Appendix B: Southern Los Cerritos Wetlands Restoration Project Basis of Design Components

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MEMORANDUM

To:	Eric Zahn
Cc:	Sally Gee
From:	The M&N Design Team (M&N, CRC, Anchor)
Date:	1/31/23
Subject:	Basis of Design Components
M&N Job No.:	210644

Introduction

This memorandum represents the 65% Draft Basis of Design (BOD) document. It presents the project design and its rationale for the record and for clarification of project design components. The BOD is also intended for stimulating input from the LCWA and the Technical Advisory Committee.

One over-arching goal of the design is to create a project that is self-sustaining and resilient with minimal maintenance over time. Project-specific goals are listed below.

1. Restore tidal wetland processes and functions to the maximum extent possible.

2. Maximize contiguous habitat areas and maximize the buffer between habitat and sources of human disturbance.

3. Create a public access and interpretive program that is practical, protective of sensitive habitat and ongoing oil operations, economically feasible, and will ensure a memorable visitor experience.

4. Incorporate phasing of implementation to accommodate existing and future potential changes in land ownership and usage, and as funding becomes available.

5. Strive for long-term restoration success.

6. Integrate experimental actions and research into the project, where appropriate, to inform restoration and management actions for this project.

The philosophy in the design is to minimize structures and dependence on features (mechanical items) that require active operation, maintenance and/or replacement.

Draft Basis of Design Components

1. Sources of Seawater – The project is proposed to be phased to capitalize on two sources of seawater that are available at different points in time. An existing 42-inch culvert with an invert elevation of -1.0 foot NGVD connects the site to the San Gabriel River and can serve as the seawater source in the near-term timeframe. The second seawater source is the Haynes Cooling Channel (HCC) immediately adjacent to the project site and it is assumed to be available on or after 2029. The project will be connected to the 42-inch culvert in Phase 1 and then be connected to the Haynes Cooling Channel in Phase 2. It is also assumed at this time that the existing culvert will not be relied upon as the primary tidal connection and could be closed but not permanently sealed. It could be left in place to become functional in the future if needed for any reason as a back-up water source. If the HCC cannot be obtained as a water source in the future, then the phase 2 footprint may have to be redesigned and the phasing may need to be revised (Coastal Restoration Consultants, or CRC 2021).

Different tidal conditions will exist in Phases 1 and 2 because the 42-inch culvert does not convey as much seawater as efficiently to and from the site as will the Phase 2 open channel connection. Modeling conducted for prior work (Moffatt & Nichol, or M&N 2015) and for this specific effort (M&N 2022) indicates that the existing tide range is 2.8 feet with a culvert-only connection to the SGR as Phase 1. Tidal elevations range from a high of +2.9 feet and a low of +0.1 feet. The modeling also indicates a potential tide range of nearly 8 feet with a connection to the Haynes Cooling Channel as Phase 2. This suggests that low tides in Phase 1 are limited to an elevation of approximately +0.1 foot NGVD, while it drops to nearly -3.7 feet NGVD in Phase 2.

For Phase 1, the existing culvert connection to the San Gabriel River is assumed to be used. The culvert would likely need to be cleaned out, and the gate is either:

A. Left as is – to simplify permitting and is assumed to be the most likely scenario at this point;

B. Removed entirely – could trigger extra permitting from USACE under section 408 or,

C. Replaced with a new automated device for controlling water levels such as a Self-Regulating Tide gate (SRT) – This action may also require a USACE 408 permit.

For Phase 2, it is assumed that an open channel connection to the Haynes Cooling Channel exists. Full ocean tides will be provided by this connection.

2. Tidal Channels – The current plan is based on ultimate implementation of Phase 2 with a full tide range. With the uncertainty of Phase 2 occurring, if the tide range remains constricted 2.8 feet, then the design of Phase 1 and the bed elevation of the tidal channels could be reconsidered. Low marsh habitat elevations may need to be revised if this is to be the case, but other habitat elevations should function successfully as presently designed. The tidal channel layout and sources of seawater are shown in Figure 1.

Tidal channels provide important habitat and are crucial for distributing tidal flows throughout the marsh. The smallest channels, first-order tidal creeks, are typically found throughout mid-marsh plains and are generally less than a few feet wide and deep and typically drain completely on most low tides. First-order creeks merge to form second-order tidal creeks, which are larger and deeper and may drain only on lower low tides. Second-order creeks merge to form larger third-order creeks and so on. Third-order and higher order creeks typically contain sub-tidal habitat, which is important especially for fish. Natural tidal creeks tend to be meandering due to the generally flat nature of most natural marsh plains.

The 65% engineering drawings show the largest sub-tidal channel proposed through the site to be deepened to an elevation of -4.5 feet NGVD to provide 1 foot of water in the channel at the lowest low tide in the future Phase 2. This same channel will hold nearly 4.5 feet of water in the channel at low tide in Phase 1. The goal is to keep the water in the channel cool and oxygenated in prolonged dry weather conditions. In Phase 1, tidal creeks in the areas that are set aside for minimal to no grading will generally be left to develop on their own around existing small ditches that were dug by vector control to help minimize ponding of tidal waters. These are expected to develop after the full tidal connection allows greater tidal dynamics and thus flows with more potential to cut channels. Except where the new main sub-tidal channel intersects it, the existing tidal channel through the site will remain undisturbed except where culverts will be removed, and also potentially within the experimental area. The lower part of this channel contains a diversity of native invertebrates that if preserved, will help populate the newly restored habitats more quickly than if they had to colonize from neighboring systems such as Steamshovel Slough.

3. Habitat Areas and Elevations – This project is designed to provide a diversity of quality wetland, transitional, and upland habitats on this site, considering opportunities and constraints. The layout of the habitat distribution and size of the areas was prepared to optimize the habitat function on-site. The proposed habitat plan for Phases 1 and 2 is shown in Figure 2. The entire grading plan for the site is designed for fully tidal conditions, which will occur in Phase 2. This is

done so that most areas of Phase 1 will not need to be graded twice, causing additional disturbance to developing habitats.

The result of the ultimate Phase 2 design approach is that lower elevation habitats will experience a relatively high tidal inundation frequency (wetted more often than needed) until Phase 2 is implemented. The cordgrass marsh area for instance will likely be too wet for cordgrass establishment and the entire sub-tidal channel will remain inundated in the near-term. These areas will provide mudflat and sub-tidal habitat in the near-term. At mid-marsh and high-marsh elevations, tidal muting in Phase 1 is less so it is expected that these habitats will function more or less naturally in Phases 1 and 2. The highest high tides will be muted in Phase 1 so the upper limit of the high-marsh and the transition zone will move higher between phases, but both of these habitats will still be in the establishment phase when Phase 2 is implemented. Therefore their elevation ranges will be more a product of revegetation efforts (planting and irrigating) than natural processes. Limited areas at the interface between Phases 1 and 2 will need to be graded in both phases, mainly to connect the Phase 1 sub-tidal channel with both the Haynes Channel and with the upstream extension of the main sub-tidal channel on-site..

Grading shall be done in such a way as to provide for naturalized surfaces with uneven terrain rather than artificially smooth and flat marsh plains. The contractor will be required to create uneven terrain with “micro-topography” or “lumps and bumps” in the areas for mid-marsh, high marsh, transitional habitat, and filled upland habitats. This can be achieved by several methods including ripping graded surfaces, and by “side-casting” earth material when excavating micro-channels to form a low berm parallel to the channels, and then creating gaps in the new berm to result in mounds spaced at random intervals along the channel banks. It can also be achieved by leaving relatively higher existing mounds in place during the grading of the marsh plain to provide more natural unevenness. The Los Cerritos Wetlands Restoration plan by Coastal Restoration Consultants (CRC) dated May 26, 2021 provides examples of the uneven terrain concept.

See details below for each sub-habitat area. The habitat ranges indicated below are all assuming current sea level. The relationship between elevation and inundation frequency will change as sea level rises. The relationship between inundation frequency and habitat type will generally not change.

A. Sub-tidal habitats occur below the lowest tide levels (-3.9 ft NGVD) in fully-tidal systems (Phase 2) or where drainage is limited resulting in permanent ponding in muted-tidal systems (Phase 1). Sub-tidal habitats have an inundation frequency of 100%.

B. Unvegetated low intertidal habitats will occur below the lowest areas of vegetation and have an inundation frequency of 100% to 40%. This inundation range is often referred to as mudflat, but this project is not designed to have any mudflats at current sea level for Phase 2. There will be unvegetated low intertidal habitats in tidal channels, and in Phase 1 mudflat will exist in the future low marsh (cordgrass) area where hydrologic conditions will not yet be suitable for cordgrass until the Phase 2 connection to the HCC. This is described in item C below.

C. Cordgrass marsh areas can occur in along tidal and sub-tidal creeks and on flats that are inundated between about 20% and 40% of the time. The cordgrass marsh area within the project is designed to be inundated 20% of the time once the Phase 2 connection to the Haynes Cooling Channel is made to maximize the time before it converts to mudflat with SLR. This elevation is expected to be +1.9 feet NGVD. During Phase 1, however, when tides are muted the vertical position of the 20%-40% inundation elevation range will be higher compared to Phase 2. Therefore, the low marsh (cordgrass) area is expected to temporarily be mudflat habitat until Phase 2 is implemented.

D. Areas that are graded to mid-marsh elevation are designed to be at +3.3 feet NGVD, which is the upper limit of the 2.0 – 3.3 feet NGVD range for this habitat (and an inundation frequency of 4% to 20%). This will allow mid-marsh habitat to exist at current sea level and with about 1.3 feet of sea level rise. Without beneficial

sediment additions, these habitats will convert to cordgrass marsh with further sea level rise and eventually to unvegetated low intertidal habitat (mudflats) with about 2.6 feet of sea level rise. Much of the areas labeled as "minimal- to no-grading" in Phase 1 fall within the elevation range for mid-marsh and are expected to function as such. It is expected that in Phase 1 the elevation range for mid-marsh will be lower by nearly 0.8 feet than the Phase 2 elevations. The graded mid-marsh areas will include tidal creeks and microtopographic variation that will create mud panne habitat in depressions and small patches of high marsh on small mounds. This topographic heterogeneity increases the overall habitat value of the mid-marsh plain.

E. Areas that are graded to high marsh elevation are designed to be at +4.7 feet NGVD, which is the upper limit of the 3.4 – 4.7 foot NGVD range for this habitat (and an inundation frequency of 0.05 % to 4%). This will allow high-marsh habitat to persist with about 1.3 feet of sea level rise. As with graded mid-marsh habitats, high-marsh will convert with every 1.3 feet of sea level rise to mid-marsh, cordgrass marsh, and unvegetated low intertidal (mudflats). Some of the "minimal- to no-grading areas in Phase 1 will be high marsh and fall into this elevation range. As with mid-marsh, the inundation frequency of high-marsh areas is not expected to change between Phase 1 and 2. High marsh areas will not have tidal creeks but should have topographic heterogeneity like the mid-marsh, mainly in the form of small mounds that can support transition zone shrubs such as California boxthorn (*Lycium californica*). This habitat heterogeneity increases the overall habitat value of the high marsh habitat.

F. Salt panne habitat will be restored in large depressional areas between about +4.1 and +4.7 feet NGVD. Salt pannes flood with a combination of rainfall and/or when extreme high tides overtop the low point surrounding the depression. The ponded water evaporates over time, concentrating salts, often leaving a salt crust on the soil surface when not flooded. The high soil salinity and prolonged flooding exclude most vegetation from salt pannes; however, the upper edges can support the rare annual plant Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*). When not flooded, salt pannes can provide habitat for rare invertebrates such as tiger beetles and nesting for western snowy plovers. The sill elevation for tidal flooding of the salt panne areas should be set at +4.7 feet NGVD.

G. The transition zone habitat areas occur between the high-marsh and upland areas in a zone that is not flooded by the highest typical annual tides but is flooded during anomalous high tides (e.g., in El Nino years) and when high tides coincide with significant rainfall. These rare flooding events leave soils that are too salty for most upland plants and too dry for most salt marsh plants. The width of the transition zone varies between marshes; systems with significant riverine inputs can have more extreme water levels during fluvial flooding events. For this project, which has minimal fluvial connections, the transition zones are designed to be at between +4.8 feet and +5.7 feet NGVD, or about one foot above the highest high tide. This elevation range is expected to be appropriate during both Phases 1 and 2.

H. Non-tidal areas above 5.7 feet NGVD will be restored using native upland species. In areas that have relatively well-drained soils (sandy loams or on 3:1 or steeper slopes), coastal sage scrub can be restored. Heavier soils that are not well drained might support less diverse scrub communities and native grasslands.

I. A non-tidal strip of area between Area 18 and the northern and eastern property lines is expected to support native riparian trees, which are thriving in a bioswale setting immediately east of the project area. Excavation in this area is not required. Non-native vegetation and weeds will be removed and the area will be replanted with native vegetation.

4. Flood Protection – A combination of earthen berms and natural high terrain will protect neighboring properties from potentially increased flooding risk due to improved connection to the SGR culvert in Phase 1 and future connection to the Haynes Cooling Channel in Phase 2. A berm will be installed up to an elevation of +7.5 feet NGVD along the northern boundary of the site with the active Hellman oil field. It will provide a 6-foot width across the crest for pedestrian access. That berm will "tie-into" higher existing elevations at the western end of Area 18. Area 18 and natural high

ground protect neighbors to the east and south of the site except near the eastern end of the existing tidal channel where there is currently regular tidal flooding of a small wetland on City of Seal Beach property. The future hydrology of this area under project conditions is being assessed. The existing First Street roadway through the site will be elevated up to +10.0 feet NGVD and out of the reach of future high water for safe travel by vehicular traffic to the Hellman (oil field) site. Finally, the levee along the Haynes Cooling Channel will remain in place in Phase 1 to keep the water bodies of the wetland and channel separated, but will be partially removed in Phase 2 to allow full connection between water bodies. This is not shown on the 65% design drawings because the levee is not on LCWA property. Flood protection features area shown on Figure 3.

5. Earthwork Balance – A significant amount of excavation is proposed in the project. Each phase results in lowering of areas on the site and generation of surplus soils. Soil disposal offsite is costly. The eastern high ground at Area 18 may be able to be raised significantly to serve as a spoil area for excess earth fill. The grading plan shows it being raised to between +20 and 22 feet NGVD in Phase 1. The other area that may be able to be raised is the former City landfill site at the southwest portion of the site. The raising of that site is shown in the drawings and has been factored into the earthwork quantities. Any fill in the landfill area needs to be kept low enough to not block views from the neighborhood in Seal Beach. In contrast however, blocking views of the nearby oil operations from Heron Point may be desirable. These fill areas would be restored with native upland plant communities.

Additionally, there may be a future need for soil on-site that could be used for beneficial sedimentation in the restored intertidal habitats, which will be needed as sea level rise triggers habitat conversion. Soil for this use could be stockpiled somewhere on site and vegetated to control erosion but not to necessarily create habitat. Generally, the soil volume produced by the project will be a surplus of nearly 274,000 cubic yards (cy). Grading for this project is designed such that the cut and fill quantities balance. Due to the amount of artificial fill and high topographic elevations already present on the site, importing material will not be needed. Advance planning should occur with LCWA members to plan for beneficial soil re-use to reduce future project costs and impacts from material disposal. An example would be providing fill to the Port of Long Beach if it were suitable for project development. The preliminary earthwork quantities are shown in Table 1 below. These quantities may change as the project is further designed. A cut and fill graphic is shown in Figure 4.

Table 1: Table of Material Quantities

Item	Cut Quantity (cy)	Fill Quantity (cy)	Net Quantity (cy)
Phase 1 Grading	97,263	71,371	25,892 Cut
Phase 2 Grading	176,671	199,352	<22,681> Fill
Totals	273,934	270,723	3,211 Cut

6. Soil Preparation – Information in this section is provided by CRC (2021). Topsoil (3-6 inches) should be grubbed from graded and filled areas. This soil and plant material, which will contain a significant amount of weed propagules, should be buried at least 12 inches deep in fill areas or hauled off site in order to limit weed infestations in restored uplands. After intertidal areas are graded to the proper elevation, the soil should be ripped to a depth of 12 inches in order to create small-scale topographic heterogeneity and assure soils are not overly compacted. High marsh and transition zones should also be disked to break up large clods of soil. Low marsh and tidal and sub-tidal channels should not be ripped or disked. Low ground pressure equipment should be used in restored marsh areas to avoid soil compaction.

Upland areas that are graded or receive fill should be ripped to 18 inches and then disked. Selective placing of fill based on soil salinity should assure that at least the top 36 inches of soil has a salinity less than 3 parts per thousand. Saltier soil should be placed as deeply as possible in fill areas or hauled off site. Salty soil can also be stockpiled for future use in beneficial sedimentation of the restored marsh. Regular soil testing will be conducted during grading to assure soils in the fill areas are appropriate for supporting target plant communities. A soil amendment plan will be developed in final engineering design.

7. Preservation of Sensitive Plants On-Site – Information in this section is also provided by CRC (2021). Two rare plants that are known to occur on the project site have the potential to constrain certain restoration actions. Lewis' evening primrose (*Camissoniopsis lewisii*), a small annual plant, is a California Native Plant Society (CNPS) Rank 3 species, which means it may be in need of protection but a lack of sufficient data on its distribution exists to make this determination. This somewhat ambiguous listing makes it difficult to determine how the agencies will view potential impacts to this species. This is a species normally found on very sandy soils in dune systems or on bars along creeks and rivers. It occurs in two areas on imported sand at the project site; in Area 18 and just north of the landfill area on soil that likely has less than 5% silt and clay (i.e., beach sand). Relatively little is known about propagation of this species though it seems to sprout readily from its seedbank with very limited rainfall at the site. Southern tarplant (*Centromadia parryi* ssp. *australis*) is an annual species tolerant of salty clayey soils that is scattered throughout the project site. It is a CNPS Rank 1b, meaning it is rare throughout its range and therefore given a high level of protection, especially in the coastal zone. Propagation of this species is relatively easy where non-native annual species can be controlled. Since both species are annuals, their distribution and population size vary from year to year based on the amount of rainfall. Both species have been mapped in at least two years so there is reasonabe confidence of their distribution at the site. There will inevitably be some impacts to one or both of these species that will trigger the need for some mitigation. There will be many opportunities to establish new areas that support southern tarplant in upland areas with good weed control. Preserving Lewis' evening primrose will require protecting or expanding the area of sand where this species occurs. The mitigation ratio for any impacts to either species is still to be determined with the agencies.

8. Riparian Swale – A riparian area shown in the Conceptual Restoration Plan (CRC 2021) was proposed at the east end of the site. However, due to topographic constraints the project team has decided to simply maintain the existing function along the eastern project boundary rather than create a new swale.-An existing riparian area is being sustained by fresh groundwater shallow enough for trees to reach. The project proposes no changes to the site other than non-native vegetation removal and planting of native species.

9. Contaminated Sump Sites – Certain sites within the project area listed as former oil sumps will need to be removed and backfilled. Contamination left in twelve sumps was commonly placed next to oil wells to collect and circulate drilling muds. The project investigated potential oil contamination in near-surface soils (down to 6 feet below ground surface) and made determinations about their handling. Five sumps that exist on-site will require excavation and removal. The sumps are numbered as 1, 2, 3, 7 and 11. It is assumed they are entirely removed to 6 feet below grade with 2:1 side slopes within their entire outlines and hauled off to a municipal landfill. The volume of material estimated to be hauled away is 26,600 cy. The contractor will stockpile the material on-site, test it for contamination levels, and then haul it off to a landfill. Surplus sediment from grading will be used to backfill the excavation footprints of these sumps. Seven other sumps on-site do not require removal due to the relatively low level of contamination in

each. The sumps to remain are numbers 4, 5, 6, 8, 9, 10 and 12. Figure 5 shows the sumps to be removed and those to remain. This excavation and backfill activity is factored into the earthwork quantities. There are several sumps in the minimal to no grading areas in Phase 1. Sump 11 is within this area and will require clean up, so there will be a short-term disturbance to areas supporting Belding's savanna sparrow breeding habitat during the clean-up. Removing these contaminants will likely be a long-term benefit to this species at the site as the presence of the contaminants may be detrimental to the health of the birds and their reproductive success. Agencies will determine what mitigation will be needed, but the project is expected to greatly expand habitat for this species overall.

10. Contaminated Non-Sump Sites – Sites that are generally labeled as potentially contaminated but are not specifically categorized as sumps will generally be left unaltered. However, there are small areas that may be graded in shallow lifts to create intertidal habitat. Areas that are currently supporting salt marsh habitat will remain unaltered.

11. Construction Staging and Access – Construction staging includes activities such as equipment and material storage, may serve as the contractor field office location, and may provide construction access points. Staging is proposed at the existing State Lands Commission site, along the southern shoulder of First Street outside of the fence line, and at the site of the existing shipping container off of First Street currently used for stewardship programs. Staging at the State Lands parcel is proposed to occur outside of the existing concrete pads and to only occur on existing vacant ground, and will avoid wetlands. Staging along First Street is only to be located along the southern shoulder of the road and outside of the fence line to provide continued passage of vehicles into and out of the site, as needed. Staging at the location of the existing shipping container is on a small site and may only be suitable for the construction trailer or other small-scale storage needs. Southern tarplant has been observed at or near all of these areas, and is especially widespread at the State Lands Commission site. Potential impacts to this species will need to be considered in choosing a preferred footprint for one or more staging areas. An additional construction staging area is proposed at the midpoint of the northern project boundary.

Construction access points are at 1st Street off Pacific Coast Highway, and at Adolfo Lopez Street. Figure 6 shows construction staging and access sites.

12. Road Surface Removal – The existing road surface at the eastern end of the site near Area 18 and paralleling the existing drainage ditch will be removed and the site lowered to be the elevation of mid-marsh; much of that road is currently at or near the elevation of mid-marsh. This shall be done to provide colonization by wetland plant species and to provide for research plots as addressed below. Disposal of the asphalt or concrete will be addressed in the construction documents.

13. Research Plots – Wetland research test plots will be created along the existing eastern relic roadway alignment once the road is removed. The research plots will allow for quantitative evaluation of sea level rise effects and perhaps adaptive management approaches. This area is labeled in the design and details have been developed in the 65% design stage. Discussion of this item is found in CRC 2021.

14. Channel Under First Street – The specifics of the channel connection under First Street have been determined in the 65% design stage. The channel underneath the road will remain relatively large in cross-section using either a large span pre-cast concrete box structure with three sides or a pre-fabricated bridge. The connection is designed to not mute tides and to accommodate 3.3 feet of SLR.

15. Seal Beach Wetland at the Southeast Corner – A portion of the project site located near the far east end straddles a wetland and the property fence line runs through a marsh. Some of that marsh is located on the project site and the rest is located within the City of Seal Beach. There is a desire to not impact it, but in all likelihood the new tidal connection and proposed grading could result in tides inundating that site. This project proposes a small earthen berm between the far eastern end of the Hellman Channel and the property fence line to reduce the amount of tidal inundation entering that small area. The dimensions of this proposed berm may need to be lengthened to protect the wetlands on the Seal Beach side from inundation. However, the design needs to be vetted through the City and the agencies to identify the appropriate action for this specific site.

16. Public Access Pathways – Public access is incorporated into the project design. New earthen trails are proposed and shown schematically in the 65% design along 1st Street and over the southern land fill area with a trail that connects to an existing trail along Gum Grove Park. The final location of the trails may need to be further assessed out in the final engineering stage and after additional meetings with the public, representative Native American nations, and the regulatory agencies.

17. Cultural Resource Considerations – Native American studies and outreach are in process and are informing the project design. At this time the project has intentionally avoided any work in perimeter upland areas (e.g., Gum Grove Park) in consideration of such resources, but pathways and special land use areas may be added to meet the needs of Native Americans in future design iterations. One example is the reburial site proposed within the southern portion of the project area that is shown on the 65% design plans.

18. Soil Texture – Soils in salt marshes, especially in the mid-marsh and lower, tend to have high silt and clay content. The fine texture is important for carbon sequestration, nutrient cycling and other natural processes. The entire project area is located on what was historically tidal marsh and it is expected that those historic marsh soils are intact at some depth. Ideally, those soils will become the surface of the restored marsh in many areas. In any case, the final grading should assure that the top 12-24 inches of soil in the mid-marsh and cordgrass marsh areas is over 40% clay and less than 25% sand. High-marsh areas can have similar soils to lower areas of the marsh or be quite sandy. Salt panne soils should be over 80% silt and clay in at least the top 6-12 inches. Selective grading should be used to assure topsoil (upper 12-24 inches) in fill areas are appropriate for upland restoration. This means they should have very low salinity, a loamy texture, and should not compacted.

19. Easements and Utilities – Easements and utilities exist on-site that need to be protected. Certain utilities (e.g., the Seal Beach main waterline) will be resleeved by the City. A portion of that City waterline will be re-routed to attach to a new structure (box culvert or bridge) over the main tidal channel. A utility easement for SCE also exists along the 1st Street entry road, and another easement for the local homeowner association to the east exists along the eastern property line. Undergrounding of the overhead power line owned by SCE along First Street is assumed to occur and is shown on the plans. The project will coordinate with the City of Seal Beach for waterline relocation and with SCE for undergrounding of the power lines.

20. Tree Removal – Certain existing trees will be removed as part of the project. The trees to be removed will be shown on the plans in the 65% design phase or a later phase. A majority of the trees are palm trees. Surplus organic material from the trees should be considered for use on site to create habitat features (brush piles or downed wood) or chipped to provide a surface for trails or for ground cover in landscaped areas.

21. Planting – Planting and irrigation of installed habitat areas will occur consistent with the Restoration Plan developed by CRC (2021). The Implementation guidance section of the plan calls for planting to occur on man-made transitional habitat areas, and in some intertidal marsh habitat areas. Planting would be done to accelerate the colonization process of target habitats, and would focus on areas that will be disturbed during construction. Irrigation may be needed to help establish the plants along the slopes of berms and control soil salinity in other areas with intertidal salt marsh, transitional, and upland habitat, but it should not be required permanently. Planting is shown on the 65% plans, but irrigation will be deferred to final engineering for construction due to its undefined location(s).

References

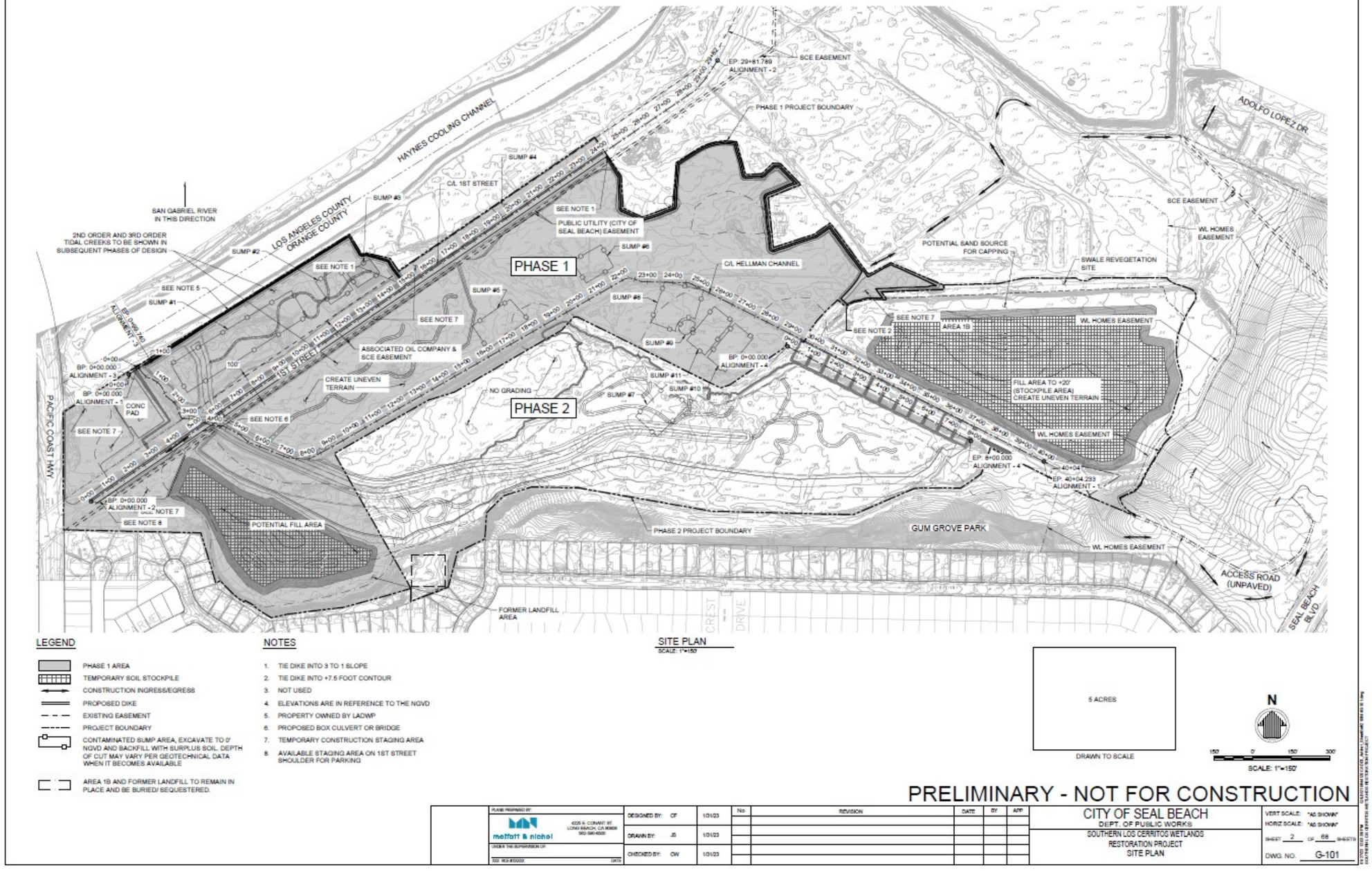
Coastal Restoration Consultants. 2021. Los Cerritos Wetlands Habitat Restoration Plan. May 26, 2021.

Moffatt & Nichol. 2015. Los Cerritos Wetlands Final Conceptual Restoration Plan. August 2015.

Moffatt & Nichol. 2022. Draft Hydrology Memorandum. January 31, 2023.

FIGURES:

1. Project Layout
2. Proposed Habitats
3. Flood Protection Features
4. Cut and Fill Map (“Heat Map”)
5. Sumps to Remain or be Removed
6. Construction Staging and Access Sites



LEGEND

- PHASE 1 AREA
- TEMPORARY SOIL STOCKPILE
- CONSTRUCTION INGRESS/EGRESS
- PROPOSED DIKE
- EXISTING EASEMENT
- PROJECT BOUNDARY
- CONTAMINATED SUMP AREA, EXCAVATE TO 0' NGVD AND BACKFILL WITH SURPLUS SOIL. DEPTH OF CUT MAY VARY PER GEOTECHNICAL DATA WHEN IT BECOMES AVAILABLE
- AREA 1B AND FORMER LANDFILL TO REMAIN IN PLACE AND BE BURIED/ SEQUESTERED.

