | Yellow star thistle | UPL |
| Asteraceae | *Lasthenia glaberrima* | Smooth goldfields | OBL |
| Asteraceae | *Leontodon saxatilis* | Hawkbit | FACU |
| Asteraceae | *Xanthium strumarium* | Cocklebur | FAC |
| Boraginaceae | *Amsinckia menziesii* | Fiddleneck | UPL |
| Boraginaceae | *Plagiobothrys stipitatus* | Popcornflower | FACW |
| Brassicaceae | *Brassica nigra* | Black mustard | UPL |
| Brassicaceae | *Capsella bursa-pastoris* | Shepherd's purse | UPL |
| Caryophyllaceae | *Cerastium fontanum* | Mouse ear chickweed | FACU |
| Caryophyllaceae | *Spergula arvensis* | Corn spurry | UPL |
| Cyperaceae | *Eleocharis macrostachya* | Creeping spike rush | UPL |
| Fabaceae | *Astragalus sp.* | | |
| Fabaceae | *Lupinus bicolor* | Miniature lupine | UPL |
| Fabaceae | *Trifolium dubium* | Shamrock clover | UPL |
| Fabaceae | *Trifolium hirtum* | Rose clover | UPL |
| Fabaceae | *Vicia benghalensis* | Purple vetch | UPL |
| Fabaceae | *Vicia bithynica* | Bithynian vetch | UPL |
| Fagaceae | *Quercus lobata* | Valley oak | FACU |
| Fagaceae | *Quercus wislizenii* | Interior live oak | UPL |
| Geraniaceae | *Erodium cicutarium* | Coastal Heron's bill | UPL |
| Geraniaceae | *Geranium dissectum* | Cranebill | UPL |
| Juncaceae | *Juncus effusus* | Bog rush | FACW |
| Juncaceae | *Juncus xiphioides* | Iris leaved rush | OBL |
| Limnanthaceae | *Limnanthes alba* | White meadowfoam | FACW |
| Lythraceae | *Lythrum hyssopifolium* | Hyssop loosestrife | OBL |
| Marsileaceae | *Pilularia americana* | Pillwort | OBL |
| Montiaceae | *Calandrinia ciliata* | Red maids | FACU |
| Onagraceae | *Epilobium brachycarpum* | Annual fireweed | UPL |
| Onagraceae | *Ludwigia peploides* | Floating primrose | OBL |
| Orobanchaceae | *Castilleja campestris* | Owl's clover | FACW |
| Plantaginaceae | *Callitriche heterophylla* | Water startwort | OBL |
| Plantaginaceae | *Plantago erecta* | English plantain | UPL |
| Poaceae | *Avena fatua* | Common wild oats | UPL |
| Poaceae | *Briza minor* | Little rattlesnake grass | FAC |
| Poaceae | *Bromus hordeaceus* | Soft chess | FACU |
| Poaceae | *Elymus caput-medusae* | Medusa head | UPL |
| Poaceae | *Hordeum murinum ssp. leporinum* | Foxtail barley | FAC |
| Poaceae | *Stipa pulchra* | Purple needle grass | UPL |
| Poaceae | *Vulpia bromoides* | Foxtail | FAC |
| Polygonaceae | *Persicaria lapathifolia* | Comon knotweed | FACW |
| Polygonaceae | *Rumex crispus* | Curly dock | FAC |
| Polygonaceae | *Rumex pulcher* | Fiddle dock | FAC |
| Ranunculaceae | *Ranunculus aquatilis* | Whitewater crowfoot | OBL |
| Ranunculaceae | *Ranunculus muricatus* | Buttercup | FACW |
| Rubiaceae | *Galium porrigens* | Climbing bedstraw | UPL |

| | | | |
|---|---|---|---|
| Themidaceae | *Triteleia hyacinthina* | Wild hyacinthina | FAC |
| Themidaceae | *Triteleia ixioides ssp. ixioides* | Golden brodiaea | FAC |
| Typhaceae | *Typha latifolia* | Common cattail | OBL |

SUD-B Northeast Quadrant Specific Plan

APPENDIX

# B

## JURISDICTIONAL DELINEATION REPORT – PEERY PROPERTY

# Wetland Delineation and Preliminary Jurisdictional Determination

## Peery Property

March 6, 2015

Cardno
Shaping the Future

# Document Information

| | |
|---|---|
| Prepared for | Peery-Arrillaga |
| Project Name | Peery Property |
| Project Manager | Shannon Karvonen |
| Date | March 6, 2015 |

Prepared for:

Peery-Arrillaga
2450 Watson Court, Palo Alto, CA 94303

Prepared by:


Cardno
701 University Ave Suite 200, Sacramento, CA 95825

# Table of Contents



# Appendices

# Tables



# Figures



# Acronyms

| | |
|---|---|
| FAC | Facultative |
| FACU | Facultative Upland |
| FACW | Facultative Wetland |
| NRCS | Natural Resource Conservation Service |
| 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

