GLENN LUKOS ASSOCIATES
Regulatory Services

August 5, 2013

Jeff Weber
The Preserve at San Juan LLC
100 Pacifica, Suite 345
Irvine, California 92618

SUBJECT: Jurisdictional Delineation of the Study Area of The Preserve at San Juan, an Approximately 340-Acre Assemblage of Properties Located in Unincorporated Orange and Riverside Counties, California

Dear Mr. Weber:

This letter report summarizes our preliminary findings of U.S. Army Corps of Engineers (Corps), California Department of Fish and Wildlife (CDFW), and Regional Water Quality Control Board (RWQCB) jurisdiction for the above-referenced property.[1]

The Study Area of The Preserve at San Juan (Project/Site) in unincorporated Orange and Riverside Counties [Exhibit 1] comprises approximately 340 acres and contains two blue-line drainages (as depicted on the U.S. Geological Survey (USGS) topographic map Alberhill, California [dated 1954 and photorevised in 1988] [Exhibit 2]. One of the blue-line drainages is Long Canyon, and the other is a tributary to Long Canyon. The Study Area is made up of an assemblage of properties consisting of three parcels; the Nilson parcel, the Sanchez Ranch parcel, and the U.S. Forest Service (USFS) parcel.

On May 23, June 3, and July 1, 2013, regulatory specialists of Glenn Lukos Associates, Inc. (GLA) re-examined the Study Area to determine the limits of (1) Corps jurisdiction pursuant to Section 404 of the Clean Water Act, (2) CDFW jurisdiction pursuant to Division 2, Chapter 6, Section 1600 of the Fish and Game Code, and (3) RWQCB jurisdiction pursuant to Section 401 of the Clean Water Act and the Porter-Cologne Act. The drainage and tributary naming system correlates with a prior jurisdictional delineation that was conducted in 2007/2008 for the entire a

[1] This report presents our best effort at estimating the subject jurisdictional boundaries using the most up-to-date regulations and written policy and guidance from the regulatory agencies. Only the regulatory agencies can make a final determination of jurisdictional boundaries. If a final jurisdictional determination is required, GLA can assist in getting written confirmation of jurisdictional boundaries from the agencies.

larger area that encompassed over 930 acres. This jurisdictional delineation report reflects current site conditions within the approximately 340-acre Study Area only.

Enclosed is a 200-scale map [Exhibit 3] that depicts the areas of Corps, CDFW, and RWQCB jurisdiction within the Study Area. Photographs to document the topography, vegetative communities, and general widths of each of the waters are provided as Exhibit 4. A soils map is attached as Exhibit 5 and a wetland data sheet is attached as Appendix A. All jurisdictional values presented herein are rounded to the nearest one-hundredth of one acre.

Potential Corps and RWQCB jurisdiction within the Study Area totals approximately 1.32 acres, none of which consists of jurisdictional wetlands. Potential CDFW jurisdiction within the Study Area totals approximately 6.53 acres, of which approximately 5.89 acres consist of vegetated riparian habitat.

Portions of the Nilson and USFS parcels were burned within the Study Area, effectively removing large swaths of sage scrub and chaparral vegetation. The site conditions resulting from the fire did not affect the results of the jurisdictional delineation.

I. METHODOLOGY

Prior to beginning the field delineation, a 200-scale color aerial photograph, a 200-scale topographic base map of the property, the previously cited USGS topographic map, a geographic information system (GIS) files from the prior jurisdictional delineation conducted in 2007/2008 were examined to determine the locations of potential areas of Corps, CDFW, and RWQCB jurisdiction. Potential wetland habitats on the site were evaluated using the methodology set forth in the *U.S. Army Corps of Engineers 1987 Wetland Delineation Manual*[2] (Wetland Manual) and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*[3]. The OHWM was evaluated using the methodology set forth in the 2008 *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*[4].

[2] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.
[3] U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Ed. J.S. Wakeley, R.W. Lichevar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
[4] U.S. Army Corps of Engineers. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. R.W. Lichevar, and S.M. McColley. ERDC/CRREL TR-08-12. Hanover, NH: Cold Regions Research and Engineering Laboratory, U.S. Army Engineer Research and Development Center.

While in the field the limits of CDFW jurisdiction were recorded onto a 200-scale color aerial photograph using visible landmarks and a global position system (GPS). Other data were recorded onto wetland data sheets. The methodology for defining the extent of CDFW riparian habitat in the field is summarized as follows:

- Designation of an area as "riparian habitat" was generally limited to stands of vegetation that included a predominance of species that exhibited an indicator status of FAC, FACW or OBL. (Coast live oaks were included as riparian habitat in specific instances as further described/discussed below.)

- Where all riparian habitat was included within the bank-full stream channel, the outermost limits of either the bank or riparian habitat was mapped as the limits of CDFW riparian jurisdiction/habitat.

- Where riparian habitat extended beyond the bank-full channel to the active floodplain, and did not extend outside the active floodplain, the outermost limits of either the active floodplain or riparian habitat were mapped as the limits of CDFW riparian jurisdiction/habitat. By inclusion of the active flood plain and associated riparian habitat, the hydrologic, biogeochemical, and habitat functions not specifically associated with riparian vegetation, such as areas with localized ponding that support aquatic organisms (e.g., invertebrates, amphibians, etc.), but providing such hydrologic, biogeochemical and habitat functions, were captured and included within the jurisdictional area(s).

- Where riparian habitat extended beyond the active flood plain to active terraces, the outermost limits of the riparian habitat on the terrace (i.e., canopy edge or "drip line") was mapped as the limits of CDFW riparian jurisdiction/habitat. Similar to inclusion of the flood plain described above, inclusion of the active terraces ensured that functions such as hydrologic exchange with the adjacent uplands, nutrient cycling, shading by overhanging vegetation, bank and channel stabilization by roots, as well as habitat functions were included in the jurisdictional area(s).

  This latter case (i.e., channel stabilization by roots) was most typically applied to southern coast live oak riparian forest. In some cases, particularly in "U"-shaped canyons, the limits of the active terrace were not always discernible. In such cases, coast live oaks (and in a few instances California sycamores) were included as riparian where they either (1) exhibited roots that reached the banks of the drainage, thereby, benefiting from the drainage or by providing stabilization for the banks (i.e., a benefit for the stream) or (2) where meaningful portions of the canopy overhung the stream, thereby providing for shading or litter (nutrient cycling) which would benefit the stream. Coast live oaks (and

> California sycamores) located above active terraces or (where terraces were not distinct) beyond where either roots or shading provided direct benefits to the stream, or that supported a predominance of UPL vegetation were not included as CDFW-regulated riparian vegetation.