NOTES

1. TIE DIKE INTO 3 TO 1 SLOPE
2. TIE DIKE INTO +7.5 FOOT CONTOUR
3. NOT USED
4. ELEVATIONS ARE IN REFERENCE TO THE NGVD
5. PROPERTY OWNED BY LADWP
6. PROPOSED BOX CULVERT OR BRIDGE
7. TEMPORARY CONSTRUCTION STAGING AREA
8. AVAILABLE STAGING AREA ON 1ST STREET SHOULDER FOR PARKING

SITE PLAN
SCALE: 1"=150'

5 ACRES
DRAWN TO SCALE

N
150' 0' 150' 300'
SCALE: 1"=150'

PRELIMINARY - NOT FOR CONSTRUCTION

PLANS PREPARED BY: moffatt & nichol, 4225 E. CONANT ST. LONG BEACH, CA 90808, 562-590-6500
UNDER THE SUPERVISION OF: ____ DATE
DESIGNED BY: CF 1/31/23
DRAWN BY: JS 1/31/23
CHECKED BY: CW 1/31/23

No	REVISION	DATE	BY	APP

CITY OF SEAL BEACH
DEPT. OF PUBLIC WORKS
SOUTHERN LOS CERRITOS WETLANDS RESTORATION PROJECT
SITE PLAN

VERT SCALE: "AS SHOWN"
HORIZ SCALE: "AS SHOWN"
SHEET 2 OF 68 SHEETS
DWG. NO. G-101

FIGURE 1 – PROJECT LAYOUT WITH SOURCES OF SEAWATER AND THE TIDAL CHANNEL NETWORK

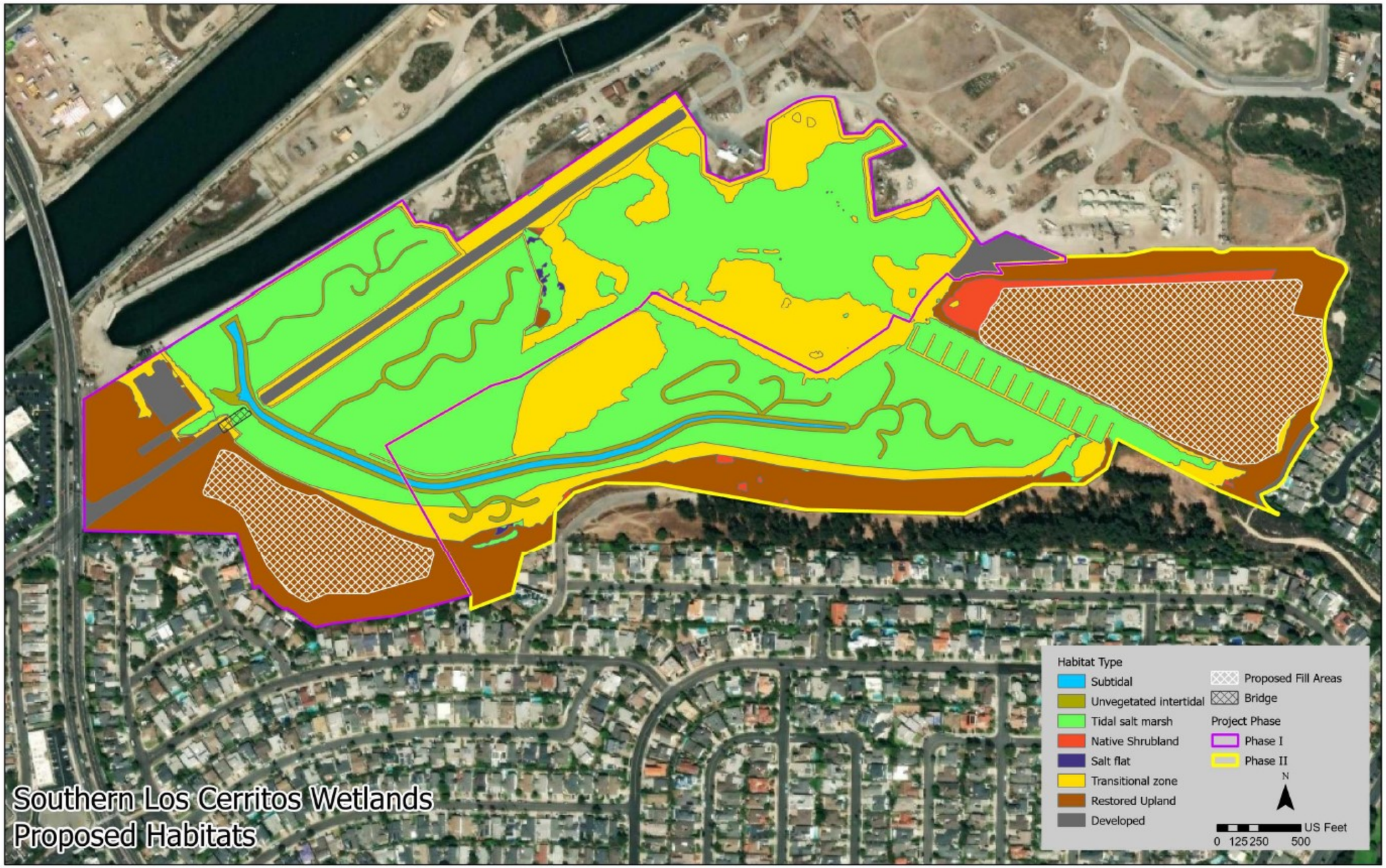
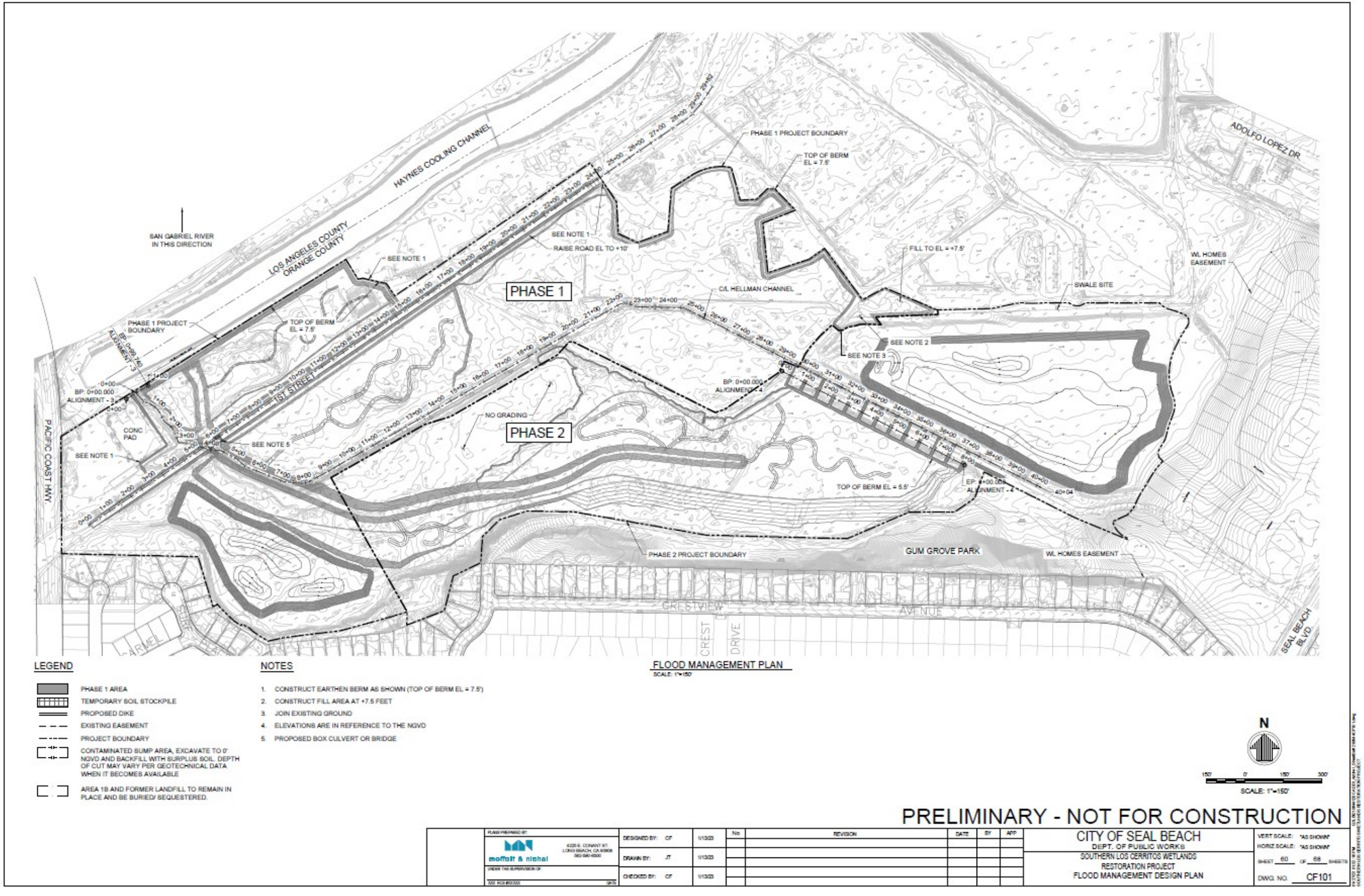


FIGURE 2 – PROPOSED HABITATS



LEGEND

- PHASE 1 AREA
- TEMPORARY SOIL STOCKPILE
- PROPOSED DIKE
- EXISTING EASEMENT
- PROJECT BOUNDARY
- CONTAMINATED SUMP AREA, EXCAVATE TO 0' NGVD AND BACKFILL WITH SURPLUS SOIL. DEPTH OF CUT MAY VARY PER GEOTECHNICAL DATA WHEN IT BECOMES AVAILABLE
- AREA 1B AND FORMER LANDFILL TO REMAIN IN PLACE AND BE BURIED/ SEQUESTERED.

NOTES

1. CONSTRUCT EARTHEN BERM AS SHOWN (TOP OF BERM EL = 7.5')
2. CONSTRUCT FILL AREA AT +7.5 FEET
3. JOIN EXISTING GROUND
4. ELEVATIONS ARE IN REFERENCE TO THE NGVD
5. PROPOSED BOX CULVERT OR BRIDGE

FLOOD MANAGEMENT PLAN
SCALE: 1"=150'

N

150' 0 150' 300'
SCALE: 1"=150'

PRELIMINARY - NOT FOR CONSTRUCTION

PLANS PREPARED BY: moffatt & nichol, 4225 E. CONANT ST. LONG BEACH, CA 90808, 562-590-6500	DESIGNED BY: CF	1/13/23	No.	REVISION	DATE	BY	APP	CITY OF SEAL BEACH DEPT. OF PUBLIC WORKS SOUTHERN LOS CERRITOS WETLANDS RESTORATION PROJECT FLOOD MANAGEMENT DESIGN PLAN	VERT SCALE: "AS SHOWN" HORIZ SCALE: "AS SHOWN" SHEET 60 OF 68 SHEETS DWG. NO. CF101
UNDER THE SUPERVISION OF: ___ RCE# ___ DATE	DRAWN BY: JT	1/13/23							
	CHECKED BY: CF	1/13/23							

FIGURE 3 – PROJECT FLOOD MANAGEMENT DESIGN PLAN WITH FLOOD PROTECTION FEATURES

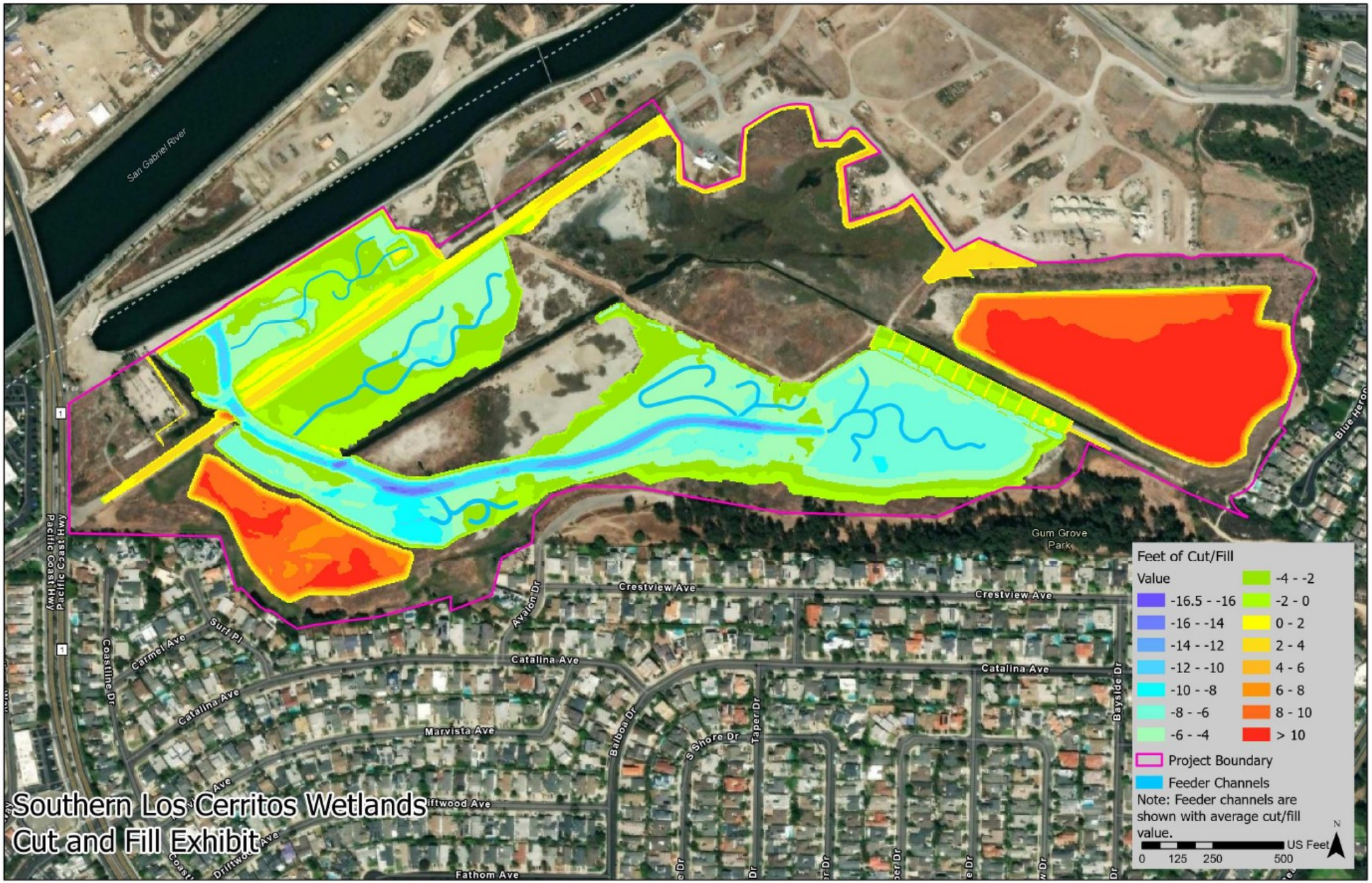


FIGURE 4 – PROJECT CUT AND FILL VALUES

FIGURE 5 – SUMPS TO REMAIN OR BE REMOVED

FIGURE 6 – CONSTRUCTION STAGING AND ACCESS SITES

Appendix C: Southern Los Cerritos Wetlands Restoration Project – Air Quality/Greenhouse Gas Study

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MEMORANDUM

To:	**Chris Webb and Stephanie Oslick**
From:	**John Thomason**
Date:	**3/27/2023**
Subject:	**Southern Los Cerritos Wetlands Restoration Project Air Quality/Greenhouse Gas Study**
M&N Job No.:	**210644**

Background

The Southern Los Cerritos Wetland Restoration Project is focused on restoring 103.5-acres of tidal wetlands in Los Cerritos Wetland, Seal Beach California (Figure 1). Moffatt & Nichol (M&N) and its team partners have contracted with Los Cerritos Wetlands Authority (LCWA) to provide environmental compliance for the project, among other services.

Figure 1: Southern Los Cerritos Wetlands Restoration Project (LCWA, 2021)

Introduction

The Southern Los Cerritos Wetlands Restoration Project (project) is part of a larger program on approximately 400 additional adjacent acres that was analyzed in a Program Environmental Impact Report (PEIR) by ESA in 2020. An Air Quality/Greenhouse Gas Emissions (AQ/GHG) study was conducted by ESA to determine environmental impacts per the California Environmental Quality Act (CEQA) as they relate to AQ and GHG

questions in the CEQA Appendix G checklist. ESA used the California Emissions Estimator Model (CalEEMod) to determine criteria pollutant and GHG emission levels during program construction and operations activities over the entire 500+ acre program area.

The PEIR, based on the AQ/GHG study, concluded that Potentially Significant Impacts could occur for the overall program area with respect to NOx construction emissions and sensitive receptors. Specifically, that NOx emissions during program area construction would exceed South Coast Air Quality Management District (SCAQMD) thresholds even with mitigation measures incorporated, and that construction activity directly adjacent to the homes on the southern border of the program area would violate SCAQMD Local Significance Thresholds (LSTs), although this was not specifically quantified due to future project features in that area being unknown at the time.

Methodology

The project analyzed in Moffatt & Nichol's Initial Study/Mitigated Negative Declaration (IS/MND) represents 20.5% of the total program area analyzed in the PEIR (based on area), including CalEEMod outputs for both construction and operations. Because the previous AQ/GHG was found to be accurate, complete, and is part of a certified PEIR, there is no need to re-run CalEEMod for this project. To quantify AQ and GHG emissions for this project to determine any impacts under CEQA, a total of 20.5% of both criteria pollutant and CO2e emissions were based on the PEIR Air Quality study previously performed, which is incorporated by reference into the IS/MND.

Discussion

What follows summarizes our findings per the methodology described above and will be included in the IS/MND. The PEIR identified AQ/GHG mitigation measures for the overal program, and they are also included in the IS/MND.. For this project, no mitigation is necessary to achieve less than significant impacts.

Air Quality

The project would not conflict with any applicable air quality plans. The Final PEIR found that the only non-attained threshold for construction emissions for the larger Los Cerritos Wetlands Restoration Plan is NOx, and this project should contribute less than significant impacts for regional air quality standards, as multiple mitigation measures are already in place from the PEIR that would bring these effects down to a less than significant level. In addition, the Air Quality Study completed for the full program analyzed 503 acres. The project analyzed in this document has a footprint of 103.5 acres, meaning emissions for the proposed project are approximately 20.5% of the totals found in the program-wide EIR. The anticipated number of pieces of construction equipment, the standard types of equipment, the amount of grading, and duration of construction for this project is therefore lower than what was anticipated and analyzed in the PEIR (LCWA, 2021).

As stated above, the only criteria pollutant for which the overall program was found to exceed relevant thresholds was NOx for construction emissions only, and that it could be mitigated below the regional threshold for NOx. Specifically, Table 6 of the Air Quality Study performed by ESA (and incorporated into this document by reference) found that the maximum NOx emissions for construction would be 268 lbs./day, exceeding the SCAQMD threshold of 100 lbs./day. As the proposed project analyzes only 20.5% of the total acreage calculated for the exceedance, it is expected that the proposed project analyzed herein would emit a maximum of 54.94 lbs./day of NOx, substantially below the SCAQMD threshold and without need for mitigation.

The South Coast Air Basin is in non-attainment of the NAAQS for O3 and PM2.5 and also in non-attainment of the CAAQS for O3, PM10, and PM2.5. As discussed above, there would not be exceedances to the SCAQMD daily regional threshold for NOx or any other criteria pollutant during either construction or operational phases of the proposed project.

The Air Quality Study referenced above found potentially significant impacts to sensitive receptors at the program level based on SCAQMD Localized Significance Thresholds (LSTs) in Source Receptor Areas (SRAs) 4 and 18. Construction screening LSTs were used for a 5-acre area at a distance of 50 meters for SRA 4 and 25 meters for SRA 18. The analysis found that LSTs were exceeded due to residences found near the southern border of the program area. This analysis, however, was done for the full program of over 500 acres which is approximately five times larger than the footprint of the proposed project analyzed herein. As a result, it is not expected that construction operations would affect the residences adjacent to the southern boundary of the project site, in addition to the fact that construction would be temporary in nature. Operations impacts do not have the potential to affect sensitive receptors due to the fact that the project proposes to restore natural wetlands.

Greenhouse Gases

The PEIR Air Quality Study used CalEEMod to calculate criteria pollutant emissions as well as CO2e emissions for both construction and operation, which can be used to determine if the program would exceed SCAQMD standards for GHG emissions. Maximum unmitigated construction CO2e emissions were found to be 9,929.36 lbs./day, or 1,813.31 tons/yr. Amortized over 30 years per SCAQMD, this is equivalent to 60.44 MT CO2e. Maximum unmitigated operational emissions were found to be 10,126.86 lbs./day, or 1,849.37 tons/yr. By adding the amortized construction emissions to the operational emissions, a total of 3,662.68 MT/yr. would be created by the program in its entirety, which is above the SCAQMD threshold of 3,000 MT/yr.

As discussed above under Air Quality, the footprint of the project that is analyzed in this document is 20.5% of the total analyzed in the PEIR Air Quality Study. Therefore, the expected GHG emission for the proposed project would be 750.84 MT/yr., below SCAQMD's threshold. Impacts would be less than significant.

Summary

Air Quality and Greenhouse Gas emissions for the project site were calculated based on the AQ/GHG study previously completed for the program area as part of the PEIR. No significant impacts would occur in either topic area for this project.

References

ESA, Los Cerritos Wetlands Restoration Plan Air Quality/Greenhouse Gas Study, 10/2020.

LCWA, Los Cerritos Wetlands Restoration Plan Final Program EIR, Air Quality and Greenhouse Gas sections, 10/2020.

Appendix D: Southern Los Cerritos Wetlands Restoration Project – Biological Resources Report

Southern Los Cerritos Wetlands Restoration Project

Biological Resources Report

PREPARED FOR:
LOS CERRITOS WETLANDS AUTHORITY
100 Old San Gabriel Canyon Road
Azusa, CA 91702

PREPARED BY:

TIDAL INFLUENCE, LLC
2539 E. 7th Street
Long Beach, CA 90804

SEPTEMBER 2021

Biological Resources Report:
Southern Los Cerritos Wetlands Restoration Project

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Acronyms and Abbreviations

ACOE	Army Corps of Engineers
ArcGIS	Global Information System
Cal-IPC	California Invasive Plant Council
CCA	California Coastal Act
CCC	California Coastal Commission
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Ranks
CSLC	California State Lands Commission
eDNA	Environmental Deoxyribonucleic Acid
ESHA	Environmentally Sensitive Habitat Areas
FESA	Federal Endangered Species Act
FGC	Fish and Game Code
LCW	Los Cerritos Wetlands
LCWA	Los Cerritos Wetlands Authority
MBTA	Migratory Bird Treaty Act
MCVII	*A Manual of California Vegetation, Second Edition*
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act
NWI	National Wetlands Inventory
OHW	Ordinary High Water

SLR	Sea Level Rise
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

EXECUTIVE SUMMARY

The Southern Los Cerritos Wetlands Area Project would implement a large-scale restoration project to restore and enhance 103.54 acres of degraded southern California salt marsh and coastal habitat within the Los Cerritos Wetlands Complex. The Southern Los Cerritos Wetlands Project Area is located mostly on land owned by the Los Cerritos Wetlands Authority (LCWA) which is a joint powers authority (JPA) comprised of the State Coastal Conservancy, the Rivers and Mountains Conservancy, and the cities of Long Beach and Seal Beach. This project is part of the first phase of restoring the entire Los Cerritos Wetlands Complex which totals approximately 500 acres. The purpose of this report is to communicate the results of project-level focused biological surveys required by the project's Program EIR. Surveys were performed for special status flora and fauna, nesting birds and raptors, Belding's savannah sparrow, burrowing owl, bats, and sensitive plant communities. Furthermore, a jurisdictional wetlands delineation was performed to identify areas under the jurisdiction of several regulatory agencies. The surveys found a total of 3 special status plant species and 7 special status animal species present within the Project Area. Of note, 25 breeding pairs of Belding's savannah sparrow (BSS) were documented. Nesting birds (besides BSS) were not observed within the Project Area; however, raptor breeding behavior was observed adjacent to the Project Area in neighboring Gum Grove Park. Burrowing owls and bats were not documented. A total of 10.69 acres of federal jurisdictional wetlands/water and a total of 27.19 acres of state jurisdictional wetlands were documented. Finally, 6 different sensitive natural communities were identified, of which 5 have a sensitivity ranking of S3 or higher. The Program EIR's Mitigation and Monitoring Program sets forth clear guidelines for how this project will avoid, minimize or mitigate for any impacts to biological resources that may result from the project.

1.0 Introduction

The Southern Los Cerritos Wetlands Restoration Project proposes to restore and enhance the ecological and biological function of historic wetland and transitional habitats as well as provide opportunities for public access. This project will design a tidal wetland restoration plan that takes into consideration sea level rise, tribal cultural resources, the local community, and other neighboring private and public entities. Dredging, moving of fill, and removal of contaminated material will likely need to take place throughout the site in order to achieve the goal of maximizing contiguous tidal salt marsh habitat. Currently tidal waters enter the Project Area through an approximately 48-inch-wide culvert connected to the San Gabriel River. While this culvert does provide some tidal prism, it is heavily muted due to the size and position of this culvert. Therefore, the project will be aiming to create improved tidal connections and is targeting the adjacent Haynes Cooling Channel to achieve this objective. Additionally, there are possible opportunities to work with local surrounding landowners to create a more optimal tidal connection that would allow for higher rates of hydrologic exchange between the marsh and the ocean while considering the effects of climate change and sea level rise.

While this large-scale restoration project will potentially result in an improvement to the functioning of existing biological resources, a variety of focused ecological surveys were conducted in order to ascertain the breadth of impacts and determine the exact existing biological resources that could be affected based on the initial findings of the Program Environmental Impact Report (PEIR). This report provides a project level analysis of potential impacts to biological resources including vegetation communities, special status species, and potential jurisdictional waters and wetlands.

1.1 Project Location

The 103.54-acre Project Area is primarily located approximately 0.08 miles southeast of the San Gabriel River Pacific Coast Highway Bridge in the City of Seal Beach, California in the County of Orange (Exhibit A). The Project's central geographic location is Latitude 33.751066°; Longitude -118.099411° primarily in section 11 of Township 5 South, and Range 12 West, on the United Stated Geological Survey (USGS) Seal Beach and Los Alamitos 7.5-minute series topographical quadrangles. The Project Area is bounded by the San Gabriel River to the west, oil extraction operations to the north, and residential neighborhoods and park space to the east and south (Exhibit B). The property is bordered by industrial, open space, and residential land uses.

The property is currently accessible from Pacific Coast Highway via 1st Street which extends through the property and leads to the neighboring oil operations. This asphalt access road bisects the site and is subject to several easements for other landowners and for the utilities that run parallel to it both above and below ground. The site is currently closed to the public and is only accessible during public programming or with prior approval from the property owner. The main 100-acre parcel is owned by the Los Cerritos Wetlands Authority (LCWA) who controls access to the property's gates that connect to trails and old maintenance roads that traverse the site. Additionally, 3.5 acres of property owned by the

California State Lands Commission is included. The LCWA has a long-term non-exclusive lease agreement in place to manage this property.

1.2 Project Description

The Los Cerritos Wetlands Authority (LCWA) is a governmental entity developed in 2006 by a joint powers agreement between the State Coastal Conservancy, the Rivers and Mountains Conservancy, and the cities of Seal Beach and Long Beach. It was created with the purpose "to provide for a comprehensive program of acquisition, protection, conservation, restoration, maintenance and operation, and environmental enhancement of the Los Cerritos Wetlands area consistent with the goals of flood protection, habitat protection and restoration, and improved water supply, water quality, groundwater recharge, and water conservation." The LCWA has acquired 165 acres of coastal habitat since its inception. This acreage includes the 100-acre South LCWA Site (AKA Hellman Ranch Lowlands) which falls completely within the proposed project boundary. A portion of the site is comprised of southern coastal salt marsh habitat, while a majority of the remaining area is occupied by non-native plant species alliances. Mixed in with this vegetation are features such as a tidal creek, salt flats, tidal flats, utilities, a developed asphalt roadway, dirt maintenance roadways, dumped fill, and remnants various human-made structures that have accumulated over time. The State Lands Parcel Site is comprised of a mix of tidal wetland in the northern portion of the property where the culvert connects to the San Gabriel River. A portion of this property is comprised of a concrete pad that is approximately 0.83 acres in size. The rest of this property is also developed and covered by degrading asphalt that is being invaded by various ruderal plant species.

The Southern Los Cerritos Wetlands Restoration Project Area is part of the first phase of restoration of the overall Los Cerritos Wetlands Complex that encompasses approximately 503 acres of open space. Overall, the Project Area has been subject to historical degradation and fragmentation and requires improved tidal connection as well as other restorative actions in order to improve the site's ecological function and protect it from eventual sea level rise due to climate change (Coastal Restoration Consultants, 2021).

1.3 Regulatory Setting

Several state, federal, and local regulations are potentially relevant to the subject property. The regulations listed below have been sourced from and are consistent with Section 3.3.3 (Regulatory Framework) of the Biological Resources Section (Section 3.3) of the *Los Cerritos Wetlands Restoration Plan: Final Program Environmental Impact Report* (ESA, 2020). These include:

1.3.1 Federal Regulations

Endangered Species Act (USC Title 16, Sections 1531 through 1543)

The purpose of FESA and subsequent amendments is to protect and recover imperiled species and the ecosystems upon which they depend. FESA is administered by the USFWS and the Commerce Department's NMFS. USFWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine wildlife such as whales and anadromous fish such as salmon. Under FESA, species may be listed as either endangered or threatened. "Endangered" means a species is

in danger of extinction throughout all or a significant portion of its range. “Threatened” means a species is likely to become endangered within the foreseeable future. Under provisions of FESA Section 9(a)(1)(B), it is unlawful to “take” any listed species. “Take” is defined in FESA Section 3(18): “… harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”

FESA Section 7 stipulates that any federal action that may affect a species listed as threatened or endangered requires a formal consultation with USFWS/NMFS to ensure that the action is not likely to jeopardize the continued existence of the listed species or result in destruction or adverse modification of designated critical habitat. 16 United States Code (USC) 1536(a)(2).

FESA Section 10 provides the basis for non-federal entities to obtain take authorization. For those actions for which no federal nexus exists, non-federal entities that wish to conduct otherwise lawful activities that may incidentally result in the take of a listed species must first obtain a Section 10 permit from USFWS/NMFS. The non-federal entity is required to develop a Habitat Conservation Plan (HCP) as part of the permit application process. Upon development of an HCP, the USFWS/NMFS can issue incidental take permits for listed species where the HCP specifies, at minimum, the following: (1) the level of impact that will result from the taking, (2) steps that will minimize and mitigate the impacts, (3) funding necessary to implement the plan, (4) alternative actions to the taking considered by the applicant and the reasons why such alternatives were not chosen, and (5) such other measures that the Secretary of the Interior may require as being necessary or appropriate for the plan.

In addition to the prohibitions on the take of listed species, USFWS/NMFS are also required to designate areas of “Critical Habitat” for species listed under FESA. FESA defines critical habitat as “the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species at the time it is listed that are determined by the Secretary to be essential for the conservation of the species.”

Marine Mammal Protection Act (16 USC 31)

The MMPA prohibits, with certain exceptions, the "take" of marine mammals in United States waters and by United States citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States. Jurisdiction for MMPA is shared by USFWS and the NMFS. The USFWS’s Branch of Permits is responsible for issuing take permits when exceptions are made to MMPA.

Migratory Bird Treaty Act (16 USC Sections 703 through 711)

The Migratory Bird Treaty Act (MBTA) is the domestic law that affirms, or implements, a commitment by the United States to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. The MBTA makes it unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, or kill migratory birds. The law also applies to the removal

of nests occupied by migratory birds during the breeding season. The MBTA makes it unlawful to take, pursue, molest, or disturb these species, their nests, or their eggs anywhere in the United States.

Fish and Wildlife Coordination Act (16 USC Sections 661–666c)

The Fish and Wildlife Coordination Act (FWCA) authorizes the Secretaries of Agriculture and Commerce to provide assistance to and cooperate with federal and state agencies to protect, rear, stock, and increase the supply of game and fur-bearing animals, as well as to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife. The amendments enacted in 1946 require consultation with USFWS and the fish and wildlife agencies of states where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted … or otherwise controlled or modified" by any agency under a federal permit or license. Consultation is to be undertaken for the purpose of "preventing loss of and damage to wildlife resources." The 1958 amendments expanded the instances in which diversions or modifications to water bodies would require consultation with USFWS. These amendments permitted lands valuable to the Migratory Bird Management Program to be made available to the state agency exercising control over wildlife resources.

Magnuson-Stevens Fishery Conservation and Management Act (16 USC Sections 1801 et seq.)

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) is the primary law governing marine fisheries management in United States federal waters. Magnuson-Stevens Act Section 305(b), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires federal agencies to consult with NMFS on activities that may adversely affect EFH for species that are managed under federal fishery management plans in United States waters. The statutory definition of EFH includes those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity, which encompasses all physical, chemical, and biological habitat features necessary to support the entire life cycle of the species in question.

Federal Clean Water Rule

In 2015, the USACE and the United States Environmental Protection Agency (USEPA) issued the Clean Water Rule detailing the process for determining CWA jurisdiction over waters of the United States (WOTUS) (USACE 2015). The rule is currently in effect in California and 21 other states. The 2015 Clean Water Rule includes a detailed process for determining which areas may be subject to jurisdiction under the Clean Water Act, and broadly classifies features into three categories: those that are jurisdictional by rule (Category A below), those that excluded by rule (Category C below) and those features that require a "significant nexus test" (Category B below).

The significant nexus test includes consideration of hydrologic and ecologic factors. For circumstances such as those described in Category B below, the significant nexus test would take into account physical indicators of flow (evidence of an ordinary high water mark [OHWM]), if a hydrologic connection to a Traditionally Navigable Water (TNW) exists, and if the aquatic functions of the water body have a significant effect (more than speculative or insubstantial) on the chemical, physical, and biological integrity of a TNW. The USACE and USEPA will apply the significant nexus standard to assess the flow

characteristics and functions of a potential WOTUS to determine if it significantly affects the chemical, physical, and biological integrity of the downstream TNW.

Wetlands (including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas) are also considered WOTUS and are defined by USACE as "those areas that are inundated or saturated by surface or groundwater 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" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (Environmental Laboratory 1987).

2015 Clean Water Rule Key Points Summary

(A) The USACE and USEPA will assert jurisdiction over the following waters (jurisdictional by rule):

- TNWs.
- Interstate waters and wetlands.
- Territorial seas.
- Impoundments of waters (reservoirs, etc.).
- Tributaries with the following attributes:
    - Contributes flow to a TNW.
    - Contain bed, banks, and ordinary high water mark.
    - Can be natural, man-altered, or man-made.
    - Can have constructed breaks (culverts, pipes, etc.) or natural breaks.
- Waters "adjacent" to TNW and their tributaries, including:
    - Waters that are bordering, contiguous, or neighboring a TNW, interstate water, territorial sea, impoundment, or tributary. Includes waters separated from other ''waters of the United States'' by constructed dikes or barriers, natural river berms, beach dunes, or similar.
    - Waters within 100 feet of the OHWM of a TNW, interstate water, territorial sea, impoundment, or tributary.
    - Waters within the 100-year floodplain and within 1,500 feet of a TNW, interstate water, territorial sea, impoundment, or tributary.
    - Waters within 1,500 feet of the high tide line or OHWM of a TNW or territorial sea.

(B) The USACE and USEPA will decide jurisdiction over the following waters based on a fact specific analysis to determine whether they have a significant nexus with a TNW unless excluded by rule (significant nexus test):

- Vernal pools that have a significant nexus to a TNW or territorial sea.
- Waters within the 100-year floodplain of a TNW, interstate water or territorial sea.
- Waters within 4,000 feet of the high tide line or OHWM of a TNW, interstate water, territorial sea, impoundment or tributary.

