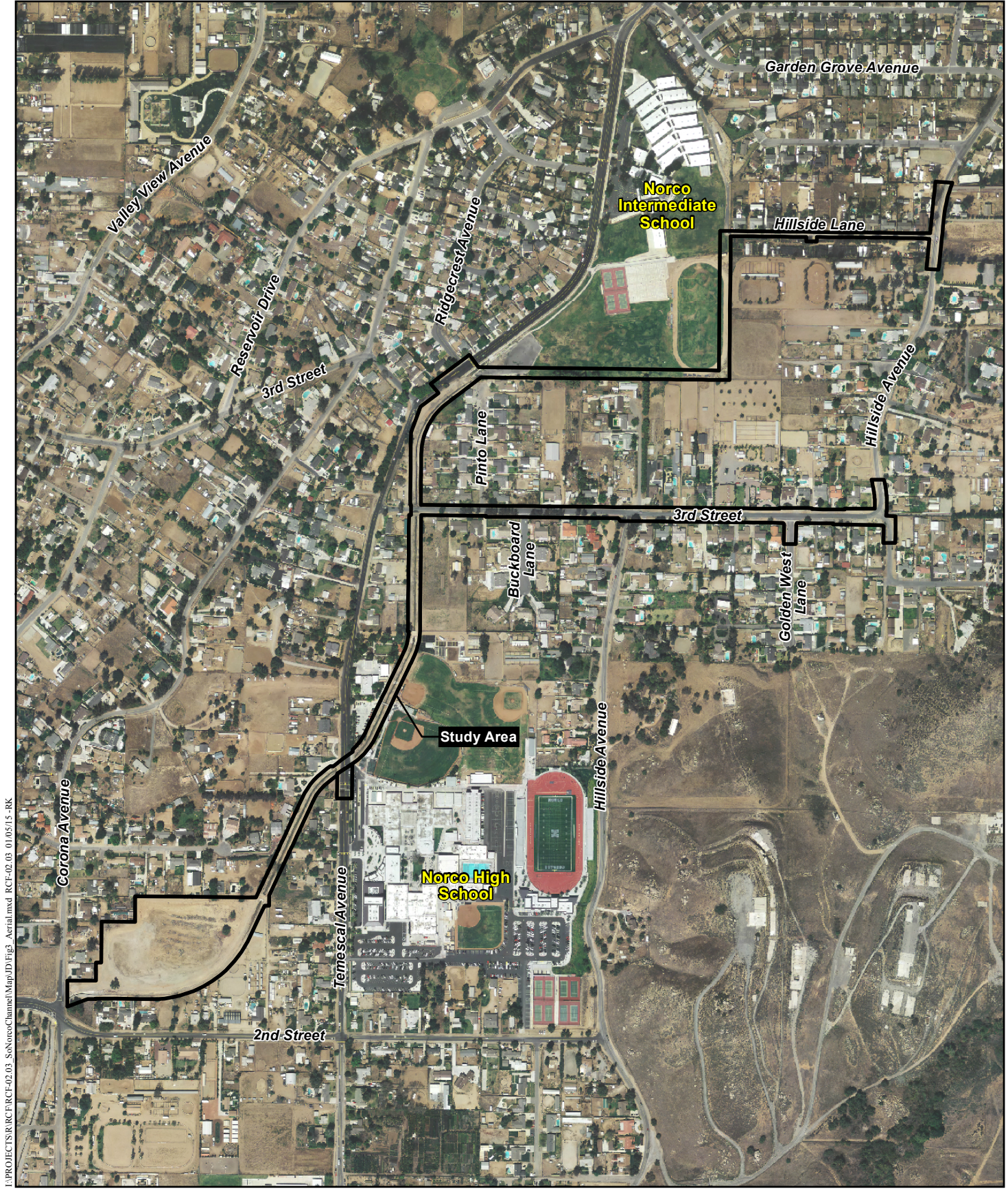


Project Vicinity - USGS Quadrangle

SOUTH NORCO CHANNEL



Figure 2



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Aerial Photograph

SOUTH NORCO CHANNEL

Line S-5 is a below-ground storm drain extending from the upstream end of South Norco Channel Stage 6, northeasterly across the Norco Intermediate School, along Hillside Lane, a private street, and then northerly within Hillside Avenue. This facility ranges in size from 36-inch RCP to a 6- by 4-foot reinforced concrete box (RCB), and is approximately 3,250 LF. An additional reach of 30-inch and 24-inch RCP extends southerly approximately 140 LF within Hillside Avenue from the intersection with Hillside Lane.

The project also includes pavement repair due to excavation and trenching along the channel and storm drain alignment, and additional street improvements along: 1) Temescal Avenue, where an existing discontinuity in the travel width will be replaced with a smooth transition over a length of approximately 175 feet, including new asphalt concrete, and concrete curb and gutter; and 2) Hillside Lane, where the existing asphalt concrete pavement will be replaced with new asphalt concrete pavement over the full travel width (approximately 16 feet) and length (approximately 1,000 feet).

Construction of this project will require relocation of several existing utilities. There are six waterline relocations consisting of two 6-inch, two 8-inch, one 10-inch, and one 30-inch waterline(s). There are nine gas line relocations consisting of three 2-inch, four 3-inch, and two 4-inch gas lines. There will be two utility pole relocations and one 10-inch concrete pipe (utility type unknown) to be relocated. Lastly, buried telephone, cable, and/or electric lines at two locations may be relocated if required. Relocation of these dry lines is being evaluated and will be determined at a later date. The estimated cost of this project is \$5,500,000.

2.0 METHODS

The evaluation of the Project study area involved a literature review, including a review of previous reports prepared for the project, a delineation of jurisdictional waters, a Riparian/Riverine and vernal pool habitat assessment, a burrowing owl habitat assessment, and vegetation mapping, along with a general biological habitat assessment of the potential for sensitive species to occur on the property. A fairy shrimp survey is currently being conducted as of the writing of this report. The methods used to evaluate the biological resources present on the property are discussed in this section.

2.1 NOMENCLATURE AND LITERATURE REVIEW

Nomenclature for this report follows Baldwin, et al. (2012) for plants and the MSHCP (Dudek 2003) for vegetation community classifications, with additional vegetation community information taken from and Holland (1986). Animal nomenclature follows Emmel and Emmel (1973) for butterflies, Center for North American Herpetology (Collins and Taggart, 2012) for reptiles and amphibians, American Ornithologists' Union (2010) for birds, and Baker, et al. (2003) for mammals. Sensitive plant and animal status is taken from the California Natural Diversity Database (CNDDDB) of the CDFW (2013a thru e). Sensitive plant species habitats and blooming periods are taken from the MSHCP (Dudek 2003). Soils mapping is from the Natural Resources Conservation Service (NRCS; 2013). The CDFW CNDDDB (2014a), California

Native Plant Society's (CNPS) online database (2014), and HELIX's in-house database were searched to obtain a list of sensitive animal and plant species with potential to occur on the property.

2.2 VEGETATION MAPPING

Vegetation communities were mapped in accordance with the MSHCP. The original mapping occurred during the field visits conducted in 2012, and was updated during the field visits in 2014.

2.3 JURISDICTIONAL DELINEATION

A jurisdictional delineation was previously conducted on May 21, 2012 by HELIX biologist W. Larry Sward. The delineation was updated on December 23, 2014 by Mr. Sward and HELIX biologist Rob Hogenauer. Prior to beginning fieldwork, aerial photographs (1"=200' scale) and topographic maps (1"=200' scale) were reviewed to determine the location of potential jurisdictional areas that may be affected by the proposed project.

Waters of the U.S. (WUS) wetland boundaries were determined using the three criteria (vegetation, hydrology, and soils) established for wetland delineations, as described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (U.S. Army Corps of Engineers [USACE] 2008a).

The results presented here are also discussed in light of court decisions (i.e., *Rapanos v. United States*, *Carabell v. United States*, and *Solid Waste Agency of Northern Cook County [SWANCC] v. USACE*), as outlined and applied by the USACE (USACE 2007; Grumbles and Woodley 2007), USACE and U.S. Environmental Protection Agency (EPA; 2007), and EPA and USACE (2007). These publications explain that the EPA and USACE will assert jurisdiction over traditional navigable waters (TNW) and tributaries to TNWs that are relatively permanent water bodies (RPWs), which have year-round or continuous seasonal flow. For water bodies that are not RPWs, a significant nexus evaluation must be conducted to determine whether the non-RPW is jurisdictional. As an alternative to the significant nexus evaluation process, a preliminary jurisdictional delineation (PJD) may be submitted to the USACE. The PJD treats all waters and wetlands on a site as if they are jurisdictional WUS (USACE 2008b).

Wetland affiliations of plant species follow the USACE wetland plant list (Lichvar et. al., 2014). Soils information for the Project area was taken from the Natural Resource Conservation Service (NRCS) website (2013). Soil samples were evaluated for hydric soil indicators (e.g., hydrogen sulfide [A4], sandy redox [S5], depleted matrix [F3], redox dark surface [F6], redox depressions [F8], and vernal pools [F9]). Soil chromas were identified according to Munsell's Soil Color Charts (Kollmorgen 1994).

Sampling points were inspected for primary (e.g., surface water [A1], saturation [A3], water marks [non-riverine, B1], sediment deposits [non-riverine, B2], drift deposits [non-riverine, B3], surface soil cracks [B6], inundation visible on aerial imagery [B7], salt crust [B11], aquatic

invertebrates [B13], hydrogen sulfide odor [C1], and oxidized rhizospheres along living roots [C3]) and secondary (e.g., water marks [riverine, B1], sediment deposits [riverine, B2], drift deposits [riverine, B3], drainage patterns in wetlands [B10], shallow aquitard [D3], and positive FAC neutral test [D5]) wetland hydrology indicators.

Areas were determined to be non-wetland WUS if there was evidence of regular surface flow (e.g., bed and bank) but the vegetation and/or soils criterion was not met. Jurisdictional limits for these areas were defined by the ordinary high water mark (OHWM), which is defined in 33 CFR Section 329.11 as “that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas.” The USACE has issued further guidance on the OHWM (Riley 2005; Lichvar and McColley 2008), which also has been used for this delineation. An expanded explanation of WUS jurisdictional parameters are presented in Appendix B.

The CDFW jurisdictional boundaries were determined based on the presence of riparian vegetation or regular surface flow. Streambeds within CDFW jurisdiction were delineated based on the definition of streambed as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses with a surface or subsurface flow that supports riparian vegetation” (Title 14, Section 1.72). This definition for CDFW jurisdictional habitat allows for a wide variety of habitat types to be jurisdictional, including some that do not include wetland species (e.g., oak woodland and alluvial fan sage scrub). Jurisdictional limits for CDFW streambeds were defined by the top of bank. Vegetated CDFW habitats were mapped at the limits of jurisdictional vegetation. Definitions of CDFW jurisdictional areas are presented in Appendix C. CDFW has published a review of stream processes that was also used to better understand and map CDFW streambeds (Vyverberg 2010)

All jurisdictional areas were measured and mapped in the field using a Global Positioning System. Suspected jurisdictional areas were traversed within or along the drainage, and the limits and length of the ordinary high water mark and/or wetland and riparian habitat were mapped. Suspected jurisdictional areas, which after closer inspection were found to be non-jurisdictional, were also noted.

2.4 RIPARIAN/RIVERINE AND VERNAL POOL HABITAT ASSESSMENT

The delineation conducted by HELIX biologists on December 23, 2014 included an assessment for Riparian/Riverine and vernal pool resources pursuant to the requirements of the MSHCP. The on-site evaluation consisted of a directed search for field characteristics indicative of Riparian/Riverine or vernal pool habitats. Field indicators include certain plants, drainage courses, drainage patterns, ponded water, changes in soil character, changes in vegetation character, and deposits of water-borne debris. All Riparian/Riverine and vernal pool habitats were mapped on an aerial photograph (1"=200'scale).

Areas were assessed to determine if Riparian/Riverine or vernal pool habitats are present on site consistent with Section 6.1.2 of the MSHCP. The Riparian/Riverine and vernal pool assessment was conducted according to the following MSHCP definitions:

- Riparian/Riverine areas are lands that contain habitat predominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or depend upon soil moisture from a nearby freshwater source; or areas with freshwater flow during all or a portion of the year; and
- Vernal pools are seasonal wetlands that occur in depression areas that have wetland indicators of all 3 parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetland indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetland plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season. The determination that an area exhibits vernal pool characteristics and the definition of the watershed supporting vernal pool hydrology must be made on a case-by-case basis. Such determinations should consider the length of time the area exhibits upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. Evidence concerning the persistence of an area's wetness can be obtained from its history, vegetation, soils, drainage characteristics, uses to which it has been subjected, and weather and hydrologic records.

The MSHCP states that “with the exception of wetlands created for the purpose of providing wetlands Habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating characteristics as described above which are artificially created are not included in these definitions.”

All waters deemed to be jurisdictional to the CDFW were also considered to be Riparian/Riverine resources except for those waters that are artificially created as described above.

Birds

The property was assessed for habitat that could support the least Bell's vireo (LBV; *Vireo bellii pusillus*), southwestern willow flycatcher (WIFL; *Empidonax traillii extimus*), and western yellow-billed cuckoo (YBCU; *Coccyzus americanus occidentalis*). Typical habitat for LBV consists of well-developed riparian scrub, woodland, or forest dominated by willows (*Salix* spp.), mule fat (*Baccharis salicifolia*), and western cottonwood (*Populus fremontii*). The LBV will also use small patches of trees adjacent to dense riparian habitat. The WIFL and YBCU require mature riparian forest with a stratified canopy and nearby water. The MSHCP requires surveys to be conducted for projects that have impacts to suitable habitat for the aforementioned riparian birds.

Both the bald eagle (*Haliaeetus leucocephalus*) and peregrine falcon (*Falco peregrinus*) occur primarily in and adjacent to open water habitats, with the peregrine falcon possibly occurring in riparian areas. The peregrine falcon nests on large cliffs that are generally 200 to 300 feet in height.

Fairy Shrimp

There are three species of sensitive fairy shrimp that occur in western Riverside County: Riverside fairy shrimp (*Streptocephalus woottoni*), Santa Rosa Plateau fairy shrimp (*Linderiella santarosae*), and vernal pool fairy shrimp (*Branchinecta lynchi*). The property was surveyed for habitat, such as vernal pools or seasonal basins, which could support fairy shrimp. Indicators of potential fairy shrimp habitat that were searched for include basins, ruts, cracked mud, algal mats, and drift lines. A fairy shrimp survey is currently being conducted by permitted HELIX biologist Jason Kurnow (TE-778195-12).

Riparian/Riverine Plants

The MSHCP lists 23 sensitive plant species that have potential to occur in Riparian/Riverine and vernal pool habitats. These species are:

- California black walnut (*Juglans californica* var. *californica*),
- Engelmann oak (*Quercus engelmannii*),
- Coulter's matilija poppy (*Romneya coulteri*),
- San Miguel savory (*Satureja chandleri*),
- spreading navarretia (*Navarretia fossalis*),
- graceful tarplant (*Holocarpha virgata* ssp. *elongata*),
- California Orcutt grass (*Orcuttia californica*),
- prostrate navarretia (*Navarretia prostrata*),
- San Diego button-celery (*Eryngium aristulatum* var. *parishii*),
- Orcutt's brodiaea (*Brodiaea orcuttii*),
- thread-leaved brodiaea (*Brodiaea filifolia*),
- Fish's milkwort (*Polygala cornuta* var. *fishiae*),
- lemon lily (*Lilium parryi*),
- San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*),
- ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*),
- Mojave tarplant (*Deinandra mohavensis*),
- vernal barley (*Hordeum intercedens*),
- Parish's meadowfoam (*Limnanthes alba* (*gracilis*) ssp. *parishii*),
- slender-horned spineflower (*Dodecahema leptoceras*),
- Santa Ana River woolly-star (*Eriastrum densifolium* spp. *sanctorum*),
- Brand's phacelia (*Phacelia stellaris*),

- mud nama (*Nama stenocarpum*), and
- smooth tarplant (*Centromadia pungens*)

The Riparian/Riverine assessment conducted by Mr. Sward and Mr. Hogenauer included a search for Riparian/Riverine plants. If these species occur, then they are required to be mapped and avoided. If avoidance is not feasible, then a Determination of Biologically Equivalent or Superior Preservation (DBESP) is required to quantify impacts and establish mitigation for the impacted species.

2.5 SENSITIVE PLANTS

The property is not within an area identified by the MSHCP as occurring within the Criteria Area Species Survey Area (CASSA) or the Narrow Endemic Plant Species Survey Area (NEPSSA). Based upon the specific parcels that the proposed Project may affect, surveys for NEPSSA or CASSA species are not required. Although a focused rare plant survey was not conducted, biologists did search for the Riparian/Riverine plant species and compiled a list of plants (Appendix D) observed during the general habitat assessments and delineation of jurisdictional waters. The biologists also conducted a habitat assessment on the potential for rare plants to occur in the study area.

2.6 SENSITIVE ANIMALS

The property is not within an area identified by the MSHCP as requiring focused animal surveys with the exception of burrowing owl that is discussed below. Although the MSHCP does not specifically require focused animal surveys the biologist did conducted a habitat assessment of the potential for sensitive animal species to occur in the study area. The biologists compiled a list of animal species observed during the 2014 field surveys (Appendix E).

2.7 BURROWING OWL

Of the 13 parcels that comprise the study area, only one is within the MSHCP Burrowing Owl Survey Area. That one parcel, which covers a total of 26.59 acres, requires a habitat assessment for burrowing owl (Table 1).

Mr. Sward conducted a burrowing owl (*Athene cunicularia*) habitat assessment on May 21, 2012, and Mr. Hogenauer updated the assessment during the field work conducted on December 10 and 22, 2014. Mr. Sward and Mr. Hogenauer looked for habitat that met the basic requirements of burrowing owl habitat that include:

- Open expanses of sparsely vegetated areas (less than 30 percent canopy cover for trees and shrubs),
- Gently rolling or level terrain,
- An abundance of small mammal burrows, especially those of California ground squirrel (*Spermophilus beecheyi*), and
- Fence posts, rock, or other low perching locations.

The biologist also searched for evidence of burrowing owl sign (pellets/castings, white wash, and feathers) throughout the study area.

2.8 CRITICAL HABITAT

As described by the Federal Endangered Species Act (FESA), critical habitat is the geographic area occupied by a threatened or endangered species essential to species conservation and may require special management considerations or protection. Critical habitat may also include specific areas not occupied by the species but that have been determined to be essential for species conservation.

The USFWS Critical Habitat Portal was searched for critical habitat that may occur on or adjacent to the study area (USFWS 2014).

The property is not within any designated critical habitat. The property is also not within the Riverside County Habitat Conservation Plan (HCP) Fee Plan Area (County Board of Directors 1996) for the federally listed endangered/state listed threatened Stephens' kangaroo rat (SKR; *Dipodomys stephensi*).

3.0 RESULTS

3.1 SOILS

Soils mapped in the study area represent three soil series: Placentia, Ramona, and Greenfield (NRCS 2015; Figure 4). The Greenfield series is comprised of well drained soils on alluvial fans and terraces that are derived from granitic materials. The Ramona series is also comprised of well drained soils on alluvial fans and terraces that developed in granitic alluvium. The Placentia series consists of moderately well-drained sandy loams that are found on alluvial fans and terraces that developed in alluvium comprised of granitic material. The specific soils present in the study area are: Placentia fine sandy loam, 0 to 5 percent slopes; Placentia fine sandy loam, 5 to 15 percent slopes; Greenfield sandy loam, 2 to 8 percent slopes, eroded, and Ramona sandy loam, 0 to 5 percent slopes, severely eroded (Knecht 1971). The soils within jurisdictional areas are almost exclusively Placentia fine sandy loam, 0 to 5 percent slopes.

3.2 VEGETATION COMMUNITIES

Most of the 19.5-acre study area is either developed or disturbed habitat. The project area also includes seasonal basins in the disturbed open lot at the southern terminus and small amounts of herbaceous wetland and disturbed wetland within the channel (Table 2, Figures 5a and b). The existing open soft bottom channel occurs primarily within the disturbed habitat.