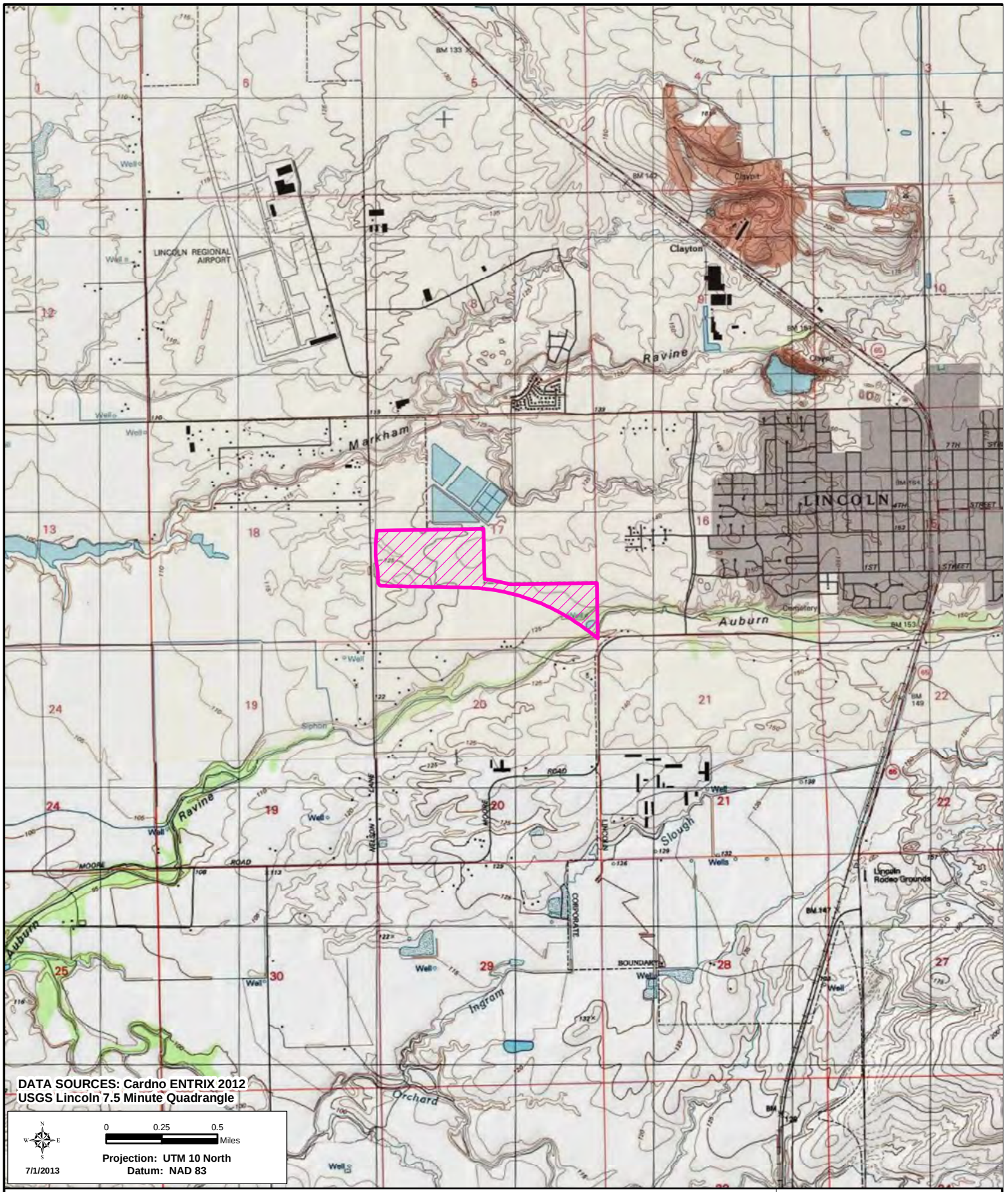
As requested by the Richard Peery of Peery-Arrillaga, Cardno conducted routine wetland delineation for the Peery Ranch (Figure 1). This report presents the results of the field evaluation and provides a preliminary determination of jurisdictional wetlands and waters of the United States as defined by the Clean Water Act. The project site is located on the U.S. Geological Survey (USGS) Lincoln 7.5 minute topographic quadrangle in Section 17, Township 12 North, Range 6 East. The site is approximately 114 acres total, consisting of two adjacent parcels. The western parcel (approximately 70 acres) is roughly rectangular in shape and is bordered by Nelson Lane on the west, the Hwy 65 Bypass on the South, undeveloped land on the north, and residential development on the east. The eastern parcel (approximately 44 acres) is roughly triangular in shape and is bordered by residential development on the north, the Hwy 65 Bypass on the south, and Auburn Ravine on the east.

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

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 locations of wetland indicators, mapping conventions and symbols, reference block, scale, property lines (when available), Study Area boundaries, and topography.

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# 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

On September 19, 2011, and October 19, 2012 Cardno biologists collected field data in an attempt to identify the boundaries of potential wetlands and other waters of the U.S. Data on vegetation, soils, and hydrologic characteristics of potentially-jurisdictional features were recorded in the field on data forms for the Arid West Region. The area surveyed included all features within the two adjacent parcels (Study Area). Additional information for the western and southern boundary of the site was obtained from a verified delineation titled *Delineation of Jurisdictional Wetlands and Waters, Route 65 Lincoln Bypass, Placer County, California (Corp file No. SPK-1995-00363)* that was acquired through a FOIA request made on September 12, 2011. Information was also obtained for the eastern portion of the western parcel from a verified wetland delineation titled *Wetland Restoration Report for the State Route 65 Lincoln Bypass Haul Road (USACE File No. SPK-1995-00363) 3-PLA-Route 65-KP R19.6 (PM R12.2) – KP R38.3 (PM 23.8), EA 333800*. This delineation also overlaps along its western boundary with the *Wetland Delineation and Preliminary Jurisdictional Determination Nelson Lane Bridge Replacement Project (Bridge No. 19C0082)* that was verified by the USACE.

The wetland delineation was revised based on input from the USACE verification visit, and was resubmitted to the USACE on October 6, 2014. At the direction of the USACE, Cardno revised this wetland map and resubmitted it to the USACE on February 23, 2015. Based on the delineation, it is estimated that there is a total of 7.532 acres of wetlands within the Peery Property. Final verification from the USACE is still in progress at the time of this writing.

For each sampling site, the site location was recorded and the geographic coordinates (longitude and latitude) were collected. A handheld Trimble Geo 7X (2014 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. Vegetation 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.

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.

1. 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.

#### *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.

The following geomorphic OHWM indicators, as described in the U.S. Army Corps of Engineers (USACE) publication A Field Guide to the Identification of the OHWM in the Arid West Region of the Western United States (Lichvar & McColley 2008), were used to delineate the OHWM of other Waters of the United States:

1. **Benches**: Formed by the removal of previously aggraded sediment, and located near the below/at ordinary high water (OHW) boundary and potentially near the at/above boundary.
2. **Drift**: Organic debris larger than twigs. Tends to be oriented in the direction of flow, and often collects behind/in obstructions or is simply deposited by receding flow.
3. **Exposed Root Hairs Below Intact Soil Layer**: Exposed by erosion of sediment. Tend to be located along the above/at OHW boundary or where benches have formed.
4. **Change in Particle Size Distribution**: Transition from coarser to finder sediment common, and likely to occur near the at/below OHW boundary.
5. **Upper Limit of Sand-Sized Particles**: Deposited due to reduced flow competence, and tends to be concentrated near the at/below OHW boundary but may extend to the above OHW boundary.

6. **Valley Flat**: Formed by the deposition of fine-grained sediment during over-bank flow, and located adjacent to low-flow feature(s) and extends to the break in slope (when present) near the at/above OHW boundary.

## 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 114 acres, and consists of the area surveyed for the boundaries of wetland features and adjacent uplands (Appendix A). The Study Area is generally flat, with elevation ranging from approximately 120 feet above sea level (asl) to 130 feet asl Land uses in the general vicinity include rural residential and residential development, and agricultural. Representative photographs of the Study Area are located in Appendix B.

