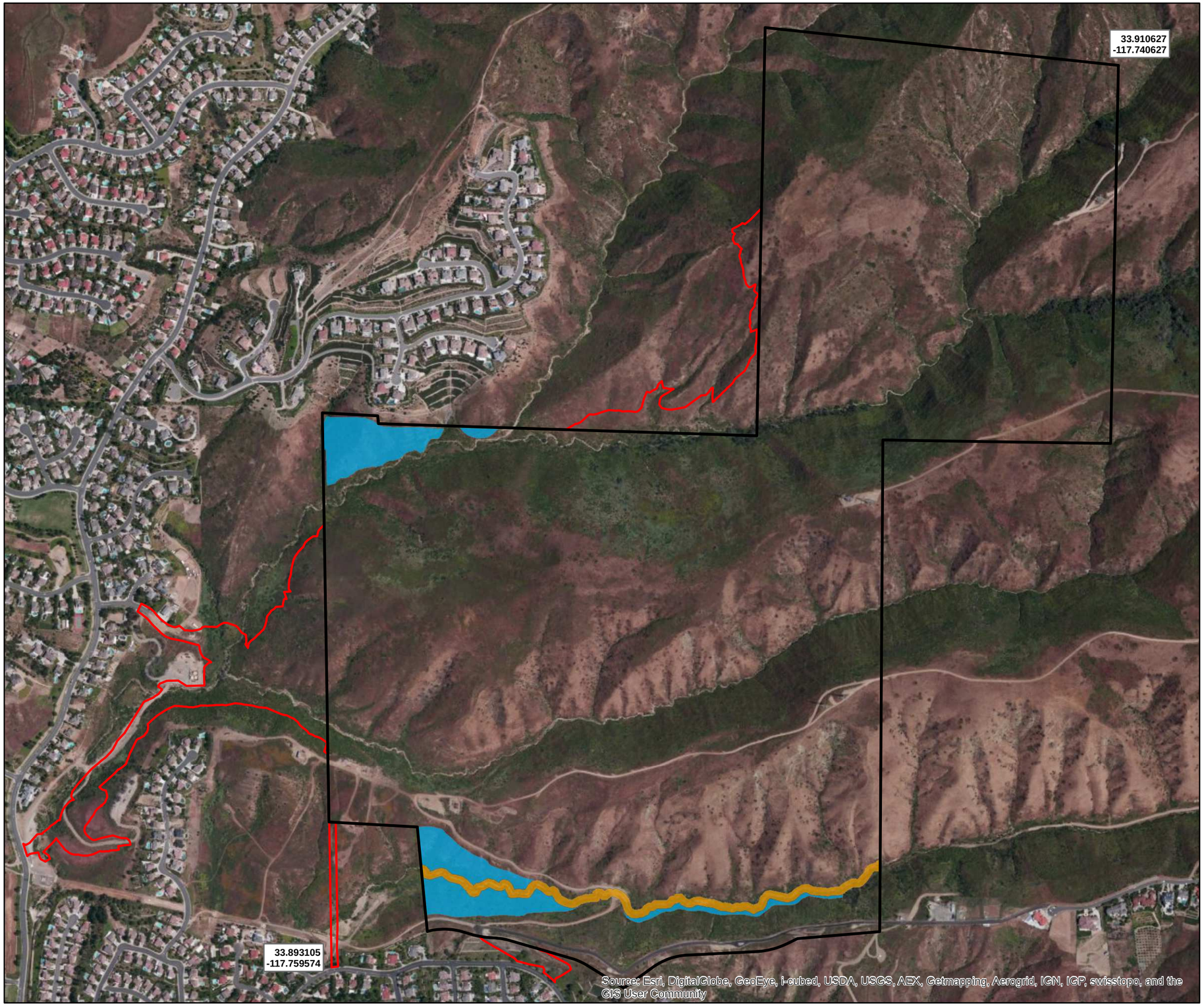
Appendix C –
Biological Resources:
1) Elderberry/Walnut Mitigation Area (Exhibit 11)
2) Habitat Mitigation and Monitoring Plan (HMMP)
3) Fuel Modification (Options 1, 2, 2A/2B
4) Summaries of Fuel Modification Impacts
5) Preliminary Jurisdictional Delineation dated December 6, 2013



Legend

- Property Boundary
- Study Area Boundary
- Proposed Elderberry/Walnut Mitigation Area - 13.63 ac.
- Proposed Ripiarian Mitigation Area - 5.27 ac.

N

0 350 700 1,400

Feet

1 inch = 700 feet

Aerial Photo: ESRI Basemaps
Reference Elevation Datum: State Plane 6 NAD 83
Map Prepared by: K. Kartunen, GLA
Date Prepared: November 20, 2013

ESPERANZA HILLS SPECIFIC PLAN AREA

Proposed Mitigation Area

GLENN LUKOS ASSOCIATES

Exhibit 11

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MITIGATION AND MONITORING PLAN
FOR IMPACTS TO AREAS WITHIN THE JURISDICTION

OF

THE UNITED STATES ARMY CORPS OF ENGINEERS
PURSUANT TO SECTION 404 OF THE CLEAN WATER ACT

AND

THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
PURSUANT TO SECTION 1602 OF THE FISH AND GAME CODE

AND

IMPACTS TO HABITAT OCCUPIED BY THE STATE- AND FEDERALLY-LISTED ENDANGERED LEAST BELL'S VIREO (*VIREO BELLII PUSILLIS*)

FOR

ESPERANZA HILLS SPECIFIC PLAN AREA

April 2014

Prepared for:

Yorba Linda Estates, LLC
7114 East Stetson, Suite 350
Scottsdale, Arizona 85251
Contact: Douglas G. Wymore

Prepared by:

Glenn Lukos Associates
29 Orchard
Lake Forest, California 92630
Contact: Tony Bomkamp

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APPENDICES

ESPERANZA HILLS SPECIFIC PLAN AREA PROJECT
HABITAT MITIGATION AND MONITORING PLAN[1]

OVERVIEW OF HABITAT MITIGATION AND MONITORING PLAN

The following plan sets forth a comprehensive approach for mitigating impacts specific impacts associated with the Esperanza Hills Project. Part 1 describes measures to mitigate impacts to drainages subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Clean Water Act, Regional Water Quality Control Board pursuant to Section 401 of the Clean Water Act and the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code. Part 2 describes measures to mitigate impacts to non-jurisdictional habitats, specifically, blue elderberry woodland and California walnut woodland. A significant component of the mitigation will be performed in Blue Mud Canyon, along the southern boundary of the project, which will subject to broader restoration efforts that will be implemented for fire protection, which will include removal of a substantial amount of non-native weedy material in concert with the installation of native plant material that will reduce fire danger and increase public safety while ensuring that ecological functions are enhanced over the existing condition. Part 2 also sets forth a program that will ensure integration of fire protection/public safety with long-term maintenance of ecological functions.

PART 1: MITIGATION FOR JURISDICTIONAL RESOURCES

I. DESCRIPTION OF THE PROJECT/IMPACT SITE

A. Responsible Parties

Applicant/Permittee: Yorba Linda Estates, LLC
7114 East Stetson, Suite 350
Scottsdale, Arizona 85251
Contact: Douglas G. Wymore

Preparer of Mitigation Plan: Glenn Lukos Associates, Inc.
Contact: Tony Bomkamp
29 Orchard
Lake Forest, California 92630-8300
Telephone: (949) 837-0404

[1] Part 1 of this mitigation program was prepared in accordance with the following document: Army Corps of Engineers, Los Angeles District: *Special Public Notice: Final Mitigation Guidelines and Monitoring Requirements.* Public Notice 970031200-RRS, April 19, 2004.

B. Location of Project and Brief Summary of Overall Project

The Project Site comprises approximately 469 acres adjacent to the city of Yorba Linda within unincorporated Orange County, California, while the Study Area, which includes the Project Site and the location of proposed off-site impacts, comprises 504 acres [Exhibit 1 – Regional Map]. The Project Site is located within Section 17, 18 of Township 3S, Range 8W, of the Yorba Linda (dated 1964 and photorevised in 1981) and Prado Dam (dated 1967 and photorevised in 1981) USGS 7.5" Quadrangle Maps. The Project Site also includes un-sectioned portions of Township 3S, Range 8W [Exhibit 2 – Vicinity Map]. Elevation ranges from approximately 550 feet at the southwest boundary to 1,550 feet at the north boundary. The Study Area is bordered by Blue Mud Canyon and Green Crest Drive to the south, Chino Hills State Park to the north and east, and residential areas adjacent to San Antonio Road to the west. The property immediately north east, and west of the study area is currently open space, while property bordering the southern boundary is residential development.

Esperanza Hills is located within unincorporated Orange County (County) north of the SR-91 Freeway, southwest of Chino Hills State Park, and adjacent to existing residential development in the City of Yorba Linda (City). The Project is east of San Antonio Drive and north of Stonehaven Drive in the City. The project footprint is bordered by Chino Hills State Park on the north and east. To the South and northwest lie existing residential communities, including Dominguez Ranch, Green Hills, Casino Ridge, Travis Ranch, and Yorba Linda Hills. The Cielo Vista project, a proposed residential subdivision in the County, lies to the west and southwest. The Esperanza Hills property is largely undeveloped, with the exception of oil well operation in the western portion of the site.

The Esperanza Hills project proposed to construct 340 single-family residential units on 468.9 acres in the unincorporated portion of the County adjacent to the City. As currently proposed, project components will include approximately 13.9 acres of active and passive parks, 7 miles of trails and 230 acres of open space. The trails will include pedestrian, bicycle, and equestrian trails with linkages to permit non-vehicular access to the Chino Hills State Park and surrounding open space areas. Fuel Modification areas have been identified and emergency access/evacuation plans have been defined in cooperation with the Orange County Fire Authority, and two underground water reservoirs are planned to assist in fire fighting. Two options for access to the community will be analyzed: one with a primary connection going south to Stonehaven Drive and a second with a primary connection going west from the community to Aspen Way, connecting to San Antonio Road. A homeowners' association will manage streets, landscaping, parks, and other amenities.

Habitats on-site include non-native grasslands, coastal sage scrub, chaparral, limited areas of disturbed walnut and oak woodlands, limited amounts of riparian habitat, and disturbed areas. The project site was burned in the "Freeway Complex Fire" in the fall of 2008, and prior had been historically used for animal grazing. Currently the site is used as open space and for energy transmission associated with the Southern California Edison Company. A total of four blue-line drainages occur on site, extending into offsite portions of the Study Area.

C. Jurisdictional Areas to be filled by Habitat Type and Location

Corps jurisdiction at the Esperanza Hills Project Study Area totals approximately 2.08 acres, of which 0.19 acre consists of wetlands. The wetland areas are associated with Drainage D, a small artificial detention basin at the mouth of Blue Mud Canyon (Drainage F) and Drainage G [Corps Jurisdictional Delineation Map - Exhibit 3a]. Three different Project alternatives are currently proposed. The most impactful of the three alternatives, as currently proposed, would impact approximately 1.17 acres of waters of the U.S., of which 0.11 acre consists of wetlands. Impacts would occur within Drainages A, D, E, and F, all of which are non-relatively permanent (i.e. ephemeral) waters (Non-RPWs).

California Department of Fish and Wildlife (CDFW) jurisdiction at the Esperanza Hills Project Site totals approximately 4.15 acres, of which approximately 2.57 acres consist of vegetated riparian habitat [CDFW Jurisdictional Delineation Map - Exhibit 3b]. The most impactful of the three alternatives, as currently proposed, would impact approximately 2.57 acres of CDFW jurisdiction, of which 1.77 acre is vegetated riparian habitat consisting of disturbed coast live oak riparian forest, mulefat scrub, California walnut/mulefat scrub, blue elderberry woodland, and southern willow scrub. A summary of associated impacts to CDFW jurisdiction under each alternative is provided in Table 1 below.

TABLE 1

Impacts to CDFW Jurisdiction

Vegetation Types	Option 1 Impacts	Option 2 Impacts	Option 2A Impacts
Black Willow Riparian Forest	0.0 acre	0.19 acre	0.08 acre
Blue Elderberry Woodland	0.45 acre	0.45 acre	0.45 acre
Mulefat Scrub	0.09 acre	0.09 acre	0.32 acre
Coast Live Oak Riparian Forest	0.54 acre	0.54 acre	0.54 acre
Detention Basin	0.02 acre	0.02 acre	0.02 acre
Southern Willow Scrub	0.0 acre	0.0 acre	0.36 acre
Unvegetated Channel	0.80 acre	0.80 acre	0.80 acre
Total:	**1.90 acres**	**2.09 acre**	**2.57 acre**

D. Type(s), Functions and Values of the Jurisdictional Areas to be Directly and Indirectly Impacted

Functions and values to be affected by the project are divided into three categories: hydrologic, biogeochemical, and habitat. Each is addressed below.

1. Hydrologic Functions

The drainages to be affected occur at the bottom of deep canyons and generally range from one to four feet wide. As such, there is little potential for surface water storage and limited potential for recharge of groundwater. The narrow drainages support only limited areas of riparian vegetation,

which is typically outside of the active channel and therefore exhibit limited potential for energy dissipation. In short, the drainages exhibit limited hydrological functions, typical of ephemeral drainages within the region.

2. Biogeochemical Functions

The largely unvegetated ephemeral drainages exhibit biogeochemical functions typical of ephemeral drainages in the region including export of particulate carbon and other fine organic matter; however, all of the drainages ultimately discharge to offsite storm drains, which in turn empty into the Santa Ana River, which exhibits very limited habitat value as it is managed for purposes of groundwater recharge. Similarly, the drainages exhibit limited potential for water quality improvement (e.g., retention of particulates and/or removal of elements and compounds) for two reasons: first, due to the limited amount of riparian vegetation, steep gradients, and narrow width and second, because the site is currently in a natural state (albeit much of the vegetation consists of non-native weedy species).

3. Habitat Functions

As noted, the drainages on the site support limited areas of riparian habitat consisting mostly of small patches of non-wetland mulefat (*Baccharis salicifolia*) intermixed with other upland vegetation including scattered blue elderberry (*Sambucus nigra* ssp. *caerulea*). Drainage D includes limited areas of coast live oak riparian forest, which burned during the Freeway Complex Fire in late 2008, killing approximately half of the oaks with about half of the oaks exhibiting some re-growth, though in poor condition. Drainage F (Blue Mud Canyon) supports scattered patched of willow and mulefat including at the downstream limit, which is offsite but which would be affected by utilities and an emergency access route. As discussed below, an off-site area, at the mouth of Blue Mud Canyon has recently supported least Bell's vireo, a state- and federally listed songbird.

E. <u>Occupied Least Bell's Vireo Habitat to be Impacted</u>

Three Project alternatives are currently proposed. The most impactful of the three, as currently proposed, would permanently impact approximately 0.05 acre of mulefat scrub vegetation, 0.09 acre of black willow riparian forest, and 0.36 acre of southern willow scrub occupied by the state- and federally listed endangered least Bell's vireo (LBV) [Exhibit 5]. The LBV is a state- and federally listed endangered species, and as such both CDFW and US Fish and Wildlife Service (USFWS) regulate impacts to occupied LBV habitat.

II. OBJECTIVES OF THE COMPENSATORY MITIGATION

The objectives of the proposed habitat mitigation and monitoring program (HMMP) is to provide for (1) full mitigation of permanent impacts, which under the most impactful project alternative consist of impacts to 1.17 acres of waters of the U.S., of which 0.11 acre consists of wetlands, and 2.57 acres of CDFW jurisdiction, of which 1.77 acre is vegetated riparian habitat; and (2) mitigation for impacts to 0.05 acre of mulefat scrub, 0.09 acre of black willow riparian forest, and 0.36 acre of southern willow scrub occupied by the state- and federally listed endangered LBV.

Table 2 provides a summary of mitigation required for each CDFW jurisdictional resource under each of the alternatives.

TABLE 2

Mitigation for CDFW Jurisdictional Resources

Resource to be Mitigated	Option 1	Option 2	Option 2A
	Mitigation Required		
CDFW Riparian (at 2:1)	2.20 acres	2.58 acres	3.54 acres
CDFW Unvegetated Channel (at 1:1)	0.80 acre	0.80 acre	0.80 acre
Total CDFW	**3.0 acres**	**3.38 acres**	**4.34 acres**

The goals will be achieved through permittee-responsible mitigation that incorporates components of a watershed approach that includes: (1) onsite replacement or enhancement of the functions provided by the existing ephemeral drainages and associated wetland and riparian habitats to be impacted, (2) in some instances, establishment of additional hydrologic, biogeochemical and wildlife functions currently not associated with drainages to be impacted; (3) fostering an increase in the habitat values beyond those currently provided by the existing streambeds, wetlands and/or riparian habitats; and (4) providing optimal breeding habitat for least Bell's vireo (LBV). In determining the best way to ensure no net-loss of aquatic resource functions in the region, a number of factors were considered, including:

- The functioning and impairment of existing aquatic resources onsite;
- The best location for rehabilitation of aquatic resources;
- The relative acreage for each habitat type of impacted aquatic resource; and
- The opportunity to compensate for potential cumulative impacts.

In order to achieve the goal of no-net-loss of aquatic resource functions, this HMMP proposes rehabilitation, using components of the watershed approach set forth at 40 CFR Part 230: *Compensatory Mitigation for Losses of Aquatic Resources; Final Rule*. ("Mitigation Rule")[2]

A. Types and Areas of Habitat to be Rehabilitated

In order to offset impacts to Corps and CDFW jurisdiction and ensure the goals of no-net loss of riparian habitat and associated functions, including coast live oak riparian forest, mulefat scrub, California walnut/mulefat scrub, elderberry woodland and southern willow scrub, the Project will include rehabilitation of southern willow scrub and southern coast live oak-California walnut riparian forest within Blue Mud Canyon (Drainage F). Under the most impactful alternative, a minimum of 4.34 acres would be rehabilitated, for a ratio of 2:1 for CDFW impacts and 3.7:1 for Corps impacts. Additionally, the one acre rehabilitated southern willow scrub habitat will mitigate for impacts to 0.05-acre of mulefat scrub, 0.09 acre of black willow riparian forest, and 0.36 acre of southern willow scrub habitat occupied by LBV at a ratio of 2:1. The candidate mitigation areas proposed for mitigation of CDFW and Corps jurisdictional impacts and impacts to habitat occupied by LBV are summarized in Table 3 below and depicted on Exhibit 6. If a less impactful alternative is ultimately selected, mitigation will be installed at ratios noted above for Corps and CDFW.

TABLE 3
SUMMARY OF CANDIDATE MITIGATION AREAS

Mitigation Site	Mitigation Type	Habitat Type	Area (Acres)
Blue Mud Canyon (Drainage F)	Rehabilitation	Southern Willow Scrub	1.0
Blue Mud Canyon (Drainage F)	Rehabilitation	Coast Live Oak-Walnut Riparian Forest	3.34
		TOTAL	4.34**

**Although up to 5.30 acres of candidate mitigation area is available, actual mitigation acreage will be installed at a 3.7:1 ration for Corps impacts, 2:1 ratio for CDFW impacts and 2:1 for LBV impacts.

The rehabilitation mitigation site within Blue Mud Canyon would offset impacts to Corps jurisdiction, as it is a water of the United States and exhibits an OHWM. Following implementation of the mitigation project, it is expected that areas will support vegetated riparian habitat with portions exhibiting wetland characteristics.

For the above-referenced mitigation areas, the 5.30-acre candidate area of southern willow scrub and coast live oak-California walnut riparian forest in Blue Mud Canyon are appropriately categorized as rehabilitation under the Mitigation Rule, as there will be a gain in aquatic resource

[2] Federal Register Vol. 73 No. 70. April 10, 2008. Department of Defense: Department of the Army, Corps of Engineers, 33 CFR Parts 325 and 332 and Environmental Protection Agency, 40 CFR Part 230 Compensatory Mitigation for Losses of Aquatic Resources; Final Rule.

function but no gain in aquatic resource area. The portion of Blue Mud Canyon to be established as the mitigation site currently exhibits an OHWM that ranges from four to six feet wide, and is generally vegetated with patches of mulefat scrub, remnant California walnut woodland (many were killed by the 2008 Freeway Complex Fire), California walnut woodland/mulefat scrub, and limited amounts of blue elderberry woodland (also largely killed and/or damaged by the fire). However, following the 2008 fire, much of the fire-damaged native vegetation on the slopes on either side of the Drainage F was largely displaced by non-native species including poison hemlock (*Conium maculatum*), sweet fennel (*Foeniculum vulgare*), tree tobacco (*Nicotiana glauca*), and castor bean (*Ricinus communis*). In general Drainage F is characterized by a dominance of bush mallow (*Malacothamnus fasciculatus*, UPL) and poison hemlock (*Conium maculatum*, FAC), limited areas of Arroyo willow (*Salix lasiolepis*, FACW), mulefat (*Baccharis salicifolia*, FAC), coyote bush (*Baccharis pilularis*, UPL), laurel sumac (*Malosma laurina* UPL), giant wild rye (*Elymus condensatus*, FACU), and non-native sweet fennel (*Foeniculum vulgare*, UPL).

B. Specific Functions and Values of Habitat Types to be Rehabilitated

Upon successful implementation, the mitigation site will provide replacement of functions and values for impacts to ephemeral drainages, vegetated riparian habitat, most of which is degraded and has a substantial component of non-native species, and a very small area of jurisdictional wetlands (0.11 acre). The proposed rehabilitation of southern willow scrub and coast live oak-walnut riparian forest within the 5.30-acre candidate mitigation area provides for no-net-loss of both function and area of wetland and riparian resources.

Additionally, the proposed rehabilitation of southern willow scrub will provide optimal breeding habitat for LBV and offsets the loss of occupied riparian habitat at a ratio of at least 2:1.

C. Time Lapse Between Jurisdictional Impacts and Expected Compensatory Mitigation Success

Project grading activities will commence upon receipt of permits with project impacts expected to occur immediately thereafter. Mitigation site grading, planting, and irrigation shall begin prior to or concurrent with the planned date of initiating authorized fill activities. Eradication of non-native plant species encountered will be concurrent with commencement of grading.

Within one year of the completion of mitigation installation, it is expected that immature riparian vegetative structure will exist such that insects and birds will utilize the mitigation site for foraging, and within approximately three years, the riparian vegetative structure will be sufficiently mature to support LBV.

D. Estimated Total Cost

Table 4 below indicates the estimated cost for implementation, maintenance, and monitoring of the mitigation area for five years.

TABLE 4
ESTIMATED MITIGATION COST FOR 4.34 ACRES

Task	Cost
Grading (costs included with general site grading)	N/A
Mobilization	$6,400
Site Preparation	$11,200
Irrigation Installation	$40,000
Installation (includes plants and seeds)	$56,000
Project Maintenance	$120,000
Project Monitoring and Reporting	$80,000
Total	**$313,600**

III. DESCRIPTION OF THE PROPOSED COMPENSATORY MITIGATION SITE

A. Location and Size of the Compensatory Mitigation Site

The 5.30-acre candidate mitigation site will be located in the portion of Blue Mud Canyon (Drainage F) not subject to project impacts as depicted on Exhibit 6. Under the most impactful alternative, the mitigation area will include rehabilitation of 1.00 acre of southern willow scrub and 3.34 acres of coast live oak-walnut riparian forest.

