APPENDIX A

Jurisdictional Delineation Report

JURISDICTIONAL DELINEATION
FOR THE
LOS CERRITOS WETLANDS OIL CONSOLIDATION
AND RESTORATION PROJECT

CITY OF LONG BEACH
LOS ANGELES COUNTY, CALIFORNIA

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February 28, 2017

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I. INTRODUCTION

This report summarizes preliminary findings of potential U.S. Army Corps of Engineers (Corps), California Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) jurisdiction for four properties associated with the Los Cerritos Wetlands Oil Consolidation and Restoration Project (Project) in Long Beach.[1] This report also addresses wetlands for the subject properties as defined by the California Coastal Act under the jurisdiction of the California Coastal Commission (CCC).

The Project in Long Beach, Los Angeles County, California [Exhibit 1], occurs within the following properties:

Synergy Oil Field: The Synergy Oil Field consists of an approximately 150-acre property located at 6433 E. 2nd Street. The site is bound by Pacific Coast Highway to the west, 2nd Street to the south, Studebaker Road to the east and the Los Cerritos Channel to the north.

Pumpkin Patch site: The Pumpkin Patch site comprises an approximately seven-acre property located at 6701 E. Pacific Coast Highway. The site is located adjacent to the southern boundary of a single-story commercial-retail development called the Marketplace. The site is bound by Pacific Coast Highway to the west, the San Gabriel River to the south, the commercial-retail uses at the Marketplace to the north, and undeveloped land associated with the City-owned property to the east. The proposed project will occur on approximately five acres in the southwest portion of the site, with the remaining two acres in the northeast portion to be avoided. Adjoining the Pumpkin Patch site to the north is a 0.80-acre undeveloped parcel that is currently within the City's right-of-way.

Los Cerritos Wetlands Authority site: The Los Cerritos Wetlands Authority (LCWA) site consists of an approximately four-acre parcel located at the northeast corner of the 2nd Street and Studebaker Road intersection. The site is bound by Westminster Avenue to the south and Studebaker Road to the west, and is adjacent to buildings associated with industrial uses to the north and east.

City Property site: The City Property site is an approximately 33-acre site located at 2nd Street and Shopkeeper Road. The site is bound by Shopkeeper Road to the west, 2nd Street to the north, undeveloped land to the east, and the San Gabriel River to the south.

The four sites are depicted on the U.S. Geological Survey (USGS) topographic map Los Alamitos, California (dated 1964 and photorevised in 1981) [Exhibits 2 and 3]. Regulatory specialists of Glenn Lukos Associates, Inc. (GLA) examined the Synergy Oil Field, Pumpkin Patch Site, and LCWA Site from 2011 to 2017 to determine the potential limits of: (1) Corps jurisdiction pursuant to Section 404 of the Clean Water Act, (2) Corps jurisdiction pursuant to

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

Section 10 of the Rivers and Harbors Act, (3) RWQCB jurisdiction pursuant to Section 401 of the Clean Water Act and Section 13050 of the Porter Cologne Water Quality Control Act, (4) CDFW jurisdiction pursuant to Division 2, Chapter 6, Section 1600 of the Fish and Game Code, and (5) wetlands as defined under the California Coastal Act. GLA also examined off site areas adjacent to the perimeter boundary of the Synergy Oil Field and City Property site as a requirement by the City of Long Beach (City) to include sidewalks as a component of the overall Project. Sidewalk additions adjacent to the Pumpkin Patch and LCWA Sites are contained within the property boundaries studied for those sites.

Enclosed are aerial photographs (Exhibits 4 and 5) for the Synergy Oil Field and Pumpkin Patch site, respectively, that depict the areas of potential Corps and RWQCB jurisdiction pursuant to Sections 404 and 401 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, CDFW jurisdiction pursuant to Section 1602 of the Fish and Game Code, and wetlands as defined under the California Coastal Act for these properties. No jurisdiction was found on the LCWA site. Geographic Information Systems (GIS) data of the jurisdictional delineation for the City Property site was provided by the City on March 24, 2016 and is depicted on Exhibit 6. A vegetation map is provided as Exhibit 7 and photographs to document the topography, vegetative communities, and extent of the waters and wetlands are provided as Exhibit 8. Wetland data sheets are attached as Appendix A. Table 1 summarizes potential jurisdiction associated with each property.

Table 1:
Summary of Total Potential Jurisdiction (acres)

	Corps			CDFW		CCC
	Wetland	Non-Wetland	Section 10	Channel	Riparian	Wetland
Synergy Oil Field	35.40	4.96	55.53	3.18	13.94	100.48
- Offsite City Right-of-Way Adjacent to Synergy Oil Field	0.0	0.0	0.0	0.0	0.0	0.00
Pumpkin Patch Site	0.42	0.0	0.0	0.0	0.0	0.81
LCWA Site	0.0	0.0	0.0	0.0	0.0	0.0
City Property Site	21.04	0.0	0.0	0.0	5.07	21.04
- Offsite City Right-of-Way Adjacent to City Property Site	0.89	0.0	0.0	0.0	0.0	0.89
Total	**57.75**	**4.96**	**55.53**	**3.18**	**19.01**	**123.22**

*Total acreage may not equal sum of individual fields due to rounding.

II. METHODOLOGY

Prior to beginning the field delineation, color aerial photographs, topographic base maps of the properties, and the previously cited USGS topographic map were examined to determine the locations of potential areas of Corps/RWQCB/CDFW jurisdiction and wetlands defined by the California Coastal Act. In addition, the National Wetland Inventory Map for the area was

reviewed for potential wetlands [Exhibit 9][2]. On all but the City Property, potential jurisdictional areas were field checked for the presence of definable channels and/or wetland vegetation, soils and hydrology. Potential wetland areas on all sites but the City Property were evaluated using the methodology set forth in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual[3] (Wetland Manual) and the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0[4] (AWS v2.0). While in the field, the limits of Corps/RWQCB/CDFW jurisdiction and wetlands defined by the California Coastal Act were recorded using sub-meter GPS technology and/or recorded on a color aerial photograph using visible landmarks. Other data were recorded into field notebooks or on wetland data sheets, and the location of the point where data was collected was recorded using a GPS. Information provided in this report pertaining to potential jurisdictional areas on the City Property site was provided by the City of Long Beach through VCS Environmental.

It is also important to note a distinction between the Corps definition of wetlands and the definition set forth in the California Coastal Act, which results in potentially differing findings. Specifically, the Corps requires that for a positive wetland determination, a positive test for each of the wetland criteria (i.e., a predominance of wetland vegetation, hydric soils and wetland hydrology) must be present; whereas under the California Coastal Act, a positive determination for the presence of wetlands can rely on a single criterion (i.e., a predominance of wetland vegetation, hydric soils, or wetland hydrology). Nevertheless, the Coastal Commission staff relies on the AWS v2.0 and the National Wetland Plant List for making determinations relative to the presence of each criterion.

A. Hydrophytic Vegetation

The presence of hydrophytic wetland indictor plant species was determined based on ***The National Wetland Plant List***[5]

For each data collection point (see attached data sheets in Appendix A and discussion below for each of the wetland vegetation alliances investigated), vegetation data was collected in accordance with the Basic Dominance Test using the 50/20 rule. The description of the vegetation alliances identified on the site follows ***A Manual of California Vegetation, Second***

[2] It is important to note that the "on-line" versions of the National Wetland Inventory Maps are often inaccurate and cannot be relied upon for accurately depicting the presence of or location of wetlands. For example, the map for the project area shows the LWCA site as "Freshwater Pond" when in fact there are no wetlands on the LCWA site. As such, GLA's data sheets in Appendix A, either state "N/A" (not applicable) or are left blank for this entry. In addition, the National Wetland Inventory is based on ***Classification of Wetlands and Deepwater Habitats of the United States*** (Cowardin et. al., 1979, FWS/OBS-79/31) that considers wetlands present based on the presence of a predominance of wetland vegetation and/or hydric soils. The description of wetlands in Cowardin is generally consistent with the Coastal Act wetland definition but not with the definition used by the Corps.

[3] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

[4] U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). Ed. J.S. Wakeley, R.W. Lichevar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center and Engineering Laboratory.

[5] Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.

Edition (MCV II).[6] The MCV II was also used for the Biological Technical Report prepared for the Project and its use in this report ensures consistency between the Biological Technical Report and this report. A vegetation map of the site is included as Exhibit 7; however, as discussed in detail below, many areas that exhibit a predominance of plants with an indicator status of FAC or wetter (e.g., Pickleweed Mats), do not exhibit hydric soils and/or wetland hydrology and therefore are not wetlands in accordance with Section 404 of the Clean Water Act. Nevertheless, such areas generally meet the Coastal Acts one criteria/parameter test for wetlands.

B. Hydric Soils

The presence of hydric soils was determined in accordance with the AWS v2.0. At each data collection point, a soil pit was excavated using a "sharp-shooter" shovel to a minimum of 12 inches and the soil was evaluated for characteristics consistent with the presence of hydric soils such as, but not limited to, sulfidic odor, gleyed soils, and low-chroma matrix with redoximorphic features. In most instances, soil pits were excavated in areas such as drainage features or topographic depressions that exhibited at least some potential for wetland characteristics or in areas with a predominance of wetland indicator species.

The Soil Conservation Service (SCS)[7] has not mapped soils to a precise scale within the Project site; however, the following soil types are expected to occur based on similar sites to the north in Orange County such as the Santa Ana River Mouth, Upper Newport Bay and Bolsa Chica:

Bolsa Silt Loam
The Bolsa soil series are deep and somewhat poorly drained soils formed in mixed alluvium and are found in flood plans and basins. In a typical profile, the surface layer is dark greyish brown when moist with disseminated lime and is moderately alkaline. The subsoil ranges from dark grayish brown to light brownish-gray and extends to a depth of approximately 49 inches. Bolsa soils series are used for urban and for growing irrigated truck crops, lima beans and dryland barley. Vegetation in uncultivated areas is annual grasses and forbs.

Tidal Flats
Tidal Flats are nearly level areas adjacent to bays and lagoons along the coast. Periodically they are covered by tidal overflow. Some of the higher areas are only covered during very high tides. Tidal flats are stratified clayey to sandy deposits. They are poorly drained and high in salts.

Both of the above soil units are identified as hydric in the Natural Resources Conservation Service's, ***National Hydric Soils List***[8]. It is important to note that under the AWS v2.0, the presence of mapped hydric soils is no longer dispositive for the presence of hydric soils. Rather, the presence of hydric soils must now be confirmed in the field independent of previous mapping.

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[6] Sawyer, John O., Todd Keeler-Wolf, and Julie Evens. 2009. ***A Manual of California Vegetation, Second Edition***, California Native Plant Society.
[7] SCS is now known as the National Resource Conservation Service or NRCS.
[8] Natural Resources Conservation Service. 2015. ***National Hydric Soils List***, 2015 xlsx. http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/

C. Wetland Hydrology

The presence of wetland hydrology was determined in accordance with the AWS v2.0. Indicators typically observed in the field included: inundation, saturation, sediment deposits, drainage patterns, and secondary indicators FAC-Neutral test, dry season water table, and drainage patterns.

Table 2 provides the survey dates and types conducted on each property as it relates to jurisdictional delineations and determinations.