## 4.1 Vegetation

### 4.1.1 Non-native Annual Grassland

The Study Area consists almost exclusively of disturbed non-native annual grassland. The entire western portion and most of the eastern portion of the Study Area have been disked, seeded, and mowed annually for hay production for many years. The western portion, which retains much of the natural topography, is dry farmed, while the eastern portion appears to have been graded flat, and has been flood irrigated. The primary vegetative cover in the study area consists of stubble from oat grass, but other species were observed including Fitch's tarweed (*Centromadia* [*Hemizonia*] *fitchii*), yellow flower tarplant (*Holocarpha virgata*), turkey mullein (*Croton setigerus*), and vinegarweed (*Trichostema lanceolatum*). These latter species were very sparse, and associated primarily with the seasonal wetlands or adjacent areas.

Within the non-native annual grassland habitat in the western portion of the Study Area are a number of seasonal wetlands consisting of pools and swales. Most of these features were likely to have been vernal pools or swales in the past (based on the aerial signatures and the abundance of this wetland type in the surrounding region) but due to the long history of annual disking and planting for hay production the boundaries of these features have become indistinct, and no they longer appear to support vernal pool plant species. As stated above, the eastern portion of the Study Area has been graded/leveled, and no seasonal pools or swales are present.

### 4.1.2 Oak Woodland

A small portion of the southeast corner of the Study Area contains oak woodland. This is a narrow band along the upland portion of the Auburn Ravine corridor and along the adjacent portion of the Hwy 65 Bypass, and consists of approximately 100 trees consisting primarily of valley oak (*Quercus lobata*) along with a few blue oak (*Quercus douglasi*), interior live oak (*Quercus wislizenii*) and northern California black walnut (*Juglans hindsii*). The understory consists primarily of non-native grassland species including wild oats, ripgut brome (*Bromus diandrus*), Medusahead grass, prickly lettuce (*Lactuca serriola*), wild radish (*Raphanus sativus*), wild mustard (*Brassica* sp.), broad leaf filaree (*Erodium botrys*), English plantain, vetch (*Vicia* sp.), Spanish lotus (*Acmispon americanus* var. *americanus*), field bindweed, and cutleaf geranium.

### 4.1.3 Riparian

Auburn Ravine passes through the southeast corner of the Study Area. The channel is separated from the oak woodland area by a levee. The main channel is separated from the oak woodland area by a levee. The channel side of the levee and the opposite bank are vegetated by riparian woodland including Northern California black walnut (*Juglans hindsii*), willow, and valley oak, with an understory of Himalayan blackberry, pokeberry (*Phytolacca americana*) and a variety of annual grasses and forbs similar to that found in the oak woodland.

## 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, 2014). Soil map units that occur in the Study Area are shown in Figure 2 and include Alamo-Fiddyment complex 0 to 5 percent slopes, Cometa-Fiddyment complex, 1 to 5 percent slopes, Cometa-Ramona sandy loam, 1 to 5 percent slopes, Kilaga loam, Ramona sandy loam, 2 to 9 percent slopes, San Joaquin-Cometa sandy loams, 1 to 5 percent slopes, and Xerofluvents, frequently flooded. Descriptions of each of these soil types are provided below.

**Alamo-Fiddyment complex 0 to 5 percent slopes**

The Alamo-Fiddyment complex series consists of moderately deep to hardpan, poorly drained soils that formed in alluvium from mixed sources. Alamo soils are found in basins and drainageways on floodplains and fan remnants. The Alamo-Fiddyment complex soils are poorly drained with very slow runoff, and very slow permeability. Within Placer County, Alamo-Fiddyment complex 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**

Cometa-Ramona sandy loam soils are found on nearly level to rolling low hills, terraces and fans. 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. Cometa-Ramona sandy loam is well-drained with slow to medium runoff, and moderately slow permeability. Within Placer County, Cometa-Ramona sandy loam is listed as a hydric soil within depressions (USDA 2010).

**Kilaga loam**

Kilaga loam consists of deep to very deep, well drained soils formed in alluvium from mixed rock sources, forming on nearly level to gently rolling terraces. Kilaga loam is well drained with slow to medium runoff and slow permeability. Within Placer County, Kilaga loam is listed as a hydric soil within drainage ways (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).

**San Joaquin-Cometa sandy loams, 1 to 5 percent slopes**

San Joaquin-Cometa sandy loams consist of soils that formed in alluvium derived from mixed but dominantly granitic rock sources, occurring on hummocky, nearly level to undulating low terraces. San Joaquin-Cometa sandy loams are well and moderately well drained with medium to very high runoff and very slow permeability. Some areas are subject to rare or occasional flooding. Within Placer County, San Joaquin-Cometa sandy loam is listed as a hydric soil within depressions (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).