The Soil Conservation Service (SCS)[5] has mapped the following soil types as occurring in the general vicinity of the project site:

Blasingame-Vista Complex, 15 to 30 percent slopes (121)

The Blasingame soils consist of well-drained soils that formed in material weathered from metamorphic or granitic rocks at elevations of 1,000 to 3,500 feet. Blasingame soils are found in mountains and have slopes of 9 to 65 percent. These soils exhibit moderately slow permeability. In a typical profile, the first six inches consist of brown (7.5YR 3/2 when moist) loam. From six to eight inches, the soil consists of dark reddish brown (5YR 3/4 when moist) loam, and from eight to 17 inches, the soil consists of yellowish red (5YR 4/8 when moist) clay loam. Rock outcrops are commonly associated with the Blasingame-Rock Outcrop Complex soil type and occupy about 20 to 35 percent of the surface area.

Capistrano Sandy Loam, 2 to 9 percent slopes (135)

The Capistrano series consists of well-drained soils that formed in granitic alluvium on alluvial fans and alluvial plains in small valleys of the Santa Ana Mountains and in sedimentary alluvium of the coastal foothills. These soils have slopes of 2 to 15 percent at elevations of 25 to 2,500 feet. Capistrano soils exhibit moderately rapid permeability. From zero to 16 inches, the soil consists of very dark brown (10YR 2/2 when moist) sandy loam.

Cieneba-Blasingame-Rock Outcrop Complex, 9 to 30 percent slopes (143) &
Cieneba-Rock Outcrop Complex, 30 to 75 percent slopes (145)

The Cieneba series consists of somewhat excessively drained soils that formed in material weathered from granitic rocks of the Santa Ana Mountains and from the sandstone of the coastal foothills. These soils have slopes of 9 to 75 percent at elevations of 200 to 4,000 feet. Cieneba soils exhibit moderately rapid permeability. From zero to one inch, the soil consists of dark grayish brown (10YR 4/2 when moist) sandy loam. From one to seven inches, the soil consists of brown (10YR 4/3 when moist) sandy loam, and from seven to 20 inches, the soil consists of yellow, light brownish gray, white, and black weathered granodiorite.

[5] SCS is now known as the National Resource Conservation Service or NRCS.

Rock Outcrop-Cieneba Complex, 30 to 75 percent slopes (192)

Rock outcrop consists of large exposures of sandstone or granite and boulders. This series is found in mountains or on foothills and is 50 percent or more rock outcrop and boulders and 50 percent or less Cieneba soils. The soils are somewhat excessively drained and formed in material weathered from granitic or sandstone rocks at elevations of 200 to 4,500 feet. This series exhibits moderately rapid permeability.

None of these soil units are identified as hydric in the SCS's publication, Hydric Soils of the United States[6], or the SCS's publication, Hydric Soils List for Orange County and Western Part of Riverside County.

II. JURISDICTION

A. Army Corps of Engineers

Pursuant to Section 404 of the Clean Water Act, the Corps regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined in Corps regulations at 33 CFR Part 328.3(a) as:

> *(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;*
> *(2) All interstate waters including interstate wetlands;*
> *(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect foreign commerce including any such waters:*
> *(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or*
> *(ii) From which fish or shell fish are or could be taken and sold in interstate or foreign commerce; or*

[6] United States Department of Agriculture, Soil Conservation Service. 1991. Hydric Soils of the United States, 3rd Edition, Miscellaneous Publication Number 1491. (In cooperation with the National Technical Committee for Hydric Soils.)

(iii) Which are used or could be used for industrial purpose by industries in interstate commerce...

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in paragraphs (a) (1)-(4) of this section;

(6) The territorial seas;

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1)-(6) of this section.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States.

(8) Waters of the United States do not include prior converted cropland.[7] *Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA.*

In the absence of wetlands, the limits of Corps jurisdiction in non-tidal waters, such as intermittent streams, extend to the OHWM which is defined at 33 CFR 328.3(e) as:

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

1. Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al.

Pursuant to Article I, Section 8 of the U.S. Constitution, federal regulatory authority extends only to activities that affect interstate commerce. In the early 1980s the Corps interpreted the interstate commerce requirement in a manner that restricted Corps jurisdiction on isolated (intrastate) waters. On September 12, 1985, EPA asserted that Corps jurisdiction extended to

[7] The term "prior converted cropland" is defined in the Corps' Regulatory Guidance Letter 90-7 (dated September 26, 1990) as "wetlands which were both manipulated (drained or otherwise physically altered to remove excess water from the land) and cropped before 23 December 1985, to the extent that they no longer exhibit important wetland values. Specifically, prior converted cropland is inundated for no more than 14 consecutive days during the growing season…." [Emphasis added.]

isolated waters that are used or could be used by migratory birds or endangered species, and the definition of "waters of the United States" in Corps regulations was modified as quoted above from 33 CFR 328.3(a).

On January 9, 2001, the Supreme Court of the United States issued a ruling on *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al.* (SWANCC). In this case the Court was asked whether use of an isolated, intrastate pond by migratory birds is a sufficient interstate commerce connection to bring the pond into federal jurisdiction of Section 404 of the Clean Water Act.
The written opinion notes that the court's previous support of the Corps' expansion of jurisdiction beyond navigable waters (*United States v. Riverside Bayview Homes, Inc*.) was for a wetland that abutted a navigable water and that the court did not express any opinion on the question of the authority of the Corps to regulate wetlands that are not adjacent to bodies of open water. The current opinion goes on to state:

> *In order to rule for the respondents here, we would have to hold that the jurisdiction of the Corps extends to ponds that are not adjacent to open water. We conclude that the text of the statute will not allow this.*

Therefore, we believe that the court's opinion goes beyond the migratory bird issue and says that no isolated, intrastate water is subject to the provisions of Section 404(a) of the Clean Water Act (regardless of any interstate commerce connection). However, the Corps and EPA have issued a joint memorandum which states that they are interpreting the ruling to address only the migratory bird issue and leaving the other interstate commerce clause nexuses intact.

2. Rapanos v. United States and Carabell v. United States

On June 5, 2007, the U.S. Environmental Protection Agency (EPA) and Corps issued joint guidance that addresses the scope of jurisdiction pursuant to the Clean Water Act in light of the Supreme Court's decision in the consolidated cases *Rapanos v. United States* and *Carabell v. United States* ("Rapanos"). The chart below was provided in the joint EPA/Corps guidance.