(C) The USACE and USEPA will not assert jurisdiction over the following features (excluded by rule):

- Waste treatment facilities including basins and percolation ponds.
- Prior converted cropland.
- The following types of ditches:
    - Ephemeral ditches that are not a relocated tributary or excavated in a tributary.
    - Intermittent ditches that are not a relocated tributary, excavated in a tributary, or drain wetlands.
    - Ditches that do not flow, either directly or through another water, into a TNW, interstate waters, territorial sea.
- Artificially irrigated areas that would revert to upland.
- Artificial, constructed lakes and ponds created in dry land such as stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, cooling ponds.
- Swimming pools or reflecting pools in dry land.
- Small ornamental waters created in dry land.
- Water-filled depressions created in dry land from mining or construction activities including pits for fill, sand, or gravel.
- Erosional features including gullies and rills that are not tributaries, non-wetland swales and constructed grass waterways.
- Puddles.
- Groundwater.
- Storm water control features created in dry land.
- Wastewater recycling structures created in dry land, including detention and retention basins, groundwater recharge basins, percolation ponds, and water distributary structures.
- USACE and the USEPA have issued a set of guidance documents detailing the process for determining Clean Water Act (CWA) jurisdiction over waters of the United States following the 2008 Rapanos decision. The USEPA and USACE issued a summary memorandum of the guidance for implementing the Supreme Court's decision in Rapanos that addresses the jurisdiction over waters of the United States under the CWA. The complete set of guidance documents, summarized as key points below, were used to collect relevant data for evaluation by the USEPA and the USACE to determine CWA jurisdiction over the proposed program and to complete the "significant nexus test" as detailed in the guidelines.
- Section 401 of the CWA gives the state authority to grant, deny, or waive certification of proposed federally licensed or permitted activities resulting in discharge to waters of the United States. The State Water Resources Control Board (State Water Board) directly regulates multi-regional projects and supports the Section 401 certification and wetlands program statewide. The Regional Water Quality Control Board (RWQCB) regulates activities pursuant to Section 401(a)(1) of the federal CWA, which specifies that certification from the state is required for any applicant requesting a federal license or permit to conduct any activity including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters. The certification shall originate from the state or appropriate interstate water pollution control agency

in/where the discharge originates or will originate. Any such discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA.

- The significant nexus test includes consideration of hydrologic and ecologic factors. For circumstances such as those described in point B below, the significant nexus test would take into account physical indicators of flow (evidence of an ordinary high water mark [OHWM]), if a hydrologic connection to a Traditionally Navigable Water (TNW) exists, and if the aquatic functions of the water body have a significant effect (more than speculative or insubstantial) on the chemical, physical, and biological integrity of a TNW. The USACE and USEPA will apply the significant nexus standard to assess the flow characteristics and functions of the tributary drainage to determine if it significantly affects the chemical, physical, and biological integrity of the downstream TNW.
- Wetlands (including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas) are also considered waters of the United States and are defined by USACE as "those areas that are inundated or saturated by surface or groundwater 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" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (Environmental Laboratory 1987).

Rapanos Guidance Key Points Summary

(A) The USACE and USEPA will assert jurisdiction over the following waters:

- TNWs
- Wetlands adjacent to TNWs
- Non-navigable tributaries of TNWs that are relatively permanent (flows three months or longer)
    - Wetlands that abut such tributaries

(B) The USACE and USEPA will decide jurisdiction over the following waters based on whether they have a significant nexus with a TNW:

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

(C) The USACE and USEPA will not assert jurisdiction over the following waters:

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

Rivers and Harbor Act of 1899 Section 10

Section 10 of the Rivers and Harbors Act of 1899 requires that regulated activities conducted below the ordinary high water (OHW) elevation of navigable waters of the United States be approved/permitted by the USACE. Regulated activities include placement and removal of structures, work involving dredging,

disposal of dredged material, filling, excavation, or any other disturbance of soils/sediments or modification of a navigable waterway. Navigable waters of the United States are those that are subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past or may be susceptible to use to transport interstate or foreign commerce. Navigable waters of the United States are not necessarily the same as state navigable waterways. Tributaries and backwater areas associated with navigable waters of the United States, and located below the OHW elevation of the adjacent navigable waterway, are also regulated under Section 10.

1.3.2 State Regulations

California Endangered Species Act (California Fish and Game Code Sections 2050 et seq.)

CESA establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA if CDFW determines that the federal incidental take authorization is "consistent" with the CESA under California Fish and Game Code Section 2080.1. For projects that would result in take of a species listed under the CESA only, the Applicant would have to apply for a take permit under Section 2081(b).

California Fully Protected Species

California fully protected species are described in California Fish and Game Code Sections 3511, 4700, 5050, and 5515. These statutes prohibit take or possession of fully protected species. The CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species.

California State Fish and Game Code Sections 2080 and 2081

California Fish and Game Code Section 2080 states that "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act.". Pursuant to Sections 2080.1 or 2081 of the code, CDFW may authorize individuals or public agencies to import, export, take, or possess state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

California State Fish and Game Code Sections 3503, 3503.5, 3513, and 3800

California Fish and Game Code Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. California Fish and Game Code Section 3800 affords protection to all nongame birds, which are all birds occurring naturally in California that are not resident game birds,

migratory game birds, or fully protected birds. California Fish and Game Code Section 3513 upholds the MBTA by prohibiting any take or possession of birds that are designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations promulgated pursuant to the MBTA.

California State Fish and Game Code Section 1602

Under this section of the California Fish and Game Code, a project proponent is required to notify CDFW prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake.

Clean Water Act Section 401

Under CWA Section 401, the local RWQCB must certify that actions receiving authorization under CWA Section 404 also meet state water quality standards. The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. Compensatory mitigation for impacts to wetlands and/or waters of the state is required.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code Sections 13000–16104) (Porter-Cologne Act) provides the basis for water quality regulation within California and defines water quality objectives as the limits or levels of water constituents that are established for reasonable protection of beneficial uses. Porter-Cologne is administered by the State Water Resources Control Board (State Water Board) and nine Regional Water Quality Control Boards (RWQCBs), collectively referred to as the Water Boards. The State Water Board sets statewide water quality standards, issues statewide general permits, conducts statewide surface and groundwater monitoring and assessment, administers water rights, regulates drinking water supplies, and issues orders for cleaning up contaminated sites.

The nine semi-autonomous Regional Water Boards are responsible for setting water quality standards and objectives, issuing waste discharge requirements, determining compliance with those requirements, and taking appropriate enforcement actions. Each Water Quality Control Region is regulated through a Water Quality Control Plan, or "Basin Plan," which is updated every three years. The Basin Plans contain the regulations adopted by the Regional Water Boards to control the discharge of waste and other controllable factors affecting the quality or quantity of waters of the state. The Los Cerritos Wetlands Restoration Plan area lies on the boundary of two water quality control regions: Los Angeles and Santa Ana. This boundary is defined by the City and County line.

The Porter-Cologne Act requires the Los Angeles Regional Water Quality Control Board (LARWQCB) to establish water quality objectives, while acknowledging that water quality may be changed to some degree without unreasonably affecting beneficial uses. Beneficial uses, together with the corresponding water quality objectives, are defined as standards, per federal regulations. Therefore, the regional plans form the regulatory standards for meeting state and federal requirements for water quality control. Changes in water quality are only allowed if the change is consistent with the maximum beneficial use

designated by the state, does not unreasonably affect the present or anticipated beneficial uses, and does not result in water quality less than that prescribed in the water quality control plans.

California Coastal Act

The state legislature enacted the CCA (PRC Sections 30000 et seq.) to provide for the conservation and planned development of the state's coastline. The CCA defines the "coastal zone" as the area of the state which extends 3 miles seaward and generally about 1,000 yards inland; however, the inland extent of the coastal zone can extend in certain circumstances to a maximum of 5 miles inland from mean high tide line. In developed urban areas, the coastal zone extends substantially less than 1,000 yards inland.

The CCC approves coastal development permits (CDPs) for areas within its original and retained jurisdiction, such as waters of the state and tidelands, energy projects, and federal (federally approved, conducted, or funded) projects consistent with CCA policies. Local jurisdictions may obtain permitting authority under the CCA once a local coastal program has been certified by the CCC.

Applicable CCA policies regarding biological resources include:

> **Section 30230.** Marine resources shall be maintained, enhanced, and, where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.
>
> **Section 30231.** The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.
>
> **Section 30233.** (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:
>
> (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.
> (2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.
(4) Incidental public service purposes, including, but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.
(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.
(6) Restoration purposes.
(7) Nature study, aquaculture, or similar resource-dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division. For the purposes of this section, "commercial fishing facilities in Bodega Bay" means that not less than 80 percent of all boating facilities proposed to be developed or improved, where the improvement would create additional berths in Bodega Bay, shall be designed and used for commercial fishing activities.

(d) Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients that would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for these purposes are the method of placement, time of year of placement, and sensitivity of the placement area.

Section 30240. (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which

would significantly degrade those areas and shall be compatible with the continuance of those habitat and recreation areas.

1.3.3 Local Regulations

City of Seal Beach Municipal Code (Section 9.40)

The City of Seal Beach Public Works Department is responsible for administering Seal Beach Municipal Code (Tree Maintenance Policy), which is to preserve and protect the community's urban forest and to promote the health and safety of City trees, from the time they are planted through maturity.

The City's Tree Maintenance Policy stipulates guidelines for planting, maintenance and removal of street trees located in the public rights-of-way. A permit must be obtained from the Director of Public Works prior to removal of trees from City property.

City of Seal Beach General Plan

Hellman Ranch Specific Plan

Project goals have been established for the development of the Hellman Ranch Specific Plan that essential to achieving balance and sustainable development. These goals that are applicable to the project include:

- Maintain significant acreage for restoration/creation of wetlands and plan for long-term retention of viable wildlife habitat and biodiversity on the site.
- Create/restore a wetlands and environmental ecosystem that provides a meaningful contribution to the regional system of coastal wetlands and open space along the Pacific Flyway.

Open Space/Recreation/Conservation Element

A 100-acre portion of the Hellman Ranch Specific Plan area has been deed restricted for 25 years for sale at fair market value to a public agency for the purposes of wetlands restoration, open space, and environmental education purposes. The adjacent oil production property (approximately 50 acres) has been similarly restricted, although the 25-year deed-restricted time period does not commence until cessation of the oil production activities. It is the intent and goal of the City to address future uses for these areas and cooperate with the property owner, state, local, and private agencies, as well as the community, to provide the means to accomplish this goal.

2.0 Methodology

Ecological surveys were performed within and surrounding the 103.54-acre Project Area by coastal wetland ecologists from Tidal Influence. Surveys included vegetation mapping, special status plant and animal surveys, burrowing owl habitat assessment, nesting bird and raptor surveys, bat roosting habitat assessment, and general wildlife surveys. A survey was also performed for potential waters and wetlands subject to the jurisdiction of the United States Army Corps of Engineers (ACOE), the California Coastal Commission (CCC), and the California Department of Fish and Wildlife (CDFW).

2.1 Literature and Database Searches

A comprehensive literature and database search was performed for the PEIR and utilized for this report. The PEIR literature and database search included a search of the California Natural Diversity Database (CNDDB) to identify all potential special status species that could occur within the nine surrounding quadrangles that include Anaheim, La Habra, Long Beach, Los Alamitos, Newport Beach, Seal Beach, South Gate, and Whittier Quadrangles and (2) records of special-status species that are known to occur within the vicinity of the proposed program (CNDDB, 2020). For the project-level Jurisdictional wetland delineation, site soil data was gathered from the United States Department of Agriculture's Web Soil Survey interactive online soil data explorer (USDA 2021) and a search of the National Wetlands Inventory was performed to determine potential wetland types present on site (NWI, 2020). Lastly, previously completed biological surveys and reports performed for previous Los Cerritos Wetland projects were referenced in the PEIR. These reports from 2012 to 2019 were utilized for this report as they include site specific investigations conducted for the South Area as well as the other areas that make up the Los Cerritos Wetlands Complex.

2.2 Field Surveys

Specific focused flora and fauna surveys were completed in February through August of 2021 to perform project-level documentation of the existing biological resources within the Project Area (Table 1). These surveys were done in accordance with the PEIR's Mitigation Monitoring and Reporting Plan (MMRP).

Table 1. Surveys Performed During Each Site Visit

Date	Activities Performed	Personnel*
2/3/2021	Special Status Bird & Raptor Survey, Nesting Bird & Raptor Survey, Special Status Herpetofauna Survey	EZ, MC, WJ, JA
2/19/2021	Jurisdictional Wetlands Mapping, Special Status Invertebrate Survey, Special Status Bird & Raptor Survey, Nesting Bird & Raptor Survey, Special Status Plant Survey, Roosting Bat Survey	EZ, MC, HC, JB, WJ, JA, MH
2/22/2021	Tidewater goby eDNA Survey (Special Status Fish Survey)	EZ, BZ

Date	Activities Performed	Personnel*
2/23/2021	Special Status Bird & Raptor Survey, Nesting Bird & Raptor Survey, Special Status Herpetofauna Survey, Belding's Savannah Sparrow Habitat Mapping Survey, Burrowing Owl Survey	HC, JB, WJ, JA
2/26/2021	Jurisdictional Wetlands Mapping, Jurisdictional Waters Mapping, Special Status Plant Survey, Special Status Invertebrate Survey	EZ, MC, HC, WJ, JA, MH
3/5/2021	Jurisdictional Wetlands Mapping, Special Status Plant Survey, Special Status Invertebrate Survey	MC, HC, WJ, JA
3/8/2021	Special Status Herpetofauna Survey, Belding's Savannah Sparrow Habitat Mapping Survey, Burrowing Owl Survey	HC, JB, WJ
3/12/2021	Jurisdictional Wetlands Mapping, Special Status Plant Survey, Special Status Invertebrate Survey	MC, HC
3/22/2021	Belding's Savannah Sparrow Habitat Mapping Survey, Specials Status Bird & Raptor Survey	HC, JB, WJ
4/5/2021	Belding's Savannah Sparrow Habitat Mapping Survey, Specials Status Bird & Raptor Survey	HC, JB, WJ
4/19/2021	Belding's Savannah Sparrow Habitat Mapping Survey, Special Status Herpetofauna Survey	HC, WJ, DB
4/22/201	Special Status Herpetofauna Survey	JA
4/23/2021	Special Status Vegetation Mapping	EZ, HC, MH, JA
4/29/2021	Specials Status Bird & Raptor Survey, Special Status Herpetofauna Survey	JA
5/12/2021	Special Status Bird & Raptor Survey, Special Status Herpetofauna Survey	JA
6/23/2021	Special Status Herpetofauna Survey, Special Status Vegetation Mapping	HC, WJ, JA
8/11/2021	Special Status Invertebrate Survey	EZ

*Personnel: EZ=Eric Zahn, MC=Marcelo Ceballos, HC=Hannah Craddock, MH=Mark Hannaford, JB=Jayde Bahrami, JA=Jesse Aragon, WJ=Wanisa Jaikwang, DB=David Boehmer, BZ=Brian Zitt (ECORP)

Mitigation Measure BIO-1: Avoidance of Special-Status Plants.

This mitigation measure requires that prior to LCWA's approval of project plans or publication of subsequent CEQA documents, a qualified botanist/biologist shall conduct a habitat assessment to determine the presence or absence of suitable habitat for special-status plant species. If suitable habitat is determined to be present, focused plant surveys should be conducted in accordance with Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural

Communities (CDFW, March 20, 2018). Consistent with the CDFW protocol, such focused special-status plant surveys will be conducted during the appropriate blooming period for these species, with May and June likely having the highest number of species in flower. The results of focused special-status plant species will be incorporated into restoration design plans.

Focused surveys for special status plant species were performed starting in February as part of the jurisdictional wetland delineation and continued throughout the flowering periods of the four special status plant species that have been documented previously within the Project Area. Focused surveys were performed for all species determined by the PEIR to be moderate-high potential for occurrence or to be present in Los Cerritos Wetlands. Any special status plant species that were documented were flagged until all occurrences had been found. Once all the occurrences had been found, the geographic location of each occurrence was collected using a Trimble Geo 7X handheld Global Positioning System (GPS) device with sub-meter accuracy. Those data were then post-processed and converted into shapefiles that were analyzed in ArcMap 10.7.1.

Mitigation Measure BIO-3: Belding's Savannah Sparrow Breeding Habitat.
This mitigation measure requires that prior to LCWA's approval of project plans or publication of subsequent CEQA documents, a qualified biologist shall map suitable Belding's savannah sparrow breeding habitat as the location and amount of suitable habitat is anticipated to change over time. The results of habitat mapping will be incorporated into restoration design plans.

A total of five focused surveys for the special status Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) were performed on February 23rd, March 8th, March 22nd, April 5th, and April 19th, 2021 as part of this investigation. Additionally, Belding's savannah sparrow breeding territory data from the previous four years was also included to determine suitable habitat area for this species. Data from these previous years included mating territory data and behavior over the course of a normal breeding season. All surveys were conducted by biologists with multiple years of experience surveying the species and followed the protocol developed by Zembal et al. (2015) for this species 5-year range-wide surveys. Surveys were conducted on a biweekly basis across the breeding season until the five focus surveys had been completed. Each survey started just after sunrise and followed the exact same walking path each time. At least two but not exceeding three biologists conducted the surveys by traversing the upland edges of typical Belding's savannah sparrow habitat, generally pickleweed mats and other similar mid- to high-marsh plant communities. The biologists listened for the breeding call of this species and used binoculars to determine which specific plant was being used as a perch. The datasheet consisted of a map of the site, and Belding's savannah sparrows were denoted only when a perching individual is spotted. This is done as the surveys are only intended to determine location and number of breeding territories and not the total number of individuals present on site. Different markings on the datasheet are present to display several different phenomena that may be observed during any given survey which included: perching males, perching and singing males, potential breeding pairs, and any fights or chases between rival males. The specific perching substrate is also denoted on the datasheet in order to determine the most popular plants that this species uses to perch.

Mitigation Measure BIO-4: Nesting Bird and Raptor Avoidance.
This mitigation measure requires that a qualified biologist shall identify areas where nesting habitat for birds and raptors is present prior to LCWA's approval of project plans or publication of subsequent CEQA documents.

General surveys for bird behaviors were conducted on site in tandem with all other surveys performed in and around the Project Area. These surveys were conducted predominately in the morning and any observations of breeding behavior was noted documenting the location and species. Data from monthly surveys performed by members of Sea and Sage Audubon representatives was used to develop the bird species list for the Project Area (Appendix A).

Mitigation Measure BIO-5: Habitat Assessment and Pre-Construction Surveys for Burrowing Owl.
This mitigation measure requires that a qualified biologist shall conduct a pre-construction burrowing owl survey of each restoration area (including required survey buffer areas) prior to LCWA's approval of project plans or publication of subsequent CEQA documents.

Focused burrowing owl surveys were conducted on February 23rd and March 8th of 2021. These surveys were focused around portions of the Project Area that were characterized by ground squirrel burrow systems or areas that contained construction debris in which burrows could be developed. These areas were inspected for the presence of burrowing owls, as well as any indicators of their activity including pellets and recent displacement of sediment. The locations of these potential burrowing owl habitat areas were documented (Exhibit C).

Mitigation Measure BIO-7: Pre-Construction Bat Surveys.
This mitigation measure requires that a qualified biologist shall conduct a pre-construction bat survey of each restoration area prior to final approval of the area's restoration plan. This survey was performed on February 19, 2021 starting 1 hour before dusk and lasting another hour after twilight was complete. This survey was focused on areas containing stands of Mexican fan palms (*Washingtonia robusta*) which have been known to be potential roosting locations for bats. These trees were surveyed visually using both binoculars and the naked eye for any flushing of bats. The sky in and around the tree was continuously scanned for any bat activity.

Mitigation Measure BIO-8: Focused Surveys for Special-Status Wildlife Species.
This mitigation measure requires that should suitable habitat occur for terrestrial or aquatic special-status species, a qualified biologist shall conduct focused habitat assessments and focused surveys to determine presence, absence and/or abundance for special-status wildlife species listed in Table 3.3-5 of the PEIR. Both habitat assessments and focused surveys shall occur prior to LCWA's approval of the project plans or the publication of subsequent CEQA documents for any project site that potentially contains special-status species.

Focused wildlife surveys were conducted for presence of special status invertebrates, fish, birds, and herpetofauna that are known to be present on site or have a high or moderate potential to be found within the existing habitat of the Project Area. If non-target species were encountered during these focused surveys, the species were documented and included in the results. The methodology for each of the special status wildlife species surveys are provided below:

Invertebrate Surveys: Invertebrate surveys were generally conducted in conjunction with all other surveys and site visits, with special attention being provided when surveying portions of the property that was suitable habitat to special status invertebrate species. A focused survey was performed for tiger beetles (*Cicindela* spp.) and the wander skipper (*Panoquina errans*) in August in order to capture the season when these insects are active. Tiger beetle surveys were focused on the tidal flats and wandering skipper surveys focused on salt grass patches. Signs of invertebrate activity were noted and investigated further when possible, to determine the species present.

Fish Surveys: A focused survey to detect the presence of tidewater goby (*Eucyclogobius newberryi*) was conducted on February 22, 2021 via an environmental DNA (eDNA) analysis conducted by ECORP Consulting Inc. This survey was conducted by collecting water samples from three general locations (lower, middle, and upper) along the tidal channel that runs through the property with each location being composite sampled independently. Water was filtered through three 0.45 µm Sterivex™ filters to capture the DNA from each of the composite samples (i.e. 9 filters in total). In addition to the sampling filters, one field blank was filtered during the sampling event as a control. All samples were collected according to standard methods established in Bergman et al. (2016), Blankenship and Schumer (2017), and Schumer et al. (2019). Sampling of all three locations constituted one sampling event for eDNA analysis. Once the water samples were collected, they were sent to the eDNA laboratory, Genidaqs to be processed via DNA extraction and quantitative polymerase chain reaction (qPCR) analysis to detect tidewater goby.

Herpetofauna Surveys: Herpetofauna surveys were conducted to target both amphibians and reptiles that may be on the property. Targeted species included the coast horned lizard *(Phrynosoma blainvilli),* coastal whiptail *(Aspidoscelis tigris stejnegeri*), southern California legless lizard (*Anniella stebbinsi),* and the western spadefoot toad (*Spea hammondi*). Non-target species were also recorded whenever encountered. Surveys were conducted by implementing herpetofauna cover board boards throughout the Project Area and periodically checking them over time. Herpetofauna cover boards used were made of plywood measuring approximately 18” x 18” and were placed at multiple locations within the Project Area in spots that showed signs of potential reptile habitat on February 3, 2021. Sandy deposits at the base of the bluffs were specifically targeted for legless lizard. The cover boards imitate naturally occurring hiding spots for reptiles such as rocks and logs. The herpetofauna cover boards were checked periodically, typically once per month, for any reptiles or amphibians hiding underneath. Any species observed were recorded and documented when possible.

Bird & Raptor Surveys: Bird and raptor surveys were conducted in conjunction with other surveys and site visits in which a qualified biologist was present. Any species flying over or actively using the site was

denoted and added to a matrix consisting of all avian species observed on site. Special attention was paid to any breeding behavior.

Mammal Surveys: Small mammal surveys were initiated on July 15, 2021 and will continue through April 2022. Small mammal surveys are being conducted by Dr. Ted Stankowich's Mammal Lab at California State University, Long Beach. The survey is taking place within the project boundaries at three separate locations on the property. The survey includes two components at each of the sampling areas. (1) A wildlife camera trap is placed on-site for a 30-day period along trails and wildlife corridors. The wildlife camera captures photos of any medium to larger sized mammals such as skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), or coyotes (*Canis latrans*) that may be present on site. (2) Standard sized Sherman live traps (LFA-TDG, 7.5 x 9 x 23 cm) baited with rolled oats will be utilized over 3 nights to capture small mammals such as California deermouse (*Peromyscus californicus*), brush mouse (*Peromyscus boylii*), Byrant's woodrat (*Neotoma bryanti*), big-eared woodrat (*Neotoma macrotis*), and brown rats (*Rattus norvegicus*). Beginning on night 1, traps are baited and set out in the evening around dusk and checked on and removed the following morning. The traps are removed during the day to avoid trapping any captured small mammals that may be exposed to high temperatures that may be present during the day. Traps are then reset at dusk and the process begins again.

During the initial check of the trigged traps, any captured species will be identified immediately. Any non-target special status mammals will be identified by species and released at the point of capture. Any non-special status small mammal species that are caught in the traps have basic data and measurements recorded such as species, body weight, length, sex, and are given an ear tag identifier before being released back at the point of capture. Once three nights of trapping have occurred, the traps are removed from the site while the wildlife camera stays in place. This four-night trapping cycle is set to occur once per season over the course of a year (July 2021, October 2021, January 2022, and April 2022).

Mitigation Measure BIO-9: Revegetation of Sensitive Natural Communities.
Prior to LCWA's approval of project plans or publication of subsequent CEQA documents, the area(s) that will be impacted shall be delineated and quantified using current Global Information System (ArcGIS) mapping software.

Potential vegetation communities were identified during a previous investigation as part of the PEIR (ESA, 2020). The vegetation mapping characterized the site's vegetative alliances and determined their geographic locations. Determination of vegetation alliances was performed in accordance with the *A Manual of California Vegetation*, *Second Edition* (MCVII) (Sawyer, Keeler-Wolf & Evens, 2009). These vegetation alliances describe the patterns of plants across different landscapes and reflect the effects of local climate, soil, water, disturbance, as well as other ecological factors. Land-cover types not included in the MCVII were added in order to describe disturbed or developed areas as well as certain aquatic habitat types.

As part of the project level surveys, the geographic vegetation data was verified in the field as part of the jurisdictional delineation. In instances where inconsistencies were found, the shapefile vertices were edited in ArcMap 10.7.1 to refine the boundaries for this report. Acreages of each vegetation community and alliance were calculated, and cartographical maps were produced for the entire 103.54-acre Project Area.

Mitigation Measure BIO-10: Jurisdictional Resources Permitting.
This mitigation measure requires that prior to LCWA's approval of project plans or publication of subsequent CEQA documents, a jurisdictional delineation report shall be prepared that describes these jurisdictional resources and the extent of jurisdiction under the USACE, RWQCB, CDFW, and CCC.

Potential jurisdictional wetlands were delineated during multiple site visits throughout the survey period. Potential sampling locations were initially determined remotely using literature, aerial map and previous site investigations. Sampling point locations were further refined in the field by the delineation team. The delineation field work was performed on February 19th, February 26th, March 5th, and March 12th, 2021. The detailed methodology for this investigation are provided in a stand-alone report entitled *Southern Los Cerritos Wetlands Area: Jurisdictional Wetlands Delineation* (Appendix B).

3.0 Results

Mitigation Measure BIO-1: Avoidance of Special-Status Plants.
Special status plant species include all federal- and state-listed endangered and/or threatened species and those that have been identified by the CNPS as having a limited distribution in California and throughout their range.

Of the 41 special status plant species listed and analyzed in the potential to occur table of the PEIR, only 11 of those species had a moderate, high, or present potential to occur status. These 11 special status plant species are listed below in Table 2. Of these 11 species, only three were documented on site and included California boxthorn (*Lycium californicum*), Lewis' evening primrose (*Camissoniopsis lewisii*), and southern tarplant (*Centromadia parryi ssp. australis*). A Special Status Plants map showing the location of these special status plant species populations is attached (Exhibit D). Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*) was documented by the 2012 Habitat Assessment Report (Tidal Influence, 2012) as part of the Conceptual Restoration Plan and this annual species should be considered to have a high potential to occur during years with higher than normal rainfall.

The "Potential for Occurrence" category indicated in Table 2 is defined as follows:

- *Moderate Potential:* The project area and/or immediate vicinity provides marginal habitat for a particular species. For example, proper substrate may be present, but the desired vegetation assemblage or density is less than ideal, or substrate and vegetation are suitable, but the site is outside of the known elevation range of the species.
- *High Potential:* The project area and/or immediate vicinity provides high-quality or ideal habitat (i.e., soils, vegetation assemblage, and topography) for a particular species and/or there are known occurrences in the general vicinity of the project area.
- *Present:* Species observed on the site during project-level focused surveys or during the PEIR surveys.

Table 2. Special status floral species indicated in the PEIR to have a moderate-high potential for occurrence or were determined to be present within the Program Area.

Species Name	Status	Habitat Requirements	Potential to Occur In Project Area
California boxthorn *Lycium californicum*	CRPR: 4.2 Fed: None State: None	Perennial succulent shrub. Occurs along coastal salt marsh margins, coastal sage scrub, and coastal bluffs up to 500 feet in elevation.	Present: This species was documented within the project boundary by the project-level surveys and all previous surveys.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	CRPR: 1B.1 Fed: None State: None	Annual herb. Occurs in playas, vernal pools, marshes and swamps (coastal salt).	High: Several occurrences of this species were identified in spring 2011 by Tidal Influence botanists within the project boundary. Occurrences were not documented in 2018 during the PEIR surveys. Additionally, no individuals were found during the project-level focused surveys.
estuary seablite *Suaeda esteroa*	CRPR: 1B.2 Fed: None State: None	Perennial herb. Occurs in coastal salt marshes and swamps up to 15 feet in elevation.	High: This species has a high potential to occur on site due the proximity of other populations to the site including Steamshovel Slough, Zedler Marsh. Additionally suitable habitat exists within

Species Name	Status	Habitat Requirements	Potential to Occur In Project Area
			the Project Area. However, this species has not been historically documented within the project boundary and was not identified during project-level surveys.
Lewis' evening primrose *Camissoniopsis lewisii*	CRPR: 3 Fed: None State: None	Annual herb. Occurs in coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland in sandy or clay soil up to 985 feet in elevation.	Present**:** This species was documented within the project boundary.
red sand-verbena *Abronia maritima*	Federal: None State: None CRPR: 4.2	Perennial herb. Occurs in marshes, swamps, and coastal dunes. Limited to the higher zones of salt marsh habitat.	Moderate: Not documented on site, suitable habitat is not present within the project boundary.
salt marsh bird's beak *Chloropyron maritimum* ssp. *maritimum*	CRPR: 1B.2 Fed: FE State: SE	Annual herb. Occurs in coastal salt marshes and coastal dunes up to 33 feet in elevation.	Moderate: No regional source populations exist but low quality suitable habitat is present within the project boundary.
southern tarplant *Centromadia parryi* ssp. *australis*	CRPR: 1B.1 Fed: None State: None	Annual herb. Occurs in disturbed areas near coastal salt marshes, grasslands, vernal pools and coastal sage scrub up to 1400 feet in elevation.	Present: This species was documented within the project boundary.
southwestern spiny rush *Juncus acutus* ssp. *leopoldii*	CRPR: 4.2 Fed: None State: None	Perennial herb. Occurs in coastal salt marshes, alkali seeps, and coastal strand habitats up to 1000 feet in elevation.	Moderate: This species has a moderate potential to occur as it is found naturally in the Isthmus Area, but this Project Area lacks the freshwater input that this species requires.
Ventura marsh milk-vetch *Astrasgalus pycnostachyus* var. *lanosissimus*	CRPR: 1B.1 Federal: FE State: SE	Perennial herb. Occurs in open, sand to gravel, disturbed areas below 100 meters in elevation.	Moderate: Suitable habitat present on site; however, not documented within the project boundary.
woolly seablite *Suaeda taxifolia*	CRPR: 4.2 Fed: None State: None	Perennial succulent shrub. Occurs along coastal salt marsh margins and coastal bluffs up to 45 feet in elevation.	Moderate: Documented in North and Isthmus Areas but not documented within the project boundary despite the existence of suitable habitat.

Special Status Plant Species Present on Site:

California boxthorn (*Lycium californicum*): California boxthorn is a perennial shrub designated as a CRPR 4.2 that is known from Los Angeles, Orange, and San Diego counties, as well as Santa Catalina Island. California boxthorn occur in coastal sage scrub, coastal bluff scrub, maritime scrub, and along the fringes of coastal salt marsh. The flowering period occurs from May to August. Two individuals of this species were documented within the Project Area (Exhibit D).

Lewis' evening primrose (*Camissoniopsis lewisii*): Lewis' evening primrose is an annual herb designated as CRPR 3 that is known from San Diego to San Luis Obispo counties as well as Baja California. This species occurs in coastal sandy habitats within coastal strand, woodland, sage scrub, and grassland plant communities. The flowering period is from March to June. Three occurrences of this species were documented within the project boundary, covering a total of 3.76 acres (Exhibit D).

southern tarplant (*Centromadia parryi* ssp. *australis*): Southern tarplant is an annual herb designated as a CRPR 1B.1 that is known from Los Angeles, Orange, Santa Barbara, San Diego, and Ventura counties, as well as Santa Catalina Island and Baja California. Southern tarplant occurs at the margins of marshes and

swamps, valley and foothill grasslands, and disturbed areas. The flowering period occurs from May to November. This species was observed in approximately seven locations throughout the Project Area generally in disturbed area along the edges of roads and paths, covering a total of 1.06 acres (Exhibit D).