Selection of this area is consistent with the site selection criteria set forth on page 19674 of the Mitigation Rule. Specifically, characteristics of Blue Mud Canyon include (1) hydrological and other physical characteristics conducive to rehabilitation; (2) sufficient hydrologic sources to support the rehabilitation project; (3) location where it would be compatible with adjacent land uses, as it is located within a portion of the Specific Plan Area not planned for development; and (4) it will provide habitat for the state- and federally-listed endangered least Bell's vireo. The rehabilitation area is described below.

B. Ownership Status

The present owners of the mitigation areas are:

Applicant/Permittee: Yorba Linda Estates, LLC
7114 East Stetson, Suite 350
Scottsdale, Arizona 85251
Contact: Douglas G. Wymore

C. Existing Functions and Values of the Rehabilitation Mitigation Site

The portion of Blue Mud Canyon to be established as the mitigation site currently exhibits an OHWM, and supports vegetation that established following the 2008 Freeway Complex Fire that includes dense areas of bush mallow mixed with locally dense stands of poison hemlock, scattered castor bean and tree tobacco interspersed with occasional patches of mulefat and willow scrub, remnant California walnut woodland (most were killed or damaged by the 2008 Freeway Complex Fire), and limited amounts of blue elderberry woodland (also largely killed or damaged by the fire). In general Drainage F besides the areas dominated by bush mallow (*Malacothamnus fasciculatus*, UPL) poison hemlock (*Conium maculatum*, FAC), and limited areas of arroyo willow (*Salix lasiolepis*, FACW) and mulefat (*Baccharis salicifolia*, FAC), the banks of the drainage support scattered individuals of coyote bush (*Baccharis pilularis*, UPL), laurel sumac (*Malosma laurina* UPL), and giant wild rye (*Elymus condensatus*, FACU).

Subsequent to the 2008 Freeway Complex Fire, the habitat functions of Drainage F were greatly reduced, as much of the riparian habitat burned. Following the 2008 fire, much of the fire-damaged native vegetation on the terraces/slopes on either side of the Drainage F was displaced by non-native species including poison hemlock (*Conium maculatum*), sweet fennel (*Foeniculum vulgare*), tree tobacco (*Nicotiana glauca*), and castor bean (*Ricinus communis*). The areas of willow and mulefat are slowly recovering, but during surveys in early 2013, only exhibited roughly half the cover of their pre-fire condition.

D. Jurisdictional Delineation of Mitigation Areas

As noted above, Blue Mud Canyon is subject to Corps and CDFW jurisdiction and has an OHWM that varies from 6 to 8 feet within the area to be rehabilitated and supports mulefat scrub, remnant California walnut woodland (most were killed or damaged by the 2008 Freeway Complex Fire), California walnut woodland/mulefat scrub, and limited amounts of blue elderberry woodland (also largely killed or damaged by the fire). The slopes adjacent to the drainage are outside of Corps jurisdiction, but are appropriate for inclusion of the mitigation site as they currently support areas of invasive non-native species and conversion to native riparian habitat would improve the aquatic functions and values of the mitigation site and watershed.

E. Present and Proposed Uses of Mitigation Site

Blue Mud Canyon is an existing drainage that supports areas of mulefat scrub, remnant California walnut woodland (most were killed by the 2008 Freeway Complex Fire), California walnut woodland/mulefat scrub, and limited amounts of blue elderberry woodland (also largely killed by the fire) and is currently undeveloped. Upon completion of the grading, limited portions of the drainage at the far western edge of the project site will be filled for road construction and utility installation. The remainder of the on-site portion of the drainage will be planted with riparian vegetation.

IV. IMPLEMENTATION PLAN FOR THE COMPENSATORY MITIGATION SITES

A. Rationale for Expecting Implementation Success

The proposed mitigation will be installed prior to or concurrent with impacts to Corps and CDFW jurisdiction. Specific rationale for expecting implementation of the various components of the mitigation program is provided below.

The proposed mitigation area within Blue Mud Canyon is a good candidate for habitat rehabilitation for several reasons and will result in an increase in aquatic functional capacity within the Santa Ana River watershed to which the proposed impact site contributes. First, hydrology to support the wetland/riparian areas within the sites is assured from existing sources. Second, the proposed plant palettes consist of species that occur onsite and are known to perform well in habitat restoration programs. After minimal localized grading, which will serve to enhance hydrological conditions in a few areas, the mitigation areas will be ideal for species such as willows, coast live oak, California walnut, blue elderberry, and mulefat as well as suite of diverse understory species. The restored habitat areas will be located at the optimal elevations and distance from the main channel with the driest areas supporting coast live oak, blue elderberry, and California walnut, and the wettest areas supporting arroyo willow, black willow, and mulefat with an appropriate understory. The tenacious quality of native riparian plant species, which allows their continued survival in areas of natural disturbance, also helps to ensure their establishment as part of the proposed mitigation. Natural recruitment and reproduction is expected within the site.

With regard to least Bell's vireo, it is expected that the rehabilitated habitat will exhibit sufficient canopy structure to support breeding LBV within approximately three years of mitigation installation. As LBV were observed in mulefat scrub in Drainage F in 2012, and documented to have nested in Drainage G on the west side of the Project Study Area in 2012, it is expected that LBV will immediately begin to utilize the mitigation site for foraging and potentially for breeding.

B. Responsible Parties

Applicant/Permittee: Yorba Linda Estates, LLC
7114 East Stetson, Suite 350
Scottsdale, Arizona 85251
Contact: Douglas G. Wymore

Preparer of Mitigation Plan: Glenn Lukos Associates, Inc.
Contact: Tony Bomkamp
29 Orchard
Lake Forest, California 92630-8300
Telephone: (949) 837-0404

C. Implementation Schedule

The mitigation installation contractor (herein "Contractor"), shall be responsible for site preparation, irrigation installation and mitigation plantings, which shall begin during construction activities. Compensatory mitigation designated to occur within the mitigation site shall be installed no later than one construction season after commencement of fill activities within jurisdictional waters.

Table 5 below indicates timing of intended impacts to Corps and CDFW jurisdiction and LBV habitat, site grading, eradication of weedy exotic plant species, site preparation and planting. The Contractor will retain a biological monitor with appropriate experience with site flora & fauna ("Project Biologist") to supervise and provide biological monitoring during project construction, site preparation, installation of plant materials and maintenance.

TABLE 5
IMPLEMENTATION SCHEDULE

Impacts to Corps and CDFW Jurisdiction and LBV Habitat	Year 1
Mitigation Site Grading	Year 1
Site Preparation	Year 1
Irrigation Installation	Year 2
Container Stock Installation	Year 2
Hydroseeding	Year 2

D. Site Preparation

Site preparation shall consist of minor localized grading, clearing and controlling exotic plants, trenching and installation of underground irrigation components, removing trash and debris, preparing planting holes and doing any other work necessary to make ready the area for planting. No restoration or mitigation shall occur in fuel modification zones, future project areas or areas of maintenance.

Mitigation Site Grading Plan

As the topography of the mitigation site is generally satisfactory under existing conditions for establishing the mitigation site, only minimal localized grading will be necessary. For those areas that require grading, a grading plan for the Blue Mud Canyon mitigation site will be developed making use of existing hydrological data, however, micro elevations and micro grading will be determined by the Project Biologist in conjunction with the project hydrologist with adjustments occurring based on site conditions at that time. The work area shall be flagged to identify its limits within the project footprint to avoid unnecessary impact to areas outside of the mitigation site. Vegetation shall not be removed or intentionally damaged beyond these limits. Vegetation in this area consists of mulefat scrub, remnant California walnut woodland (most were killed by the 2008 Freeway Complex Fire), California walnut woodland/mulefat scrub, and limited amounts of blue elderberry woodland (also largely killed by the fire), and if living vegetation is damaged, shall be included into the mitigation. No equipment shall be operated within the drip line of preserved oaks. Protective fencing shall be placed around the drip line of all preserved oaks to prevent compaction of the root zone.

Exotic Vegetation Control

The predominance of non-native, invasive weed species throughout California has presented a challenge to most native revegetation projects. Weedy species are opportunistic, rapidly colonizing disturbed sites such as revegetation sites. This can lead to the displacement of native species if the weedy species are not properly treated. Several of these invasive species are capable of out-competing most native understory and herbaceous plants and some can out-compete and even displace existing native trees and shrubs. Therefore, non-native vegetation including but not limited to poison hemlock (*Conium maculatum*), sweet fennel (*Foeniculum vulgare*), tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*), will be removed from the mitigation site and disposed of in a manner and at a location which prevents its reestablishment. Removal shall be done at least twice annually during the spring/summer season, as needed, through the term of the mitigation monitoring period.

Although it has not been detected during previous survey efforts, if giant reed (*Arundo donax*) is present, it shall be cut to a height of 6 inches or less, and the stumps painted with an herbicide approved for aquatic use within 5 minutes of cutting. Herbicides shall be applied at least three times during the period from May 1 to October 1 to eradicate these plants. Where proposed methods for removing giant reed deviate from this procedure, the Contractor shall present the alternate methods, in writing, to CDFW for review and approval, prior to construction.

One of the largest obstacles to the successful revegetation of a site is the exotic seed bank residing in the soil. This seed bank can persist for several years, or even decades, and poses one of the major threats to restoration programs. Undesirable exotic plants will be eradicated either during initial site grading or prior to site preparation. If grading precedes planting by more than a few months, it will be necessary to eradicate undesirable exotic plants that have become established prior to planting and seeding of the mitigation sites. If deemed necessary, a "grow-and-kill" cycle will be established during that period. "Grow and kill" is a cycle of applying water, germinating the non-native, invasive species and spraying with the appropriate chemical. This allows a large portion of the seed bank currently present in the soil to be removed. Eliminating or substantially reducing the competition from non-native exotics early in the life cycle of native plants helps to ensure more rapid growth and cover by the native species.

Initially and whenever possible, invasive species shall be removed by hand or by hand-operated power tools rather than by chemical means. Where control of non-native vegetation is required within the bed, bank, or channel of a stream using herbicides and there is a possibility that the herbicides could come into contact with water, the Contractor shall employ only those herbicides, such as Rodeo/Aquamaster (Glyphosate), which are approved for aquatic use. If surfactants are required, they shall be restricted to non-ionic chemicals, such as Agri-Dex, which are approved for aquatic use.

The type, quantity, and method of herbicide application will be determined by a California licensed Pest Control Advisor (PCA) who will inspect the site, write project recommendations and submit same to the Project Biologist for approval. Pesticide recommendations shall include, but are not limited to, the pesticides to be used, rates of application, methods of application, and areas to which pesticides are to be applied. A licensed Pest Control Operator (PCO) may work under the supervision of the PCA who will employ best management practices regarding the timing, quantity, and type of herbicide for each species. The PCA will determine both immediate and follow-up herbicide application for each species.

No herbicides shall be used where threatened or endangered plant species occur, when wind velocities are above 5 miles per hour, or on native vegetation unless specifically authorized, in writing, by CDFW.

A small amount of selective trimming of native species (e.g. willow, oak and sycamore) may occur to prevent overspray of herbicide from reaching these branches, but only as provided within the conditions of the Streambed Alteration Agreement issued by CDFW and this Mitigation Plan. Native vegetation may only be trimmed; individual plants shall not be removed. Material in excess of three (3) inches diameter breast height (DBH) shall require specific notice to and consultation with CDFW.

Weed control will be maintained throughout the monitoring period. Weeds will be controlled before their setting of seed. Ongoing weed control will be accomplished manually by the use of a hoe or other tool to uproot the entire plant, a mower or weed whip to cut plants, or by herbicide application as prescribed in this Mitigation Plan. Weed species identified as invasive, particularly tenacious, or those with wind-borne seed will be subject to the earliest control

efforts. The Project Biologist will direct the contractor regarding the selection of target weed species, their location and the timing of weed control operations to ensure that native plants are avoided to the extent possible.

Contractor Education
Prior to the commencement of grading or any construction work, the Contractor will review all aspects of the Mitigation Plan that concern the contractors including permit requirements, site protection, maintenance inspections, landscape procedures and monitoring.

The Applicant/Permittee shall make the Contractor and all other contractors, subcontractors and the project supervisors aware of the Corps Authorization and the CDFW Streambed Alteration Agreement. Copies of the permits shall be kept onsite at all times during periods of active work and must be presented to any agency personnel upon demand.

Nesting Birds
The Contractor may remove vegetation within drainages from March 1 to July 31 if a qualified biologist conducts a survey for nesting birds within three days prior to the vegetation removal and ensures no nesting birds shall be impacted by the project. These surveys shall include the areas within 200 feet of the edge of the proposed impacts. If active nests are found, a minimum 50-foot (200 feet for raptors) fence barrier shall be erected around the nest site. No habitat removal or any other work shall occur within the fenced nest zone if the nest continues active beyond July 31, until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be impacted by the project. The Contractor shall submit the mapped survey results to CDFW for review and approval prior to vegetation removal to ensure full avoidance measures are in place. The Contractor will adhere to all applicable requirements of federal and state codes (e.g., Migratory Bird Treaty Act and CDFG Code 3503.5).

E. Planting Plan

Two riparian associations will be rehabilitated within the proposed mitigation areas: willow-mulefat riparian forest and coast live oak-walnut riparian woodland. These plant communities were selected based on surveys conducted during various biological survey visits including vegetation mapping and jurisdictional delineation. Woody plant species were selected to create a mature tree canopy and provide wildlife forage, shelter and nesting places, including habitat for LBV. Planting shall consist of preparing planting holes, planting container stock, installing plant protection devices, applying mulch and hydroseeding. No planting shall be done in any area until the area concerned has been prepared in accordance with the plans and presents an appearance satisfactory to the Project Biologist.

All planting should be done after the first wetting rains between October 1 and February 1 to take advantage of the winter rainy season, dormancy of foliage, and rooting period to ensure optimum survival of plantings. Should the Contractor be required to plant during other times of the year, chances of survival are diminished. To compensate for decreased survival rates, the Operator shall be required to augment the specified planting density by 25-percent to account for the likelihood of increased mortality of plantings. Completion of all mitigation requirements shall be

concluded within two years of project implementation within jurisdictional areas. Planting, maintenance, monitoring and reporting activities shall be overseen by a specialist familiar with restoration of native plants. The Contractor shall place structures on properties so that fire clearance activities will not impact vegetation on stream courses, mitigation areas, or associated buffer areas.

Plant Palettes

The mitigation site will be vegetated with plant species native to the Yorba Linda and Chino Hills Area and surrounding areas. The proposed revegetation plant palettes for the revegetation habitat types are designated below in Tables 6 and 7. The plant palettes define species, spacing and total quantity of plants per acre required. CDFW recommends that the landscaping within the open spaces and common areas of the development utilize native plant species. The use of invasive non-native plants is strongly discouraged.

Southern Willow Scrub Riparian Scrub

This plan provides for the rehabilitation of 1.0 acre of southern willow scrub scrub based primarily on riparian forest composition in Drainage G. If a less impactful Project Alternative is selected, the mitigation will be reduced accordingly while maintaining a 2:1 ratio for CDFW impacts. The planting palette is presented in Table 6 below.

TABLE 6
WILLOW-MULEFAT RIPARIAN SCRUB
(1.0 acre to be rehabilitated)

Botanic Name	Common Name	Stock Type	Plant Spacing	No. per Acre	Percent
Canopy					
Salix goodingii	Black willow	1 gal	20' o.c.	75	19%
Salix lasiolepis	Arroyo willow	1 gal	15' o.c.	100	25%
Salix exigua	Narrow-leaf willow	1 gal	10' o.c	200	50%
Sambucus nigra ssp. *caerulea*	Blue elderberry	1 gal	30' o.c.	25	6%
Subtotal				**400**	**100%**
Understory					
Isocoma menziesii	Coast goldenbush	1 gal	8' o.c.	100	12.5%
Rosa californica	California rose	1 gal	8' o.c.	100	12.5%
Baccharis pilularis	Coyote bush	1 gal	8' o.c.	100	12.5%
Baccharis salicifolia	Mulefat	1 gal	4' o.c.	200	25%
Artemesia douglasiana	Mugwort	Liner	8' o.c	100	12.5%
Rubus ursinus	Blackberry	Liner	8' o.c	100	12.5%
Subtotal				**700**	**100%**
Total Container Stock				**1100**	

Coast Live Oak-California Walnut Riparian Forest

This plan provides for the rehabilitation of 3.34 acres subject to CDFW jurisdiction of coast live oak-walnut riparian forest based primarily on the riparian woodland composition in Drainages F and D. The planting palette is presented in Tables 7 below.

TABLE 7
COAST LIVE OAK-WALNUT RIPARIAN WOODLAND PLANT PALETTE
(3.34 acres riparian)

Botanic Name	Common Name	Stock Type	Plant Spacing	No. per Acre	Percent
Canopy					
Quercus agrifolia	Coast live oak	1 gal	40' o.c.	10	10%
Sambucus nigra ssp. *caerulea*	Blue elderberry	1 gal	40' o.c.	50	50%
Juglans californica	California walnut	1 gal	30' o.c.	40	40%
Subtotal				**100**	**100%**
Understory					
Heteromeles arbutifolia	Toyon	1 gal	30' o.c.	50	6%
Baccharis salicifolia	Mulefat	1 gal	10'oc	100	13%
Malosma laurina	Laurel sumac	Liner	30' o.c.	50	6%
Rosa californica	California rose	Liner	12' o.c.	100	13%
Ribes speciosum	Fuchsia-flowered gooseberry	1 gal	20' o.c.	50	6%
Rhamnus ilicifolia	Holly-leaved redberry	1 gal	20' o.c.	50	6%
Elymus condensatus	Giant wildrye	1 gal	Clumped	100	13%
Mimulus aurantiacus	bush monkey flower	1 gal	Clumped	50	6%
Stipa pulchra	Purple needlegrass	1 gal	Clumped.	100	13%
Melica imperfecta	Coast range melic	1 gal	12' o.c.	50	6%
Baccharis pilularis	Coyote bush	1 gal	12" o.c.	100	13%
Subtotal				**800**	**100%**
Total Container Stock				**900**	**100%**

Source of Plant Materials

It is preferred that the source of all propagules and seed used at the mitigation site be from the site or adjacent riparian areas. If not available, the remainder of propagules and seed required will be from wild sources within Orange County or eastern Los Angeles County, and collected as close to the mitigation sites as possible to preserve regional genetic integrity.

Plant material for revegetation shall be derived from cuttings, materials salvaged from disturbed areas, and/or seeds obtained from randomly selected native trees and shrubs occurring locally within the same stream. Any replacement tree/shrub stock, which cannot be grown from cuttings or seeds, shall be obtained from a native plant nursery, be ant free and shall not be inoculated to prevent heart rot. If any materials must be obtained from other than onsite sources, the Project Biologist shall provide CDFW with a list of all such materials.

Contract Growing
Contract growing of all container plants shall be by a local experienced native plant nursery. Substitution of plant material at the time of planting depends solely upon the discretion of the Project Biologist. Any substitutions that are approved will be documented in the As-Built Plans.

Container Plants
One-gallon container stock, rosepots and liners shall be utilized for container stock production in order to develop vertical heterogeneity (strata). All plant materials will be inspected by the Project Biologist and approved as healthy, disease free and of proper size prior to planting. Overgrown, root-bound container stock will be rejected.

Mycorrhizal Fungi
Mycorrhizae are specialized fungi found on plant roots. A symbiotic relationship exists between plant roots and mycorrhizae wherein the plants benefit from the increased ability to take up nutrients and withstand drought when mycorrhizae are present. This relationship is essential to the growth rate, well-being, and longevity of native plant communities. Plant utilization of mycorrhizal fungi markedly increases the success of revegetation on disturbed or degraded lands. All appropriate container-grown plants, except those known to be non-host species, shall be inoculated with mycorrhizal fungi prior to delivery to the job site.

Plant Placement
Container stock will be laid out in such a manner that mimics natural plant distribution (i.e., in clusters and islands) to emulate regional reference sites. The Project Biologist will monitor and confirm that trees and shrubs have been placed at the designed elevation relative to the water source supporting them, such as ground water. All plants shall be planted in randomly spaced, naturally clumped patterns. The average planting densities shall meet the criteria specified in Tables 6 and 7.

Planting Method for Rose Pot and/or Liner Plant Stock
Rose pot and/or liner plant stock will be placed in a hole measuring at least twice the diameter and depth of the container. The root structure will be examined and excess root material removed. The top of the rootball will be set slightly above finish grade. The planting hole will be backfilled with native soil. Fertilizer, watering basins, and mulch are not required for this planting method.

Planting Method for Container Stock
One-gallon container stock will be planted in a hole measuring at least twice the diameter of the container and twice the depth. Container stock will be thoroughly watered the day before planting. One teaspoon (0.3 oz.) of Osmocote 14-14-14 (or equal) will be placed one inch below the root zone and backfilled with native soil to proper planting depth. The container will be upended into the palm of the hand to avoid damage to the root structure and placed in the planting hole. The top of the root ball will be set one inch above finish grade. The planting hole will be backfilled with native soil.

A three-inch high, hand-compacted earth berm, approximately 36 inches in diameter, will then be constructed around each container plant. This watering basin will be maintained until the plants are no longer irrigated. Mulch will be applied as a top dressing, 2 to 3 inches thick, but must not come in contact with the stem of the plant. Container stock will be watered immediately after installation.

Erosion Protection
To provide protection from erosion, willow cuttings shall be planted on 6-8 ft centers on the restored slope, or other appropriate erosion control methods. Willows shall be planted during the willow's dormant season, and shall be augured/dug into the groundwater or wetted soil. Areas of disturbed soils with slopes toward a stream or lake shall be stabilized to reduce erosion potential. Planting, seeding and mulching is conditionally acceptable. Where suitable vegetation cannot reasonably be expected to become established, non-erodible materials, such as coconut fiber matting, shall be used for such stabilization. Any installation of non-erodible materials not described in the original project description shall be coordinated with CDFW. Coordination may include the negotiation of additional Streambed Alteration Agreement provisions for this activity.

Pruning and Staking
There will be no pruning or staking of any vegetation. Diseased or insect-damaged foliage, if sufficient to require pruning, will serve as a benchmark for rejection of plant material.
A small amount of selective trimming of native species (e.g. willow, oak and sycamore) is allowed to prevent overspray of herbicide from reaching these branches, but only as provided within the conditions of the CDFW Streambed Alteration Agreement. Native vegetation may only be trimmed; individual plants shall not be removed. Material in excess of three (3) inches DBH shall require specific notice to and consultation with CDFW.

F. Irrigation Plan

The Contractor shall provide irrigation for each mitigation site when natural moisture conditions are inadequate to ensure survival of plants. Irrigation shall be provided for a period of at least two years from planting. Irrigation shall be phased out during the fall/winter of second or third year unless unusually severe conditions threaten survival of plantings. All plants must survive and grow for at least two years without supplemental water for the restoration phase of the project to be eligible for acceptance by CDFW. Long-term irrigation may be incorporated into portions or all of the southern willow scrub and coast live oak-California walnut woodland that overlaps with the fire-prone plant removal areas as depicted on Exhibit 4.

Coarse mulch shall be placed around plantings to minimize water loss and discourage weed growth. Mulch shall be 3 to 4 inches deep and shall be placed in a minimum area 1.5 times the diameter of the drip line of the plant or 2 feet in diameter whichever is greater. The mulched area shall be maintained throughout the course of restoration, unless otherwise authorized in writing by CDFW. Mulch shall not be placed directly against the main stem of the plants.