The agencies will assert jurisdiction over the following waters:

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

- Wetlands that directly abut such tributaries

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

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary

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

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

The agencies will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters
- Significant nexus includes consideration of hydrologic and ecologic factors

3. Wetland Definition Pursuant to Section 404 of the Clean Water Act

The term “wetlands” (a subset of “waters of the United States”) is defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." In 1987 the Corps published a manual to guide its field personnel in determining jurisdictional wetland boundaries. In 2008 the Corps provided a regional supplement for the Arid West (Arid West Supplement). The methodology set forth in the 1987 Wetland Delineation Manual and the Arid West Supplement generally require that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics. While the manual and Supplement provide great detail in methodology and allow for varying special conditions, a wetland should normally meet each of the following three criteria:

- more than 50 percent of the dominant plant species at the site must be typical of wetlands (i.e., rated as facultative or wetter in the National List of Plant Species that Occur in Wetlands[8]);

- soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color, or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and

- Whereas the 1987 Manual requires that hydrologic characteristics indicate that the ground is saturated to within 12 inches of the surface for at least five percent of the growing season during a normal rainfall year, the Arid West Supplement does not include a quantitative criteria with the exception for areas with "problematic hydrophytic vegetation", which require a minimum of 14 days of ponding to be considered a wetland.

B. Regional Water Quality Control Board

Subsequent to the SWANCC decision, the Chief Counsel for the State Water Resources Control Board issued a memorandum that addressed the effects of the SWANCC decision on the Section 401 Water Quality Certification Program.[9] The memorandum states:

> *California's right and duty to evaluate certification requests under section 401 is pendant to (or dependent upon) a valid application for a section 404 permit from the Corps, or another application for a federal license or permit. Thus if the Corps determines that the water body in question is not subject to regulation under the COE's 404 program, for instance, no application for 401 certification will be required…*
>
> *The SWANCC decision does not affect the Porter Cologne authorities to regulate discharges to isolated, non-navigable waters of the states….*
>
> *Water Code section 13260 requires "any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements)." (Water Code § 13260(a)(1) (emphasis added).) The term "waters of the state" is*

[8] Reed, P.B., Jr. 1988. National List of Plant Species that Occur in Wetlands. U.S. Fish and Wildlife Service Biological Report 88(26.10).
[9] Wilson, Craig M. January 25, 2001. Memorandum addressed to State Board Members and Regional Board Executive Officers.

> *defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." (Water Code § 13050(e).) The U.S. Supreme Court's ruling in SWANCC has no bearing on the Porter-Cologne definition. While all waters of the United States that are within the borders of California are also waters of the state, the converse is not true—waters of the United States is a subset of waters of the state. Thus, since Porter-Cologne was enacted California always had and retains authority to regulate discharges of waste into any waters of the state, regardless of whether the COE has concurrent jurisdiction under section 404. The fact that often Regional Boards opted to regulate discharges to, e.g., vernal pools, through the 401 program in lieu of or in addition to issuing waste discharge requirements (or waivers thereof) does not preclude the regions from issuing WDRs (or waivers of WDRs) in the absence of a request for 401 certification….*

In this memorandum the SWRCB's Chief Counsel has made the clear assumption that fill material to be discharged into isolated waters of the United States is to be considered equivalent to "waste" and therefore subject to the authority of the Porter Cologne Water Quality Act. However, while providing a recounting of the Act's definition of waters of the United States, this memorandum fails to also reference the Act's own definition of waste:

> *"Waste" includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.*

The lack of inclusion of a reference to "fill material," "dirt," "earth" or other similar terms in the Act's definition of "waste," or elsewhere in the Act, suggests that no such association was intended. Thus, the Chief Counsel's memorandum signals that the SWRCB is attempting to retain jurisdiction over discharge of fill material into isolated waters of the United States by administratively expanding the definition of "waste" to include "fill material" without actually seeking amendment of the Act's definition of waste (an amendment would require action by the state legislature). Consequently, discharge of fill material into waters of the State not subject to the jurisdiction of the Corps pursuant to Section 404 of the Clean Water Act <u>may</u> require authorization pursuant to the Porter Cologne Act through application for waste discharge requirements (WDRs) or through waiver of WDRs, despite the lack of a clear regulatory imperative.

C. California Department of Fish and Game

Pursuant to Division 2, Chapter 6, Sections 1600-1603 of the California Fish and Game Code, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife.

CDFW defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." CDFW's definition of "lake" includes "natural lakes or man-made reservoirs."

CDFW jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife. CDFW Legal Advisor has prepared the following opinion:

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects and riparian vegetation will be treated like natural waterways...

- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses, should be treated by [CDFW] as natural waterways...

- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions...

Thus, CDFW jurisdictional limits closely mirror those of the Corps. Exceptions are CDFW's addition of artificial stock ponds and irrigation ditches constructed on uplands, and the addition of riparian habitat[10] supported by a river, stream, or lake regardless of the riparian area's federal wetland status.

[10] See Methodology (Section I) for discussion of extent of riparian habitat.

III. RESULTS

A. Corps Jurisdiction

The Study Area contains one main drainage complex, described herein as Drainage A (Long Canyon) and its tributaries. Drainage B occurs outside of the Study Area; however, one of its tributaries, Tributary B17, occurs within the Study Area. A small portion of Drainage C occurs within the Study area, near the intersection of Long Canyon Road and Ortega Highway, and converges within Drainage A offsite. Both Drainages A & B converge with San Juan Creek offsite, and ultimately discharge into the Pacific Ocean. The drainage and tributary naming system correlate with the prior jurisdictional delineation that was conducted in 2007/2008 for a larger area that encompassed over 930 acres. This jurisdictional delineation report reflects updated site conditions within the Study Area only.

Potential Corps jurisdiction within the Study Area totals approximately 1.32 acres of water of the United States (29,626 linear feet), none of which consists of jurisdictional wetlands. The boundaries of the potential waters of the United States are depicted in Exhibit 3 and discussed below in Table 1.

1. Drainage Complex A (Long Canyon)

Drainage A (Long Canyon) is mapped as a blue-line stream on the USGS topographic map Alberhill, California. Potential Corps jurisdiction associated with Drainage A (Long Canyon) totals approximately 0.45 acre, none of which consists of jurisdictional wetlands. At the time of the delineation, Drainage A did not contain surface flows, but did exhibit an OHWM ranging between three and eight feet in width, evidenced by one or more of the following: incised channel, the presence of litter and debris, shelving, destruction of terrestrial vegetation, and sediment deposits. It is likely that the below-average rainfall of 2013 contributed to the dry condition of Drainage A. During average rainfall years, Drainage A typically supports flowing water and is categorized as a seasonal drainage.