Table 2 EXISTING AND AFFECTED VEGETATION COMMUNITIES WITHIN THE PROJECT AREA	
HABITAT TYPE	ACRE(S)
Herbaceous wetland	0.02
Disturbed wetland	0.04
Seasonal basins	1.06
Disturbed habitat	9.99
Developed	8.39
TOTAL	19.5

3.2.1 Herbaceous Wetland

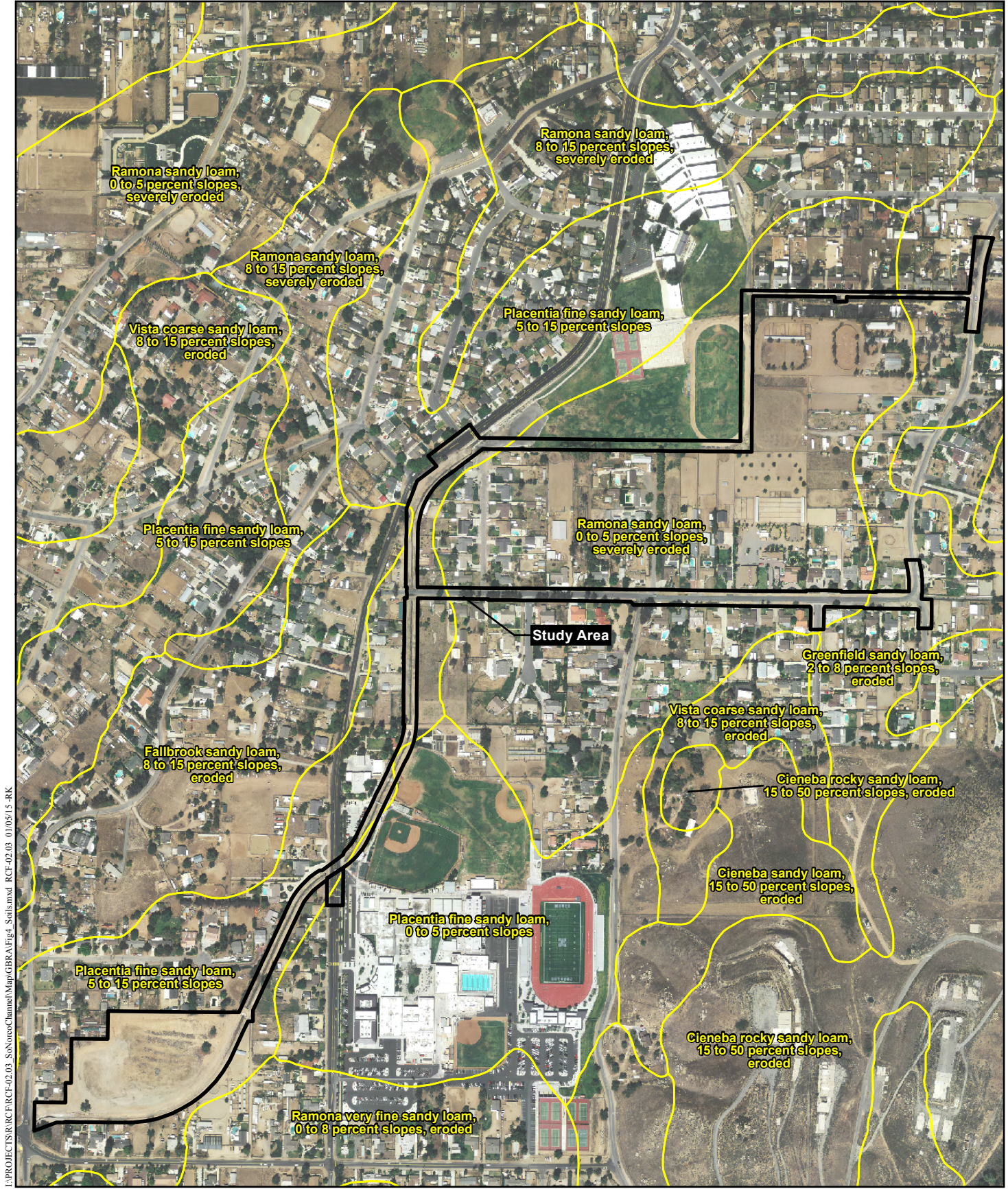
This vegetation community often occurs in habitats that are subject to frequent or regular flooding. This community is often dominated by low growing herbaceous species that are adapted to an anaerobic environment but can also include species that obtain a height of up to 2 meters. This habitat on the Project site is dominated by the native Mexican sprangletop (*Leptochloa fusca* ssp. *uninervia*), with a few emergent cattails (*Typha* sp.). A total of 0.02 acre of herbaceous wetland was observed in the study area.

3.2.2 Disturbed Wetland

This vegetation community is dominated by exotic wetland species that invade areas that have been disturbed or have undergone periodic disturbances. These non-natives become established more readily following natural or human-induced habitat disturbance than the native wetland flora. Characteristic species of disturbed wetlands include giant reed (*Arundo donax*), bristly ox tongue (*Picris echioides*), cocklebur (*Xanthium strumarium*), and tamarisk (*Tamarix* sp.). Disturbed wetlands are usually considered sensitive and declining by the USFWS, USACE, and CDFW. In the study area, this community is dominated by the non-native water speedwell (*Veronica anagalis-aquatica*) and also includes small numbers of willow weed (*Persicaria lapathifolia*), London rocket (*Sisymbrium irio*), sow thistle (*Sonchus oleraceus*), and cheeseweed (*Malva parviflora*). A total of 0.04 acre of disturbed wetland was observed in the study area.

3.2.3 Seasonal Basin

Seasonal basins are depressions that periodically hold water. Several seasonal basins were present at the southern end of the study area during the December 23, 2014 site visit (Figure 4b). A review of historical photographs shows that the area of the basin is an incidental artifact of the grading and compaction of the soils that likely occurred during the construction of the flood control channel. The area of the basins is used for storage of materials, including those materials removed from various flood control facilities (mud, vegetation, and other debris that clog flood



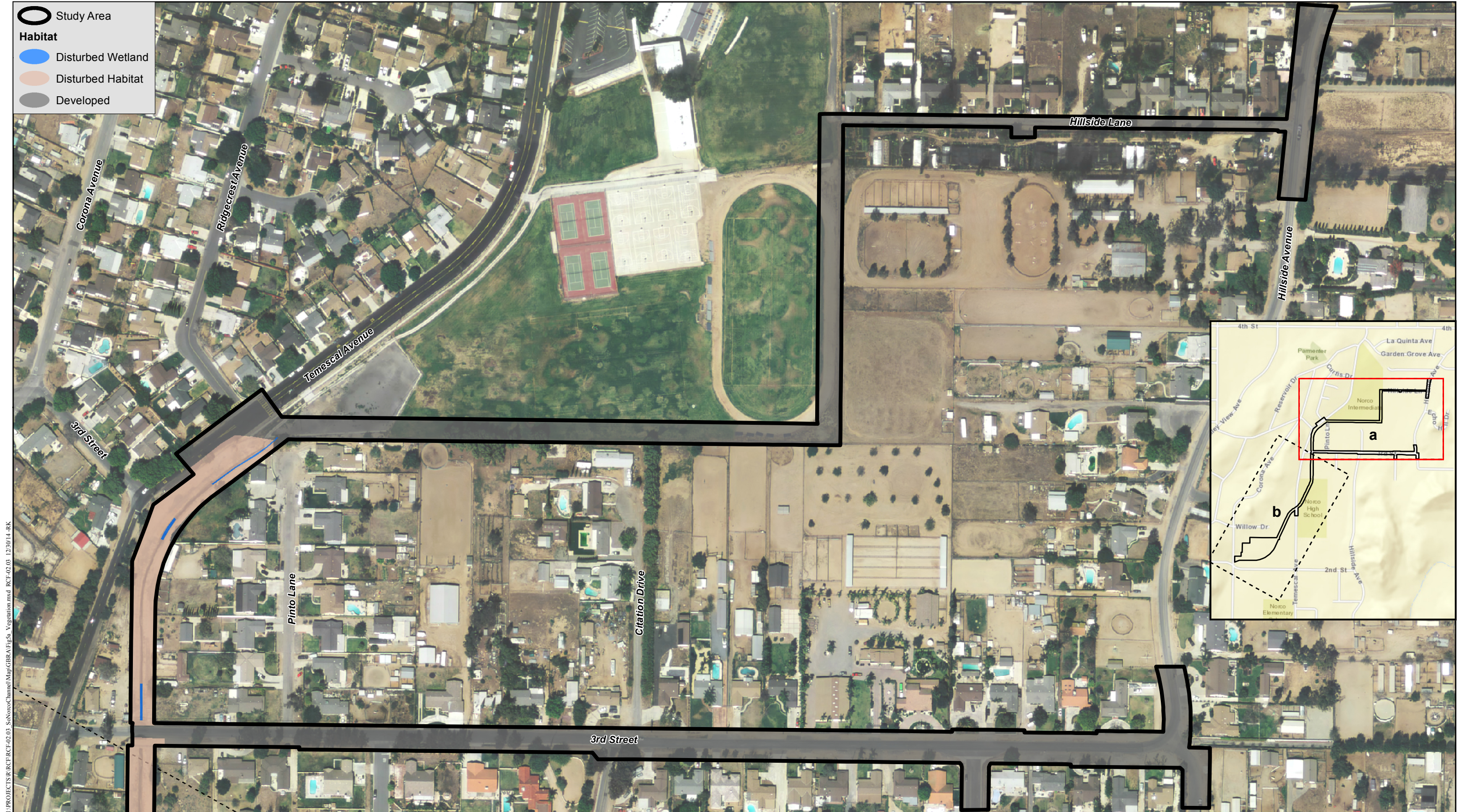
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Soils

SOUTH NORCO CHANNEL



Figure 4









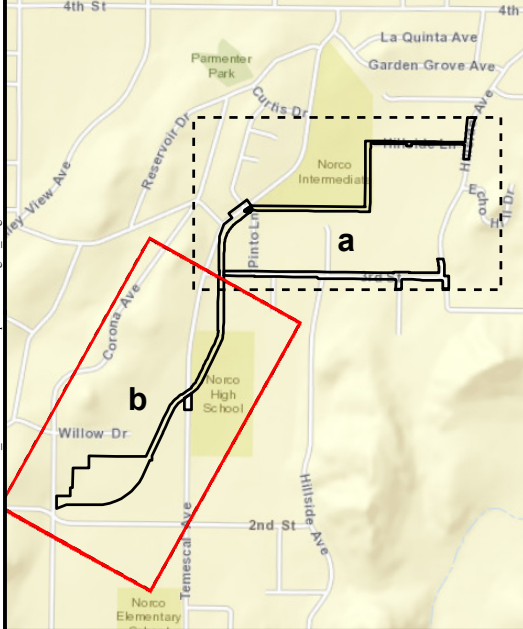
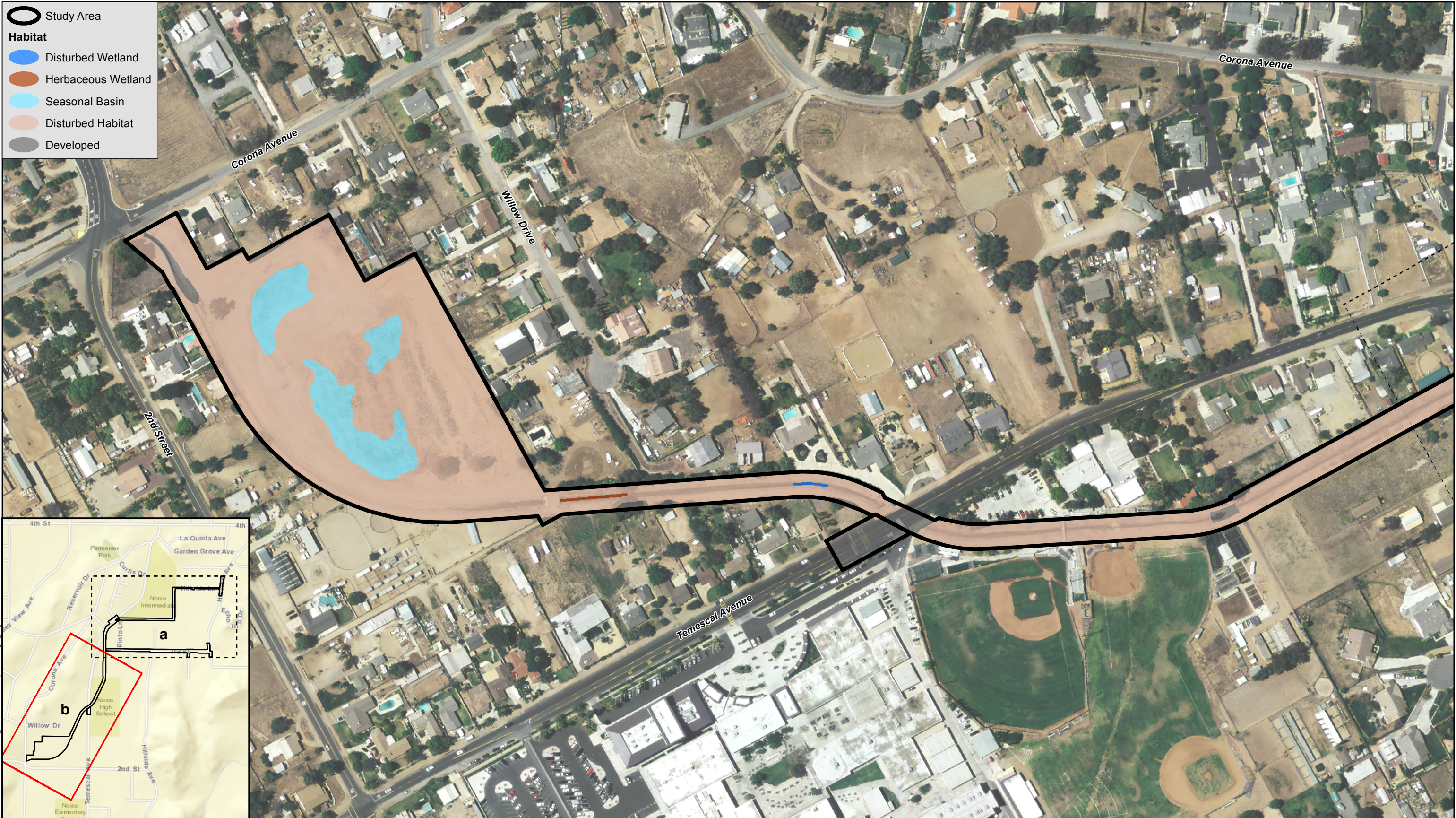
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Vegetation

SOUTH NORCO CHANNEL

Figure 5a

-  Study Area
- Habitat**
-  Disturbed Wetland
-  Herbaceous Wetland
-  Seasonal Basin
-  Disturbed Habitat
-  Developed



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Vegetation

SOUTH NORCO CHANNEL

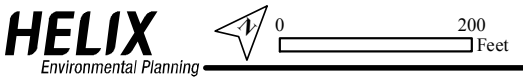


Figure 5b

control drains). The basins are mostly unvegetated, and no vernal pool indicator plants were present. The seasonal basins are not vernal pools. Fairy shrimp were observed within a small area near the western end. A fairy shrimp survey is currently being conducted to determine the species present in the pools. A total of 1.06 acres of seasonal basin is present in the Project area (Table 2).

3.2.4 Disturbed Habitat

Disturbed habitats are areas that have been physically disturbed and are no longer recognizable as native or naturalized vegetation. Disturbed habitat either lacks any vegetation or supports only non-native species. The disturbed habitat in the study area includes the unlined portion of Norco channel and the area with the seasonal basins that exist near the southern terminus of the channel. A total of 9.99 acres of disturbed habitat occurs within the Norco Channel and at the southern terminus of the Project (Table 2).

3.2.5 Developed

Developed land within the study area includes the school site's paved roads and adjacent residential lots. Portions of the existing Norco channel that are concrete-lined or that occur as a culvert are also included as developed land. The total amount of developed land within the Project study area is 8.39 acres (Table 2).

3.3 JURISDICTIONAL AREAS

Jurisdictional habitats within the study area include intermittent streambed that occurs within the existing man-made Norco Channel. Several small areas of wetland habitat also occur within the existing channel. Given the District's MOU with the CDFW to maintain the channel, these vegetation types are not regarded as CDFW jurisdictional habitats. Notwithstanding this MOU, the maintained channel is regarded as a CDFW streambed. The wetlands and streambed in the channel are regarded as WUS.

3.3.1 USACE (Federal) Jurisdiction

USACE jurisdictional waters in the study area are comprised of intermittent streambed within the existing Norco Channel. No naturally occurring USACE jurisdictional waters occur in the study area. The delineation conducted on December 23, 2014 showed that a small portion of the channel supported several patches of sparse wetland vegetation. Data was collected at 2 areas that had wetland vegetation, and it was determined that these area met the USACE wetland definition. The study area included a total of 0.92 area of WUS, comprised of 0.06 acre wetland WUS and 0.86 acre of non-wetland WUS (Table 3; Figures 6a and b).

Table 3 EXISTING WATERS OF THE U.S.		
WUS	AREA (acres)	LENGTH (feet)
Wetlands		
Herbaceous wetland	0.02	148
Disturbed wetland	0.04	390
Subtotal	0.06	538
Non-wetlands		
Intermittent drainage (Constructed flood control channel)	0.86	3,201
TOTAL	0.92	3,739

3.3.2 CDFW (State) Jurisdiction Habitats

CDFW jurisdictional habitats in the study area consist of the streambed within the existing Norco Channel. The channel was artificially created in an area that historically did not have any drainage features. In other words, no naturally occurring CDFW jurisdictional habitats occur in the study area. A total of 2.05 acre of CDFW streambed occurs along 3,739 LF in the study area (Figures 7a and b).







3.3.3 Waters of the State

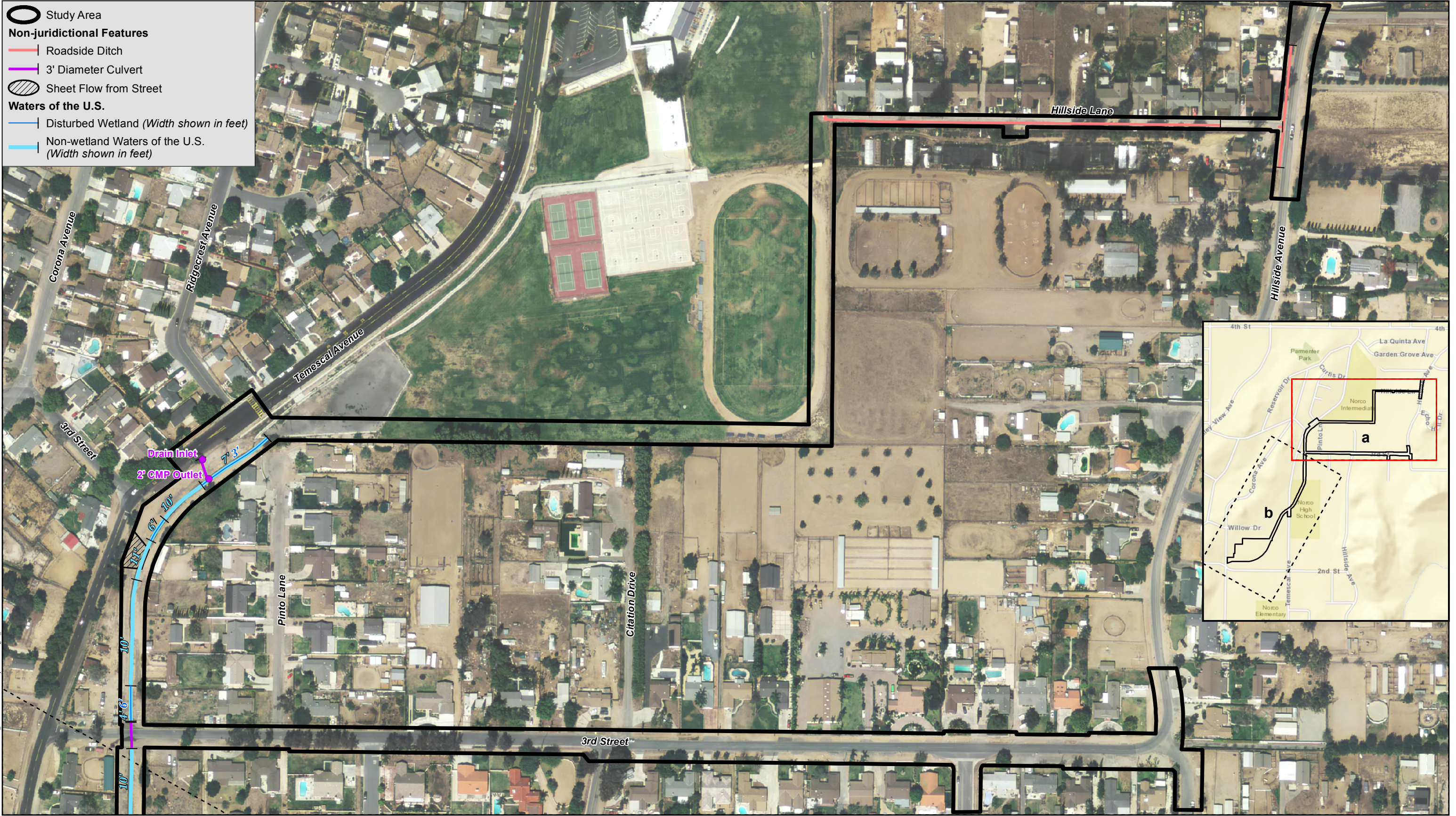
The basins near the southern end of the Project are regarded as Waters of the State (WS) and jurisdictional pursuant to the Porter-Cologne Water Quality Act (Figure 7b). These basins are not regarded as WUS or CDFW jurisdictional habitat due to their isolation from any WUS or lake or streambed. These basins may occupy up to 1.06 acres in a wet year.

3.4 RIPARIAN/RIVERINE AND VERNAL POOL

The identification of Riparian/Riverine habitats is based on the potential for the habitat to support, or are tributary to habitat that support, Riparian/Riverine Covered Species, which are identified in MSHCP Section 6.1.2.

As stated above, areas—with the exception of those that are artificially created and are not an alteration of a natural stream course—that are deemed to be under CDFW jurisdiction area are also considered to be Riparian/Riverine habitat. A review of historical photographs of the area (NETR 2014) does not show a naturally occurring stream in the vicinity in which the Norco channel was constructed. The channel is clearly visible in the 1980 photos but absent from the 1967 photos. No stream or drainage is visible in the 1967 photos. Based on this information and the definition of Riparian/Riverine habitat from the MSHCP, the Norco channel is not considered to be a Riparian/Riverine resource.