Special Status Plant Species Not Present on Site:

Coulter's goldfield (*Lasthenia glabrata ssp. coulteri*)*:* Coulter's goldfields are an annual herb designated as a CRPR 1B.1 that is known from Kern, Santa Barbara, Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties. Coulter's goldfields occur in coastal salt marshes and freshwater marshes, playas, and vernal pools. The flowering period occurs from February to June. This species was detected within the Project Area in 2011, although its presences was not observed during the project-level focused surveys or during the surveys for the PEIR. Suitable habitat does exist within the project boundary and germination is usually triggered in February during years with above average amounts of winter precipitation. While the PEIR list this species as present in its potential for occurrence table, it is categorized here as not present due to species not being documented within the Project Area during these focused surveys. Surveys for this species should occur again before ground disturbance occurs and the historic locations of this species should be protected when feasible.

estuary seablite (*Suaeda esteroa*)*:* Estuary seablite is a perennial shrub designated as a CRPR 1B.2 that is known from Santa Barbara, Ventura, Los Angeles, Orange, and San Diego counties as well as from Baja California. Estuary seablite occurs in mid- to upper zones of coastal salt marshes. The flowering period occurs from May to October. This species has been documented in other areas of the Los Cerritos Wetlands Complex, but no occurrences have been found within the project boundary. Although suitable habitat does exist on site, the tidal flushing and fragmentation of the salt marsh within the Project Area has not allowed this species to recruit.

red sand-verbena (*Abronia maritima*)*:* Red sand-verbena is a perennial herb designated as a CRPR 4.2 that is known from Los Angeles, Monterey, Orange, Santa Barbara, San Bernardino, Santa Cruz, Sand Diego, San Luis Obispo, Sonoma, and Ventura counties. Red sand-verbena occur in marshes, swamps, and coastal dunes. The flowering period occurs from February to December. While suitable habitat for the species occurs within the Project Area, the species was not observed during the focused surveys throughout the survey period.

salt marsh bird's beak (*Chloropyron maritimum* ssp. *maritimum*): Salt marsh bird's beak is a hemiparasitic annual herb listed as federally- and state-endangered and designated as a CRPR 1B.2. It is known to exist in just 8 locations in the United States and can be found in San Luis Obispo, Santa Barbara, Ventura, Orange, and San Diego counties as well as from Baja California. Bird's beak occurs in the upper-marsh zone of coastal salt marsh and often is associated with coastal dunes and freshwater seeps. Plants will germinate from February to June and the flowering period occurs from May to September. While suitable habitat exists within the Project Area the poor tidal flushing and poor soil conditions are not hospitable for this sensitive species and therefore it was not observed during focused surveys. Additionally, the

closest potential source population exists at the Huntington Beach Wetlands located approximately 12 miles south of the Project Area.

southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*): Southwestern spiny rush is a perennial grasslike herb designated as CRPR 4.2 that is known from San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego counties as well as from Baja California, the Channel Islands, and other portions of California. Southwestern spiny rush has limited salt tolerance and occurs in freshwater seeps, brackish marsh and coastal strand habitats that border coastal salt marsh. The flowering period occurs in May and June. While this species is present in other areas of the LCW Complex and suitable habitat exists within the project boundary, there is not enough freshwater input to support this species establishment. This species was not observed within the project boundary during the focused surveys.

Ventura marsh milk-vetch (*Astrasgalus pycnostachyus var. lanosissimus*): Ventura marsh milk-vetch is a perennial herb designated as a CRPR 1B.1 that is known from Los Angeles, Marin, and Ventura counties. Ventura marsh milk-vetch occur in coastal salt marsh. The flowering period occurs from June to October. Suitable habitat for the species does occur within the project boundary. The species was not documented during focused surveys of the Project Area. Additionally, the closest potential source population exists in Ventura County.

woolly seablite (*Suaeda taxifolia*)*:* Woolly seablite is a perennial shrub designated as a CRPR 4.2 that is known from San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego counties as well as from Baja California, the Channel Islands, and the Central Valley. Woolly seablite occurs in upper zones of coastal salt marshes as well as on coastal bluffs, coastal sage scrub, and at the edge of alkali marshes. The flowering period occurs year-round. While this species was documented in other areas of the LCW Complex and suitable habitat for the species occurs within the Project Area, the species was not documented within the Project Area.

Mitigation Measure BIO-3: Belding's savannah sparrow Breeding Habitat.

The project-level focused Belding's savannah sparrow (BSS) breeding habitat surveys indicate that the number of breeding pairs has increased from 12 pairs in 2017 up to 25 pairs in 2021. When the previous four years of focused BSS survey data is overlain with the data collected in 2021 for this project, it provides a comprehensive picture for the locations of BSS breeding habitat within the Project Area. These data show which areas are consistently used by this species and which areas have been sporadically used and how the habitat use shifts temporally. With this robust BSS breeding habitat data set a Belding's savannah sparrow breeding habitat map was created which shows the core 4.73 acres of breeding habitat that has continually been used over the years as well as an additional 16.37 acres of habitat area that has potential to be utilized by BSS (Exhibit E). These data and map shall be used to inform the restoration design plans moving forward.

Mitigation Measure BIO-4: Nesting Bird and Raptor Avoidance.
No bird nesting activity, aside from BSS was observed within the project boundary throughout the survey period. However, red-tailed hawks (*Buteo Jamaicensis*) were observed performing breeding behaviors in the eucalyptus trees located in the adjacent Gum Grove Park. This location is commonly known as a raptor breeding area and therefore this project should avoid impact to any of the trees found in or adjacent to that park. Furthermore, focused surveys for raptor breeding should be performed in all eucalyptus trees found within the Project Area during the breeding season that precedes construction. Overall, the same approach should be taken for all nesting birds.

Mitigation Measure BIO-5: Habitat Assessment and Pre-Construction Surveys for Burrowing Owl.
While potential habitat with active ground squirrel burrows were identified, no burrowing owls or indicators of burrowing owl use were found within the Project Area (Exhibit B). This species has been found to over-winter in Los Cerritos Wetlands and was documented doing so in the Isthmus Area. Historically, there are no records of burrowing owls ever nesting in Los Cerritos Wetlands.

Mitigation Measure BIO-7: Pre-Construction Bat Surveys.
No bat or roosting bat activity was documented during the focused bat surveys. Furthermore, the Mexican fan palms (*Washingtonia robusta*) and the areas around them were inspected for possible indications of bat activity (e.g. guano droppings) but none were found.

Mitigation Measure BIO-8: Focused Surveys for Special-Status Wildlife Species.
Special status wildlife species include all those federal- and state-listed endangered and/or threatened species and those that have been identified as Species of Special Concern (CSC) by CDFW.

Special status wildlife species with a moderate, high, or present rating based on the PEIR analysis are included in Table 3 below. Of these 33 listed, 7 species were present on site, 8 species have a high potential, 9 species have a moderate potential, and 9 species have a low potential to occur within the Project Area. Detailed descriptions of all special status species that had moderate or high potentials for occurrence as well as species that were present on site are provided in the section below, organized by those determined to be "present on site" and "not present on site".

Table 3. Special Status Faunal Species indicated in the PEIR to have a moderate-high potential for occurrence or were determined to be present within the Program Area.

Species Name	Status	Habitat Requirements	Potential for Occurrence in Project Area
Invertebrates			
mimic tryonia (California brackish water snail) *Tryonia imitator*	Federal: None State: None CDFW: None CNDDB: S2	Coastal areas with brackish waters. Moderate. Suitable habitat	Low: Suitable habitat present on site; however, this species was not documented in the Project Area.

Species Name	Status	Habitat Requirements	Potential for Occurrence in Project Area
monarch—California overwintering population *Danaus plexippus pop. 1*	Federal: None State: None CDFW: None CNDDB: S2S3	Roosts in winter in wind-protected tree groves along the California coast from northern Mendocino to Baja California, Mexico.	Moderate: This species has a moderate potential to occur due to presence of non-native Eucalyptus trees within and adjacent to the Project Area.
mudflat tiger beetle *Cicindela trifasciata sigmoidea*	Federal: None State: None CDFW: None CNDDB: N/A	This predatory beetle inhabits salt marshes, mudflats and salt pannes where they make burrows in the intertidal zone.	High: This species has been documented on tidal mudflats in Steamshovel Slough. Potential suitable habitat occurs within the Project Area.
salt marsh tiger beetle *Cicindela hemorrhagica*	Federal: None State: None CDFW: N/A CNDDB: N/A	Salt marshes, mudflats and salt pannes where they make burrows in the intertidal zone	High: This species has been documented on tidal mudflats in the North Area (Steamshovel Slough) and Isthmus Area (Zedler Marsh). Potential suitable habitat exists within the Project Area.
salt marsh wandering skipper *Panoquina errans*	Federal: None State: None CDFW: None CNDDB: S2	Coastal salt marsh and coastal strand areas dominated by salt grass.	High: This species has been documented in salt marsh vegetation in the North Area (Steamshovel Slough) and Isthmus Area (Zedler Marsh). Potential suitable habitat exists within the Project Area.
sandy beach tiger beetle *Cicindela hirticollis gravida*	Federal: None State: None CDFW: None CNDDB: S2	Forages in open unvegetated areas such as marsh pannes and levees. Larvae burrow in moist unvegetated substrates.	Moderate: This species has not been documented within the program area, but suitable habitat does exist within the Project Area.
senile tiger beetle *Cicindela senilis frosti*	Federal: None State: None CDFW: None CNDDB: S1	Known to inhabit tidal salt marshes and salt flats. Now very rare to find. Previously found in Bolsa Chica, Ventura, and Riverside County.	Moderate. This species has not been documented in the program area, but suitable habitat does exist within tidal areas of the Project Area.
western beach tiger beetle *Cicindela latesignata latesignata*	Federal: None State: None CDFW: None CNDDB: S1	Forages in open unvegetated areas such as marsh pannes and levees. Larvae burrow in moist unvegetated substrates.	Moderate: This species has a moderate potential to occur on the unvegetated flats found throughout the Project Area.
western tidal-flat tiger beetle *Cicindela gabbii*	Federal: None State: None CDFW: None CNDDB: S1	Open, unvegetated areas in or near salt marshes.	Moderate: This species has not been documented in the program area, but suitable habitat does exist within tidal areas of the Project Area.
Fish			
tidewater goby *Eucyclobobius newberryi*	Federal: FE State: None CDFW: CSC CNDDB: S3	Inhabits benthic zone of shallow coastal lagoons and estuaries where brackish conditions occur.	Low: This species has not been documented in the program area. The Project Area's habitat is suboptimal due to a lack of brackish conditions.
Reptiles			
Pacific green sea turtle *Chelonia mydas*	Federal: FT State: None CDFW: None CNDDB: S1	Green turtles are generally found in fairly shallow waters (except when migrating) inside reefs, bays, and inlets. The turtles are attracted to lagoons and shoals with an abundance of marine grass and algae.	Low: This migratory reptile is a resident in the Central Area (San Gabriel River) and has also been documented throughout Alamitos Bay. The current tidal connection to the Project Area does not allow for this species to gain access.

Species Name	Status	Habitat Requirements	Potential for Occurrence in Project Area
red diamond rattlesnake *Crotalus ruber*	Federal: None State: None CDFW: CSC CNDDB: S3	Chaparral, woodland, grassland, & desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas & dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.	Low: Observed historically in the Isthmus Area, which was suspected to have been an individual released to the area. Suitable habitat is not present within the Project Area.
western pond turtle *Emys marmorata*	Federal: None State: None CDFW: CSC CNDDB: S3	Slow-moving permanent or intermittent streams, small ponds and lakes, reservoirs, abandoned gravel pits, permanent and ephemeral shallow wetlands, stock ponds, and treatment lagoons. Abundant basking sites and cover necessary, including logs, rocks, submerged vegetation, and undercut banks.	Low: Not documented in the program area; Suitable freshwater habitat is not present within the Project Area.
Birds			
American peregrine falcon *Falco peregrinus anatum*	Federal: Delisted State: Delisted CDFW: CFP CNDDB: S3S4	Near wetlands, lakes, rivers or other water, on cliffs, banks, dunes, mounds, also human-made structures.	Present: Observed on site. Suitable foraging habitat in Project Area; Suitable breeding sites are not present within the Project Area.
bank swallow *Riparia riparia*	Federal: None State: ST CDFW: None CNDDB: S2	Colonial nester; nests primarily in riparian and other lowland habitats west or the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	High: This species has a been previously unofficially observed in the Southern Los Cerritos Wetlands area and could occur within the Project Area.
Belding's savannah sparrow *Passerculus sandwichensis beldingi*	Federal: None State: SE CDFW: None SNDDB: S3	Found in Coastal salt marshes. Nests in *Salicornia* sp. and about margins of tidal flats.	Present: This species has been documented using the site as breeding and foraging habitat.
black skimmer *Rhynchops niger*	Federal: None State: None CDFW: CSC CNDDB: S2	Nests on gravel bars, low islets and sandy beaches, in unvegetated sites.	High: Observed in other areas of the LCW Complex but not in the Project Area. Suitable foraging habitat exists within the Project Area. Suitable breeding habitat is not present within the Project Area.
burrowing owl *Athene cunicularia*	Federal: None State: None CDFW: CSC CNDDB: S3	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Low: Individuals were historically observed in Isthmus Area. Occurs as a migratory winter visitor but is not expected as a breeding species.
California brown pelican *Pelecanus occidentalis californicus*	Federal: Delisted State: Delisted CDFW: CFP CNDDB: S3	Coastal, salt bays, ocean, beaches. Nests on coastal islands of small to moderate size that afford immunity from attack by ground-dwelling predators.	Present: Observed on site. Suitable foraging habitat present in tidal areas within the Project Area. Breeding habitat absent.

Species Name	Status	Habitat Requirements	Potential for Occurrence in Project Area
California least tern *Sternula antillarum browni*	Federal: FE State: SE CDFW: CFP CNDDB: S2	Flat, vegetated substrates near the coast. Occurs near estuaries, bays, or harbors where fish is abundant.	Present: Has been historically observed foraging in tidal channel within the Project Area.
least Bell's vireo *Vireo belii pusilus*	Federal: FE State: SE CDFW: None CNDDB: S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Moderate: Was observed within the Isthmus Area in 2018. Suitable habitat is limited within the Project Area, but very active breeding habitat exists in the adjacent Heron Pointe bioswale east of the Project Area.
merlin *Falco columbarius*	Federal: None State: None CDFW: WL CNDDB: S3S4	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands & deserts, farms & ranches. Clumps of trees or windbreaks are required for roosting in open country.	High: Not observed in the Project Area. The PEIR stated the species was documented on within the LCW Complex, but specific locations were not given; Suitable foraging habitat present in Project Area. Suitable breeding habitat absent from site.
loggerhead shrike *Lanius ludovicianus*	Federal: None State: None CDFW: CSC CNDDB: S4	Broken woodlands, savannah, pinyon-juniper, Joshua tree & riparian woodlands, desert oases, scrub & washes. Prefers open country for hunting with perches for scanning and fairly dense shrubs and brush for nesting.	Present: Observed within the Project Area.
northern harrier (nesting) *Circus cyaneus*	Federal: None State: None CDFW: CSC CNDDB: S3	A variety of habitats, including open wetlands, grasslands, wet pasture, old fields, dry uplands, and croplands.	High: Northern harrier (non-nesting) have been observed foraging within the Project Area. There are no records of northern harrier nesting in the vicinity of the Project Area. Suitable foraging habitat is present throughout the Project Area. Limited potential for breeding in the Project Area.
osprey *Pandion haliaetus*	Federal: None State: None CDFW: WL CNDDB: S4	Found near rivers, lakes, coastal areas. Most common around major coastal estuaries and salt marshes, but can be found around large lakes, reservoirs, and rivers.	Present: Observed within the Project Area.
Ridgway's rail *Rallus obsoletus*	Federal: FE State: SE CDFW: CFP CNDDB: S1	Found in salt marshes where cordgrass and pickleweed are the dominant vegetation. Requires dense growth of either pickleweed or cordgrass for nesting or escape cover, feeds on mollusks and crustaceans.	Moderate: Limited foraging habitat exists within the Project Area and breeding habitat is not present within the Project Area.
short-eared owl *Asio flammeus*	Federal: None State: None CDFW: CSC CNDDB: S3	Found in swamplands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	High: Not observed within the Project Area but observed in the PEIR investigation with no specific areas indicated. Suitable foraging habitat occurs during winter in tidal marsh areas in Project Area. Suitable breeding habitat absent.
tricolored blackbird *Agelaius tricolor*	Federal: None State: ST CDFW: CSC CNDDB: S1S2	Requires open water, protected nesting and foraging area with insect prey within a few km of the colony.	Low: This species was recorded on eBird in 2015 for an occurrence within the Central Area at the Marketplace Marsh. However, suitable foraging habitat is not present within Project Area.
western snowy plover *Charadrius alexandrinus nivosus*	Federal: FT State: None CDFW: CSC CNDDB: S2S3	Sandy or gravelly beaches along the coast, estuarine salt ponds, alkali lakes, and the Salton Sea. Foraging in wet sand within the intertidal zone in dry, sandy areas above the high tide, along edges of salt marshes, salt ponds, and lagoons. Nesting in open, flat, and sparsely vegetated beaches and sand spits.	Moderate: Not previously documented on site; however, suitable foraging and loafing habitat present within tidal marsh areas of Project Area. No potential nesting habitat exists within the Project Area.

Species Name	Status	Habitat Requirements	Potential for Occurrence in Project Area
Yellow-breasted chat *Icteria virens*	Federal: None State: None CDFW: CSC CNDDB: S3	Summer resident; inhabits riparian thickets of willow & other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 feet of ground.	Present: Observed foraging within Project Area. Suitable breeding habitat is not present within the Project Area.
Mammals			
Pacific pocket mouse *Perognathus longimembris pacificus*	Federal: FE State: None CDFW: CSC CNDDB: S1	Requires sparse vegetation coverage for maneuverability and sandy soils for burrowing.	Low: Not historically documented in the Project Area by focused surveys conducted in the 1990s; While suitable habitat is present in tidal marsh areas of the Project, this habitat is in poor condition. Furthermore, no local populations are known to occur.
south coast marsh vole *Microtus californicus stephensi*	Federal: None State: None CDFW: CSC CNDDB: S1S2	Tidal marshes in Los Angeles, Orange and southern Ventura Counties.	Low: Not historically documented in the Project Area; While suitable habitat is present in tidal marsh areas of the Project, this habitat is in poor condition. Furthermore, no local populations are known to occur.
southern California salt marsh shrew *Sorex ornatus salicornicus*	Federal: None State: None CDFW: CSC CNDDB: S1	Coastal marshes in Los Angeles, Orange and southern Ventura Counties. Requires dense vegetation and woody debris for cover.	Moderate: Not historically documented in the Project Area; however, suitable habitat present in tidal marsh areas of the site and a local population exists nearby in Anaheim Bay.

STATUS CODES:

Federal
FE = Federally Endangered
FT = Federally Threatened
FSC = Federal Species of Special Concern

State
SE = State Endangered
ST = State Threatened

CDFW
CSC = California Species of Special Concern
CFP = California Fully Protected Species
WL = Watch List

CNDDB Element Ranking

S1 = Critically Imperiled—Critically imperiled in the state because of extreme rarity (often 5 or few populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.

S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.

S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer).

S4 = Apparently Secure—Uncommon but not rare in the state; some cause for long-term concern due to declines or other factors.

A question mark (?) denotes an inexact numeric rank due to insufficient samples over the full expected range of the type, but existing information points to this rank.

Special Status Faunal Species Present On Site:

Birds

American peregrine falcon (*Falco peregrinus anatum*):

The American peregrine falcon is a CDFW Fully Protected species and was federally delisted in 1999. Northwestern populations are year-round residents from central Mexico to Alaska. American peregrine falcons forage in a variety of habitats including grasslands, meadows, coastlines and wetlands where they hunt waterfowl and shorebirds. Organochlorine pesticides were a primary cause for decline before they were banned in the 1970s, but habitat loss due to development and human disturbance is also responsible for this raptor's decline. Habitat for prey occurs over much of the area. An individual was observed within the Project Area on February 25, 2021; additionally, residents in the vicinity and/or migrants are expected to forage occasionally on site but breeding habitat is not present.

Belding's Savannah Sparrow (*Passerculus sandwichensis beldingi*):
The Belding's savannah sparrow is a state endangered bird, and a candidate species for federal protection. This species is a non-migratory subspecies that occurs in coastal salt marshes between Goleta Slough, Santa Barbara County, and Bahia de San Quentin in Mexico. The Belding's savannah sparrow is entirely dependent on salt marshes for nesting and foraging. As such, the Belding's savannah sparrow thus resides year-round in this habitat and is resident and common on the site. The highest concentrations of the Belding's savannah sparrow are within the salt marsh areas of the Project Area. Based on focused breeding season surveys conducted since 2017, the current capacity of the Project Area is estimated to be 25 breeding territories. This species nests preferentially in common pickleweed, shore grass, and/or Parish's glasswort.

California brown pelican (*Pelecanus occidentalis californicus*):
The California brown pelican is a California Fully Protected species. The California brown pelican breeds on the Channel Islands and occurs in estuarine, marine subtidal, and marine pelagic waters along California coast. California brown pelicans forage almost entirely on fish. The California brown pelican has been observed on site and foraging near the Project Area (Haynes Cooling Channel); however, there are no potential breeding areas within the Project Area. Additional bird species observed on site can be found in the faunal species list (Appendix A).

loggerhead shrike (*Lanius ludovicianus*)
The loggerhead shrike is a California Species of Special Concern. Loggerhead shrike is a common resident and winter visitor in lowlands and foothills throughout California. It prefers open habitats with scattered perches and us shrubs, trees, posts, fences, and utility lines where it forages mostly large insects. Loggerhead shrike builds nests in shrubs or trees with dense foliage. Limited quality foraging habitat currently occurs in the Project Area due to the dominance of black mustard. Nonetheless, foraging habitat is present and loggerhead shrike have been observed within the Project Area.

California least tern (*Sternula antillarum browni*): This bird species has been historically observed foraging in the tidal creek that runs through the Project Area. This federal and state endangered species nests on sparsely vegetated sandy beaches and dunes which are not found within the Project Area. The nearest known nesting site for this species is located in Anaheim Bay. There is ample foraging habitat for this species to use in the surrounding areas; therefore, the project activities will not have a significant impact on this species.

osprey (*Pandion haliaetus*): This bird species has been observed throughout the Los Cerritos Wetlands and is included on the CDFW watch list. While this species was observed using the site for foraging, it commonly nests on snags of tall trees or artificial platforms which are not found with the Project Area. There is ample foraging habitat for this species to use in the surrounding areas; therefore, the project activities will not have a significant impact on this species.

yellow-breasted chat (*Icteria virens*)

The yellow-breasted chat is a California Species of Special Concern. The yellow-breasted chat is an uncommon summer resident and migrant in coastal California and in foothills of the Sierra Nevada. Yellow-breasted chat nests and forages in willows and other low, dense riparian habitat feeding on insects. Foraging habitat occurs in the Isthmus Area. Yellow-breasted chat have been observed throughout the site during surveys and may forage within mulefat scrub habitats, however, breeding habitat is absent due to the lack of contiguous riparian habitat within the Project Boundary.

Special Status Faunal Species Not Present On Site:

Invertebrates

mimic tryonia - California brackishwater snail (*Tryonia imitator*): The mimic tryonia is a small brackish water snail that is listed on the International Union for the Conservation of Nature (IUCN) Red List as DD (data deficient), which means there is inadequate data to make a direct or indirect assessment. The mimic tryonia's known range is not well documented. However, it likely extends along the entirety of the California coast, but only in suitable localities within this range that include areas with brackish waters. Suitable habitat for this species does not occur within the Project Area due to the lack of brackish wetlands.

monarch (*Danaus plexippus*): The monarch butterfly is a candidate for listing under FESA. It is a large orange and black butterfly; whose flight season extends from late February to mid-September. The monarch butterfly's known range extends along the California coast from the cape region of Baja California to Mendocino County. In the spring, they move inland in search of areas containing their primary host plant, milkweed. The species roosts in tree groves along the coast of California during the winter. Suitable overwintering habitat for this species occurs adjacent to the Project Area within Eucalyptus tree groves. Focused project-level surveys did not detect this species; however, it has been known to occur in the adjacent Gum Grove Park where suitable roosting habitat is present.

salt marsh wandering skipper (*Panoquina errans*): This species of butterfly is not listed on the state or federal level, but it is rare throughout its range, mainly due to loss of habitat due to human development. This species inhabits salt marshes, utilizing salt grass (*Distichlis spicata*) as a larvae then nectar on other salt marsh plants as adults. Extensive patches of *Distchlis spicata* are not found within the Project Area. Instead, the marsh tends to be dominated by *Salicornia pacifica*, *Frankenia salina*, and *Arthrocnemum subterminale*. Focused project-level surveys did not detect this species.

mudflat tiger beetle (*Cicindela trifasciata sigmoidea*), salt marsh tiger beetle (*Cicindela hemorrhagica*), sandy beach tiger beetle (*Cicindela hirticollis gravida*), senile tiger beetle (*Cicindela senilis frosti*), western beach tiger beetle (Cicindela latesignata latesignata), and western tidal-flat tiger beetle (Cicindela gabbii): Tiger beetles are generally known as indicators of high-quality intact habitats and they do not generally inhabit disturbed habitats. While several tiger beetle species have been documented at Steam Shovel Slough in the North Area of the Los Cerritos Wetlands Complex, no tiger beetles were documented during focused surveys within the Project Area. These predatory beetles inhabit mudflats and salt pannes where

they make burrows in the intertidal zone. Unfortunately, the tidal flats within the Project Area are composed of fill material that is often laden with gravel and other non-natural debris. Moreover, the tidal prism is severely muted which further degrades the conditions of the tidal flats. These species were not detected during focused project-level surveys.

Fish

tidewater goby (*Eucyclobobius newberryi*): The tidewater goby is listed under CESA and FESA as endangered. This species is generally found in fairly shallow waters (except when migrating) in coastal lagoons and estuaries where brackish conditions occur. Known occurrences for the species are very limited within the region and tend to consist of old records. The nearest known records for the species occur in 1996 in Aliso Creek (Orange County) and 1995 in Malibu Creek (Los Angeles County) respectively (ESA, 2020). The results of project-level focused eDNA surveys did not detect evidence of this species being present within the tidal channel that traverses the Project Area.

Reptiles

Pacific green sea turtle (*Chelonia mydas*): The Pacific green sea turtle is a federal threatened species and listed on the IUCN Red List as 4, which means "endangered." This species is generally found in fairly shallow waters (except when migrating) inside reefs, bays, and inlets. The turtles are attracted to lagoons and shoals with an abundance of marine grass and algae. They have been documented in several locations with the Program Area, however, it is infeasible for them to occur within the Project Area since the current tidal connection is only a small gap in the flap gate on the San Gabriel River which is not large enough to allow for this species to gain access. Moreover, the tidal areas are too shallow to accommodate this relatively large marine reptile.

red diamond rattlesnake (*Crotalus ruber*): The red diamond rattlesnake is a California Species of Special Concern. The red diamond rattlesnake occurs throughout much of San Diego and Orange Counties as well as in western Riverside County and southwestern San Bernardino County in chaparral, woodland, grassland, and desert habitats. Red diamond rattlesnakes forage primarily on small mammals but will consume lizards, birds, and other snakes. Red diamond rattlesnake was not documented as part of the focused reptile surveys and suitable habitat does not exist within the Project Area.

western pond turtle (*Emys marmorata*): The western pond turtle is a California Species of Special Concern. The western pond turtle is uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest and absent from desert regions, except along the Mojave River and its tributaries in the Mojave Desert. It can be found within riparian and freshwater marsh habitats where it consumes both plant and wildlife including pond lilies, beetles, and other aquatic invertebrates. Western pond turtle were not documented as part of the focused reptile surveys and suitable habitat does not exist within the Project Area.

Birds

black skimmer (*Rhynchops niger*)

The black skimmer is a California Species of Special Concern. The black skimmer breeds on gravel bars, low islets, and sandy beaches on the coast from San Francisco Bay south to San Diego Bay and in the interior at the Salton Sea. Black skimmers forage along calm, shallow water. Habitat for prey occurs in the aquatic environments located within the project boundary. The black skimmer was not observed within the Project Area and has not historically been documented using the tidal channel.

least Bell's vireo (*Vireo belii pusilus*): The least Bell's vireo is listed as endangered in accordance with CESA and FESA. The least Bell's vireo is a rare, local summer resident in San Benito and Monterey Counties, Southern California from Santa Barbara County south to San Diego County and along the western edge of the deserts and nests and forages in willows and other low, dense riparian habitat feeding on insects. Foraging habitat is limited for this species within the Project Area; however, it was observed in Isthmus Area in 2018 and has been well documented to breed in the Heron Point bioswale just east of the Project Area. Restoration of willow and mulefat scrub as part of this project should create habitat for this species.

merlin *(Falco columbarius)*

The merlin is a California Watch List species. Merlin is an uncommon winter migrant and occurs in most of the western half of the state along coastlines, open grasslands, savannahs, woodlands, lakes, wetlands, edges, and early successional stages. Merlin primarily feed on small birds but also, small mammals and insects. Merlin breed in Canada and Alaska and are not known to breed in California. Foraging habitat occurs in the South Area, Isthmus Area, Central Area, and North Area. Breeding habitat is absent. Merlin were observed within the program area during surveys conducted for the Conceptual Restoration Plan (Tidal Influence, 2012). There is a high probability of merlin being present on site during pre-construction surveys.

short-eared owl (Asio flammeus)

The short-eared owl is a California Species of Special Concern. It prefers open habitats such as grasslands, prairie, agricultural fields, salt marshes, estuaries, and mountain meadows. Breeding habitat must have sufficient ground cover to conceal nests and nearby sources of small mammals for food. This species roosts in disturbed areas such as thick hedgerows, overgrown rubble and abandoned fields. The tidal marshes in the Project Area may provide potentially suitable wintering habitat. This species has been documented within the proposed program area during the various surveys and habitat assessments that have been conducted. There is a high probability of short-eared owl being present on site during pre-construction surveys.

northern harrier (nesting) (*Circus cyaneus*)

The northern harrier is a California Species of Special Concern. This species range is across all of North America, wintering across most of the southern United States and into Mexico. It has been documented that the northern harrier is now one of the rarest nesting raptors in southwestern California. Characteristically, this raptor inhabits marshlands, both coastal salt and freshwater,

but often forages over grasslands and fields, requiring open habitats for foraging. Northern harrier have been observed foraging within the Project Area, however, there are no records of nesting in the vicinity.

tricolored blackbird (*Agelaius tricolor*)

The tri-colored blackbird is listed under CESA as threatened and is a California Species of Special Concern. The tri-colored blackbird is a permanent resident of California and ranges from the Central Valley and from Sonoma County to San Diego County along the coast. Tri-colored blackbird nests in freshwater marshes typically dominated by cattails (*Typha* ssp.) or tules (*Scirpus* spp.) and forages in freshwater marshes and surrounding upland habitats habitat feeding on insects. Foraging habitat occurs in the proposed program area; however, there is no suitable breeding habitat present. This species was not observed within the Project Area which lacks the freshwater marsh habitat that this species requires.

Special Status Faunal Species Presence To Be Determined:

These species will continue to be studied in order to make an official determination. An addendum to this report will be provided once the results of ongoing small mammal surveys are known.

Pacific Pocket Mouse (*Perognathus longimembris pacificus*)

The Pacific pocket mouse is a federal endangered species and California Species of Special Concern. Pacific pocket mouse is a rare resident and is associated with fine grain, sandy substrates in coastal strand, coastal dunes, river alluvium and coastal sage scrub habitats within approximately 2.5 miles of the ocean in Southern California. The species primarily feeds on seeds. Suitable habitat occurs in the South, Isthmus, and Central Area, as well as in the North Areas within Steamshovel Slough (and other tidal areas). Pacific pocket mouse has not been observed within the Project Area, and has a low potential to be present, since there are no records of the species in Los Angeles County since 1938 and the closest population occurs in the Dana Point headlands located approximately 30 miles to the southeast (USFWS 2010).

south coast marsh vole (*Microtus californicus stephensi*)

The south coast marsh vole is a California Species of Special Concern, and ranges from southwestern Oregon through much of California. This species prefers grassy meadow habitats and feeds on grasses and other green vegetation when available; piles of cuttings are found along its runways. It breeds from September to December. In winter, it eats mostly roots and other underground parts of plants. Major threats are non-native plants that have replaced the plants it needs to survive and introduced non-native animals such as the common house mouse and other non-natives that have displaced it through competition. The salt marsh areas within the project boundary habitat for this species that is in poor condition.

southern California salt marsh shrew (*Sorex ornatus salicornicus*)

The Southern California salt marsh shrew is a California Species of Special Concern that is endemic to Southern California's coastal marshes from Point Mugu, Ventura County to salt marshes around Anaheim Bay and Newport Beach in Orange County. This species appears to prefer coastal marshes. Based on studies of other similar shrews, the Southern California salt marsh shrew like requires fairly dense

ground cover, nesting sites above mean high tide free from inundation, and fairly moist surroundings. Major threats are loss of habitat due to development along the coast, and lack of refuge sites above the marshes to escape from flooding during seasonal high tides and periodic storms. The salt marsh Project Area provide potential suitable habitat for this species.

Mitigation Measure BIO-9: Revegetation of Sensitive Natural Communities.