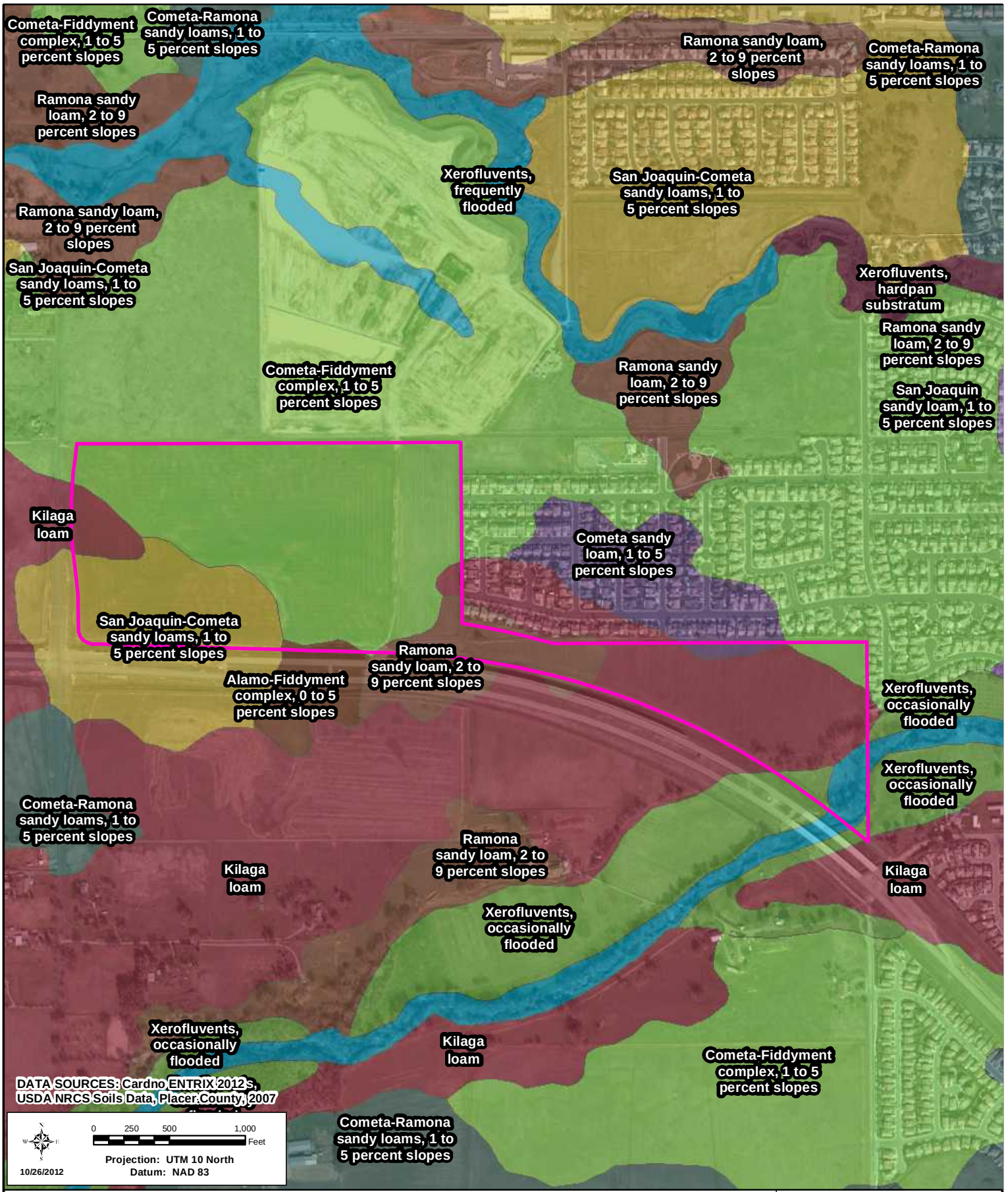


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**Figure 2**

**Soil Types in the Project Vicinity**

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## 4.3 Hydrology

The Study Area lies within the Upper Coon – Upper Auburn 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 western portion of the Study Area appears to generally slope from east to west and from the north to south. The topography in the eastern portion of the Study Area appears to slope from west to east towards Auburn Ravine. The source of the water for the seasonal wetlands in the area seems to be primarily from precipitation, and runoff from adjacent uplands. Auburn Ravine receives water from upstream sources, as well as overland flow from the adjacent watershed. Water was flowing in Auburn Ravine at the time of the survey. The U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) mapped only Auburn Ravine and a freshwater pond adjacent to Auburn Ravine. No other features are mapped for the remainder of the Study Area (USFWS 2010).

# 5 Results and Discussion

Wetlands and Other Waters present in the Study Area (see Appendix A) included seasonal wetlands, seasonal wetland swales, a wetland meadow, an irrigation pond, a ditch, an ephemeral drainage, and Auburn Ravine. The hydrophytic vegetation, hydric soils, and wetland hydrology of these features are described below. Representative photographs of the Study Area are located in Appendix B, and copies of data sheets are located in Appendix C.

Upland areas are fairly consistent throughout the Study Area. No hydrologic indications were observed. Soils were generally sandy clay to sandy clay loam with some larger sand and gravel, and no stratified layers with soil chroma in the range of 7.5 YR 4/4. Typical plant species observed throughout the upland portion of the Study Area consisted almost exclusively of oat grass.

## 5.1 Seasonal Wetlands (3.288 acres)

There are 35 features in the Study Area mapped as seasonal wetland pools totaling 3.288 acres. The majority of these features occur in the western portion of the Study Area, while only five small seasonal wetland features are present in the eastern portion. These features were likely to have been vernal pools in the past, but decades of disking and planting for dry farmed hay and other crops has degraded these features to the point where they no longer appear to support vernal pool plant species. While oat grass was the dominant species observed in these features, there was generally a higher amount of barren ground in the basins of these features, and turkey mullein and vinegarweed were also present within the boundaries of these features.

## 5.2 Seasonal Wetland Swales (1.797 acres)

The four seasonal wetland swales totaling 1.797 acres mapped in the Study Area were also, like the seasonal wetlands, likely to have been vernal swales in the past, but no longer support vernal pool plant species due to the decade's long history of agricultural disturbances. Three of these features occur in the western portion of the property, while one runs along the eastern side of the eastern parcel. Species observed within these features were the same as those observed within the seasonal wetlands.

## 5.3 Wet Meadow (1.687 acres)

A large wet meadow area totaling 1.687 acres was mapped in the southeast corner of the Study Area adjacent to Auburn Ravine, but separated from it by a levee. This feature is a shallow basin that surrounds the irrigation pond described below, and is densely vegetated with a variety of facultative and obligate wetland plant species including water pepper (*Persicaria hydropiperoides*), umbrella sedge, Baltic rush (*Juncus balticus*), dallis grass (*Paspalum dilatatum*), and bull thistle (*Cirsium vulgare*). This feature appears to have received water from one of two wells located in the southeast corner of the Study Area, and likely receives water during flood irrigation of the adjacent graded field.

## 5.4 Irrigation Pond (0.358 acre)

An irrigation pond occurs within the above described wet meadow. This feature covers approximately 0.358 acre, and consists of a low spot within the larger wet meadow area. As with the wet meadow, it appears to receive its water primarily from nearby wells that were used to flood irrigate the adjacent hay field. Vegetation in this feature consists primarily of cattail along with some water pepper and umbrella sedge.

## 5.5 Ditch (0.057 acre/ 815 linear feet)

An irrigation ditch occurs along the eastern boundary edge of the Study Area. The ditch originated from a culvert on the north edge and flows south then west to the ephemeral drainage. This feature is vegetated with non-native annual grassland species.

## 5.6 Ephemeral Drainage (0.030 acre/ 60 linear feet)

The ephemeral drainage occurs at the southeastern edge of the eastern hay field. It appears to originate near a well that is also at the edge of the hay field, and flows into the wet meadow adjacent to Auburn Ravine. This feature is scoured from water flow, unvegetated, and appears to convey flows from the adjacent field to the wet meadow and irrigation pond during flood irrigation.

## 5.7 Auburn Ravine (0.315 acre/ 430 linear feet)

Auburn Ravine is a perennial stream that flows from northeast to southwest passing under the Hwy 65 Bypass as it leaves the Study Area. Approximately 500 linear feet of this feature define the eastern boundary of the Study Area with an approximate average width of 20 feet. The vegetation community along Auburn Ravine is riparian with a sparse to dense understory, and is described in more detail under Riparian Woodland above.