Supplemental irrigation is to be used solely for the purpose of establishing the plants at the mitigation site and is of a temporary nature, with the exception of areas subject to fire-prone

plant removal. The goal of the irrigation program is to obtain germination and growth with the least amount of irrigation. Frequent irrigation encourages weed invasion and leaches nutrients from the soil.

The mitigation sites will be initially supported by a short-term automatic irrigation system as well as from existing water sources. Drip irrigation may be provided for trees and shrubs planted on the slopes. The container stock will be irrigated as long as necessary to establish the root systems in the native soils, probably two or three summers. The main line will be installed below-grade. All lateral lines will be installed above-grade for ease of removal and inspection. Alternatively, lateral lines may be installed below-grade and abandoned in place after project conclusion.

The critical period for irrigation is during the first winter and early spring following planting. During this time, roots are not well established and an unseasonable drought can cause high mortality. During dry periods after plant installation, the Project Biologist and the maintenance contractor will regularly inspect soil moisture. Watering during the summer dry season will occur as frequently as required.

After the initial plant establishment period, water will be applied infrequently and only as required to prevent the mortality of plants and seedlings. The irrigation methods employed will attempt to mimic wet rainfall years by incorporating evenly spaced, infrequent, deep applications of water. Within the fire-prone plant removal areas, long-term, irrigation will be used to mimic normal conditions, especially during dry years or periods of protracted low rainfall.

G. As-Built Conditions

Once the implementation of the mitigation site has been completed, the Applicant will submit "As-Built" drawings to the Corps and CDFW within 45 days after completion of construction. The drawings will identify the date installation was completed and if there were any deviations from the approved Mitigation Plan.

V. MAINTENANCE ACTIVITIES DURING THE MONITORING PERIOD

A. Maintenance Activities

The purpose of this program is to ensure the success of the mitigation plantings. Maintenance will occur over the five-year life of the project. The Project Biologist will monitor all aspects of the revegetation in an effort to detect any problems at an early state. Potential problems could arise from irrigation failure, erosion, vandalism, competition from weeds and invasive species, and unacceptable levels of disease and predation.

These maintenance guidelines are specifically tailored for native plant establishment. The maintenance personnel will be fully informed regarding the habitat establishment program so they understand the goals of the effort and the maintenance requirements. A landscape contractor

with experience and knowledge in native plant habitat restoration will supervise all maintenance personnel.

For a period of 120 days following completion of the planting installation, the initial landscape contractor will be responsible for the care of the plantings. The purpose of the 120-day establishment period is to ensure continuity between the installation of the plant material and its short-term maintenance. The contractor's presence during this period is proven to increase project success. The contractor will control the spread of weed species and identify any efforts necessary to ensure the health and survival of the plantings.

Following the 120-day establishment period the project will be evaluated for health of plant material, and if judged satisfactory by the Project Biologist, the establishment period will be considered concluded and the long-term habitat maintenance program will begin. If plant health is not determined to be satisfactory, an additional 60 days will be allowed for the contractor to implement remedial measures. A different landscape contractor may implement this period of maintenance; however, the Project Biologist will continue to review the project's success.

Damage to plants, irrigation systems, and other facilities occurring as a result of unusual weather or vandalism will be repaired or replaced immediately.

General Maintenance
The Contractor will perform the following tasks as general maintenance duties:

- Plant Inspection;
- Weed control;
- Irrigation water volume and frequency;
- General maintenance of irrigation system;
- Trash and debris removal;
- Pest control; and
- Plant replacement.

Plant Inspection
After termination of the establishment period, the Project Biologist will inspect the mitigation site on a monthly basis for 18 months, inclusively. The plants shall be inspected on a quarterly basis thereafter until achievement of performance standards for the mitigation sites.

Weed Control
The mitigation sites shall be maintained free of weeds during the monitoring period. Weed eradication will minimize competition that could prevent the establishment of native species. All maintenance personnel will be trained to distinguish weed species from native vegetation to ensure only weedy species are removed or sprayed with herbicide.

Removal shall be done at least twice annually during the spring/summer season, as needed, through the term of mitigation monitoring. As weeds become evident, they should be immediately removed by hand or controlled with an appropriate herbicide as determined by a

licensed Pest Control Advisor (PCA). Weed debris shall be removed from the project area as accumulated and disposed of as permitted by law.

Weeds shall be manually removed before they can attain a height of three-inches (3") at intervals of not more than 30 days for the first two years of the project. All portions of the plant will be removed, including the roots. The Project Biologist shall direct the contractor regarding the selection of target weed species, their location, and the timing of weed control operations to ensure that native plants are avoided to the extent possible. Pulled weeds will be placed on a "mantilla" or other type of tarp to prevent the seeds from coming in contact with the ground.

A cleared space, 18 inches from the base of the plant, will be maintained around each container plant to minimize competition from other plant species. Mulch, two-inches thick within the watering basin, will be maintained throughout the monitoring period. Leaf and branch drop, and organic debris of native species, shall be left in place.

Irrigation Water Volume and Frequency
The Contractor shall be responsible for applying sufficient irrigation water to adequately establish new plant materials, and germinate and establish the applied seed. Irrigation water shall be applied in such a way as to encourage deep root growth (periodic deep irrigation versus frequent light irrigation). The Contractor will allow soil to dry down to approximately 50- to 60-percent of field capacity (in the top six or 10 inches after germination and during seedling establishment) before the next irrigation cycle. Wetting of the full root zone and drying of the soil between irrigation events is essential to the maintenance of the plants and the promotion of a deep root zone that will support the vegetation in the years after establishment. Systems may need to be on for as long as six to eight hours at a time in order to get complete water penetration to the lower soil horizons to encourage deep root growth. A soil probe or shovel shall be used to examine soil moisture and rooting depth directly.

General Maintenance of Irrigation System
The Contractor will be responsible for the regular maintenance and repair of all aspects of the irrigation system. Poorly functioning or non-functioning parts shall be replaced immediately so as to not endanger the plantings.

General system checks shall be conducted no less than weekly for the first month after installation to assure the system is functioning correctly, and monthly thereafter, except during periods when the irrigation system is not in operation as recommended by the Project Biologist.

Any erosion or slippage of soil caused by the contractor’s inadequate maintenance or operation of irrigation facilities shall be repaired by the contractor at his/her expense.

Trash and Debris Removal
The mitigation site shall be well maintained in order to deter vandalism and dumping of trash. The Contractor is responsible for avoiding impacts to plantings during trash removal activities. Contractor shall, during daily routine maintenance, manually remove weeds, liter, trash, and

debris from the mitigation site and dispose of off-site as permitted by law. Dead limbs and tree fall shall be left in place in the revegetation areas.

Pest Control
Young trees and shrubs will be monitored for signs of disease, insect and/or predator damage, and treated as necessary. Badly damaged plants will be pruned to prevent spreading of the pestilence or replaced in kind if removed. Excessive foraging by predators may necessitate protective screening around plants and/or poison baiting of the predators. The Project Biologist will be consulted on any pest control measures to be implemented.

The Contractor shall be responsible for maintaining a non-native rodent-free project. All measures to eradicate non-native rodents must be as directed by a licensed pest control consultant.

Plant Replacement
The installation contractor will be responsible for replacing all container stock plants terminally diseased or dead during the establishment period. The long-term maintenance contractor will thereafter replace all dead and/or declining plants in the winter months as recommended by the Project Biologist. Replacement plants shall be furnished and planted by the Contractor.

Replacement plants shall conform to the species, size requirements, and spacing as specified for the plants being replaced. The replacement plants shall be purchased from inventory at the same native plant nursery as were the contract-grown plant stock.

Fertilization
If nutrient deficiencies are observed during site monitoring, the Project Biologist may specify applications of slow-release pellet fertilizer or soil amendments to speed initial growth or as a remedial measure. These applications shall occur at the onset of the rainy season following the manufacturer's recommendations. Fertilizer will not be applied other than under the direction of the Project Biologist.

Pruning
No pruning is necessary unless otherwise specified by the Project Biologist. Dead wood shall be left on trees or where it has fallen as it plays an important role in habitat creation and soil formation. A small amount of selective trimming of native species (e.g. willow, oak and sycamore) is allowed to prevent overspray of herbicide from reaching these branches, but only as provided within the conditions of the CDFW Streambed Alteration Agreement. Native vegetation may only be trimmed; individual plants shall not be removed. Material in excess of three (3) inches DBH shall require specific notice to and consultation with CDFW.

Staking of Trees
Staking of trees is to be avoided unless determined necessary by the Project Biologist. All stakes shall be removed before the completion of the five-year monitoring period, or earlier as determined by the Project Biologist. All stakes shall be removed by the contractor and disposed of off-site in a legal manner.

B. Responsible Parties

The Applicant/Permittee will be responsible for financing and carrying out maintenance activities.

Applicant/Permittee: Yorba Linda Estates, LLC
7114 East Stetson, Suite 350
Scottsdale, Arizona 85251
Contact: Douglas G. Wymore

C. Maintenance Schedule

The mitigation maintenance and monitoring program will begin prior to or concurrent with the construction process and continue for five years following the completion of plant installation or until performance criteria are met. Table 8 below indicates the schedule of maintenance inspections.

TABLE 8
MAINTENANCE SCHEDULE

Maintenance Task	Year				
	1	2	3	4	5
Plant Inspection	Monthly first 12 months	Monthly through 18th month; quarterly thereafter	Quarterly	Quarterly	Quarterly
Irrigation System Inspection	Monthly, or more frequently if required	Monthly	As Required	N/A	N/A
Trash and Debris Removal	Monthly	Quarterly	Quarterly	Quarterly	Quarterly
Weed Control	Minimum of Monthly	Monthly	Quarterly	Quarterly	Quarterly
Pest Control	Monthly	Bi-monthly	Quarterly	Quarterly	Quarterly
Plant Replacement	Annually	Annually	Annually	Annually	Annually
Fertilization (if necessary)	Annually	Annually	N/A	N/A	N/A

VI. MONITORING PLAN FOR THE COMPENSATORY MITIGATION SITES

A. Performance Standards for Target Dates and Success Criteria

Performance Standards are based on the stated goals of the program and the design of the mitigation site. This mitigation program considers the habitat functions of both the jurisdiction to be impacted and proposed mitigation jurisdiction to confirm that the functions of the replacement mitigation equal or exceed those of existing Corps and CDFW jurisdiction.

It should be noted that Blue Mud Canyon is unique and unusual in terms of floral species composition, even relative to the other drainages within the study area, and as such no appropriate reference site is available for comparison.

All plantings shall have a minimum of 80-percent survival, by species, the first year and 100-percent survival thereafter and/or shall attain 50-percent cover after 3 years and 70-percent cover after 5 years for the life of the project. Prior to the mitigation site(s) being determined successful, they shall be entirely without supplemental irrigation for a minimum of 2 years. Throughout the monitoring period, no single species shall constitute more than 50-percent of the vegetative cover, no woody invasive species shall be present, and herbaceous invasive species shall not exceed 5-percent. If the survival and cover requirements have not been met, the Contractor is responsible for replacement planting to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements for 5 years after planting.

1. Monitoring Plan for Southern Willow Scrub and Coast Live Oak-Walnut Riparian Mitigation Sites

First-Year Monitoring

Success Standard: A minimum of 30-percent coverage by native species;
100-percent of proposed canopy species present;
50-percent of proposed understory present
No greater than 40-percent coverage by non-native species.

Second-Year Monitoring

Success Standard: A minimum of 40-percent coverage by native species;
100-percent of proposed canopy species present
60-percent of proposed understory present
No greater than 25- percent coverage by non-native species.

Third-Year Monitoring

Success Standard: A minimum of 50-percent coverage by native species;
100-percent of proposed canopy species present
60-percent of proposed understory present
No greater than 15- percent coverage by non-native species;

Fourth-Year Monitoring

Success Standard: A minimum of 60-percent coverage by native species;
100-percent of proposed canopy species present
75-percent of proposed understory present
No greater than 10- percent coverage by non-native species;

Fifth-Year Monitoring

Success Standard: A minimum of 70-percent coverage by native species;
100-percent of proposed canopy species present
85-percent of proposed understory present
No greater than 5- percent coverage by non-native species with zero tolerance for species considered highly invasive by Cal-IPC

Diversity of Vegetation

To avoid a monoculture or limited species diversity within the established habitat, a minimum of six species native to the target habitat types must represent 0.5-percent (each) of the total vegetational composition within the revegetation areas, with no single species representing over 75-percent composition. The low percentage representation is due to the expectation that this diversity will be provided by native herbs that would not normally represent a significant percentage of total vegetation cover in a mature habitat. In addition, the total percent composition of all non-native species cannot exceed 5-percent.

Survivorship of Container Stock

During annual quantitative monitoring, the Project Biologist shall determine survivorship of tree, shrub, and herb strata container stock. In each year of monitoring, container stock survivorship must be at least 80-percent. Recruitment of native species will compensate for lack of survivorship for planted species.

Functionality as Wildlife Habitat

While conducting qualitative surveys, the Project Biologist will record wildlife observations within the revegetated habitat. The development of quantitative measures for wildlife use is not necessary for this mitigation site, but general impressions of wildlife usage of any restoration area should be considered among the success criteria.

Native Plant Recruitment

Evidence of native plant recruitment from year to year is another example of the successful creation of a functional, self-sustaining habitat. Noted recruitment would be considered a satisfied success criterion.

Probability of Continued Habitat Progression

The qualitative monitoring will provide the Project Biologist with an opportunity to evaluate the progression of the revegetation sites towards maturity. This determination will be used to support a final decision as to whether the revegetation effort has been successful. If several of the above criteria have not been met, but the site is clearly nearing satisfaction of those criteria, the Project Biologist may suggest that the Corps and CDFW accept the mitigation as completed based on his/her conclusion of continuing habitat progression.

B. Target Hydrological Regime

Hydrological contribution to the mitigation site will originate as direct precipitation that will drain directly to the site, providing for seasonal ponding during the rainy season. Hydrological input is

also expected to consist of runoff from bordering areas. The enhanced hydrology within the mitigation site is expected to provide for dynamic storage of surface water, short-term storage of surface water, dissipation of energy, moderation of groundwater flow, nutrient cycling, removal of imported elements and compounds, retention of particulates, and export of organic carbon.

The mitigation plantings will initially be supported by a temporary irrigation system until gradually weaned, with the exception of long-term management associated with the fire-prone plant removal areas that overlap with the 5.30-acre mitigation areas that will be subject to long-term irrigation as determined appropriate for public safety. Irrigation water will be supplied via a potable water system piped into the mitigation site.

C. Monitoring Methods

Monitoring will assess the attainment of annual and final success criteria and identify the need to implement contingency measures in the event of failure. Monitoring methods include an annual tally of dead and/or declining plant stock, and visual estimates of cover as well as field sampling techniques that are based in accordance with the methodology developed by the California Native Plant Society (CNPS).[3] Please refer to *A Manual of California Vegetation* for further details on this sampling method.

Sampling Techniques for Vegetation Cover and Diversity
Percent canopy cover of the mitigation plantings will be measured by using the point-intercept sampling method centered in a 2-meter by 50-meter plot. At each 0.5-meter interval along each transect (beginning at the 50-cm mark and ending at 50-meter), a point is projected vertically into the vegetation. Each plant species intercepted by a point is recorded, providing a tally of hits for each species in the herbaceous, shrub, and tree canopies, making it possible to record more than 100 hits in any 50-meter transect. Percent cover for each species, according to vegetation layer (herb, shrub, and tree) can be calculated from these data. A list of all additional species within the 250 square-meter belt is subsequently made.

Two 2-meter by 50-meter long transects per acre will be used to monitor the development of the revegetation. The various transects will be randomly located for the first sampling event and permanently marked to facilitate their use in subsequent years. A sample of a proposed transect data sheet is provided in Appendix B.

Photo-Documentation
Permanent stations for photo-documentation will be established during the first annual monitoring event. Photos shall be taken each monitoring period from the same vantage point and in the same direction each year, and shall reflect material discussed in the annual monitoring report.
Qualified habitat restoration specialists, biologists, or horticulturists with appropriate credentials and experience in native habitat restoration shall perform monitoring. Continuity within the personnel and methodology of monitoring shall be maintained insofar as possible to ensure comparable assessments.

[3] Sawyer, John O. and Todd Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society.

D. Monitoring Schedule

Qualitative Monitoring

The Project Biologist will conduct qualitative monitoring surveys on a monthly basis for the first 18 months, and quarterly thereafter until performance standards are met. Qualitative surveys, consisting of a general site walkover and habitat characterization, will be completed during each monitoring visit. General observations, such as fitness and health of the planted species, pest problems, weed establishment, mortality, and drought stress, will be noted in each site walkover. The Project Biologist will also note observations on wildlife use and native plant recruitment for the purpose of later discussion in the annual reports. Records will be kept of mortality and other problems such as insect damage, weed infestation, and soil loss. The Project Biologist will determine remedial measures necessary to facilitate compliance with performance standards. All remedial measures undertaken will be referenced in the annual monitoring report to the Corps, USFWS, and CDFW.

E. Annual Monitoring Reports

An annual report shall be submitted to the Corps, USFWS, and CDFW by Jan. 1 of each year for 5 years after planting. Photos from designated photo stations shall be included.

The Project Biologist or other qualified wildlife biologist shall survey the mitigation site to monitor the recovery of wildlife and aquatic resources in the area following construction. Monitoring of wildlife and aquatic resources shall be done in summer and winter of each year, through the term of mitigation monitoring, and the results and analysis shall be submitted with the report specified above.

At the end of each of the five monitoring period growing seasons, for the duration of the monitoring period, an annual report will be prepared for submittal to the Corps, USFWS, and CDFW. Since planting may not occur when planned, monitoring shall be tied to the actual implementation date (e.g., the first annual report shall be delivered on January 1st of the year following the first growing season after planting). These reports shall include the survival, percent cover, and height by species of both trees and shrubs, the number by species of plants replaced, an overview of the revegetation and exotic plant control efforts, and the method used to assess these parameters shall also be included. These reports will assess both attainment of yearly target success criteria and progress toward final success criteria. These reports will also include the following:

- A list of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities for that year
- A copy of the Corps permit and any attachments including Special Conditions and subsequent Letters of Modification, as well as the Biological Opinion
- A copy of the CDFW Streambed Alteration Agreement and any subsequent Amendments

- A vicinity map indicating location of the mitigation site
- A mitigation site map identifying habitat types, transect locations, photo station locations, etc. as appropriate
- Copies of all monitoring photographs
- Copies of all completed field data sheets
- An analysis of all qualitative and quantitative monitoring data.

VII. COMPLETION OF COMPENSATORY MITIGATION

A. Notification of Completion

The Contractor should notify the Applicant/Permittee, the Corps, USFWS, and CDFW in writing when the monitoring period is complete and the Corps-approved success criteria have been met. A formal jurisdictional delineation of areas rehabilitated, established, or preserved shall be submitted to the Corps, USFWS, and CDFW.

B. Final Success Criteria Resolution

If the project meets all success criteria at the end of the five-year monitoring period, the revegetation will be considered a success. If not, the maintenance and monitoring program will be extended one full year at a time, and a specific set of remedial measures approved by the Corps, UCFWS, and CDFW will be implemented until the standards are met. Only those areas that fail to meet the success criteria will require additional monitoring. This process will continue until all year-five standards are met or until the Corps, USFWS, and CDFW determine that other revegetation measures are appropriate.

Final success criteria will not be considered to have been met until a minimum of three years (see p. 22, Irrigation Plan) after all human support, including artificial irrigation, has ceased. Should the revegetation effort meet all goals prior to the end of the five-year monitoring period, the Corps, USFWS, and CDFW, at their discretion, may terminate the monitoring effort and release the bond. At that time the Applicant/Permittee will be released from further maintenance and monitoring requirements of the mitigation area.

If, during the monitoring period, a destructive natural occurrence does occur which damages or destroys the mitigation planting, and if the mitigation planting was documented to have been proceeding well toward establishment, then reconstruction and replanting will not be required. However, if the mitigation site fares significantly worse than the surrounding natural communities in this same natural disaster, then the mitigation site would be considered to have not established itself, and reconstruction, replanting, and monitoring would continue.

C. Agency Confirmation

Following receipt of the final annual monitoring report, the Corps, USFWS, and CDFG will contact the Applicant as soon as possible to schedule a site visit to confirm the completion of the compensatory mitigation effort and any jurisdictional delineation. The compensatory mitigation will not be considered complete without an onsite inspection by a Corps, USFWS, and CDFW project manager and written confirmation that approved success criteria have been achieved.

It is therefore critical that agency staff review annual reports on a timely basis and provide comments throughout the maintenance and monitoring program so that any project deficiencies they note can be addressed prior to the expected end of the program.

VIII. CONTINGENCY MEASURES

A. Initiating Procedures

If a performance standard is not met for all or any portion of the mitigation project in any year, or if the approved success criteria are not met, the Project Biologist will prepare an analysis of the cause(s) of failure and, if determined necessary by the Corps, USFWS, and CDFW, propose remedial actions for approval. If the compensatory mitigation site has not met one or more of the success criteria or performance standards, the responsible party's maintenance and monitoring obligations shall continue until the Corps, USFWS, and CDFW gives final approval the mitigation obligations have been satisfied. It is therefore incumbent upon the Project Biologist to foresee project deficiencies as part of the monitoring program and take appropriate steps to address the situation.

B. Alternative Locations for Contingency Mitigation

Sufficient area for establishment of the mitigation site is available so alternative locations would be unnecessary. Although this plan is expected to be successful, both onsite and off-site alternative locations may be used in the event that revegetation cannot be achieved.

C. Funding Mechanism

The Applicant/Permittee will fund planning, implementation, maintenance and monitoring of any contingency measures that may be required to achieve mitigation goals through an up-front payment to the Contractor. Thereafter, all expenses in implementing this mitigation plan are to be borne by the Contractor.

D. Responsible Parties

The Applicant/Permittee will be responsible for implementing, maintaining, and monitoring any contingency procedures.

Applicant/Permittee: Yorba Linda Estates, LLC
7114 East Stetson, Suite 350
Scottsdale, Arizona 85251
Contact: Douglas G. Wymore

IX. LONG-TERM MANAGEMENT PLAN AND ASSOCIATED FUNDING

Upon completion of and acceptance by the Resource Agencies that the five-year performance standards have been achieved for Blue Mud Canyon, implementation of a Long-Term Management Plan (LTMP) will begin. With the successful completion of the mitigation and the achievement of the performance standards, it is expected that the areas will require only limited management activities that would include the following:

(1) Ongoing Monitoring,
(2) Ongoing Non-Native Invasive Vegetation Control,
(3) Ongoing Removal of Fire-Prone Species,
(4) Trash and Debris Removal

A. Monitoring Tasks

A qualified Biological Monitor shall be retained to assist in implementing the LTMP and to monitor the status of the LTMP for Drainages Blue Mud Canyon. The activities to be conducted by the Biological Monitor are as follows.

Activity: Annual Monitoring. Conduct annual monitoring of the LTMA to determine what management activities are needed and where to focus those activities.

Activity: Work Planning. Prepare an annual work plan and coordinate with the maintenance contractor(s) to carry out the management activities including the need for non-native species removal, trash and debris removal, or other management activities.

Activity: Data Collection. Document qualitative and quantitative data related to the implementation of management activities

Activity: Annual Reporting. At the end of the first year, and then every other year, a management report will be prepared by the Biological Monitor and will be submitted to the Agencies upon request. These reports will include:

(a) A description of the maintenance activities conducted during that calendar year;

(b) The date of and location where the management activities were undertaken;

(c) Information regarding weed eradication/abatement, including the amount removed and treated, frequency and timing of removal and treatment, and disposal specifics; and

(d) Photos from designated photo stations.