The plant species occurring within the Project Area compose the 15 unique vegetation alliances and 5 land cover types summarized in Table 4 and Exhibit F. Descriptions of these vegetation alliances and land cover types are provided below. Of these, 5 are considered to have a rarity ranking of S3 or higher:

Table 4. Acreages of Vegetation Alliances and Land Cover Types (* = sensitive natural community)

Vegetation Alliance	Acres
Cressa truxillensis - Distichlis spicata Herbaceous Alliance*	1.43
Distichlis spicata Herbaceous Alliance	0.44
Salicornia pacifica Herbaceous Alliance*	20.62
Frankenia salina Herbaceous Alliance*	2.77
Ulva lactuca Algal Mat	1.54
Arthrocnemum subterminale Herbaceous Alliance*	0.31
Heterotheca grandiflora Herbaceous Stand	5.48
Isomeris arborea (*Peritoma arborea*) Shrub Stand	0.04
Isocoma menziesii Shrubland Alliance*	1.52
Baccharis salicifolia Shrubland Alliance*	0.58
Bassia hyssopifolia Semi-Natural Herbaceous Stand	0.96
Brassica nigra and other mustards Herbaceous Semi-Natural Alliance	45.34
Bromus diandrus – Bromus rubens Semi-Natural Herbaceous Stand	4.67
Conium maculatum – Foeniculum vulgare Herbaceous Semi-Natural Alliance	2.91
Mesembryanthemum spp. – *Carpobrotus* spp. Herbaceous Semi-Natural Alliance	4.49
Ornamental	0.35
Disturbed – mowed/disked fire break	0.06
Unvegetated Salt Flat	2.93
Unvegetated Tidal Flat	3.40
Developed	3.70
TOTAL	**103.54**

Cressa truxillensis - Distichlis spicata Herbaceous Alliance (G2S2): A total of 1.43 acres of this alliance was identified within the project boundary (Table 4). Alkali weed (*Cressa truxillensis*, FACW) and salt grass (*Distichlis spicata*, FACW) are characteristically present in this alliance with a variety of species that include alkali heath (*Frankenia Salina,* FACW) and species similar to alkali mallow (*Malvella leprosa,* FACU) which can be found within the Los Cerritos Wetlands however is not present in this portion of the wetlands. This

alliance is found on the edges of *Salicornia pacifica* stands within the property but above the high tide line and was observed in areas where hydric soils and wetland hydrology indicators were not present on site. Therefore, areas where this alliance are present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Distichlis spicata Herbaceous Alliance (Salt grass flats): A total of 0.44 acres of this alliance was identified within the project boundary (Table 4). This alliance is dominated by salt grass (*Distichlis spicata*, FAC) with a co-dominance of alkali heath (*Frankenia salina*, FACW), saltwort (*Batis maritima*, OBL), common pickleweed (*Salicornia pacifica*, OBL), alkali weed (*Cressa truxillensis*, FACW), and may also support non-native upland grasses and forbs. This species often forms monotypic stands when it is found above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, in some instances locations where this alliance is present will not meet the ACOE's three criteria threshold for wetland waters of the U.S.

Salicornia pacifica Herbaceous Alliance (Pickleweed mats) (G4S3): A total of 20.62 acres of this alliance was identified within the project boundary (Table 4). This alliance is dominated by Common Pickleweed (*Salicornia pacifica*, OBL) that mixes with other co-dominant species including salt grass (*Distichlis spicata*, FAC), fleshy jaumea (*Jaumea carnosa*, FACW), alkali heath (*Frankenia salina*, FACW), saltwort (*Batis maritima*, OBL) and sea lavender (*Limonium californicum*, FACW). Intermixing with the co-dominant species commonly occurs within the tidal reaches of the site, meanwhile, this species often forms monotypic stands when it is found above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, in some instances locations where this alliance is present will not meet the ACOE's three criteria threshold for wetland waters of the U.S.

Frankenia salina Herbaceous Alliance (G4S3): A total of 2.77 acres of this alliance was identified within the project boundary (Table 4). While alkali heath (*Frankenia salina*, FACW) is common in a variety of alliances, there are numerous locations throughout site where it is found in predominantly monotypic stands. Co-dominant plant species for this alliance commonly include salt grass (*Distichlis spicata*, FAC), alkali heath (*Frankenia salina,* FACW), saltwort (*Batis maritima,* OBL), common pickleweed (*Salicornia pacifica,* OBL), and alkali weed (*Cressa truxillensis,* FACW). This alliance is found above the tidal reaches of the site where hydric soil and wetland hydrology indicators are not present, typically adjacent to pickleweed mats and in upland areas. Therefore, areas where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Ulva lactuca Algal Mat: A total of 1.54 acres of this alliance was identified within the project boundary (Table 4). This alliance is dominated by the non-vascular algae species sea lettuce (*Ulva lactuca*) and is found exclusively within the tidal channel that allows for tidal flow through the culvert connection. This alliance is found below the high tide line where hydric soil and wetland hydrology indicators are present. Therefore, where this alliance is present will meet the ACOE's criteria threshold for waters of the U.S.

Arthrocnemum subterminale Herbaceous Alliance (G4S2): A total of 0.31 acres of this alliance was identified within the project boundary (Table 4). This alliance is dominated by Parish's glasswort (*Arthrocnemum subterminale*, FACW) or co-dominant in the herbaceous and subshrub layers with alkali weed (*Cressa truxillensis,* FACW*),* salt grass (*Distichlis spicata,* FAC)*,* alkali heath (*Frankenia salina,* FACW) *and Common Pickleweed* (*Salicornia pacifica,* OBL). While *Arthrocnemum subterminale* can be found in numerous locations throughout the site the largest and most dominant population occurs near an access road toward the northern end of the project site. This alliance is often found outside of the tidal reaches of the site so its presence does not always meet the minimum threshold as waters of the U.S.

Heterotheca grandiflora Herbaceous Stand: A total of 5.48 acres of this alliance was identified within the project boundary (Table 4). This alliance is dominated by telegraph weed (*Heterotheca grandiflora*, UPL) or co-dominate in the shrub canopy with California sagebrush (*Artemisia californica*, FACU) and coyote brush (*Baccharis pilularis*, FACU). This alliance is found above the tidal reaches of the site in areas where sandy fill material is present and hydric soil and wetland hydrology indicators are typically not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Isomeris arborea (*Peritoma arborea*) Shrub Stand: A total of 0.04 acres of this alliance was identified within the project boundary (Table 4). This alliance is dominated by bladderpod (*Peritoma arborea*, UPL). This alliance is only found in a single patch on the property outside of the tidal reach where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Isocoma menziesii Shrubland Alliance (G3S3): A total of 1.52 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by Menzies's golden bush (*Isocoma menziesii*, FAC) or commonly co-dominated in the shrub canopy by California sagebrush (Artemisia californica, FACU), coyote brush (*Baccharis pilularis*, FACU), and Virginia glasswort (*Salicornia depressa*, FACW). This alliance is found in areas above the high tide line where hydric soil and wetland hydrology indicators are typically not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Baccharis salicifolia Shrubland Alliance (S4G4): A total of 0.58 acres of this alliance was identified within the project boundary (Table 4). In this alliance mulefat (*Baccharis salicifolia, FAC*) is dominant or co-dominant in the shrub canopy with California sagebrush (*Artemisia californica, FACU*)*,* coyote brush (*Baccharis pilularis, FACU*)*,* and arroyo willow (*Salix lasiolepis, FACW*). This alliance is found in a few patches on the property above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Bassia hyssopifolia Semi-Natural Herbaceous Stand: A total of 0.96 acres of this alliance was identified within the project boundary (Table 4). This alliance is dominated by five horn bassia (*Bassia hyssopifolia*,

FACU) with other California non-native herbaceous species. On the property these stands occur above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Brassica nigra and other mustards Herbaceous Semi-Natural Alliance: A total of 45.34 acres of this alliance was identified within the project boundary (Table 4). This alliance is dominated by black mustard (*Brassica nigra*, FACU) occurring with other ruderal forbs such as maltese star thistle (*Centaurea melitensis*, FACU) and short podded mustard (*Hirschfeldia incana*, FACU). This alliance occurs above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Bromus diandrus – Bromus rubens Semi-Natural Herbaceous Stand: A total of 4.67 acres of this alliance was identified within the project boundary (Table 4). This alliance is dominated by ripgut brome (*Bromus diandrus*, FACU) occurring with other non-natives in the herbaceous layer. There is a large single occurrence of this alliance on site that is above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Conium maculatum – Foeniculum vulgare Herbaceous Semi-Natural Alliance: A total of 2.91 acres of this alliance was identified within the project boundary (Table 4). This alliance is dominated by poison hemlock (*Conium maculatum*, FACW) and occurs with other non-native plant species in the herbaceous layer. This alliance occurs above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Mesembryanthemum spp. – *Carpobrotus* spp. Herbaceous Semi-Natural Alliance: A total of 4.49 acres of this alliance was identified within the project boundary (Table 4). This alliance is dominant in the herbaceous layer and can contain iceplant (*Carpobrotus edulis, FACU*), crystalline iceplant (*Mesembryanthemum crystallinum,* FACU), or other ice plant taxa. Emergent trees and shrubs may also be present at low cover within this alliance. This alliance occurs above the high tide line where hydric soils and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Ornamental: A total of 0.35 acres of this land cover type was identified within the project boundary (Table 4). This land cover type includes non-native species such as Mexican fan palm (*Washingtonia robusta*, FACW), Brazilian pepper tree (*Schinus terebinthifolia*, FACU), and other various non-native plant species in the shrub and tree stratum. This land cover type occurs primarily around developed areas on the property that are above the high tide line where hydric soils and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Disturbed – mowed/disked fire break: A total of 0.06 acres of this alliance was identified within the project boundary (Table 4). This land cover type consists of a small area adjacent to a perimeter fence line in the upland areas that was disked to reduce the fire risk in the area. This land cover type is above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Unvegetated Salt Flat: A total of 2.93 acres of this land cover type was identified within the project boundary (Table 4). This land cover type consists of areas absent of any vegetation and is above the high tide line but may contain hydric soil indicates such as a salty crust on the soil surface. Given that unvegetated salt flats lack the vegetative cover required to be considered wetland waters, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Unvegetated Tidal Flat: A total of 3.40 acres of this land cover type was identified within the project boundary (Table 4). This land cover type is absent of vegetation but occurs below the high tide line. These areas can show hydric soil and wetland hydrology indicators. Therefore, due a lack of vegetation, where this alliance is present will likely not meet the ACOE's criteria threshold for wetland waters of the U.S. but could qualify as waters of the U.S.

Developed: A total of 3.70 acres of this land cover type was identified within the project boundary (Table 4). This land cover type consists of asphalt roads, concrete pads, established dirt roads and other areas developed prior to acquisition by the LCWA. This land cover type occurs above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Mitigation Measure BIO-10: Jurisdictional Resources Permitting.

The jurisdictional wetland delineation study determined the amount of potential jurisdictional waters of the United States within the Project Area to be 10.69 acres. Within the jurisdictional waters of the United States, 2.44 acres are potentially wetland waters of the United States under section 404 and 8.25 acres are considered potential waters of the United States under section 10. The potential jurisdictional wetlands of the State based on the California Coastal Commission's jurisdiction extends beyond the federal jurisdictional and totals 27.19 acres within the Project Area. California Department of Fish and Wildlife potential jurisdictional area covers 1.42 acres within the CCC jurisdictional boundary. A summary of the jurisdictional waters and wetlands of the U.S. and State, with the corresponding regulatory authority, occurring within the survey area, is provided in Table 5. Additional discussion on the results of the jurisdictional delineation investigation results can be found in the stand-alone report entitled Southern Los Cerritos Wetlands Area: Jurisdictional Wetlands Delineation (Appendix B).

Table 5. Summary of potential jurisdictional waters of the U.S. & State (*= 0.05 acres extend outside of the Project Area; **= 0.02 acres extend outside of the Project Area).

Type of Potential Jurisdictional Waters of the U.S. and State	Regulatory Authority	Acres
Potential Jurisdictional Waters of the U.S.		
Wetland Waters Section 404	ACOE, USFWS, and RWQCB	2.44*
Waters of the U.S. Section 10	ACOE, USFWS, and RWQCB	8.25**
	Subtotal Potential Jurisdictional Waters of the U.S.	10.69
Potential Jurisdictional Wetlands of the State		
Wetland Waters	CCC	27.19
	CDFW	1.42

4.0 Impact Analysis

The construction designs will consider the findings of these surveys in order to avoid and minimize impacts to the existing biological resources. This section provides insight into the potential impacts to special status species, vegetation communities, jurisdictional waters/wetlands, and nesting birds. The mitigation ratios required by the Program EIR are reemphasized.

Impacts to Special Status Species:

Floral Species

California boxthorn

California boxthorn is the one perennial species that would require protection. One large individual is present along the small heavily muted portion of the tidal channel in the eastern portion of the Project Area. Efforts should be made to start propagating container stock from this individual since it is located directly next to an asphalt road that will be removed as part of this project. During construction, attempts should be made to salvage this individual and relocate it to existing transition zone habitat within the Project Area. The other California boxthorn occurrence is found in a location that is unlikely to be graded, however, improvements to the tidal prism could lead to higher tides which may possibly inundate the occurrence. Overall, this species will be planted heavily as part of the restoration effort and the potential 7:1 mitigation ratio will be easily met.

southern tarplant

Southern tarplant is found in and around disturbed areas like dirt roadways and in asphalt cracks. It is anticipated that the existing occurrences will be impacted by this project and a Tarplant Mitigation Program should be developed once the extent of the impacts are better understood. This program should include seed collection over at least 2 years in advance of any disturbances. This species will be easily reestablished throughout the restored tidal habitat fringes and the potential 3:1 mitigation ratio will be easily met.

Lewis' evening primrose

Lewis' evening primrose is well established in two relatively large occurrences on sandy deposits, with another smaller occurrence growing in the cracks of an asphalt road. This makes it more challenging to meet the potential 3:1 mitigation ratio. Moreover, the availability of low salinity sandy sediment is limited. Therefore, opportunities to minimize grading or filling of the areas where this plant is established should be explored. Impacts to easternmost occurrence should be avoided if possible since the easternmost occurrence is likely to be impacted by the removal of the road and placement of fill material. Similar to southern tarplant, a Lewis' Evening Primrose Mitigation Program should be developed, and seed collection should be initiated immediately since seed sources for this species are extremely limited.

Faunal Species

Belding's savannah sparrow

The restoration design should make all attempts to minimize impacts to the core breeding habitat area indicated in Exhibit E by incorporation of the geographic data from this report into the design plans. Additionally, potential impacts to this species can be avoided through implementation of the project and associated construction activities outside of the breeding season which is generally accepted to be February 15th-July 15th. Furthermore, any impacts to suitable breeding habitat will be mitigated at a 1:1 ratio, which will be achievable since maximizing tidal salt marsh habitat is one of the project goals. In accordance with Mitigation Measure BIO-3, a Mitigation, Maintenance, and Monitoring Program shall be prepared and approved by CDFW prior to implementation of the restoration project. The proposed program shall be implemented by a qualified restoration ecologist, and at a minimum, shall include success criteria and performance standards for measuring the establishment of Belding's savannah sparrow breeding habitat, responsible parties, maintenance techniques and schedule, 5-year monitoring and reporting schedule, adaptive management strategies, and contingencies. Moreover, in accordance the CESA, an Incidental Take Permit shall be obtained from CDFW if any Belding's savannah sparrow may be impacted during construction or operations of the program.

California least tern

Potential impacts to this species foraging habitat can be avoided through implementation of the project and associated construction activities outside of the breeding season which is generally accepted to be April – August. While breeding is not taking place within the LCW Complex, a colony exists at the Seal Beach National Wildlife Refuge that forages within the Project Area during the breeding season.

American peregrine falcon, osprey, loggerhead shrike, yellow-breasted chat, California brown pelican

Potential impacts to these species are easily avoided since none of them have been documented nesting within the Project Area. The peregrine falcon, osprey and brown pelican are most of observed flying through the site and will not be impacted by construction activity on the ground. Pre-construction surveys focused on loggerhead shrike and yellow-breasted chat should be performed in order to avoid impacts to any area that the species may be actively using for foraging at that time.

Impacts to Nesting Birds

Habitat within the project site has the potential to support a variety of nesting bird species although none were observed (besides BSS) during the project level surveys. Impacts to migratory and resident nesting avian species are prohibited under the MBTA as well as provisions of the California Fish and Wildlife Code. A qualified wetland biologist will be on site during all construction activities to ensure avoidance of nesting birds during all construction activities. Furthermore, the project must strictly adhere to the requirements of Mitigation Measure BIO-4 from the Program EIR.

Impacts to Jurisdictional Wetlands

The extent of impacts from restoration grading activities is not yet determined. Regardless, the jurisdictions for waters and wetlands of the US and State are clearly indicated in the project-level JDR. The

project must adhere to the conditions set forth in the Program EIR's Mitigation Measure BIO-10. Essentially, the LCWA must pursue the requisite permits from jurisdictional agencies to ensure that the project is self-mitigating and creates no-net-loss of jurisdiction features.

Impacts to Vegetation Communities

This project will likely result in impacts to sensitive natural communities as part of the restoration process. The exact acreage should be identified before the grading plans for the project are finalized. Per Mitigation Measure BIO-9, Sensitive Natural Communities that will be impacted by the proposed project shall be created within the Project Area at a minimum ratio of 1:1 (area created:area impacted). A mitigation ratio of a minimum 2:1 for natural communities with a rarity ranking of S3 or higher will be incorporated into the restoration designs. Restored Sensitive Natural Communities shall consist of a minimum 60 percent absolute vegetation cover and shall include community-specific growing conditions, such as, similar slope, aspect, elevation, soil, and salinity. This mitigation measure should be easily met since the project aims to restore these sensitive communities in areas that currently are dominated by non-native vegetation alliances.

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Exhibit A

Project Vicinity Map

Produced by Hannah Craddock May 4, 2021

Datum: NAD 1983

Project Vicinity

Southern Los Cerritos Wetlands Restoration Project - Seal Beach, CA

1 inch = 2,000 feet

0 900 1,800 3,600 5,400 7,200 Feet

Project Boundary

Tidal Influence

Exhibit B

Project Site Map

Produced by Hannah Craddock May 13, 2021 Datum: NAD 1983

Project Site

Southern Los Cerritos Wetlands Restoration Project - Seal Beach, CA

1 inch = 458 feet

0 210 420 840 1,260 1,680 Feet

Project Boundary

Tidal Influence

Exhibit C

Burrowing Owl Survey Area Map

Burrowing Owl Survey Area

Southern Los Cerritos Wetlands Restoration Project - Seal Beach, CA

Tidal Influence

Project Area (103.54 acres)

Burrowing Owl Survey Area (6.55 acres)

0 190 380 760 1,140 1,520 Feet

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
August 6, 2021
1 inch = 458 feet

Exhibit D

Special Status Plants Map

Special Status Plants

Southern Los Cerritos Wetlands Restoration Project - Seal Beach, CA

Tidal Influence

Project Area (103.54 acres)

California boxthorn *(Lycium californicum,* 2 Individuals*)*

Southern tarplant *(Centromadia parryi australis,* 1.06 acres*)*

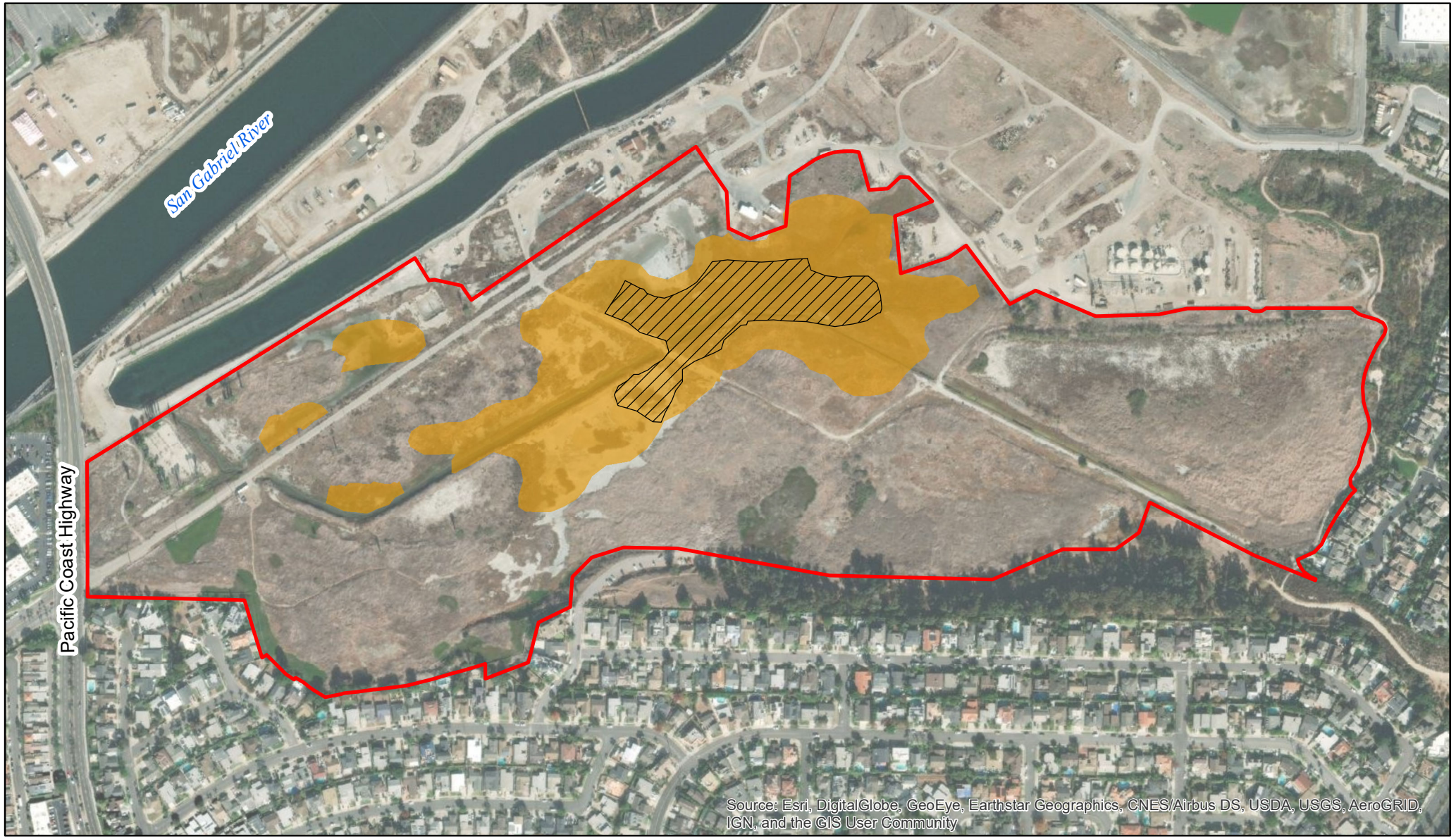
Lewis' evening primrose *(Camissoniopsis lewisii,* 3.76 acres*)*

0 190 380 760 1,140 1,520 Feet

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
July 13, 2021
1 inch = 458 feet

Exhibit E

Belding's Savannah Sparrow Breeding Habitat Map



Belding's Savannah Sparrow (*Passerculus sandwichensis beldingi*) Breeding Habitat

Southern Los Cerritos Wetlands Restoration Project - Seal Beach, CA

Project Area (103.54 acres)

Observed Habitat Extent (21.10 acres)

Core Breeding Habitat (4.73 acres)

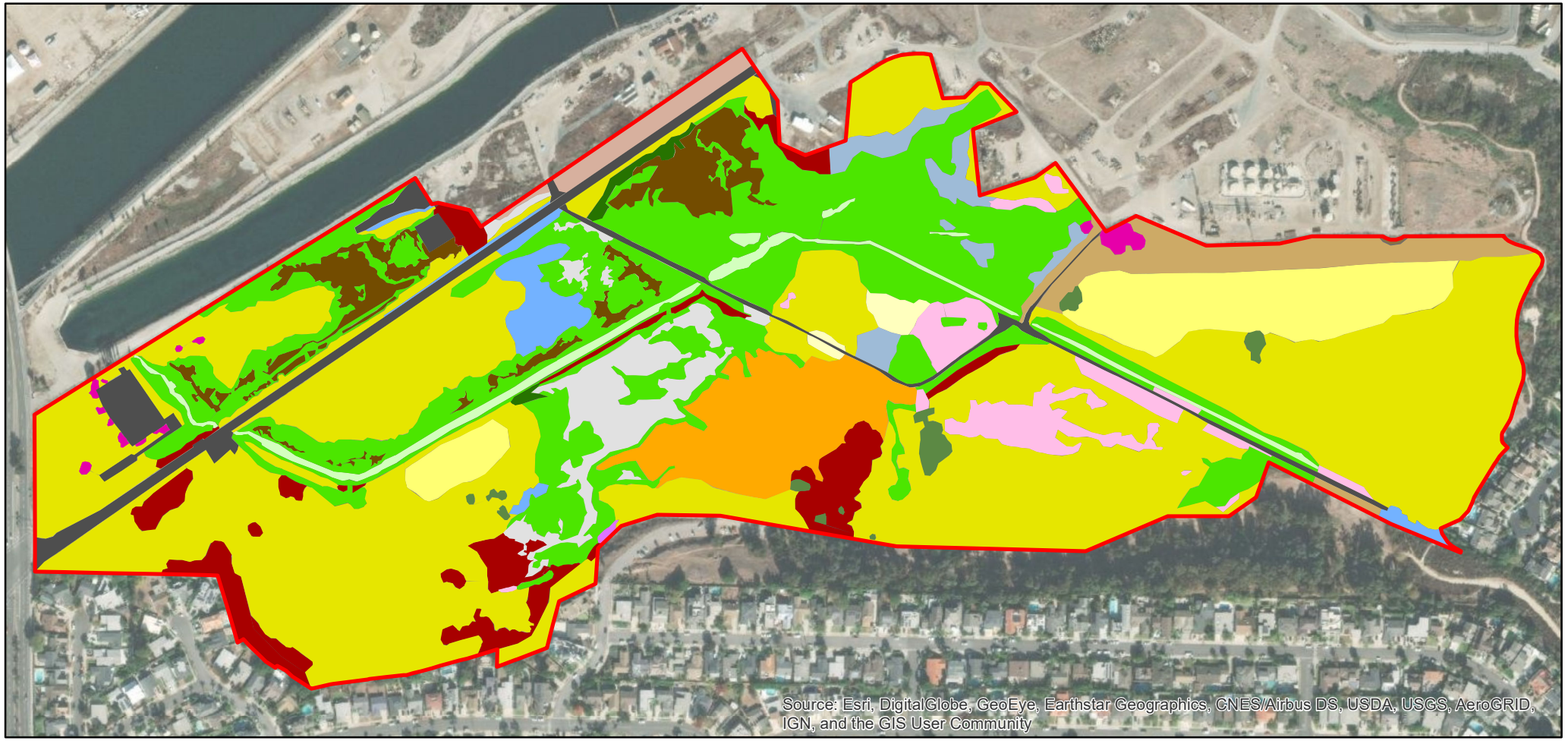
Tidal Influence

0 187.5 375 750 1,125 1,500 Feet

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
August 18, 2021
1 inch = 458 feet

Exhibit F

Vegetation Alliances Map



Vegetation Alliances

Southern Los Cerritos Wetlands Restoration Project - Seal Beach, CA

- Project Area (103.54 acres)
- Cressa truxillensis - Distichlis spicata Herbaceous Alliance*
- Distichlis spicata Herbaceous Alliance
- Salicornia pacifica Herbaceous Alliance*
- Frankenia salina Herbaceous Alliance*
- Ulva lactuca algal mat
- Arthrocnemum subterminale Herbaceous Alliance*
- Heterotheca grandiflora herbaceous stand
- Isomeris arborea shrub stand
- Isocoma menziesii Shrubland Alliance*
- Baccharis salicifolia Shrubland Alliance*
- Bassia hyssopifolia Semi-Natural Herbaceous Stand
- Brassica nigra and other mustards Herbaceous Semi-Natural Alliance
- Bromus diandrus,rubens Semi-Natural Herbaceous Stand
- Conium maculatum - Foeniculum vulgare Herbaceous Semi-Natural Alliance
- Mesembryanthemum spp. - Carpobrotus spp. Herbaceous Semi-Natural Alliance
- Ornamental
- Disturbed - mowed/disked fire break
- Unvegetated salt flat
- Unvegetated tidal flat
- Developed

Asterisks (*) denote sensitive natural communities

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
May 13, 2021
1 inch = 458 feet

Tidal Influence

0 185 370 740 1,110 1,480 Feet

Appendix A

Faunal Species List

Faunal Species List		
Avifauna		
Common Name	**Genus**	**Species**
Cooper's hawk	*Accipiter*	*cooperii*
sharp-shinned hawk	*Accipiter*	*striatus*
white-throated swift	*Aeronautes*	*saxatalis*
red-winged blackbird	*Agelaius*	*phoeniceus*
mallard	*Anas*	*platyrhynchos*
green-winged teal	*Anas*	*crecca*
northern pintail	*Anas*	*acuta*
snow goose	*Anser*	*caerulescens*
greater white-fronted goose	*Anser*	*albifrons*
American pipit	*Anthus*	*rubescens*
California scrub-jay	*Aphelocoma*	*californica*
great egret	*Ardea*	*alba*
great blue heron	*Ardea*	*herodias*
Canada goose	*Branta*	*canadensis*
great horned owl	*Bubo*	*virginianus*
bufflehead	*Bucephala*	*albeola*
red-shouldered hawk	*Buteo*	*lineatus*
red-tailed hawk	*Buteo*	*jamaicensis*
green heron	*Butorides*	*virescens*
least sandpiper	*Calidris*	*minutilla*
western sandpiper	*Calidris*	*mauri*
Anna's hummingbird	*Calypte*	*anna*
Wilson's warbler	*Cardellina*	*pusilla*
turkey vulture	*Cathartes*	*aura*
hermit thrush	*Catharus*	*guttatus*
Vaux's swift	*Chaetura*	*vauxi*
killdeer	*Charadrius*	*vociferus*
semipalmated plover	*Charadrius*	*semipalmatus*
northern harrier	*Circus*	*hudsonius*
marsh wren	*Cistothorus*	*palustris*
rock pigeon	*Columba*	*livia*
American crow	*Corvus*	*brachyrhynchos*
common raven	*Corvus*	*corax*
Nuttall's woodpecker	*Dryobates*	*nuttallii*
downy woodpecker	*Dryobates*	*pubescens*

Common Name	Genus	Species
snowy egret	*Egretta*	*thula*
white-tailed kite	*Elanus*	*leucurus*
northern red bishop	*Euplectes*	*franciscanus*
American kestrel	*Falco*	*sparverius*
peregrine falcon	*Falco*	*peregrinus*
American coot	*Fulica*	*americana*
common loon	*Gavia*	*immer*
common yellowthroat	*Geothlypis*	*trichas*
house finch	*Haemorhous*	*mexicanus*
barn swallow	*Hirundo*	*rustica*
yellow-breasted chat	*Icteria*	*virens*
hooded oriole	*Icterus*	*cucullatus*
bullock's oriole	*Icterus*	*bullockii*
Dark-eyed junco	*Junco*	*hyemalis*
loggerhead shrike	*Lanius*	*ludovicianus*
Western gull	*Larus*	*occidentalis*
California gull	*Larus*	*californicus*
ring-billed gull	*Larus*	*delawarensis*
orange-crowned warbler	*Leiothlypis*	*celata*
long-billed dowitcher	*Limnodromus*	*scolopaceus*
scaly-breasted munia	*Lonchura*	*punctulata*
American wigeon	*Mareca*	*americana*
gadwall	*Mareca*	*strepera*
belted kingfisher	*Megaceryle*	*alcyon*
song sparrow	*Melospiza*	*melodia*
Lincoln's sparrow	*Melospiza*	*lincolnii*
California towhee	*Melozone*	*crissalis*
northern mockingbird	*Mimus*	*polyglottos*
brown-headed cowbird	*Molothrus*	*ater*
ash-throated flycatcher	*Myiarchus*	*cinerascens*
long-billed curlew	*Numenius*	*americanus*
black-crowned night-heron	*Nycticorax*	*nycticorax*
ruddy duck	*Oxyura*	*jamaicensis*
osprey	*Pandion*	*haliaetus*
house sparrow	*Passer*	*domesticus*
Belding's savannah sparrow	*Passerculus*	*sandwichensis beldingii*
brown pelican	*Pelecanus*	*occidentalis*

Common Name	Genus	Species
cliff swallow	*Petrochelidon*	*pyrrhonota*
double-crested cormorant	*Phalacrocorax*	*auritus*
black-headed grosbeak	*Pheucticus*	*melanocephalus*
western tanager	*Piranga*	*ludoviciana*
white-faced ibis	*Plegadis*	*chihi*
black-bellied plover	*Pluvialis*	*squatarola*
eared grebe	*Podiceps*	*nigricollis*
horned grebe	*Podiceps*	*auritus*
pied-billed grebe	*Podilymbus*	*podiceps*
blue-gray gnatcatcher	*Polioptila*	*caerulea*
bushtit	*Psaltriparus*	*minimus*
American avocet	*Recurvirostra*	*americana*
ruby-crowned kinglet	*Regulus*	*calendula*
Say's phoebe	*Sayornis*	*saya*
black phoebe	*Sayornis*	*nigricans*
Allen's hummingbird	*Selasphorus*	*sasin*
rufous hummingbird	*Selasphorus*	*rufus*
yellow-rumped warbler	*Setophaga*	*coronata*
western bluebird	*Sialia*	*mexicana*
northern shoveler	*Spatula*	*clypeata*
lesser goldfinch	*Spinus*	*psaltria*
American goldfinch	*Spinus*	*tristis*
northern rough-winged swallow	*Stelgidopteryx*	*serripennis*
Forster's tern	*Sterna*	*forsteri*
Eurasian collared-dove	*Streptopelia*	*decaocto*
western meadowlark	*Sturnella*	*neglecta*
European starling	*Sturnus*	*vulgaris*
tree swallow	*Tachycineta*	*bicolor*
elegant tern	*Thalasseus*	*elegans*
Bewick's wren	*Thryomanes*	*bewickii*
greater yellowlegs	*Tringa*	*melanoleuca*
willet	*Tringa*	*semipalmata*
house wren	*Troglodytes*	*aedon*
Cassin's kingbird	*Tyrannus*	*vociferans*
western kingbird	*Tyrannus*	*verticalis*
warbling vireo	*Vireo*	*gilvus*
mourning dove	*Zenaida*	*macroura*

Common Name	**Genus**	**Species**
white-crowned sparrow	*Zonotrichia*	*leucophrys*
golden-crowned sparrow	*Zonotrichia*	*atricapilla*
Swinhoe's white-eye	*Zosterops*	*simplex*
Herpetofauna		
Common Name	**Genus**	**Species**
California kingsnake	*Lampropeltis*	*californiae*
common side-blotched lizard	*Uta*	*stansburiana*
garden slender salamander	*Batrachoseps*	*major*
southern alligator lizard	*Elgaria*	*multicarinata*
western fence lizard	*Sceloporus*	*occidentalis*
gopher snake	*Pituophis*	*catenifer*
Mammals		
Common Name	**Genus**	**Species**
None Observed		
Fish		
Common Name	**Genus**	**Species**
None Observed		
Invertebrates		
Common Name	**Genus**	**Species**
None Observed		

Appendix B

Southern Los Cerritos Wetlands Area: Jurisdictional Wetlands Delineation

Southern Los Cerritos Wetlands Restoration Project

Jurisdictional Delineation Report

PREPARED FOR:
LOS CERRITOS WETLANDS AUTHORITY
100 Old San Gabriel Canyon Road
Azusa, CA 91702

PREPARED BY:

TIDAL INFLUENCE, LLC
2539 E. 7th Street
Long Beach, CA 90804

JULY 2021

Jurisdictional Delineation Report:
Southern Los Cerritos Wetlands Restoration Project

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Acronyms and Abbreviations

ACOE	Army Corps of Engineers
Cal-IPC	California Invasive Plant Council
CCA	California Coastal Act
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CSLC	California State Lands Commission
CPRC	California Public Resource Code
CWA	Clean Water Act
CWC	California Water Code
GPS	Global Positioning System
JDR	Jurisdictional Delineation Report
LCW	Los Cerritos Wetlands
LCWA	Los Cerritos Wetlands Authority
MCVII	*A Manual of California Vegetation, Second Edition*
MHTL	Mean High Tide Line
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
RHA	Rivers and Harbors Act
RWQCB	Regional Water Quality Control Board
SLR	Sea Level Rise
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 Introduction

This report presents the preliminary findings of potential U.S. Army Corps of Engineers (ACOE) and California Coastal Commission (CCC) jurisdiction over the project area associated with the Southern Los Cerritos Wetlands Area. The results of the report will also discuss the potential jurisdictions of California Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW).