-  Study Area
- Non-jurisdictional Features**
-  Roadside Ditch
-  3' Diameter Culvert
-  Sheet Flow from Street
- Waters of the U.S.**
-  Disturbed Wetland (Width shown in feet)
-  Non-wetland Waters of the U.S. (Width shown in feet)



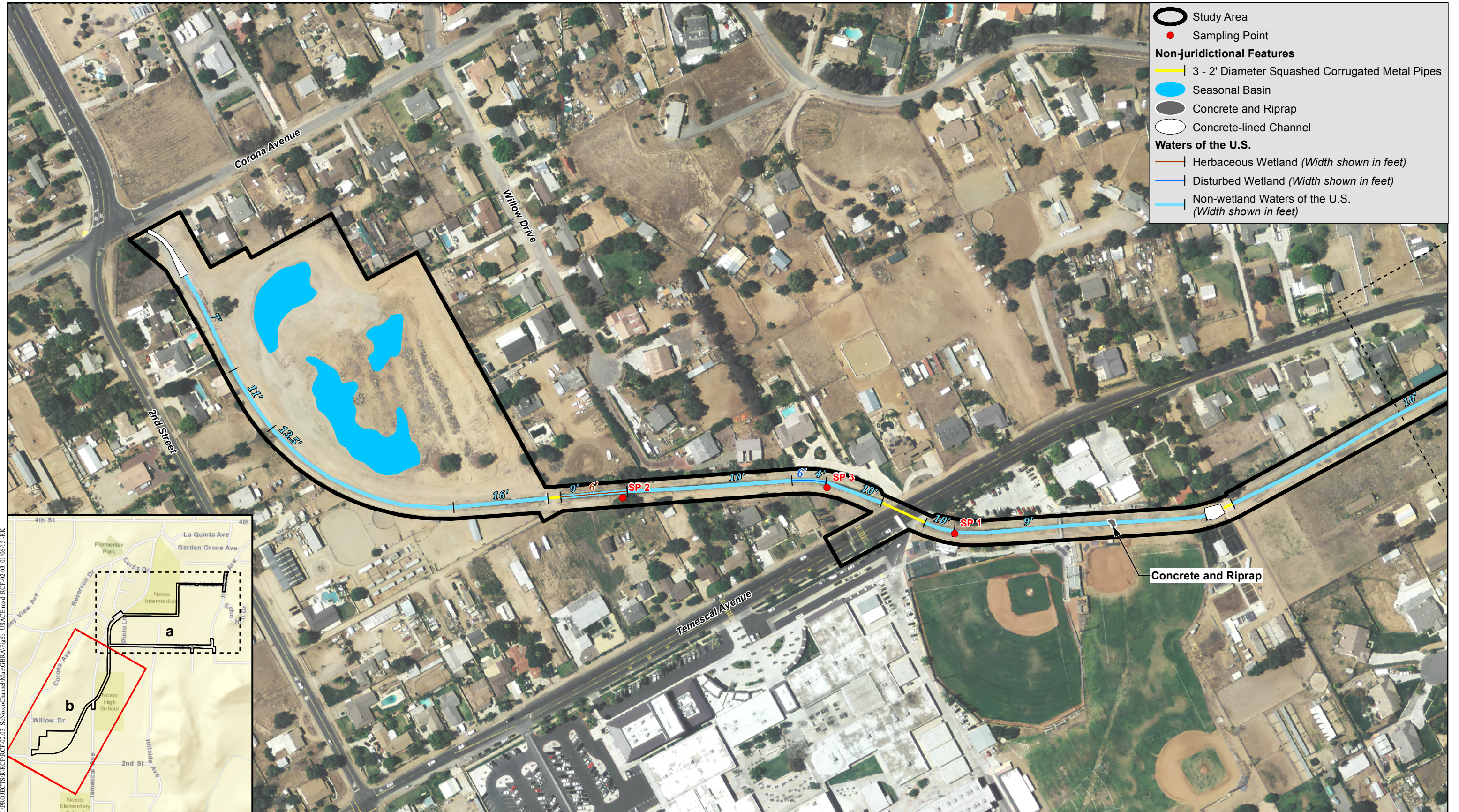
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Waters of the U.S.

SOUTH NORCO CHANNEL



Figure 6a



Waters of the U.S.

SOUTH NORCO CHANNEL



CDFW Jurisdictional Habitats and Waters of the State

SOUTH NORCO CHANNEL

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No vernal pools were observed on site, but seasonal basins are present at the southern terminus of the study area. The review of historical photographs also shows that these seasonal basins are man-made and came into being during the same time as the Norco Channel. As stated previously, the basins are an incidental artifact that resulted from the grading and compaction of the soils during the construction of the south Norco channel. As artificially created depressions that were not created for the purpose of creating a wetland or diversion of a natural watercourse, the seasonal basins do not meet the definition of Riparian/Riverine or vernal pool habitat.

3.4.1 Birds

The LBV, WIFL, and YBCU are found in riparian habitats such as southern willow scrub, cottonwood forest, mule fat scrub, sycamore alluvial woodland, and arroyo willow riparian forest habitats that typically feature dense cover. These habitats do not occur in or adjacent to the study area. No habitat for LBV, WIFL, or YBCU occurs, therefore, no surveys are required and no impacts will occur.

The study area lacks open water, vegetated riparian habitats, and large cliffs that would be habitat for the bald eagle and/or peregrine falcon. No focused surveys for these species are required and no impacts are anticipated.

3.4.2 Invertebrates

Vernal pool fairy shrimp occurs throughout the Central Valley and in several disjunct populations in Riverside County. This species exists in vernal pools and other seasonal basins often located in patches of grassland and agriculture interspersed in Diegan coastal sage scrub and chaparral. Riverside fairy shrimp occurs in Riverside, Orange, and San Diego counties, as well as in northern Baja, Mexico. This species is typically found in deeper vernal pools and other seasonal basins that hold water for long periods (30 or more days). Santa Rosa Plateau fairy shrimp are limited to the Santa Rosa Plateau. Fairy shrimp (species unknown) were visually observed in December 2014 in one of the seasonal basins that occurs at the southern terminus of the study area.

A focused wet season fairy shrimp survey began on January 8, 2015 to determine the species present in the seasonal basins. The results of the survey will be presented in a separate report, but as of the writing of this report, only the non-sensitive versatile fairy shrimp (*Branchinecta lindahli*) has been observed.

3.4.3 Fish

The Santa Ana sucker (*Catostomus santaanae*) is restricted to the Santa Ana River watershed with year-round flows. The Norco channel is intermittent and lacks surface flow for most of the year. This species is not expected to occur in the study area, no surveys are required, and no impacts are expected.

3.4.4 Plants

The Norco channel is primarily an unvegetated natural bottom channel. The vegetation that was observed in the channel was a mix of native and non-native species dominated by Mexican sprangletop and water speedwell. None of the 23 Riparian/Riverine plant species was observed or are expected to occur.

The 23 plant species associated with Riparian/Riverine and vernal pool areas were confirmed to be absent from the site. These species were not observed during the general habitat assessment and the Riparian/Riverine surveys conducted by HELIX in 2004 and 2014. Several species such as Coulter's matilija poppy, California black walnut, Engelmann oak, and San Miguel savory are shrubs/trees that are visible year-round and are not present in the study area. A number of the species, including California Orcutt grass, spreading navarretia, thread-leaved brodiaea, San Miguel savory, graceful tarplant, prostrate navarretia, San Diego button-celery, Orcutt's brodiaea, Fish's milkwort, lemon lily, San Jacinto Valley crownscale, Mojave tarplant, Brand's phacelia, Santa Ana River woolly-star, vernal barley, and Parish's meadowfoam, occur in habitats that do not occur on the property (e.g., vernal pools) or have distributions well outside of the property. The seasonal basins in the study area are not vernal pools. The remaining species have a distribution that includes the property or occur in habitats found on the property and are discussed in greater detail below.

Mud nama is restricted to muddy embankments of marshes and swamps and within lake margins and riverbanks (CNPS 2013).

3.5 SENSITIVE PLANTS SPECIES

As noted above, neither CASSA nor NEPSSA surveys were required. No NEPSA or CASSA species were observed on the Project site and none would be affected. Five sensitive plant species, 1 of which is federally listed, were determined to have potential to occur in the Project vicinity (Table 4). The listed species is the Santa Ana River woollystar (*Eriastrum densifolium sanctorum*). None of the sensitive plant species were observed and none are expected to occur in the study area.

**Table 4
STATUS OF SENSITIVE PLANT SPECIES WITH POTENTIAL TO OCCUR
ON THE SOUTH NORCO CHANNEL**

SPECIES	SENSITIVITY STATUS*	HABITAT	STATUS ON SITE
Section 1-Listed Species			
Santa Ana River woollystar (<i>Eriastrum densifolium</i> spp. <i>sanctorum</i>)	FE/SE CNPS List 1B.1	Santa Ana River, Lytle Creek, and Cajon creek flood plains. Usually in areas with less than 50 percent cover.	Not expected. Project site does not include known habitat of species. Study area is mostly developed.
Section 2-Non-Listed Sensitive Species			
Chaparral sand verbena (<i>Abronia villosa</i> var. <i>aurita</i>)	--/-- CNPS List 1B.1	Sandy soils, requires bare ground, not tolerant of weeds.	Not expected. Soils are loamy, and land is developed and disturbed.
smooth tarplant (<i>Centromadia pungens</i> spp. <i>laevis</i>)	--/-- CNPS List 1B.1	Riparian/watercourses, grassland, alkali scrub	Not expected. Alkali scrub not present. Study area mostly developed.
many-stemmed dudleya (<i>Dudleya multicaulis</i>)	--/-- CNPS List 1B.2	Clay soils in barren, rocky areas with limited vegetation	Not expected. No clay soils. Study area mostly developed.
Robinson's pepper-grass (<i>Lepidium virginicum</i> var. <i>robinsonii</i>)	--/-- CNPS List 4.3	Openings in chaparral and sage scrub, typically dry sites	Not expected. No chaparral or sage scrub habitat in study area. Study area mostly developed.

3.6 SENSITIVE ANIMAL SPECIES

There are 30 sensitive animal species, 11 of which are listed at federal and/or state level, that are known to occur in the general vicinity of the Project (Table 5). Two of the federal or state listed species have low potential to occur; the remaining 9 species are not expected to occur in the study area due to a lack of habitat. The 2 species with potential to occur are both fairy shrimp: Riverside fairy shrimp (*Streptocephalus woottoni*) and vernal pool fairy shrimp (*Branchinecta lynchi*). Neither species is known to occur in the vicinity. Focused surveys began in January 2015 and will be documented in a separate report. The developed nature of the study area and the surrounding area combine to drastically reduce the potential for sensitive species to occur. Only 1 of the sensitive species, the California horned lark (*Eremophila alpestris actia*) has potential to occur in the study area. This species is tolerant of disturbance and has low potential to use the agricultural areas (horse paddocks) that occur immediately adjacent to the study area for foraging.

**Table 5
STATUS OF SENSITIVE ANIMAL SPECIES ON THE
SOUTH NORCO CHANNEL PROJECT SITE**

SPECIES	SENSITIVITY STATUS*	HABITAT	STATUS ON SITE
Section 1 – Listed Species			
Invertebrates			
Riverside fairy shrimp (<i>Streptocephalus woottoni</i>)	FE/-- MSHCP Covered	Deep seasonal vernal pools, seasonal basins that are long lasting. All known populations occur on clay or clay loam soils.	Low. Seasonal basin occurs in study area. Soils are not typical for species. Species not known to occur in vicinity.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT/-- MSHCP Covered	Seasonal vernal pools that are often short lived.	Low. Seasonal basin occurs in study area. Species not known to occur in vicinity.
Delhi sands flower-loving fly (<i>Rhaphiomidas terminatus abdominalis</i>)	FE/SSC	Loose sandy Delhi series soils with less than 50 percent native cover.	Not expected. No Delhi series soils in study area.
Birds			
least Bell's vireo (<i>Vireo bellii pusillus</i>)	FE/SE MSHCP Covered.	Riparian areas with dense ground cover and stratified canopy, prefers willows.	Not expected. No vegetated riparian habitat in study area.
southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	FE/SE MSHCP Covered.	Dense mature riparian woodland with willows and/or cottonwoods.	Not expected. No vegetated riparian habitat in study area.
western yellow-billed cuckoo (<i>Coccyzus americanus occidentalis</i>)	FT/SE MSHCP Covered.	Dense, thick riparian with willows, dense understory, slow-moving watercourses.	Not expected. No dense riparian habitat in study area.
Coastal California gnatcatcher (<i>Polioptila californica californica</i>)	FT/SSC MSHCP Covered.	Coastal sage and other low scrub.	Not expected. No sage scrub in study area.

**Table 5 (cont.)
STATUS OF SENSITIVE ANIMAL SPECIES ON THE
SOUTH NORCO CHANNEL PROJECT SITE**

SPECIES	SENSITIVITY STATUS*	HABITAT	STATUS ON SITE
Section 1 – Listed Species			
Birds (cont.)			
Santa Ana sucker (<i>Catostomus santaanae</i>)	FT/SSC MSHCP Covered.	Shallow permanent streams.	Not expected. No permanent streams in study area. Only water course is flood control channel.
Swainson’s Hawk (<i>Buteo swainsoni</i>)	--/ST MSHCP Covered.	Open desert, sparse scrub with large trees.	Not expected. Desert habitat not present. Tall trees in area are part of ornamental landscaping.
Mammals			
Stephens’ kangaroo rat (<i>Dipodomys stephensi</i>)	FE/ST MSHCP Covered.	Open areas with sparse perennial cover and loose soil.	Not expected. Study area occurs in mostly developed area. Study area not in SKR fee area.
San Bernardino kangaroo rat (<i>Dipodomys merriami parvus</i>)	FE/CSC MSHCP Covered.	Sage scrub, sandy soils, alluvial fans, floodplains.	Not expected. Study area primarily comprised and surrounded by developed habitat.
Section 2 – Non-listed Sensitive Species			
FISH			
Arroyo chub (<i>Gila orcuttii</i>)	--/SSC MSHCP Covered.	Occurs in the Los Angeles basin south coastal stream, in slow water stream sections with mud or sand bottoms.	Not expected. No permanent streams in study area. Only water course is flood control channel.

**Table 5 (cont.)
STATUS OF SENSITIVE ANIMAL SPECIES ON THE
SOUTH NORCO CHANNEL PROJECT SITE**

SPECIES	SENSITIVITY STATUS*	HABITAT	STATUS ON SITE
Section 2 – Non-listed Sensitive Species (cont.)			
REPTILES AND AMPHIBIANS			
Coast horned lizard (<i>Phrynosoma coronatum blainvillei</i>)	--/SSC MSHCP Covered.	Grassland, scrub, chaparral, and woodland.	Not expected. No native vegetation in study area.
Northern red-diamond rattlesnake (<i>Crotalus ruber</i>)	--/SSC MSHCP Covered.	Heavy brush, boulders, can use a variety of habitats; prey density determining factor.	Not expected. Study area surrounded by residential development. No habitat in study area.
Orange-throated whiptail (<i>Cnemidophorus hyperthrus</i>)	--/SSC MSHCP Covered.	Chaparral, sage scrub, grassland, woodland, and riparian areas.	Not expected. Study area does not have the species preferred habitat.
Two-striped garter snake (<i>Thamnophis hammondi</i>)	--/SSC	Stream course with adjacent dense vegetation.	Not expected. No vegetated stream habitat in study area.
San Diego banded gecko (<i>Coleonyx variegates abbotti</i>)	--/-- MSHCP Covered.	Deserts scrub to chaparral; micro-habitat desert species.	Not expected. Desert and other native habitats absent from study area.
BIRDS			
Burrowing owl (<i>Athene cunicularia</i>)	--/SSC MSHCP Covered.	Grassland, fallow agriculture, and areas of sparse cover, preferably with burrows of fossorial mammals.	Not expected. Species preferred habitat does not occur within the study area.
Northern harrier (<i>Circus cyaneus</i>)	--/SSC MSHCP Covered.	Meadows, grassland, scrub, rarely in woodland. Roosts on ground.	Not expected. Study area mostly disturbed, surrounded by residential development.
Tricolored blackbird (<i>Agelaius tricolor</i>)	--/SSC MSHCP Covered.	Wetland with dense cattails, tall grasses or low thickets of willows.	Not expected. No potential habitat occurs in the study area.

**Table 5 (cont.)
STATUS OF SENSITIVE ANIMAL SPECIES ON THE
SOUTH NORCO CHANNEL PROJECT SITE**

SPECIES	SENSITIVITY STATUS*	HABITAT	STATUS ON SITE
Section 2 – Non-listed Sensitive Species (cont.)			
BIRDS (cont.)			
Yellow warbler (<i>Dendroica petechia brewsteri</i>)	--/SSC MSHCP Covered.	Riparian woodland and scrub.	Not expected. No vegetated riparian habitats in study area.
Yellow-breasted chat (<i>Icteria virens</i>)	--/SSC MSHCP Covered.	Wide riparian woodland, dense willow thickets, with well-developed understory.	Not expected. No vegetated riparian habitat in study area.
Bell's sage sparrow (<i>Amphispiza belli belli</i>)	--/-- MSHCP Covered.	Evenly spaced sage scrub.	Not expected. No sage scrub in study area.
California horned lark (<i>Eremophila alpestris actia</i>)	--/-- MSHCP Covered.	Grassland, agriculture fields, and disturbed fields.	Low. Study area mostly developed. Species may forage in adjacent horse paddocks.
Southern California rufous-crowned sparrow (<i>Aimophila ruficeps canescens</i>)	--/-- MSHCP Covered.	Hillsides, with grassland, sage scrub, or chaparral.	Not expected. Study area lacks hillsides. Only ornamental vegetation is present.
MAMMALS			
Pocketed free-tailed bat (<i>Nyctinomops femorosaccus</i>)	--/SSC	Desert scrub, roosts in cliffs, rocky crevices in small colonies.	Not expected. No desert scrub, cliffs or rocky crevices in study area.
San Diego black-tailed jackrabbit (<i>Lepus californicus bennettii</i>)	--/SSC MSHCP Covered.	Primarily open scrub with short grasses.	Not expected. No open scrub habitat in study area.
San Diego desert woodrat (<i>Neotoma lepida</i>)	--/SSC MSHCP Covered.	Scrub and desert, rock outcrops, or areas of dense cover.	Not expected. No scrub habitat or rock outcrops in study area.

**Table 5 (cont.)
STATUS OF SENSITIVE ANIMAL SPECIES ON THE
SOUTH NORCO CHANNEL PROJECT SITE**

SPECIES	SENSITIVITY STATUS*	HABITAT	STATUS ON SITE
Section 2 – Non-listed Sensitive Species (cont.)			
MAMMALS (cont.)			
Western mastiff bat (<i>Eumops perotis californicus</i>)	--/SSC	Rocky areas, cliff faces, known to roost in buildings	Not expected. Study area does not include rocky areas, cliff faces or buildings.
Western yellow bat (<i>Lasiurus xanthinus</i>)	--/SSC	Desert grassland and scrub with an associated water feature.	Not expected. No grassland or scrub habitat in study area.

*Explanation of Sensitivity Status is included as Appendix F

3.7 BURROWING OWL

The MSHCP specifies a habitat assessment be conducted on 1 parcel of the 13 that is included in the study area. This parcel is developed as a school. The study area crosses the southern and eastern portions of this parcel. The entire study area was included in the burrowing owl habitat assessment. The study area is comprised of developed and disturbed habitat, along with the existing flood channel. No burrowing owl habitat or burrowing owl sign was observed in the study area. The portion of the school parcel that the study area crosses consists of an oval running track and open field. The field and track were observed to be actively used by students. The fields lack shrubs, is regularly mowed, and lacks fossorial mammal burrows. No owl burrows or ground squirrel burrows were observed; the site is not able to provide suitable nesting or foraging habitat for this species. Protocol surveys for burrowing owl are not recommended.

3.8 CRITICAL HABITAT

The search of the USFWS critical habitat portal shows that critical habitat does not occur in the study area. The nearest critical habitat occurs along the Santa Ana River to the north and west of the Project. This critical habitat occurs 4 kilometers to the northwest at its closest point to the study area. The proposed flood control improvement project will not result in any impacts (direct or indirect) to critical habitat.

4.0 REGULATORY CONTEXT INCLUDING MSHCP COMPLIANCE

4.1 FEDERAL GOVERNMENT

Administered by the USFWS, the federal Endangered Species Act (ESA) provides the legal framework for the listing and protection of species (and their habitats) identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered a “take” under the ESA. Section 9(a) of the ESA defines take as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” “Harm” and “harass” are further defined in federal regulations and case law to include actions that adversely impair or disrupt a listed species’ behavioral patterns.

Sections 4(d), 7, and 10(a) of the federal ESA regulate actions that could jeopardize endangered or threatened species. Section 7 describes a process of federal interagency consultation for use when federal actions may adversely affect listed species. A biological assessment is required for any major construction activity if it may affect listed species. In this case, take can be authorized via a letter of Biological Opinion (BO), issued by the USFWS for non-marine related listed species issues. A Section 7 consultation is required when there is a nexus between federally listed species’ use of the site and impacts to USACE jurisdictional areas. Section 10(a) allows issuance of permits for “incidental” take of endangered or threatened species. The term “incidental” applies if the taking of a listed species is incidental to and not the purpose of an otherwise lawful activity. The MSHCP is the Section 10(a) permit for this portion of Riverside County, including the subject property.

All migratory bird species that are native to the United States or its territories are protected under the Migratory Bird Treaty Act (MBTA), as amended under the MBTA of 2004 (FR Doc. 05-5127). This law is generally protective of migratory birds from the direct physical take of the species.

Federal wetland permitting for the proposed Project will be required by the USACE. Potential areas under USACE jurisdiction consist of wetland and non-wetland WUS and are located in the existing Norco Channel. They constitute approximately 0.06 acre of wetland and 0.86 acre of non-wetland WUS or drainage (Table 3).