Drainage A originates offsite and enters the Study Area in the southwestern corner of the Nilson parcel. Drainage A traverses the Study Area in a southeasterly direction for approximately 2,916 linear feet before exiting the site at the eastern perimeter of the Sanchez Ranch parcel.

Drainage A supports a large cobble substrate with vegetation consisting primarily of mulefat (*Baccharis salicifolia*), California sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia*), poison oak (*Toxicodendron diversilobum*), and arroyo willow (*Salix lasiolepis*), and is primarily unvegetated within the low flow channel. Drainage A is relatively shallow and broad

in the upper reach, and becomes more incised further downstream. There are no jurisdictional wetlands within Drainage A.

a. Tributary A3

Potential Corps jurisdiction associated with Tributary A3 totals approximately 0.37 acre, none of which consists of jurisdictional wetlands. Tributary A3 is an ephemeral drainage complex that originates in the central region of the Nilson parcel and flows in a southerly direction for approximately 12,200 linear feet before exiting the site at the eastern boundary of the USFS parcel.

The main stem of Tributary A3 supports an OHWM ranging between one and five feet in width, evidenced by an incised channel, presence of litter and debris, shelving, destruction of terrestrial vegetation and sediment deposits. The main stem of Tributary A3 is bisected by three dirt roads and straddles the south-central portion of the Nilson parcel before crossing into the USFS parcel. While on the Nilson parcel, flows from the main stem of Tributary A3 are carried beneath each of the three dirt roads through corrugated metal pipes. The main stem of Tributary A3 supports an alluvial sandy cobble substrate and supports large patches of riparian vegetation throughout much of its reach. Vegetation with the main stem of Tributary A3 consists primarily of black mustard (*Brassica nigra*), coast live oak, mulefat, California sycamore, arroyo willow, rabbitsfoot grass (*Polypogon monspeliensis*), Fremont's cottonwood (*Populus fremontii*), stinging nettle (*Urtica dioica*), and creek monkeyflower (*Mimulus guttatus*).

The remaining portion of Tributary A3 adjacent to Long Canyon Road supports an OHWM of one foot in width. Vegetation within this remaining portion of Tributary A3 consists primarily of upland grasses and chaparral species, with isolated patches of coast live oak and mulefat.

b. Tributary A4

Potential Corps jurisdiction associated with Tributary A4 totals approximately 0.06 acre, none of which consists of jurisdictional wetlands. Tributary A4 is an ephemeral drainage that originates at the southwestern boundary of the Nilson parcel along the western edge of the remnant airport strip. Tributary A4 flows in a southwesterly direction for approximately 2,191 linear feet and converges with Drainage A at the southwestern most section of the Nilson parcel. Tributary A4 supports an OHWM ranging between one and two feet in width. Vegetation within Tributary A4 consists primarily of upland grasses, with patches of mulefat and arroyo willow near the lower reach.

c. Tributaries A6, A7, A10, A11, A13-A18

Potential Corps jurisdiction associated with Tributaries A6, A7, A10, A11, and A13-A18 totals approximately 0.36 acres (11,831 linear feet), none of which consists of jurisdictional wetlands. Each tributary originates within the Study Area, with the exception of Tributaries A7 and A10, which originate offsite to the northwest. All tributaries are ephemeral and support an OHWM ranging between one and five feet in width. Many of these tributaries are bisected by dirt roads, some of which have flows that are carried beneath the road via corrugated metal pipes, while others sheet flow directly across the road. Vegetation associated with the tributaries consists primarily of upland grasses or chaparral species, with patches of coast live oak present near the confluences with Drainage A.

2. Tributary B17

Potential Corps jurisdiction associated with Tributary B17 totals approximately 0.02 acre, none of which consists of jurisdictional wetlands. Tributary B17 is an ephemeral drainage that originates near the southern portion of the Sanchez Ranch parcel and flows for approximately 354 linear feet before exiting the Study Area. Tributary B17 ultimately converges with San Juan Creek offsite. Tributary B17 is ephemeral and supports an OHWM of two feet in width. Vegetation associated with Tributary B17 consists primarily of upland grasses or chaparral species.

3. Drainage C

Potential Corps jurisdiction associated with Drainage C totals approximately 0.06 acre, none of which consists of jurisdictional wetlands. Drainage C is an ephemeral drainage that originates offsite to the northeast and flows through the Study Area for only 133 linear feet. Flows travel beneath Long Canyon Road near the intersection of Ortega Highway through two concrete box culverts, and continue downstream (offsite) for approximately 2,000 feet before converging with Drainage A. Drainage C supports an OHWM varying between 16 and 20 feet in width. Vegetation associated with Tributary B17 consists of mulefat on the upstream side of Long Canyon Road, and southern willow scrub on the downstream side of the road.

B. Regional Water Quality Control Board Jurisdiction

None of the drainages were determined to be intrastate/isolated waters outside of Corps jurisdiction and, therefore, do not need to be addressed separately. The boundaries of all waters of the State are equivalent to Corps jurisdiction (1.32 acres, 29,626 linear feet), depicted in Exhibit 3 and discussed below in Table 1.

C. CDFW Jurisdiction

The Study Area contains one main drainage complex, described herein as Drainage A (Long Canyon) and its tributaries. Drainage B occurs outside of the Study Area; however, one of its tributaries, Tributary B17, occurs within the Study Area. A small portion of Drainage C occurs within the Study area, near the intersection of Long Canyon Road and Ortega Highway, and converges within Drainage A offsite. Both Drainages A & B converge with San Juan Creek offsite, and ultimately discharge into the Pacific Ocean. The drainage and tributary naming system correlate with the prior jurisdictional delineation that was conducted in 2007/2008 for a larger area that encompassed over 930 acres. This jurisdictional delineation report reflects updated site conditions within the Study Area only.

Potential CDFW jurisdiction within the Study Area totals approximately 6.53 acres, of which 5.89 acres consist of vegetated riparian habitat, and includes all areas within Corps jurisdiction. The boundaries of CDFW jurisdiction are depicted in Exhibit 3 and discussed below in Table 1.

1. Drainage Complex A (Long Canyon)

Potential CDFW jurisdiction associated with Drainage A (Long Canyon) totals approximately 3.51 acres, all of which consists of vegetated riparian habitat. Drainage A supports a streambed ranging between three and eight feet in width, and a wide riparian canopy up to 75 feet in width overhanging the drainage.

Drainage A originates offsite and enters the Study Area in the southwestern corner of the Nilson parcel. Drainage A traverses the Study Area in a southeasterly direction for approximately 2,916 linear feet before exiting the site at the eastern perimeter of the Sanchez Ranch parcel.