Table 2:
Summary of Wetland Delineation Site Visits

Survey Date	Survey Type	Personnel; Organization
Synergy Oil Field		
October 3, 2014	Jurisdictional Delineation	T. Pfeiffer, T. Bomkamp, D. Smith, GLA
February 5, 2015	Jurisdictional Delineation	T. Pfeiffer, D. Smith, GLA
August 14, 2015	Jurisdictional Delineation	P. Robinson, GLA
August 15, 2015	Jurisdictional Delineation	P. Robinson, GLA
August 17, 2015	Jurisdictional Delineation	P. Robinson, GLA
January 28, 2016	Jurisdictional Delineation	T. Bomkamp, GLA
February 4, 2016	Jurisdictional Delineation	T. Bomkamp, S. Asgari, P. Robinson, GLA
February 8, 2016	Jurisdictional Delineation	T. Bomkamp, GLA
February 11, 2016	Jurisdictional Delineation	L. Kessans, P. Robinson, GLA
February 23, 2016	Jurisdictional Delineation	T. Bomkamp, L. Kessans, P. Robinson, D. Smith, J. Fitzgibbon, GLA
February 26, 2016	Jurisdictional Delineation,	T. Bomkamp, L. Kessans, P. Robinson, D. Smith, GLA
March 25, 2016	Jurisdictional Delineation,	P. Robinson, GLA
April 18, 2016	Jurisdictional Delineation	T. Bomkamp, GLA
Pumpkin Patch		
November 11, 2013	Jurisdictional Delineation	T. Bomkamp, GLA
April 26, 2016	Jurisdictional Delineation	T. Bomkamp, GLA
LCWA		
February 26, 2016	Jurisdictional Determination	J. Fitzgibbon, GLA
City Property		
2010	Jurisdictional Delineation	AECOM
Not Available	Review of Previous Delineation	VCS Consulting

III. JURISDICTION

A. Army Corps of Engineers

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

> ***(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;***
> ***(2) All interstate waters including interstate wetlands;***
> ***(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect foreign commerce including any such waters:***
> ***(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or***
> ***(ii) From which fish or shell fish are or could be taken and sold in interstate or foreign commerce; or***
> ***(iii) Which are used or could be used for industrial purpose by industries in interstate commerce...***
> ***(4) All impoundments of waters otherwise defined as waters of the United States under the definition;***
> ***(5) Tributaries of waters identified in paragraphs (a) (1)-(4) of this section;***
> ***(6) The territorial seas;***
> ***(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1)-(6) of this section.***

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

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

Wetland Definition Pursuant to Section 404 of the Clean Water Act

The term “wetlands” (a subset of “waters of the United States”) is defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." In 1987 the Corps published a manual to guide its field personnel in determining jurisdictional wetland boundaries. The methodology set forth in the 1987 Wetland

Delineation Manual and the Arid West Supplement generally require that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics. While the manual and Supplement provide great detail in methodology and allow for varying special conditions, a wetland should normally meet each of the following three criteria:

- more than 50 percent of the dominant plant species at the site must be typical of wetlands (i.e., rated as facultative or wetter in the National Wetland Plant List[9]);

- soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color, or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and
- Whereas the 1987 Manual requires that hydrologic characteristics indicate that the ground is saturated to within 12 inches of the surface for at least five percent of the growing season during a normal rainfall year, the Arid West Supplement does not include a quantitative criteria with the exception for areas with "problematic hydrophytic vegetation", which require a minimum of 14 days of ponding to be considered a wetland.

B. Regional Water Quality Control Board

All of the wetland waters and non-wetland waters associated with the properties are Waters of the U.S. and therefore subject to Water Quality Certification by the RWQCB pursuant to Section 401 of the Clean Water Act. There are no "isolated" or "non-federal" waters that would be subject to waste discharge requirements under Porter Cologne.

C. California Department of Fish and Wildlife

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

CDFW defines a stream (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." CDFW also defines a stream as "a body of water that flows, or has flowed, over a given course during the historic hydrologic regime, and where the width of its course can reasonably be identified by physical or biological indicators."

It is important to note that the Fish and game Code defines fish and wildlife to include: all wild animals, birds, plants, fish, amphibians, invertebrates, reptiles, and related ecological communities including the habitat upon which they depend for continued viability (FGC Division 5, Chapter 1, section 45 and Division 2, Chapter 1 section 711.2(a) respectively).

[9] Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. ***The National Wetland Plant List***: 2014 update of wetland ratings. Phytoneuron 2014-41: 1–42.

Furthermore, Division 2, Chapter 5, Article 6, Section 1600 et seq. of the California Fish and Game Code does not limit jurisdiction to areas defined by specific flow events, seasonal changes in water flow, or presence absence of vegetation types or communities.

D. California Coastal Act/California Coastal Commission

Before addressing the specific findings for the subject properties, it is important to understand the methods used by the Coastal Commission for defining wetlands and the approaches used by Coastal Commission staff in implementing the Coastal Wetland definition. The Commission's "one parameter" wetland definition, taken from the California Code of Regulations Title 14, states:

> ***Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats*** (14 CCR Section 13577).

The presence of any one of three wetland indicators (hydrology, hydrophytes or hydric soils) qualifies an area as a wetland, pursuant to the CCC's definition. Furthermore, the CCC establishes the upland limit of a wetland as:

> ***(1) the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover***
> ***(2) the boundary between soil that is predominantly hydric and soil that is predominantly non-hydric; or***
>
> ***(3) in the case of wetlands without vegetation or soils, the boundary between land that is flooded or saturated at some time during years of normal precipitation, and land that is not*** (14 CCR Section 13577).

The Commission's determination of the presence of a "One Parameter Wetland" typically follows the methods contained U.S. Army Corps of Engineers 1987 Wetland Delineation Manual[10] (Wetland Manual) and more recently, the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (AWS v2.0)[11]**,** which for federal wetlands requires the presence of wetlands hydrology, hydric soils, and a predominance of hydrophytic vegetation. As noted, while the Commission relies on the federal manuals to

[10] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.
[11] U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. Ed. J.S. Wakeley, R.W. Lichevar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

establish the presence of any of the three parameters, typically the presence of a single parameter (e.g., a predominance of wetland vegetation) is sufficient for the Commission to make a presumptive finding for the presence of wetlands.

One final point relative to the delineation of wetlands as defined by the Coastal Act: Many of the perennial plants that occur in the salt marsh are facultative phreatophytes, such that when they are growing in non-tidal areas that have limited hydrology as is the condition in areas south of the berm that delineates the southern edge of Steamshovel Slough, these plants are tapped into groundwater or moist soils well below the 12-inch zone that is evaluated for wetland hydrology and hydric soil conditions in accordance with the AWS v2.0. For example, saltgrass roots have been documented to extend 11 feet below ground-level to reach groundwater.[12] In a handout for his "Arid Saline Wetlands Field Tour (January 2012), wetland scientist Jim Teaford lists (among others) the following genera as phreatophytic: ***Salicornia***, ***Suaeda***, ***Distichlis***, and ***Atriplex***.[13]

On pages 90 and 91 of the AWS v2.0, the issue of phreatophytes is discussed (in the AWS v. 2.0 the discussion relates to trees such as cottonwoods and willows; however, the same principal applies) with the caution that when deep-rooted plants are present, other factors must be considered when making a determination that such plants are indicative of wetlands. GLA has taken a conservative approach and not excluded any areas based on the potential that species such as ***Salicornia pacifica***, ***Arthrocnemum subterminale***, ***Distichlis spicata***, or ***Distichlis littoralis*** are growing as phreatophytes. Nevertheless, large areas dominated by these species on the site lack hydric soils and wetland hydrology, and may not be wetlands; nevertheless, they have been included as wetlands pursuant to the Coastal Act for this report.

IV. RESULTS

The results of the jurisdictional determination/delineation are provided in the sections below and depicted on Exhibits 4 – 6 for the following three sites: Synergy Oil Field, Pumpkin Patch site, and the City Property site, respectively. The LCWA site does not contain any jurisdictional waters of the United States, waters of the State, or wetlands as defined by the Coastal Act.

A. Synergy Oil Field

Nearly one-half of the 150-acre Synergy Oil Field is an active oil field with a network of roads, pipelines and other oil field-related amenities. The northern portion of the site contains Steamshovel Slough, an area of tidally influenced southern coastal salt marsh, tidal channels, and mud flats. Steamshovel Slough contains no oil operations and is separated from the oil operations areas by an earthen berm. A tide gate and pipes allow tidal water into western portions of the oil field and along the southern edge of the berm. An additional 0.82 acre surrounding the Synergy Oil Field is within the City's right-of-way along Studebaker Road, 2nd

[12] State of California Department of Public Works, Division of Water resources. 1942. Use of Water by Native Vegetation. Bulletin No. 50.

[13] Teaford, James. 2012. Arid Saline Wetlands Field Tour (January 2012). http://wetlandnotes.com/training-and-consulting/arid-saline-wetland-course-coachella-valley-california

Street, and Pacific Coast Highway, and was studied as a part of sidewalk improvements required by the City.

For purposes of this report, the description of vegetation alliances follows the MCV II. Land cover types lacking vegetation such as mud flats are not included in MCV II, and thus descriptions for such areas have been included. Furthermore, the MCV II does not distinguish between tidal and non-tidal areas, which are critical distinctions for the restoration component of this Project. Therefore, the alliances are separated into tidal and non-tidal areas. Finally, the MCV II does not include an alliance for shore grass flats, which has been added for purposes of greater accuracy.

Both tidal and non-tidal areas are depicted on Exhibit 7 [Vegetation Map]. Much of the central portion of the site contains oil facilities and is not subject to tidal influence, and includes areas that support salt marsh alliances and/or areas with non-native ruderal species. The southern portion of the site is also not subject to tidal influence and contains the highest concentration of oil facilities including pipeline, tank farms, and numerous pads and roads. This area is the most diverse, supporting vegetation alliances often consistent with the presence of wetlands, along with areas of non-native herbaceous plants, Menzie's goldenbush scrub, and non-native herbs such as small-flowered ice plant (***Mesembryanthemum nodiflorum***, FACU), which forms extensive mats in mostly disturbed portions of the site.

Areas of Coastal Act wetlands depicted on Exhibit 4D includes some data collection points that do not exhibit any of the three wetland criteria, but have nonetheless been included within the wetland polygons. This is because such areas, while supporting wetland indicator plant species, do not support a predominance of wetland plants but which are surrounded by areas that do support a predominance of wetland plants. Therefore it was appropriate to include such localized "inclusions" within the larger wetland areas. In total, data was collected at 230 points on the Synergy site as depicted on Exhibits 4B(1) and 4B(2).

The results of the jurisdictional delineation are organized by Regulatory Agency. Within the discussion of the jurisdiction for each agency, the report is organized according to the land cover types identified on the site.

1. Corps Jurisdiction (Section 10)

The limits of Section 10 Waters are depicted on Exhibit 4A as determined solely through the use of elevational data. Specifically, all areas falling below the elevation for Mean High Water (MHW), which is recorded at 2.12 feet National Geodetic Vertical Datum (NGVD) at this property, meet the Corps' definition for "Navigable Waters" pursuant to Section 10 of the Rivers and Harbors Act. Section 10 Waters total 55.53 acres, including wetland and upland area summarized in Table 3. The berm and road impediments on the southern side of the Steamshovel Slough prevent many of the areas within the central and eastern portions of the site from actually receiving any tidal exchange; these areas are mapped as Section 10 Waters based on elevation alone. No Section 10 Waters are located within the 0.82-acre City right-of-way.

Table 3: Section 10 Waters by Vegetation Alliance on Synergy Oil Field (acres)			
Vegetation Alliance	**Phase 1**	**Phase 2**	**Total**
California Cordgrass Marsh	1.34	0.0	1.34
Disturbed	0.24	1.10	1.34
Ice Plant Mats	0.00	0.05	0.05
London Rocket Fields	0.01	0.0	0.01
Mudflats	0.37	1.37	1.74
Mulefat Thickets	0.0	0.01	0.01
Non-Native Grassland	0.10	0.14	0.24
Ornamental	0.02	0.137	0.13
Parish's Glasswort Patches	4.20	2.19	6.39
Pickleweed Mats	22.68	4.21	26.89
Saltgrass Flats	0.35	1.53	1.88
Shoregrass Flats	0.0	0.20	0.20
Tidal Channel	2.86	0.0	2.86
Unvegetated Flats	4.51	7.91	12.42
Total	**36.68**	**18.85**	**55.53**

*Total acreage may not equal sum of individual fields due to rounding.