Projects may be permitted on an individual basis or may be covered under one of several approved Nationwide Permits, based on the type of action, amount of fill, and size and length of impact. Individual Permits (IPs) typically require substantial time (often longer than 12 months) to review and approve, while Nationwide Permits are pre-approved if a project meets appropriate conditions. This Project will likely require an Individual Permit. The applicable NWP or need for an IP would be determined by the USACE.

4.2 STATE OF CALIFORNIA

The California ESA is similar to the federal ESA in that it contains a process for listing of species and regulating potential impacts to listed species. Section 2081 of the California ESA authorizes the CDFW to enter into a memorandum of agreement for the take of listed species for scientific, educational, or management purposes. The MSHCP is the regional 2081 for this portion of the County, including the subject property. The golden eagle (*Aquila chrysaetos*) and white-tailed kite (*Elanus leucurus*) are considered State Fully Protected Species. Fully Protected species may not be taken or possessed at any time, and no state licenses or permits may be issued for their take except for collecting these species necessary for scientific research and relocation of the bird species for the protection of livestock (Fish and Game Code Sections 3511, 4700, 5050, and 5515).

The Native Plant Protection Act (NPPA) enacted a process by which plants are listed as rare or endangered. The NPPA regulates collection, transport, and commerce of plants that are listed.

The California ESA followed the NPPA and covers both plants and animals that are determined to be endangered or threatened with extinction. Plants listed as rare under NPPA were designated threatened under the California ESA.

The California Fish and Game Code (Section 1600 et seq.) requires an agreement with CDFW for projects affecting riparian and wetland habitats through issuance of a Lake and Streambed Alteration Agreement (SAA). It is assumed that the Project will require a 1602 Agreement from CDFW.

4.3 WESTERN RIVERSIDE MULTIPLE SPECIES HABITAT CONSERVATION PLAN

The MSHCP is a comprehensive multi-jurisdictional effort that includes Riverside County and multiple cities, including the City of Norco in western Riverside County. Rather than address sensitive species on an individual basis, the MSHCP focuses on the conservation of 146 species, proposing a reserve system of approximately 500,000 acres and a mechanism to fund and implement the reserve system (Dudek 2003). Most importantly, the MSHCP allows participating entities to issue take permits for listed species so that individual applicants need not seek their own permits from the USFWS and/or CDFW. The MSHCP was adopted on June 17, 2003, by the Riverside County Board of Supervisors. The Incidental Take Permit for species covered in the MSHCP was issued by both the USFWS and CDFW on June 22, 2004. As the Riverside County Flood Control District (District) is a signatory of the MSHCP, the District is the lead agency/permittee.

As noted above, the Project is located within the Cities of Riverside and Norco Area Plan of the MSHCP but is not with a subunit or criteria cell (Dudek 2003). The site is not subject to the Owner Initiated Habitat Acquisition and Negotiation Strategy (HANS) process. The site is still required to show MSHCP compliance through specific habitat assessments, applicable biological surveys, and the provision of an MSHCP compliance analysis.

In compliance with the MSHCP, capital improvement projects like this one are typically required to pay a mitigation fee in the amount of 3 percent of the total cost of the project.

5.0 PROJECT IMPACTS

This section describes potential direct and indirect impacts associated with the proposed Project. Direct impacts immediately alter the affected biological resources such that those resources are eliminated temporarily or permanently. Indirect impacts consist of secondary effects of a project, including noise, decreased water quality (e.g., through sedimentation, urban contaminants, or fuel release), fugitive dust, colonization of non-native plant species, animal behavioral changes, and night lighting. The magnitude of an indirect impact can be the same as a direct impact; however, the effect usually takes a longer time to become apparent.

According to Appendix G of the State CEQA Guidelines, project impacts to biological resources would be considered significant if they would:

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

5.1 VEGETATION COMMUNITIES

The proposed Project would substantially alter the existing Norco Channel (Figures 8a and b). Nearly all of the impacts would be to areas that were previously disturbed or developed. A small amount of wetland vegetation would also be impacted, including 0.02 acre of herbaceous wetland and 0.04 acre of disturbed wetland. The Project would also impact 0.06 acre of seasonal basin from a proposed access road. The entire study area may be affected by the Project and the remaining 1.00 acre of the basins are expected to be impacted, albeit temporarily, as that area will be used as a staging area for the Project.

5.2 JURISDICTIONAL WATERS IMPACTS

Because the purpose of the Project is to line the existing Norco flood control channel with concrete and rock, avoidance of impact to the channel is not feasible.

5.2.1 Federal Jurisdictional Waters

The proposed Project would result in impacts to 0.92 acre WUS. The WUS are comprised of 0.06 acre of wetland WUS and 0.86 acre of non-wetland WUS (Table 6; Figures 6a and b). These impacts will require a permit from the USACE under Section 404 of the CWA and are considered significant.

Table 6 IMPACTS TO WATERS OF THE U.S.		
HABITAT	IMPACTS	
	Acreage	Linear Feet
Wetland Waters of the U.S.		
Disturbed Wetland	0.02	148
Herbaceous Wetland	0.04	390
Subtotal	0.06	538
Non-wetland Waters of the U.S.		
Streambed	0.86	3,201
TOTAL	0.92	3,739

5.2.2 State Jurisdictional Habitats and Waters

The proposed Project results in impacts to 2.05 acres of CDFW jurisdictional habitat comprised entirely of intermittent streambed (Figure 7a and b). The channel (i.e., streambed) is disturbed habitat that lacks vegetation except for several small patches of herbaceous and disturbed wetland. These small patches of wetland habitat are part of the intermittent streambed acreage due to the MOU the District has with CDFW; that allows the District to maintain the channel. Impacts to CDFW habitat will require a Section 1602 SAA from the CDFW.

The Project will directly impact WS where channel improvements directly impact and project staging temporarily impact WS subject to the Porter-Cologne Water Quality Act. Permitting under this act will occur along with the Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB). Impacts to 3.11 acres of WS are considered significant.



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Site Plan

SOUTH NORCO CHANNEL

Figure 8a



Study Area



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Site Plan

SOUTH NORCO CHANNEL

Figure 8b

5.3 MSHCP IMPACTS/CONSISTENCY

5.3.1 Cities of Riverside and Norco Area Plan

The study area is located within the Cities of Riverside and Norco Area Plan of the MSHCP but is not within a subunit or Criteria Cell. No proposed Core, Linkage, or Constrained Linkage occur within the study area. The study area does not include any Public/Quasi Public Lands or previously conserved lands. Because the Project area is not within any Sub Unit, there is no Planning Species to be addressed. No impacts are proposed to occur to MSHCP targeted conservation or to the MSHCP reserve lands.

5.3.2 Riparian/Riverine and Vernal Pool (MSHCP Section 6.1.2)

Section 6.1.2, Protection of Species Associated with Riparian/Riverine Areas and vernal pools, states:

The purpose of the procedures described in this section is to ensure that the biological functions and values of these areas throughout the MSHCP Plan Area are maintained such that Habitat values for species inside the MSHCP Conservation Area are maintained.

The definition of Riparian/Riverine and vernal pools are discussed in Section 2.4 of this document. The MSHCP states that:

With the exception of wetlands created for the purpose of providing wetlands Habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating characteristics [of Riparian/Riverine and vernal pool habitat] which are artificially created are not included in these definitions.

Section 6.1.2 of the MSHCP focuses on protection of Riparian/Riverine areas and vernal pool habitats capable of supporting MSHCP covered species, particularly within the identified Conservation Area.

The Norco Channel and the seasonal basins do not include habitat that is considered Riparian/Riverine because both the channel and basins are artificially created, and were not created from the alteration of a natural stream course or for the purpose of providing wetland habitat. The seasonal basins have potential to support Riverside fairy shrimp and vernal pool fairy shrimp, both of which are species protected under MSHCP Section 6.1.2 as species associated with Riparian/Riverine and vernal pool habitats. The seasonal basins would be a MSHCP protected habitat if the fairy shrimp survey results demonstrate that one or more species of sensitive fairy shrimp are present. Surveys for fairy shrimp began in January 2015. The result of the survey will be presented in a separate report.

5.3.3 Plants

The study area is not within an area that requires surveys for NEPSSA or CASSA plant species. No surveys are required and no impacts are anticipated.

5.3.4 Burrowing Owl

The study area includes a parcel that requires a burrowing owl habitat assessment and surveys if habitat exists. The habitat assessment revealed that burrowing owl habitat does not occur in the study area. No surveys are required and non-impacts to burrowing owl are anticipated.

5.3.5 Sensitive Plants

No sensitive plant species were observed in the project area. No impact to NEPSSA or CASSA plant and animal species would occur.

6.0 MSHCP CONSISTENCY RECOMMENDATIONS

As noted earlier, the Project is within the Cities of Riverside and Norco Area Plan but not within any Criteria Cell, Cell Group, or Sub Unit. There is no proposed Core, Linkage, or Constrained Linkage within the Project area. Because the Project is not within any Sub Unit, there are no Planning Species to be addressed. There is no biological issue or conservation consideration related to any Criteria Cell because none would be affected.

Based on this assessment, the Project is consistent with the Cities of Riverside and Norco Area Plan.

6.1 CONSISTENCY WITH MSHCP SECTION 6.1.2

The proposed Project complies with the policies of Section 6.1.2 that protect species associated with vernal pools and Riparian/Riverine areas because neither is present within the Project area. The seasonal basins that occur in the study area are artificially created and not considered a Riparian/Riverine and vernal pool resource. USFWS protocol fairy shrimp surveys are currently being conducted for the seasonal basins. As of the writing of this report, no sensitive fairy shrimp have been found in the basins; only the non-sensitive versatile fairy shrimp occurs on site.

A DBESP is required for impacts to Riparian/Riverine and vernal pool resources. As the waters on site do not appear to meet the definition of Riparian/Riverine or vernal pool and do not support sensitive species associated with Riparian/Riverine and vernal pools a DBESP is not required.

6.2 CONSISTENCY WITH MSHCP SECTION 6.1.3

In compliance with Section 6.1.3, this Project would not affect any Narrow Endemic Plant Species, because no species are present on site.

6.3 CONSISTENCY WITH MSHCP SECTION 6.1.4

The following measures as part of the Project are designed to minimize the identified potential indirect impacts, including:

- Because the Project involves the lining of an existing channel, the flows within the channel will not be altered by the Project. No new flows will be introduced into the channel.
- The Project is not adjacent to a conservation area; therefore, any lighting that may be associated with the Project will not affect the MSHCP reserve.
- No plants included on the California Invasive Plant Council's list of invasive species (or in Table 6-2 of the MSHCP) should be used anywhere on the site, and only native species or non-invasive non-native species would be used in erosion control.
- The Project is designed so that no take of conserved habitat would be necessary for fuel modification purposes.
- The Project is not adjacent to an MSHCP conservation area and as such will not result in impacts to the MSHCP reserve.

The above measures would serve to minimize the adverse effects of the Project on MSHCP conservation configuration.

6.4 CONSISTENCY WITH MSHCP POLICY SECTION 6.3.2

In compliance with MSHCP Section 6.3.2, the burrowing owl habitat assessment demonstrates that there is no potential for this species to occur, and therefore, focused surveys are not required. Focused surveys for CASSA plant species are not required.

7.0 MITIGATION

7.1 MITIGATION FEES

Impacts to upland habitats and associated species will be addressed through participation in the MSHCP, which for public projects is typically addressed through payment of a fee calculated as 3 percent of the total cost of the project. The fee is subject to adjustment or elimination as appropriate for District projects.

7.2 JURISDICTIONAL WATERS AND WETLANDS

As the Project is related to the lining of an existing earthen bottom channel that is not considered to be a Riparian/Riverine habitat under the MSHCP, a DBESP is not required.

The mitigation for impacts to WUS, CDFW jurisdictional habitat, and WS will be determined in consultation with the agencies during the permitting process. It is anticipated that the wetlands will be mitigated at a ratio of 3:1 and non-wetland WUS/Streambed will be mitigated at a 1:1 ratio. The finished channel will retain some of the functions and values of the existing channel and should figure into the mitigation. The improved channel bottom will include a pervious surface over 0.45 acre along 2,610 LF. The mitigation for impacts to the WUS, CDFW jurisdictional habitat, and WS would also cover the mitigation that would be required if these waters met the definition of Riparian/Riverine or vernal pool resources under the MSHCP.

8.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

DATE: February 27, 2015

SIGNED: 
W. Larry Sward

Fieldwork Performed By:

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Appendix A

MEMORANDUM OF UNDERSTANDING



1 RIVERSIDE COUNTY FLOOD CONTROL
2 AND WATER CONSERVATION DISTRICT
3 AND
4 CALIFORNIA DEPARTMENT OF FISH AND GAME
5 MEMORANDUM OF UNDERSTANDING
6 MAINTENANCE ACTIVITIES IN IMPROVED CHANNELS
7 AND
8 DETENTION/RETENTION AND/OR DEBRIS BASINS

9 This Memorandum of Understanding (MOU) by and between the California Department of Fish
10 and Game, hereinafter called the "Department", and Riverside County Flood Control and Water
11 Conservation District, hereinafter called the "District", is for the purpose of delineating
12 and defining routine maintenance activities in improved channels and basins that shall not
13 require further Notice and Agreement in compliance with Section 1601 of the Fish and Game
14 Code.

15 WHEREAS, Section 1601 of the Fish and Game Code empowers the Department to propose
16 reasonable modification(s) to projects as would allow for the protection and continuation of
17 existing fish and wildlife resources; and

18 WHEREAS, it is essential that the District perform routine maintenance activities within
19 improved channels and basins to ensure that the facilities continue to provide the design
20 level of flood protection to which the facilities were constructed, to protect the public's
21 investment, to prevent loss of life and property and to comply with local ordinances and
22 regulations, the regulations pertaining to the National Flood Insurance Program and other
23 Federally mandated programs; and

1 WHEREAS, it is mutually beneficial to delineate and define routine maintenance of
2 improved channels and basins, and to establish procedures to expedite maintenance activities,
3 and to provide for the protection of fish, wildlife and their habitats during such
4 maintenance activities; and

5 WHEREAS, nothing in this MOU shall constitute a waiver of any future or current
6 Department claims to the use and maintenance of natural conditions under the public trust
7 doctrine; and

8 WHEREAS, nothing in this MOU shall constitute a waiver of the District's claimed rights
9 to maintain and operate the improved channel(s) and basin(s) solely for flood control
10 purposes.

11 NOW, THEREFORE, the Department and the District agree as follows:

12 I. DEFINITIONS

13 A. Improved Channel. A waterway in which significant man-made alteration has
14 occurred to improve the passage of flood flows, including straightening and
15 containing the flows within constructed banks (including levees) and concrete-
16 lined, riprap or earth trapezoidal channels with engineered banks. Channel
17 banks, channel bottoms, low flow channels and other appurtenant features of
18 improved channels are defined by the diagram of the typical cross section of
19 improved flood control channels as shown in Exhibit 3 attached hereto and
20 incorporated herein by reference.

1 B. Improved Basin. A facility which has been designed and constructed to
2 temporarily impound flood waters and/or debris during times of flood flows.
3 An improved basin is typically located along a natural watercourse and has
4 flood waters and/or debris delivered to it via the watercourse or an improved
5 basin may be located apart from a natural watercourse and have flood waters
6 and/or debris delivered to it via an improved channel or underground storm
7 drain system. Basin banks, bottom, low flow "wet" areas, low flow channel,
8 inlet structure(s), outlet structure, dam embankment (if any) and other
9 appurtenant features are defined by the diagram of the conceptual plan view
10 and cross section as shown in Exhibit 4 attached hereto and incorporated
11 herein by reference.

12 C. Maintenance. The removal of sand, silt, sediment, debris, rubbish, woody and
13 herbaceous vegetation and other obstructions to flow, the control of weeds,
14 grasses and emergent vegetation and the repair and/or replacement, cleaning
15 and clearing of constructed channel or basin improvements all as necessary to
16 maintain the structural integrity and capacity of the improved channel(s) or
17 basin(s). The improved channels and basins listed in Exhibit 1 and shown on
18 the Maintenance Maps, Exhibit 2, attached hereto are the current list of
19 facilities covered by this MOU. Exhibit 1 and Exhibit 2 are attached hereto
20 and incorporated herein by reference.

1 II. AUTHORIZED ACTIVITIES

2 The maintenance activities identified below, when performed on the improved
3 channel(s), improved basin(s) and adjacent work area(s) specified in Exhibit 1 and
4 in accordance with the procedures described below, shall not require further notice
5 to, or agreement with, the Department pursuant to Section 1601 of the Fish and Game
6 Code.

7 The District, in the selection and application of pesticides (herbicides and
8 rodenticides) as hereinafter set forth, shall comply with all applicable local,
9 State, and Federal permitting or licensing requirements or regulations. Nothing
10 in this MOU shall be construed as a permit, license, or any other entitlement to
11 the application of pesticides.

- 12 - A. Control of weeds and grasses on maintenance roads and on the areas between top
13 of banks (improved channel and improved basin) and adjacent property to comply
14 with local fire regulations and to provide a safe travel way to conduct
15 facility inspection and maintenance activities by mowing, discing, hand labor
16 or herbicide application.
- 17 - B. Control of weeds and grasses, and emergent aquatic vegetation on earthen
18 channel bottoms and banks to maintain channel design capacity, or to comply
19 with local fire regulations, or to conduct facility inspection. Vegetation
20 control will be accomplished by mowing, hand labor or herbicide application.

- 1 C. Control of weeds and grasses on the basin banks to comply with local fire
2 regulations or to conduct facility inspection by mowing, hand labor or
3 herbicide application.
- 4 D. Control of weeds and grasses in revegetated mitigation areas and landscaped
5 areas to allow plant establishment by mowing, discing, hand labor or herbicide
6 application as specified in Exhibit 1.
- 7 -E. Removal of vegetation, sand, silt, sediment and debris, and other obstructions
8 to flow within the immediate vicinity (not to exceed 100 feet) of the
9 following structures: (1) stream flow measuring stations; (2) culverts and
10 bridges; (3) storm drain outfall structures; (4) drop structures (energy
11 dissipaters), and (5) basin inlet and outlet structures, to maintain the
12 structures design function. Surface flowing water, if any, will be diverted,
13 if possible, from work area when using equipment in the improved channel or
14 improved basin.
- 15 - F. Control and/or removal of woody and herbaceous vegetation with large tractor-
16 pulled rotary mowers or equivalent and/or hand labor and tools on channel
17 bottoms and channel banks to maintain channel design capacity. Improved
18 channels that are to be cleared in strips in alternating years to retain
19 habitat for wildlife, as illustrated in Exhibit 5 attached hereto and
20 incorporated herein by reference, are indicated in Exhibit 1.

- 1 G. Control and/or removal of woody and herbaceous vegetation, weeds and grasses
2 with large tractor-pulled rotary mowers or equivalent and/or hand labor tools
3 on basin bottoms to comply with local fire regulations or to minimize the
4 potential for obstructing the basin outlet structure. Except as provided for
5 in Authorized Activities E or P or as indicated in Exhibit 1, vegetation in
6 low flow "wet" areas shall be left undisturbed.
- 7 H. Removal of trees or branches that are in imminent danger of falling, fallen
8 trees and associated debris to maintain the channel or basin outlet structure
9 design capacity.
- 10 I. Removal of accumulated sand, silt, sediment, woody and herbaceous vegetation,
11 debris, rubbish and other obstructions from concrete-lined or rock-lined
12 channels or transition sections to maintain design capacity.
- 13 J. Removal of accumulated sand, silt, sediment, debris, rubbish and other
14 obstructions or accumulations in improved channels with unlined channel
15 bottoms or basin bottoms to maintain channel or basin design capacity.
16 Improved channels or improved basins that are to be cleared in strips in
17 alternating years to retain habitat for wildlife, as illustrated in Exhibit 5,
18 are indicated in Exhibit 1.
- 19 K. Removal of accumulated sand, silt, sediment, debris, rubbish and other
20 obstructions or accumulations in improved channels with unlined channel
21 bottoms to maintain low flow channel design capacity or, when necessary, to

provide fish passage or habitat identified in District environmental documents.

- 2
- 4
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- L. Repair of failed sections of rock, gabion, masonry block, rail and wire, concrete-lined, gunite, grouted concrete riprap or other bank protections to maintain bank stabilization measures or drop structures to provide invert stabilization measures. Surface flowing water, if any, will be diverted from the work area, if possible, when using equipment in the improved channel. Maintenance activities shall be confined to the section affected by the failure. Upon maintenance activity completion, disturbed portions of the channel bottom shall be scarified from the work site to the equipment entrance where equipment traffic has caused compaction of the streambed soil materials.
 - M. Restoration of eroded earth levees or channel and basin banks previously installed and/or maintained for public health and safety. Surface flowing water, if any, will be diverted from the work area, if possible, when using equipment in the improved channel or improved basin.
 - N. Scarify bottom of improved channel(s) or improved basin(s) by discing, ripping or bulldozing for the purpose of increasing the percolation rate related to the promotion of groundwater recharge.
 - O. Control of burrowing rodents in channel, basin (including dam embankment) or levee banks with application of rodenticides.

1 P. Removal of accumulated sand, silt, sediment, woody and herbaceous vegetation,
2 debris, rubbish and other obstructions from basin bottoms including low flow
3 "wet" areas by mowing, discing, bulldozing, hand labor or herbicide
4 application as specified in Exhibit 1.

5 III. TIME AND MANNER OF WORK

6 Maintenance work shall be performed at a time and in a manner which shall meet
7 the District's obligations to public health and safety while recognizing the need
8 to minimize adverse impacts to fish and wildlife resources and their habitat.
9 Periods of concern to the Department are March through June for nesting birds.