**Table 1 Wetlands and Other Waters in the Study Area**

| Wetlands and Other Waters Type | ID | Acreages |
|---|---|---|
| Seasonal Wetland 02 | SW-02 | 0.041 |
| Seasonal Wetland 03 | SW-03 | 0.005 |
| Seasonal Wetland 04 | SW-04 | 0.150 |
| Seasonal Wetland 05 | SW-05 | 0.014 |
| Seasonal Wetland 06 | SW-06 | 1.372 |
| Seasonal Wetland 07 | SW-07 | 0.011 |
| Seasonal Wetland 08 | SW-08 | 0.033 |
| Seasonal Wetland 10 | SW-10 | 0.423 |
| Seasonal Wetland 11 | SW-11 | 0.234 |
| Seasonal Wetland 12 | SW-12 | 0.014 |
| Seasonal Wetland 13 | SW-13 | 0.075 |
| Seasonal Wetland 14 | SW-14 | 0.013 |
| Seasonal Wetland 15 | SW-15 | 0.088 |
| Seasonal Wetland 16 | SW-16 | 0.212 |
| Seasonal Wetland 17 | SW-17 | 0.130 |
| Seasonal Wetland 18 | SW-18 | 0.008 |
| Seasonal Wetland 19 | SW-19 | 0.067 |
| Seasonal Wetland 21 | SW-21 | 0.016 |
| Seasonal Wetland 22 | SW-22 | 0.010 |
| Seasonal Wetland 23 | SW-23 | 0.019 |
| Seasonal Wetland 24 | SW-24 | 0.098 |
| Seasonal Wetland 25 | SW-25 | 0.086 |
| Seasonal Wetland 26 | SW-26 | 0.030 |
| Seasonal Wetland 27 | SW-27 | 0.025 |
| Seasonal Wetland 28 | SW-28 | 0.012 |
| Seasonal Wetland 29 | SW-29 | 0.007 |
| Seasonal Wetland 30 | SW-30 | 0.006 |
| Seasonal Wetland 31 | SW-31 | 0.003 |
| Seasonal Wetland 32 | SW-32 | 0.028 |

| | | |
|---|---|---|
| Seasonal Wetland 33 | SW-33 | 0.035 |
| Seasonal Wetland 34 | SW-34 | 0.001 |
| Seasonal Wetland 35 | SW-35 | 0.008 |
| Seasonal Wetland 36 | SW-36 | 0.005 |
| Seasonal Wetland 37 | SW-37 | 0.007 |
| Seasonal Wetland 38 | SW-38 | 0.002 |
| Wetland Swale 01 | SW-01 | 0.980 |
| Wetland Swale 09 | SW-09 | 0.455 |
| Wetland Swale 20 | SW-20 | 0.244 |
| Wetland Swale 39 | SW-39 | 0.118 |
| Wet Meadow 01 | WM-01 | 1.687 |
| Irrigation Pond | IP-01 | 0.358 |
| **Total Wetlands** | | **7.130** |
| **Other Waters** | | **Acreages/ Linear Feet** |
| Ditch | D-01 | 0.057 acres/ 815 linear feet |
| Ephemeral Drainage | ED-01 | 0.030 acres/ 60 linear feet |
| Auburn Ravine | PS-01 | 0.315 acres/ 430 linear feet |
| **Total Other Waters** | | **0.402 acres/ 1,305 linear feet** |
| **Total Wetlands and Other Waters** | | **7.532 acres/ 1,305 linear feet** |

# 6 Findings

Based on the findings of this delineation, the Study Area contains approximately 7.130-acre wetland and 0.402 acre (1,305 linear feet) of other waters of the U.S. (Appendix A) that are potentially subject to the USACE's jurisdiction pursuant to the Clean Water Act for the following reasons:

- The vernal pools, seasonal wetlands irrigation pond and wet meadow in the Study Area meet the USACE's three-parameter wetland criteria (hydrophytic vegetation, hydric soils, and wetland hydrology); and
- The pools in the Study Area are hydrologically linked to the drainage ditches that convey water through a series of drainages and canals to the Sacramento River. Thus, the wetland has a significant nexus to a non-relatively permanent water that flows directly to a Traditional Navigable Water.

As this report is a preliminary jurisdictional determination, we assume that the USACE 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 the intersection of the Hwy 65 Bypass and Nelson Lane. This intersection is the southwest corner of the Study Area.

## 7.2 Contact Information

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Delineator

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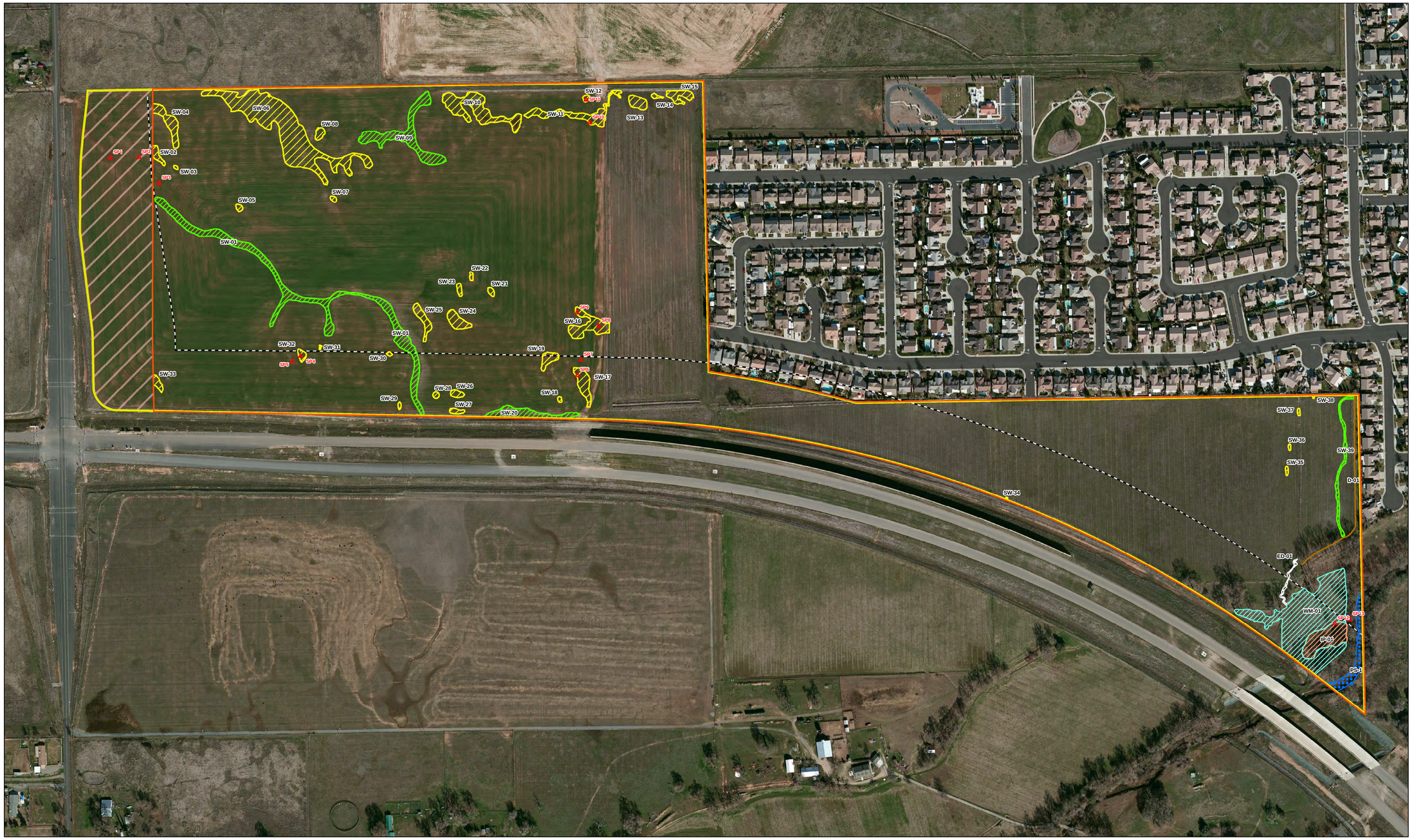
Peery Property