2. Corps Jurisdiction (Section 404)

Areas potentially subject to Corps jurisdiction pursuant to Section 404 totals approximately 40.36 acres of waters of the United States, of which 35.40 acres consists of jurisdictional wetlands. The northern Phase 1 area includes 37.38 acres, of which 33.83 acres are wetland, and the southern Phase 2 area includes 2.98 acres, of which 1.57 acres are wetlands. The boundaries and location of the potential waters of the United States are depicted on the Exhibit 4B. The majority of Corps jurisdiction is located in the Steamshovel Slough in the northern portion of the site, beyond the oil field operations. Table 4 below provides a summary of Corps jurisdiction pursuant to Section 404 and separates the jurisdictional areas according to Phases 1 and 2 of the Project. No areas potentially subject to Corps jurisdiction pursuant to Section 404 are located within the 0.82-acre City right-of-way. The following vegetation alliances or land cover types were found to contain areas subject to Section 404 jurisdiction, which are discussed in detail below:

Cress truxillensis—Distichlis spicata* Herbaceous Alliance (Alkali weed – saltgrass flats):** alkali weed (Cressa truxillensis***, FACW) occurs in a variety of alliances on the site, and like the saltgrass flat alliance noted above, most of the occurrences of this alliance are in areas lacking either hydric soils, wetland hydrology, or both. There is a single occurrence of this alliance that meets the Corps' three criteria test, located near the southwest corner of the Synergy site, Phase 2 area. Dominant plants include saltgrass (***Distichlis spicata***, FAC) and alkali weed within a depressional area that also exhibits dead cattails from a wetter period. The presence of hydric soils was indicated by F6 – Redox Dark Surface and wetland hydrology was indicated by C9 – Saturation Visible on Aerial Imagery.

***Distichlis spicata* Herbaceous Alliance (Saltgrass Flats):** As with non-tidal pickleweed mats, Saltgrass flats are common in non-tidal areas south of Steamshovel Slough. Most of these areas do not exhibit hydric soils and/or wetland hydrology and therefore do not meet the minimum

threshold as Waters of the United States. Areas that exhibit all three wetland criteria include saltgrass, common pickleweed (***Salicornia pacifica***, OBL), and shore grass (***Distichlis littoralis***, FACW). Where present, hydric soils were indicated by F6 – Redox Dark Surface and wetland hydrology was indicated by A2 – High Water Table, A3 – Saturation, C9 – Saturation Visible on Aerial Imagery, and D5 – FAC-Neutral Test.

Ephemeral Channel: a segment of drainage channel occurs on the southern portion of the property that is unvegetated. Other portions of the channel support pickleweed and saltgrass and exhibit hydric soils and wetland hydrology and are included in those wetland categories. This feature is within the Phase 2 portion of the site.

Mud Flats: are located within Steamshovel Slough and limited tidal areas south of the berm that separates Steamshovel Slough from the oil fields. The mud flats are unvegetated and lack cover by emergent plants; however, pursuant to 40 CFR Part 230.42(a) mudflats are special aquatic sites subject to Section 404 jurisdiction and defined as:

> ***…broad flat areas along the sea coast and in coastal rivers to the head of tidal influence and in inland lakes, ponds, and riverine systems. When mud flats are inundated, wind and wave action may resuspend bottom sediments. Coastal mud flats are exposed at extremely low tides and inundated at high tides with the water table at or near the surface of the substrate. The substrate of mud flats contains organic material and particles smaller in size than sand. They are either unvegetated or vegetated only by algal mats.***

Sarcocornia Pacifica[14] **Herbaceous Alliance (Pickleweed Mats):** meet the Corps' three criteria threshold for wetland Waters of the United States. Dominant plant species within Steamshovel Slough include common pickleweed, alkali heath (***Frankenia salina***, FACW), saltwort, (***Batis maritima***, OBL), fleshy jaumea (***Jaumea carnosa***, FACW), estuary seablite (***Sueada esteroa***, FACW), shore grass, sea lavender (***Limonium californicum***, FACW), Parish's glasswort (***Arthrocnemum subterminale***, FACW), and salt grass. Wetland hydrology was indicated by A1- Surface Water and A3 - Saturation in the upper 12 inches, and the presence of hydric soil was indicated by C1- Sulfidic Odor and F6 - Redox Dark Surface.

Pickleweed mats associated with tidal areas south of the berm that separates Steamshovel Slough from the oil fields are dominated by saltwort and Bigelow's pickleweed (***Salicornia bigelovii***, OBL), with occasional patches of common pickleweed and occasional individuals of sea lavender. Wetland hydrology in these areas was also indicated by A1- Surface Water and A3 - Saturation in the upper 12 inches, and the presence of hydric soil was indicated by C1- Sulfitic Odor and F6 - Redox Dark Surface.

Non-tidal pickleweed mats are common south of the berm that separates Steamshovel Slough from the oil fields. However, the majority of these areas lack hydric soils and/or wetland hydrology and as such do not meet the definition of Waters of the United States pursuant to

[14] Since publication of MCV II, the 2012 Jepson Manual was published, which uses ***Salicornia*** rather than ***Sarcocornia*** and is followed throughout this report.

Section 404. Non-tidal Pickleweed Mats that exhibit all three wetland support common pickleweed, alkali heath, saltgrass, shore grass, and sea lavender (***Limonium californicum***, FACW). Where present, hydric soils were indicated by F6 – Redox Dark Surface and wetland hydrology was indicated by A2 – High Water Table, A3 – Saturation, C9 – Saturation Visible on Aerial Imagery, and D5 – FAC-Neutral Test.

***Spartina foliosa* Herbaceous Alliance (California cordgrass marsh):** meet the Corps' three criteria threshold for wetland Waters of the United States, all of which is within Steamshovel Slough. Cordgrass is dominant with other species present in lower quantities including common pickleweed and saltwort. The presence of hydric soils was indicated by F6 – Redox Dark Surface and A4 - Hydrogen Sulfide, and wetland hydrology was indicated by A1 – Standing Water and A3 – Saturation.

Tidal Channels (Tidal): are combined within the Steamshovel Slough and areas along the southern edge of the berm as depicted on Exhibit 4B, all within the Phase 1 area. The unvegetated areas are non-wetland Waters of the United States, subject to Section 404, and areas vegetated with pondweeds are considered wetlands. Wetland hydrology was indicated by A1 – Surface Water and A3 – Saturation in the upper 12 inches.

Typha domingensis* – Herbaceous Alliance (Cattail Marshes):** Non-tidal fresh water marsh dominated by southern cattail (Typha domingensis***, OBL) is located along the eastern boundary of the site, within Phase 2. Other species include tall nutsedge (***Cyperus eragrostis***, FACW), alkali bulrush (***Bolboschoenus maritimus***, OBL), and California bulrush (***Schoenoplectus californicus***, OBL). The presence of hydric soils was indicated by A4 – Hydrogen Sulfide, and Wetland Hydrology was indicated by A1 – Surface Water and A3 – Saturation.

Table 4:
Corps – Potential Section 404 Jurisdiction on Synergy Oil Field (acres)

Vegetation Alliance	Phase 1	Phase 2	Total
Alkali Weed – Saltgrass Flats	0.0	0.25	0.25
Saltgrass Flats	0.0	0.32	0.32
Unvegetated Ephemeral Channel	0.0	0.03	0.03
Mud Flats	0.37	1.38	1.75
Pickleweed Mats	32.45	0.89	33.34
California Cordgrass Marsh	1.38	0.0	1.38
Tidal Channels	3.18	0.0	3.18
Cattail Marsh	0.0	0.11	0.11
Total	**37.38**	**2.98**	**40.36**

*Total acreage may not equal sum of individual fields due to rounding.

3. CDFW Jurisdiction

Areas potentially subject to CDFW jurisdiction associated with the site are limited to tidal channels and associated herbaceous riparian/wetland habitat, and two drainage courses [Exhibit 4C]. Potential CDFW jurisdiction totals 17.12 acres and is located entirely within the Synergy Oil Field; no areas within the 0.82-acre City right-of-way are subject to CDFW jurisdiction.

Table 5 below provides a summary of CDFW jurisdiction pursuant to Section 1602 of the Fish and Game Code.

***Spartina foliosa* Herbaceous Alliance (California cordgrass marsh):** The areas of this vegetation alliance that is within and immediately border Steamshovel Slough are located within CDFW jurisdiction. Cordgrass is dominant with other species present in lower quantities including common pickleweed and saltwort.

Tidal Channels (Tidal): Tidal channels occur within the Steamshovel Slough and immediately south of the berm. The banks support a mosaic of salt marsh components (pickleweed mats) including common pickleweed, alkali heath, saltwort, fleshy jaumea, estuary seablite, shore grass, sea lavender, Parish's glasswort, and salt grass.

Streambeds (Non-Tidal): Two non-tidal drainage channels occur near the southeastern corner of the property and are referred to herein as Drainage A and Drainage B.

Drainage A

Drainage A comprises approximately 0.11 acre and is located in the southwest portion of the site. It appears to be a man-made feature created for purposes of drainage adjacent areas in the oil field from east to west, to muted tidal areas along the western boundary of the site. The drainage is divided into two segments and supports a mosaic of wetland species including common pickleweed, alkali heath, saltgrass, and shore grass. The drainage and associated banks range in width from three feet to eight feet.

Drainage B

Drainage B comprises approximately 0.18 acre and is located along the southern boundary of the site. It is in an area that supports patches of cattail marsh that form a mosaic with a predominance of non-native species such as pampas grass (***Cortedaria selloana***, FACU) and Mexican fan palm (***Washingtonia robusta***, FACW). The marsh areas associated with the channel support southern cattail, tall nutsedge, alkali bulrush, California bulrush, and black willow.

Table 5:
CDFW – Potential Section 1602 Jurisdiction on Synergy Oil Field (acres)

Drainage Features	Phase 1	Phase 2	Total
Tidal Areas			
California cordgrass marsh	1.38	0.0	1.38
Pickleweed Mats	12.27	0.0	12.27
Tidal Channels	3.18	0.0	3.18
Non-Tidal Areas			
Drainage A	0.0	0.11	0.11
Drainage B	0.0	0.18	0.18
Total	**16.83**	**0.29**	**17.12**

*Total acreage may not equal sum of individual fields due to rounding.

4. California Coastal Commission Wetlands

As noted in Section I above "Methodology" under the Coastal Act, the presence of a single criteria/parameter (i.e., wetland vegetation or hydric soils or wetland hydrology) is sufficient to make a presumptive finding for the presence of wetlands. As such, wetlands defined under the Coastal Act are more extensive in the non-tidal areas of the site as compared to Corps wetlands. Potential wetlands defined under the Coastal Act on the Synergy Oil Field total 100.48 acres and are depicted on Exhibit 4D and summarized in Table 6. No areas of potential wetlands defined under the Coastal Act are located within the 0.82-acre City right-of-way.

***Arthrocnemum subterminale* Herbaceous Alliance (Parish's Glasswort Patches):** Parish's glasswort patches are common south of the Steamshovel Slough berm, particularly, in the eastern portions of the site, where it forms near monocultures. The majority of these areas lack hydric soils and/or wetland hydrology, while continuing to support a predominance of plants with an indicator status of FAC or wetter and therefore meet the definition of wetlands under the Coastal Act.

***Cress truxillensis—Distichlis spicata* Herbaceous Alliance (Alkali weed – saltgrass flats):** alkali weed occurs in a variety of alliances on the site, and like the saltgrass flat alliance noted above, most of the occurrences of this alliance are in areas lacking either hydric soils, wetland hydrology, or both. Dominant plants included saltgrass and alkali weed. Where present, the presence of hydric soils was indicated by F6 – Redox Dark Surface, and wetland hydrology was indicated by C9 – Saturation Visible on Aerial Imagery.

***Distichlis littoralis* Herbaceous Alliance (Shore Grass Flats):** While shore grass is common on the site, particularly in upper marsh or drier areas often growing with Parish's glasswort, it occurs as essentially pure monocultures in a few locations, where it is dominated by shore grass. The areas lack wetland hydrology and hydric soils and the wetland determination was made based on the presence of the vegetation.