10 IV. REPORTING REQUIREMENTS

11 The District shall provide written notification to the Regional Manager, Region
12 5 of the Department on or about May 1, of each year. The notification shall
13 include a list of the projects on which routine maintenance is anticipated to be
14 performed in the following fiscal year (July 1 through June 30). The notification
15 shall also include a list of those projects on which routine maintenance was
16 performed during the current fiscal year but were not included in the notification
17 provided in the previous year. The notification need not include a list of those
18 projects on which routine maintenance is not anticipated to occur in the following
19 year or will be performed entirely within a reach of concrete channel.

EXHIBIT 1

IMPROVED CHANNELS AND BASINS MAINTENANCE LISTING

RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT

NOTES:

- GROUP 1: AUTHORIZED ACTIVITIES INCLUDE ITEMS A, B, E, F, H, J, K, L, M, O (typically applicable to earthen channels and/or levees and with or without slope protection)
- GROUP 2: AUTHORIZED ACTIVITIES INCLUDE ITEMS A, E, H, I, L, O (typically applicable to concrete trapezoidal or rectangular channels)
- GROUP 3: AUTHORIZED ACTIVITIES INCLUDE ITEMS A, C, E, G, H, J, L, M, O (typically applicable to detention/retention and/or debris basins)
- GROUP 4: Federal Project - Maintenance activities regulated by the Secretary of the Army and may include any or all of the Authorized Activities.

Unless an individual Authorized Activity is specifically listed as an Authorized Activity on Pages 1 through 35 of this Exhibit, the activities included in each of the Groups above shall be the only activities which may be accomplished for any particular project as designated on Pages 1 through 35 of this Exhibit.

Updated July 1997

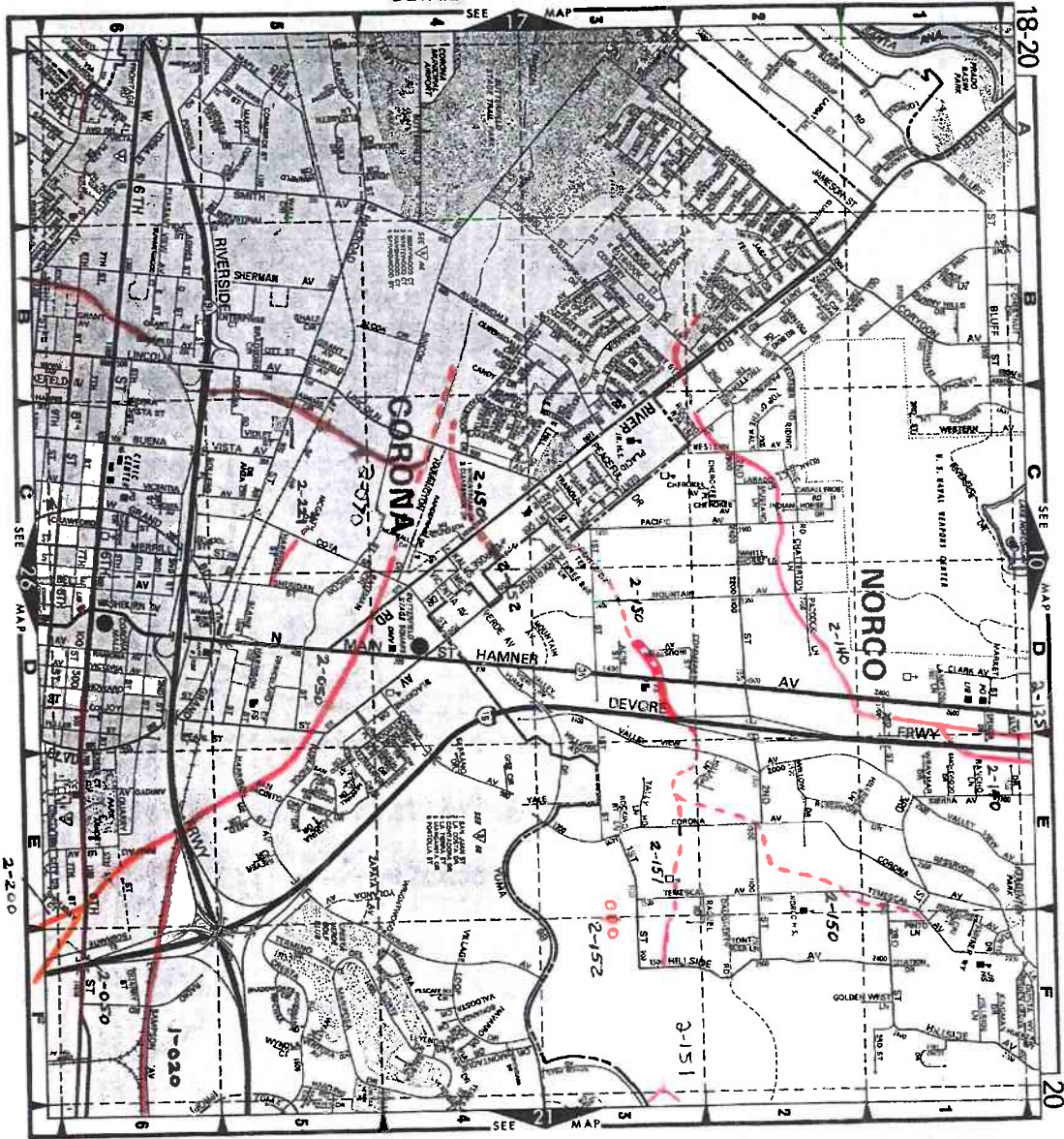
IMPROVED CHANNELS AND BASINS MAINTENANCE LISTING

ZONE 2

PROJECT <u>NO.</u>	PROJECT <u>NAME</u>	DESCRIPTION <u>(PROJECT TYPE)</u>	LOCATION (See Thomas Bros. Map)		AUTHORIZED ACTIVITIES <u>(SEE COVER SHEET OF EXHIBIT 1 AND SECTION II OF MOU)</u>
			<u>PAGE NO.</u>	<u>GRID</u>	
2-0135	North Norco Channel Frwy Lat.	Concrete trap. channel	10	E6	GROUP 2
			20	D1, E1	
2-0140	North Norco Channel	Concrete trap., concrete rectangular channels	10	E5, 6	GROUP 2
			20	B3, C2, D1, 2, E1	
	North Norco Channel	Earthen trap. channel	10	E4, 5, F4	GROUP 1
			20	B2, 3	
2-0142	North Norco Channel Line NA	Concrete rectangular wall	10	E5, F5	GROUP 2
2-0145	North Norco Channel Line NB	Concrete trap. channel	10	E6, F6	GROUP 2
	North Norco Channel Line NB	Earthen trap. channel	10	E6	GROUP 1
2-0150	South Norco Channel	Concrete channel	20	D3	GROUP 2
	South Norco Channel	Earthen trap. channel with and without bank protection	20	C3, D3, E1-3, F1	GROUP 1

DETAIL

RIVERSIDE CO.



18-20

SEE MAP 10

MAP D 2-135

SEE MAP 11

MAP E 2-135

20

2-200

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Appendix B

FEDERAL JURISDICTIONAL INFORMATION



Appendix A FEDERAL JURISDICTIONAL INFORMATION

Wetlands and “Waters of the U.S.” Definitions

Wetlands. The U.S. Army Corps of Engineers (USACE; Federal Register 1982) and the Environmental Protection Agency (Federal Register 1980) jointly define wetlands as “[t]hose areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (Environmental Laboratory 1987).

Waters of the U.S. The official definition of “Waters of the U.S.” and their limits of jurisdiction (as they may apply) are defined by the USACE’ Regulatory Program Regulations (Section 328.3, paragraphs [a] 1-3 and [e], and Section 328.4, paragraphs [c] 1 and 2) as follows:

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 interstate or foreign commerce including any such waters,
 - i. which are or could be used by interstate or foreign travelers for recreation or other purposes; or
 - ii. from which fish or shellfish are or could be taken and sold in interstate commerce; or
 - 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 ...;
6. The territorial seas;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands)...

Non-tidal Waters of the U.S. The limits of jurisdiction in non-tidal waters: In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or when adjacent wetlands are present, the jurisdiction extends to the limit of the adjacent wetlands.

The term ordinary high water mark (OHWM) means 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 (scouring), the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Waters of the U.S. must exhibit an OHWM or other evidence of surface flow created by hydrologic physical changes. These physical changes include (Riley 2005):

- Natural line impressed on the bank
- Shelving
- Changes in the character of soil
- Destruction of terrestrial vegetation
- Presence of litter and debris
- Wracking
- Vegetation matted down, bent, or absent
- Sediment sorting
- Leaf litter disturbed or washed away
- Scour
- Deposition
- Multiple observed flow events
- Bed and banks
- Water staining
- Change in plant community

Further guidance on identifying the OHWM in the Arid Southwest (Lichvar and McColley 2008). This publication provided geomorphic and vegetation OHWM indicators specific to the Arid Southwest.

.Jurisdictional areas also must be connected to Waters of the U.S. (Guzy and Anderson 2001; U.S. Supreme Court 2001).

As a consequence of the U.S. Supreme Court decision in *Rapanos v. United States*, a memorandum was developed regarding Clean Water Act jurisdiction (Grumbles and Woodley 2007). The memorandum states that the EPA and the USACE will assert jurisdiction over traditional navigable waters (TNW), wetlands adjacent to TNW, tributaries to TNWs that are a relatively permanent water body (RPW), and wetlands adjacent to TNW. An RPW has year round flow or continuous seasonal flow (i.e., typically for three months or longer). Jurisdiction over other waters (i.e., non TNW and RPW) will be based on a fact specific analysis to determine if they have a significant nexus to a TNW.

Pursuant to the USACE Instructional Guidebook (USACE and EPA 2007), the significant nexus evaluation will cover the subject reach of the stream (upstream and downstream) as well as its adjacent wetlands (Illustrations 2 through 6, USACE and EPA 2007). The evaluation will include the flow characteristics, annual precipitation, ability to provide habitat for aquatic species, ability to retain floodwaters and filter pollutants, proximity of the subject reach to a TNW, drainage area, and the watershed.

Wetland Criteria

Wetland boundaries are determined using three mandatory criteria (hydrophytic vegetation, wetland hydrology, and hydric soil) established for wetland delineations and described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008). Following is a brief discussion of the three criteria and how they are evaluated.

Vegetation

“Hydrophytic vegetation is defined herein as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present” (Environmental Laboratory 1987).

The wetland indicator status (obligate upland, facultative upland, facultative, facultative wetland, obligate wetland, or no indicator status) of the dominant plant species of all vegetative layers is determined. Species considered to be hydrophytic include the classifications of facultative, facultative wetland, and obligate wetland as defined in the current list of wetland plants of the Arid Southwest (Lichvar, et. al. 2014; Table A-1). The percent of dominant wetland plant species is calculated. The hydrophytic vegetation criterion is considered to be met if it meets the “Dominance Test,” “Prevalence Index,” or the vegetation has morphological adaptations for prolonged inundation.

Table A-1 DEFINITIONS OF PLANT INDICATOR CATEGORIES		
INDICATOR CATEGORIES	ABBREVIATION	QUALITATIVE DESCRIPTION
Obligate	OBL	Almost always occur in wetlands
Facultative Wetland	FACW	Usually occur in wetlands but may occur in non-wetlands
Facultative	FAC	Occur in wetlands and non-wetlands
Facultative Upland	FACU	Usually occur in non-wetlands but may occur in wetlands
Upland	UPL	Almost never occur in wetlands

Hydrology

“The term ‘wetland hydrology’ encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic reducing conditions, respectively” (Environmental Laboratory 1987).

Hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least 5 percent of the growing season during a normal rainfall year (approximately 18 days for most of low-lying southern California). Hydrology criteria are evaluated based on the characteristics listed below (USACE 2008). Where positive indicators of wetland hydrology are present, the limit of the OHWM (or the limit of adjacent wetlands) is noted and mapped. Evidence of wetland hydrology is met by the presence of a single primary indicator or two secondary indicators.

Primary

- surface water (A1)
- high water table (A2)
- saturation (A3)
- water marks (B1; non-riverine)
- sediment deposits (B2; non-riverine)
- drift deposits (B3; non-riverine)
- 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)

Secondary

- watermarks (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)

In the absence of all other hydrologic indicators and in the absence of significant modifications of an area's hydrologic function, positive hydric soil characteristics are assumed to indicate positive wetland hydrology. This assumption applies unless the site visit was done during the wet season of a normal or wetter-than-normal year. Under those circumstances, wetland hydrology would not be present.

Soils

The USACE and Environmental Protection Agency, in their administration of Section 404 of the Clean Water Act, rely on the National Technical Committee for Hydric Soils (NTCHS) for a definition of hydric soils. According to the NTCHS "A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part." (Federal Register 1994)

Soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation. Soil matrix and mottle colors are identified at each sampling plot using a Munsell soil color chart (Kollmorgen 1994). Generally, an 18-inch or deeper pit is excavated with a shovel at each sampling plot unless refusal occurs above 18 inches.

Soils in each area are closely examined for hydric soil indicators, including the characteristics listed below. Hydric soil indicators are presented in three groups. Indicators for "All Soils" (A) are used in any soil regardless of texture, indicators for "Sandy Soils" (S) area used in soil layers with USDA textures of loamy fine sand or coarser, and indicators for "Loamy and Clayey Soils" (F) are used with soil layers of loamy very fine sand and finer (USACE 2008).

- histosols (A1)
- histic epipedons (A2)
- black histic (A3)
- hydrogen sulfide (A4)
- stratified layers (A5)
- 1 cm muck (A9)
- 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)
- 2 cm muck (A10)
- reduced vertic (F18)
- red parent material (TF2)

Hydric soils may be assumed to be present in plant communities that have complete dominance of obligate or facultative wetland species. In some cases, there is only inundation during the growing season and determination must be made by direct observation during that season, recorded hydrologic data, testimony of reliable persons, and/or indication on aerial photographs.

Non-wetland Waters of the U.S.

The non-wetland Waters of the U.S. designation is met when an area has periodic surface flows but lacks sufficient indicators to meet the hydrophytic vegetation and/or hydric soils criteria. For purposes of delineation and jurisdictional designation, the non-wetland Waters of the U.S. boundary in non-tidal areas is the OHWM as described in the Section 404 regulations (33 CFR Part 328).

USGS Mapping

The USGS Quad maps are one of the resources used to aid in the identification and mapping of jurisdictional areas. Their primary uses include understanding the subregional landscape position of a site, major topographical features, and a project's position in the watershed.

In our experience the designation of watercourse as a blue-line stream (intermittent or perennial) on USGS maps has been unreliable and typically overstates the hydrology of most streams. This has also been the experience of others, including the late Luna Leopold. Leopold was a hydrologist with USGS from 1952 to 1972, Professor in the Department of Geology and Geophysics, and Department of Landscape Architecture, University of California, Berkeley from 1972 to 1986, and Professor Emeritus from 1987 until his death in 2006. In regard to USGS maps, Dr. Leopold wrote "I tried to devise a way of defining hydrologic criteria for the channels shown on topographic maps and developed some promising procedures. None were acceptable to the topographers, however. I learned that the blue lines on a map are drawn by nonprofessional, low-salaried personnel. In actual fact, they are drawn to fit a rather personalized aesthetic." (1994)

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Appendix C

STATE JURISDICTIONAL INFORMATION



Appendix B
STATE JURISDICTIONAL INFORMATION

California Department of Fish and Wildlife Regulations

The California Department of Fish and Wildlife (CDFW; Department) regulates alterations or impacts to streambeds or lakes (wetlands) under Fish and Game Code Sections 1600 through 1616 for any private, state, or local government or public utility-initiated projects. The Fish and Game Code Section 1602 requires any entity to notify the Department before beginning any activity that will do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers and streams as well as lakes in the state.

In order to notify the Department, a person, state, or local governmental agency or public utility must submit a complete notification package and fee to the Department regional office that serves the county where the activity will take place. A fee schedule is included in the notification package materials. Under the Permit Streamlining Act (Government Code Sections 65920 et seq.), the Department has 30 days to determine whether the package is complete. If the requestor is not notified within 30 days, the application is automatically deemed to be complete.

Once the notification package is deemed to be complete, the Department will determine whether the applicant will need a Lake or Streambed Alteration Agreement (SAA) for the activity, which will be required if the activity could substantially adversely affect an existing fish and wildlife resource. If an SAA is required, the Department will conduct an on-site inspection, if necessary, and submit a draft SAA that will include measures to protect fish and wildlife resources while conducting the project. If the applicant is applying for a regular SAA (less than five years), the Department will submit a draft SAA within 60 calendar days after notification is deemed complete. The 60-day time period does not apply to notifications for long-term SAAs (greater than 5 years).

After the applicant receives the SAA, the applicant has 30 calendar days to notify the Department whether the measures in the draft SAA are acceptable. If the applicant agrees with the measures included in the draft SAA, the applicant will need to sign the SAA and submit it to the Department. If the applicant disagrees with any measures in the draft SAA, the applicant must notify the Department in writing and specify the measures that are not acceptable. Upon written request, the Department will meet with the applicant within 14 calendar days of receiving the request to resolve the disagreement. If the applicant fails to respond in writing within 90 calendar days of receiving the draft SAA, the Department may withdraw that SAA. The time periods described above may be extended at any time by mutual agreement.

After the Department receives the signed draft SAA, the Department will make it final by signing the SAA; however, the Department will not sign the SAA until it both receives the notification fee and ensures that the SAA complies with the California Environmental Quality

Act (Public Resources Code Section 21000 et seq.). After the applicant receives the final agreement, the applicant may begin the project the agreement covers, provided that the applicant has obtained any other necessary federal, state and/or local authorizations.

Water Resource Control Board Regulations

Section 401 Water Quality Certification

Whenever a project requires a federal Clean Water Act (CWA) Section 404 permit or a Rivers and Harbors Act Section 10 permit, it must first obtain a CWA Section 401 Water Quality Certification. The Regional Water Quality Control Board (RWQCB) administers the 401 Certification program. Federal CWA Section 401 requires that every applicant for a Section 404 permit must request a Water Quality Certification that the proposed activity will not violate state and federal water quality standards.

Porter-Cologne Water Quality Control Act

The State Water Resource Control Board (SWRCB) and the RWQCB regulate the discharge of waste to waters of the State via the 1969 Porter-Cologne Water Quality Control Act (Porter-Cologne) as described in the California Water Code (SWRCB 2008). The California Water Code is the State's version of the Federal CWA. Waste, according to the California Water Code, 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. State waters that are not federal waters may be regulated under Porter-Cologne. A Report of Waste Discharge must be filed with the RWQCB for projects that result in discharge of waste into waters of the State. The RWQCB will issue Waste Discharge Requirements (WDRs) or a waiver. The WDRs are the Porter-Cologne version of a CWA 401 Water Quality Certification.

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Date unknown. Streambed/Lake Alteration Notification Guidelines.



Appendix D

PLANT SPECIES OBSERVED



Appendix D
PLANT SPECIES OBSERVED
SOUTH NORCO CHANNEL PROJECT AREA

<u>FAMILY</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>
DICOTS		
Anacardiaceae	<i>Schinus molle</i> *	Peruvian pepper tree
Asteraceae	<i>Corethrogyne filaginifolia</i>	California aster
Asteraceae	<i>Helianthus annuus</i>	annual sunflower
Asteraceae	<i>Heterotheca grandiflora</i>	telegraph weed
Asteraceae	<i>Pseudognaphalium luteo- album</i> *	Weedy cudweed
Asteraceae	<i>Sonchus asper</i> *	prickly sow-thistle
Asteraceae	<i>Sonchus oleraceus</i>	Common sowthistle
Boraginaceae	<i>Amsinckia menziesii</i> var. <i>intermedia</i>	common fiddleneck
Brassicaceae	<i>Brassica nigra</i> *	black mustard
Brassicaceae	<i>Hirschfeldia incana</i> *	short pod mustard
Brassicaceae	<i>Sisymbrium irio</i> *	London rocket
Chenopodiaceae	<i>Chenopodium album</i> *	lamb's quarter
Chenopodiaceae	<i>Salsola tragus</i> *	prickly Russian thistle
Fabaceae	<i>Medicago polymorpha</i> *	bur-clover
Geraniaceae	<i>Erodium spp.</i> *	filaree
Hydrophyllaceae	<i>Phacelia distans</i>	wild heliotrope
Malvaceae	<i>Malva parviflora</i> *	cheeseweed
Myrtaceae	<i>Eucalyptus sp.</i> *	eucalyptus
Plantaginaceae	<i>Veronica anagallis-aquatica</i> *	water speedwell
Polygonaceae	<i>Persicaria lapathifolia</i>	willow weed
Solanaceae	<i>Nicotiana glauca</i> *	tree tobacco
MONOCOTS		
Areaceae	<i>Washingtonia robusta</i> *	Mexican fan palm
Poaceae	<i>Avena barbata</i> *	slender wild oat
Poaceae	<i>Bromus diandrus</i> *	ripgut grass
Poaceae	<i>Bromus madritensis</i> ssp. <i>rubens</i> *	red brome
Poaceae	<i>Hordeum murinum</i> *	mouse barley
Poaceae	<i>Leptochloa univernia</i>	Mexican sprangletop
Poaceae	<i>Schismus barbatus</i> *	Mediterranean schismus
Poaceae	<i>Vulpia myuros</i> *	foxtail fescue
Typhaceae	<i>Typha sp.</i>	cattail

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Appendix E

ANIMAL SPECIES OBSERVED



Appendix E
ANIMAL SPECIES OBSERVED – SOUTH NORCO CHANNEL

<u>FAMILY</u>	<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>
INVERTEBRATES		
Branchinectidae	<i>Branchinecta lindahli</i>	Versatile fairy shrimp
Nymphalinae	<i>Vanessa cardui</i>	Painted lady butterfly
VERTEBRATES		
<u>Reptiles/Amphibians</u>		
	<i>Uta stansburiana</i>	side-blotched lizard
<u>Birds</u>		
Accipitridae	<i>Buteo jamaicensis</i>	red-tailed hawk
Cathartidae	<i>Cathartes aura</i>	turkey vulture
Charadriidae	<i>Charadrius vociferus</i>	killdeer
Columbidae	<i>Zenaida macroura</i>	mourning dove
Corvidae	<i>Aphelocoma californica</i>	western scrub jay
Corvidae	<i>Corvus brachyrhynchos</i>	American crow
Corvidae	<i>Corvus corax</i>	common raven
Fringillidae	<i>Carpodacus mexicanus</i>	house finch
Icteridae	<i>Icterus bullockii</i>	Bullock's oriole
Icteridae	<i>Sturnella neglecta</i>	western meadowlark
Recurvirostridae	<i>Himantopus mexicanus</i>	black-necked stilt
Trochilidae	<i>Calyppe anna</i>	Anna's hummingbird
Tyrannidae	<i>Sayornis nigricans</i>	black phoebe
Tyrannidae	<i>Sayornis saya</i>	Say's phoebe
Tyrannidae	<i>Tyrannus verticalis</i>	western kingbird

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Appendix F

EXPLANATION OF STATUS CODES FOR
PLANT AND ANIMAL SPECIES



Appendix F
EXPLANATION OF STATUS CODES FOR PLANT AND ANIMAL SPECIES

U.S. Fish and Wildlife Service (USFWS) California Department of Fish and Wildlife (CDFW)

FE Federally listed endangered
FT Federally listed threatened

SE State listed endangered
ST State listed threatened
SSC California species of special concern
SR State Rare
SFP State Fully Protected

COUNTY OF RIVERSIDE

MULTIPLE SPECIES HABITAT CONSERVATION PLAN (MSHCP) COVERED

MSHCP Covered Species indicates that the species is part of a proposed list of species (146 total) considered at this time to be adequately conserved by the Western Riverside MSHCP, provided that participants meet all conditions listed in the Final MSHCP. Some of these species require surveys.