APPENDIX

# A

## WETLANDS AND OTHER WATERS MAP




| WETLANDS** | | |
|---|---|---|
| **Wetland Type** | **ID** | **Acres** |
| Seasonal Wetland Pool | SW-02 | 0.041 |
| Seasonal Wetland Pool | SW-03 | 0.005 |
| Seasonal Wetland Pool | SW-04 | 0.150 |
| Seasonal Wetland Pool | SW-05 | 0.014 |
| Seasonal Wetland Pool | SW-06 | 1.372 |
| Seasonal Wetland Pool | SW-07 | 0.011 |
| Seasonal Wetland Pool | SW-08 | 0.033 |
| Seasonal Wetland Pool | SW-10 | 0.423 |
| Seasonal Wetland Pool | SW-11 | 0.234 |
| Seasonal Wetland Pool | SW-12 | 0.014 |
| Seasonal Wetland Pool | SW-13 | 0.075 |
| Seasonal Wetland Pool | SW-14 | 0.013 |
| Seasonal Wetland Pool | SW-15 | 0.088 |
| Seasonal Wetland Pool | SW-16 | 0.212 |
| Seasonal Wetland Pool | SW-17 | 0.130 |
| Seasonal Wetland Pool | SW-18 | 0.008 |
| Seasonal Wetland Pool | SW-19 | 0.067 |
| Seasonal Wetland Pool | SW-21 | 0.016 |
| Seasonal Wetland Pool | SW-22 | 0.010 |
| Seasonal Wetland Pool | SW-23 | 0.019 |
| Seasonal Wetland Pool | SW-24 | 0.098 |
| Seasonal Wetland Pool | SW-25 | 0.086 |
| Seasonal Wetland Pool | SW-26 | 0.030 |
| Seasonal Wetland Pool | SW-27 | 0.025 |
| Seasonal Wetland Pool | SW-28 | 0.012 |
| Seasonal Wetland Pool | SW-29 | 0.007 |
| Seasonal Wetland Pool | SW-30 | 0.006 |
| Seasonal Wetland Pool | SW-31 | 0.003 |
| Seasonal Wetland Pool | SW-32 | 0.028 |
| Seasonal Wetland Pool | SW-33 | 0.035 |
| Seasonal Wetland Pool | SW-34 | 0.001 |
| Seasonal Wetland Pool | SW-35 | 0.008 |
| Seasonal Wetland Pool | SW-36 | 0.005 |
| Seasonal Wetland Pool | SW-37 | 0.007 |
| Seasonal Wetland Pool | SW-38 | 0.002 |
| **SUBTOTAL** | | **3.288** |
| Seasonal Wetland Swale | SW-01 | 0.980 |
| Seasonal Wetland Swale | SW-09 | 0.455 |
| Seasonal Wetland Swale | SW-20 | 0.244 |
| Seasonal Wetland Swale | SW-39 | 0.118 |
| | **SUBTOTAL** | **1.797** |
| Wet Meadow | WM-01 | 1.687 |
| Irrigation Pond | IP-01 | 0.358 |
| | **TOTAL** | **7.130** |

| OTHER WATERS** | | |
|---|---|---|
| **Wetland Type** | **ID** | **Acres** |
| Ditch | D-01 | 0.057 |
| Ephemeral Drainage | ED-01 | 0.030 |
| Perennial Stream | PS-1 | 0.315 |
| | **TOTAL** | **0.402** |

| | |
|---|---|
| **TOTAL WATERS OF THE U.S.*** | **7.532** |

**WETLANDS**

- Seasonal Wetland Pool
- Seasonal Wetland Swale
- Wet Meadow
- Irrigation Pond

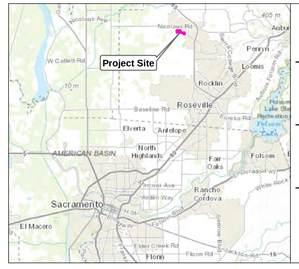
**OTHER WATERS OF THE U.S.**

- Ditch
- Ephemeral Drainage
- Perennial Stream

**OTHER FEATURES**

- Soil Pit
- Project Site
- Study Area
- Previously Evaluated (Nelson Lane)
- 2007 Verified Delineation Boundary

| NOTES |
|---|
| Gross Site Acreage: +/- 114 ac. |
| Aerial Photo Source: © April, 2012 Microsoft Corporation and its data suppliers |
| Topographic Data Source: Fraji Design Group. Vertical Datum: NGVD 29 |
| |
| |
| |
| *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:**
Ammon Rice, Cardno
Sam Bacchini, Cardno

**GIS Specialist:**
Melissa Nugent, Cardno

**Preparation Date:**
25 October 2012

**Revision Date:**
23 July 2014

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Peery Property Wetland Delineation