***Distichlis spicata* Herbaceous Alliance (Saltgrass Flats) – (Non-Tidal):** As with non-tidal pickleweed mats, saltgrass flats are common in non-tidal areas south of Steamshovel Slough. The majority of these areas lack hydric soils and/or wetland hydrology, while continuing to support a predominance of plants with an indicator status of FAC or wetter and therefore meet the definition of wetlands under the Coastal Act. Dominant plant species include saltgrass, common pickleweed, and shore grass. Where present, hydric soils were indicated by F6 – Redox Dark Surface, and wetland hydrology was indicated by A2 – High Water Table, A3 – Saturation, C9 – Saturation Visible on Aerial Imagery, and D5 – FAC-Neutral Test.

Mud Flats (Tidal): occur within Steamshovel Slough and areas south of the berm that separates Steamshovel Slough from the oil fields. The mud flats are unvegetated lacking cover by emergent plants; however, these area are regularly covered by tidal water and meeting the Coastal Act wetland definition based on the presence of wetland hydrology.

Salix gooddingii* Woodland Alliance (Black willow thickets):** Black willow (Salix gooddingii***, FACW) is dominant and in many cases consists of a single large tree that was of sufficient size

to be included as a mapping unit. The understory varies substantially throughout the site but that may include one or more of the following species: saltgrass, tall nutsedge, seaside heliotrope, alkali weed, with non-natives that include Spanish sunflower (***Pulicaria paludosa***) and curly dock (***Rumex crispus***).

Sarcocornia Pacifica[15] **Herbaceous Alliance (Pickleweed Mats):** within Steamshovel Slough and other Phase 1 areas, generally meet all three criteria threshold for wetland under the Coastal Act. Dominant plant species within Steamshovel Slough include common pickleweed, alkali heath, saltwort, fleshy jaumea, estuary seablite, shore grass, sea lavender, Parish's glasswort, and salt grass. Wetland hydrology was indicated by A1- Surface Water and A3- Saturation in the upper 12 inches, and the presence of hydric soil was indicated by C1- Sulfitic Odor and F6 - Redox Dark Surface.

Tidal areas south of the berm that separate Steamshovel Slough from the oil fields are dominated by saltwort and Bigelow's pickleweed (***Salicornia bigelovii***, OBL), with occasional patches of common pickleweed and occasional individuals of sea lavender (these areas are included in the acreage noted above). Wetland hydrology in these areas was also indicated by A1- Surface Water and A3 - Saturation in the upper 12 inches, and the presence of hydric soil was indicated by C1- Sulfitic Odor and F6 - Redox Dark Surface.

Non-tidal pickleweed mats south of the berm that separates Steamshovel Slough from the oil fields are common. The majority of these areas lack hydric soils and/or wetland hydrology, while continuing to support a predominance of plants with an indicator status of FAC or wetter and therefore meet the definition of wetlands under the Coastal Act. Non-tidal pickleweed mats that exhibit at least one of the three wetland criteria support common pickleweed, alkali heath, saltgrass, shore grass, and sea lavender. In some areas, non-native upland weedy species are locally dominant and such areas do not meet the minimum threshold for wetlands as defined under the Coastal Act. Where present, hydric soils were indicated by F6 – Redox Dark Surface, and wetland hydrology was indicated by A2 – High Water Table, A3 – Saturation, C9 – Saturation Visible on Aerial Imagery, and D5 – FAC-Neutral Test.

Spartina foliosa **Herbaceous Alliance (California cordgrass marsh):** meets all three criteria and is therefore wetlands under the Coastal Act on the site, all of which is within Steamshovel Slough. Cordgrass is dominant with other species including common pickleweed and saltwort. The presence of hydric soils was indicated by F6 – Redox Dark Surface and A4 - Hydrogen Sulfide, and wetland hydrology was indicated by A1 – Water and A3 – Saturation.

Tidal Channels (Tidal): are located within the Steamshovel Slough and areas south of the berm. The unvegetated areas are wetlands under the Coastal Act based on the presence of regular tidal inundation, and areas vegetated with pondweeds would satisfy at least two wetland criteria under the Coastal Act. Wetland hydrology was indicated by A1 – Surface Water and A3 – Saturation in the upper 12 inches.

[15] Since publication of MCV II, the 2012 Jepson Manual was published, which uses ***Salicornia*** rather than ***Sarcocornia*** and is followed throughout this report.

Unvegetated Flats: Non-tidal unvegetated flats are common south of the Steamshovel Slough berm. Because these areas are unvegetated (by definition they exhibit less than five percent cover), they do not meet the criteria for wetland vegetation. Some of these areas also fail to exhibit hydric soils and wetland hydrology and therefore do not qualify as wetlands under the Coastal Act. Areas that did exhibit either indicators for wetland hydrology or hydric soils have been included in the CCC wetlands. Also, in a few instances, while vegetative cover was less than five percent, wetland data were collected immediately within or immediately adjacent to small patches of Parish's glasswort resulting in the presence of wetland vegetation on the data sheet within areas that overall lacked five-percent cover.

***Typha domingensis* – Herbaceous Alliance (Cattail Marshes):** Non-tidal fresh water marsh dominated by southern cattail is located along the eastern boundary of the site, on Phase 2. Other species include tall nutsedge, alkali bulrush, and California bulrush. The presence of hydric soils was indicated by A4 – Hydrogen Sulfide, and Wetland Hydrology was indicated by A1 – Surface Water and A3 – Saturation.

Table 6:
CCC – Potential Wetlands Defined under the Coastal Act on Synergy Oil Field (acres)

Vegetation Alliance	Phase 1	Phase 2	Total
Parish's Glasswort Patches	9.20	2.77	11.97
Alkali Weed – Saltgrass flats	0.0	0.54	0.54
Shore Grass Flats	0.30	0.22	0.52
Saltgrass Flats	1.61	10.48	12.09
Alkali Heath Flats	0.13	0.74	0.87
Mud Flats	0.37	1.38	1.75
Black Willow	0.0	0.14	0.14
Pickleweed Mats	37.87	14.26	52.13
California Cordgrass Marsh	1.38	0.0	1.38
Tidal Channels	3.18	0.0	3.18
Cattail Marsh	0.0	0.11	0.11
Unvegetated Flats	6.04	9.76	15.8
Total	**60.08**	**40.40**	**100.48**

*Total acreage may not equal sum of individual fields due to rounding.

B. Pumpkin Patch Site

The southwestern three-quarters of the approximately seven-acre property comprises the "Pumpkin Patch," and consists of a level and covered landfill which is raised in elevation approximately 15 feet above the northeastern one-quarter of the property. The raised and leveled former landfill site is occupied annually first by the commercial pumpkin patch in October, followed by a commercial Christmas tree lot through December. Small fruit stands appear during other parts of the year. The area closest to Pacific Coast Highway is occupied by the commercial activities while the remaining portion of the upper property is used as a parking area during the seasonal activities within striped parking. Due to these seasonal activities, the area supports very limited native habitat and the soil surface is highly compacted due to years of vehicle access and parking. Because the raised and leveled portion of the site is flat and the soil is highly compacted, seasonal (short-term) ponding occurs on the property, with two areas of

regular, though very shallow ponding observed near the northeast corner of this portion of the property. The ponded features are located within a larger depression that has exhibited some level of saturation or ponding on historical aerials. Areas of potential jurisdiction are depicted on Exhibit 5A.

Adjoining the Pumpkin Patch site to the north is a 0.80-acre undeveloped parcel that is currently within the City's right-of-way. It consists of the same disturbed and highly compacted surface as the area on the Pumpkin Patch site that is used for seasonal activities. This 0.80-acre right-of-way does not support any waters of the U.S., waters of the State, or areas that meet the minimal thresholds for wetlands.

Seasonal Ponded Features on Northeast Corner of Upper Portion of the Property

GLA conducted wet season presence/absence surveys in 2011-2012, 2012-2013, and 2016-2017 for listed branchiopods (fairy shrimp) within the ponded features located at the northeast corner of the upper site, as shown on Exhibit 5A.[16] No federally-listed fairy shrimp were detected during the wet season surveys, with only the common versatile fairy shrimp (***Branchinecta lindahli***) detected. Table 7 below summarizes the dates on which ponding was observed during the 2011-2012 and 2016-2017 surveys. Ponding of 14-day duration was not observed during the 2012-2013 rainfall season due to only 50-percent of normal rainfall. As such, ponding data for the 2012-2013 year is not included.

Table 7:
Wet Season Presence/Absence Site Monitoring and Survey Dates

Date	Dry/ No Ponding	Ponded < 3 cm	Ponded > 3 cm	Sampling Results
10/12/2011	X			
11/9/2011		X		None present
11/17/2011		X		None present
11/28/2011		X		None present
12/1/2011		X		None present
12/4/2011	X			
12/20/2011			x	None present
12/27/2011	X			
1/26/2012			x	None present
2/3/2012			x	*B. Lindahli*
2/22/2012			x	None present
3/5/2012	X			
3/24/2012	X			
3/30/2012	X			

[16] The 2016/2017 wet-season fairy shrimp surveys are ongoing as of the writing of this report and will be completed at the end of the rainy season.

4/7/2012	X			
4/21/2012	X			
5/8/2012	X			
10/25/2016	X			
11/22/2016			X	None present
11/29/2016			X	None present
12/6/2016			X	*B. Lindahli*
12/13/2016			X	*B. Lindahli*
12/20/2016			X	*B. Lindahli*
12/27/2016			X	*B. Lindahli*
1/3/2017			X	*B. Lindahli*
1/10/2017			X	*B. Lindahli*
1/17/2017			X	*B. Lindahli*
1/24/2017			X	*B. Lindahli*
1/31/2017			X	*B. Lindahli*
2/7/2017			X	*B. Lindahli*
2/14/2017			X	*B. Lindahli*

Very shallow surface ponding of varying durations, depending on rainfall patterns, was observed in the shallow depression during the 2011-2012 rainfall season. The dates of observed ponding do not necessarily indicate continuous periods of ponding. For example, October 5 and 6, 2011 accounted for 0.77 inches of rain; however, by October 12, 2011 the feature was dry. November 21, 2011 produced 0.77 inches of rain with substantial ponding observed on November 23, 2011, but by December 1, ten days after the initial event in November, ponding was reduced to a few ruts with no ponding observed on December 4, 2011 (after 13 total days). While rainfall for the 2011-2012 season was below normal, the period of October and November was 133-percent of normal, indicating that the results reflected "normal" conditions. Over an inch of rain fell between January 21 and 24, 2012; however, by February 3, 2012 (13 days) ponding was reduced to a small puddle. On March 18, 2012, there was 0.80 inch of rain and by March 24, 2012 there was no ponding.

The 2016-2017 rainfall season has provided consistent ponding during the three-month period following the first ponding event on November 22, 2016. Between November 22, 2016 and February 22, 2017, this area has received 18.65 inches[17] of rain, well above the annual average of 12.25 inches and outside of normal conditions. In January 2017 alone, 9.30 inches of rainfall was recorded.

The seasonal depression is highly disturbed, and exhibits a predominance of weedy opportunistic plants with an indicator status ranging from UPL to OBL, including small-flowered ice plant (FACU), five-horn smotherweed (***Bassia hyssopifolia,*** FACU), red brome (***Bromus madritensis***

[17] www.wunderground.com for zipcode: 90803

ssp. ***rubens***, UPL), southern tarplant (***Centromadia parryi*** ssp ***australis***, FACW),[18] and salt-marsh sand spurrey (***Spergularia marina***, OBL).[19] As noted above, seasonal ponding that is limited in extent has been observed in this portion of the property, as GLA previously documented during the wet season fairy shrimp surveys conducted under "normal" conditions in 2011-2012. The persistent ponding observed during the 2016-2017 wet season fairy shrimp surveys does not represent normal conditions due to the amount of rainfall that has been recorded to date. Even during the abnormally wet 2016-2017 season, the amount of ponding observed has been consistent with the area shown as the ponded features on Exhibit 5A, and not within the entire larger depression.