MSHCP Not Covered

Not Covered refers to species that are not among the 146 species conserved under the MSHCP. Impacts to such species are assessed on an individual basis. If impacts are considered significant, additional mitigation may be required.

MSHCP Special Species Acronyms/Abbreviations

NEPSSA Narrow Endemic Plant Species Survey Area species – Plant species that are highly restricted by their habitat affinities, edaphic requirements, or other ecological factors, and for which specific conservation measures have been identified in *Section 6.1.3* of the *MSHCP, Volume I*.

CASSA Criteria Area Species Survey Area – Species for which existing available information is not sufficient and for which specific conservation measures have been identified in *Section 6.3.2* of the *MSHCP, Volume I*.

Planning Species Refers to species for which conservation requirements of a Subunit or Linkage are specifically designed to provide long-term conservation for the species. Planning species are also MSHCP covered species.

Appendix F (cont.)
EXPLANATION OF STATUS CODES FOR PLANT AND ANIMAL SPECIES

Federal Forest Service Code

Federal:

FS U.S. Department of Agriculture Forest Service Sensitive

The USDA Forest Service defines sensitive species as those plant and animal species identified by a regional forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce a species existing distribution. Regional foresters shall identify sensitive species occurring within the region. More information is available at <http://www.fs.fed.us/r5/projects/sensitive-species>.

California Native Plant Society (CNPS) Ranks

Ranks	Threat Ranks
1A Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere	0.1 Seriously threatened in California (over 80 percent of occurrences threatened / high degree and immediacy of threat)
1B Plants Rare, Threatened, or Endangered in California and Elsewhere	0.2 Moderately threatened in California (20 to 80 percent occurrences threatened / moderate degree and immediacy of threat)
2A Plants Presumed Extirpated in California, But Common Elsewhere	0.3 Not very threatened in California (less than 20 percent of occurrences threatened / low degree and immediacy of threat or no current threats known)
2B Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere	A “CA Endemic” entry corresponds to those taxa that only occur in California.
3 Plants About Which More Information is Needed	All List 1A (presumed extinct in California) and some List 3 (need more information; a review list) plants lacking threat information receive no extension. Threat Code guidelines represent only a starting point in threat level assessment. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Code.
4 Plants of Limited Distribution	



Appendix C


JURISDICTIONAL DELINEATION REPORT



South Norco Channel, Line S-1 Project

Jurisdictional Delineation Report

June 18, 2015



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Principal Biologist

Prepared for:
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South Norco Channel, Line S-1 Project Jurisdictional Delineation Report

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I. INTRODUCTION

This report presents the results of a jurisdictional delineation for the proposed South Norco Channel, Stage 6 project (Project). The Project is being undertaken by the Riverside County Flood Control and Water Conservation District (District) and consists of a 10-year flood underground storm drain system (underground storm drain pipes, S-1 and S-5, that would connect from the South Norco Channel) and a 100-year flood open channel. This delineation was conducted to identify and map existing areas within the study area that are wetlands and Waters of the U.S. (WUS) under U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (33 United States Code [U.S.C.] 1344); wetland and streambed habitats under California Department of Fish and Wildlife (CDFW) jurisdiction pursuant to Section 1600 of the California Fish and Game Code; and Waters of the state (WS) pursuant to the Porter-Cologne Water Quality Control Act. This information is necessary to evaluate effects on jurisdictional areas and determine permit requirements for the proposed Project. This report presents HELIX Environmental Planning, Inc.'s (HELIX's) best efforts to quantify the amount of WUS and state jurisdictional habitats in the study area using the current regulations, written policies, and guidance from the agencies. The results presented here are subject to confirmation by the USACE, CDFW, and Regional Water Quality Control Board (RWQCB).

PROJECT LOCATION

The Project is located within the City of Norco and bounded to the west by Corona Avenue, to the east by Hillside Avenue, to the north by Hillside Lane, and to the south by Second Street (Figures 1 and 2). The study area is situated within the La Sierra Land Grant as shown on the U.S. Geological Survey (USGS) 7.5-minute Corona North quadrangle. Elevations within the study area range from approximately 640 to 705 feet above mean sea level (amsl).

The downstream limit of the Project is at the intersection of Second Street and Corona Avenue. The channel portion of the Project extends northeasterly from this intersection to the southwesterly corner of the Norco Intermediate School property adjacent to Temescal Avenue. Underground storm drains extend east and northeast of the channel along 3rd Avenue and through Norco Middle School and Hillside Lane. The 470-acre watershed from this location extends to the northwest. Most of the Project is along the existing channel alignment. The channel passes through Norco High School and mostly rural residential land uses.

A review of historical photographs of the area (NETR 2014) does not show a naturally occurring stream in the vicinity in which the Norco channel was constructed. The channel is clearly visible in the 1980 photos but absent from the 1967 photos. No stream or drainage is visible in the 1967 photos. It appears the channel was constructed in uplands to manage urban runoff. The channel was built in 1968 and is subject to ongoing maintenance by the District. Maintenance of the channel is covered by a Memorandum of Understanding between the CDFW and the District.

PROJECT DESCRIPTION

The primary objectives of the Project are to stabilize the existing earthen channel. Improvements to the South Norco Channel Stage 6 consist of lining approximately 3,200 linear feet (LF) of trapezoidal channel with concrete side slopes and a cobble lined, natural bottom. A 700-foot length of the existing open channel through the high school will be replaced with an underground box culvert.

Line S-1 is a below-ground storm drain extending from the South Norco Channel Stage 6 crossing of Third Street easterly within Third Street approximately 2,330 LF to Hillside Avenue, then northerly and southerly within Hillside Avenue approximately 150 and 70 LF, respectively. Line S-1 sizes range from 18-inch to 48-inch diameter reinforced concrete pipe (RCP). Lateral S-1B is a below-ground storm drain extending south from Line S-1 approximately 110 LF within Golden West Lane. Lateral S-1B consists of 18-inch and 24-inch diameter RCP.

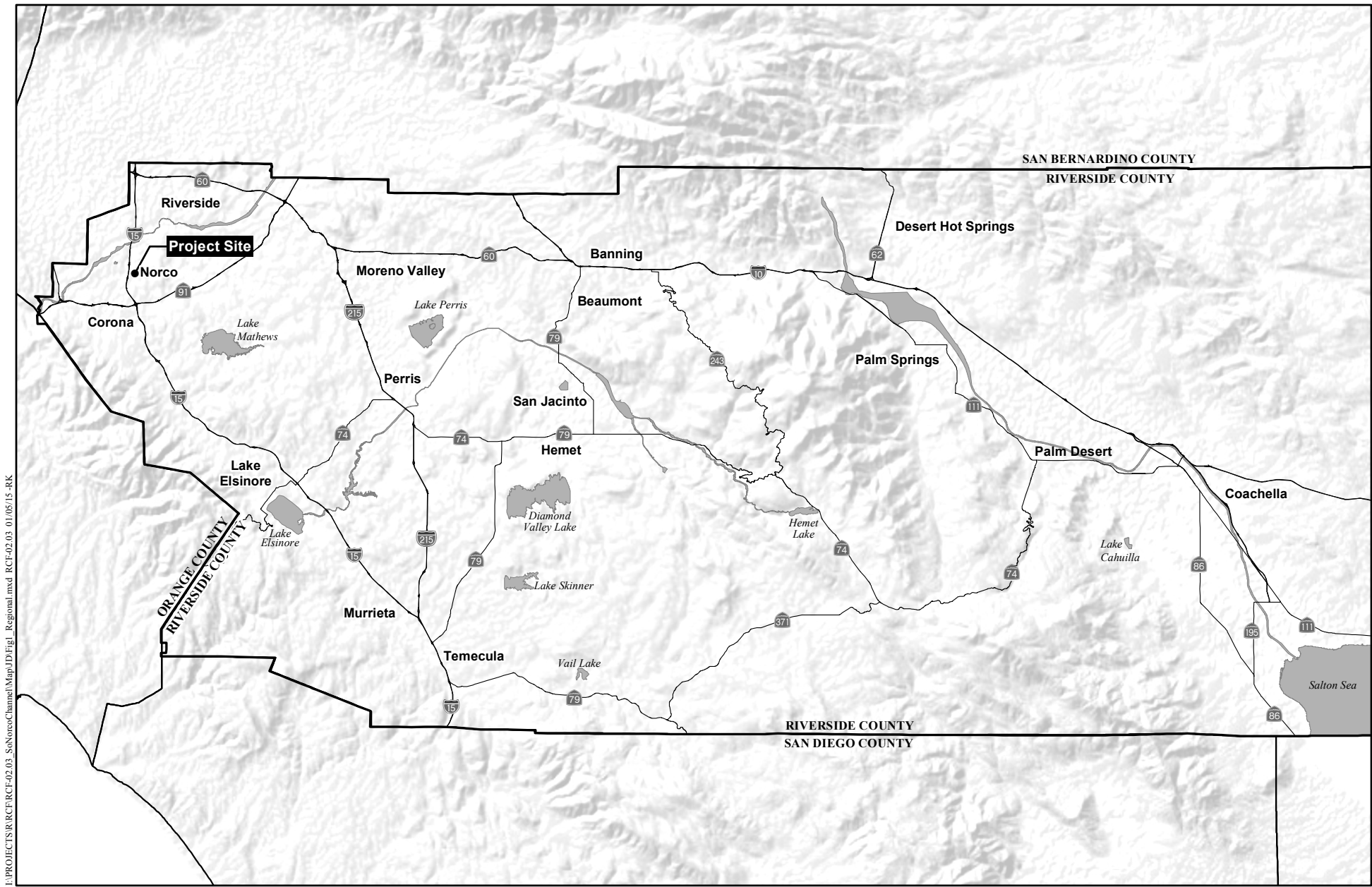
Line S-5 is a below-ground storm drain extending from the upstream end of South Norco Channel Stage 6, east and then north along the southern and eastern boundary of the Norco Intermediate School; east along Hillside Lane, a private street; and northerly and southerly within Hillside Avenue, 275 LF and 137 LF, respectively. This facility ranges in size from a 36-inch RCP to a 6-foot by 4-foot reinforced concrete box (RCB), and is approximately 3,250 LF.

The Project also includes pavement repair due to excavation and trenching along the channel and storm drain alignment, and additional street improvements along 1) Temescal Avenue, where an existing discontinuity in the travel width will be replaced with a smooth transition over a length of approximately 175 feet, including new asphalt concrete, and concrete curb and gutter; and 2) Hillside Lane, where the existing asphalt concrete pavement will be replaced with new asphalt concrete pavement over the full travel width (approximately 16 feet) and length (approximately 1,000 feet).

Construction of this Project will require relocation of several existing utilities. There are six waterline relocations consisting of two 6-inch, two 8-inch, one 10-inch, and one 30-inch waterline(s). There are nine gas line relocations consisting of three 2-inch, four 3-inch, and two 4-inch gas lines. There will be two utility pole relocations and one 10-inch concrete pipe (utility type unknown) to be relocated. Lastly, at two locations, buried telephone, cable, and/or electric lines may be relocated if required. Relocation of these dry lines is being evaluated and will be determined at a later date. The estimated cost of this Project is \$5,500,000.

II. METHODS

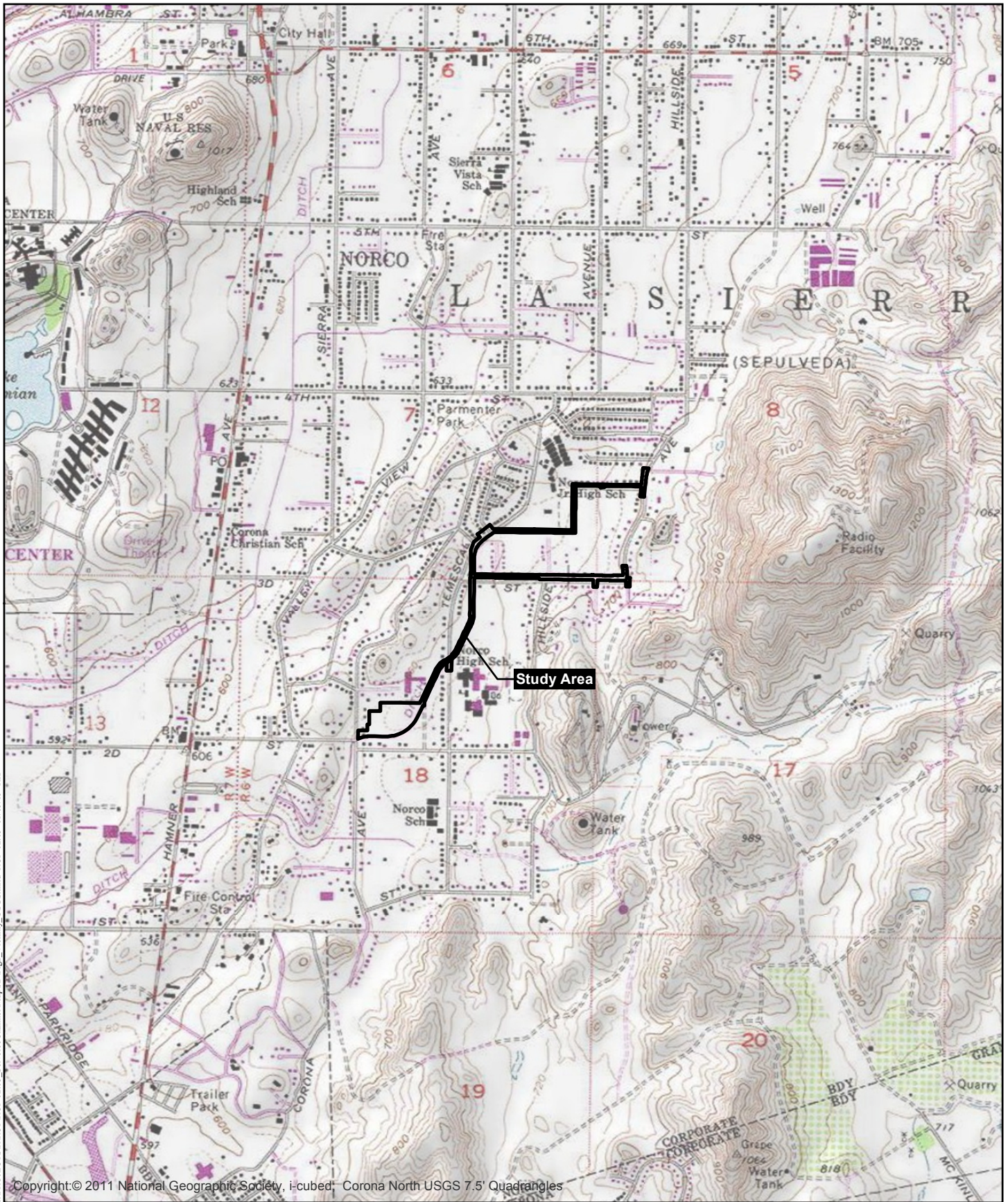
The project area was preliminarily evaluated for jurisdictional resources in 2012 (HELIX 2012). Since then the project design has been refined. This report provides an updated jurisdictional delineation based on a revised project footprint.



I:\PROJECTS\R\CF\RCF-02-03_SoNorcoChannel\Map\JD\Fig1_Regional.mxd RCF-02-03_01/05/15-RK

Regional Location

SOUTH NORCO CHANNEL



Project Vicinity - USGS Quadrangle

SOUTH NORCO CHANNEL

All areas with depressions, drainage channels, or wetland vegetation were evaluated for the presence of WUS, including jurisdictional wetlands, on December 23, 2014, by HELIX biologists W. Larry Sward and Robert Hogenauer.

The USACE wetland boundaries were determined using three criteria (vegetation, hydrology, and soils) established for wetland delineations as described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and Arid West Regional Supplement (USACE 2008a). Other references included memoranda (USACE 2007; Grumbles and Woodley 2007) that help clarify the wetland manual and recent court decisions.

The results presented here are also consistent with recent court decisions (i.e., *Rapanos v. United States*, *Carabell v. United States*, and *Solid Waste Agency of Northern Cook County v. USACE*), as outlined and applied by the USACE (USACE 2007; Grumbles and Woodley 2007); and USACE and Environmental Protection Agency (EPA; 2007); and EPA and USACE (2007). These publications explain that the EPA and USACE will assert jurisdiction over traditional navigable waters (TNW) and tributaries to TNWs that are a relatively permanent water body (RPW), which has year-round or continuous seasonal flow. For water bodies that are not RPWs, a significant nexus evaluation is used to determine if the non-RPW is jurisdictional. As an alternative to the significant nexus evaluation process, a preliminary jurisdictional delineation may be submitted to the USACE. The preliminary jurisdictional delineation treats all waters and wetlands on a site as if they are jurisdictional WUS (USACE 2008b). An overview of USACE wetlands and jurisdictional WUS definitions is presented in Appendix A.

Plants were identified according to *The Jepson Manual: Higher Plants of California* (Baldwin, et. al., 2012). Wetland affiliations of plant species follow the USACE' wetland plant list (Lichvar et., al. 2014). Soils information for the Project area was taken from the Natural Resource Conservation Service (NRCS) website (2013). Soil samples were evaluated for hydric soil indicators (e.g., hydrogen sulfide [A4], sandy redox [S5], depleted matrix [F3], redox dark surface [F6], redox depressions [F8], and vernal pools [F9]). Soil chromas were identified according to Munsell's Soil Color Charts (Kollmorgen 1994).

Sampling points were inspected for primary (e.g., surface water [A1], saturation [A3], water marks [non-riverine, B1], sediment deposits [non-riverine, B2], drift deposits [non-riverine, B3], surface soil cracks [B6], inundation visible on aerial imagery [B7], salt crust [B11], aquatic invertebrates [B13], hydrogen sulfide odor [C1], and oxidized rhizospheres along living roots [C3]) and secondary (e.g., water marks [riverine, B1], sediment deposits [riverine, B2], drift deposits [riverine, B3], drainage patterns in wetlands [B10], shallow aquitard [D3], and positive FAC neutral test [D5]) wetland hydrology indicators.

Areas were determined to be non-wetland WUS if there was evidence of regular surface flow (e.g., bed and bank) but the vegetation and/or soils criterion was not met. Jurisdictional limits for these areas were defined by the ordinary high water mark (OHWM), which is defined in 33 CFR Section 329.11 as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas."

The USACE has issued further guidance on the OHWM (Riley 2005; Lichvar and McColley 2008), which also has been used for this delineation.

The CDFW jurisdictional boundaries were determined based on the presence of riparian vegetation or regular surface flow. Streambeds within CDFW jurisdiction were delineated based on the definition of streambed as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses with surface or subsurface flow that supports riparian vegetation” (Title 14, Section 1.72). This definition for CDFW jurisdictional habitat allows for a wide variety of habitat types to be jurisdictional, including some that do not include wetland species (e.g., oak woodland and alluvial fan sage scrub). Jurisdictional limits for CDFW streambeds were defined by the top of bank. Vegetated CDFW habitats were mapped at the limits of jurisdictional vegetation. Definitions of CDFW jurisdictional areas are presented in Appendix B.

The WS jurisdictional boundaries encompass areas that are of interest to the RWQCB but are not subject to a 404 Permit. These typically include significant isolated water bodies, such as vernal pools.

Three sample points were evaluated and the data sheets for these are included as Appendix C. Photos of the data points, along with other site photos, are included in Appendix D.