B. Funding and Prioritizing Tasks

1. Funding

Prior to impacts within Corps or CDFW jurisdiction, the amount of a non-wasting endowment will be determined that will be necessary to fund the annual cost of carrying out the LTMP activities described above, if approved by the Corps. If approved by the Corps, the endowment will fund all management and monitoring activities associated with the LTMP. No further monetary obligations will be required of the Manager or any future long-term manager.

The endowment shall be approved by the Agencies or designee (if approved by the CDFW Director). If a designee is approved to hold the endowment, the Agencies will require the entity to enter into an agreement that contains terms relating to management of the endowment, the periodic auditing and reporting of expenditures, earnings and other pertinent information, and provisions for the transfer of the endowment and unspent earnings to the Agencies, or a successor owner/manager under certain conditions. If approved by the Agencies, the Manager will transfer the total non-wasting endowment fund to the designee approved by the CDFW and Corps within one year after commencement of construction.

The endowment will be placed in an interest-bearing security for the sole purpose of carrying out the management activities described above. The Manager will have access to the interest generated by the endowment and will be able to draw on the funds throughout the year to carry out the management activities.

2. Prioritizing Tasks

The anticipated that the activities to be conducted annually will include monitoring, trash and debris removal, invasive plant control and management reporting. Invasive vegetation removal is the activity that will occur in perpetuity, but because of the dynamic nature of riparian systems, is an activity that may not need to occur every single year. Other management activities might be added as part of the adaptive management of the LTMA, but these activities are not anticipated at this time.

Each year the Manager and Biological Monitor will develop a Work Plan that prioritizes the mandatory management activities and other adaptive management activities based on natural resource conditions for that year. How the annual draw on the endowment will be spent will be determined based on this prioritized Work Plan.

Because the management needs will vary from year to year, any unspent interest would be left in the interest-bearing security and could be utilized the following year(s). This adaptive funding

mechanism provides the necessary flexibility for the Manager to allocate funds toward those management activities that require attention for that particular year and to plan ahead for implementation of management activities that become necessary in the future.

PART 2: MITIGATION FOR NON-JURISDICTIONAL RESOURCES

Impacts to areas of upland California walnut woodland and blue elderberry woodland were determined to be significant in the project's Draft Environmental Impact Report (DEIR). Areas to implement the mitigation for these impacts, through the restoration of areas of California walnut woodland and blue elderberry woodland have been identified within project open space in the Blue Mud Canyon environs. As discussed below, this component of the HMMP assumes the alternative with the greatest amount of impact will be implemented, thereby ensuring that adequate area is identified for the proposed mitigation. Table 9 below summarizes the impacts associated with grading as well as impacts for fuel modification Zone B, which requires 100-percent removal of native shrubs, for each alternative:

Table 9: Combined Grading and Fuel Modification Impacts to California Walnut Woodland (CWW), and Blue Elderberry Woodland (BEW)

	Alternative 1			**Alternative 2**			**Alternative 3**		
	Grade	FMZ	Total	Grade	FMZ	Total	Grade	FMZ	Total
CWW	0.48	0.36	0.84	0.22	0.30	0.52	0.22	0.40	0.62
BEW	10.92	0.0	10.92	13.18	0.02	13.20	11.92	0.09	12.01
Total:			**11.76**			**13.72**			**12.63**

Under Alternative 1, a total of 11.76 acres (CWW and BEW) would be permanently impacted. Under Alternative 2, a total of 13.72 acres would be permanently impacted, and under Alternative 3, a total of 12.63 acres would be permanently impacted. As such, these impacts have been selected for purposes of determining required mitigation and for identifying appropriate mitigation areas. Exhibit 7 depicts up to 14.70 acres of candidate mitigation areas suitable for the woodland mitigation.

It should also be noted that the portions of the proposed mitigation site is coincident with the area proposed for removal of fire prone vegetation on the project's Conceptual Fuel Modification Plan [the relationship of the mitigation areas and area subject to removal of fire prone vegetation is depicted on Exhibit 7]. It is important to note a number of points regarding the integration of the California walnut woodland and blue elderberry woodland with the area subject to fire prone vegetation removal.

- California walnut and blue elderberries are not considered "fire prone" and existing (healthy) walnuts and elderberries will be preserved, as will other associated species such as laurel sumac and toyon;

- Within areas proposed for habitat restoration, only native species, appropriate for the California walnut and blue elderberry woodland, are proposed (see Tables 11 and 12 below);

- As noted in Tables 11 and 12 below, spacing of the large shrubs will be consistent with the spacing of these species within the existing communities onsite, and also consistent with the spacing required to ensure public safety;

- Maintenance within the areas subject to fire prone vegetation removal, will focus on non-native species and a limited number of fire-prone species that actually occur on the site.

- The area will be managed for the long-term for habitat values, while also ensuring for adequate public safety, as set forth in the long-term management section below.

I. DESCRIPTION OF THE PROJECT/IMPACT SITE

A. Responsible Parties

Applicant/Permittee: Yorba Linda Estates, LLC
7114 East Stetson, Suite 350
Scottsdale, Arizona 85251
Contact: Douglas G. Wymore

Preparer of Mitigation Plan: Glenn Lukos Associates, Inc.
Contact: Tony Bomkamp
29 Orchard
Lake Forest, California 92630-8300
Telephone: (949) 837-0404

B. Habitat Types Subject to Impacts

California Walnut Woodland

Prior to the 2008 Freeway Complex Fire, approximately 6.37 acres of the Study Area supported California walnut woodland. This community was observed in the southern portion of the Study Area and is largely restricted to Blue Mud Canyon and was closely associated with California sagebrush-monkeyflower scrub, blue elderberry woodland, and the coastal sage scrub/chaparral ecotone. The California walnut woodland is considered a special-status habitat by CDFW.

Blue Elderberry Woodland

Prior to the 2008 Freeway Complex Fire, approximately 23.88 acres of the Study Area supported blue elderberry woodland. This community was commonly observed on the lower slopes of hillsides and within the drier reaches of the riparian areas and on terraces adjacent to drainage courses.

Component species within blue elderberry woodland include blue elderberry, albeit at a low density (on average) of approximately 10 trees per acre, laurel sumac, which is often co-

dominant or dominant in these areas, coyote bush, giant wild rye, poison oak, California walnut (restricted to Blue Mud Canyon and limited areas along Drainage D), sweet fennel, southern honeysuckle, poison hemlock, chaparral nightshade, and fuchsia flowered gooseberry. The blue elderberry woodland is considered a special-status habitat by CDFW.

II. OBJECTIVES OF THE COMPENSATORY MITIGATION

The objectives of the proposed habitat mitigation and monitoring program (HMMP) is to provide for full mitigation of permanent impacts for whichever alternative is selected.

A. Mitigation for Habitat Types

In order to mitigate for impacts to California walnut woodland and blue elderberry woodland, the Project Applicant has prepared this habitat mitigation and monitoring plan for blue elderberry woodland located within Blue Mud Canyon as well as adjacent to and north of Drainage D. The plan also incorporates California walnut into the plant palette to mitigate the loss of California walnut woodland as summarized in Table 10 below. The plan has been prepared by a qualified biologist. The plan includes the restoration of blue elderberry woodland and California walnut woodland and includes: replacement of blue elderberry woodland and California walnut woodland habitat at a minimum ratio of 1:1; responsibility and qualifications of the personnel to implement and supervise the plan; site selection; site preparation and planting implementation; schedule; maintenance plan/guidelines; monitoring plan; and long-term preservation. A summary of the impacts and associated 1:1 mitigation for each alternative is provided below in Table 10.

TABLE 10
Impacts and Associated Mitigation

Vegetation Types	Option 1 Impacts	Option 2 Impacts	Option 2A Impacts
Upland Areas			
California Walnut Woodland	0.84 acre	0.52 acre	0.62 acre
Blue Elderberry Woodland	10.92 acres	13.20 acres	12.01 acres
Southern Willow Scrub	0.0 acres	0.0 acres	0.0 acres
Total	**11.76 acres**	**13.72 acres**	**12.63 acres**

B. Time Lapse Between Jurisdictional Impacts and Expected Compensatory Mitigation Success

Project grading activities will commence upon receipt of permits with project impacts expected to occur immediately thereafter. Mitigation site grading, planting, and irrigation shall begin prior to or concurrent with the planned date of initiating authorized site grading. Preparation of mitigation areas, including eradication of non-native plant species encountered will be concurrent with commencement of grading.

Within one year of the completion of mitigation installation, it is expected that an immature woodland vegetative structure will exist such that insects and birds will utilize the mitigation site for foraging.

III. DESCRIPTION OF THE PROPOSED COMPENSATORY MITIGATION SITES

A. Location and Size of the Compensatory Mitigation Site

Candidate areas of up to 14.70 acres are depicted on Exhibit 7.

B. Ownership Status

The present owners of the mitigation sites are:

Applicant/Permittee: Yorba Linda Estates, LLC
7114 East Stetson, Suite 350
Scottsdale, Arizona 85251
Contact: Douglas G. Wymore

IV. IMPLEMENTATION PLAN FOR THE COMPENSATORY MITIGATION SITES

A. Implementation Schedule

The mitigation installation contractor (herein "Contractor"), shall be responsible for site preparation, irrigation installation and mitigation plantings, which shall begin during construction activities. Compensatory mitigation designated to occur within the mitigation site shall be installed no later than one construction season after commencement of habitat disturbance.

B. Site Preparation

Site preparation shall consist of minor localized grading, clearing and controlling exotic plants, trenching and installation of underground irrigation components, removing trash and debris, preparing planting holes and doing any other work necessary to make ready the area for planting.

Mitigation Site Grading Plan
As the topography of the mitigation sites is generally satisfactory under existing conditions for establishing the mitigation site, only minimal localized grading will be necessary.

Exotic Vegetation Control
The predominance of non-native, invasive weed species throughout California has presented a challenge to most native revegetation projects. Weedy species are opportunistic, rapidly colonizing disturbed sites such as revegetation sites. This can lead to the displacement of native species if the weedy species are not properly treated. Several of these invasive species are

capable of out-competing most native understory and herbaceous plants and some can out-compete and even displace existing native trees and shrubs. Therefore, non-native vegetation including but not limited to poison hemlock (*Conium maculatum*), sweet fennel (*Foeniculum vulgare*), tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*), black mustard (*Brassica nigra*), summer mustard *(Hirschfeldia incana*), wild radish (*Raphanus sativa*), and non-native annual grasses such as bromes, wild oats and barley, will be removed from the mitigation site and disposed of in a manner and at a location which prevents its reestablishment. Removal shall be done at least twice annually during the spring/summer season, as needed, through the term of the mitigation monitoring period.

One of the largest obstacles to the successful revegetation of a site is the exotic seed bank residing in the soil. This seed bank can persist for several years, or even decades, and poses one of the major threats to restoration programs. Undesirable exotic plants will be eradicated either during initial site grading or prior to site preparation. If grading precedes planting by more than a few months, it will be necessary to eradicate undesirable exotic plants that have become established prior to planting and seeding of the mitigation sites. If deemed necessary, a "grow-and-kill" cycle will be established during that period. "Grow and kill" is a cycle of applying water, germinating the non-native, invasive species and spraying with the appropriate chemical. This allows a large portion of the seed bank currently present in the soil to be removed. Eliminating or substantially reducing the competition from non-native exotics early in the life cycle of native plants helps to ensure more rapid growth and cover by the native species.

The type, quantity, and method of herbicide application will be determined by a California licensed Pest Control Advisor (PCA) who will inspect the site, write project recommendations and submit same to the Project Biologist for approval. Pesticide recommendations shall include, but are not limited to, the pesticides to be used, rates of application, methods of application, and areas to which pesticides are to be applied. A licensed Pest Control Operator (PCO) may work under the supervision of the PCA who will employ best management practices regarding the timing, quantity, and type of herbicide for each species. The PCA will determine both immediate and follow-up herbicide application for each species. No herbicides shall be used where threatened or endangered plant species occur, when wind velocities are above 5 miles per hour.

Weed control will be maintained throughout the monitoring period. Weeds will be controlled before their setting of seed. Ongoing weed control will be accomplished manually by the use of a hoe or other tool to uproot the entire plant, a mower or weed whip to cut plants, or by herbicide application as prescribed in this Mitigation Plan. Weed species identified as invasive, particularly tenacious, or those with wind-borne seed will be subject to the earliest control efforts. The Project Biologist will direct the contractor regarding the selection of target weed species, their location and the timing of weed control operations to ensure that native plants are avoided to the extent possible.

Contractor Education

Prior to the commencement of grading or any construction work, the Contractor will review all aspects of the Mitigation Plan that concern the contractors including permit requirements, site protection, maintenance inspections, landscape procedures and monitoring.

Nesting Birds
The Contractor may remove vegetation within drainages from March 1 to July 31 if a qualified biologist conducts a survey for nesting birds within three days prior to the vegetation removal and ensures no nesting birds shall be impacted by the project. These surveys shall include the areas within 200 feet of the edge of the proposed impacts. If active nests are found, a minimum 50-foot (200 feet for raptors) fence barrier shall be erected around the nest site. No habitat removal or any other work shall occur within the fenced nest zone if the nest continues active beyond July 31, until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be impacted by the project. The Contractor shall submit the mapped survey results to CDFW for review and approval prior to vegetation removal to ensure full avoidance measures are in place. The Contractor will adhere to all applicable requirements of federal and state codes (e.g., Migratory Bird Treaty Act and CDFG Code 3503.5).

C. Planting Plan

California walnut woodland and blue elderberry woodland habitats will be rehabilitated within the proposed mitigation areas. Planting shall consist of preparing planting holes, planting container stock, installing plant protection devices, applying mulch and hydroseeding. No planting shall be done in any area until the area concerned has been prepared in accordance with the plans and presents an appearance satisfactory to the Project Biologist.

All planting should be done after the first wetting rains between October 1 and February 1 to take advantage of the winter rainy season, dormancy of foliage, and rooting period to ensure optimum survival of plantings. Should the Contractor be required to plant during other times of the year, chances of survival are diminished. To compensate for decreased survival rates, the Operator shall be required to augment the specified planting density by 25-percent to account for the likelihood of increased mortality of plantings, unless irrigation is incorporated into the restoration program. Completion of all mitigation requirements shall be concluded within two years of project implementation within target areas. Planting, maintenance, monitoring and reporting activities shall be overseen by a specialist familiar with restoration of native plants.

California Walnut Woodland
This plan provides for the rehabilitation of California walnut woodland based primarily on the walnut woodland composition in Blue Mud Canyon and portions of Drainage G. If a less impactful Project Alternative is selected, the mitigation will be reduced accordingly while maintaining a 1:1 ratio. The planting palette is presented in Table 11 below. It should be noted that walnuts will be mixed with blue elderberry and coast live oak, as these typically co-occur within the neighboring areas of the Chino and Puente Hills.

Blue Elderberry Woodland
This plan provides for the rehabilitation of blue elderberry woodland based primarily on the blue elderberry woodland composition in Blue Mud Canyon and Drainage G. The planting palette is presented in Table 12 below. It should be noted that blue elderberry will be mixed with

California walnut and coast live oak, as these typically co-occur within the neighboring areas of the Chino and Puente Hills.

In addition to the species set forth in Tables 11 and 12, the additional site-appropriate native plants that would not be subject to removal as "fire-prone" species and set forth in Table 13 may be included in the plant palettes for both the walnut and elderberry woodlands.

TABLE 11
CALIFORNIA WALNUT WOODLAND
(up to 0.84 acre to be rehabilitated)

Botanic Name	Common Name	Stock Type	Plant Spacing	No. per Acre	Percent
Canopy					
Juglans californica	California walnut	1 gal	30' o.c.	50	50%
Quercus agrifolia	Coast live oak	1 gal	50' o.c	10	10%
Sambucus nigra ssp. *caerulea*	Blue elderberry	1 gal	50' o.c.	40	40%
Subtotal				**100**	**100%**
Understory					
Heteromeles arbutifolia	Toyon	1 gal	30' o.c.	50	12.5%
Malosma laurina	Laurel sumac	Liner	30' o.c.	50	12.5%
Ribes speciosum	Fuchsia-flowered gooseberry	1 gal	30' o.c.	100	10%
Rhamnus ilicifolia	Holly-leaved redberry	1 gal	30' o.c.	100	10%
Elymus condensatus	Giant wildrye	1 gal	8' o.c.	100	10%
Mimulus aurantiacus	bush monkey flower	1 gal	12' o.c	50	5%
Stipa pulchra	Purple needlegrass	1 gal	8' o.c.	100	10%
Melica imperfecta	Coast range melic	1 gal	12' o.c.	150	15%
Baccharis pilularis	Coyote bush	1 gal	12" o.c.	100	10%
Opuntia littoralis	Prickly-pear cactus	pads	clumped	300	30%
Subtotal				**1,000**	**100%**
Total Container Stock				**1,100**	**100%**

TABLE 12 BLUE ELDERBERRY WOODLAND (up to 13.20 acres to be rehabilitated)					
Botanic Name	**Common Name**	**Stock Type**	**Plant Spacing**	**No. per Acre**	**Percent**
Canopy					
Quercus agrifolia	Coast live oak	1 gal	50' o.c.	5	10%
Sambucus nigra ssp. *caerulea*	Blue elderberry	1 gal	30' o.c.	40	80%
Juglans californica	California walnut	1 gal	30' o.c.	5	10%
Subtotal				**50**	**100%**
Understory					
Heteromeles arbutifolia	Toyon	1 gal	30' o.c.	50	5%
Malosma laurina	Laurel sumac	Liner	30' o.c.	50	5%
Ribes speciosum	Fuchsia-flowered gooseberry	1 gal	8' o.c.	100	10%
Rhamnus ilicifolia	Holly-leaved redberry	1 gal	8' o.c.	100	10%
Elymus condensatus	Giant wildrye	1 gal	clumped.	100	10%
Mimulus aurantiacus	bush monkey flower	1 gal	12' o.c	50	5%
Stipa pulchra	Purple needlegrass	1 gal	8' o.c.	100	10%
Melica imperfecta	Coast range melic	1 gal	12' o.c.	150	15%
Baccharis pilularis	Coyote bush	1 gal	12" o.c.	100	10%
Opuntia littoralis	Prickly-pear cactus	pads	clumped	200	20%
Subtotal				**1,000**	**100%**
Total Container Stock				**1,050**	**100%**

TABLE 13 Additional Optional Plant Species		
Botanic Name	**Common Name**	**Stock Type**
Herbs		
Pseudognaphalium californicum	California everlasting	1 gal
Grindelia stricta	Gum plant	1 gal
Lasthenia californica	Dwarf goldfields	1 gal
Leymus condensatus	Giant wild rye	1 gal
Mirabilis californica	Wishbone bush	1 gal
Nassella (stipa) lepidra	Foothill needlegrass	1 gal
Sisyrinchium bellum	Blue eyed grass	1 gal
Solanum xantii	Purple nightshade	1 gal
Verbena lasiostachys	Western vervain	1 gal
Shrubs		
Atriplex lentiformis ssp. *breweri*	Brewer saltbush	1 gal
Baccharis emoyi	Emory baccharis	1 gal
Baccharis pilularis ssp. *Consanguinea*	Chaparral bloom	1 gal
Brickellia californica	No common name	1 gal
Dendromecon rigida	Bush poppy	1 gal
Encelia californica	California encelia	1 gal
Epilobium canum (Zauschneria californica	Hoary California fuschia	1 gal
Eriodictycon trichocalyx	Yerba santa	1 gal

Keckiella antirrhinoides	Yellow bush penstemon	1 gal
Keckiella cordifolia	Heart leaved penstemon	1 gal
Lonicera subspicata	Wild honeysuckle	1 gal
Lotus scoparius	Deerweed	1 gal
Malacothamnus fasciculatus	Chapparal mallow	1 gal
Opuntia prolifera	Coast cholla	1 gal
Prunus ilicifolia spp. *Ilicifolia*	Holly leafed cherry	1 gal
Rhamnus californica	California coffee berry	1 gal
Rhamnus crocea	Redberry	1 gal
Rhus integrifolia	Lemonade berry	1 gal
Romneya coulteri	Matilija poppy	1 gal
Solanum douglasii	Douglas nightshade	1 gal
Trichostema lanatum	Woolly blue curls	1 gal

Source of Plant Materials
It is preferred that the source of all propagules and seed used at the mitigation site be from the site. If not available, the remainder of propagules and seed required will be from wild sources within Orange County, and collected as close to the mitigation sites as possible to preserve regional genetic integrity.

Plant material for revegetation shall be derived from cuttings, materials salvaged from disturbed areas, and/or seeds obtained from randomly selected native trees and shrubs occurring locally within Orange County or eastern Los Angeles County. Any replacement tree/shrub stock, which cannot be grown from cuttings or seeds, shall be obtained from a native plant nursery, be ant free and shall not be inoculated to prevent heart rot. If any materials must be obtained from other than onsite sources, the Project Biologist shall provide the County of Orange with a list of all such materials.

Contract Growing
Contract growing of all container plants shall be by a local experienced native plant nursery. Substitution of plant material at the time of planting depends solely upon the discretion of the Project Biologist. Any substitutions that are approved will be documented in the As-Built Plans.

Container Plants
One-gallon container stock, rosepots and liners shall be utilized for container stock production in order to develop vertical heterogeneity (strata). All plant materials will be inspected by the Project Biologist and approved as healthy, disease free and of proper size prior to planting. Overgrown, root-bound container stock will be rejected.

Mycorrhizal Fungi
Mycorrhizae are specialized fungi found on plant roots. A symbiotic relationship exists between plant roots and mycorrhizae wherein the plants benefit from the increased ability to take up nutrients and withstand drought when mycorrhizae are present. This relationship is essential to the growth rate, well-being, and longevity of native plant communities. Plant utilization of mycorrhizal fungi markedly increases the success of revegetation on disturbed or degraded lands.

All appropriate container-grown plants, except those known to be non-host species, shall be inoculated with mycorrhizal fungi prior to delivery to the job site.

Plant Placement
Container stock will be laid out in such a manner that mimics natural plant distribution (i.e., in clusters and islands) to emulate regional reference sites. The Project Biologist will monitor and confirm that trees and shrubs have been placed at the designed elevation relative to the water source supporting them, such as ground water. All plants shall be planted in randomly spaced, naturally clumped patterns. The average planting densities shall meet the criteria specified in Tables 11 and 12.

Planting Method for Rose Pot and/or Liner Plant Stock
Rose pot and/or liner plant stock will be placed in a hole measuring at least twice the diameter and depth of the container. The root structure will be examined and excess root material removed. The top of the rootball will be set slightly above finish grade. The planting hole will be backfilled with native soil. Fertilizer, watering basins, and mulch are not required for this planting method.

Planting Method for Container Stock
One-gallon container stock will be planted in a hole measuring at least twice the diameter of the container and twice the depth. Container stock will be thoroughly watered the day before planting. One teaspoon (0.3 oz.) of Osmocote 14-14-14 (or equal) will be placed one inch below the root zone and backfilled with native soil to proper planting depth. The container will be upended into the palm of the hand to avoid damage to the root structure and placed in the planting hole. The top of the root ball will be set one inch above finish grade. The planting hole will be backfilled with native soil.

A three-inch high, hand-compacted earth berm, approximately 36 inches in diameter, will then be constructed around each container plant. This watering basin will be maintained until the plants are no longer irrigated. Mulch will be applied as a top dressing, 2 to 3 inches thick, but must not come in contact with the stem of the plant. Container stock will be watered immediately after installation.