**Appendix A**

**Wetland Delineation***

0 50 100 200 300 400 Feet

**SCALE: 1 inch = 200 feet**

**Projection: Cal. Stateplane, Zone 2**
**Datum: NAD 83**

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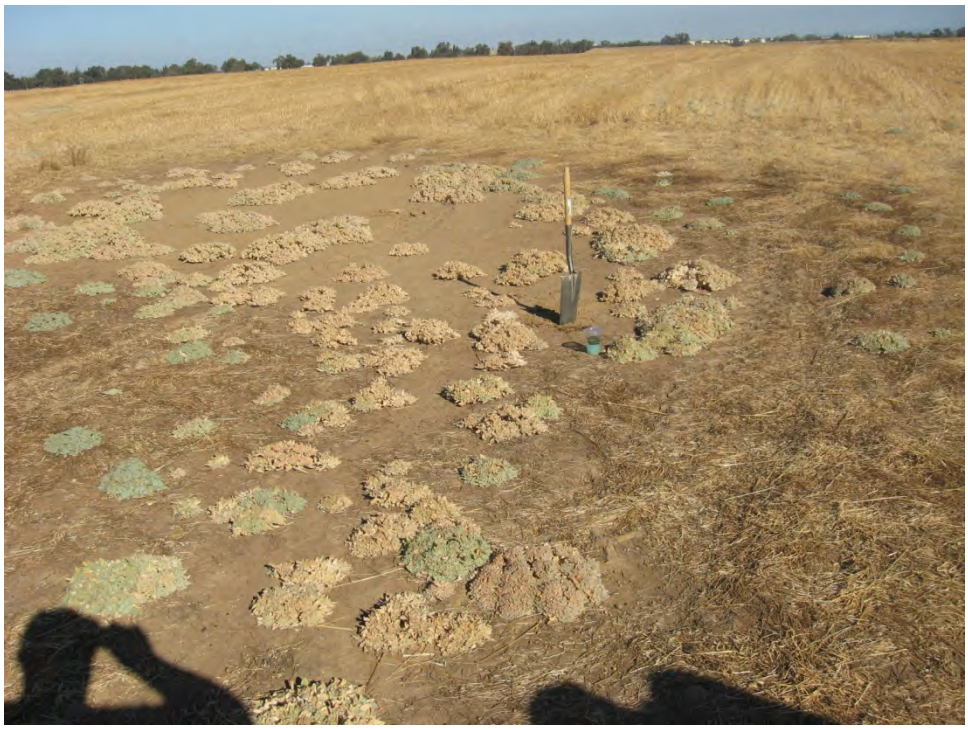
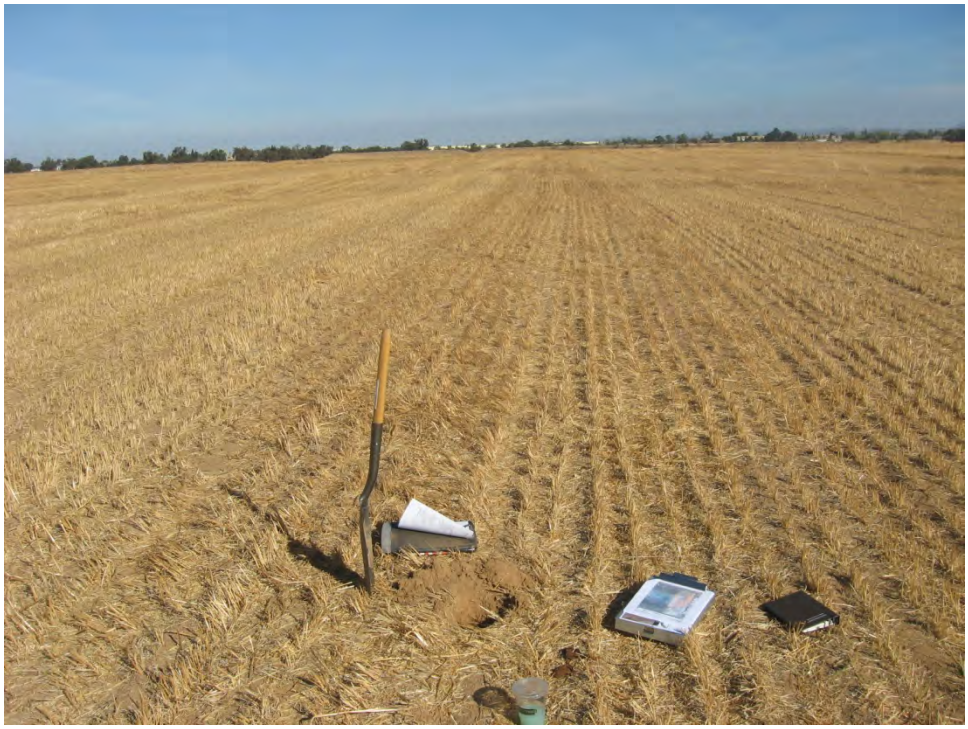
Peery Property

# APPENDIX B

## REPERSENTATIVE SITE PHOTOGRAPHS



Typical seasonal wetland in the western portion of the site



Typical upland on the site

View of wet meadow looking south


View of irrigation pond looking south

View of Auburn Ravine from levee looking southeast

View of Auburn Ravine levee looking south

Peery Property

# APPENDIX C

## DATA SHEETS

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Scheiber Biological Resources Assessment City/County: Lincoln / Placer Sampling Date: 9/19/2011

Applicant/Owner: State: CA Sampling Point: SP1

Investigator(s): Sam Bacchini & Dan Neal Section, Township, Range: S17, T12N, R6E MDB&M

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0-1%

Subregion (LRR): C - Mediterranean California Lat: Long: Datum: NAD83

Soil Map Unit Name: 141, Cometa-Fiddyment complex, 1 to 5 percent slopes NWI classification: Hydric

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

Are Vegetation [X] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [X] 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 (●) | |
| Hydric Soil Present? | Yes ( ) | No (●) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes (●) | No ( ) | |

Remarks: Parcel was mowed in connection with normal farming practices, making identification of vegetation difficult. Soil is made up of red parent material. While wetland hydrology was present at this sampling point, the requisite hydrophytic vegetation and hydric soils were absent.