1.1 Project Location

The project area is primarily located approximately 0.08 miles southeast of the San Gabriel River Pacific Coast Highway Bridge in the City of Seal Beach, California in the County of Orange (Exhibit A). The Project's central geographic location is Latitude 33.751066°; Longitude -118.099411° primarily in section 11 of Township 5 South, and Range 12 West, on the United Stated Geological Survey (USGS) Seal Beach and Los Alamitos 7.5-minute series topographical quadrangles. The project area is bounded by the San Gabriel River to the west, oil extraction operations to the north, and residential neighborhoods and park space to the east and south (Exhibit B). The property is bordered by industrial, open space and residential land uses.

The property is currently accessible from Pacific Coast Highway via 1st street which extends through the property and leads to the neighboring oil operations. This asphalt access road bisects the site and is subject to several easements for other landowners and for the utilities that run parallel to it both above and below ground. The site is currently closed to the public and is only accessible during public programming or with prior approval from the property owner. The main 100-acre parcel is owned by the Los Cerritos Wetlands Authority (LCWA) who controls access to the property's gates that connect to trails and old maintenance roads that traverse the site. A small 5-acre parcel that the project area partially covers is owned by the California State Lands Commission who the LCWA has a long-term access agreement with to manage that property.

1.2 Project Description

The Los Cerritos Wetlands Authority (LCWA) is a governmental entity developed in 2006 by a joint powers agreement between the State Coastal Conservancy, the Rivers and Mountains Conservancy, and the cities of Seal Beach and Long Beach. It was created with the purpose "to provide for a comprehensive program of acquisition, protection, conservation, restoration, maintenance and operation, and environmental enhancement of the Los Cerritos Wetlands area consistent with the goals of flood protection, habitat protection and restoration, and improved water supply, water quality, groundwater recharge, and water conservation." The LCWA has acquired 165 acres of coastal habitat since its inception. This acreage includes the 100-acre South LCWA Site (AKA Hellman Ranch Lowlands) which falls completely within the proposed project boundary. A majority of the site is comprised of native coastal salt marsh habitat as well as areas occupied by non-native plant species alliances. Mixed in with this are features such as a tidal creek, salt flats, tidal flats, utilities, a developed asphalt roadway, dirt maintenance roadways, dumped fill, and various manmade remnants that have accumulated over time. The 103.54 acre project area also includes 3.5 acres of the 5 acre parcel of land owned by the California State Lands Commission with whom

the LCWA holds manages a non-exclusive lease agreement to manage the property. The State Lands Parcel Site is comprised of a mix of tidal wetland in the northern portion of the property where the culvert connects to the San Gabriel River. The majority of this parcel is comprised of a concrete pad that is approximately 0.83 acres. The remaining portion to the southern end of the property was also developed and currently occupied by degrading asphalt that is being covered in various non-native plant species as well as patches of the special status plant species Southern Tarplant (*Centromadia parryi* ssp.*australis*).

The Southern Los Cerritos Wetlands Area is part of the first phase of restoration of the overall Los Cerritos Wetlands Complex that encompasses approximately 503 acres of coastal habitat, both land and water. This restoration project area has been subject to historical degradation and fragmentation and is in need of improved tidal connection as well as other restorative measures in order to improve the site's ecological function and protect the local area from sea level rise due to climate change (Coastal Restoration Consultants, 2021).

The purpose of the proposed project is to restore and enhance the ecological and biological function of historic wetland and transitional habitats as well as provide opportunities for public access. This project will design a tidal wetland restoration plan that takes into consideration sea level rise, cultural resources, the local community, and other private and public entities. Dredging, moving of fill, and removal of contaminated material will likely need to take place throughout the site in order to achieve the goal of maximizing contiguous tidal salt marsh habitat. Currently tidal waters enter the project area through an approximately 48-inch-wide culvert connected to the San Gabriel River. While this culvert does provide some tidal prism, it is heavily muted due to the size and position of this culvert. Therefore, the project will be aiming to create improved tidal connections and is targeting the adjacent Haynes Cooling Channel to achieve this objective. Additionally, there are possible opportunities to work with local surrounding landowners to create a more optimal tidal connection that would allow for higher rates of hydrologic exchange between the marsh and the ocean.

2.0 Methodology

2.1 Presurvey Investigations

A distinct project boundary was determined prior to conducting formal investigations in the field for this Jurisdictional Delineation Report (JDR). The extent of the project boundary was designed to encompass all the areas with potential for overlap with the project activities. Once the boundary was finalized, Tidal Influence wetland ecologists closely reviewed former reports, aerial photographs, and topographic maps of the site to determine areas that were critical to investigate in the field. A grid was overlain on the project area and potential sampling points were chosen where the grid intersected areas that were potential waters of the U.S. and State (including wetlands).The National Wetland Inventory (NWI) was also utilized to create a map of potential wetlands (Exhibit C). While the NWI map was helpful to project potential sampling points it was limited in its accuracy and did not fully capture tidal wetlands within the project boundary. Due to this limitation, previous reports investigating the property were used in conjunction with the NWI map to gain a better understanding of where the current wetland areas potentially occurred. Specifically, a Jurisdictional Delineation of Wetlands and Waters of the United States conducted by Chambers Group, Inc in June 1996 was used in conjunction with other literature from the Los Cerritos Wetlands Restoration Project Program EIR (PEIR) to understand and verify locations of jurisdictional areas throughout the project area.

2.2 Field Survey

The fieldwork for this investigation was conducted by Tidal Influence ecologists Eric Zahn, Marcelo Ceballos, Hannah Craddock, Mark Hannaford, Wanisa Jaikwang, and Jesse Aragon on February 19th, February 26th, March 5th, March 12th, and May 24th, 2021. Previous wetland delineation and biological assessment reports were utilized prior to field visits to select initial survey points. The remotely selected points were shifted based on field conditions and the exact locations were documented with a handheld Trimble Geo 7X handheld Global Positioning System (GPS) device with sub-meter accuracy and marked with a flag. All ecological observations were documented during these field surveys.

Vegetation and land cover data collected for the PEIR in 2018 by Coastal Restoration Consultants were used as reference to delineate jurisdictional waters (including wetlands) occurring within the project area on March 12th, 2021. The Jurisdictional Wetlands Determination Report by Chambers Group from 1996 was also referenced during the preliminary literature investigation. This vegetation data was expanded upon during additional biological surveys when newly encountered plant species and/or communities were observed. A total of 18 soil sampling points were analyzed for potential jurisdictional waters/wetlands (Exhibit D). Each of these 18 points were evaluated according to routine wetland delineation procedures described in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual (Wetland Manual) and the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0.

At each sample point, the existence of significantly disturbed conditions, naturally problematic conditions, and “normal circumstances” were considered and recorded on the Wetlands Determination Data Form

for the Arid West Region. All notable site conditions were recorded including observations of recent restoration activity or management of that area as wetlands.

Within an approximately 2-meter squared area around the sample point, the dominant and subdominant plant species were identified, and the wetland indicator status was noted for each plant species. A sampling location was determined to support hydrophytic vegetation if more than 50% of the dominant species were listed as Obligate (OBL), Facultative Wetland (FACW), or Facultative (FAC) species on the Army Corps of Engineers' National Wetland Plant List (Lichvar et al., 2016) or if the hydrophytic plant prevalence index was less than or equal to 3.0.

A soil pit was dug at each of the points to investigate soil characteristics and the potential for hydric soil indicators. All soil pits (field data points for soil inspection and observation) were dug to a depth of 20 inches below natural grade or to the point of obstruction (e.g., compaction or debris) if a 20-inch-deep soil pit was not possible. Soil pits were located in obvious wetland and non-wetland areas to determine the wetland/non-wetland boundary and the presence or absence of hydric soils. Each pit was examined for changes in texture with depth. The depth of each soil texture type was indicated, and soil matrix colors were determined and recorded for each soil texture type according to the Munsell Soil Color Charts (2009). Subsurface soil taken from soil pits was also analyzed visually for redoximorphic features and other hydric soil indicators using *Field Indicators of Hydric Soils in the United States: A guide for Identifying and Delineating Hydric Soils* (USDA, 2006). A sampling location was determined to support hydric soils if at least one hydric soil indicator was present in the soil pit or if problematic hydric soils indicators were observed.

Finally, each sample point was surveyed for the presence of wetland hydrology indicators, including primary indicators like surface water, saturation, biotic crust, salt crust, aquatic invertebrates, and/or other primary wetland hydrology indicators; and secondary indicators like drainage patterns, saturation visible on aerial imagery, and/or other secondary wetland hydrology indicators. Soil pits were utilized to determine the presence or absence of many of these indicators. A sampling location was determined to support wetland hydrology if at least one primary indicator or at least two secondary indicators were observed.

Field data collected by hand on the wetland determination data forms were transcribed to electronic copies during which any existing data gaps were filled and all data was processed to ensure data quality assurance and quality control.

3.0 Regulatory Jurisdictions

The Southern Los Cerritos Wetlands Restoration Project area is located within the city of Seal Beach, California and it contains potential wetland and other aquatic features, environments, and habitats. These waters and wetland features are regulated under federal and state laws. Each of the laws are administered independently and in coordination by the following federal and state agencies: ACOE, United States Fish and Wildlife Service (USFWS), the United States Environmental Protection Agency (USEPA), CCC, CDFW and RWQCB.

If determined applicable by the respective agencies, this JDR provides information for the LCWA to apply for the following authorizations, permits, and policy compliance:

3.1 Federal Regulations

- Section 404 of the Clean Water Act (CWA) (as regulated by ACOE and USEPA)
- Section 401 of the CWA (as regulated by RWQCB)
- Section 10 of the Rivers and Harbors Act (RHA) (as regulated by ACOE)
- Executive Order 11990 (federal protection of wetlands; regulated by relevant federal agencies)

3.2 State of California Regulations

- California Public Resource Code (CPRC) Division 20 Section 30000 et seq. (California Coastal Act; as regulated by the CCC)
- Section 13000 et seq. of the California Water Code (CWC) (the 1969 Porter-Cologne Water Quality Act; as regulated by RWQCB)
- California Fish and Wildlife Code (CFWC) Chapter 6 Section 1600 et seq. (as regulated by CDFW)
- CPRC Division 5 Chapter 7 Section 5810 et seq. (preservation of wetlands; as administered by CDFW and other relevant state resource agencies)
- Executive Order W-59-93 (state policy guidelines for wetlands conservation)

3.3 Description of Federal Regulations

3.3.1 Clean Water Act (CWA)

Pursuant to Section 404 of the CWA, ACOE regulatory jurisdiction is built upon a connection or nexus between the water body and interstate commerce. The connection may be direct, through a tributary system linking a stream channel with navigable waters used in interstate or foreign commerce, or indirect, through a nexus identified in the ACOE regulation. ACOE regulates any activity that would result in the discharge of dredged or fill material into jurisdictional waters of the U.S., which include those waters listed in 33 Code of Federal Regulations 328. ACOE has the principal authority to issue CWA Section 404 Permits with review by the USEPA. The RWQCB certifies that any discharge into jurisdictional waters of the U.S. will comply with state water quality standards, pursuant to Section 401 of the CWA. RWQCB is the lead authority to determine a CWA Section 401 Water Quality Certification or Waiver according to the USEPA.

3.3.2 Rivers and Harbors Act (RHA)

The ACOE regulates discharges of dredged or fill material into waters of the United States. These waters include wetland and non-wetland bodies of water that meet specific criteria. Pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 US Code [u.s.c.] 403), ACOE regulatory jurisdiction, regulates almost all work in, over, and under waters listed as "navigable waters of the U.S." The ACOE regulates activity that results in the alteration of a navigable water of the United States, including the excavation or filling of any such water.

3.3.3 Executive Order 11990

Each federal agency is responsible for preparing the implementing procedures for carrying out the provisions of the Executive Order (EO) 11990. The EO's purpose is to "minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands." Each agency must avoid undertaking, or providing assistance, for any destructive or degrading activity located in wetlands unless the head of the agency finds that there is no "practical alternative" to such activity to the extent permitted by law. Additionally, public review of any plans or proposals for new construction in wetlands must be provided.

3.4 Description of State Regulations

3.4.1 California Coastal Act (CCA)

The California Coastal Commission regulates for coastal resources within the Coastal Zone under jurisdiction of the California Coastal Act of 1976 (CCA), pursuant to Section 30000 et seq. of the CPRC. Of important note for Jurisdictional Delineations of California projects, the CCC retains authorization, permitting, and policy compliance jurisdiction over any portion of a project that is in state waters, on land up to the mean high tide line (MHTL), lands subject to the public trust, or at the discretion of CCC.

3.4.2 Lake and Streambed Alteration Program

The California Department of Fish and Wildlife is authorized to regulate activity that would alter the flow, bed, channel, or bank of streams and lakes, pursuant to Section 1600 et seq. of the CDFW. The channel, bed, or bank of a lake, river, or stream comprises the jurisdictional waters of the state. The CDFW extends its jurisdictional limit to the top of the bank of a stream or lake, or to the continuous outer edge of its riparian extent, whichever is wider.

3.4.3 Porter-Cologne Water Quality Control Act

In addition to the federal CWA regulatory jurisdiction of the RWQCB mentioned above, the RWQCB is authorized to regulate activity that would result in discharge of waste and fill material to waters of California (including saline waters), "isolated" waters and/or wetlands (e.g., vernal pools and seeps), and groundwater within the boundaries of the state (CWC § 13050[e]), pursuant to Section 13000 et seq. of the CWC (the 1969 Porter-Cologne Water Quality Control Act [Porter-Cologne]). RWQCB also adopts and implements water quality control plans that are designed to maintain each region within the state's

"unique characteristics" with regard to natural water quality, actual and potential beneficial uses, maintaining water quality, and addressing the water quality problems of that region. Beneficial uses of state waters are identified within the Porter-Cologne Act that may be protected against degradation and include preservation and enhancement of fish, wildlife, designated biological habitats of special significance, and other aquatic resources or preserves.

3.5 Definition of Wetlands

The jurisdictional regulations of the various federal and state agencies are further utilized to establish the appropriate definition of "wetlands" of a particular study site. The project area is subject to the wetland definitions identified by various characteristics as outlined by the United States Army Corps of Engineers, United States Fish and Wildlife Service, the California Coastal Commission and the California Department of Fish and Wildlife. Each agency, working in accordance to their legislative authority, defines "wetlands" differently and each definition is referenced to identify jurisdictional authority.

3.5.1 Federal Wetlands Definitions

The term "waters of the United States" most often encompasses all federal wetlands and 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 shellfish 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."*

Federal definitions of what constitutes "wetlands" are primarily derived from two Federal Agencies: the United States Army Corps of Engineers and the United States Fish and Wildlife Service. The USFWS wetland definition and classification system is based on Classification of Wetland and Deepwater Habitats of the United States (Cowardin et al. 1979); however, the ACOE definition is used for regulatory purposes. Wetland delineations for Section 404 purposes as regulated by the ACOE must be conducted according to the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Regional Supplement ACOE 2006) and the Corps of Engineers 1987 Wetland Delineation Manual. Where there are differences between the two documents, the Regional Supplement takes precedence over the 1987 Manual.

The ACOE defines wetlands as:

> *"Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions."*

A federal jurisdictional wetland delineation states that an area must possess three wetland characteristics: 1) hydrophytic vegetation, 2) hydric soils, and 3) wetland hydrology. The wetland characteristics have mandatory criteria that must be satisfied for that particular characteristic to be met. The indicators may be analyzed to determine whether the criteria are satisfied and are listed below.

<u>Hydrophytic Vegetation</u>

Hydrophytic vegetation is plant life that is adapted for life in permanently or periodically saturated soil identified according to a wetland indictor category as included on the Army Corps of Engineers' National Wetland Plant List (Lichvar et al., 2016). The different indicator categories are based on the probability of occurrence in wetlands: Obligate Wetlands (OBL), Facultative Wetlands (FACW), Facultative (FAC), Facultative Upland (FACU), and Obligate Upland (UPL). The Obligate Wetlands, Facultative Wetlands and Facultative categories are considered hydrophytic and the delineation of the hydrophytic vegetation is based on more than 50 percent of the plant species identified in these three categories.

If the plant community passes the dominance test or prevalence index, the vegetation is considered hydrophytic. The dominance test uses the "50/20" rule from the Regional Supplement for determining dominant species. The most abundant species that exceed 50 percent of the total sample survey, plus

additional species that comprise 20 percent of the total dominance measure, indicate dominance. The prevalence index is a weighted-average wetland indicator status of all plant species in the sampling plot, where each indicator status category is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and weighting is by abundance (percent cover). It is a more comprehensive analysis of the hydrophytic status of the community than one based on just a few dominant species

Vegetation alliances identified on the site follows *A Manual of California Vegetation, Second Edition* (MCV II; Sawyer et al., 2009). The MCV II was also used for the Biological Resources Report prepared for the Project and its use in this report ensures consistency.

Hydric Soils

Soils defined as hydric soils form under conditions of "saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part." Hydric soils are defined when one or more of the following criteria are met: all histels except folistels and histosels except folists; or soils that frequently ponded for long duration or very long duration during the growing season; or soils that are frequently flooded for long duration or very long duration during the growing season. Hydric soils are developed when microbial activity causes oxygen depletion with conditions of saturation and hydrologic inundation. Microbial activity is limited to the growing season and when the soil temperature is above biological zero. The Regional Supplement is used to identify hydric soils under a variety of field indicators that include: hydrogen sulfide generation; accumulation of organic matter; and reduction, translocation, and/or accumulation of iron and other reducible elements.

Wetland Hydrology

Wetland hydrology can be a challenging criterion to measure in the field due to variations in water availability seasonally and annually. Visual observation of inundation or saturation, watermarks, recent sediment deposits, surface scour, and oxidized root channels are some of the indicators used to identify wetland hydrology. Wetland hydrology is satisfied if the area is seasonally inundated or saturated to the surface for a minimum of 14 consecutive days during the growing season.

3.5.2 State of California Definition of Wetlands

The State of California applies a broader definition of what constitutes a "wetland" than the Federal government. Two primary State agencies are responsible for defining "wetlands", the California Coastal Commission and the California Department of Fish and Wildlife. The CDFW essentially relies on the USFWS wetland definition and classification system based on Classification of Wetland and Deepwater Habitats of the United States (Cowardin et al. 1979). The CDFW acts as a primary consultant to the CCC and the CCC regulates wetland delineation within what is identified as the Coastal Zone along the coast of California. Through provisions of the California Coastal Act, jurisdictional wetland delineations within the Coastal Zone are conducted based on the "one-parameter method" to define the presence and jurisdictional extent of state wetlands. Under the CCA, wetlands are defined as follows:

"land within the Coastal Zone [that] may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens".

Additionally, wetlands are further 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)."

Both the Federal and State definitions focus on the three fundamental wetland characteristics: hydrology, soils, and vegetation. While the ACOE definition requires the existence of all three wetland characteristics for an area to be considered a wetland, the CCC's definition of wetlands is based on the existence of only two characteristics: wetland hydrology sufficient to either support a prevalence of hydrophytic vegetation or promote the formation of hydric soils.

It is noted that, under circumstances, reliable indicators of all required characteristics are not necessarily apparent, and areas may be delineated as wetlands by the ACOE on the basis of indicators of only two of the three characteristics. The CCC routinely makes jurisdictional wetlands determinations based on the presence of one characteristic indicator (i.e., wetland soils or vegetation) under the assumption that wetland hydrology must be present in order for the indicator to be present. Nevertheless, the presence of wetland hydrology during some portion of most years is fundamental to the existence of any wetland, and the CCC will sometimes disregard vegetation or soil indicators when there is sufficient evidence to conclusively refute the presence of wetland hydrology.

4.0 Results

Potential jurisdictional waters (including wetlands) occurring within the project area were delineated and mapped based on federal and state delineation guidance, methodology, and regulatory framework and code, as described above. For the purposes of this site, the jurisdictions for ACOE and CCC were determined for the federal and state jurisdictions, respectively. CDFW jurisdictions were also determined for this site due to its proximity and connection to the San Gabriel River. Jurisdiction areas can be seen graphically on the attached aerial maps (Exhibits E, F, G, H, I).

All federal waters and wetlands (including final acreages and types) delineated within this survey area are considered potential waters of the U.S. prior to a formal jurisdictional determination performed by ACOE. The final determination issued by ACOE may remove or include portions of delineated waters documented in this JDR.

The total area of potential waters of the U.S. and State (including wetlands) within the survey area and a general discussion of the policy governing these regulated areas is provided below. Per ACOE mapping guidelines, the results were mapped on a current color aerial photograph at a scale of 1 inch = 200 feet (Exhibit E), however, an overview map of the entire survey area is shown in Exhibit B. Refer to the attached Wetlands Determination Data Forms (Appendix A) for a full description of sample point results.

4.1 Vegetation

A list of hydrophytic plant species identified within the project area is provided in Table 1. A total of 15 vegetation alliances or communities equaling 92.83 acres were identified within the project area that have potential to be defined as containing hydrophytic plant species that when prevalent could potentially meet the criterion for ACOE or CCC jurisdictional wetlands (Table 2, Exhibit J).

Table 1. Hydrophytic plant species identified with the project boundary.

Scientific Name	Common Name	Wetland Indicator Status	Non-Native	Cal-IPC rating
Tree Species Growth Habit				
Eucalyptus globulus	Tasmanian Bluegum	FACU*	X	limited
Myoporum laetum	Ngaio Tree	FACU	X	moderate
Nicotiana glauca	Tree Tobacco	FAC	X	moderate
Phoenix canariensis	Canary Island Palm	FACU*	X	limited
Schinus terebinthifolius	Brazilian Pepper Tree	FAC	X	moderate
Washingtonia robusta	Mexican Fan Palm	FACW	X	moderate
Shrub Species Growth Habit				
Artemisia californica	California Sagebrush	FACU*		
Atriplex lentiformis	Big Saltbush	FAC		
Baccharis pilularis	Coyote Brush	FAC		
Baccharis salicifolia	Mulefat	FAC		
Isocoma menziesii	Menzies' Goldenbush	FAC		
Peritoma arborea	Bladderpod	FACU*		
Ricinus communis	Castor Bean	FACU	X	limited
Herbaceous Species Growth Habit				
Ambrosia psilostachya	Western Ragweed	FACU		
Anemopsis californica	Yerba Mansa	OBL		
Arthrocnemum subterminale	Parish's Glasswort	OBL		
Atriplex semibaccata	Australian Saltbush	FAC	X	moderate
Bassia hyssopifolia	Five Horn Bassia	FACU	X	limited
Batis maritima	Saltwort	OBL		
Brassica nigra	Black Mustard	FACU*	X	
Bromus diandrus	Ripgut Brome	UPL*	X	moderate
Bromus madritensis	Foxtail Brome	FACU*	X	N/A
Camissoniopsis lewisii	Lewis' Evening Primrose	FACU*		
Carpobrotus edulis	Hottentot-fig	FACU*	X	high
Centaurea melitensis	Tocalote	UPL	X	moderate
Centromadia parryi australis	Southern Tarplant	FACW		
Cirsium vulgare	Bull Thistle	FACU	X	moderate
Conium maculatum	Poison Hemlock	FACW	X	moderate
Cressa truxillensis	Alkali Weed	FACW		
Cuscuta salina	Saltmarsh Dodder	FACW		
Distichilis littoralis	Shoregrass	OBL		
Distichlis spicata	Salt Grass	FAC		
Dittrichia graveolens	Stinkwort	UPL	X	moderate
Eleocharis macrostachya	Common Spikerush	FACW		

Scientific Name	Common Name	Wetland Indicator Status	Non-Native	Cal-IPC rating
Herbaceous Species Growth Habit				
Erodium cicutarium	Coastal Heron's Bill	FACU*	X	limited
Frankenia salina	Alkali Heath	FACW		
Foeniculum vulgare	Sweet Fennel	UPL*	X	moderate
Galium angustifolium	Narrowleaf Bedstraw	FACU*		
Glebionis coronaria	Crown Daisy	UPL*	X	limited
Heliotropium curassavicum	Seaside Heliotrope	FACU		
Heterotheca grandiflora	Telegraph Weed	FACU*		
Hirschfeldia incana	Short Podded Mustard	UPL*	X	moderate
Lactuca serriola	Prickly Lettuce	FACU	X	N/A
Laennecia coulteri	Coulter's Horseweed	FAC		
Limonium californicum	California Sealavender	FACW		
Lysimachia arvensis	Scarlet Pimpernel	FAC	X	??
Lycium californicum	California Boxthorn	FAC*		
Marrubium vulgare	White horehound	FACU	X	limited
Malephora crocea	Coppery Mesembryanthemum	FACU	X	watch
Malva parviflora	Cheeseweed Mallow	FACU*	X	N/A
Melilotus albus	White Sweetclover	FACU*	X	N/A
Melilotus indicus	Annual Yellow Sweetclover	FACU	X	N/A
Mesembryanthemum crystallinum	Crystalline Iceplant	FACU	X	moderate
Mesembryanthemum nodiflorum	Slender Leaved Ice Plant	FACU	X	limited
Oxalis pes-caprae	Bermuda Buttercup	FACU*	X	moderate
Polypogon monspeliensis	Rabbit's Foot	FACW	X	limited
Pseudognaphalium luteoalbum	Jersey Cudweed	FACW	X	N/A
Pulicaria paludosa	Spanish False Fleabane	FAC	X	N/A
Raphanus sativus	Wild Radish	FACU*	X	limited
Rumex crispus	Curly Dock	FAC	X	limited
Salicornia bigelovii	Bigelow's Pickleweed	OBL		
Salicornia pacifica	Common Pickleweed	OBL		
Salsola tragus	Russian Thistle	FACU	X	limited
Sonchus oleraceus	Common Sowthistle	UPL	X	N/A
Spergularia marina	Salt Marsh Sand Spurry	OBL		
Symphyotrichum subulatum	Saltmarsh Aster	OBL		
Triglochin concinna	Slender Arrow-Grass	OBL		
Urtica dioica	Stinging nettle	FAC		
Xanthium strumarium	Cocklebur	FAC		

Wetland Indicator Status Abbreviations and Meanings:

OBL – Obligate Wetlands Species. Occur almost always in wetlands.
FACW – Facultative Wetland Species. Usually occur in wetlands, but occasionally found in non-wetlands.
FAC – Facultative Species. Equally likely to occur in wetlands and non-wetlands.
FACU – Facultative Upland Species. Usually occur in non-wetlands but occasionally found in wetlands.
UPL – Obligate Upland Species. Almost always occur under natural conditions in non-wetlands.

** Not listed on National Wetlands List*

Table 2. Total acreages of vegetation alliances and land cover types observed within the project boundary.

Vegetation Alliance	Acres
Cressa truxillensis - Distichlis spicata Herbaceous Alliance	1.43
Distichlis spicata Herbaceous Alliance	0.44
Salicornia pacifica Herbaceous Alliance	20.62
Frankenia salina Herbaceous Alliance	2.77
Ulva lactuca Algal Mat	1.54
Arthrocnemum subterminale Herbaceous Alliance	0.31
Heterotheca grandiflora Herbaceous Stand	5.48
Isomeris arborea (*Peritoma arborea*) Shrub Stand	0.04
Isocoma menziesii Shrubland Alliance	1.52
Baccharis salicifolia Shrubland Alliance	0.58
Bassia hyssopifolia Semi-Natural Herbaceous Stand	0.96
Brassica nigra and other mustards Herbaceous Semi-Natural Alliance	45.34
Bromus diandrus – Bromus rubens Semi-Natural Herbaceous Stand	4.67
Conium maculatum – Foeniculum vulgare Herbaceous Semi-Natural Alliance	2.91
Mesembryanthemum spp. – *Carpobrotus* spp. Herbaceous Semi-Natural Alliance	4.49
Ornamental	0.35
Disturbed – mowed/disked fire break	0.06
Unvegetated Salt Flat	2.93
Unvegetated Tidal Flat	3.40
Developed	3.70
TOTAL	**103.54**

Vegetation Alliance and Land Cover Type Descriptions

Cressa truxillensis - Distichlis spicata Herbaceous Alliance: A total of 1.43 acres of this alliance was identified within the project boundary (Table 2). Alkali weed (*Cressa truxillensis*, FACW) and salt grass (*Distichlis spicata*, FACW) are characteristically present in this alliance with a variety of species that include alkali heath (*Frankenia Salina,* FACW) and species similar to alkali mallow (*Malvella leprosa,* FACU) which can be found within the Los Cerritos Wetlands however is not present in this portion of the wetlands. This alliance is found on the edges of *Salicornia pacifica* stands within the property but above the high tide line and was observed in areas where hydric soils and wetland hydrology indicators were not present on site. Therefore, areas where this alliance are present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Distichlis spicata Herbaceous Alliance (Salt grass flats): A total of 0.44 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by salt grass (*Distichlis spicata*, FAC) with a co-dominance of alkali heath (*Frankenia salina*, FACW), saltwort (*Batis maritima*, OBL), common pickleweed (*Salicornia pacifica*, OBL), alkali weed (*Cressa truxillensis*, FACW), and may also support non-native upland grasses and forbs. This species often forms monotypic stands when it is found above the

high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, in some instances locations where this alliance is present will not meet the ACOE's three criteria threshold for wetland waters of the U.S.

Salicornia pacifica Herbaceous Alliance (Pickleweed mats): A total of 20.62 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by Common Pickleweed (*Salicornia pacifica*, OBL) that mixes with other co-dominant species including salt grass (*Distichlis spicata*, FAC), fleshy jaumea (*Jaumea carnosa*, FACW), alkali heath (*Frankenia salina*, FACW), saltwort (*Batis maritima*, OBL) and sea lavender (*Limonium californicum*, FACW). Intermixing with the co-dominant species commonly occurs within the tidal reaches of the site, meanwhile, this species often forms monotypic stands when it is found above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, in some instances locations where this alliance is present will not meet the ACOE's three criteria threshold for wetland waters of the U.S.