Pruning and Staking
There will be no pruning or staking of any vegetation. Diseased or insect-damaged foliage, if sufficient to require pruning, will serve as a benchmark for rejection of plant material.
A small amount of selective trimming of native species (e.g. willow, oak and sycamore) is allowed to prevent overspray of herbicide from reaching these branches. Native vegetation may only be trimmed; individual plants shall not be removed.

D. Irrigation Plan

The Contractor shall provide irrigation for each mitigation site when natural moisture conditions are inadequate to ensure survival of plants. Irrigation can be provided for a period of at least three years from planting. Irrigation shall be phased out during the fall/winter of third year

unless unusually severe conditions threaten survival of plantings. All plants must survive and grow for at least two years without supplemental water for the restoration phase of the project to be eligible for acceptance by the County of Orange. Long-term irrigation may be incorporated into portions or all of the walnut and elderberry irrigation that would mimic natural rainfall during lower-than normal rainfall years.

Coarse mulch shall be placed around plantings to minimize water loss and discourage weed growth. Mulch shall be 3 to 4 inches deep and shall be placed in a minimum area 1.5 times the diameter of the drip line of the plant or 2 feet in diameter whichever is greater. The mulched area shall be maintained throughout the course of restoration, unless otherwise authorized in writing by the County of Orange. Mulch shall not be placed directly against the main stem of the plants.

Supplemental irrigation is to be used solely for the purpose of establishing the plants at the mitigation site and is of a temporary nature, with the caveat that supplemental irrigation may be applied during years of lower-than normal rainfall. The goal of the irrigation program is to obtain germination and growth with the least amount of irrigation. Frequent irrigation encourages weed invasion and leaches nutrients from the soil. Long-term, the use of supplemental irrigation is intended to provide subsidies during lower-than average rainfall.

The mitigation sites will be initially supported by a short-term automatic irrigation system as well as from existing water sources. Drip irrigation may be provided for trees and shrubs planted on the slopes. The container stock will be irrigated as long as necessary to establish the root systems in the native soils, probably two or three summers. The main line will be installed below-grade. All lateral lines will be installed above-grade for ease of removal and inspection. Alternatively, lateral lines may be installed below-grade at the discretion of the applicant.

The critical period for irrigation is during the first winter and early spring following planting. During this time, roots are not well established and an unseasonable drought can cause high mortality. During dry periods after plant installation, the Project Biologist, Landscape Contractor and/or the maintenance contractor will regularly inspect soil moisture. Watering during the summer dry season will occur as frequently as required. Long-term, irrigation within areas subject to fire-prone vegetation removal will be used to mimic normal conditions, especially during dry years or periods of protracted low rainfall.

E. As-Built Conditions

Once the implementation of the mitigation site has been completed, the Applicant will submit "As-Built" drawings to the County of Orange within 45 days after completion of construction. The drawings will identify the date installation was completed and if there were any deviations from the approved Mitigation Plan.

V. MAINTENANCE ACTIVITIES DURING THE MONITORING PERIOD

A. Maintenance Activities

The purpose of this program is to ensure the success of the mitigation plantings. Maintenance will occur over the five-year life of the project. The Project Biologist will monitor all aspects of the revegetation in an effort to detect any problems at an early state. Potential problems could arise from irrigation failure, erosion, vandalism, competition from weeds and invasive species, and unacceptable levels of disease and predation.

These maintenance guidelines are specifically tailored for native plant establishment. The maintenance personnel will be fully informed regarding the habitat establishment program so they understand the goals of the effort and the maintenance requirements. A landscape contractor with experience and knowledge in native plant habitat restoration will supervise all maintenance personnel.

For a period of 120 days following completion of the planting installation, the initial landscape contractor will be responsible for the care of the plantings. The purpose of the 120-day establishment period is to ensure continuity between the installation of the plant material and its short-term maintenance. The contractor's presence during this period is proven to increase project success. The contractor will control the spread of weed species and identify any efforts necessary to ensure the health and survival of the plantings.

Following the 120-day establishment period the project will be evaluated for health of plant material, and if judged satisfactory by the Project Biologist, the establishment period will be considered concluded and the long-term habitat maintenance program will begin. If plant health is not determined to be satisfactory, an additional 60 days will be allowed for the contractor to implement remedial measures. A different landscape contractor may implement this period of maintenance; however, the Project Biologist will continue to review the project's success.

Damage to plants, irrigation systems, and other facilities occurring as a result of unusual weather or vandalism will be repaired or replaced immediately.

General Maintenance
The Contractor will perform the following tasks as general maintenance duties:

- Plant Inspection;
- Weed control;
- Irrigation water volume and frequency;
- General maintenance of irrigation system;
- Trash and debris removal;
- Pest control; and
- Plant replacement.

Plant Inspection
After termination of the establishment period, the Project Biologist will inspect the mitigation site on a monthly basis for 18 months, inclusively. The plants shall be inspected on a quarterly basis thereafter until achievement of performance standards for the mitigation sites.

Weed Control
The mitigation sites shall be maintained free of weeds during the monitoring period. Weed eradication will minimize competition that could prevent the establishment of native species. All maintenance personnel will be trained to distinguish weed species from native vegetation to ensure only weedy species are removed or sprayed with herbicide.

Removal shall be done at least twice annually during the spring/summer season, as needed, through the term of mitigation monitoring. As weeds become evident, they should be immediately removed by hand or controlled with an appropriate herbicide as determined by a licensed Pest Control Advisor (PCA). Weed debris shall be removed from the project area as accumulated and disposed of as permitted by law.

Weeds shall be manually removed before they can attain a height of three-inches (3") at intervals of not more than 30 days for the first two years of the project. All portions of the plant will be removed, including the roots. The Project Biologist shall direct the contractor regarding the selection of target weed species, their location, and the timing of weed control operations to ensure that native plants are avoided to the extent possible. Pulled weeds will be placed on a "mantilla" or other type of tarp to prevent the seeds from coming in contact with the ground.

A cleared space, 18 inches from the base of the plant, will be maintained around each container plant to minimize competition from other plant species. Mulch, two-inches thick within the watering basin, will be maintained throughout the monitoring period. Leaf and branch drop, and organic debris of native species, shall be left in place.

Irrigation Water Volume and Frequency
The Contractor shall be responsible for applying sufficient irrigation water to adequately establish new plant materials, and germinate and establish the applied seed. Irrigation water shall be applied in such a way as to encourage deep root growth (periodic deep irrigation versus frequent light irrigation). The Contractor will allow soil to dry down to approximately 50- to 60-percent of field capacity (in the top six or 10 inches after germination and during seedling establishment) before the next irrigation cycle. Wetting of the full root zone and drying of the soil between irrigation events is essential to the maintenance of the plants and the promotion of a deep root zone that will support the vegetation in the years after establishment. Systems may need to be on for as long as six to eight hours at a time in order to get complete water penetration to the lower soil horizons to encourage deep root growth. A soil probe or shovel shall be used to examine soil moisture and rooting depth directly. Irrigation following the initial five-year monitoring and maintenance period is discussed below under long-term irrigation.

General Maintenance of Irrigation System
The Contractor will be responsible for the regular maintenance and repair of all aspects of the irrigation system. Poorly functioning or non-functioning parts shall be replaced immediately so as to not endanger the plantings.

General system checks shall be conducted no less than weekly for the first month after installation to assure the system is functioning correctly, and monthly thereafter, except during periods when the irrigation system is not in operation as recommended by the Project Biologist.

Any erosion or slippage of soil caused by the contractor's inadequate maintenance or operation of irrigation facilities shall be repaired by the contractor at his/her expense.

Trash and Debris Removal
The mitigation site shall be well maintained in order to deter vandalism and dumping of trash. The Contractor is responsible for avoiding impacts to plantings during trash removal activities. Contractor shall, during daily routine maintenance, manually remove weeds, liter, trash, and debris from the mitigation site and dispose of off-site as permitted by law. Dead limbs and tree fall shall be left in place in the revegetation areas.

Pest Control
Young trees and shrubs will be monitored for signs of disease, insect and/or predator damage, and treated as necessary. Badly damaged plants will be pruned to prevent spreading of the pestilence or replaced in kind if removed. Excessive foraging by predators may necessitate protective screening around plants and/or poison baiting of the predators. The Project Biologist will be consulted on any pest control measures to be implemented.

The Contractor shall be responsible for maintaining a non-native rodent-free project. All measures to eradicate non-native rodents must be as directed by a licensed pest control consultant.

Plant Replacement
The installation contractor will be responsible for replacing all container stock plants terminally diseased or dead during the establishment period. The long-term maintenance contractor will thereafter replace all dead and/or declining plants in the winter months as recommended by the Project Biologist. Replacement plants shall be furnished and planted by the Contractor.

Replacement plants shall conform to the species, size requirements, and spacing as specified for the plants being replaced. The replacement plants shall be purchased from inventory at the same native plant nursery as were the contract-grown plant stock.

Fertilization
If nutrient deficiencies are observed during site monitoring, the Project Biologist may specify applications of slow-release pellet fertilizer or soil amendments to speed initial growth or as a remedial measure. These applications shall occur at the onset of the rainy season following the manufacturer's recommendations. Fertilizer will not be applied other than under the direction of the Project Biologist.

Pruning
No pruning is necessary unless otherwise specified by the Project Biologist. Dead wood shall be left on trees or where it has fallen as it plays an important role in habitat creation and soil formation. A small amount of selective trimming of native species is allowed to prevent overspray of herbicide from reaching these branches. Native vegetation may only be trimmed; individual plants shall not be removed.

Staking of Trees
Staking of trees is to be avoided unless determined necessary by the Project Biologist. All stakes shall be removed before the completion of the five-year monitoring period, or earlier as determined by the Project Biologist. All stakes shall be removed by the contractor and disposed of off-site in a legal manner.

B. Responsible Parties

The Applicant/Permittee will be responsible for financing and carrying out maintenance activities.

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Scottsdale, Arizona 85251
Contact: Douglas G. Wymore

C. Maintenance Schedule

The mitigation maintenance and monitoring program will begin prior to or concurrent with the construction process and continue for five years following the completion of plant installation or until performance criteria are met. Table 14 below indicates the schedule of maintenance inspections.

TABLE 14 MAINTENANCE SCHEDULE					
Maintenance Task	**Year**				
	1	2	3	4	5
Plant Inspection	Monthly first 12 months	Monthly through 18th month; quarterly thereafter	Quarterly	Quarterly	Quarterly
Irrigation System Inspection	Monthly, or more frequently if required	Monthly	As Required	N/A	N/A
Trash and Debris Removal	Monthly	Quarterly	Quarterly	Quarterly	Quarterly
Weed Control	Minimum of Monthly	Monthly	Quarterly	Quarterly	Quarterly
Pest Control	Monthly	Bi-monthly	Quarterly	Quarterly	Quarterly
Plant Replacement	Annually	Annually	Annually	Annually	Annually
Fertilization (if necessary)	Annually	Annually	N/A	N/A	N/A

VI. MONITORING PLAN FOR THE COMPENSATORY MITIGATION SITES

A. Performance Standards for Target Dates and Success Criteria

Performance Standards are based on the stated goals of the program and the design of the mitigation site.

It should be noted that Blue Mud Canyon is not fully characteristic on the site for floral species composition, even relative to the other drainages within the study area, and as such no appropriate reference site is available for comparison.

All plantings shall have a minimum of 80-percent survival, by species, the first year and 100-percent survival thereafter and/or shall attain -percent cover after 3 years and 90-percent cover after 5 years for the life of the project. Prior to the mitigation site(s) being determined successful, they shall be entirely without supplemental irrigation for a minimum of 2 years. Throughout the monitoring period, no single species shall constitute more than 50-percent of the vegetative cover, no woody invasive species shall be present, and herbaceous invasive species shall not exceed 5-percent. If the survival and cover requirements have not been met, the Contractor is responsible for replacement planting to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements for 5 years after planting.

1. Monitoring Plan for California Walnut Woodland and Blue Elderberry Woodland Mitigation Sites

First-Year Monitoring

Success Standard: A minimum of 20-percent coverage by native species;
100-percent of proposed canopy species present;
30-percent of proposed understory present
No greater than 50-percent coverage by non-native species.

Second-Year Monitoring

Success Standard: A minimum of 30-percent coverage by native species;
100-percent of proposed canopy species present
40-percent of proposed understory present
No greater than 25- percent coverage by non-native species.

Third-Year Monitoring

Success Standard: A minimum of 40-percent coverage by native species;
100-percent of proposed canopy species present
50-percent of proposed understory present
No greater than 15- percent coverage by non-native species;

Fourth-Year Monitoring

Success Standard: A minimum of 55-percent coverage by native species;
100-percent of proposed canopy species present
60-percent of proposed understory present
No greater than 10- percent coverage by non-native species;

Fifth-Year Monitoring

Success Standard: A minimum of 70-percent coverage by native species;
100-percent of proposed canopy species present
80-percent of proposed understory present
No greater than 5- percent coverage by non-native species with zero tolerance for species considered highly invasive by Cal-IPC.

Diversity of Vegetation

To avoid a monoculture or limited species diversity within the established habitat, a minimum of six species native to the target habitat types must represent 0.5-percent (each) of the total vegetational composition within the revegetation areas, with no single species representing over 75-percent composition. The low percentage representation is due to the expectation that this diversity will be provided by native herbs that would not normally represent a significant percentage of total vegetation cover in a mature habitat. In addition, the total percent composition of all non-native species cannot exceed 5-percent.

Survivorship of Container Stock
During annual quantitative monitoring, the Project Biologist shall determine survivorship of tree, shrub, and herb strata container stock. In each year of monitoring, container stock survivorship must be at least 80-percent.

Functionality as Wildlife Habitat
While conducting qualitative surveys, the Project Biologist will record wildlife observations within the revegetated habitat. The development of quantitative measures for wildlife use is not necessary for this mitigation site, but general impressions of wildlife usage of any restoration area should be considered among the success criteria.

Native Plant Recruitment
Evidence of native plant recruitment from year to year is another example of the successful creation of a functional, self-sustaining habitat. Noted recruitment would be considered a satisfied success criterion. Fire prone species will be removed annually, while still in the seedling or sapling state.

Probability of Continued Habitat Progression
The qualitative monitoring will provide the Project Biologist with an opportunity to evaluate the progression of the revegetation sites towards maturity. This determination will be used to support a final decision as to whether the revegetation effort has been successful. If several of the above criteria have not been met, but the site is clearly nearing satisfaction of those criteria, the Project Biologist may suggest that the County of Orange accept the mitigation as completed based on his/her conclusion of continuing habitat progression.

B. Monitoring Methods

Monitoring will assess the attainment of annual and final success criteria and identify the need to implement contingency measures in the event of failure. Monitoring methods include an annual tally of dead and/or declining plant stock, and visual estimates of cover as well as field sampling techniques that are based in accordance with the methodology developed by the California Native Plant Society (CNPS).[4] Please refer to *A Manual of California Vegetation* for further details on this sampling method.

Sampling Techniques For Vegetation Cover and Diversity
Percent canopy cover of the mitigation plantings will be measured by using the point-intercept sampling method centered in a 2-meter by 50-meter plot. At each 0.5-meter interval along each transect (beginning at the 50-cm mark and ending at 50-meter), a point is projected vertically into the vegetation. Each plant species intercepted by a point is recorded, providing a tally of hits for each species in the herbaceous, shrub, and tree canopies, making it possible to record more than 100 hits in any 50-meter transect. Percent cover for each species, according to vegetation layer (herb, shrub, and tree) can be calculated from these data. A list of all additional species within the 250 square-meter belt is subsequently made.

[4] Sawyer, John O. and Todd Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society.

Two 2-meter by 50-meter long transects per acre will be used to monitor the development of the revegetation. The various transects will be randomly located for the first sampling event and permanently marked to facilitate their use in subsequent years. A sample of a proposed transect data sheet is provided in Appendix B.

Photo-Documentation

Permanent stations for photo-documentation will be established during the first annual monitoring event. Photos shall be taken each monitoring period from the same vantage point and in the same direction each year, and shall reflect material discussed in the annual monitoring report. Qualified habitat restoration specialists, biologists, or horticulturists with appropriate credentials and experience in native habitat restoration shall perform monitoring. Continuity within the personnel and methodology of monitoring shall be maintained insofar as possible to ensure comparable assessments.

C. Monitoring Schedule

Qualitative Monitoring

The Project Biologist will conduct qualitative monitoring surveys on a monthly basis for the first 18 months, and quarterly thereafter until performance standards are met. Qualitative surveys, consisting of a general site walkover and habitat characterization, will be completed during each monitoring visit. General observations, such as fitness and health of the planted species, pest problems, weed establishment, mortality, and drought stress, will be noted in each site walkover. The Project Biologist will also note observations on wildlife use and native plant recruitment for the purpose of later discussion in the annual reports. Records will be kept of mortality and other problems such as insect damage, weed infestation, and soil loss. The Project Biologist will determine remedial measures necessary to facilitate compliance with performance standards. All remedial measures undertaken will be referenced in the annual monitoring report to the County of Orange.

D. Annual Monitoring Reports

An annual report shall be submitted to the County of Orange. Photos from designated photo stations shall be included.

The Project Biologist or other qualified wildlife biologist shall survey the mitigation site to monitor the recovery of wildlife and aquatic resources in the area following construction. Monitoring of wildlife and aquatic resources shall be done in summer and winter of each year, through the term of mitigation monitoring, and the results and analysis shall be submitted with the report specified above.

At the end of each of the five monitoring period growing seasons, for the duration of the monitoring period, an annual report will be prepared for submittal to the County of Orange. Since planting may not occur when planned, monitoring shall be tied to the actual implementation date (e.g., the first

annual report shall be delivered on January 1st of the year following the first growing season after planting). These reports shall include the survival, percent cover, and height by species of both trees and shrubs, the number by species of plants replaced, an overview of the revegetation and exotic plant control efforts, and the method used to assess these parameters shall also be included. These reports will assess both attainment of yearly target success criteria and progress toward final success criteria. These reports will also include the following:

- A list of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities for that year;
- A vicinity map indicating location of the mitigation site;
- A mitigation site map identifying habitat types, transect locations, photo station locations, etc. as appropriate;
- Copies of all monitoring photographs;
- Copies of all completed field data sheets; and
- An analysis of all qualitative and quantitative monitoring data.

VII. COMPLETION OF COMPENSATORY MITIGATION

A. Notification of Completion

The Contractor should notify the Applicant/Permittee and the County of Orange in writing when the monitoring period is complete and the success criteria have been met.

B. Final Success Criteria Resolution

If the project meets all success criteria at the end of the five-year monitoring period, the revegetation will be considered a success. If not, the maintenance and monitoring program will be extended one full year at a time, and a specific set of remedial measures approved by the County of Orange will be implemented until the standards are met. Only those areas that fail to meet the success criteria will require additional monitoring. This process will continue until all year-five standards are met or until the County of Orange determines that other revegetation measures are appropriate.

Final success criteria will not be considered to have been met until a minimum of three years after all human support, including artificial irrigation, has ceased. Should the revegetation effort meet all goals prior to the end of the five-year monitoring period, the County of Orange, at their discretion, may terminate the monitoring effort and release the bond. At that time the Applicant/Permittee will be released from further maintenance and monitoring requirements of the mitigation area.

If, during the monitoring period, a destructive natural occurrence does occur which damages or destroys the mitigation planting, and if the mitigation planting was documented to have been proceeding well toward establishment, then reconstruction and replanting will not be required.

However, if the mitigation site fares significantly worse than the surrounding natural communities in this same natural disaster, then the mitigation site would be considered to have not established itself, and reconstruction, replanting, and monitoring would continue.

C. Agency Confirmation

Following receipt of the final annual monitoring report, the County of Orange will contact the Applicant as soon as possible to schedule a site visit to confirm the completion of the compensatory mitigation effort and any jurisdictional delineation. The compensatory mitigation will not be considered complete without an onsite inspection by a County of Orange project manager and written confirmation that approved success criteria have been achieved.

It is therefore critical that agency staff review annual reports on a timely basis and provide comments throughout the maintenance and monitoring program so that any project deficiencies they note can be addressed prior to the expected end of the program.

VIII. CONTINGENCY MEASURES

A. Initiating Procedures

If a performance standard is not met for all or any portion of the mitigation project in any year, or if the approved success criteria are not met, the Project Biologist will prepare an analysis of the cause(s) of failure and, if determined necessary by the County of Orange, propose remedial actions for approval. If the compensatory mitigation site has not met one or more of the success criteria or performance standards, the responsible party's maintenance and monitoring obligations shall continue until the County of Orange gives final approval the mitigation obligations have been satisfied. It is therefore incumbent upon the Project Biologist to foresee project deficiencies as part of the monitoring program and take appropriate steps to address the situation.

B. Alternative Locations for Contingency Mitigation

Sufficient area for establishment of the mitigation site is available so alternative locations would be unnecessary. Although this plan is expected to be successful, both onsite and off-site alternative locations may be used in the event that revegetation cannot be achieved.

C. Funding Mechanism

The Applicant/Permittee will fund planning, implementation, maintenance and monitoring of any contingency measures that may be required to achieve mitigation goals through an up-front payment to the Contractor. Thereafter, all expenses in implementing this mitigation plan are to be borne by the Contractor.

D. Responsible Parties

The Applicant/Permittee will be responsible for implementing, maintaining, and monitoring any contingency procedures.

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IX. LONG-TERM MANAGEMENT AND MAINTENANCE

Following successful completion of the five-year monitoring and maintenance period, the mitigation area would be subject to the long-term monitoring and maintenance provisions set forth below. The goal of the long-term management and maintenance is two-fold: to manage the area for long-term habitat goals, specifically the long-term health and function of the California walnut woodland and blue elderberry woodland, while also managing the area for public safety. These two goals are not in conflict; rather, it implemented correctly, the two goals can be complementary such that both goals are achieved.

A. Responsible Parties

The Homeowner's Association (HOA) will be responsible for implementation of the long-term maintenance and monitoring for the California walnut woodland and blue elderberry woodland mitigation areas.

B. Baseline Conditions

The Baseline conditions for the long-term management will be established by the fifth and final monitoring report submitted to the County of Orange that documents compliance with the five-year monitoring requirements set forth above. The final composition of the target native communities established as part of the five-year monitoring and maintenance program, will likely vary in some ways from the proposed plan as individual recruitment of acceptable natives will occur in conjunction with loss of other target species. It is expected that the general character of the community will not change from what is established and deemed successful at the end of the five-year monitoring period.

As such, the goals of the long-term monitoring program are fairly simple:

- To maintain the levels of weed species recorded at the end of the five-year monitoring and maintenance period;

- To maintain overall vegetative cover to 70-percent or if greater than 30-percent, no more than 70-percent cover by non-cactus species;

- To maintain the levels of fire-prone species to acceptable levels;

- To maintain adequate moisture in the vegetation through the use of supplemental irrigation that would be used during periods of drought or protracted periods of low rainfall.

Each of these is addressed below.

1. Maintenance of Non-Native Weeds

Twice annually, the site would be inspected by a Biologist or Landscape Contactor experienced in the native and non-native species expected on the site. The initial inspections should be conducted about one month following the first significant rainfall of the season, to determine which common non-native species including grasses and forbs have germinated and will require maintenance to maintain at levels of ten-percent or less absolute cover. The weed removal would be timed to remove non-native weeds when they can be accurately identified but prior to seed set, to limit future weed problems. A later season visit would be timed to identify later season weeds such as summer mustard and would generally occur in March or April with weeding to follow accordingly. Following the second weeding session, absolute weed cover would be no more than ten-percent absolute cover.