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *N/A* | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *N/A* | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Avena fatua* | 90 | Yes | Not Listed |
| 2. *Croton setigerus* | 5 | No | Not Listed |
| 3. *Lolium multiflorum* | 4 | No | FAC |
| 4. *Phalaris sp.* | 1 | No | Not Listed |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 100 % | | |
| **Woody Vine Stratum** | | | |
| 1. *N/A* | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust 0 %

**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: 0.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | | x 2 = | 0 |
| FAC species | 4 | x 3 = | 12 |
| FACU species | | x 4 = | 0 |
| UPL species | 96 | x 5 = | 480 |
| Column Totals: | 100 (A) | | 492 (B) |

Prevalence Index = B/A = 4.92

**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.

**Hydrophytic Vegetation Present?** Yes ( ) No (●)

Remarks: Property owner indicated that parcel normally contains dry-farmed wild oat, and was recently mowed pursuant to his normal farming practices.

## SOIL

Sampling Point: SP1

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-16" | 5 YR 3/4 | 80 | 5 YR 5/6 | 5 | C | M | Loam | Uniform soil stratum. |
| | | | 5 YR 3/2 | 15 | C | M | | |
| 16" = Bottom | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type:

Depth (inches):

**Hydric Soil Present?** Yes ○ No ◉

Remarks: Red parent material indicator (TF2) not satisfied since red layer extends below 12" beneath soil surface.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:
Google Earth satellite imagery dated 6/13/2011.

Remarks: Sample point taken in a depression visible in satellite imagery.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Scheiber Biological Resources Assessment | City/County: Lincoln / Placer | Sampling Date: 9/19/2011

Applicant/Owner: | State: CA | Sampling Point: SP2

Investigator(s): Sam Bacchini & Dan Neal | Section, Township, Range: S17, T12N, R6E MDB&M

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 0-1%

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

Soil Map Unit Name: 141, Cometa-Fiddyment complex, 1 to 5 percent slopes | NWI classification: Hydric

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

Are Vegetation [X] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [X] 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 ( ) | | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area** | |
| Wetland Hydrology Present? | Yes (●) | No ( ) | **within a Wetland?** | **Yes (●) No ( )** |

Remarks: Parcel was mowed in connection with normal farming practices, making identification of vegetation difficult. Hydrophytic vegetation and wetland hydrology are present at this location. The red parent material of the soil is naturally problematic, but red parent indicator hydric soil indicator (TF2) is present. This feature is depicted on map as SW1.

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *N/A* | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *N/A* | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Lolium multiflorum* | 85 | Yes | FAC |
| 2. *Avena fatua* | 13 | No | Not Listed |
| 3. *Taeniatherum caput-medusae* | 1 | No | Not Listed |
| 4. *Phalaris sp.* | 1 | No | Not Listed |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 100% | | |
| **Woody Vine Stratum** | | | |
| 1. *N/A* | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust 0 %

**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: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | | x 2 = | 0 |
| FAC species | 85 | x 3 = | 255 |
| FACU species | | x 4 = | 0 |
| UPL species | 15 | x 5 = | 75 |
| Column Totals: | 100 (A) | | 330 (B) |

Prevalence Index = B/A = 3.30

**Hydrophytic Vegetation Indicators:**

- [X] 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.

**Hydrophytic Vegetation Present?** Yes (●) No ( )

Remarks: Property owner indicated that parcel normally contains dry-farmed wild oat, and was recently mowed pursuant to his normal farming practices. This sample point was dominated by Lolium multiflorum.

## SOIL

Sampling Point: SP2

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture[3] | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-12" | 7.5 YR 4/4 | 90 | 5 YR 5/8 | 5 | C | M | Sandy loam | Uniform soil stratum. |
| | | | 5 YR 3/2 | 5 | C | M | | |
| 12" = | | | | | | | | |
| Bottom | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

**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:[4]**

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

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: Hardpan layer

Depth (inches): 12"

**Hydric Soil Present?** Yes ◉ No ○

Remarks: Red Parent Material (TF2) indicator present, as red layer entirely within top 12" of test pit. Hardpan layer at 12" prevented deeper excavation and evaluation.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (any one indicator is sufficient)

- ☐ 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 Plowed Soils (C6)
- ☐ 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)
- ☐ Thin Muck Surface (C7)
- ☐ 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:

Google Earth satellite imagery dated 6/13/2011.

Remarks: Sample point taken in a depression visible in satellite imagery. Oxidized rhizospheres along living roots visible.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Scheiber Biological Resources Assessment | City/County: Lincoln / Placer | Sampling Date: 9/19/2011

Applicant/Owner: | State: CA | Sampling Point: SP3

Investigator(s): Sam Bacchini & Dan Neal | Section, Township, Range: S17, T12N, R6E MDB&M

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): Convex | Slope (%): 0-1%

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

Soil Map Unit Name: 141, Cometa-Fiddyment complex, 1 to 5 percent slopes | NWI classification: Hydric

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

Are Vegetation [X] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [X] 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 (●) | |
| Hydric Soil Present? | Yes (●) | No ( ) | **Is the Sampled Area within a Wetland?** Yes ( ) No (●) |
| Wetland Hydrology Present? | Yes ( ) | No (●) | |

Remarks: Parcel was mowed in connection with normal farming practices, making identification of vegetation difficult. The red parent material of the soil is naturally problematic, but red parent indicator hydric soil indicator (TF2) is present. This data point, which was taken at a high point, lacks the requisite hydrophytic vegetation or wetland hydrology.

## VEGETATION

| Tree Stratum (Use scientific names.) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *N/A* | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Total Cover: | % | | |
| **Sapling/Shrub Stratum** | | | |
| 1. *N/A* | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| Total Cover: | % | | |
| **Herb Stratum** | | | |
| 1. *Avena fatua* | 96 | Yes | Not Listed |
| 2. *Hemizonia congesta* | 2 | No | Not Listed |
| 3. *Croton setigerus* | 1 | No | Not Listed |
| 4. *Phalaris sp.* | 1 | No | Not Listed |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| Total Cover: | 100% | | |
| **Woody Vine Stratum** | | | |
| 1. *N/A* | | | |
| 2. | | | |
| Total Cover: | % | | |

% Bare Ground in Herb Stratum 0 % % Cover of Biotic Crust 0 %

**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: 0.0 % (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | | x 1 = | 0 |
| FACW species | | x 2 = | 0 |
| FAC species | | x 3 = | 0 |
| FACU species | | x 4 = | 0 |
| UPL species | 100 | x 5 = | 500 |
| Column Totals: | 100 (A) | | 500 (B) |

Prevalence Index = B/A = 5.00

**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.

**Hydrophytic Vegetation Present?** Yes ( ) No (●)

Remarks: Property owner indicated that parcel normally contains dry-farmed wild oat, and was recently mowed pursuant to his normal farming practices. This sample point was dominated by Avena fatua.