A site visit on November 11, 2013 found a predominance of upland vegetation and no indicators for hydric soils. A site visit in April of 2016 found one area, the southerly area depicted on Exhibit 5A associated with the seasonal ponded feature, that supports a predominance of wetland vegetation (based on current designations within the NWPL) including salt-marsh sand spurrey as dominant with five-horn smotherweed and southern tarplant as non-dominant, thereby meeting the Basic Dominance test for wetland vegetation. It is important to note that these two data points are only a few feet apart, indicating the variability of the plants that occur in the feature from year to year. The northern portion of the feature contains small-flowered ice plant as dominant along with salt marsh sand spurry and thus fails the Basic dominance test. Soils in both areas are 10YR 3/2 with no redoximorphic features and, as noted above, they do not meet the minimum threshold for hydrology. The area of salt-marsh sand spurrey associated with this feature totals 0.01 acre. Given that the southern tarplant and salt-marsh sand spurrey are unreliable indicators for wetlands, the lack of hydric soil indicators and the lack of wetland hydrology in 50-percent of years, the seasonal feature does not meet the minimum threshold for wetlands under the Coastal Act.

Northeastern Portion of the Pumpkin Patch Site

As depicted in Exhibit 5A, the northeastern one-quarter of the Pumpkin Patch site is within the Los Cerritos Wetland Complex, and is characterized by areas of alkali meadow vegetated with common pickleweed, shore grass, and saltgrass, with two patches of non-native Mexican fan palm [Exhibit 5A]. Interspersed with the alkali meadow are unvegetated alkali flats that exhibit signs of surface cracking and a salt layer. This lower-in-elevation portion of the site is no longer subject to tidal influence and is hydrologically supported by rainfall and local runoff.

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[18] ***Centromadia parryi*** is listed in the NWPL as FACW. This designation is clearly incorrect. Exhibit 5B is a map of the locations of this species on the Synergy site where detailed mapping of three-criteria wetlands has been completed. Importantly, of the numerous plants mapped in 2015, none occur in wetlands, thereby supporting a drier status such as FACU for this species.

[19] ***Spergularia marina*** is currently listed as OBL in the NWPL; however, as for many plants on the national list, the current designation does not accurately reflect its affinity for wetlands as this species is often found in uplands. The seasonal depression at Pumpkin Patch does not meet the Corps' three criteria test for wetlands; thus at this site, this species is growing in uplands using the Corps three-criteria test. It is important to note that Table 4-4, page 132 of ***Handbook for Restoring Tidal Wetlands*** by Joy Zedler, lists ***Spergularia marina*** with the "Upland Transitional Species".

All four data points support a predominance of wetland plants with pickleweed and shore grass dominant. Other species present include saltgrass**,** fleshy jaumea, marsh rosemary (***Limonium californicum***, FACW), and Mexican fan palm.

Wetland hydrology in this area was indicated by surface soil cracking and surface salt layer, consistent with the presence of wetland hydrology. One of the soil pits, (datasheet "Pick 3") exhibited a matrix of 10YR 3/2 with redoximorphic features varying from 5 to 15-percent. This soil profile is consistent with the description of Redox Dark Surface (F6) in the Arid West Supplement. The other three data point locations did not exhibit indicators for hydric soils and would not be Section 404 wetlands.

1. Corps Jurisdiction (Section 404)

Areas potentially subject to Corps jurisdiction pursuant to Section 404 totals approximately 0.42 acre of Waters of the United States, all of which consists of jurisdictional wetlands, and are depicted on Exhibit 5A and below in Table 8. These wetlands occur entirely within the lower back (northeastern) portion of the property.

2. California Department of Fish and Wildlife

The Pumpkin Patch site contains no areas that meet CDFW's definition of a lake or streambed. As such, there are no areas on the site that are subject to CDFW jurisdiction pursuant to Section 1602 of the California Fish and Game Code.

3. Coastal Act Wetlands

Potential wetlands as defined by the Coastal Act total 0.81 acre, of which 0.55 acre consists of pickleweed mats on the lower back (northeastern) portion of the site with an additional 0.26 acre of unvegetated flat wetland. As described above, the seasonal ponded features do not meet any of the three criteria and is not a wetland under the Coastal Act. The total area that meets the Coastal Act definition for wetlands based on normal site conditions is 0.81 acre, as depicted on Exhibit 5A and below in Table 8.

Table 8:
Corps – Potential Section 404 Jurisdiction (acres)
CCC – Potential Wetlands Defined under the Coastal Act (acres)
Pumpkin Patch Site

Feature	**Corps**			**CCC**
	Wetland	Non-Wetland	Section 10	Wetland
Pickleweed Mats	0.42	0.0	0.0	0.55
Unvegetated Flats	0.0	0.0	0.0	0.26
Seasonal Feature	0.0	0.0	0.0	0.0
Total	**0.42**	**0.0**	**0.0**	**0.81**

C. LCWA Site

The LCWA site contains no areas that support waters of the U.S., waters of the State, or that meet the minimal thresholds for wetlands. This includes three criteria wetlands pursuant to Section 404 of the Clean Water Act and one parameter wetlands as defined by the Coastal Act.

D. City Property Site

The Geographic Information Systems (GIS) data of the jurisdictional delineation for the City Property, including off-site areas within the City right-of-way south of 2nd Street,was provided by the City of Long Beach on March 24, 2016 and is depicted on Exhibit 6. The GIS files label all of the areas shown on Exhibit 6 as wetland, without distinguishing between three criteria wetlands as defined by the Corps or wetlands defined by the Coastal Act. As such, this report assumes that the wetlands are subject to Corps jurisdiction pursuant to Section 404 of the Clean Water Act and also wetlands as defined under the Coastal Act. It is also assumed that the area of southern coastal brackish marsh within the central portion of the site is also jurisdictional to the CDFW as a vegetated pond. Table 9 below describes the potential jurisdiction on the City Property and Table 10 describes the potential jurisdiction off site within the City's right-of-way.

There are no areas on the site that are subject to Corps jurisdiction pursuant to Section 10 of the Rivers and Harbors Act as the site is permanently cutoff from any potential tidal influence and "navigability" as defined by the Corps.

Based on the data of the jurisdictional delineation provided by the City, 21.04 acres of potential Corps jurisdiction, all of which are assumed to be wetland, 5.07 acres of vegetated CDFW jurisdiction, and 21.04 acres of wetlands as defined by the Coastal Act occur on site [Table 9]. Within the off-site City right-of-way, 0.89 acre of potential Corps jurisdiction (all of which are assumed to be wetland) and wetlands as defined by the Coastal Act occur.

Table 9:
Corps – Potential Section 404 Jurisdiction (acres)
CDFW – Potential Section 1602 Jurisdiction (acres)
CCC – Potential Wetlands Defined under the Coastal Act (acres)
City Property Site

	Corps		**CDFW**		**CCA**
Wetland Habitat	Wetland	Non-Wetland	Channel	Riparian	Wetland
Alkali Meadow	7.37	0.0	0.0	0.0	7.37
Mulefat Scrub	1.54	0.0	0.0	0.0	1.54
Ruderal Wetlands	2.42	0.0	0.0	0.0	2.42
Salt Flat	0.64	0.0	0.0	0.0	0.64
Southern Coastal Brackish Marsh	6.58	0.0	0.0	5.07	6.58
Coastal Salt Marsh	2.21	0.0	0.0	0.0	2.21
Southern Willow Scrub	0.28	0.0	0.0	0.0	0.28
Total	**21.04**	**0.0**	**0.0**	**5.07**	**21.04**

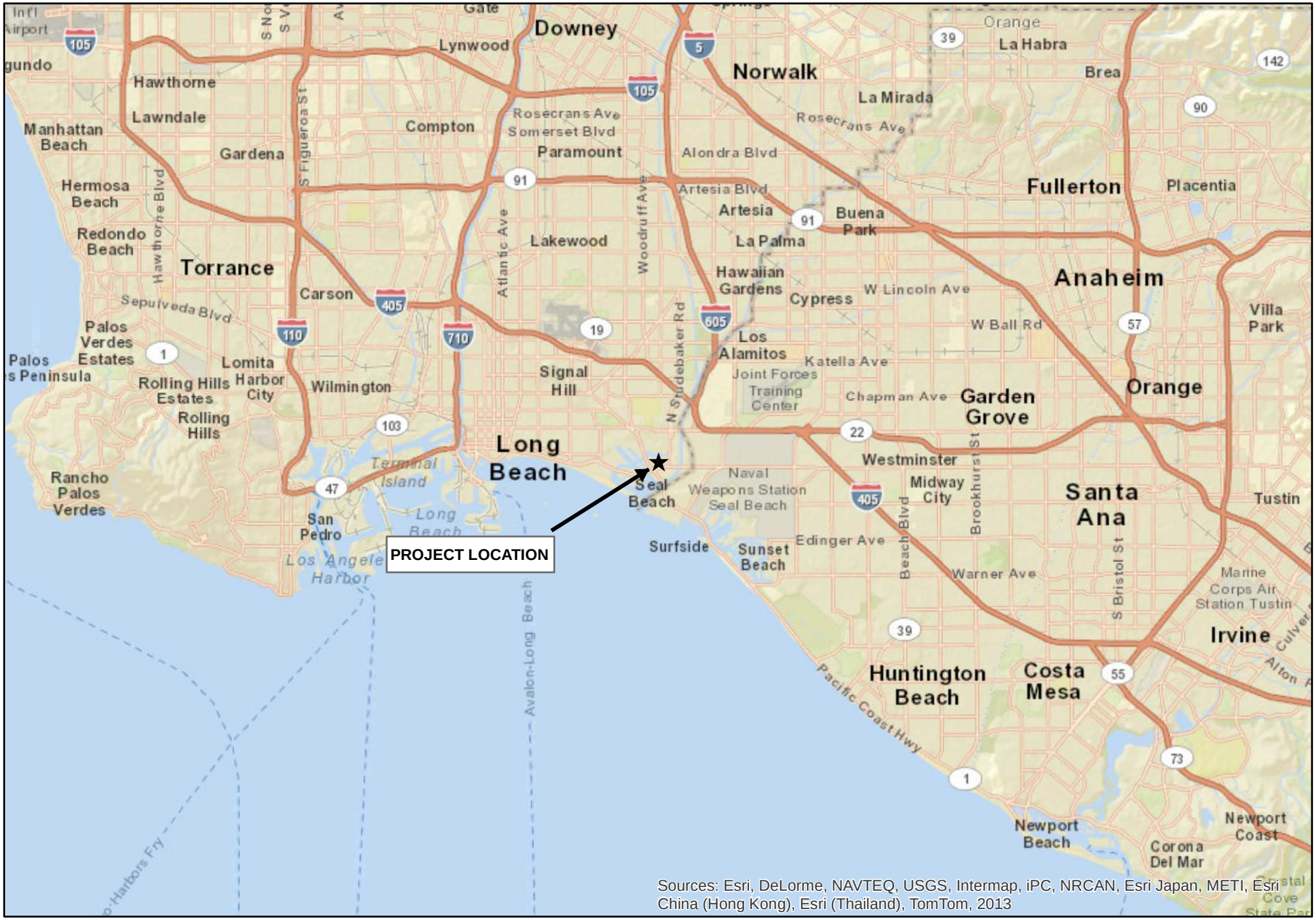
Table 10:
Corps – Potential Section 404 Jurisdiction (acres)
CDFW – Potential Section 1602 Jurisdiction (acres)
CCC – Potential Wetlands Defined under the Coastal Act (acres)
City Property Site (Off-Site in City's Right-of-Way)