2. Maintain Absolute Native Cover at 70-Percent

In order to provide for public safety, absolute cover by native species will be maintain at 70-percent cover or, if no more than 70-percent of non-cactus species. Where necessary to maintain absolute cover at no more than 70-percent of non-cactus species, plants will be removed following the following protocol:

In order to retain species diversity no more than 10-percent of any singles species would be removed. Limited numbers of small shrubs such as coast goldenbush, coyote bush, bush monkey flower would be removed first, followed by larger shrubs such as laurel sumac or toyon. In all cases, the species with the greatest representation would be removed first so as to ensure species diversity. California walnuts, blue elderberries and coast live oaks will not be removed unless diseased or determined to be a threat to public safety by the Orange County Fire Authority (OCFA), and then only those that are diseased or pose a threat to public safety will be removed. As noted, as the cactus expands, greater than 70-percent cover may be achieved and vegetation removal will be such than non-cactus shrubs do not exceed 70-percent absolute cover.

3. Removal of "Fire-Prone" Species

Fire-prone species, as listed on OCFA's website, will be removed on an annual basis at either the seedling or sapling stage.

4. Irrigation for Long-Term Management

Irrigation may be used for long-term management of the mitigation areas to ensure the following: maintain plant moisture at acceptable levels during periods of below-average rainfall which would be determined as less than average during any two-month period. When such deficits occur, irrigation may be applied to mimic normal conditions. Excessive irrigation is not allowed (defined as more than 125-percent of normal rainfall) for any two month period.

C. Funding

Funding for the long-term management is based on the assumptions set forth above and will be determined through preparation of the Property Analysis Record below.

X. PAR ASSUMPTIONS FOR LONG-TERM IMPLEMENTATION OF HABITAT RESTORATION INCLUDING WITHIN SPECIAL MAINTENANCE AREAS

The following assumptions were made during preparation of this Property Analysis Record (PAR):

- **Restoration Areas:** The Restoration Areas addressed in this PAR consist of:

    1. Riparian Habitat Restoration Area within and immediately adjacent to Blue Mud Canyon Creek that includes restoration of coast live oak riparian forest, mulefat scrub, California walnut/mulefat scrub and southern willow scrub.
    2. California walnut woodland and blue elderberry woodland within the Blue Mud Canyon environs and on the south-facing slope above Drainage D at the northwest corner of Phase I of the project [see Exhibit 7].

- **Prior Maintenance:** Prior to initiation of long-term maintenance, the restoration areas will be planted, maintained, and monitored for a period of five years. During this period, vegetation within the subject maintenance areas within the subject restoration areas will be managed at the prescribed target vegetation cover as set forth in Sections 1 and 2 of the HMMP.

- **Responsible Party:** The Homeowner's Association (HOA) will be responsible for implementing the long-term management of the subject restoration areas.

- **Contingency Rate:** No contingency fee was added to the total cost of maintenance activities.

- **Capitalization Rate:** A capitalization rate of 4% was applied to this PAR to generate the endowment.

- **Habitat Maintenance:** As described in Part 2 of the HMMP, Section IX Long-Term Management and Maintenance, the following measures will comprise the long-term management and maintenance:

    - Twice-annual removal of non-native invasive species and other weeds from the riparian restoration area and the California walnut and blue elderberry woodland along with trash removal, which would occur during these visits;
    - Annual removal of fire-prone species from 10.2 acre area designated for removal of fire-prone species;
    - Annual maintenance to ensure public safety by maintaining non-cactus native cover at no more than 70-percent absolute cover within 10.2 acre area designated for removal of fire-prone species.
    - Annual maintenance of irrigation system.

These tasks will be carried out by the HOA in accordance with the HMMP and Conceptual Fuel Modification Plan. Vegetation maintenance will be done (a) with hand held tools consistent with best management practices; (b) outside of the avian nesting season, or if during the nesting season, only after a biological monitor confirms that there will be no effects to nesting birds; (c) in a manner that will not reduce or eliminate any plants that are planned for the area; and (d) in a manner that minimizes effect to either target species (e.g., least Bell's vireo) and to more common species that are protected under the Migratory Bird Treaty Act. Cut vegetation, if any, will be disposed of at an offsite facility and will not be chipped or dispersed of onsite. Vegetation maintenance could be performed up to two times per year, and the budget for this PAR assumes two visits for general weeding on one annual visit to remove fire-prone species and maintain non-cactus native scrub within the 10.2-acre area. The task incorporates maintenance of 20.11 acres per year at $300.00 per acre, for an annual cost of $6,033. The annual cost for fire-prone species removal and maintenance of the fire-prone vegetation removal areas at no more than 70-percent non-cactus species is $100 per acre or 1,031 per year for a total of $7,064. This assumption is adequate since the special maintenance areas will be densely planted with cactus and lower growing grasses, forbs, and shrubs, thereby reducing the opportunity for recruitment of invasive and "undesirable" species. At 4-percent return, an endowment of $176,560.

Appendix A

Distribution Page of all Persons/Agencies Receiving a Copy of the Mitigation and Monitoring Plan, As-Built Reports, and Annual Reports

Jason Lambert
U.S. Army Corps of Engineers
Los Angeles District, Regulatory Branch
911 Wilshire Boulevard, 11th Floor
Los Angeles, California 90017-3401

Kevin Hupf
California Department of Fish & Wildlife
Environmental Scientist
3883 Ruffin Road
San Diego, California 92123

Glenn Robertson
Santa Ana Regional Water Quality Control Board
3737 Main Street, Suite 500
Riverside, California 92501-3339

Christine Medak
US Fish and Wildlife Service
Carlsbad FWO
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

Appendix B

Samples of Monitoring Data Sheets

TRANSECT/PERCENT COVER ESTIMATION **Project Name: _____**
Sheet ___ of ___ **Date: _____**
Transect Number: **Recorders: _____**
Transect Length:
Readings/Transect:
Distance Between Readings:
Photostation Number:
Comments:

Bare/Vacant:

"Herb" Layer
0 - 3'
Species Tally

"Shrub" Layer
>3' - 8'
Species Tally

"Tree" Layer
>8'
Species Tally

Additional Species:
(within 1.0 m of transect)

MONITORING SHEET - QUALITATIVE EVALUATION

Project Name: _____
Date: _____
Recorders: _____

Plant Health - General
Are there visible signs of nutrient/water deficiencies? If yes, then describe:

Are there signs of regeneration/reseeding?

Is vandalism harming plant health or project success?

Are there any signs of herbivory?:

Other:

Container Stock
Provide visual estimation percent survival of container stock:

Are watering basins intact?:

Is mulch from original installation still present? Is there litter development?:

Seeded Species
Are all intended native species present? If not, then what is missing?:

Are there any occurrences of volunteer native species?:

Are there any unvegetated areas? Should these be remediated?:

Weeds
Is excessive competition from weeds affecting desired species?:

Is there adequate maintenance/weed clearing?:

Other:

Soils
Are there any signs of soil development?:

Other:

Irrigation System
Are irrigation heads functioning properly?:

Are there any signs of rodent damage to irrigation system?:

Are there any signs of vandalism to the irrigation system/controller box?:

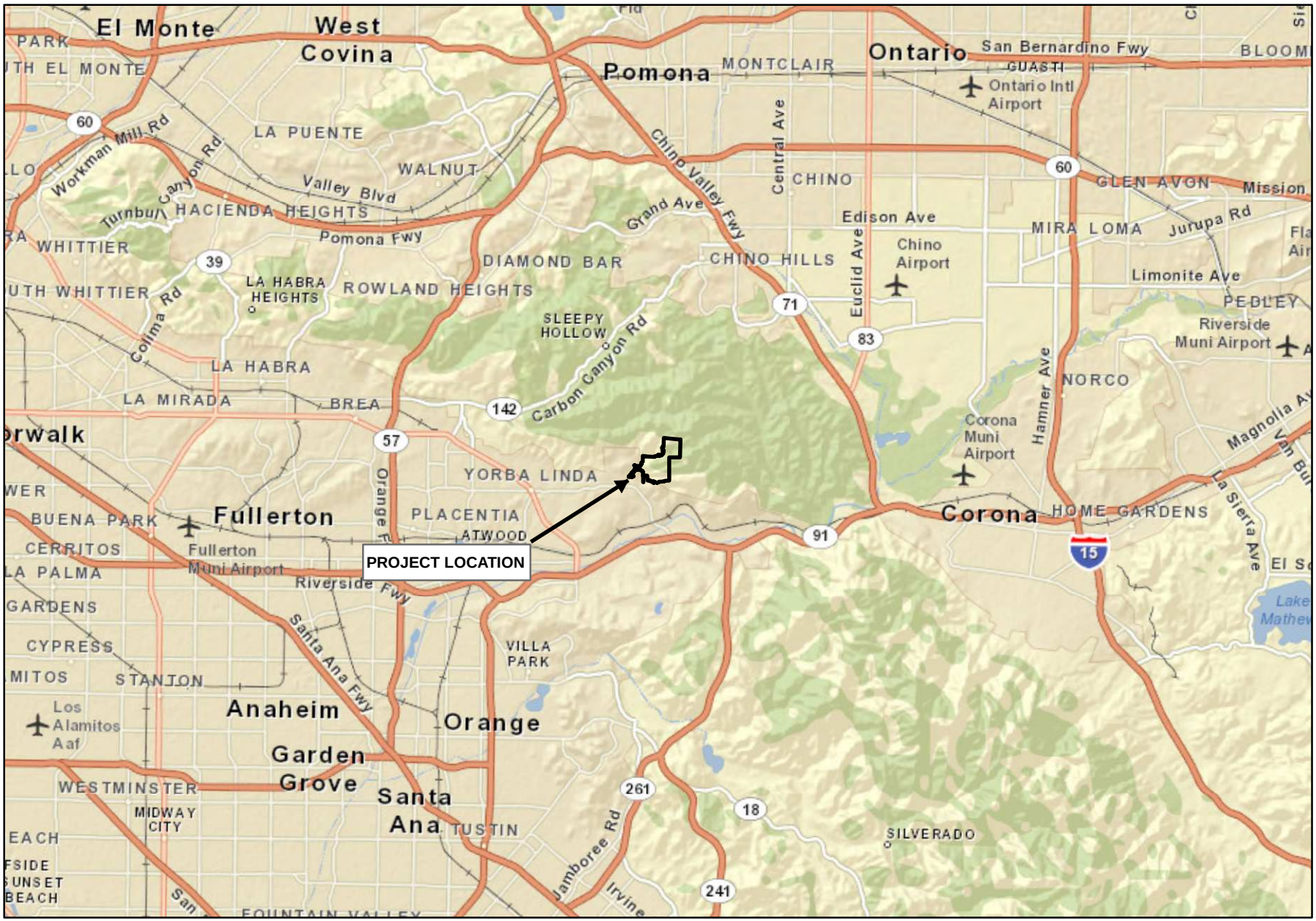
Are there any signs of excessive runoff?:

Does irrigation frequency and volume require adjustment?

Other:

Is there any indication that wildlife is using the site?:

Recommendations for Remediation:



Source: ESRI World Street Map

N

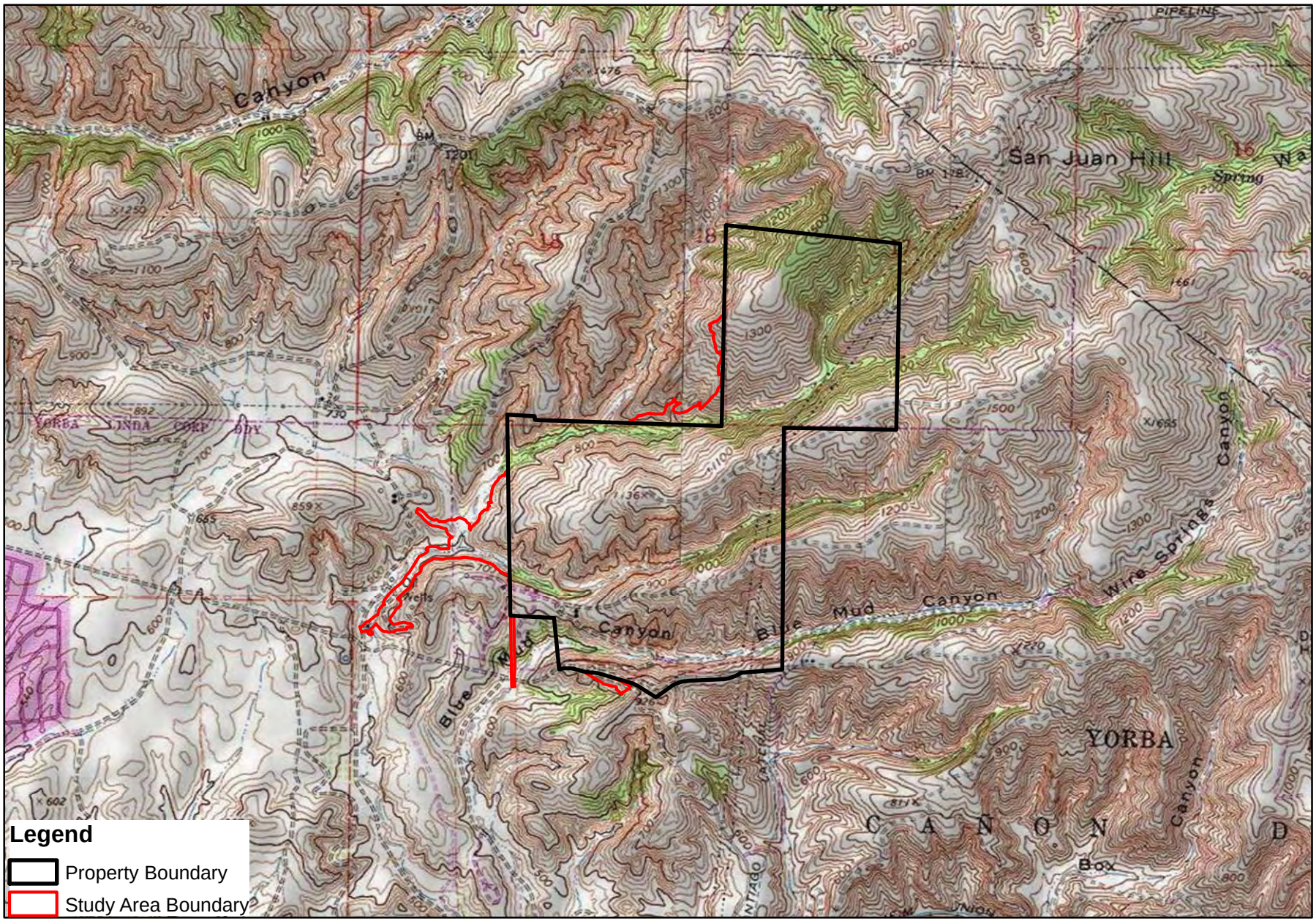
0 2 4 8 Miles

ESPERANZA HILLS SPECIFIC PLAN AREA

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



Adapted from USGS Prado Dam & Yorba Linda, CA quadrangles

N

0 1,000 2,000 4,000 Feet

ESPERANZA HILLS SPECIFIC PLAN AREA

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2

Legend

- Property Boundary
- Study Area Boundary
- Alternative 3 Project Footprint
- Corps Non-Wetland Waters
- Corps Wetland
- Width in Feet (W indicates wetland jurisdiction)

N

0 350 700 1,400

Feet

1 inch = 700 feet

Aerial Photo: ESRI Basemaps Bing Hybrid
Reference Elevation Datum: State Plane 6 NAD 83
Map Prepared by: K. Kartunen, GLA
Date Prepared: March 14, 2013

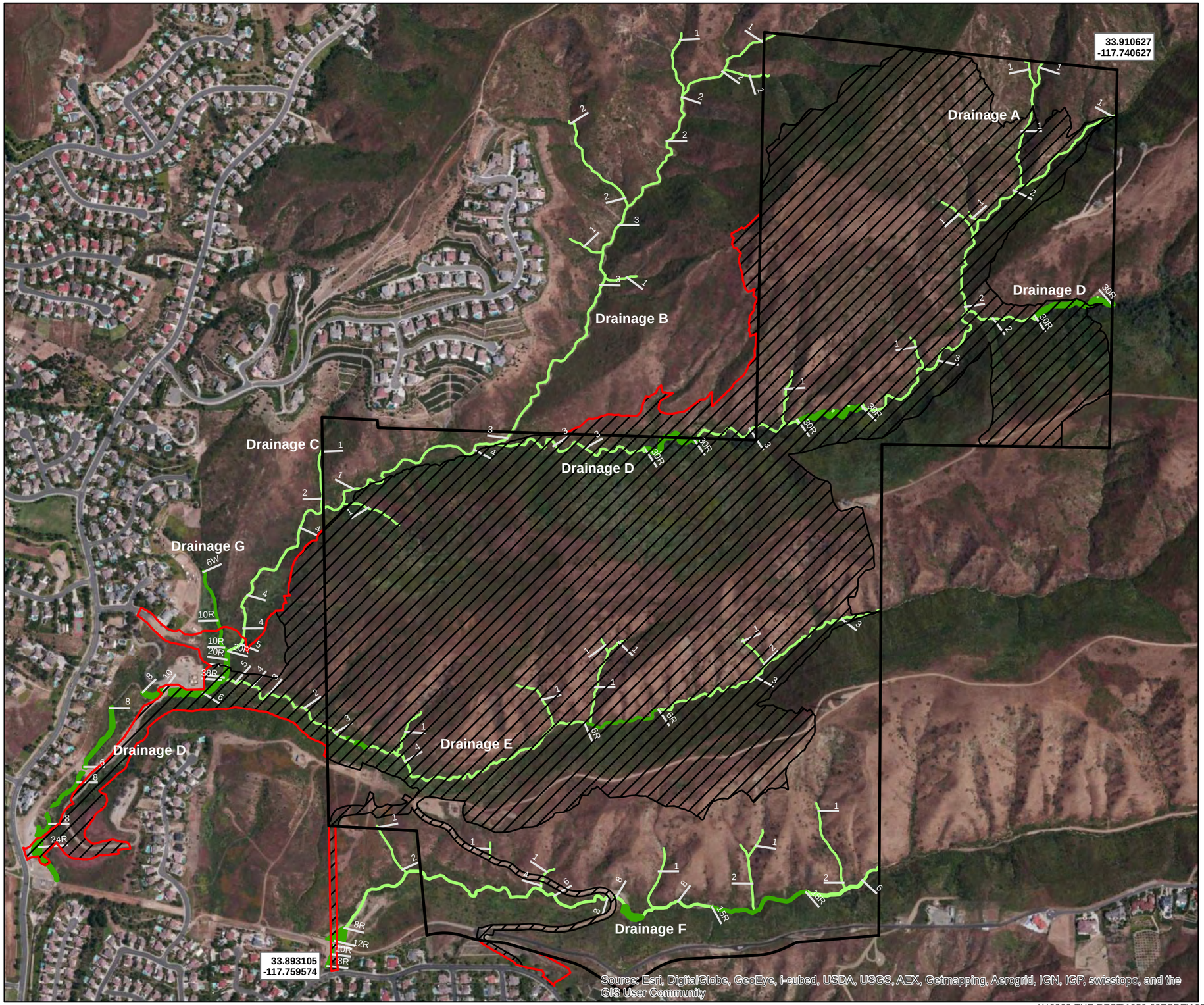
ESPERANZA HILLS SPECIFIC PLAN AREA

Corps Jurisdictional Delineation/Alternative 3 Impact Map

GLENN LUKOS ASSOCIATES

Exhibit 3A

X:\0363-THE REST\1050-02ESPE\1050-02_GIS FINAL_USE THIS FOLDER\ImpactsGIS\1050-2 CorpsAlternative3 05 10 13.mxd



Legend

- Property Boundary
- Study Area Boundary
- Alternative 3 Project Footprint
- Width in Feet (R indicates riparian jurisdiction)
- CDFW Unvegetated Streambed
- CDFW Riparian

N

0 350 700 1,400

Feet

1 inch = 700 feet

Aerial Photo: ESRI Basemaps Bing Hybrid
Reference Elevation Datum: State Plane 6 NAD 83
Map Prepared by: K. Kartunen, GLA
Date Prepared: May 10, 2013

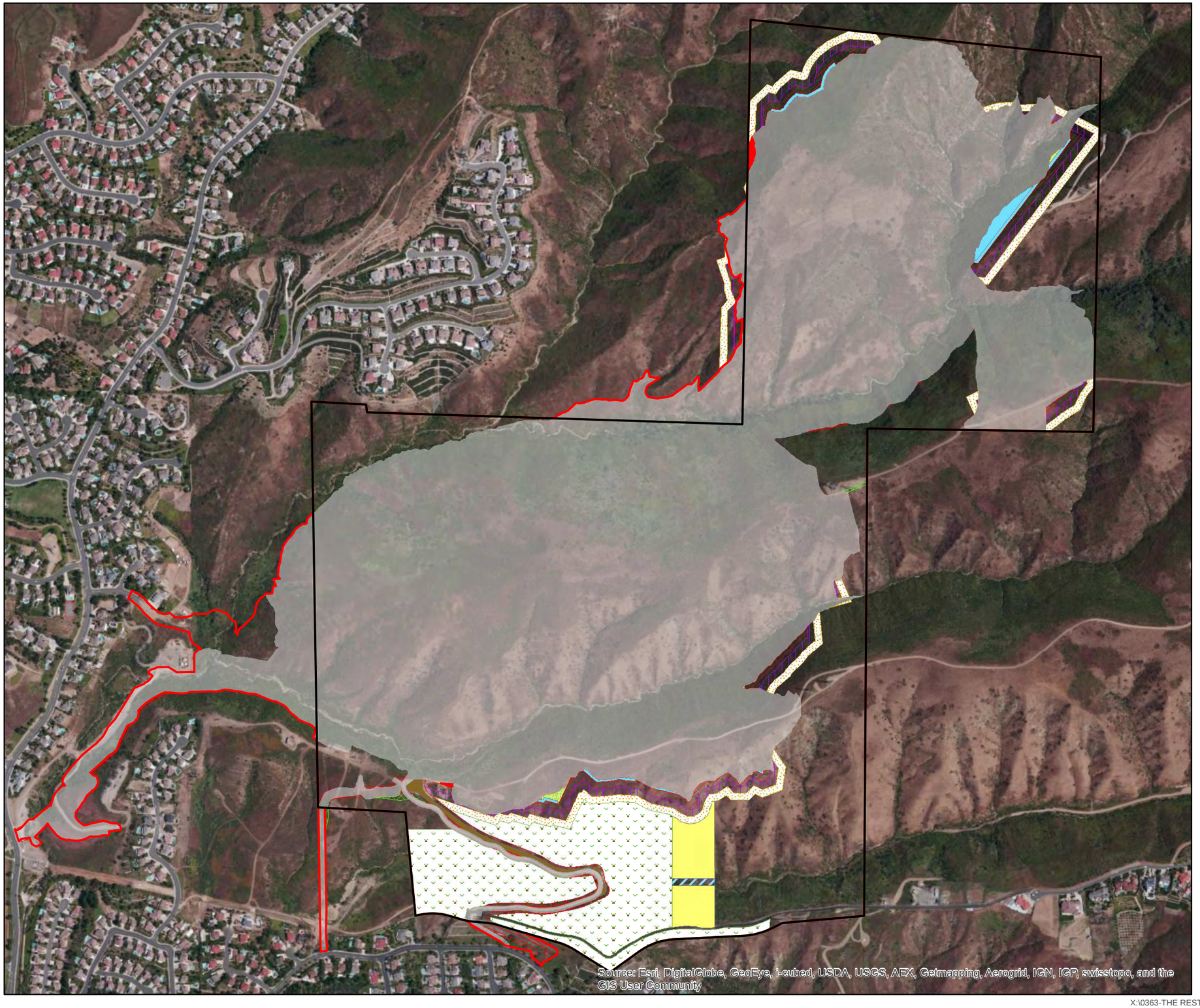
ESPERANZA HILLS SPECIFIC PLAN AREA

CDFW Jurisdictional Delineation/Alternative 3 Impact Map

GLENN LUKOS ASSOCIATES

Exhibit 3B

X:\0363-THE REST\1050-02ESPE\1050-02_GIS FINAL_USE THIS FOLDER\ImpactsGIS\1050-2 CDFWAlternative3 05 10 13.mxd