Frankenia salina Herbaceous Alliance: A total of 2.77 acres of this alliance was identified within the project boundary (Table 2). While alkali heath (*Frankenia salina*, FACW) is common in a variety of alliances, there are numerous locations throughout site where it is found in predominantly monotypic stands. Co-dominant plant species for this alliance commonly include salt grass (*Distichlis spicata*, FAC), alkali heath (*Frankenia salina,* FACW), saltwort (*Batis maritima,* OBL), common pickleweed (*Salicornia pacifica,* OBL), and alkali weed (*Cressa truxillensis,* FACW). This alliance is found above the tidal reaches of the site where hydric soil and wetland hydrology indicators are not present, typically adjacent to pickleweed mats and in upland areas. Therefore, areas where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Ulva lactuca Algal Mat: A total of 1.54 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by the non-vascular algae species sea lettuce (*Ulva lactuca*) and is found exclusively within the tidal channel that allows for tidal flow through the culvert connection. This alliance is found below the high tide line where hydric soil and wetland hydrology indicators are present. Therefore, where this alliance is present will meet the ACOE's criteria threshold for waters of the U.S.

Arthrocnemum subterminale Herbaceous Alliance: A total of 0.31 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by Parish's glasswort (*Arthrocnemum subterminale*, FACW) or co-dominant in the herbaceous and subshrub layers with alkali weed (*Cressa truxillensis,* FACW*),* salt grass (*Distichlis spicata,* FAC)*,* alkali heath (*Frankenia salina,* FACW) *and Common Pickleweed* (*Salicornia pacifica,* OBL). While *Arthrocnemum subterminale* can be found in numerous locations throughout the site the largest and most dominant population occurs near an access road toward the northern end of the project site. This alliance is often found outside of the tidal reaches of the site so its presence does not always meet the minimum threshold as waters of the U.S.

Heterotheca grandiflora Herbaceous Stand: A total of 5.48 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by telegraph weed (*Heterotheca grandiflora*, UPL) or co-dominate in the shrub canopy with California sagebrush (*Artemisia californica*, FACU) and coyote brush (*Baccharis pilularis*, FACU). This alliance is found above the tidal reaches of the site in areas where sandy fill material is present and hydric soil and wetland hydrology indicators are typically not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Isomeris arborea (*Peritoma arborea*) Shrub Stand: A total of 0.04 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by bladderpod (*Peritoma arborea*, UPL). This alliance is only found in a single patch on the property outside of the tidal reach where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Isocoma menziesii Shrubland Alliance: A total of 1.52 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by Menzies's golden bush (*Isocoma menziesii*, FAC) or commonly co-dominated in the shrub canopy by California sagebrush (Artemisia californica, FACU), coyote brush (*Baccharis pilularis*, FACU), and Virginia glasswort (*Salicornia depressa*, FACW). This alliance is found in areas above the high tide line where hydric soil and wetland hydrology indicators are typically not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Baccharis salicifolia Shrubland Alliance: A total of 0.58 acres of this alliance was identified within the project boundary (Table 2). In this alliance mulefat (*Baccharis salicifolia, FAC*) is dominant or co-dominant in the shrub canopy with California sagebrush (*Artemisia californica, FACU*), coyote brush (*Baccharis pilularis, FACU*), and arroyo willow (*Salix lasiolepis, FACW*). This alliance is found in a few patches on the property above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Bassia hyssopifolia Semi-Natural Herbaceous Stand: A total of 0.96 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by five horn bassia (*Bassia hyssopifolia*, FACU) with other California non-native herbaceous species. On the property these stands occur above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Brassica nigra and other mustards Herbaceous Semi-Natural Alliance: A total of 45.34 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by black mustard (*Brassica nigra*, FACU) occurring with other ruderal forbs such as maltese star thistle (*Centaurea melitensis*, FACU) and short podded mustard (*Hirschfeldia incana*, FACU). This alliance occurs above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Bromus diandrus – Bromus rubens Semi-Natural Herbaceous Stand: A total of 4.67 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by ripgut brome (*Bromus diandrus*, FACU) occurring with other non-natives in the herbaceous layer. There is a large single occurrence of this alliance on site that is above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Conium maculatum – Foeniculum vulgare Herbaceous Semi-Natural Alliance: A total of 2.91 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by poison hemlock (*Conium maculatum*, FACW) and occurs with other non-native plant species in the herbaceous

layer. This alliance occurs above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Mesembryanthemum spp. – *Carpobrotus* spp. Herbaceous Semi-Natural Alliance: A total of 4.49 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominant in the herbaceous layer and can contain iceplant (*Carpobrotus edulis, FACU*), crystalline iceplant (*Mesembryanthemum crystallinum, FACU),* or other ice plant taxa. Emergent trees and shrubs may also be present at low cover within this alliance. This alliance occurs above the high tide line where hydric soils and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Ornamental: A total of 0.35 acres of this land cover type was identified within the project boundary (Table 2). This land cover type includes non-native species such as Mexican fan palm (*Washingtonia robusta*, FACW), Brazilian pepper tree (*Schinus terebinthifolia*, FACU), and other various non-native plant species in the shrub and tree stratum. This land cover type occurs primarily around developed areas on the property that are above the high tide line where hydric soils and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Disturbed – mowed/disked fire break: A total of 0.06 acres of this alliance was identified within the project boundary (Table 2). This land cover type consists of a small area adjacent to a perimeter fence line in the upland areas that was disked to reduce the fire risk in the area. This land cover type is above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Unvegetated Salt Flat: A total of 2.93 acres of this land cover type was identified within the project boundary (Table 2). This land cover type consists of areas absent of any vegetation and is above the high tide line but may contain hydric soil indicates such as a salty crust on the soil surface. Given that unvegetated salt flats lack the vegetative cover required to be considered wetland waters, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Unvegetated Tidal Flat: A total of 3.40 acres of this land cover type was identified within the project boundary (Table 2). This land cover type is absent of vegetation but occurs below the high tide line. These areas can show hydric soil and wetland hydrology indicators. Therefore, due a lack of vegetation, where this alliance is present will likely not meet the ACOE's criteria threshold for wetland waters of the U.S. but could qualify as waters of the U.S.

Developed: A total of 3.70 acres of this land cover type was identified within the project boundary (Table 2). This land cover type consists of asphalt roads, concrete pads, established dirt roads and other areas developed prior to acquisition by the LCWA. This land cover type occurs above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

4.2 Soils

The project site is composed of five types of soils that include: Balcom clay loam, Bolsa silty clay loam, Bolsa drained-Typic Xerorthents, Myford loamy sand, and Urban land of dredged fill substratum (USDA, 2021; Appendix B). Most of the project site is covered by Bolsa drained-Typic Xerorthents and Bolsa silty clay loam. These determinations are also consistent with previous investigation that have taken place on site.

Bolsa drained-Typic Xerorthent soils consist typically of dredge spoils and are somewhat poorly draining, typically occur in filled marshland and tidal marshes and consist of coarse to loamy grain sizes. The average slope in areas with Bolsa drained-Typic Xerorthent soils range from 0 to 2 percent. Bolsa silty clay loam soils consist of fine to silty grain sizes, are somewhat poorly drained and occur in coastal plain areas. Balcom clay loam soils typically exist along hill slopes and drain well. The average slope in areas with Balcom clay loam soils range from 15 to 30 percent. Myford loamy sand soils have moderately well-draining soils, occur in areas with slopes of 2 to 9 percent, and occur along terraces and backslopes. Urban land of dredged fill substratum soils consist of dredged fill and occur in areas with 0 to 2 percent slopes. (USDA, 2021)

The locations of the 18 soil pits used to investigate the presence of hydric soil are depicted in Exhibit D and photographs are displayed in Appendix C. The soil pit locations were chosen to determine if jurisdictional wetlands extended above the Ordinary High Water Mark (OHWM) where indicators of hydrophytic vegetation appeared to be present. Indicators for hydric soils were found in pits 2, 3, 5, 6, 9, 16, and 18. All soil pits were done in Bolsa-type soils, with soil pits 1 and 7 through 18 collected in Bolsa drained-Typic Xerorthents and soil pits 2 through 6 taken in Bolsa silty clay loam. The leading hydric soil indicators were the presence of Redox Dark Surface (F6) and Sandy Redox (S5). Furthermore, no instances of naturally problematic soils were identified, however all 18 locations (sample points 1 through 18) exhibited soils that were identified to be significantly disturbed. This disturbance was indicated by the presence of debris in the form of glass, gravel, debris, and asphalt.

4.3 Hydrology

The presence of wetland hydrology indicators is evident around the entire perimeter of the project area's tidal reaches and is most notably observed by the presence of high tide line water marks and tidal drainages. Of the 18 locations surveyed for the presence of wetlands hydrology, sample points 2, 3, 5, 6, 9, 11, 12, 13, 14, 16, and 18 contained indicators. Of these points, none were within the reach of the highest high tide. The mean high tide line was not delineated in the field due to the fact that this boundary is encompassed by the limits of Section 404 jurisdiction that extends to the highest high-water line.

A total of 3 land cover types were found to contain wetlands hydrology indicators:

Unvegetated Flats: A total of 6.33 acres of this land cover type is found on the site separated into three distinct locations throughout the project area, some of which is tidally influenced, and the remaining is above high tide lines. This land cover type is predominantly fill consisting of a very high salt content that has resulted in the lack of vegetation establishment with some of it being intertidal and some being non-tidal. Wetland hydrology indicators most common on this land cover type was surface soil cracks and salt crust. Most of this unvegetated land cover type is found above the high-tide line and therefore is seasonally flooded by rainfall or other non-tidal inputs and qualifies as non-wetland waters of the U.S.

Southern Coastal Salt Marsh: A total of 25.57 acres of this land cover type is found on the site adjacent to the tidal channel that flows through the project area. A majority of this land cover type is under both federal and state jurisdiction. Most of this vegetated land cover type is found below the high-tide line and therefore is inundated regularly and qualifies as wetland waters of the U.S.

Subtidal Marine: A total of 1.42 acres of this land cover type is found in the form of a tidal channel that nearly bisects the entire project area. All of this land cover type is found below the high tide line and qualifies as waters of the U.S.

5.0 Jurisdictional Determinations

5.1 Jurisdictional Waters of the U.S. and State

The extent of the potential jurisdictional waters of the United States within the project area is 10.69 acres. Within the jurisdictional waters of the United States, 2.44 acres are potentially wetland waters of the United States. The potential jurisdictional wetlands of the State based on the California Coastal Commission's jurisdiction extends beyond the federal jurisdictional and total 27.19 acres within the project area. California Department of Fish and Wildlife potential jurisdictional wetlands covers 1.42 acres within the CCC jurisdictional boundary. A summary of the jurisdictional waters and wetlands of the U.S. and State, with the corresponding regulatory authority, occurring within the survey area, is provided in Table 3 and mapped in Exhibit E.

Table 3. Summary of potential jurisdictional waters of the U.S. & State (*= 0.05 acres extend outside of the project area; **= 0,02 acres extend outside of the project area).

Type of Potential Jurisdictional Waters of the U.S. and State	Regulatory Authority	Acres
Potential Jurisdictional Waters of the U.S.		
Wetland Waters Section 404	ACOE, USFWS, and RWQCB	2.44*
Waters of the U.S. Section 10	ACOE, USFWS, and RWQCB	8.25**
	Subtotal Potential Jurisdictional Waters of the U.S.	*10.69*
Potential Jurisdictional Wetlands of the State		
Wetland Waters	CCC	27.19
	CDFW	1.42

5.2 ACOE Jurisdiction

5.2.1 ACOE Section 10 Jurisdiction

The project area has a direct connection to the San Gabriel River which is a navigable water of the U.S. that is an extension of the Pacific Ocean (a navigable water of the U.S.). Thus, the marine water within the project area is considered as waters of the U.S. and is subject to ACOE jurisdiction to the mean high-water line under Section 10 of the Rivers and Harbors Act (Exhibit F). This amounts to 8.25 acres of waters of the U.S. on site under the Section 10 definition (Table 3). This amount is lower than previous investigation including the 1995 Chambers Jurisdiction Wetlands Determination which is likely due to habitats shifting overtime due to tidal muting as well as changes in the definitions and determination process of what is considered waters of the U.S.

5.2.2 ACOE Section 404 Jurisdiction

Due to the direct connection with the San Gabriel River, the marine water in the project area is considered as waters of the U.S. and is subject to ACOE jurisdiction at least to the high tide line under Section 404 of the Clean Water Act. There are locations on site where both wetland vegetation and soils are present above the OHWM, so ACOE jurisdiction extends beyond the observed OHWM and are considered as Wetland Waters (Exhibit G). These Wetland Waters account for 2.44 acres on site. This is a decrease compared to previous investigations of the site, but this again is due to habitats shifting over time due to drought conditions as well as changes in the definitions and determination process of what is considered Wetland Waters of the U.S.

Pursuant to the Clean Water Act, ACOE will assert jurisdiction over traditional navigable waters and their adjacent wetlands. This site has a well-documented direct connection to a designated navigable water of the United States. Due to this connection, ACOE will likely verify that a "significant nexus determination" is not required to determine the jurisdictional status of this site. There is a total of 10.69 acres of waters potentially subject to ACOE jurisdiction, of which 8.25 acres is OHWM/Waters of the US and 2.44 acres are wetland waters of the United States. A map of potential ACOE jurisdictional areas is provided in Exhibit E and summarized in Table 3.

5.3 CDFW Jurisdiction

CDFW asserts jurisdiction only over wetland areas that are a part of a river, stream, or lake as defined by CDFW. There is potential that CDFW could determine that this association is present within the survey area due to the connection of the site with the San Gabriel River as well as the overall San Gabriel River Watershed A map showing the potential areas that could be under CDFW jurisdiction is attached as Exhibit H.

5.4 CCC Jurisdiction

Pursuant to the California Coastal Act the CCC will assert jurisdiction over all of the areas satisfying the ACOE jurisdictional criteria for waters and wetlands of the United States. This jurisdictional area usually tends to be more inclusive and extensive than that of ACOE due to the CCC employment of a "one-parameter" approach to delineating jurisdictional wetlands. As described previously CCC wetlands need only contain wetlands hydrology and, hydrophytic vegetation, or hydric soils. Within the project area a total of 27.19 acres are potentially subject to CCC wetland jurisdiction, equaling 16.50 acres more than that of ACOE. This difference is due to areas existing where salt marsh (wetland) vegetation or salt flat habitat extended beyond the limit of the highest high-water line. A map of potential CCC jurisdictional areas is provided in Exhibit I and summarized in Table 3. The 1996 delineation found at total of 23.2 acres of CCC jurisdiction and therefore a larger CCC jurisdiction was identified by this investigation.

6.0 Literature Cited

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Exhibit A

Project Vicinity Map

Project Vicinity

Southern Los Cerritos Wetlands Area - Seal Beach, CA

1 inch = 2,000 feet

0 900 1,800 3,600 5,400 7,200 Feet

Project Boundary

Tidal Influence

Exhibit B

Project Site Map

Produced by Hannah Craddock May 13, 2021

Datum: NAD 1983

Project Site

Southern Los Cerritos Wetlands Area - Seal Beach, CA

1 inch = 458 feet

0 210 420 840 1,260 1,680 Feet

Project Boundary

Tidal Influence

Exhibit C

NWI Potential Wetlands Map

U.S. Fish and Wildlife Service

National Wetlands Inventory

LCWA South Area

May 14, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Exhibit D

Soil Sample Locations Map

Soil Sample Locations

Southern Los Cerritos Wetlands Area - Seal Beach, CA

0 180 360 720 1,080 1,440 Feet

Survey Area (103.54 acres)

Soil Sample Locations

Tidal Influence

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
May 11, 2021
1 inch = 458 feet

Exhibit E

Jurisdictional Wetland Delineation Map

Jurisdictional Wetland Delineation

Southern Los Cerritos Wetlands Area - Seal Beach, CA

0 180 360 720 1,080 1,440 Feet

- Survey Area (103.54 acres)
- Jurisdictional Waters of the U.S. (8.29 acres)
- Jurisdictional Wetland Waters of the U.S. (2.44 acres)
- Control Points
- Wetland Sampling Point
- Upland Sampling Point

Tidal Influence

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
June 17, 2021
1 inch = 458 feet

Exhibit F

Jurisdictional Waters of the U.S. Map

Jurisdictional Waters of the U.S.

Southern Los Cerritos Wetlands Area - Seal Beach, CA

Survey Area (103.54 acres)

Jurisdictional Waters of the U.S. (8.25 acres)

0 185 370 740 1,110 1,480 Feet

Tidal Influence

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
June 17, 2021
1 inch = 458 feet

Exhibit G

Jurisdictional Wetland Waters of the U.S. Map

Jurisdictional Wetland Waters of the U.S.

Southern Los Cerritos Wetlands Area - Seal Beach, CA

Survey Area (103.54 acres)

Jurisdictional Wetland Waters of the U.S. (2.44 acres)

0 185 370 740 1,110 1,480 Feet

Tidal Influence

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
June 17, 2021
1 inch = 458 feet

Exhibit H

Potential CDFW Jurisdictional Wetlands Map

Potential California Department of Fish and Wildlife Jurisdictional Wetlands

Southern Los Cerritos Wetlands Area - Seal Beach, CA

Survey Area (103.54 acres)

Potential CDFW Jurisdictional Wetlands (1.42 acres)

0 185 370 740 1,110 1,480 Feet

Tidal Influence

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
June 17, 2021
1 inch = 458 feet

Exhibit I

CCC Jurisdictional Wetlands Map

California Coastal Commission Jurisdictional Wetlands

Southern Los Cerritos Wetlands Area - Seal Beach, CA

Survey Area (103.54 acres)

CCC Jurisdictional Wetlands (27.19 acres)

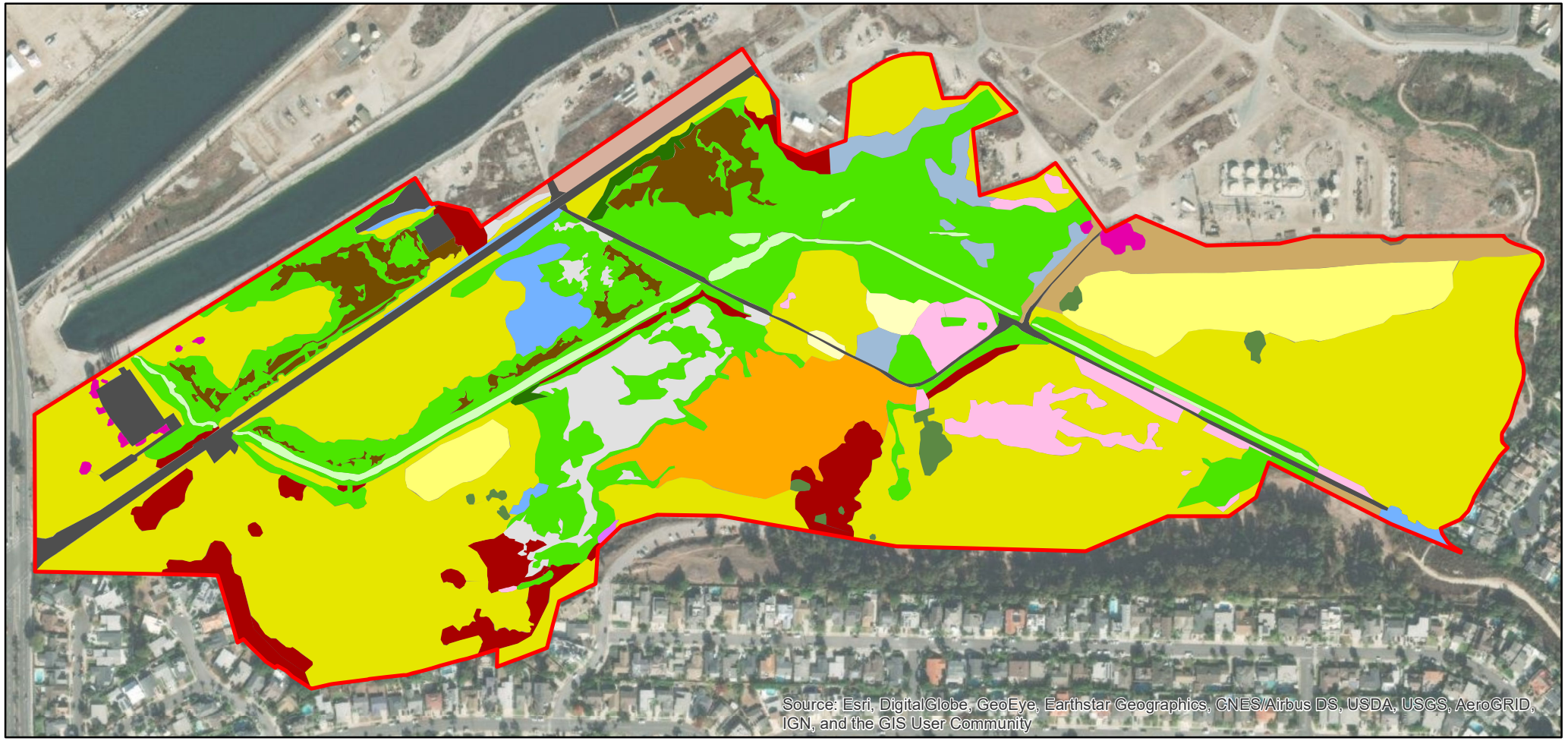
0 185 370 740 1,110 1,480 Feet

Tidal Influence

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
June 17, 2021
1 inch = 458 feet

Exhibit J

Vegetation Alliances Map



Vegetation Alliances

Southern Los Cerritos Wetlands Area - Seal Beach, CA

- Survey Area (103.54 acres)
- Cressa truxillensis - Distichlis spicata Herbaceous Alliance
- Distichlis spicata Herbaceous Alliance
- Sarcocornia pacifica Herbaceous Alliance
- Frankenia salina Herbaceous Alliance
- Ulva lactuca algal mat
- Arthrocnemum subterminale Herbaceous Alliance
- Heterotheca grandiflora herbaceous stand
- Isomeris arborea shrub stand
- Isocoma menziesii Shrubland Alliance
- Baccharis salicifolia Shrubland Alliance
- Bassia hyssopifolia Semi-Natural Herbaceous Stand
- Brassica nigra and other mustards Herbaceous Semi-Natural Alliance
- Bromus diandrus,rubens Semi-Natural Herbaceous Stand
- Conium maculatum - Foeniculum vulgare Herbaceous Semi-Natural Alliance
- Mesembryanthemum spp. - Carpobrotus spp. Herbaceous Semi-Natural Alliance
- Ornamental
- Disturbed - mowed/disked fire break
- Unvegetated salt flat
- Unvegetated tidal flat
- Developed

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
May 13, 2021
1 inch = 458 feet

Tidal Influence

0 185 370 740 1,110 1,480
Feet

Appendix A

Wetland Determination Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 1

Investigator(s): Eric Zahn, Mark Hanneford, Marcelo Ceballos Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR): LRRC Lat: 33.751714 N Long: -118.095969 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerothents dredged spoil-Typic Fluvaquents compl NWI classification: PEM1Cx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 2m)			
1. Baccharis salicofolia	60	X	FAC
2.			
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Melilotus indicus	5		FACU
2. Conium maculata	35		FACW
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 35	x 2 = 70
FAC species 60	x 3 = 180
FACU species 5	x 4 = 20
UPL species _____	x 5 = _____
Column Totals: 100 (A)	270 (B)

Prevalence Index = B/A = 2.7

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-22	2.5Y, 3/2	100	N/A				Sandy	clay balls

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

Sandy top layer

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authroity State: CA Sampling Point: 2

Investigator(s): Eric Zahn, Mark Hannaford, Marcelo Ceballos Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR): LRRC Lat: 33.752207 N Long: -118.09361 W Datum: WGS84

Soil Map Unit Name: Bolsa silty clay loam, drained NWI classification: PEM1Cx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2m)			
1. Conium maculatum	75	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 75	x 2 = 150
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 75 (A)	150 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
20	7.5YR, 3/1	98	7.5YR, 5/8	2	D	PL	Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 3

Investigator(s): Eric Zahn, Mark Hannaford, Marcelo Ceballos Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): LRRC Lat: 33.752238 N Long: -118.093484 W Datum: WGS84

Soil Map Unit Name: Bolsa silty clay loam, drained NWI classification: PEM1Cx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Frankenia salinas	50	x	FACW
2. Bassia hyssopifolia	50	x	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 50	x 2 =	100
FAC species	x 3 =	
FACU species 50	x 4 =	200
UPL species	x 5 =	
Column Totals: 100 (A)		300 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
21	2.5YR, 2.5/1	95	7.5YR, 3/4	5	C	PL	Loamy Cl	Loamy Clay

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✓ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 4

Investigator(s): Eric Zahn, Mark Hannaford, Marcelo Ceballos Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): LRRC Lat: 33.751339 N Long: -118.094047 W Datum: WGS84

Soil Map Unit Name: Bolsa silty clay loam, drained NWI classification: PEM1Cx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 2m)			
1. Baccharis salicofolia	35		FAC
2.			
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Brassica nigra	25		UPL
2. Ambrosia psilostachya	5		FACU
3. Melilotus indicus	25		FACU
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species _____	x 2 =	_____
FAC species 35	x 3 =	105
FACU species 30	x 4 =	120
UPL species 25	x 5 =	125
Column Totals: 90 (A)		350 (B)

Prevalence Index = B/A = 3.89

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
24	2.5Y/3-2	100					sandy	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 5

Investigator(s): Eric Zahn, Mark Hannaford, Marcelo Ceballos Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.750882 N Long: -118.093482 W Datum: WGS84

Soil Map Unit Name: Bolsa silty clay loam, drained NWI classification: PEMC1x

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Mesembryanthemum nodiflorum	63	x	FACU
2. Laennecia coulteri	35		FAC
3. Brassica nigra	2		UPL
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 35	x 3 = 105
FACU species 63	x 4 = 252
UPL species 2	x 5 = 10
Column Totals: 100 (A)	367 (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
16	5Y, 4/2	90	5YR, 3/4	10	C	PL	Sandy/Cl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0-16

Wetland Hydrology Present? **Yes** ✓ **No** ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 6

Investigator(s): Eric Zahn, Mark Hanneford, Marcelo Ceballos Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.750888 N Long: -118.093218 W Datum: WGS84

Soil Map Unit Name: Bolsa silty clay loam, drained NWI classification: PEM1Cx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Mesembryanthemum nodiflorum	5		FACU
2. Brassica nigra	2		UPL
3.			
4.			
5.			
6.			
7.			
8.			
	7 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 93 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species 5	x 4 =	20
UPL species 2	x 5 =	10
Column Totals: 7 (A)		30 (B)

Prevalence Index = B/A = 4.29

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	5Y, 3/2	80	7.5YR, 4/6	20	C	PL	Sandy Cl	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 0-10

Wetland Hydrology Present? **Yes** ✓ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 7

Investigator(s): Eric Zahn, Mark Hanneford, Marcelo Ceballos Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): convex Slope (%): 10

Subregion (LRR): LRRC Lat: 33.750291 N Long: -118.094235 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents com NWI classification: PEM1Cx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2m)			
1. Brassica nigra	25		UPL
2. Hirschfeldia incana	25		FACU
3. Frankenia salina	5		FACW
4. Salicornia pacifica	5		OBL
5. Hordeum	40	x	FAC
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 3 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	5	x 2 =	10
FAC species	40	x 3 =	120
FACU species	25	x 4 =	100
UPL species	25	x 5 =	125
Column Totals:	100 (A)		360 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5Y, 3/2	97.5	7.5YR, 5/8	2.5	C	PL	Silt/Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

very small occurances dotted throughout

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/26/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 8

Investigator(s): Eric Zahn, Mark Hannaford, Marcelo Ceballos Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.751968 N Long: -118.09983 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents com NWI classification: R2UBHx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Arthrocnemum subterminale	20		FACW
2. Salicornia pacifica	10		OBL
3. Mesembryanthemum nodiflorum	5		FACU
4. Cressa truxillensis	15		FACW
5.			
6.			
7.			
8.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	35	x 2 =	70
FAC species		x 3 =	
FACU species	5	x 4 =	20
UPL species		x 5 =	
Column Totals:	50 (A)		100 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	2.5Y, 3/2	100					Clay	Silty clay

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/26/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 9

Investigator(s): Eric Zahn, Mark Hanneford, Marcelo Ceballos Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.751895 N Long: -118.099862 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents com NWI classification: R2UBHx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2m)			
1. Arthrocnemum subterminale	40	x	FACW
2. Mesembryanthemum nodiflorum	5		FACU
3.			
4.			
5.			
6.			
7.			
8.			
	45 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 55 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 40	x 2 =	80
FAC species	x 3 =	
FACU species 5	x 4 =	20
UPL species	x 5 =	
Column Totals: 45 (A)		100 (B)

Prevalence Index = B/A = 2.22

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5Y, 3/2	90	7.5YR, 4/6	10	C	M	Sandy	
10-16	5Y, 3/2	98	10YR, 5/8	2	C	M	Clay	Sandy clay

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0-16

Wetland Hydrology Present? Yes ✓ **No** ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/26/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 10

Investigator(s): Eric Zahn, Mark Hanneford, Marcelo Ceballos Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.751016 N Long: -118.101627 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents com NWI classification: R2UBHx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Salicornia pacifica	40	x	OBL
2. Cressa truxillensis	20		FACW
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 40	x 1 = 40
FACW species 20	x 2 = 40
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 60 (A)	80 (B)

Prevalence Index = B/A = 1.33

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 10

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5Y, 3/2	99	2.5YR, 2.5/4	1	C	M	Sandy	Clumps of clay within core

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 0-18

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/5/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 11

Investigator(s): Marcelo Ceballos Jr., Hannah Craddock, Wani Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): LRRC Lat: 33.751859 N Long: -118.10031 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents com NWI classification: R2UBHx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Mesembryanthemum nodiflorum	5		FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species 5	x 4 =	20
UPL species	x 5 =	
Column Totals: 5 (A)		20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y, 3/2	100						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Rock

Depth (inches): 12

Hydric Soil Present? Yes ____ No ✓

Remarks:

The area is likely salty fill material

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 12

Wetland Hydrology Present? Yes ✓ No ____

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

Remarks:

Drainage patterns likely due to runoff

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/5/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 12

Investigator(s): Marcelo Ceballos Jr., Hannah Craddock, Wani Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.752674 N Long: -118.099921 W Datum: WGS84

Soil Map Unit Name: Bolsa silty clay loam, drained NWI classification: PUSCx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Arhtrocnemum subterminale	25	x	FACW
2. Mesembryanthemum nodiflorum	5		FACU
3. Salicornia pacifica	5		OBL
4. Symphyotrichum subulatum	5		OBL
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	25	x 2 =	50
FAC species		x 3 =	
FACU species	5	x 4 =	20
UPL species		x 5 =	
Column Totals:	40 (A)		80 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 12

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y, 3/1	100					clay	
2-9	2.5Y, 3/2	100					sandy	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 9

Wetland Hydrology Present? Yes ✓ **No** ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/5/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 13

Investigator(s): Marcelo Ceballos Jr., Hannah Craddock, Wani Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.751863 N Long: -118.098854 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents com NWI classification: PEM1Cx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Arthrocnemum subterminale	60	x	FACW
2. Mesembryanthemum nodiflorum	2		FACU
3.			
4.			
5.			
6.			
7.			
8.			
	62 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 38 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 60	x 2 = 120
FAC species _____	x 3 = _____
FACU species 2	x 4 = _____
UPL species _____	x 5 = 8
Column Totals: 62 (A)	128 (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 13

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR, 3/2	100						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No redox

No indicators present, so likely not hydric due to these observations

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 12

Wetland Hydrology Present? **Yes** ✓ **No** _____

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

Remarks:

Salt crust in the immediate surrounding areas

Area moist likely due to recent rain event

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/5/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 14

Investigator(s): Marcelo Ceballos Jr., Hannah Craddock, Wani Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): LRRC Lat: 33.749846 N Long: -118.097925 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents com NWI classification: PEM1Cx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Rumex crispus	5		FAC
2. Carpobrotus edulis	20		UPL
3. Eleocharis macrostachya	75	x	OBL
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	75	x 1 =	75
FACW species	_____	x 2 =	_____
FAC species	5	x 3 =	15
FACU species	_____	x 4 =	_____
UPL species	20	x 5 =	100
Column Totals:	100 (A)		190 (B)

Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	2.5Y, 3/2	100					Silty Sand	very saturated

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

90% silt, 10% clay

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 6

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

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 14

Wetland Hydrology Present? **Yes** ✓ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/5/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 15

Investigator(s): Marcelo Ceballos Jr., Hannah Craddock, Wani Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.750239 N Long: -118.097454 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents com NWI classification: PEM1Cx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Salicornia pacifcia	40	x	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	_____	x 2 =	_____
FAC species	_____	x 3 =	_____
FACU species	_____	x 4 =	_____
UPL species	_____	x 5 =	_____
Column Totals:	40 (A)		40 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 15

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y, 3/2	100					Sandy	Sandy fill, chunks of clay
12	5Y, 3/2	100					Clay	Chunks of clay

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Mainly sand, but there are chunks of clay. This clay is likely imported from when fill material from the surrounding area was dumped onto the site. The area has an old history of dumping.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? **Yes** _____ **No** ✓

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

Remarks:

Salt crust due to sand fill. No tidal connection.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/5/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 16

Investigator(s): Marceloa Ceballos Jr., Hannah Craddock, Wa Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.750224 N Long: -118.103226 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents com NWI classification: R2UBHx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2m)			
1. Salicornia pacifica	80	x	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	80 (A)		80 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 16

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y, 3/2	95	5YR, 3/4	5	D	M	Clay	Spotted redox throughout

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

The redox isn't typical but it is distributed throughout

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 12

Wetland Hydrology Present? **Yes** ✓ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/12/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 17

Investigator(s): Eric Zahn, Marcelo Ceballos Jr., Hannah Cradd Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): depression in terrace Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): LRRC Lat: 33.752169 N Long: -118.102477 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents com NWI classification: PUBHx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2m)			
1. Bassia hyssopifolia	5		FACU
2. Brassica nigra	20		UPL
3. Atriplex semibaccata	15		FAC
4. Ditrichia graveleons	5		UPL
5. Mesembryanthemum nodiflorum	5		FACU
6. Bromus diandrus	40	x	UPL
7. Galium angustifolium	5		FACU
8. Cressa truxillensis	1		FACW
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 1	x 2 = 2
FAC species 15	x 3 = 45
FACU species 18	x 4 = 72
UPL species 66	x 5 = 330
Column Totals: 100 (A)	449 (B)

Prevalence Index = B/A = 4.49

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Additional Herb Stratum Species: Melilotus indicus, 3%, FACU. Sonchus oleraceus, 1%, UPL.