	Corps		**CDFW**		**CCA**
Wetland Habitat	Wetland	Non-Wetland	Channel	Riparian (vegetated pond)	Wetland
Mulefat Scrub	0.03	0.0	0.0	0.0	0.03
Ruderal Wetlands	0.39	0.0	0.0	0.0	0.39
Southern Coastal Brackish Marsh	0.47	0.0	0.0	0.0	0.47
Total	**0.89**	**0.0**	**0.0**	**0.0**	**0.89**

s:1032-2_JD_022217.docx

EXHIBIT 1

Regional Map



Source: ESRI World Street Map

N

0 2 4 8 Miles

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

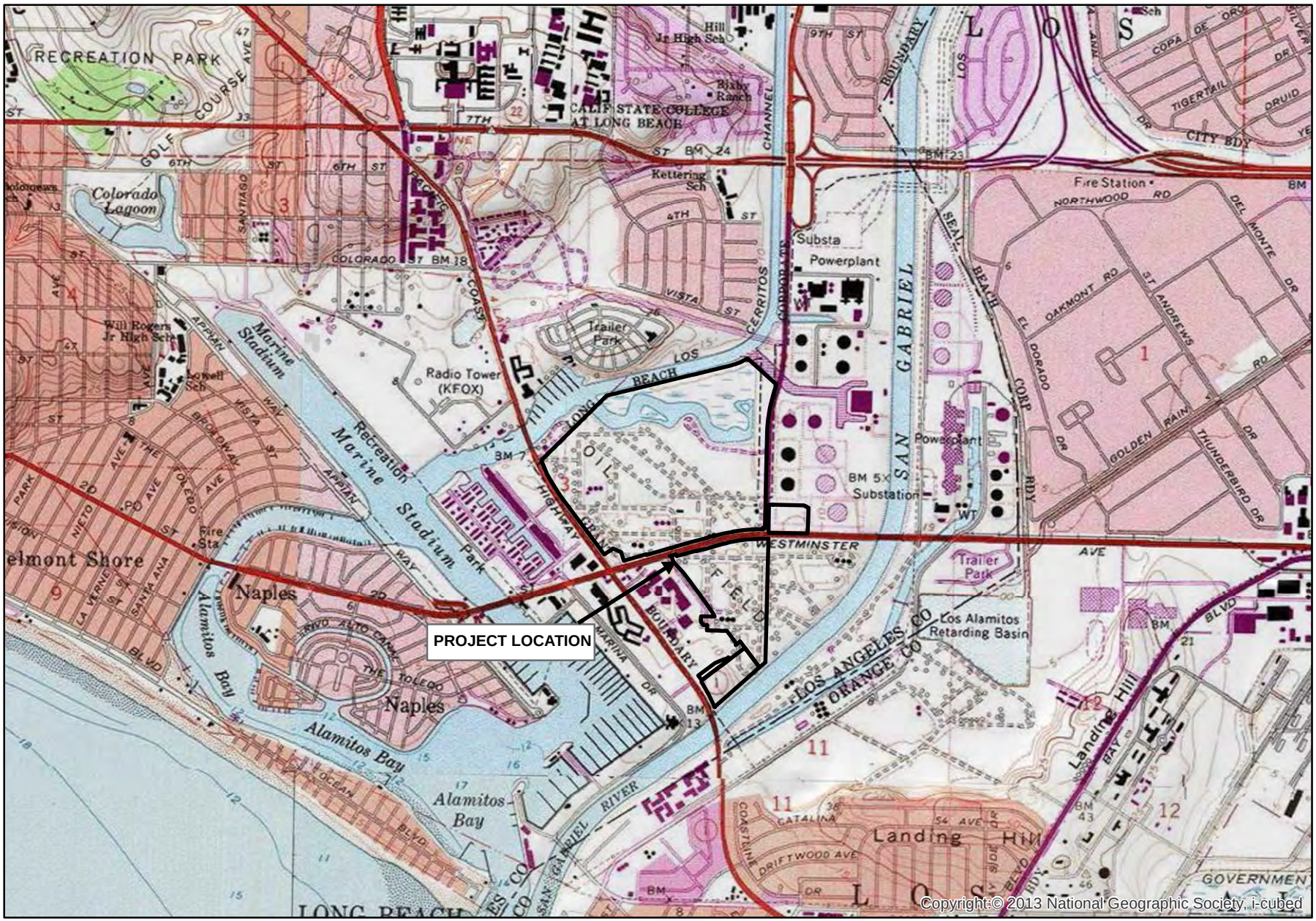
Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1

EXHIBIT 2

Vicinity Map



Adapted from USGS Los Alamitos, CA quadrangle

N

0 1,000 2,000 4,000 Feet

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

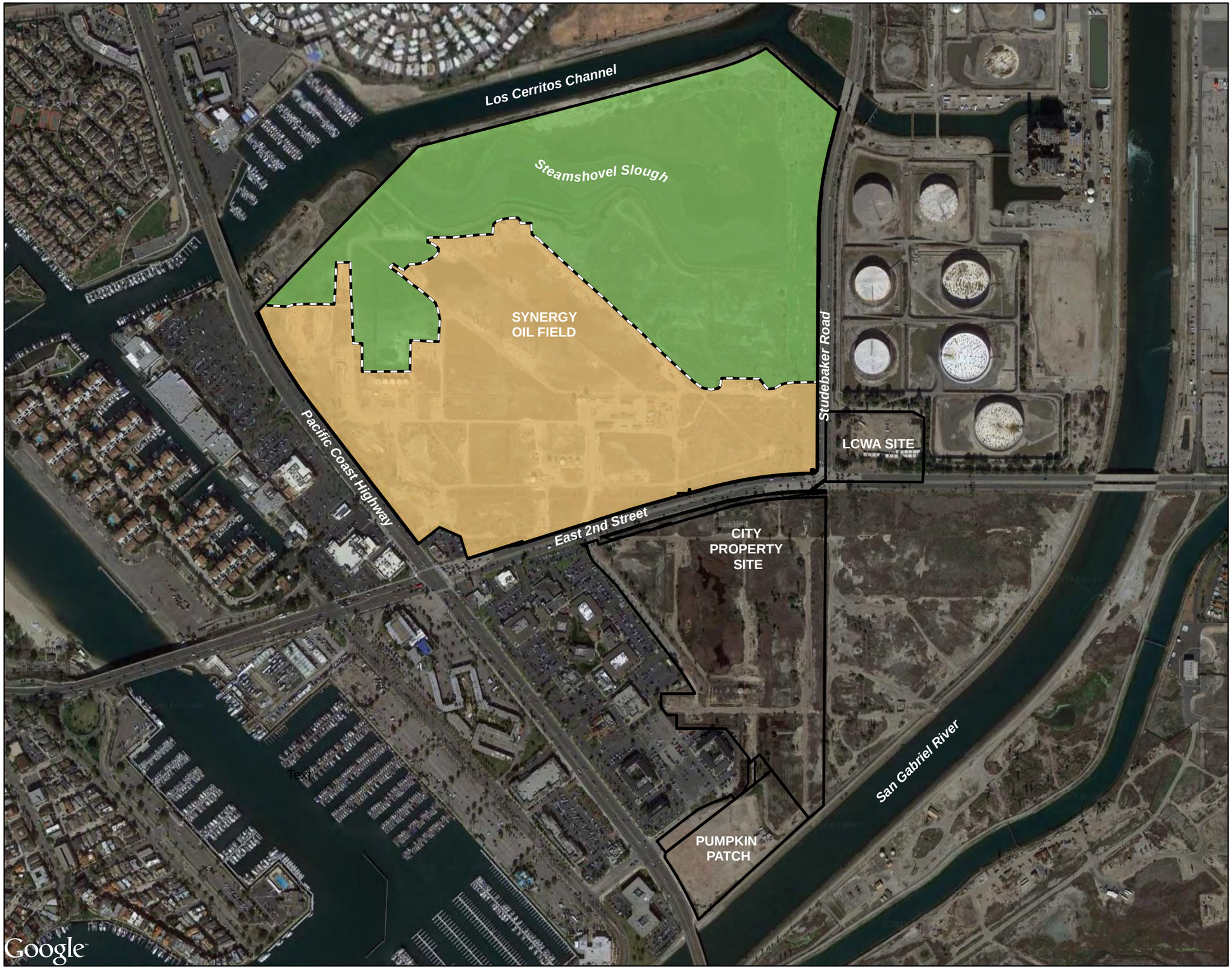
Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2

EXHIBIT 3

Project Site Map



Legend

- Project Boundaries
- Synergy Site Phasing Boundary
- Synergy Phase 1
- Synergy Phase 2

N

0 275 550 1,100

Feet

1 inch = 550 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 28, 2017

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

Project Site Map

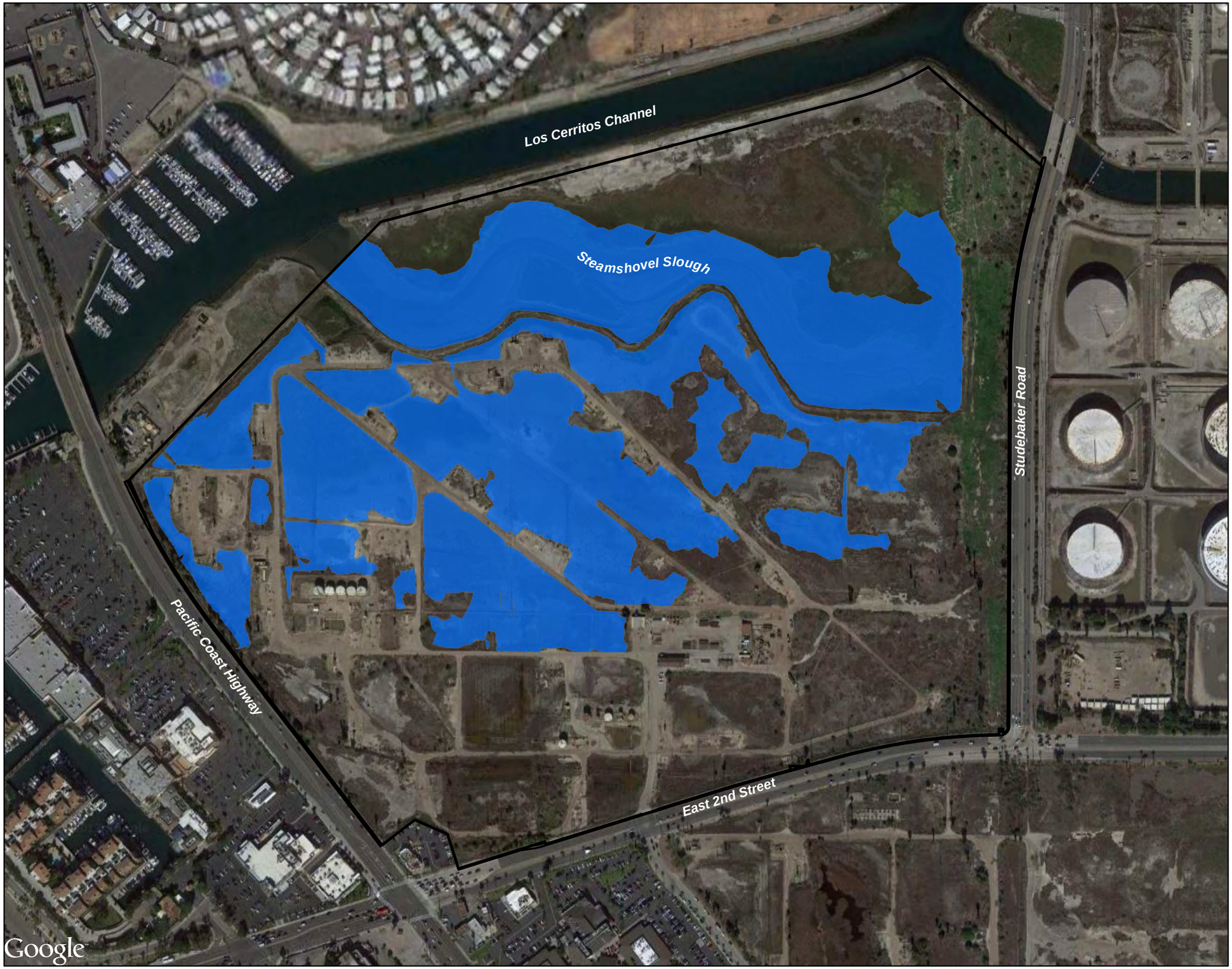
GLENN LUKOS ASSOCIATES

Exhibit 3

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 3 ProjectSite.mxd

EXHIBIT 4A

Synergy - Corps Section 10/RWQCB Jurisdictional Delineation Map



Legend

- Project Boundary
- Section 10 Waters
  MHW = 2.12 FT NGVD

N

0 175 350 700

Feet

1 inch = 350 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 28, 2017

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

Synergy Oil Field – Corps Section 10 Waters/ RWQCB Jurisdiction

GLENN LUKOS ASSOCIATES

Exhibit 4A

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 4A Corps10.mxd

EXHIBIT 4B

Synergy – Corps Section 404/RWQCB Jurisdictional Delineation Map

Legend

- Project Boundary
- Waters
- Wetlands

N

0 175 350 700

Feet

1 inch = 350 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 28, 2017

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

Synergy Oil Field – Corps Section 404 Waters & Wetlands/RWQCB Jurisdiction

GLENN LUKOS ASSOCIATES

Exhibit 4B

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 4B Corps404.mxd

EXHIBIT 4B.1-4B4

Synergy – Data Collection Points

Legend

- Project Boundary
- Meets 0 Criteria
- Meets 1 Criteria
- Meets 2 Criteria
- Meets 3 Criteria