Drainage A supports a large cobble substrate with vegetation consisting primarily of mulefat, California sycamore, coast live oak, poison oak, and arroyo willow, and is primarily unvegetated within the low flow channel. Drainage A is relatively shallow and broad in the upper reach, and becomes more incised further downstream.

a. Tributary A3

CDFW jurisdiction associated with Tributary A3 totals approximately 1.41 acres, of which 1.12 acres consist of vegetated riparian habitat. Tributary A3 is an ephemeral drainage complex that originates in the central region of the Nilson parcel and flows in a southerly direction for approximately 12,200 linear feet before exiting the site at the eastern boundary of the USFS parcel.

The main stem of Tributary A3 supports a streambed between one and five feet in width. The main stem of Tributary A3 is bisected by three dirt roads and straddles the south-central portion of the Nilson parcel before crossing into the USFS parcel. While on the Nilson parcel, flows from the main stem of Tributary A3 are carried beneath each of the three dirt roads through corrugated metal pipes. The main stem of Tributary A3 supports an alluvial sandy cobble substrate and supports large patches of riparian vegetation throughout much of its reach. Vegetation with the main stem of Tributary A3 consists primarily of black mustard, coast live oak, mulefat, California sycamore, arroyo willow, rabbitsfoot grass, Fremont's cottonwood, stinging nettle, and creek monkeyflower.

The remaining portion of Tributary A3 adjacent to Long Canyon Road supports a streambed of one foot in width. Vegetation within this remaining portion of Tributary A3 consists primarily of upland grasses and chaparral species, with isolated patches of coast live oak and mulefat.

b. Tributary A4

Potential CDFW jurisdiction associated with Tributary A4 totals approximately 0.18 acre, of which 0.13 acre consists of vegetated riparian habitat. Tributary A4 is an ephemeral drainage that originates at the southwestern boundary of the Nilson parcel along the western edge of the remnant airport strip. Tributary A4 flows in a southwesterly direction for approximately 2,191 linear feet and converges with Drainage A at the southwestern most section of the Nilson parcel. Tributary A4 supports a streambed ranging between one and two feet in width. Vegetation within Tributary A4 consists primarily of upland grasses, with patches of mulefat and arroyo willow near the lower reach.

c. Tributaries A6, A7, A10, A11, A13-A18

Potential CDFW jurisdiction associated with Tributaries A6, A7, A10, A11, and A13-A18 totals approximately 1.29 acres (11,831 linear feet), of which 1.01 acres consist of vegetated riparian habitat. Each tributary originates within the Study Area, with the exception of Tributaries A7 and A10, which originate offsite to the northwest. All tributaries are ephemeral and support a streambed ranging between one and five feet in width. Many of these tributaries are bisected by dirt roads, some of which have flows that are carried beneath the road via corrugated metal pipes, while others sheet flow directly across the road. Vegetation associated with the tributaries consists primarily of upland grasses or chaparral species, with patches of coast live oak present near the confluences with Drainage A.

2. Tributary B17

Potential CDFW jurisdiction associated with Tributary B17 totals approximately 0.02 acre, none of which consists of vegetated riparian habitat. Tributary B17 originates near the southern portion of the Sanchez Ranch parcel and flows for approximately 354 linear feet before exiting the Study Area. Tributary B17 ultimately converges with San Juan Creek offsite. Tributary B17 is ephemeral and supports a streambed of two feet in width. Vegetation associated with Tributary B17 consists primarily of upland grasses or chaparral species.

3. Drainage C

Potential CDFW jurisdiction associated with Drainage C totals approximately 0.12 acre, all of which consists of vegetated riparian habitat. Drainage C is an ephemeral drainage that originates offsite to the northeast and flows through the Study Area for only 133 linear feet. Flows travel beneath Long Canyon Road near the intersection of Ortega Highway through two concrete box culverts, and continue downstream (offsite) for approximately 2,000 feet before converging with Drainage A. Drainage C supports a streambed varying in width between 16 and 20 feet. Vegetation associated with Tributary B17 consists of mulefat on the upstream side of Long Canyon Road, and southern willow scrub on the downstream side of the road.

TABLE 1: SUMMARY OF CORPS, CDFW, AND RWQCB JURISDICTION THE PRESERVE STUDY AREA

Drainage Feature	Corps Non-Wetland Waters	Corps Wetland	Total Corps	CDFW Unvegetated Streambed	CDFW Riparian Habitat	Total CDFW	RWQCB	Linear Feet
A	0.45	0.00	0.45	0.00	3.51	3.51	0.45	2,916
A3	0.37	0.00	0.37	0.29	1.12	1.41	0.37	12,200
A4	0.06	0.00	0.06	0.05	0.13	0.18	0.06	2,191
A6	0.09	0.00	0.09	0.06	0.28	0.34	0.09	2,508
A7	0.01	0.00	0.01	0.00	0.05	0.05	0.01	121
A10	0.08	0.00	0.08	0.05	0.45	0.5	0.08	3,108
A11	0.02	0.00	0.02	0.02	0.04	0.06	0.02	834
A13	0.05	0.00	0.05	0.05	0.00	0.05	0.05	1,624
A14	0.00	0.00	0.00	0.00	0.04	0.04	0.00	121

Drainage Feature	Corps Non-Wetland Waters	Corps Wetland	Total Corps	CDFW Unvegetated Streambed	CDFW Riparian Habitat	Total CDFW	RWQCB	Linear Feet
A15	0.03	0.00	0.03	0.03	0.00	0.03	0.03	1,263
A16	0.03	0.00	0.03	0.02	0.15	0.17	0.03	654
A17	0.04	0.00	0.04	0.04	0.00	0.04	0.04	1,362
A18	0.01	0.00	0.01	0.01	0.00	0.01	0.01	236
B17	0.02	0.00	0.02	0.02	0.00	0.02	0.02	354
C	0.06	0.00	0.06	0.00	0.12	0.12	0.06	133
Total	**1.32**	**0.00**	**1.32**	**0.64**	**5.89**	**6.53**	**1.32**	**29,626**

IV. DISCUSSION

A. Impact Analysis

Exhibit 3 provides the grading footprint associated with development of Phase 1 and Phase 2 of The Preserve at San Juan Project (Project). This impact analysis is written such that all drainages are *potentially* jurisdictional to Corps and CDFW jurisdiction. Upon completion of a jurisdictional delineation verification, the impact analysis can be amended, if necessary, to address impacts associated with a verified delineation. All grading impacts within each phase are considered permanent impacts at this time.