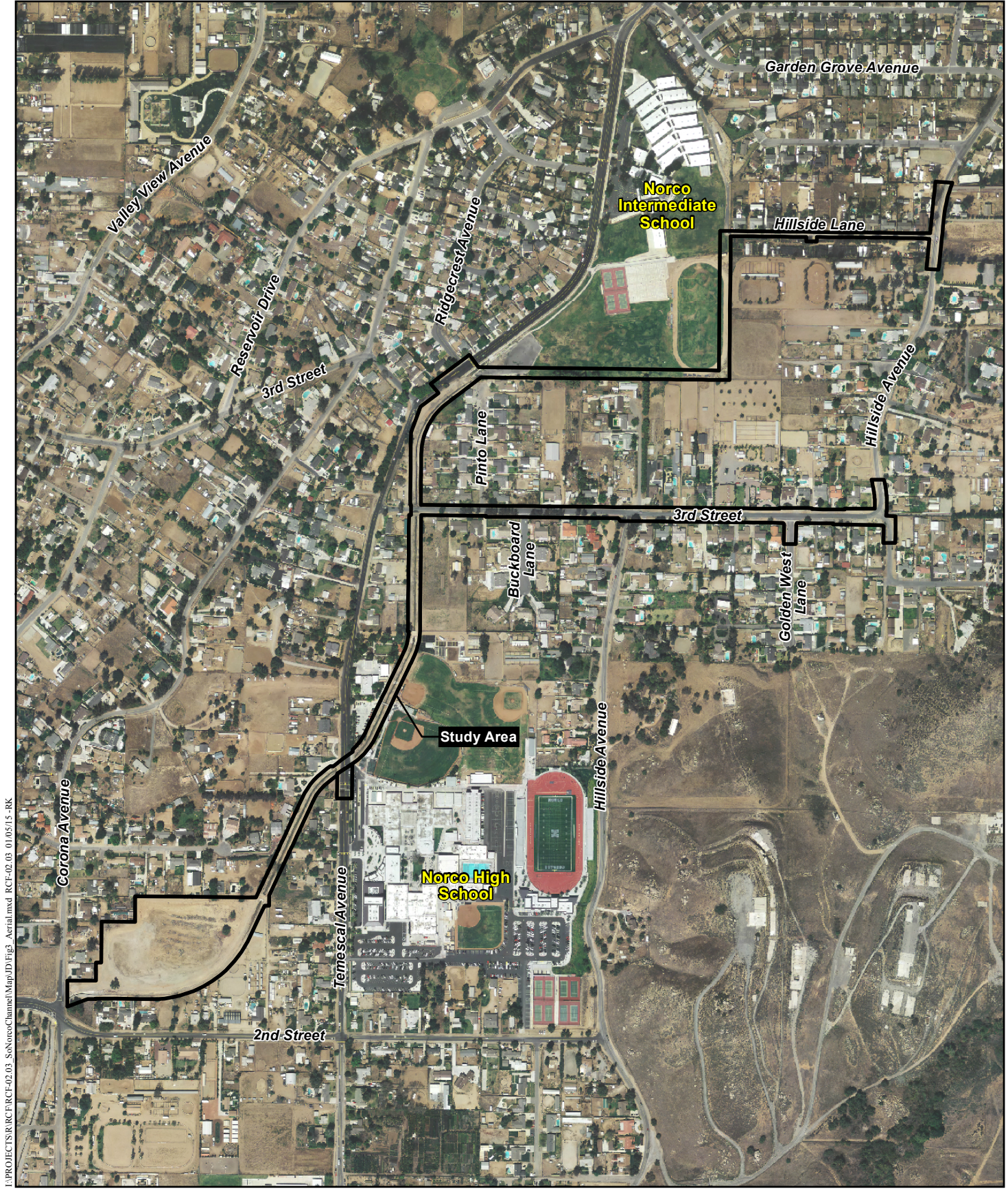
III. RESULTS

A. SITE DESCRIPTION

The proposed Project facilities are within an area that is primarily rural residential, with two schools, Norco Intermediate School and Norco High School (Figure 3). Other land uses in the Project area include agricultural (i.e., plant nurseries along the south side of Hillside Lane) and vacant land, which does not exhibit any apparent land uses.

Soils in the study area are mapped as sandy loams and represent 3 soil series: Placentia, Ramona, and Greenfield (Figure 4; NRCS 2013). Their Map Unit names are: Placentia fine sandy loam, 0 to 5 percent slopes; Placentia fine sandy loam, 5 to 15 percent slopes; Greenfield sandy loam, 2 to 8 percent slopes, eroded, and Ramona sandy loam, 0 to 5 percent slopes, severely eroded. The Greenfield series is comprised of well drained soils on alluvial fans and terraces that are derived from granitic materials. The Ramona series is also comprised of well drained soils on alluvial fans and terraces that developed in granitic alluvium. The Placentia series consists of moderately well-drained sandy loams that are found on alluvial fans and terraces that developed in alluvium comprised of granitic material. The soils within jurisdictional areas are almost exclusively Placentia fine sandy loam, 0 to 5 percent slopes.

The Placentia series has hydric inclusions as unnamed ponded soils in depressional landscape settings. The other soil types mapped in the study area are not hydric soils nor do they have known hydric inclusions (NRCS 2013); the study area soils are upland soils.



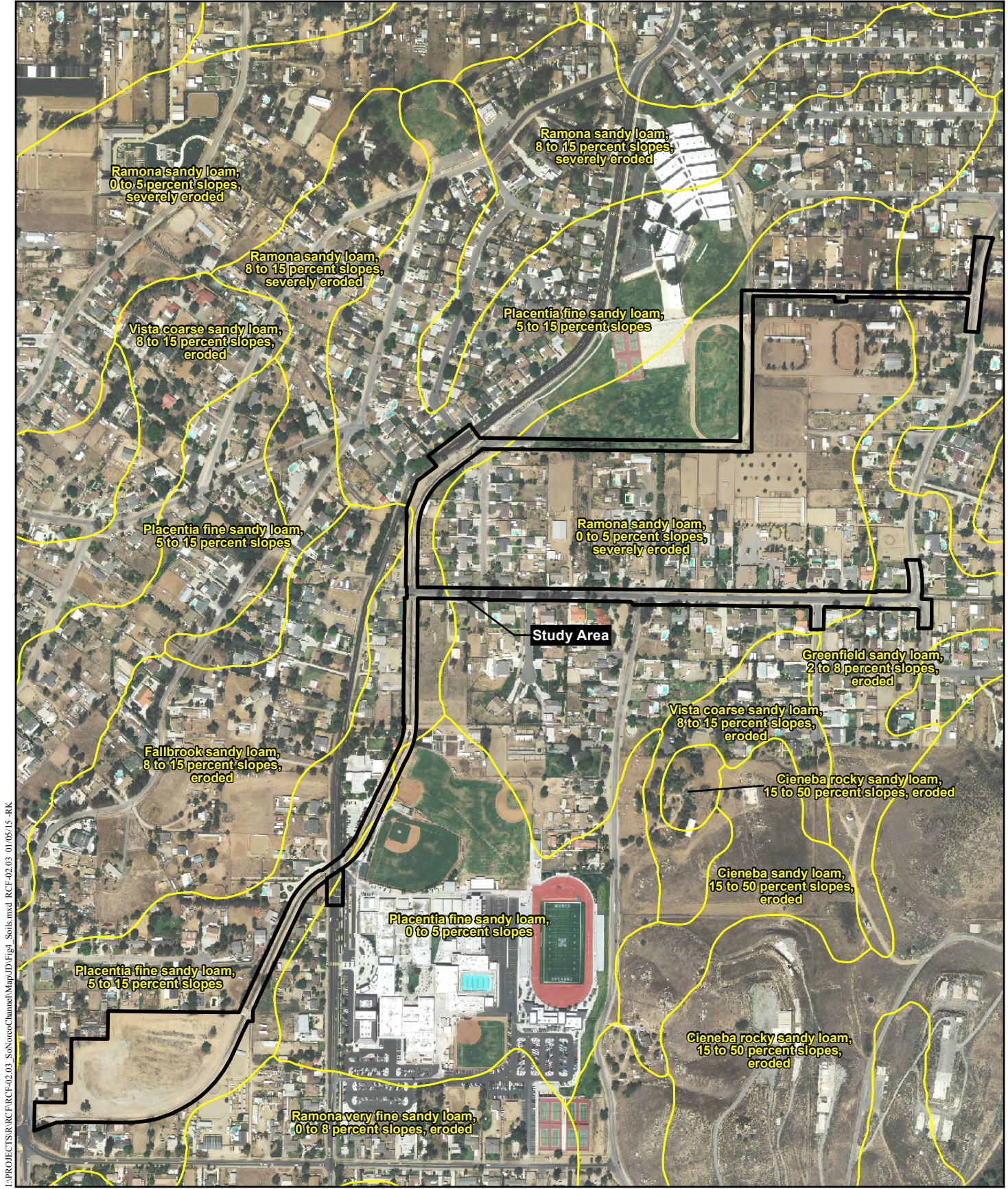
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Aerial Photograph

SOUTH NORCO CHANNEL



Figure 3



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Soils

SOUTH NORCO CHANNEL

The entire study area has is either developed or disturbed due to human activities (Figures 5a and 5b). Small portions of the site have also been mapped as ephemeral basin. The areas mapped as ephemeral basin were inundated at the time of this survey; their mapping, however, is based on our observations, and recent and historical aerial photographs.

Portions of the channel are included in the National Wetlands Inventory (NWI; Figure 6; U.S. Fish and Wildlife Service [USFWS] 2015). The NWI mapping for the channel is riverine, intermittent, streambed, seasonally flooded, excavated (R4SBCx).

The existing channel is an unlined, trapezoidal channel, except for culverts under road crossings. The channel immediately east of the intersection Corona Street and Second Avenue is lined with concrete or riprap. Several sections of the channel are culverted, including at Temescal Avenue, near the high school, just north of the high school, 3rd Street, and at two places not associated with a street. One is approximately half way between Corona and Temescal Avenues, and the other is approximately half way between Temescal Avenue and 3rd Street. The channel ends at the Norco Intermediate School property. The Project sections along Third Street, Hillside Lane, Hillside Avenue, and Golden West Lane are in previously developed areas.

B. JURISDICTIONAL HABITATS

The study area includes WUS (Figures 7a and 7b), CDFW jurisdictional habitat and WS (Figures 8a and 8b). The wetland WUS are comprised of herbaceous wetland, disturbed wetland, and non-wetland streambed. Typically the CDFW jurisdictional habitat would include the same types of jurisdictional habitats but encompass a slightly larger area due to a less restrictive definition of jurisdictional habitats. However, because the District has a Memorandum of Understanding (MOU) with CDFW allowing them to maintain Norco Channel (Appendix E), the small amount of wetland vegetation observed during the delineation is not considered as jurisdictional wetland habitat. The underlying streambed and non-vegetated streambed elsewhere, however, is considered jurisdictional. The WS includes the seasonal basins. The description of the various jurisdictional areas observed in the Project area is provided below.

1. Wetland WUS/Herbaceous Wetland

This vegetation community often occurs in habitats that are subject to frequent or regular flooding. This community is often dominated by low-growing herbaceous species that are adapted to an anaerobic environment, but can also include species that obtain a height of up to 2 meters. This habitat on the project site occurs within the south Norco channel and is dominated by the native Mexican sprangletop (*Leptochloa fusca uninervia*), with a few emergent cattails (*Typha* sp.).

2. Wetland WUS/Disturbed Wetland

This vegetation community is dominated by exotic wetland species that invade areas that have been disturbed or have undergone periodic disturbances. These non-natives become established more readily following natural or human-induced habitat disturbance than the native wetland flora. Characteristic species of disturbed wetlands include ox tongue (*Picris echioides*),

cocklebur (*Xanthium strumarium*), and tamarisk (*Tamarix* sp.). In the project area, this habitat occurs within the south Norco channel and is dominated by the non-native water speedwell (*Veronica anagalis-aquatica*), and also includes small numbers of willow weed (*Persicaria lapathifolia*), London rocket (*Sisymbrium irio*), sow thistle (*Sonchus oleraceus*), and cheeseweed (*Malva parviflora*).

3. Seasonal Basin

Seasonal basins are depressions that periodically hold water. A review of historical photographs shows that the basins did not exist in 1967 (see photo in Appendix D of HELIX 2012). Further evidence that these basins were recently created is the underlying topography on the channel's construction plans. The plans show a low ridge through the two eastern basins. These manmade features are an artifact of grading and soil compaction from the District's use of this lot. The area of the basins is used for storage of materials, including those materials removed from various flood control facilities (mud, vegetation, and other debris that clog flood control drains). The basins are mostly unvegetated and no vernal pool indicator plants were present. The seasonal basins are not vernal pools. Versatile fairy shrimp (*Branchinecta lindahli*) were observed in the basins this spring (Helix 2015).

4. Non-wetland WUS/Streambed





The South Norco channel is regarded as non-wetland WUS (see site photos in Appendix D). The earthen sections of the South Norco channel are also regarded as CDFW streambed. The drainage is intermittent and is essentially unvegetated, supporting sparse amounts of upland species such as prostrate amaranth (*Aphanisma blitoides*) and several wetland species in such a low density that the channel is regarded by the Arid West Supplement (2008a) as unvegetated over most of its length.

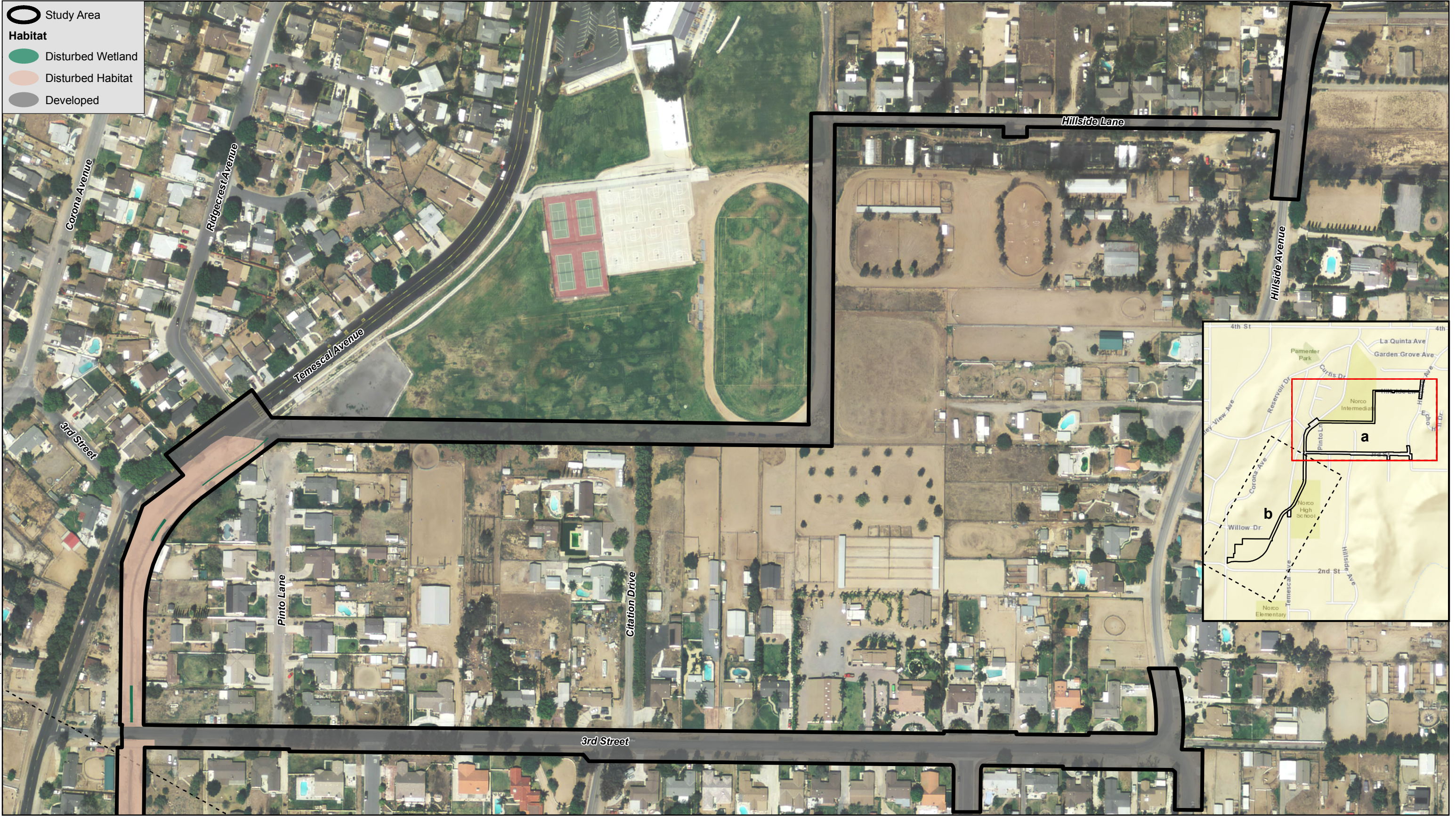
C. SAMPLING POINTS

Three sample points were evaluated within the study area (Figures 7a, 7b, 8a, and 8b) and are described below.

Sample Point 1. This sample point was located in an earthen channel at the central part of the study area (Figures 7b and 8b). This section of the channel is included in the NWI mapping as Riverine (USFWS 2015). Wetland hydrology was present but hydric soil was not and the channel is unvegetated. The absence of wetland vegetation may be the result of periodic channel maintenance. This area met only one of the three USACE wetland criteria and is therefore not a USACE wetland; however, it is a non-wetland WUS and CDFW jurisdictional streambed.

Sample Point 2. This sample point was located in the earthen channel near the southern end of the channel (Figures 7b and 8b). This section of the channel is included in the NWI mapping as Riverine (USFWS 2015). Wetland hydrology (A2, A3, B3-riverine, and D5), hydric soils (F6), and wetland vegetation (Dominance Test) were all present. The vegetation was dominated by Mexican sprangletop (*Leptochloa fusca uninervia*), a FACW native species. The vegetation

-  Study Area
- Habitat**
-  Disturbed Wetland
-  Disturbed Habitat
-  Developed







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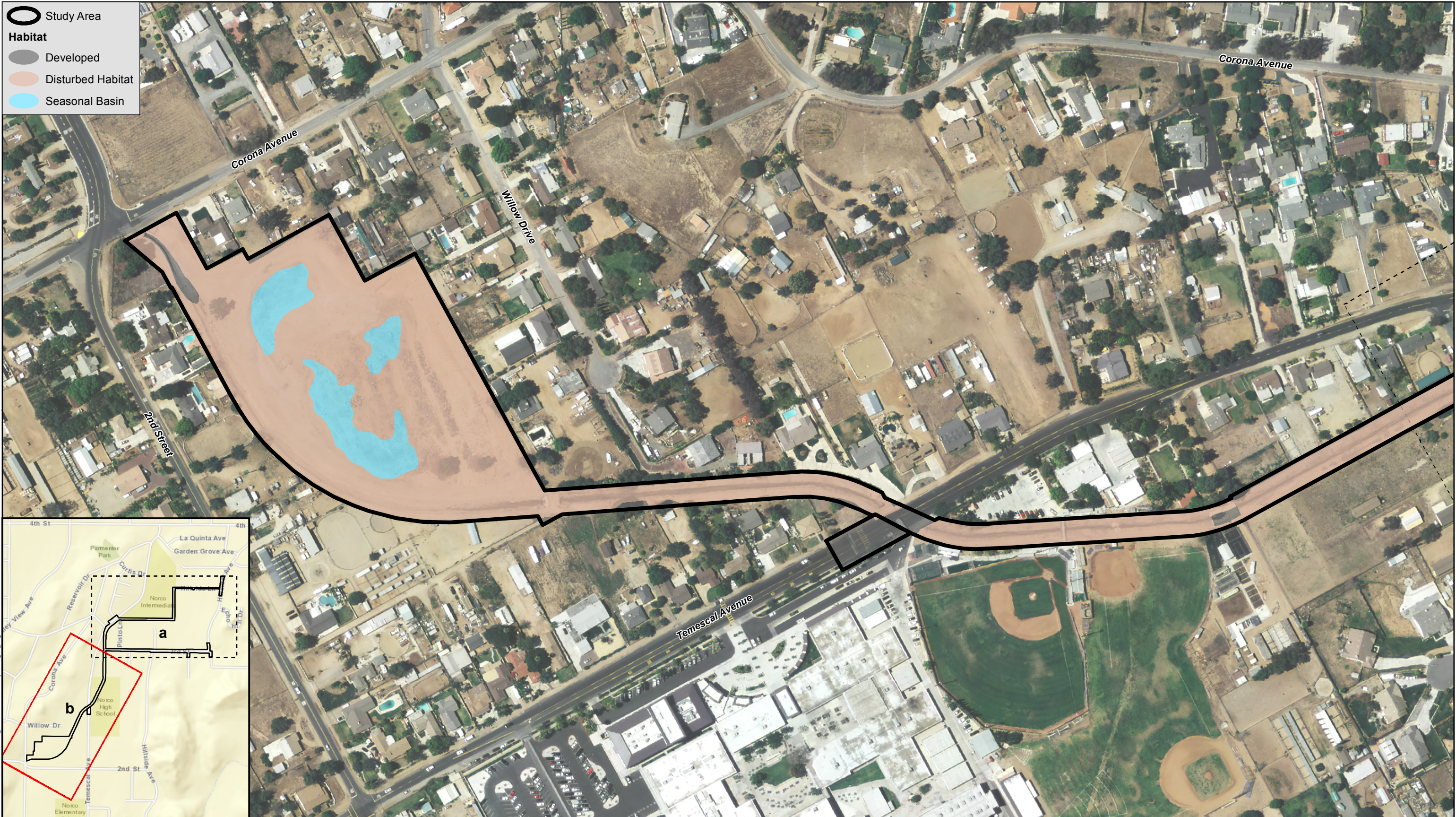
Vegetation