N

0 75 150 300

Feet

1 inch = 150 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 28, 2017

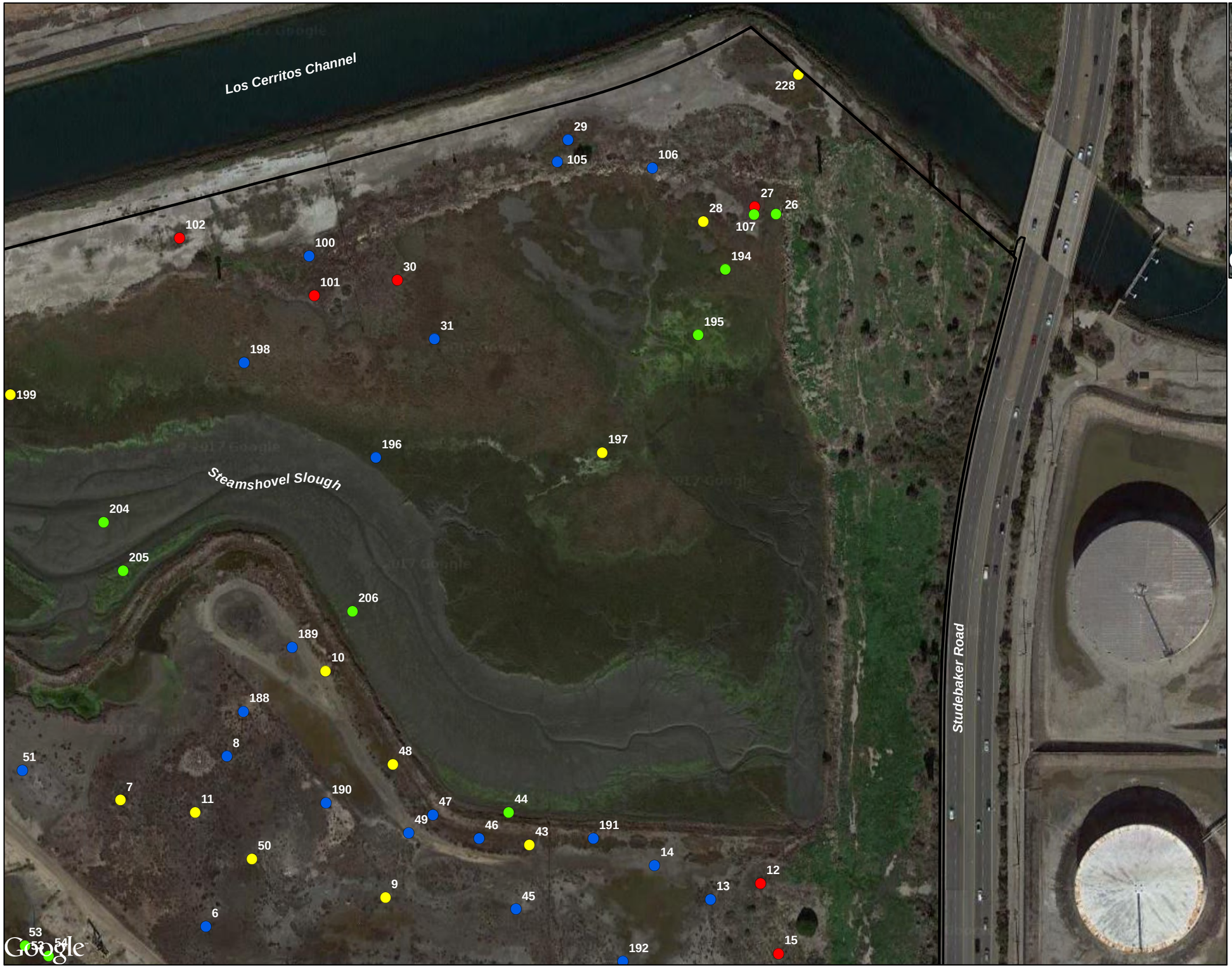
LCW OIL CONSOLIDATION AND RESTORATION PROJECT

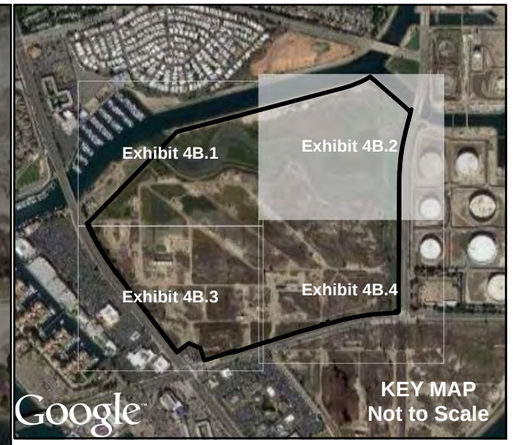
Wetland Data Points

GLENN LUKOS ASSOCIATES

Exhibit 4B.1

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 4B 1 DataPits.mxd





Legend

- Project Boundary
- Meets 0 Criteria
- Meets 1 Criteria
- Meets 2 Criteria
- Meets 3 Criteria

N

0 75 150 300

Feet

1 inch = 150 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 28, 2017

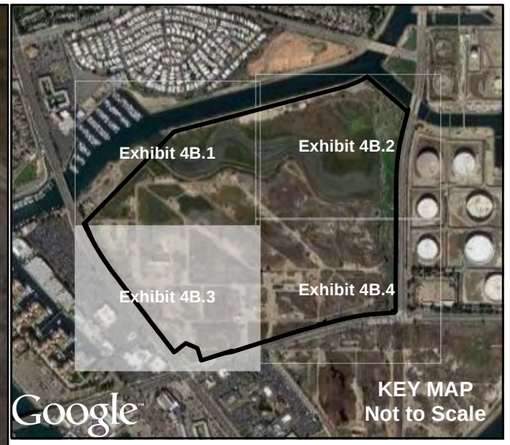
LCW OIL CONSOLIDATION AND RESTORATION PROJECT

Wetland Data Points

GLENN LUKOS ASSOCIATES

Exhibit 4B.2

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 4B 2 DataPits.mxd



Legend

- Project Boundary
- Meets 0 Criteria
- Meets 1 Criteria
- Meets 2 Criteria
- Meets 3 Criteria

N

0 75 150 300

Feet

1 inch = 150 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 28, 2017

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

Wetland Data Points

GLENN LUKOS ASSOCIATES

Exhibit 4B.3

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 4B 3 DataPits.mxd

Legend

- Project Boundary
- Meets 0 Criteria
- Meets 1 Criteria
- Meets 2 Criteria
- Meets 3 Criteria

N

0 75 150 300

Feet

1 inch = 150 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 28, 2017

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

Wetland Data Points

GLENN LUKOS ASSOCIATES

Exhibit 4B.4

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 4B 4 DataPits.mxd

EXHIBIT 4C

Synergy – CDFW Jurisdictional Delineation Map

Legend

- Project Boundary
- CDFW Jurisdiction

N

0 175 350 700

Feet

1 inch = 350 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 28, 2017

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

Synergy Oil Field – CDFW Jurisdiction

GLENN LUKOS ASSOCIATES

Exhibit 4C

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 4C CDFW.mxd

EXHIBIT 4D

Synergy – CCC Wetlands Map

Legend

- Project Boundary
- CCC Wetlands

N

0 175 350 700

Feet

1 inch = 350 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 28, 2017

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

Synergy Oil Field – CCC Wetlands

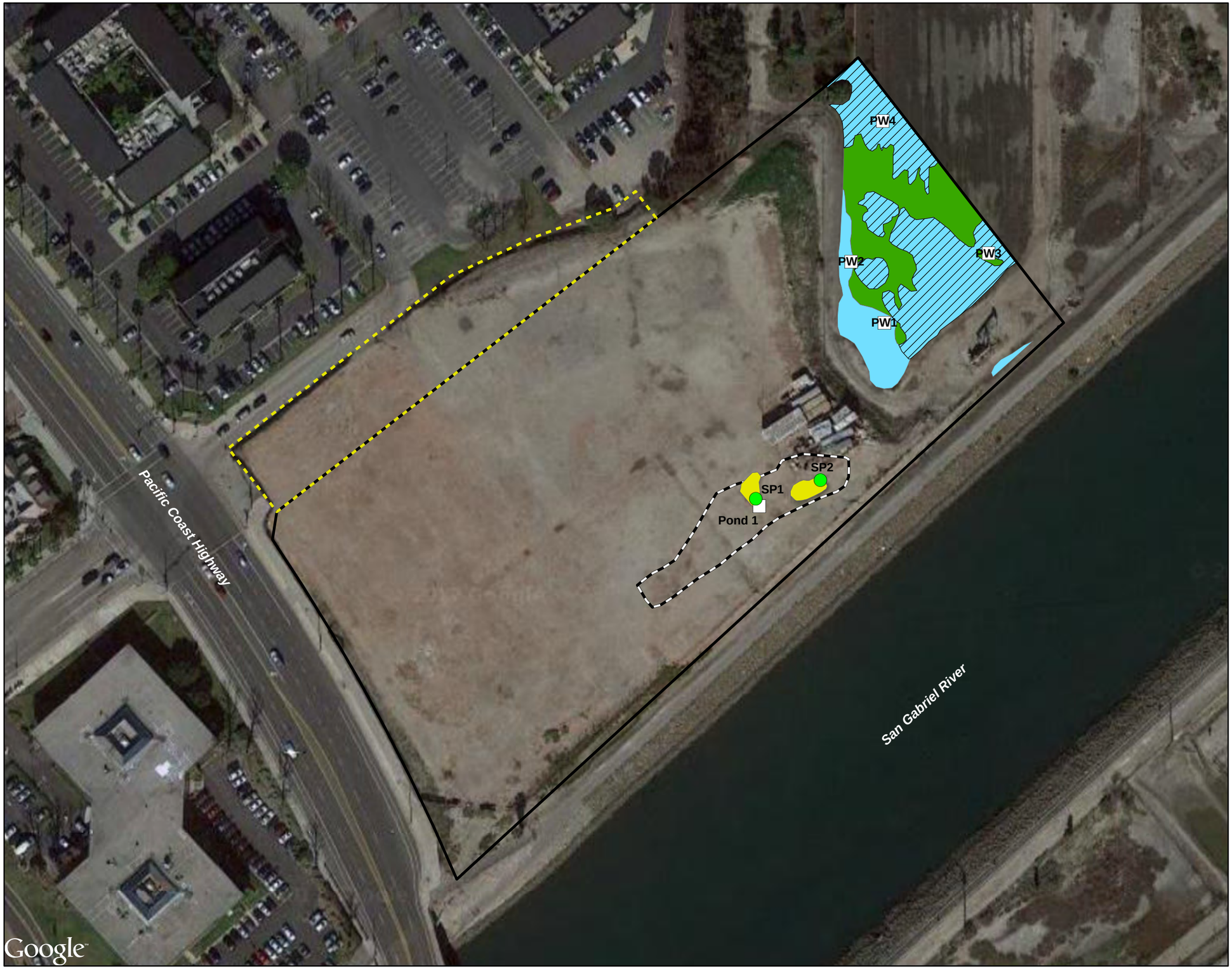
GLENN LUKOS ASSOCIATES

Exhibit 4D

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 4D CCC.mxd

EXHIBIT 5A

Pumpkin Patch – Jurisdictional Delineation Map



Legend

- Project Boundary
- City Right of Way
- Corps Wetland Within Pickleweed Mats
- Pickleweed Mats (CCC Wetland)
- Unvegetated Flats (CCC Wetland)
- Non-Jurisdictional Ponded Feature
- Non-Jurisdictional Depression
- 2013 Data Points
- 2016 Data Points