Phase 1 of the project includes improvements to Long Canyon Road and development within the southern portion of the Study Area. Development associated with Phase 1 would occur on 142.06 acres. Development of Phase 1 would result in permanent impacts to 0.32 acre (7,786 linear feet) of potential Corps and RWQCB jurisdiction, none of which consists of jurisdictional wetlands, and 1.52 acres of CDFW jurisdiction, of which 1.37 acres consist of vegetated riparian habitat. It is important to note that no development would occur within the streambed or riparian canopy of Drainage A (Long Canyon).

Phase 2 of the project includes improvements development within the northern portion of the Study Area. Development associated with Phase 2 would occur on 67.05 acres. Development of Phase 2 would result in permanent impacts to 0.24 acre (7,876 linear feet) of potential Corps and RWQCB jurisdiction, none of which consists of jurisdictional wetlands, and 0.70 acre of CDFW jurisdiction, of which 0.49 acre consists of vegetated riparian habitat.

Tables 2 and 3 summarize potential permanent impacts by drainage feature associated with development of Phase 1 and Phase 2.

TABLE 2: PERMANENT GRADING IMPACTS FOR PHASE 1
THE PRESERVE AT SAN JUAN

Drainage Feature	Corps Non-Wetland Waters	Corps Wetland	Total Corps	CDFW Unvegetated Streambed	CDFW Riparian Habitat	Total CDFW	RWQCB	Linear Feet
A	0.03	0.00	0.03	0.00	0.31	0.31	0.03	196
A3	0.02	0.00	0.02	0.01	0.13	0.14	0.02	898
A6	0.05	0.00	0.05	0.02	0.28	0.30	0.05	853
A7	0.01	0.00	0.01	0.00	0.05	0.05	0.01	121
A10	0.08	0.00	0.08	0.05	0.44	0.49	0.08	3,097
A11	0.02	0.00	0.02	0.02	0.04	0.06	0.02	793
A13	0.01	0.00	0.01	0.01	0.00	0.01	0.01	498
A15	0.02	0.00	0.02	0.02	0.00	0.02	0.02	848
B17	0.02	0.00	0.02	0.02	0.00	0.02	0.02	352
C	0.06	0.00	0.06	0.00	0.12	0.12	0.06	131
Total	**0.32**	**0.00**	**0.32**	**0.15**	**1.37**	**1.52**	**0.32**	**7,786**

TABLE 3: PERMANENT GRADING IMPACTS FOR PHASE 2
THE PRESERVE AT SAN JUAN

Drainage Feature	Corps Non-Wetland Waters	Corps Wetland	Total Corps	CDFW Unvegetated Streambed	CDFW Riparian Habitat	Total CDFW	RWQCB	Linear Feet
A3	0.18	0.00	0.18	0.15	0.46	0.61	0.18	5,335
A4	0.04	0.00	0.04	0.04	0.03	0.07	0.04	1,640
A6	0.02	0.00	0.02	0.02	0.00	0.02	0.02	901
Total	**0.24**	**0.00**	**0.24**	**0.21**	**0.49**	**0.70**	**0.24**	**7,876**

If you have any questions about this letter report, please contact Thienan Pfeiffer at (949) 837-0404 ext. 34.

Sincerely,

GLENN LUKOS ASSOCIATES, INC.