SOUTH NORCO CHANNEL



Figure 5a

-  Study Area
- Habitat**
-  Developed
-  Disturbed Habitat
-  Seasonal Basin







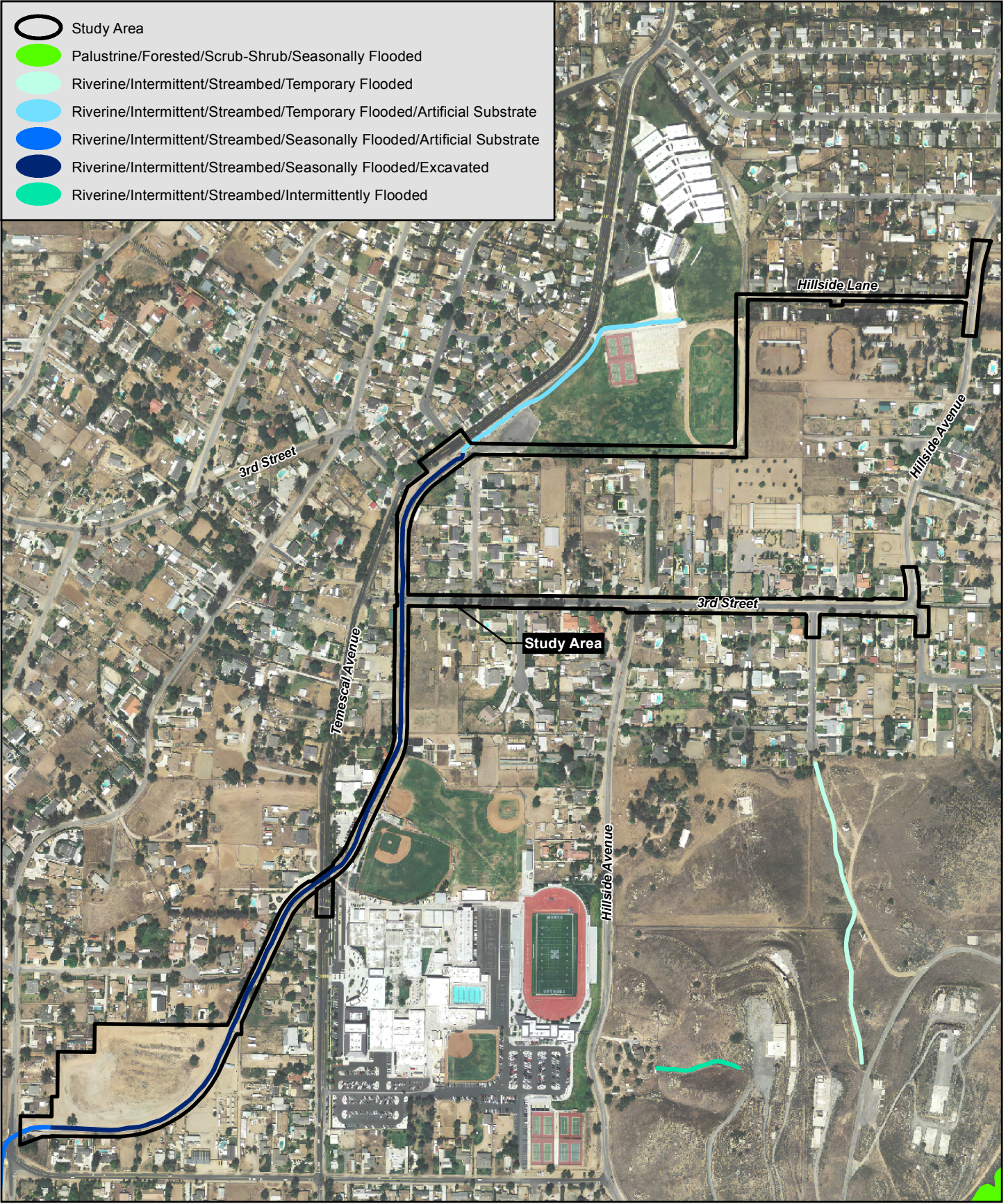
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Vegetation

SOUTH NORCO CHANNEL

Figure 5b

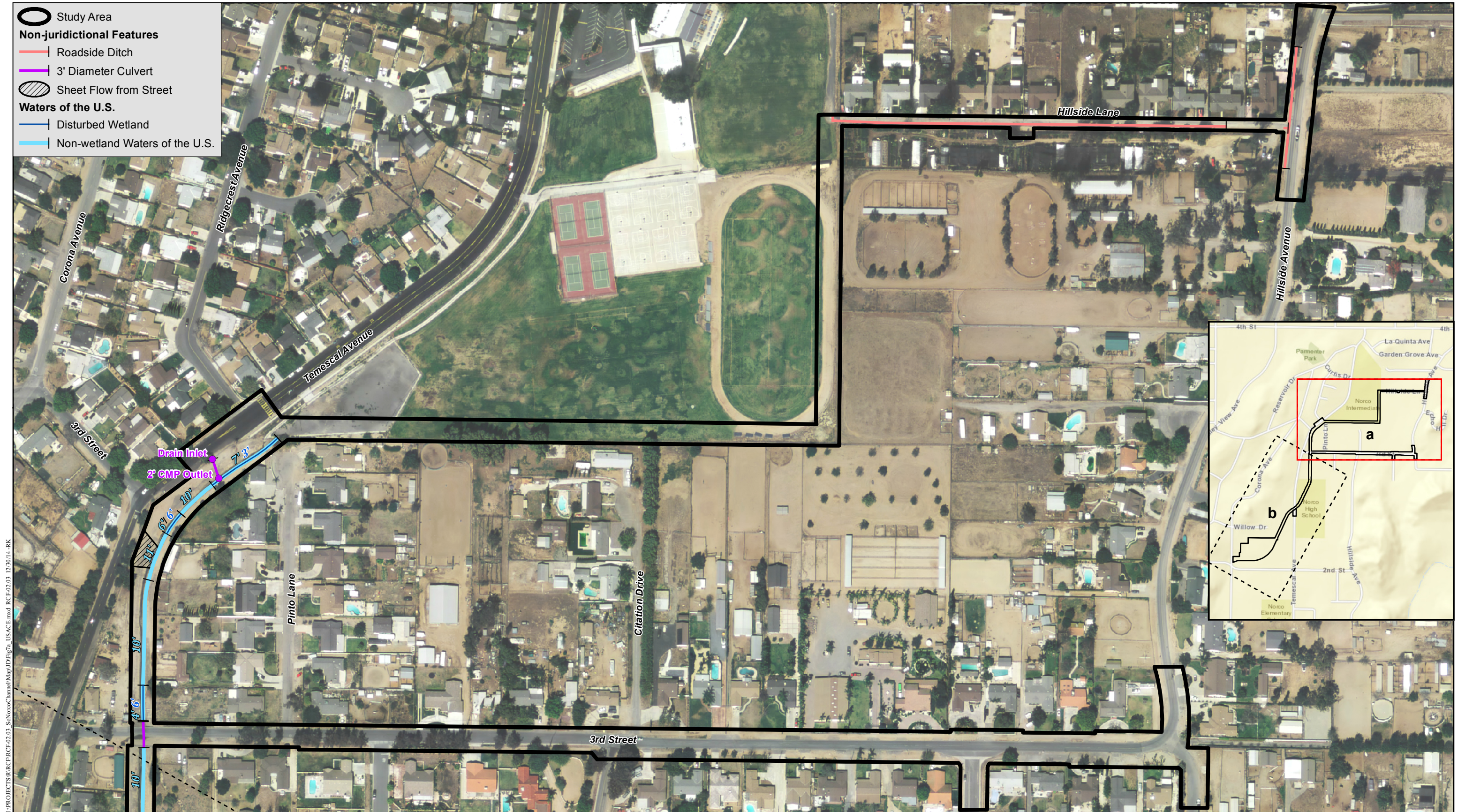
-  Study Area
-  Palustrine/Forested/Scrub-Shrub/Seasonally Flooded
-  Riverine/Intermittent/Streambed/Temporary Flooded
-  Riverine/Intermittent/Streambed/Temporary Flooded/Artificial Substrate
-  Riverine/Intermittent/Streambed/Seasonally Flooded/Artificial Substrate
-  Riverine/Intermittent/Streambed/Seasonally Flooded/Excavated
-  Riverine/Intermittent/Streambed/Intermittently Flooded



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National Wetlands Inventory

SOUTH NORCO CHANNEL



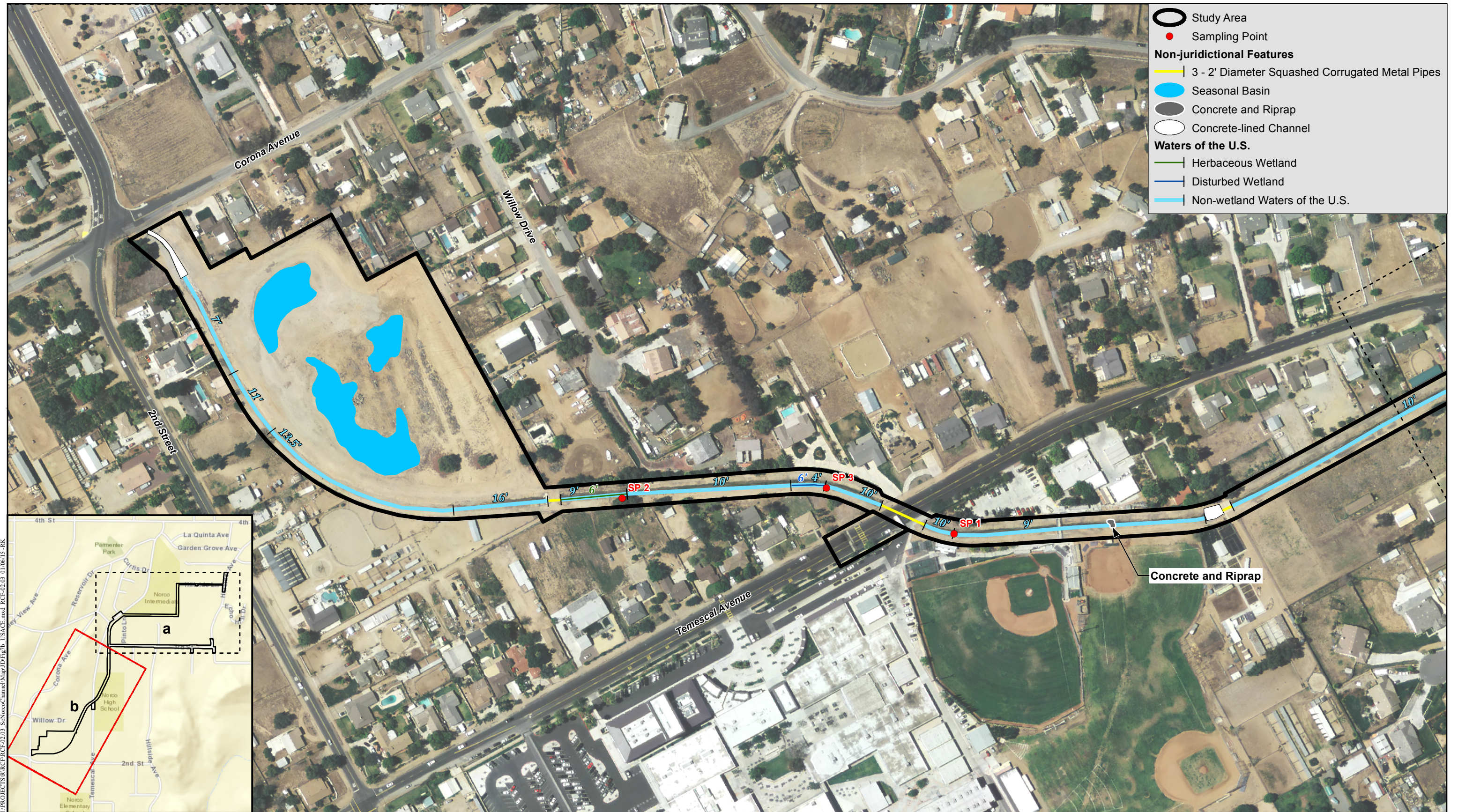
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Waters of the U.S.

SOUTH NORCO CHANNEL



Figure 7a

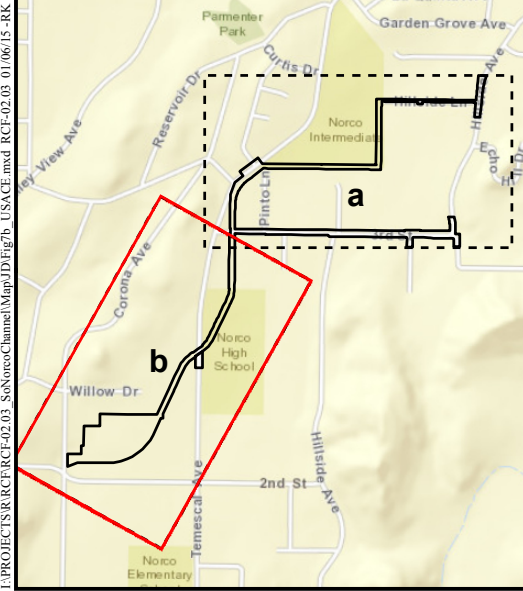


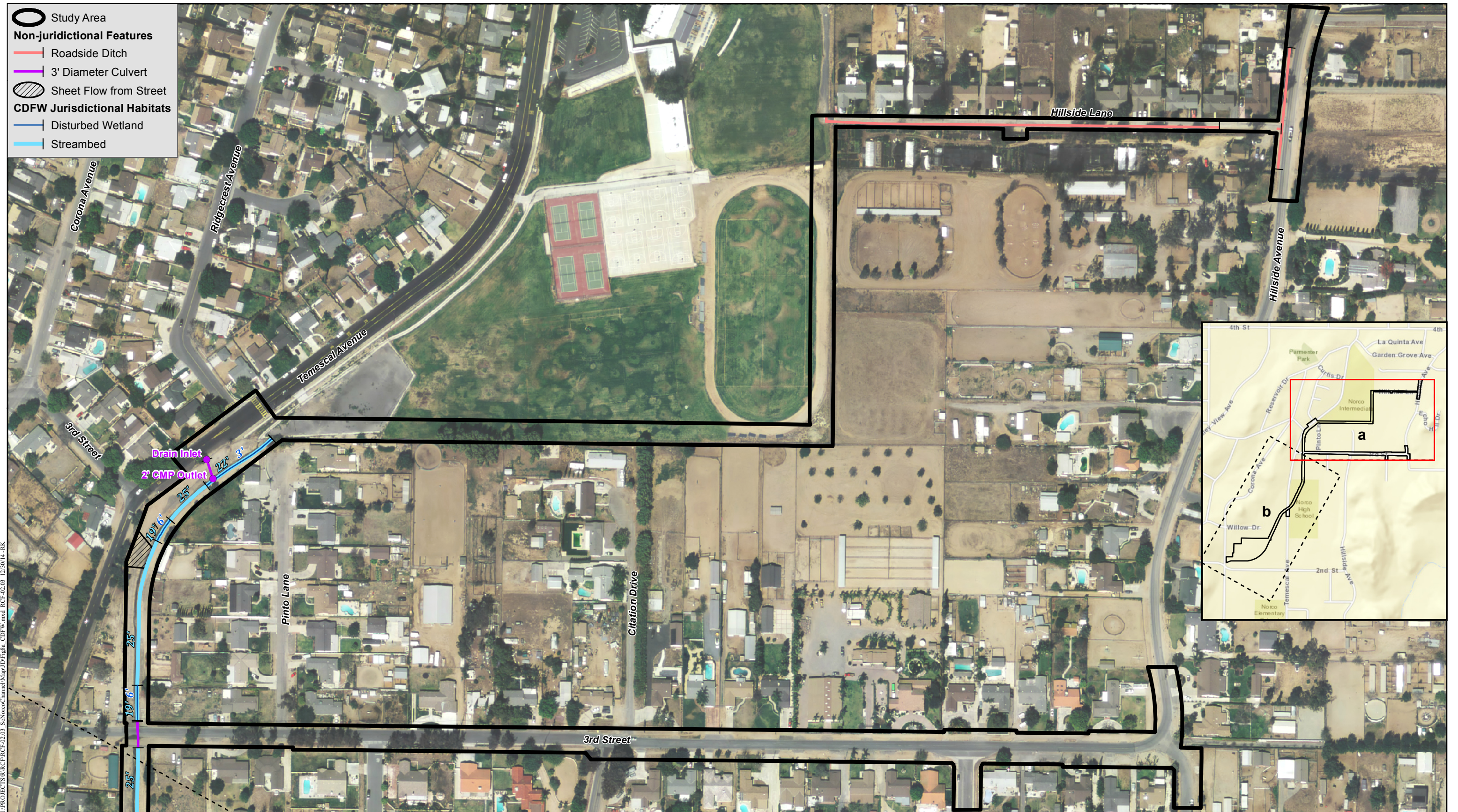
- Study Area
- Sampling Point
- Non-jurisdictional Features**
- 3 - 2' Diameter Squashed Corrugated Metal Pipes
- Seasonal Basin
- Concrete and Riprap
- Concrete-lined Channel
- Waters of the U.S.**
- Herbaceous Wetland
- Disturbed Wetland
- Non-wetland Waters of the U.S.

Concrete and Riprap

Waters of the U.S.

SOUTH NORCO CHANNEL





CDFW Jurisdictional Habitats and Waters of the State

SOUTH NORCO CHANNEL

I:\PROJECTS\RCE\CFE\03_SouthNorcoChannel\Map\1D\Fig8a_CDFW.mxd RCE-02.03 12/30/14-RR

community was determined to be herbaceous wetland. This area met all three of the USACE wetland criteria and is therefore a USACE wetland and is also a CDFW jurisdictional streambed.

Sample Point 3. This sample point was located in the south central portion of the earthen channel (Figures 7b and 8b). This section of the channel is included in the NWI mapping as Riverine (USFWS 2015). Wetland hydrology (A1, A2, A3, B3-riverine, and D5), hydric soils (F3), and wetland vegetation (Dominance Test) were all present. The vegetation was dominated by water speedwell (*Veronica anagalis-aquatica*), an obligate non-native species. The vegetation community was determined to be disturbed wetland. This area met all three of the USACE wetland criteria and is therefore a USACE wetland and is also a CDFW jurisdictional streambed.

D. JURISDICTIONAL SUMMARY

Areas within the study area that are under federal jurisdiction occur in the on-site drainage channel, and total 0.92 acre, including 0.06 acre wetland WUS and 0.86 acre of non-wetland WUS (Figures 7a and 7b; Table 1).

Table 1 WATERS OF THE U.S.		
WUS	AREA (acres)	LENGTH (feet)
Wetlands		
Herbaceous wetland	0.02	148
Disturbed wetland	0.04	390
Subtotal	0.06	538
Non-wetlands		
Intermittent drainage (Constructed flood control channel)	0.86	3,201
TOTAL	0.92	3,739

Areas within the study area that are under CDFW jurisdiction also occur within the on-site drainage channel, and total 2.05 acres, all of which is regarded as unvegetated streambed (Figures 8a and 8b; Table 2).

Table 2 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE JURISDICTIONAL HABITATS		
HABITAT	AREA (acres)	LENGTH (feet)
Herbaceous wetland	0.02	148
Disturbed wetland	0.04	390
Subtotal	0.06	538
Streambed (Constructed flood control channel)	1.99	3,201
TOTAL	2.05	3,739

The basins near the southern end of the Project are potentially WS and jurisdictional pursuant to the Porter-Cologne Water Quality Act. These basins are not regarded as WUS or CDFW jurisdictional habitat due to their isolation from any WUS or lake or streambed. These basins may occupy up to 1.06 acres in a wet year.

IV. CONCLUSION

A. FEDERAL PERMITTING

Federal jurisdictional areas occurring within the study area total 0.92 acre, comprised of 0.06 acre wetland WUS and 0.86 acre of intermittent non-wetland WUS. Impacts to WUS are regulated by the USACE under Section 404 of the CWA (33 USC 401 et seq.; 33 USC 1344; USC 1413; and U.S. Department of Defense, Department of the Army, U.S. Army Corps of Engineers 33 Code of Federal Regulations [CFR] Part 323). A federal CWA Section 404 Permit would be required for the Proposed Project. A CWA Section 401 Water Quality Certification administered by the Regional Water Quality Control Board must be issued prior to any 404 Permit.

Projects may be permitted on an individual basis or may be covered under one of several approved Nationwide Permits, based on the type of action, amount of fill, and size and length of impact. Individual Permits typically require substantial time (often longer than 12 months) to review and approve, while Nationwide Permits are pre-approved if a project meets appropriate conditions. This project will likely require an Individual Permit (IP). The applicable NWP or need for an IP would be determined by the USACE. It appears that federal permitting for impacts to WUS would be an Individual Permit.

B. STATE PERMITTING

The CDFW jurisdictional areas occurring within the study area total 2.05 acres comprised entirely of streambed. The CDFW regulates alterations or impacts to streambeds or lakes under California Fish and Game Code 1602, and requires a Streambed Alteration Agreement (SAA) for projects that will divert or obstruct the natural flow of water; change the bed, channel, or bank of any stream; or use any material from a streambed. The SAA is a contract between the applicant and CDFW stating what activities can occur in the riparian zone and stream course (California Association of Resource Conservation Districts 2002). Any impacts to CDFW habitat would be regulated under California Fish and Game Code 1602 (Appendix B) and require an SAA.

Areas subject to regulation under the Porter-Cologne Water Quality Act consist of 1.06 acres of unvegetated basins. A report of Report of Waste Water Discharge may be issued with the 401 Certification from the RWQCB.

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Appendix A

FEDERAL JURISDICTIONAL INFORMATION