Legend

- Property Boundary
- Study Area Boundary
- Alternative 3 Project Footprint
- 50' Irrigated Riparian Zone
- Street C
- Fire Prone Vegetation Removal Zone
- Fuel Break Zone
- Irrigated Landscape Slopes/Entry/Medians
- Parks
- Special Maintenance Area
- Zone A (Flat) - Non-Combustible Construction
- Zone B - Wet Zone (100% removal native shrubs)
- Zone C - Dry Zone (50% thinning native shrubs)
- Zone D - Dry Zone (30% thinning native shrubs)

N

0 350 700 1,400

Feet

1 inch = 700 feet

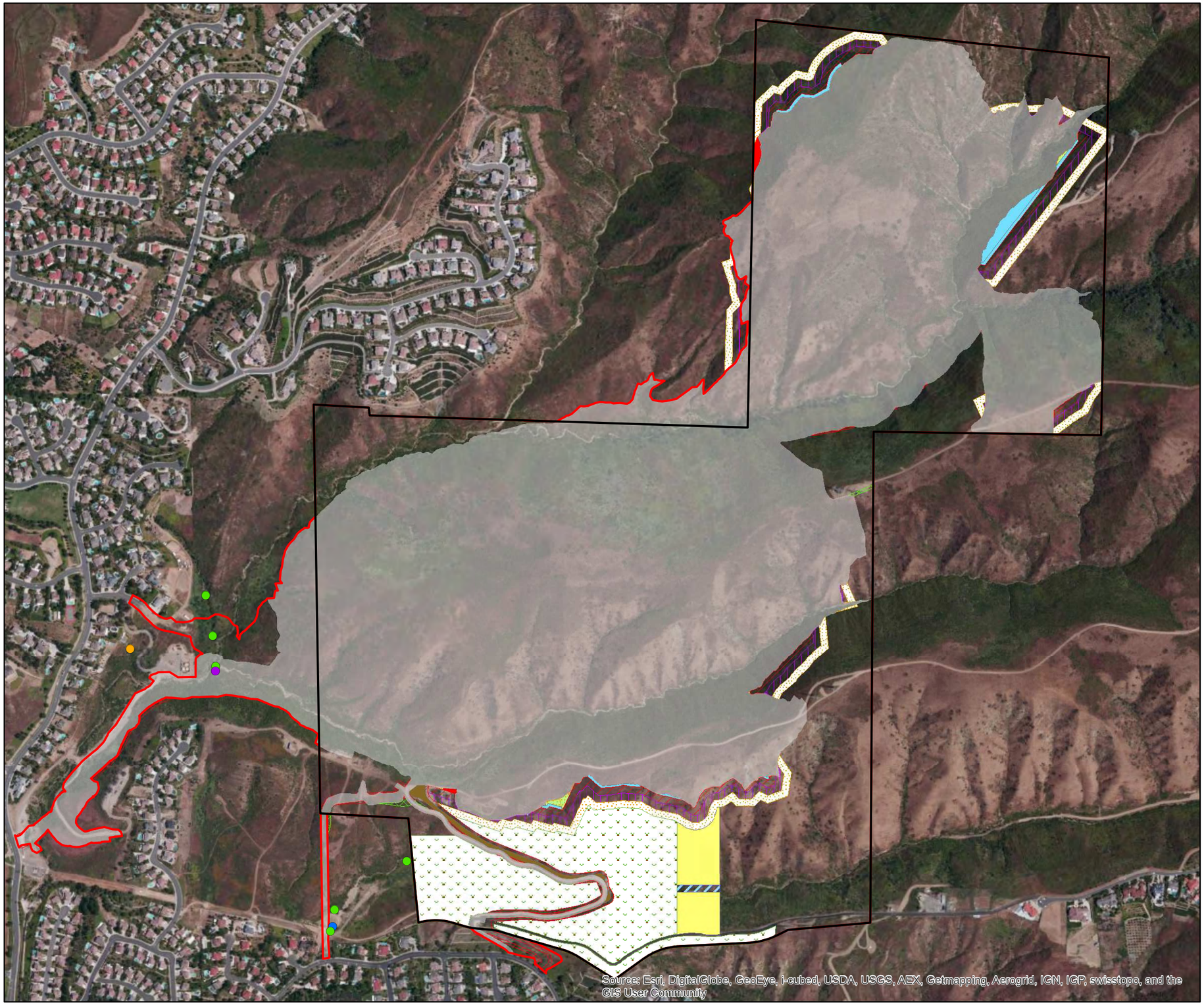
ESPERANZA HILLS SPECIFIC PLAN AREA

Project Grading Limits

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\0363-THE REST\1050-02ESPE\1050-02_GIS FINAL_USE THIS FOLDER\ImpactsGIS\1050-2 Alternative3_FMZ Ex4.mxd



Legend

- Property Boundary
- Study Area Boundary
- Alternative 3 Project Footprint
- 50' Irrigated Riparian Zone
- Street C
- Fire Prone Vegetation Removal Zone
- Fuel Break Zone
- Irrigated Landscape Slopes/Entry/Medians
- Parks
- Special Maintenance Area
- Zone A (Flat) - Non-Combustible Construction
- Zone B - Wet Zone (100% removal native shrubs)
- Zone C - Dry Zone (50% thinning native shrubs)
- Zone D - Dry Zone (30% thinning native shrubs)
- Least Bell's Vireo Observed by GLA on July 28, 2012
- Least Bell's Vireo Observed by GLA on June 1, 2010
- Least Bell's Vireo Nest - PCR Services Corporation 2012
- Least Bell's Vireo Observations - PCR Services Corporation 2012

N

0 350 700 1,400

Feet

1 inch = 700 feet

ESPERANZA HILLS SPECIFIC PLAN AREA

Least Bell's Vireo Impact Map

GLENN LUKOS ASSOCIATES

Exhibit 5

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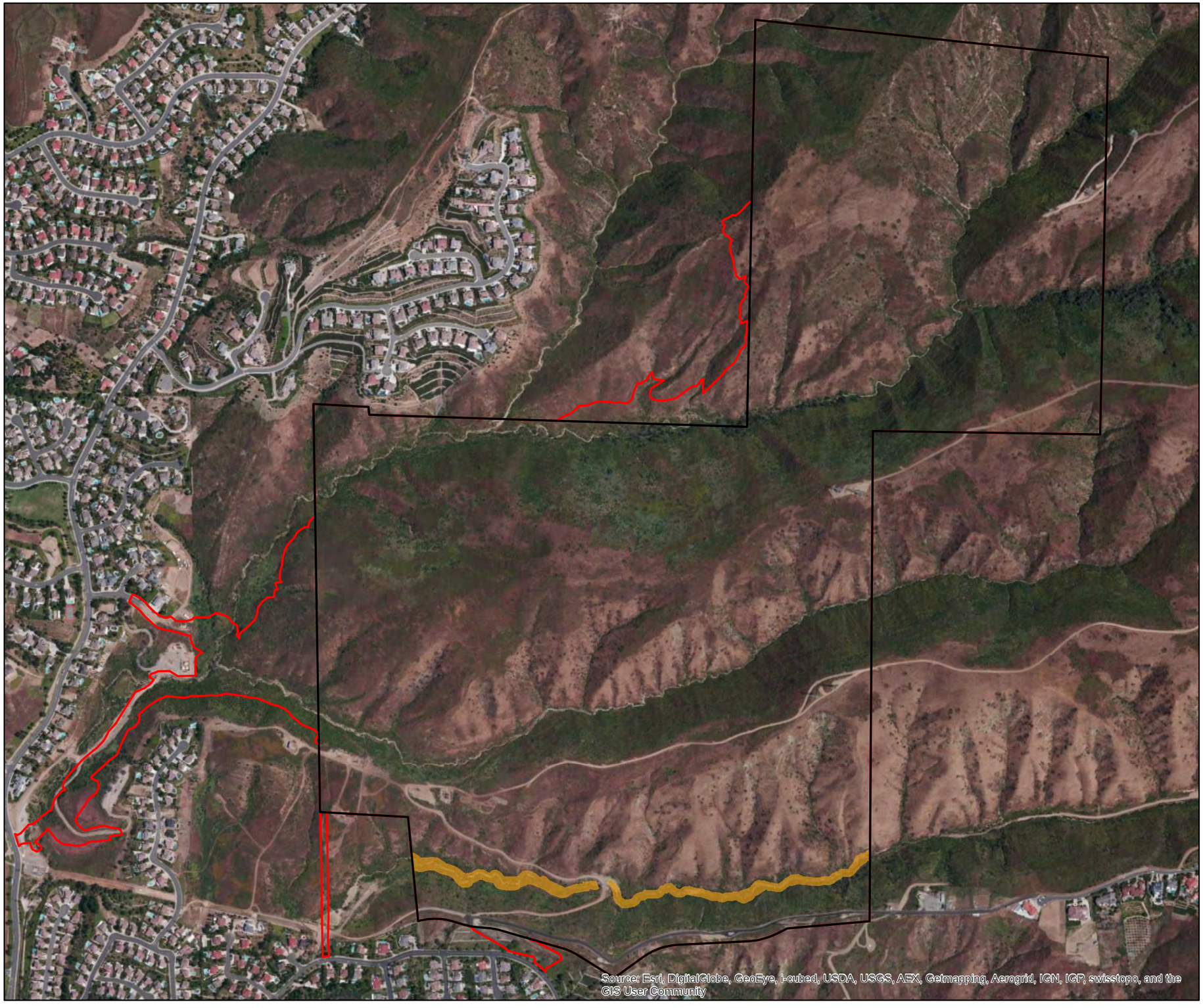


Legend

- Property Boundary
- Study Area Boundary
- Candidate Riparian Mitigation Area - 5.30 ac.

N

0 350 700 1,400

Feet

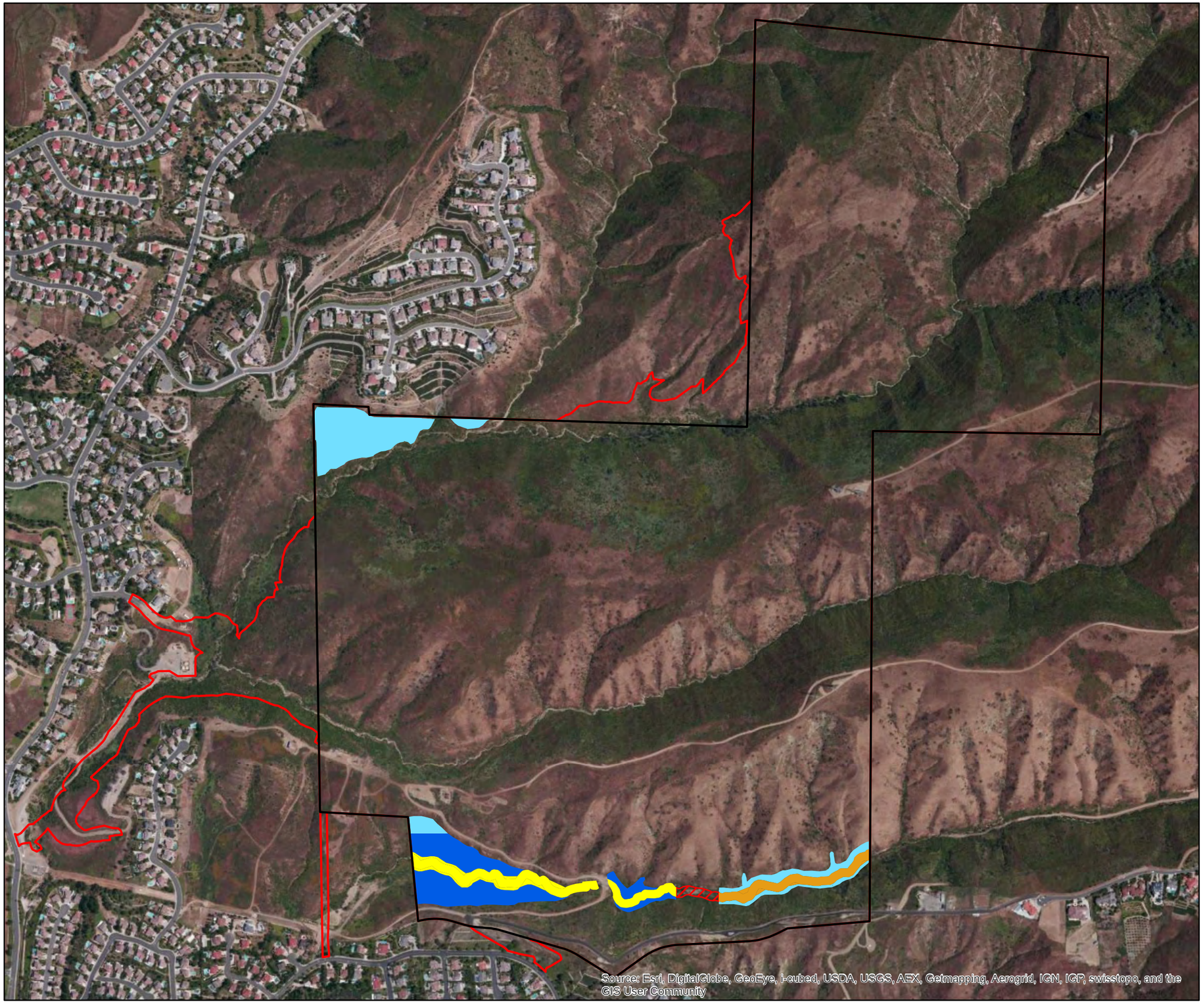
1 inch = 700 feet

ESPERANZA HILLS SPECIFIC PLAN AREA

Blue Mud Canyon Riparian Mitigation Areas

GLENN LUKOS ASSOCIATES

Exhibit 6



Legend

- Property Boundary
- Study Area Boundary
- Candidate Elderberry/Walnut Mitigation Area (8.00 ac.)
- Candidate Elderberry/Walnut Mitigation Area - Fire Prone Vegetation Removal Zone (6.70 ac.)
- Candidate Ripiarian Mitigation Area (1.80 ac.)
- Candidate Ripiarian Mitigation Area - Fire Prone Vegetation Removal Zone (3.50 ac.)
- 50-Foot Irrigated Zone (0.43 ac.) (Not included as project mitigation)

N

0 350 700 1,400

Feet

1 inch = 700 feet

ESPERANZA HILLS SPECIFIC PLAN AREA

California Walnut Blue Elderberry Woodland Mitigation Areas

GLENN LUKOS ASSOCIATES

Exhibit 7

Table 1. Summary of Fuel Modification Impacts to Vegetation Associations/Cover Types Associated with Alternative 1 (outside grading limits)

Vegetation/Land Use Type	Zone A	Zone B	Zone C	Zone D	Fuel Break Zone	Fire Prone Vegetation Removal Zone	Special Maintenance Areas	50-Foot Irrigated Riparian Zone	Parks	Total Impacts (Acres)
Coastal Sage Scrub										
California Sagebrush Scrub	0.05	0.20	0.17	0.10		1.25				**1.77**
Disturbed California Sagebrush Scrub		0.43	0.27	0.12		1.10				**1.92**
Purple Sage Scrub		0.13	0.08	0.08						**0.29**
Sagebrush-Monkeyflower Scrub		0.01				1.19				**1.20**
Ecotonal Habitats										
Coastal Sage Scrub/Chaparral Ecotone	0.18	0.87	0.80	1.16	1.21	6.21			0.03	**10.46**
Sumac Savannah		0.13	0.03	0.02		1.83			0.20	**2.21**
Chaparral Habitats										
Toyon/Sumac Chaparral	2.36	2.50	2.27	2.80			0.04		0.01	**9.98**
Sumac/Elderberry Chaparral										
Woodland Habitats										
California Walnut Woodland		0.36				5.53				**5.89**
Blue Elderberry Woodland		0.01			0.43	0.52		0.34		**1.30**
Southern Coast Live Oak Forest										
Riparian Habitats										
Mulefat Scrub		0.07			0.16	0.37				**0.60**
Black Willow Riparian Forest										
California Walnut/Mulefat Scrub		0.02			0.40	0.55				**0.97**
Southern Willow Scrub					0.06	0.03				**0.09**
Grassland Habitats										
Annual Grassland		1.80	2.10	2.32	2.57	8.05				**16.84**
Disturbed Habitats										
Ruderal		0.29	0.44	0.69	0.06	1.52				**3.00**
Developed Land										
Graded Areas/Paved Roads		0.06	0.03	0.08	0.07	0.58				**0.82**
Ornamental Vegetation										
Detention Basin										
Total Vegetation/Land Use Acreage	**2.59**	**6.88**	**6.19**	**7.37**	**4.96**	**28.73**	**0.04**	**0.34**	**0.24**	**57.34**

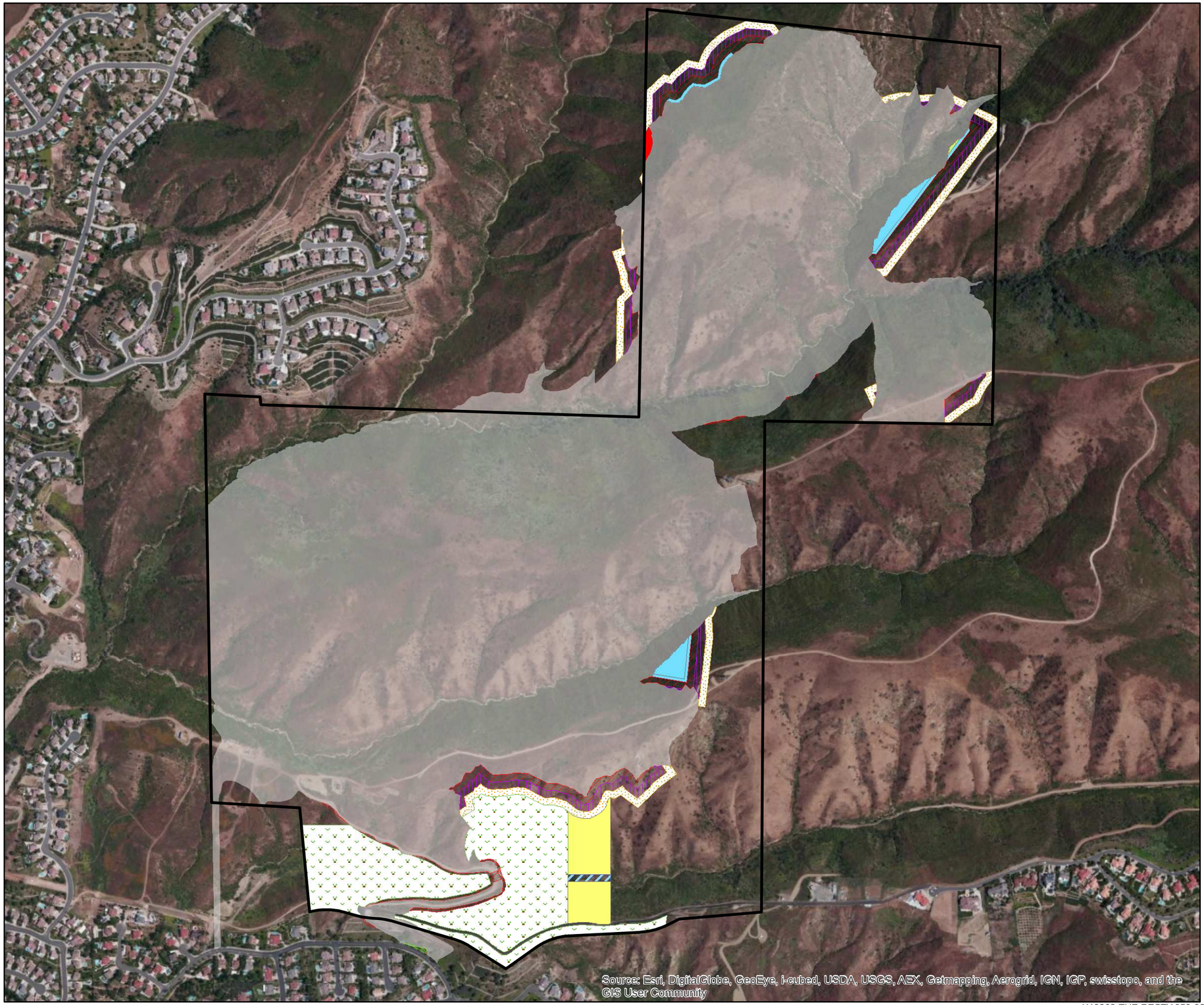
Table 2. Summary of Fuel Modification Impacts to Vegetation Associations/Cover Types Associated with Alternative 2 (outside grading limits)

Vegetation/Land Use Type	Zone A	Zone B	Zone C	Zone D	Fuel Break Zone	Fire Prone Vegetation Removal Zone	Special Maintenance Areas	50-Foot Irrigated Riparian Zone	Parks	Total Impacts (Acres)
Coastal Sage Scrub										
California Sagebrush Scrub	0.05	0.26	0.17	0.10		1.25				**1.83**
Disturbed California Sagebrush Scrub		0.42	0.36	0.23		1.73				**2.74**
Purple Sage Scrub		0.13	0.08	0.08						**0.29**
Sagebrush-Monkeyflower Scrub		0.05				1.14				**1.19**
Ecotonal Habitats										
Coastal Sage Scrub/Chaparral Ecotone	0.18	0.91	0.80	1.16	1.21	6.38			0.03	**10.67**
Sumac Savannah		0.15	0.12	0.22		2.11			0.20	**2.80**
Chaparral Habitats										
Toyon/Sumac Chaparral	2.36	2.52	2.27	2.80			0.04		0.01	**10.00**
Sumac/Elderberry Chaparral										
Woodland Habitats										
California Walnut Woodland		0.30				5.85				**6.15**
Blue Elderberry Woodland		0.02			0.43	0.53		0.34		**1.32**
Southern Coast Live Oak Forest										
Riparian Habitats										
Mulefat Scrub		0.03			0.16	0.40				**0.59**
Black Willow Riparian Forest										
California Walnut/Mulefat Scrub		0.02			0.40	0.60				**1.02**
Southern Willow Scrub					0.06	0.03				**0.09**
Grassland Habitats										
Annual Grassland		2.80	2.71	2.91	2.57	10.79				**21.78**
Disturbed Habitats										
Ruderal		0.53	0.44	0.69	0.06	1.32				**3.04**
Developed Land										
Graded Areas/Paved Roads		0.11	0.03	0.08	0.07	0.67				**0.96**
Ornamental Vegetation										
Detention Basin										
Total Vegetation/Land Use Acreage	**2.59**	**8.25**	**6.98**	**8.27**	**4.96**	**32.80**	**0.04**	**0.34**	**0.24**	**64.47**