Thienan Pfeiffer
Regulatory Specialist

s:1093-1b.rpt.docx

Source: ESRI World Street Map

N

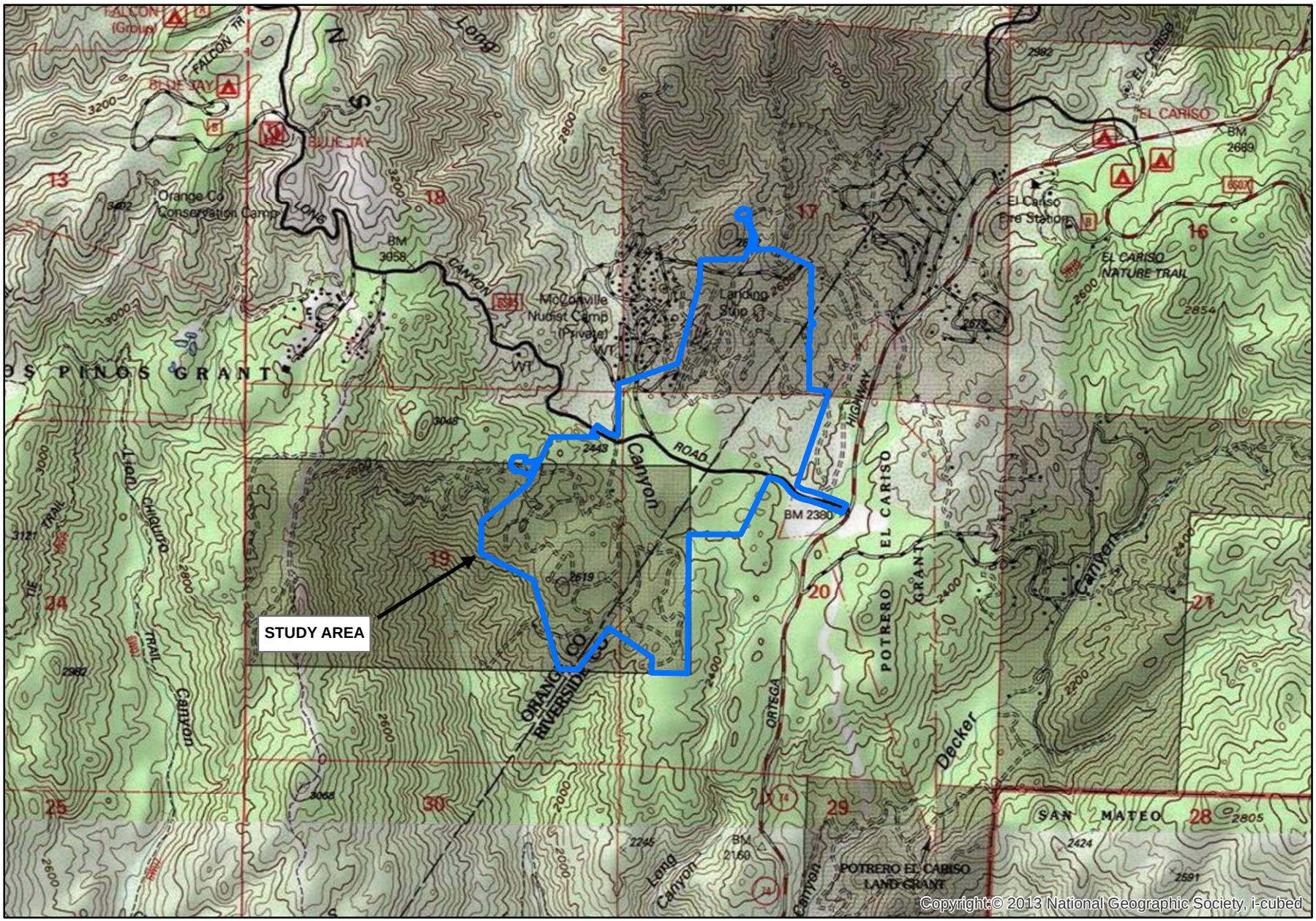
0 2 4 8 Miles

THE PRESERVE AT SAN JUAN

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



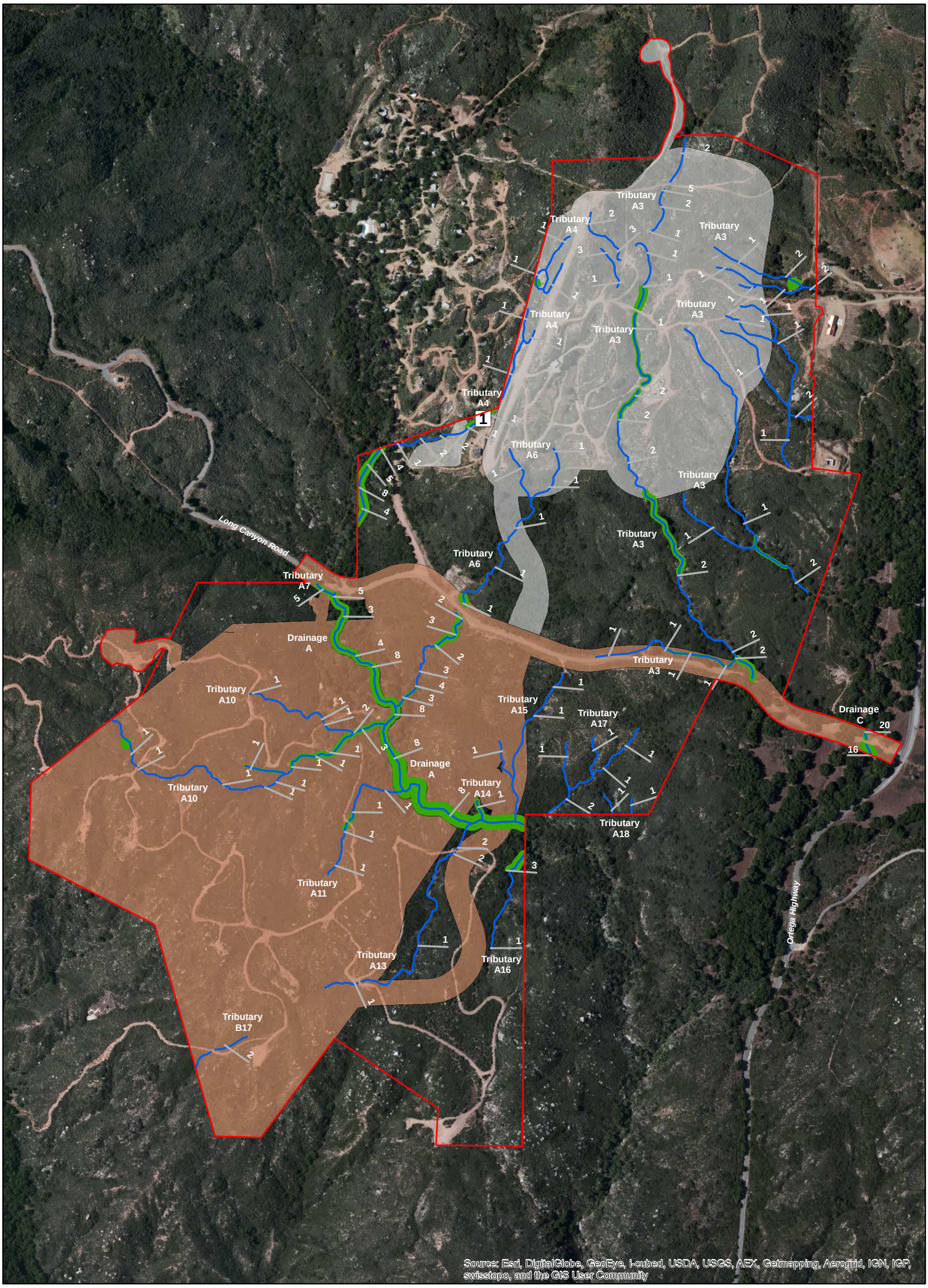
Adapted from USGS Alberhill, CA quadrangle

THE PRESERVE AT SAN JUAN

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



Legend

- The Preserve Study Area Boundary
- Phase 1 Development
- Phase 2 Development
- Corps/RWQCB Non-Wetland Waters/CDFW Unvegetated Streambed
- CDFW Riparian
- 2 OHWM Width in Feet
- 1 Soil Data Pit

N

0 275 550 1,100
Feet

THE PRESERVE AT SAN JUAN

Jurisdictional Delineation/Development Map

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\0363-THE REST\1093-01PRES\1093-1GIS\DelineationGIS\1093-1 DelineationLayout 11x17.mxd

Photograph 1: Overview of southern portion of property (standing on Sanchez Ranch parcel) looking north.

Photograph 2: Representative view of 1'-2' wide unvegetated ephemeral tributaries on Sanchez Ranch parcel.

GLENN LUKOS ASSOCIATES

Exhibit 4

THE PRESERVE AT SAN JUAN

Site Photographs – May 23, 2013

Photograph 3: View of Tributary A10 looking upstream, depicting unvegetated channel with oak tree canopy overhanging streambed.

Photograph 4: View of Drainage A looking downstream, depicting large cobble substrate and oak tree canopy overhanging streambed.

GLENN LUKOS ASSOCIATES

Exhibit 4

THE PRESERVE AT SAN JUAN

Site Photographs – May 23, 2013

Photograph 5: View of Drainage A looking south at riparian habitat, taken on Long Canyon Road.

Photograph 6: View of the lower reach of Tributary A3 looking upstream, depicting an unvegetated channel with oak canopy overhanging streambed.

GLENN LUKOS ASSOCIATES

Exhibit 4

THE PRESERVE AT SAN JUAN

Site Photographs – May 23, 2013

Photograph 7: View of upstream reach of Tributary A15 looking south on USFS parcel, depicting extremely narrow unvegetated OHWM (1').

Photograph 8: View of Tributary A3 looking southeast at burned surroundings on Nilson parcel.

GLENN LUKOS ASSOCIATES

Exhibit 4

THE PRESERVE AT SAN JUAN

Site Photographs – May 23, 2013

Photograph 9: View of Drainage A looking downstream, north of Long Canyon Road on the border of Nilson and USFS parcels.