N

0 50 100 200

Feet

1 inch = 100 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 28, 2017

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

Pumpkin Patch Site – Jurisdictional Delineation Map

GLENN LUKOS ASSOCIATES

Exhibit 5A

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 5 PP JD.mxd

EXHIBIT 5B

Synergy – Corps Section 404 Waters & Wetlands/RWQCB Jurisdiction With Tarplant Locations

Legend

- Project Boundary
- Southern Tarplant
- Waters
- Wetlands

N

0 175 350 700

Feet

1 inch = 350 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 28, 2017

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

Synergy Oil Field – Corps Section 404 Waters & Wetlands/RWQCB Jurisdiction With Tarplant Locations

GLENN LUKOS ASSOCIATES

Exhibit 5B

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 5B TarplantCorps.mxd

EXHIBIT 6

City Property Site – Jurisdictional Delineation Map

Legend

- Project Boundary
- Potential Coastal Wetland & Corps Wetland
- Potential Coastal Wetland, Corps Wetland, & CDFW Jurisdiction

GIS Data Source: VCS Environmental

N

0 100 200 400

Feet

1 inch = 200 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 17, 2017

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

City Property Site – Jurisdictional Delineation Map

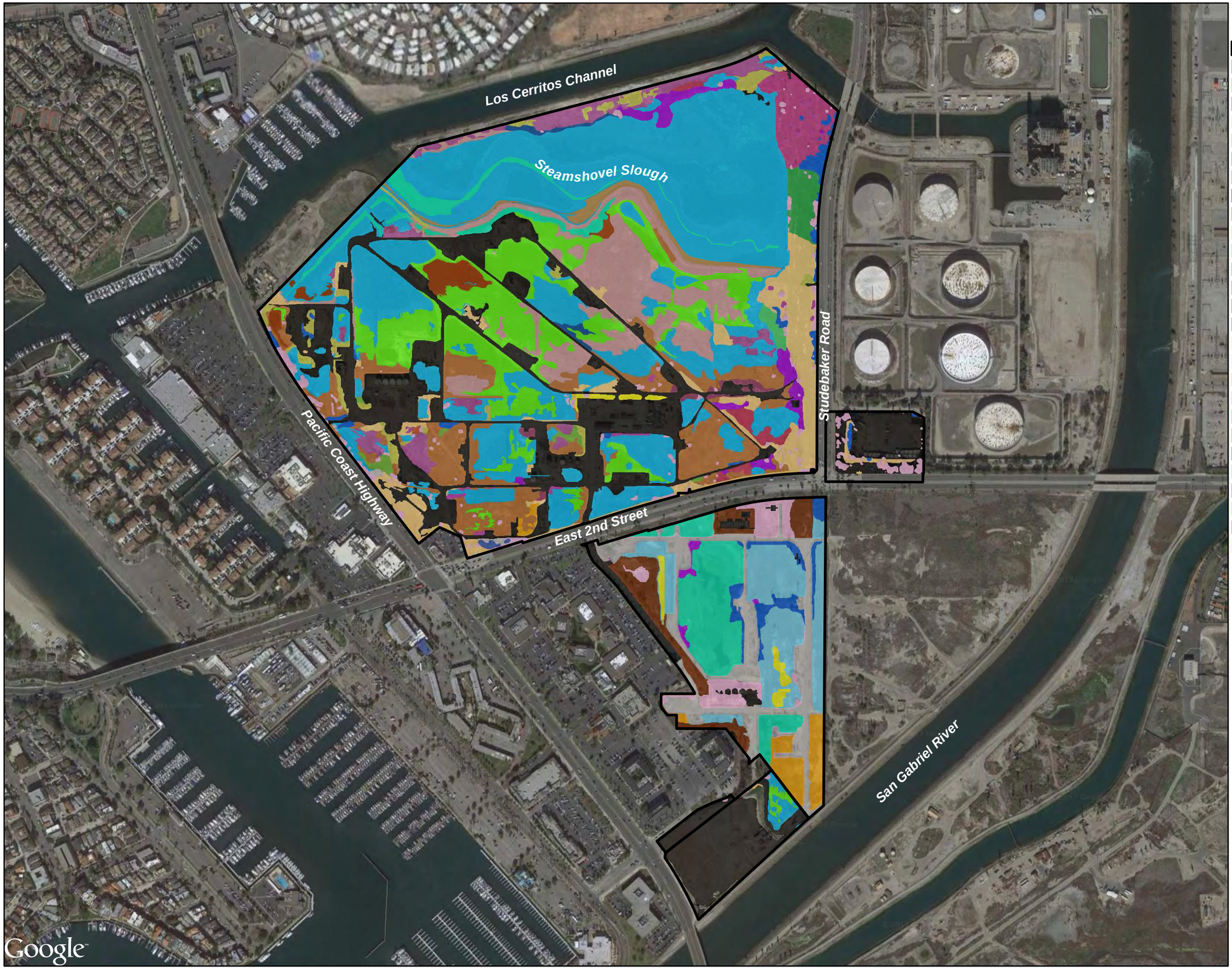
GLENN LUKOS ASSOCIATES

Exhibit 6

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 6 City.mxd

EXHIBIT 7

Vegetation Map



Synergy, Pumpkin Patch & LCWA

- Project Boundaries
- Alkali Heath Flats
- Alkali Weed-Saltgrass Flats
- Bassia Thicket
- Black Willow
- California Cordgrass Marsh
- Cattail Marshes
- Coyote Brush Scrub
- Disturbed
- Emory's Baccharis Thickets
- Ice Plant Mats
- Iceplant/Pickleweed
- London Rocket Fields
- Menzie's Golden Bush Scrub
- Mudflats - Tidal
- Mulefat Thickets
- Non-Native Grassland
- Ornamental
- Pampas Grass Patches
- Parish's Glasswort Patches
- Pickleweed Mats
- Saltgrass Flats
- Shoregrass Flats
- Tidal Channel
- Unvegetated Flats-Upland
- Unvegetated Flats-Wetland
- Yellow Star-Thistle Fields
- Yellow Sweet Clover Fields

City Property Site

- Project Boundary
- Development
- Mulefat Scrub
- Ruderal Uplands
- Ruderal Wetlands
- Salt Flat
- Southern Coastal Brackish Marsh
- Southern Coastal Salt Marsh
- Southern Willow Scrub
- Vegetation Free Zone
- alkali meadow

N

0 275 550 1,100

Feet

1 inch = 550 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 28, 2017

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

Vegetation Map

GLENN LUKOS ASSOCIATES

Exhibit 7

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 7 Veg.mxd

EXHIBIT 8

Site Photographs

Photograph 1: Coastal salt marsh viewed from northwest corner of Steamshovel Slough, looking southwest.

Photograph 2: View of upland areas northwest of Steamshovel Slough with Pickleweed mats, looking west.

GLENN LUKOS ASSOCIATES

Exhibit 8

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

Site Photographs

Photograph 3: View of northeast corner of Steamshovel Slough looking northeast.

Photograph 4: View of tidal channel south of Steamshovel Slough with unvegetated and sparsely vegetated flats.

GLENN LUKOS ASSOCIATES

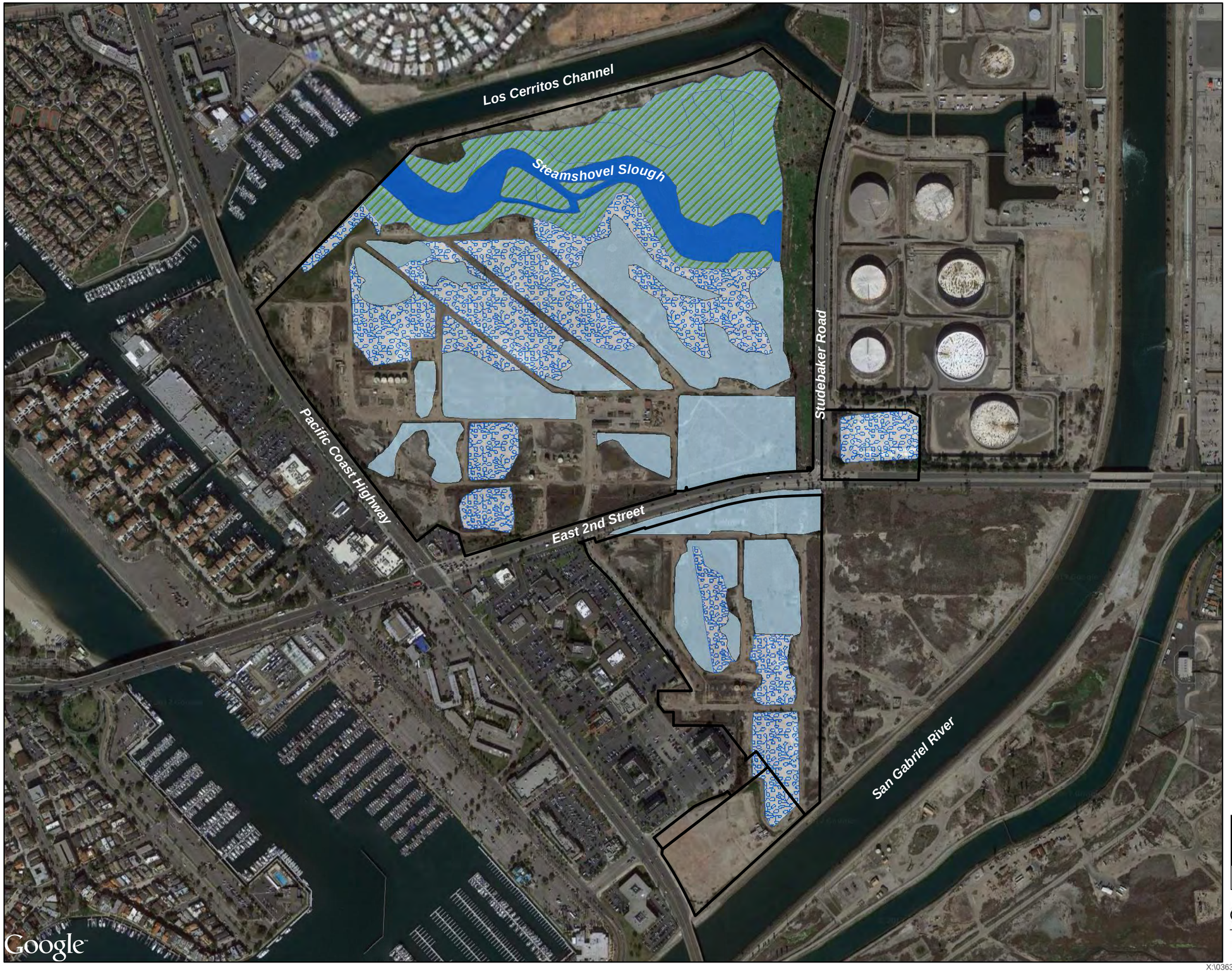
Exhibit 8

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

Site Photographs

EXHIBIT 9

National Wetland Inventory Map



Legend

- Project Boundaries
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Pond

N

0 275 550 1,100

Feet

1 inch = 550 feet

Coordinate System: State Plane 5 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: K. Kartunen, GLA
Date Prepared: February 28, 2017

LCW OIL CONSOLIDATION AND RESTORATION PROJECT

National Wetland Inventory Map

GLENN LUKOS ASSOCIATES

Exhibit 9

X:\0363-THE REST\1032-02MITI\Report_JD\February 2017\Exhibit 9 WetlandsInventory.mxd