Table 3. Summary of Fuel Modification Impacts to Vegetation Associations/Cover Types Associated with Alternative 3 (outside grading limits)

Vegetation/Land Use Type	Zone A	Zone B	Zone C	Zone D	Fuel Break Zone	Fire Prone Vegetation Removal Zone	Special Maintenance Areas	50-Foot Irrigated Riparian Zone	Parks	Difference in Street C (than in development footprint)	Irrigated Landscaped Slopes/Entry/ Medians	Total Impacts (Acres)
Coastal Sage Scrub												
California Sagebrush Scrub		0.03	0.01	0.09		1.25			0.01		0.07	**1.46**
Disturbed California Sagebrush Scrub		0.37	0.26	0.20		1.83	0.03			0.03		**2.72**
Purple Sage Scrub	0.05	0.10	0.05									**0.20**
Sagebrush-Monkeyflower Scrub						1.19						**1.19**
Ecotonal Habitats												
Coastal Sage Scrub/Chaparral Ecotone	0.18	0.88	0.80	1.16	1.21	6.39			0.03	0.01		**10.66**
Sumac Savannah		0.24	0.13	0.13		2.07			0.20			**2.77**
Chaparral Habitats												
Toyon/Sumac Chaparral	1.38	2.63	2.63	3.21			0.04		0.01			**9.90**
Sumac/Elderberry Chaparral												
Woodland Habitats												
California Walnut Woodland		0.40				5.75						**6.15**
Blue Elderberry Woodland		0.01		0.08	0.43	0.52		0.34		0.01		**1.39**
Southern Coast Live Oak Forest												
Riparian Habitats												
Mulefat Scrub		0.04			0.16	0.39				0.01		**0.60**
Black Willow Riparian Forest												
California Walnut/Mulefat Scrub		0.03			0.40	0.56				0.03		**1.02**
Southern Willow Scrub					0.06	0.03						**0.09**
Grassland Habitats												
Annual Grassland	0.22	2.98	2.86	3.48	2.56	10.15	0.13		0.01	0.72	0.04	**23.15**
Disturbed Habitats												

Ruderal		0.23	0.42	0.54	0.06	1.51					0.11	**2.87**
Developed Land												
Graded Areas/Paved Roads		0.27	0.07	0.01	0.07	0.66			0.03	0.24		**1.35**
Ornamental Vegetation		0.05										**0.05**
Detention Basin												
Total Vegetation/Land Use Acreage	**1.83**	**8.26**	**7.23**	**8.90**	**4.95**	**32.30**	**0.20**	**0.34**	**0.29**	**1.05**	**0.22**	**65.57**



Legend

- Property Boundary
- Alternative 1 Footprint
- 50' Irrigated Riparian Zone
- Fire Prone Vegetation Removal Zone
- Fuel Break Zone
- Irrigated Landscape Slopes/Entry/Medians
- Parks
- Special Maintenance Areas
- Zone A (Flat) - Non-Combustible Construction
- Zone B - Wet Zone (100% removal native shrubs)
- Zone C - Dry Zone (50% thinning native shrubs)
- Zone D - Dry Zone (30% thinning native shrubs)

N

0 350 700 1,400

Feet

1 inch = 700 feet

ESPERANZA HILLS SPECIFIC PLAN AREA

Alternative 1 Fuel Modification

GLENN LUKOS ASSOCIATES

Exhibit 1

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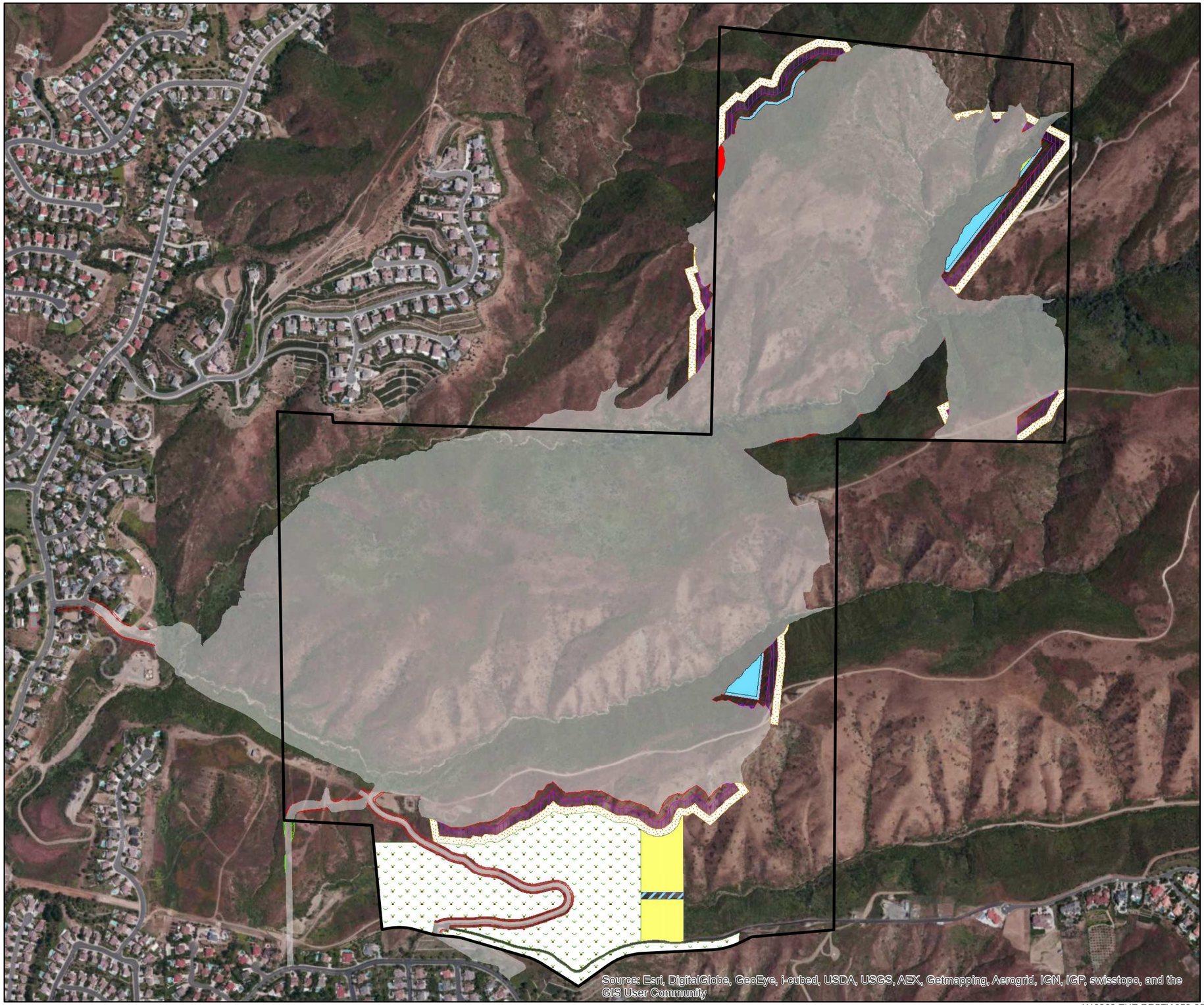


Legend

- Property Boundary
- Alternative 2 Footprint
- 50' Irrigated Riparian Zone
- Fire Prone Vegetation Removal Zone
- Fuel Break Zone
- Irrigated Landscape Slopes/Entry/Medians
- Parks
- Special Maintenance Area
- Zone A (Flat) - Non-Combustible Construction
- Zone B - Wet Zone (100% removal native shrubs)
- Zone C - Dry Zone (50% thinning native shrubs)
- Zone D - Dry Zone (30% thinning native shrubs)

N

0 350 700 1,400

Feet

1 inch = 700 feet

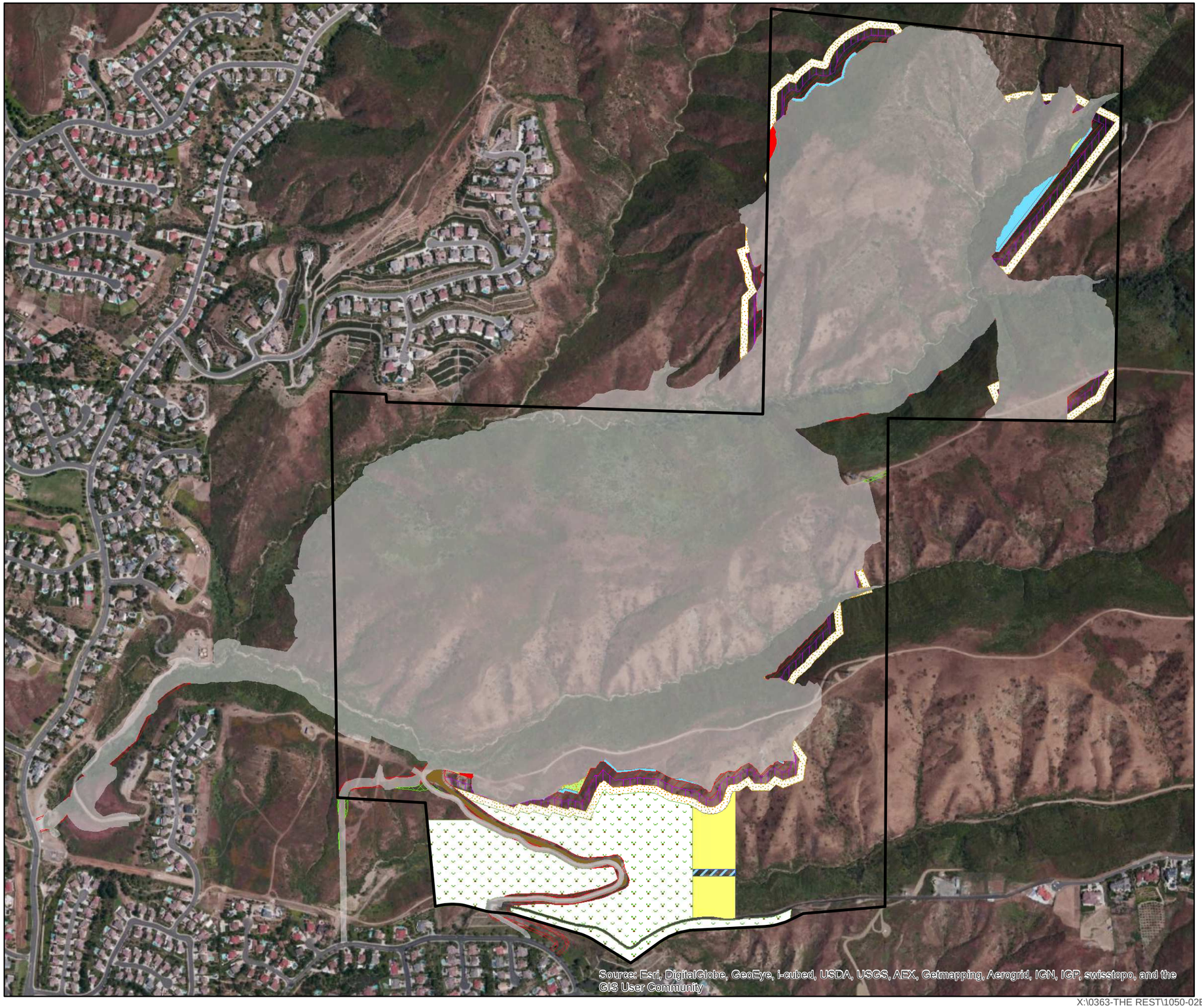
ESPERANZA HILLS SPECIFIC PLAN AREA

Alternative 2 Fuel Modification

GLENN LUKOS ASSOCIATES

Exhibit 2

X:\0363-THE REST\1050-02ESPE\1050-02_GIS FINAL_USE THIS FOLDER\ImpactsGIS\1050-2 Alternative2_FMZ.mxd



Legend

- Property Boundary
- Alternative 3 Project Footprint
- 50' Irrigated Riparian Zone
- Difference in Street C
- Fire Prone Vegetation Removal Zone
- Fuel Break Zone
- Irrigated Landscape Slopes/Entry/Medians
- Parks
- Special Maintenance Area
- Zone A (Flat) - Non-Combustible Construction
- Zone B - Wet Zone (100% removal native shrubs)
- Zone C - Dry Zone (50% thinning native shrubs)
- Zone D - Dry Zone (30% thinning native shrubs)

N

0 350 700 1,400

Feet

1 inch = 700 feet

ESPERANZA HILLS SPECIFIC PLAN AREA

Alternative 3 Fuel Modification

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\0363-THE REST\1050-02ESPE\1050-02_GIS FINAL_USE THIS FOLDER\ImpactsGIS\1050-2 Alternative3_FMZ.mxd

DEPARTMENT OF THE ARMY
Los Angeles District Corps of Engineers
P.O. Box 532711
Los Angeles, California 90053-2325

REPLY TO
ATTENTION OF

December 6, 2013

Regulatory Division

Tony Bomkamp
Glenn Lukos Associates
29 Orchard
Lake Forest, California 92630

SUBJECT: Preliminary Jurisdictional Determination regarding presence of geographic jurisdiction

Dear Mr. Bomkamp:

Reference is made to your request (File No. SPL-2013-00853-JPL) dated July 15, 2013, for a preliminary Department of the Army jurisdictional determination (JD) for the Esperanza Hills Project site (-117.749626, 33.901519) located near the city of Yorba Linda, in unincorporated Orange County, California. As part of the evaluation process, we have made the jurisdictional determination below.

As you may know, the Corps' evaluation process for determining whether or not a Department of the Army permit is needed involves two tests. If both tests are met, then a permit is required. The first test determines whether or not the proposed project is located in a water of the United States (i.e., it is within the Corps' geographic jurisdiction). The second test determines whether or not the proposed project is a regulated activity under Section 10 of the River and Harbor Act or Section 404 of the Clean Water Act. As part of the evaluation process, pertaining to the first test only, we have made the jurisdictional determination below.

Based on available information, it appears waters of the United States may be present on the Esperanza Hills Project site in the approximate locations noted on the enclosed drawing. The basis for the preliminary JD can be found on the enclosed "Preliminary Jurisdictional Determination Form." Please note preliminary JDs are non-binding ". . . written indications that there may be waters of the United States, including wetlands, on a parcel or indications of the approximate location(s) of waters of the United States or wetlands on a parcel. Preliminary JDs are advisory in nature and may not be appealed." (33 C.F.R. 331.2.). The permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination for this site. The option to obtain an approved JD in this instance and at this time has been declined. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S.

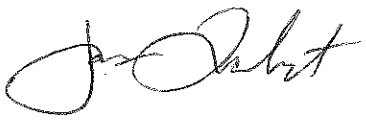
Please be reminded that preliminary JDs may not be appealed through the Corps' administrative appeal process set out at 33 CFR Part 331. Preliminary jurisdictional determinations are fully explained in Regulatory Guidance Letter 08-02, dated June 26, 2008. Further, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

This determination has been conducted to identify the extent of the Corps' Clean Water Act jurisdiction on the Esperanza Hills Project site identified in your request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

If you have any questions, please contact me at 213-452-3361 or via e-mail at Jason.P.Lambert@usace.army.mil.

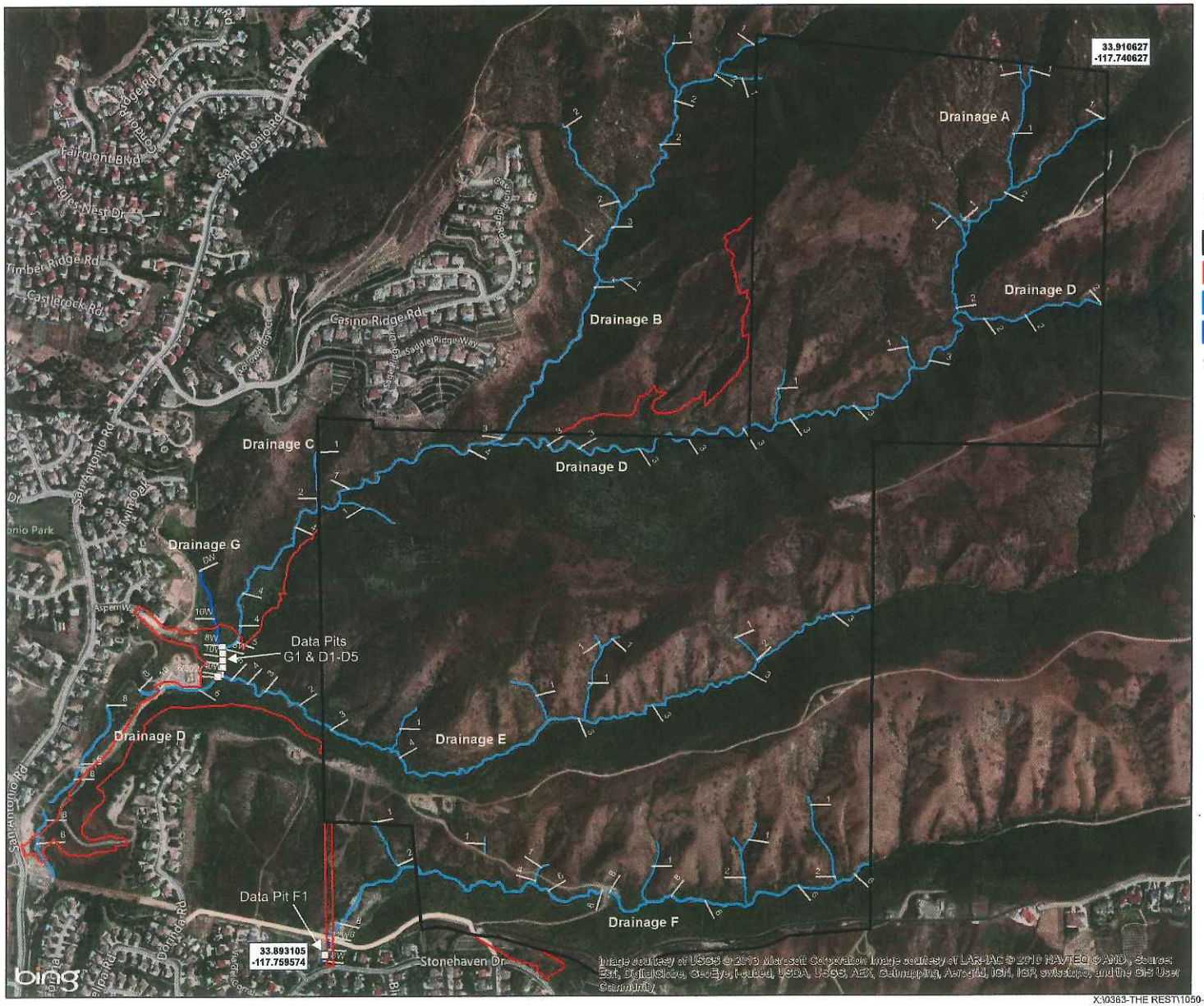
Please be advised that you can now comment on your experience with Regulatory Division by accessing the Corps web-based customer survey form at: http://per2.nwp.usace.army.mil/survey.html.

Sincerely,



Jason P. Lambert
Project Manager
South Coast Branch
Regulatory Division

Enclosures



Legend

- Property Boundary
- Study Area Boundary
- Corps Non-Wetland Waters
- Corps Wetland
- Width in Feet (W indicates wetland jurisdiction)
- Data Pit Location

N

0 350 700 1,400
Feet

1 inch = 700 feet

Aerial Photo: ESRI Basemaps Bing Hybrid
Reference Elevation Datum: State Plane 6 NAD 83
Map Prepared by: K. Kartunen, GLA
Date Prepared: May 10, 2013

ESPERANZA HILLS SPECIFIC PLAN AREA

Corps Jurisdictional Delineation Map

GLENN LUKOS ASSOCIATES

Exhibit 3A

X:\0363-THE REST\1050-02ESPE\1050-02_GIS FINAL_USE THIS FOLDER\DelineationGIS\1050-2 Exhibit 3A.mxd

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

District Office: Los Angeles District | File/ORM #: SPL-2013-00853-JPL | PJD Date: December 6, 2013

State: CA | City/County: Orange

Nearest Waterbody: Santa Ana River

Location: TRS, LatLong or UTM: 33.898327 -117.749752

Name/ Address of Person Requesting PJD: Tony Bomkamp, Glenn Lukos Associates, 29 Orchard, Lake Forest, CA 92630

Identify (Estimate) Amount of Waters in the Review Area:

Non-Wetland Waters: 26,149 linear ft | 3 width | 1.89 acres | Stream Flow: Intermittent

Wetlands: 0.19 acre(s) | Cowardin Class: Palustrine, forested

Name of Any Water Bodies on the Site Identified as Section 10 Waters: Tidal: none | Non-Tidal: none

☐ Office (Desk) Determination
☑ Field Determination: Date of Field Trip: 7/12/2013

SUPPORTING DATA: Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- ☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: See attached
- ☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☑ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps
- ☐ Corps navigable waters' study:
- ☑ U.S. Geological Survey Hydrologic Atlas:
  - ☐ USGS NHD data.
  - ☑ USGS 8 and 12 digit HUC maps.
- ☑ U.S. Geological Survey map(s). Cite quad name: Prado Dam and Yorba Linda
- ☑ USDA Natural Resources Conservation Service Soil Survey. Citation: http://websoilsurvey.sc.egov.usda.gov/App/HomeP
- ☐ National wetlands inventory map(s). Cite name:
- ☐ State/Local wetland inventory map(s):
- ☑ FEMA/FIRM maps: 060212-0069J and 060212-0090J
- ☐ 100-year Floodplain Elevation is:
- ☑ Photographs: ☑ Aerial (Name & Date): ESRI Basemaps Bing Hybrid
  ☑ Other (Name & Date): Site photographs, January and February 2013
- ☐ Previous determination(s). File no. and date of response letter:
- ☑ Other information (please specify): See attachment

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

6 December 2013
Signature and Date of Regulatory Project Manager (REQUIRED)

Tony Bomkamp / Glenn Lukos Assoc.
Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

Esperanza Hills Specific Plan Project; Near the City of Yorba Linda; Orange County, California

Information for Preliminary Jurisdictional Determination Form

Site Number	Latitude	Longitude	Cowardin Class	Estimated Amount of Aquatic Resource in Review Area (Acres)	Class of Aquatic Resource
Drainage A	33.906987	-117.743804	Riverine	0.12	Non-Section 10 Non-Wetland
Drainage B	33.905809	-117.752835	Riverine	0.01	Non-Section 10 Non-Wetland
Drainage C	33.902586	-117.758956	Riverine	0.001	Non-Section 10 Non-Wetland
Drainage D Non-Wetland	33.902536	-117.755738	Riverine	0.61	Non-Section 10 Non-Wetland
Drainage D Wetland	33.898633	-117.760950	Palustrine, Forested	0.13	Non-Section 10 Wetland
Drainage E	33.898327	-117.749752	Riverine	0.47	Non-Section 10 Non-Wetland
Drainage F Non-Wetland	33.893868	-117.751491	Riverine	0.68	Non-Section 10 Non-Wetland
Drainage F Wetland	33.893255	-117.758320	Palustrine, Forested	0.02	Non-Section 10 Wetland
Drainage G Wetland	33.900255	-117.761586	Palustrine, Forested	0.04	Non-Section 10 Wetland
TOTAL				**2.08**	