Photograph 10: View of riparian habitat within Tributary A4, taken at location of soil pit.

GLENN LUKOS ASSOCIATES

Exhibit 4

THE PRESERVE AT SAN JUAN

Site Photographs – May 23, 2013

Photograph 11: View of Long Canyon Road looking west, with vegetation within Drainage C visible on both sides of road.

Photograph 12: Long north in Drainage C beneath Long Canyon Road. Flows from drainage are conveyed within two box culverts.

GLENN LUKOS ASSOCIATES

Exhibit 4

THE PRESERVE AT SAN JUAN

Site Photographs – July 1, 2013

Photograph 13: View of streambed and mulefat in channel in upstream reach of Drainage C, looking north. Photo taken while standing on Long Canyon Road bridge.

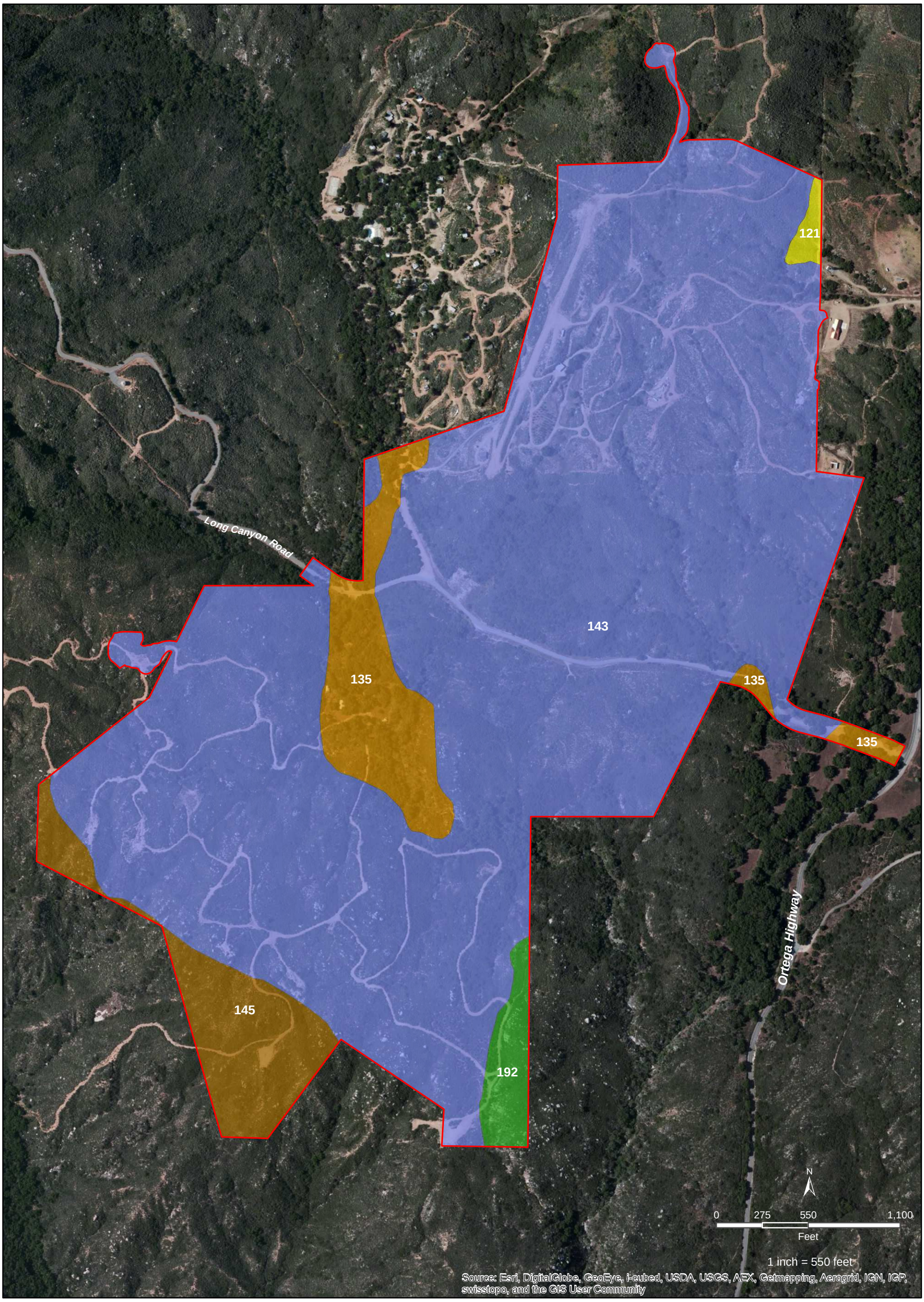
Photograph 14: View of sand and cobble substrate, with arroyo willow in downstream reach of Drainage C, looking north.

GLENN LUKOS ASSOCIATES

Exhibit 4

THE PRESERVE AT SAN JUAN

Site Photographs – July 1, 2013



Legend

- The Preserve Study Area Boundary
- 121 - BLASINGAME-VISTA COMPLEX, 15 TO 30 PERCENT SLOPES
- 135 - CAPISTRANO SANDY LOAM, 2 TO 9 PERCENT SLOPES
- 143 - CIENEBA-BLASINGAME-ROCK OUTCROP COMPLEX, 9 TO 30 PERCENT SLOPES
- 145 - CIENEBA-ROCK OUTCROP COMPLEX, 30 TO 75 PERCENT SLOPES
- 192 - ROCK OUTCROP-CIENEBA COMPLEX, 30 TO 75 PERCENT SLOPES

THE PRESERVE AT SAN JUAN

Soils Map

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\0363-THE REST\1093-01PRES\1093-1GIS\SoilsGIS\1093-1Soils.mxd

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: The Preserve at San Juan City/County: Unincorp. Orange County Sampling Date: 5/23/13

Applicant/Owner: The Preserve at San Juan LLC State: CA Sampling Point: 1

Investigator(s): L. Lokovic, R. Schanna Section, Township, Range: S17, T6S, R5W

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

Subregion (LRR): LRR C Lat: 33.642828 Long: -117.430427 Datum: NAD83

Soil Map Unit Name: Cieneba Series NWI classification: U (upland)

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

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

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

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

Remarks:

2012/2013 was a below average rainfall year.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Mulefat	40	Y	FAC
2. Black willow	25	Y	FACW
3.			
4.			
	65 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. Black mustard	1	N	UPL
2. Red brome	10	Y	UPL
3. Unknown weed	2	N	NI
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/2		none				loamy san	gritty, dry

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✔

Remarks:

No redoximorphic features

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ___ No ✔

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

Remarks:

Relic debris wracks from previous 100-yr storm event