SOIL

Sampling Point: 17

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	5YR, 2.5/2	100						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Rocky fill on top layer, loamy bottom layer

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Recent rains may account for saturation

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/12/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 18

Investigator(s): Marcelo Ceballos Jr., Hannah Craddock Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.749934 N Long: -118.100546 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents com NWI classification: R2UBHx

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

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Salicornia pacifica	95	x	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 95	x 1 =	95
FACW species _____	x 2 =	_____
FAC species _____	x 3 =	_____
FACU species _____	x 4 =	_____
UPL species _____	x 5 =	_____
Column Totals: 95 (A)		95 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 18

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR, 4/2	100					Sandy cla	
4-7	2.5Y, 4/2	95	7.5YR, 4/4	5	D	M	Clay	
7-16	Gley 1 410Y	100						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Top layer was sandy clay, lower layer is clay
One layer clearly present due to saturation, hard to discern.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 6

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

Rained last 2 days, soil pit was filled with water.
Normal to see rain in this area each winter.
Saturated soils may be due to recent rain storm.

Appendix B

Soil Resource Report

Custom Soil Resource Report
Soil Map

Map Scale: 1:8,960 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 400 800 1600 2400

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

Appendix C

Soil Sample Photos

Soil Sample & Location #1

Soil Sample & Location #2

Soil Sample & Location #3

Soil Sample & Location #4

Soil Sample & Location #5

Soil Sample & Location #6

Soil Sample & Location #7

Soil Sample & Location #8

Soil Sample & Location #9

Soil Sample & Location #10

Soil Sample & Location #11

Soil Sample & Location #12

Soil Sample & Location #13

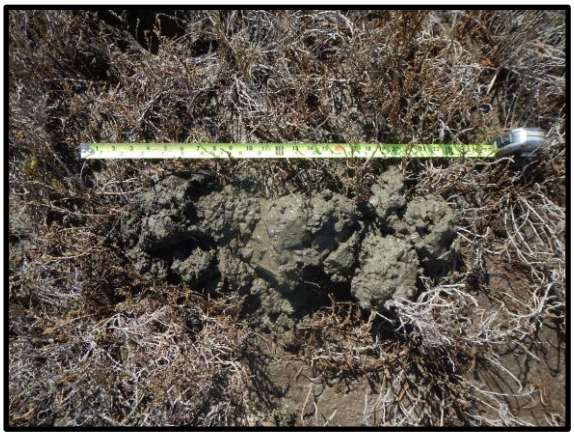
Soil Sample & Location #14

Soil Sample & Location #15

Soil Sample & Location #16

Soil Sample & Location #17

Soil Sample & Location #18



Appendix E: Southern Los Cerritos Wetlands Restoration Project – Jurisdictional Delineation Report

Southern Los Cerritos Wetlands Restoration Project

Jurisdictional Delineation Report

PREPARED FOR:
LOS CERRITOS WETLANDS AUTHORITY
100 Old San Gabriel Canyon Road
Azusa, CA 91702

PREPARED BY:

TIDAL INFLUENCE, LLC
2539 E. 7th Street
Long Beach, CA 90804

JULY 2021

Jurisdictional Delineation Report:
Southern Los Cerritos Wetlands Restoration Project

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Acronyms and Abbreviations

ACOE	Army Corps of Engineers
Cal-IPC	California Invasive Plant Council
CCA	California Coastal Act
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CSLC	California State Lands Commission
CPRC	California Public Resource Code
CWA	Clean Water Act
CWC	California Water Code
GPS	Global Positioning System
JDR	Jurisdictional Delineation Report
LCW	Los Cerritos Wetlands
LCWA	Los Cerritos Wetlands Authority
MCVII	*A Manual of California Vegetation, Second Edition*
MHTL	Mean High Tide Line
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
RHA	Rivers and Harbors Act
RWQCB	Regional Water Quality Control Board
SLR	Sea Level Rise
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 Introduction

This report presents the preliminary findings of potential U.S. Army Corps of Engineers (ACOE) and California Coastal Commission (CCC) jurisdiction over the project area associated with the Southern Los Cerritos Wetlands Area. The results of the report will also discuss the potential jurisdictions of California Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW).

1.1 Project Location

The project area is primarily located approximately 0.08 miles southeast of the San Gabriel River Pacific Coast Highway Bridge in the City of Seal Beach, California in the County of Orange (Exhibit A). The Project's central geographic location is Latitude 33.751066°; Longitude -118.099411° primarily in section 11 of Township 5 South, and Range 12 West, on the United Stated Geological Survey (USGS) Seal Beach and Los Alamitos 7.5-minute series topographical quadrangles. The project area is bounded by the San Gabriel River to the west, oil extraction operations to the north, and residential neighborhoods and park space to the east and south (Exhibit B). The property is bordered by industrial, open space and residential land uses.

The property is currently accessible from Pacific Coast Highway via 1st street which extends through the property and leads to the neighboring oil operations. This asphalt access road bisects the site and is subject to several easements for other landowners and for the utilities that run parallel to it both above and below ground. The site is currently closed to the public and is only accessible during public programming or with prior approval from the property owner. The main 100-acre parcel is owned by the Los Cerritos Wetlands Authority (LCWA) who controls access to the property's gates that connect to trails and old maintenance roads that traverse the site. A small 5-acre parcel that the project area partially covers is owned by the California State Lands Commission who the LCWA has a long-term access agreement with to manage that property.

1.2 Project Description

The Los Cerritos Wetlands Authority (LCWA) is a governmental entity developed in 2006 by a joint powers agreement between the State Coastal Conservancy, the Rivers and Mountains Conservancy, and the cities of Seal Beach and Long Beach. It was created with the purpose "to provide for a comprehensive program of acquisition, protection, conservation, restoration, maintenance and operation, and environmental enhancement of the Los Cerritos Wetlands area consistent with the goals of flood protection, habitat protection and restoration, and improved water supply, water quality, groundwater recharge, and water conservation." The LCWA has acquired 165 acres of coastal habitat since its inception. This acreage includes the 100-acre South LCWA Site (AKA Hellman Ranch Lowlands) which falls completely within the proposed project boundary. A majority of the site is comprised of native coastal salt marsh habitat as well as areas occupied by non-native plant species alliances. Mixed in with this are features such as a tidal creek, salt flats, tidal flats, utilities, a developed asphalt roadway, dirt maintenance roadways, dumped fill, and various manmade remnants that have accumulated over time. The 103.54 acre project area also includes 3.5 acres of a parcel of land owned by the California State Lands Commission with whom the

LCWA holds a non-exclusive lease agreement to manage the property. The State Lands Parcel Site is comprised of a mix of tidal wetland in the northern portion of the property where the culvert connects to the San Gabriel River. The majority of this parcel is comprised of a concrete pad that is approximately 0.83 acres. The remaining portion to the southern end of the property was also developed and currently occupied by degrading asphalt that is being covered in various non-native plant species as well as patches of the special status plant species Southern Tarplant (*Centromadia parryi* ssp.*australis*).

The Southern Los Cerritos Wetlands Area is part of the first phase of restoration of the overall Los Cerritos Wetlands Complex that encompasses approximately 503 acres of coastal habitat, both land and water. This restoration project area has been subject to historical degradation and fragmentation and is in need of improved tidal connection as well as other restorative measures in order to improve the site's ecological function and protect the local area from sea level rise due to climate change (Coastal Restoration Consultants, 2021).

The purpose of the proposed project is to restore and enhance the ecological and biological function of historic wetland and transitional habitats as well as provide opportunities for public access. This project will design a tidal wetland restoration plan that takes into consideration sea level rise, cultural resources, the local community, and other private and public entities. Dredging, moving of fill, and removal of contaminated material will likely need to take place throughout the site in order to achieve the goal of maximizing contiguous tidal salt marsh habitat. Currently tidal waters enter the project area through an approximately 48-inch-wide culvert connected to the San Gabriel River. While this culvert does provide some tidal prism, it is heavily muted due to the size and position of this culvert. Therefore, the project will be aiming to create improved tidal connections and is targeting the adjacent Haynes Cooling Channel to achieve this objective. Additionally, there are possible opportunities to work with local surrounding landowners to create a more optimal tidal connection that would allow for higher rates of hydrologic exchange between the marsh and the ocean.

2.0 Methodology

2.1 Presurvey Investigations

A distinct project boundary was determined prior to conducting formal investigations in the field for this Jurisdictional Delineation Report (JDR). The extent of the project boundary was designed to encompass all the areas with potential for overlap with the project activities. Once the boundary was finalized, Tidal Influence wetland ecologists closely reviewed former reports, aerial photographs, and topographic maps of the site to determine areas that were critical to investigate in the field. A grid was overlain on the project area and potential sampling points were chosen where the grid intersected areas that were potential waters of the U.S. and State (including wetlands).The National Wetland Inventory (NWI) was also utilized to create a map of potential wetlands (Exhibit C). While the NWI map was helpful to project potential sampling points it was limited in its accuracy and did not fully capture tidal wetlands within the project boundary. Due to this limitation, previous reports investigating the property were used in conjunction with the NWI map to gain a better understanding of where the current wetland areas potentially occurred. Specifically, a Jurisdictional Delineation of Wetlands and Waters of the United States conducted by Chambers Group, Inc in June 1996 was used in conjunction with other literature from the Los Cerritos Wetlands Restoration Project Program EIR (PEIR) to understand and verify locations of jurisdictional areas throughout the project area.

2.2 Field Survey

The fieldwork for this investigation was conducted by Tidal Influence ecologists Eric Zahn, Marcelo Ceballos, Hannah Craddock, Mark Hannaford, Wanisa Jaikwang, and Jesse Aragon on February 19th, February 26th, March 5th, March 12th, and May 24th, 2021. Previous wetland delineation and biological assessment reports were utilized prior to field visits to select initial survey points. The remotely selected points were shifted based on field conditions and the exact locations were documented with a handheld Trimble Geo 7X handheld Global Positioning System (GPS) device with sub-meter accuracy and marked with a flag. All ecological observations were documented during these field surveys.

Vegetation and land cover data collected for the PEIR in 2018 by Coastal Restoration Consultants were used as reference to delineate jurisdictional waters (including wetlands) occurring within the project area on March 12th, 2021. The Jurisdictional Wetlands Determination Report by Chambers Group from 1996 was also referenced during the preliminary literature investigation. This vegetation data was expanded upon during additional biological surveys when newly encountered plant species and/or communities were observed. A total of 18 soil sampling points were analyzed for potential jurisdictional waters/wetlands (Exhibit D). Each of these 18 points were evaluated according to routine wetland delineation procedures described in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual (Wetland Manual) and the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0.

At each sample point, the existence of significantly disturbed conditions, naturally problematic conditions, and “normal circumstances” were considered and recorded on the Wetlands Determination Data Form

for the Arid West Region. All notable site conditions were recorded including observations of recent restoration activity or management of that area as wetlands.

Within an approximately 2-meter squared area around the sample point, the dominant and subdominant plant species were identified, and the wetland indicator status was noted for each plant species. A sampling location was determined to support hydrophytic vegetation if more than 50% of the dominant species were listed as Obligate (OBL), Facultative Wetland (FACW), or Facultative (FAC) species on the Army Corps of Engineers' National Wetland Plant List (Lichvar et al., 2016) or if the hydrophytic plant prevalence index was less than or equal to 3.0.

A soil pit was dug at each of the points to investigate soil characteristics and the potential for hydric soil indicators. All soil pits (field data points for soil inspection and observation) were dug to a depth of 20 inches below natural grade or to the point of obstruction (e.g., compaction or debris) if a 20-inch-deep soil pit was not possible. Soil pits were located in obvious wetland and non-wetland areas to determine the wetland/non-wetland boundary and the presence or absence of hydric soils. Each pit was examined for changes in texture with depth. The depth of each soil texture type was indicated, and soil matrix colors were determined and recorded for each soil texture type according to the Munsell Soil Color Charts (2009). Subsurface soil taken from soil pits was also analyzed visually for redoximorphic features and other hydric soil indicators using *Field Indicators of Hydric Soils in the United States: A guide for Identifying and Delineating Hydric Soils* (USDA, 2006). A sampling location was determined to support hydric soils if at least one hydric soil indicator was present in the soil pit or if problematic hydric soils indicators were observed.

Finally, each sample point was surveyed for the presence of wetland hydrology indicators, including primary indicators like surface water, saturation, biotic crust, salt crust, aquatic invertebrates, and/or other primary wetland hydrology indicators; and secondary indicators like drainage patterns, saturation visible on aerial imagery, and/or other secondary wetland hydrology indicators. Soil pits were utilized to determine the presence or absence of many of these indicators. A sampling location was determined to support wetland hydrology if at least one primary indicator or at least two secondary indicators were observed.

Field data collected by hand on the wetland determination data forms were transcribed to electronic copies during which any existing data gaps were filled and all data was processed to ensure data quality assurance and quality control.

3.0 Regulatory Jurisdictions

The Southern Los Cerritos Wetlands Restoration Project area is located within the city of Seal Beach, California and it contains potential wetland and other aquatic features, environments, and habitats. These waters and wetland features are regulated under federal and state laws. Each of the laws are administered independently and in coordination by the following federal and state agencies: ACOE, United States Fish and Wildlife Service (USFWS), the United States Environmental Protection Agency (USEPA), CCC, CDFW and RWQCB.

If determined applicable by the respective agencies, this JDR provides information for the LCWA to apply for the following authorizations, permits, and policy compliance:

3.1 Federal Regulations

- Section 404 of the Clean Water Act (CWA) (as regulated by ACOE and USEPA)
- Section 401 of the CWA (as regulated by RWQCB)
- Section 10 of the Rivers and Harbors Act (RHA) (as regulated by ACOE)
- Executive Order 11990 (federal protection of wetlands; regulated by relevant federal agencies)

3.2 State of California Regulations

- California Public Resource Code (CPRC) Division 20 Section 30000 et seq. (California Coastal Act; as regulated by the CCC)
- Section 13000 et seq. of the California Water Code (CWC) (the 1969 Porter-Cologne Water Quality Act; as regulated by RWQCB)
- California Fish and Wildlife Code (CFWC) Chapter 6 Section 1600 et seq. (as regulated by CDFW)
- CPRC Division 5 Chapter 7 Section 5810 et seq. (preservation of wetlands; as administered by CDFW and other relevant state resource agencies)
- Executive Order W-59-93 (state policy guidelines for wetlands conservation)

3.3 Description of Federal Regulations

3.3.1 Clean Water Act (CWA)

Pursuant to Section 404 of the CWA, ACOE regulatory jurisdiction is built upon a connection or nexus between the water body and interstate commerce. The connection may be direct, through a tributary system linking a stream channel with navigable waters used in interstate or foreign commerce, or indirect, through a nexus identified in the ACOE regulation. ACOE regulates any activity that would result in the discharge of dredged or fill material into jurisdictional waters of the U.S., which include those waters listed in 33 Code of Federal Regulations 328. ACOE has the principal authority to issue CWA Section 404 Permits with review by the USEPA. The RWQCB certifies that any discharge into jurisdictional waters of the U.S. will comply with state water quality standards, pursuant to Section 401 of the CWA. RWQCB is the lead authority to determine a CWA Section 401 Water Quality Certification or Waiver according to the USEPA.

3.3.2 Rivers and Harbors Act (RHA)

The ACOE regulates discharges of dredged or fill material into waters of the United States. These waters include wetland and non-wetland bodies of water that meet specific criteria. Pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 US Code [u.s.c.] 403), ACOE regulatory jurisdiction, regulates almost all work in, over, and under waters listed as "navigable waters of the U.S." The ACOE regulates activity that results in the alteration of a navigable water of the United States, including the excavation or filling of any such water.

3.3.3 Executive Order 11990

Each federal agency is responsible for preparing the implementing procedures for carrying out the provisions of the Executive Order (EO) 11990. The EO's purpose is to "minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands." Each agency must avoid undertaking, or providing assistance, for any destructive or degrading activity located in wetlands unless the head of the agency finds that there is no "practical alternative" to such activity to the extent permitted by law. Additionally, public review of any plans or proposals for new construction in wetlands must be provided.

3.4 Description of State Regulations

3.4.1 California Coastal Act (CCA)

The California Coastal Commission regulates for coastal resources within the Coastal Zone under jurisdiction of the California Coastal Act of 1976 (CCA), pursuant to Section 30000 et seq. of the CPRC. Of important note for Jurisdictional Delineations of California projects, the CCC retains authorization, permitting, and policy compliance jurisdiction over any portion of a project that is in state waters, on land up to the mean high tide line (MHTL), lands subject to the public trust, or at the discretion of CCC.

3.4.2 Lake and Streambed Alteration Program

The California Department of Fish and Wildlife is authorized to regulate activity that would alter the flow, bed, channel, or bank of streams and lakes, pursuant to Section 1600 et seq. of the CDFW. The channel, bed, or bank of a lake, river, or stream comprises the jurisdictional waters of the state. The CDFW extends its jurisdictional limit to the top of the bank of a stream or lake, or to the continuous outer edge of its riparian extent, whichever is wider.

3.4.3 Porter-Cologne Water Quality Control Act

In addition to the federal CWA regulatory jurisdiction of the RWQCB mentioned above, the RWQCB is authorized to regulate activity that would result in discharge of waste and fill material to waters of California (including saline waters), "isolated" waters and/or wetlands (e.g., vernal pools and seeps), and groundwater within the boundaries of the state (CWC § 13050[e]), pursuant to Section 13000 et seq. of the CWC (the 1969 Porter-Cologne Water Quality Control Act [Porter-Cologne]). RWQCB also adopts and implements water quality control plans that are designed to maintain each region within the state's

"unique characteristics" with regard to natural water quality, actual and potential beneficial uses, maintaining water quality, and addressing the water quality problems of that region. Beneficial uses of state waters are identified within the Porter-Cologne Act that may be protected against degradation and include preservation and enhancement of fish, wildlife, designated biological habitats of special significance, and other aquatic resources or preserves.

3.5 Definition of Wetlands

The jurisdictional regulations of the various federal and state agencies are further utilized to establish the appropriate definition of "wetlands" of a particular study site. The project area is subject to the wetland definitions identified by various characteristics as outlined by the United States Army Corps of Engineers, United States Fish and Wildlife Service, the California Coastal Commission and the California Department of Fish and Wildlife. Each agency, working in accordance to their legislative authority, defines "wetlands" differently and each definition is referenced to identify jurisdictional authority.

3.5.1 Federal Wetlands Definitions

The term "waters of the United States" most often encompasses all federal wetlands and 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 shellfish 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."*

Federal definitions of what constitutes "wetlands" are primarily derived from two Federal Agencies: the United States Army Corps of Engineers and the United States Fish and Wildlife Service. The USFWS wetland definition and classification system is based on Classification of Wetland and Deepwater Habitats of the United States (Cowardin et al. 1979); however, the ACOE definition is used for regulatory purposes. Wetland delineations for Section 404 purposes as regulated by the ACOE must be conducted according to the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Regional Supplement ACOE 2006) and the Corps of Engineers 1987 Wetland Delineation Manual. Where there are differences between the two documents, the Regional Supplement takes precedence over the 1987 Manual.

The ACOE defines wetlands as:

> *"Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions."*

A federal jurisdictional wetland delineation states that an area must possess three wetland characteristics: 1) hydrophytic vegetation, 2) hydric soils, and 3) wetland hydrology. The wetland characteristics have mandatory criteria that must be satisfied for that particular characteristic to be met. The indicators may be analyzed to determine whether the criteria are satisfied and are listed below.

<u>Hydrophytic Vegetation</u>

Hydrophytic vegetation is plant life that is adapted for life in permanently or periodically saturated soil identified according to a wetland indictor category as included on the Army Corps of Engineers' National Wetland Plant List (Lichvar et al., 2016). The different indicator categories are based on the probability of occurrence in wetlands: Obligate Wetlands (OBL), Facultative Wetlands (FACW), Facultative (FAC), Facultative Upland (FACU), and Obligate Upland (UPL). The Obligate Wetlands, Facultative Wetlands and Facultative categories are considered hydrophytic and the delineation of the hydrophytic vegetation is based on more than 50 percent of the plant species identified in these three categories.

If the plant community passes the dominance test or prevalence index, the vegetation is considered hydrophytic. The dominance test uses the "50/20" rule from the Regional Supplement for determining dominant species. The most abundant species that exceed 50 percent of the total sample survey, plus

additional species that comprise 20 percent of the total dominance measure, indicate dominance. The prevalence index is a weighted-average wetland indicator status of all plant species in the sampling plot, where each indicator status category is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and weighting is by abundance (percent cover). It is a more comprehensive analysis of the hydrophytic status of the community than one based on just a few dominant species

Vegetation alliances identified on the site follows *A Manual of California Vegetation, Second Edition* (MCV II; Sawyer et al., 2009). The MCV II was also used for the Biological Resources Report prepared for the Project and its use in this report ensures consistency.

Hydric Soils

Soils defined as hydric soils form under conditions of "saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part." Hydric soils are defined when one or more of the following criteria are met: all histels except folistels and histosels except folists; or soils that frequently ponded for long duration or very long duration during the growing season; or soils that are frequently flooded for long duration or very long duration during the growing season. Hydric soils are developed when microbial activity causes oxygen depletion with conditions of saturation and hydrologic inundation. Microbial activity is limited to the growing season and when the soil temperature is above biological zero. The Regional Supplement is used to identify hydric soils under a variety of field indicators that include: hydrogen sulfide generation; accumulation of organic matter; and reduction, translocation, and/or accumulation of iron and other reducible elements.

Wetland Hydrology

Wetland hydrology can be a challenging criterion to measure in the field due to variations in water availability seasonally and annually. Visual observation of inundation or saturation, watermarks, recent sediment deposits, surface scour, and oxidized root channels are some of the indicators used to identify wetland hydrology. Wetland hydrology is satisfied if the area is seasonally inundated or saturated to the surface for a minimum of 14 consecutive days during the growing season.

3.5.2 State of California Definition of Wetlands

The State of California applies a broader definition of what constitutes a "wetland" than the Federal government. Two primary State agencies are responsible for defining "wetlands", the California Coastal Commission and the California Department of Fish and Wildlife. The CDFW essentially relies on the USFWS wetland definition and classification system based on Classification of Wetland and Deepwater Habitats of the United States (Cowardin et al. 1979). The CDFW acts as a primary consultant to the CCC and the CCC regulates wetland delineation within what is identified as the Coastal Zone along the coast of California. Through provisions of the California Coastal Act, jurisdictional wetland delineations within the Coastal Zone are conducted based on the "one-parameter method" to define the presence and jurisdictional extent of state wetlands. Under the CCA, wetlands are defined as follows:

"land within the Coastal Zone [that] may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens".

Additionally, wetlands are further 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)."

Both the Federal and State definitions focus on the three fundamental wetland characteristics: hydrology, soils, and vegetation. While the ACOE definition requires the existence of all three wetland characteristics for an area to be considered a wetland, the CCC's definition of wetlands is based on the existence of only two characteristics: wetland hydrology sufficient to either support a prevalence of hydrophytic vegetation or promote the formation of hydric soils.

It is noted that, under circumstances, reliable indicators of all required characteristics are not necessarily apparent, and areas may be delineated as wetlands by the ACOE on the basis of indicators of only two of the three characteristics. The CCC routinely makes jurisdictional wetlands determinations based on the presence of one characteristic indicator (i.e., wetland soils or vegetation) under the assumption that wetland hydrology must be present in order for the indicator to be present. Nevertheless, the presence of wetland hydrology during some portion of most years is fundamental to the existence of any wetland, and the CCC will sometimes disregard vegetation or soil indicators when there is sufficient evidence to conclusively refute the presence of wetland hydrology.

4.0 Results

Potential jurisdictional waters (including wetlands) occurring within the project area were delineated and mapped based on federal and state delineation guidance, methodology, and regulatory framework and code, as described above. For the purposes of this site, the jurisdictions for ACOE and CCC were determined for the federal and state jurisdictions, respectively. CDFW jurisdictions were also determined for this site due to its proximity and connection to the San Gabriel River. Jurisdiction areas can be seen graphically on the attached aerial maps (Exhibits E, F, G, H, I).

All federal waters and wetlands (including final acreages and types) delineated within this survey area are considered potential waters of the U.S. prior to a formal jurisdictional determination performed by ACOE. The final determination issued by ACOE may remove or include portions of delineated waters documented in this JDR.

The total area of potential waters of the U.S. and State (including wetlands) within the survey area and a general discussion of the policy governing these regulated areas is provided below. Per ACOE mapping guidelines, the results were mapped on a current color aerial photograph at a scale of 1 inch = 200 feet (Exhibit E), however, an overview map of the entire survey area is shown in Exhibit B. Refer to the attached Wetlands Determination Data Forms (Appendix A) for a full description of sample point results.

4.1 Vegetation

A list of hydrophytic plant species identified within the project area is provided in Table 1. A total of 15 vegetation alliances or communities equaling 92.83 acres were identified within the project area that have potential to be defined as containing hydrophytic plant species that when prevalent could potentially meet the criterion for ACOE or CCC jurisdictional wetlands (Table 2, Exhibit J).

Table 1. Hydrophytic plant species identified with the project boundary.

Scientific Name	Common Name	Wetland Indicator Status	Non-Native	Cal-IPC rating
Tree Species Growth Habit				
Eucalyptus globulus	Tasmanian Bluegum	FACU*	X	limited
Myoporum laetum	Ngaio Tree	FACU	X	moderate
Nicotiana glauca	Tree Tobacco	FAC	X	moderate
Phoenix canariensis	Canary Island Palm	FACU*	X	limited
Schinus terebinthifolius	Brazilian Pepper Tree	FAC	X	moderate
Washingtonia robusta	Mexican Fan Palm	FACW	X	moderate
Shrub Species Growth Habit				
Artemisia californica	California Sagebrush	FACU*		
Atriplex lentiformis	Big Saltbush	FAC		
Baccharis pilularis	Coyote Brush	FAC		

Scientific Name	Common Name	Wetland Indicator Status	Non-Native	Cal-IPC rating
Baccharis salicifolia	Mulefat	FAC		
Isocoma menziesii	Menzies' Goldenbush	FAC		
Peritoma arborea	Bladderpod	FACU*		
Ricinus communis	Castor Bean	FACU	X	limited
Herbaceous Species Growth Habit				
Ambrosia psilostachya	Western Ragweed	FACU		
Anemopsis californica	Yerba Mansa	OBL		
Arthrocnemum subterminale	Parish's Glasswort	OBL		
Atriplex semibaccata	Australian Saltbush	FAC	X	moderate
Bassia hyssopifolia	Five Horn Bassia	FACU	X	limited
Batis maritima	Saltwort	OBL		
Brassica nigra	Black Mustard	FACU*	X	
Bromus diandrus	Ripgut Brome	UPL*	X	moderate
Bromus madritensis	Foxtail Brome	FACU*	X	
Camissoniopsis lewisii	Lewis' Evening Primrose	FACU*		
Carpobrotus edulis	Hottentot-fig	FACU*	X	high
Centaurea melitensis	Tocalote	UPL	X	moderate
Centromadia parryi australis	Southern Tarplant	FACW		
Cirsium vulgare	Bull Thistle	FACU	X	moderate
Conium maculatum	Poison Hemlock	FACW	X	moderate
Cressa truxillensis	Alkali Weed	FACW		
Cuscuta salina	Saltmarsh Dodder	FACW		
Distichilis littoralis	Shoregrass	OBL		
Distichlis spicata	Salt Grass	FAC		
Dittrichia graveolens	Stinkwort	UPL	X	moderate
Eleocharis macrostachya	Common Spikerush	FACW		
Erodium cicutarium	Coastal Heron's Bill	FACU*	X	limited
Frankenia salina	Alkali Heath	FACW		
Foeniculum vulgare	Sweet Fennel	UPL*	X	moderate
Galium angustifolium	Narrowleaf Bedstraw	FACU*		
Glebionis coronaria	Crown Daisy	UPL*	X	limited
Heliotropium curassavicum	Seaside Heliotrope	FACU		
Heterotheca grandiflora	Telegraph Weed	FACU*		
Hirschfeldia incana	Short Podded Mustard	UPL*	X	moderate
Lactuca serriola	Prickly Lettuce	FACU	X	
Laennecia coulteri	Coulter's Horseweed	FAC		
Limonium californicum	California Sealavender	FACW		
Lysimachia arvensis	Scarlet Pimpernel	FAC	X	

Scientific Name	Common Name	Wetland Indicator Status	Non-Native	Cal-IPC rating
Herbaceous Species Growth Habit				
Lycium californicum	California Boxthorn	FAC*		
Marrubium vulgare	White horehound	FACU	X	limited
Malephora crocea	Coppery Mesembryanthemum	FACU	X	watch
Malva parviflora	Cheeseweed Mallow	FACU*	X	
Melilotus albus	White Sweetclover	FACU*	X	
Melilotus indicus	Annual Yellow Sweetclover	FACU	X	
Mesembryanthemum crystallinum	Crystalline Iceplant	FACU	X	moderate
Mesembryanthemum nodiflorum	Slender Leaved Ice Plant	FACU	X	limited
Oxalis pes-caprae	Bermuda Buttercup	FACU*	X	moderate
Polypogon monspeliensis	Rabbit's Foot	FACW	X	limited
Pseudognaphalium luteoalbum	Jersey Cudweed	FACW	X	
Pulicaria paludosa	Spanish False Fleabane	FAC	X	
Raphanus sativus	Wild Radish	FACU*	X	limited
Rumex crispus	Curly Dock	FAC	X	limited
Salicornia bigelovii	Bigelow's Pickleweed	OBL		
Salicornia pacifica	Common Pickleweed	OBL		
Salsola tragus	Russian Thistle	FACU	X	limited
Sonchus oleraceus	Common Sowthistle	UPL	X	
Spergularia marina	Salt Marsh Sand Spurry	OBL		
Symphyotrichum subulatum	Saltmarsh Aster	OBL		
Triglochin concinna	Slender Arrow-Grass	OBL		
Urtica dioica	Stinging nettle	FAC		
Xanthium strumarium	Cocklebur	FAC		

Wetland Indicator Status Abbreviations and Meanings:

OBL – Obligate Wetlands Species. Occur almost always in wetlands.
FACW – Facultative Wetland Species. Usually occur in wetlands, but occasionally found in non-wetlands.
FAC – Facultative Species. Equally likely to occur in wetlands and non-wetlands.
FACU – Facultative Upland Species. Usually occur in non-wetlands but occasionally found in wetlands.
UPL – Obligate Upland Species. Almost always occur under natural conditions in non-wetlands.

** Not listed on National Wetlands List*

Table 2. Total acreages of vegetation alliances and land cover types observed within the project boundary.

Vegetation Alliance	Acres
Cressa truxillensis - Distichlis spicata Herbaceous Alliance	1.43
Distichlis spicata Herbaceous Alliance	0.44
Salicornia pacifica Herbaceous Alliance	20.62
Frankenia salina Herbaceous Alliance	2.77
Ulva lactuca Algal Mat	1.54
Arthrocnemum subterminale Herbaceous Alliance	0.31
Heterotheca grandiflora Herbaceous Stand	5.48
Isomeris arborea (*Peritoma arborea*) Shrub Stand	0.04
Isocoma menziesii Shrubland Alliance	1.52
Baccharis salicifolia Shrubland Alliance	0.58
Bassia hyssopifolia Semi-Natural Herbaceous Stand	0.96
Brassica nigra and other mustards Herbaceous Semi-Natural Alliance	45.34
Bromus diandrus – Bromus rubens Semi-Natural Herbaceous Stand	4.67
Conium maculatum – Foeniculum vulgare Herbaceous Semi-Natural Alliance	2.91
Mesembryanthemum spp. – *Carpobrotus* spp. Herbaceous Semi-Natural Alliance	4.49
Ornamental	0.35
Disturbed – mowed/disked fire break	0.06
Unvegetated Salt Flat	2.93
Unvegetated Tidal Flat	3.40
Developed	3.70
TOTAL	**103.54**

Vegetation Alliance and Land Cover Type Descriptions

Cressa truxillensis - Distichlis spicata Herbaceous Alliance: A total of 1.43 acres of this alliance was identified within the project boundary (Table 2). Alkali weed (*Cressa truxillensis*, FACW) and salt grass (*Distichlis spicata*, FACW) are characteristically present in this alliance with a variety of species that include alkali heath (*Frankenia Salina,* FACW) and species similar to alkali mallow (*Malvella leprosa,* FACU) which can be found within the Los Cerritos Wetlands however is not present in this portion of the wetlands. This alliance is found on the edges of *Salicornia pacifica* stands within the property but above the high tide line and was observed in areas where hydric soils and wetland hydrology indicators were not present on site. Therefore, areas where this alliance are present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Distichlis spicata Herbaceous Alliance (Salt grass flats): A total of 0.44 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by salt grass (*Distichlis spicata*, FAC) with a co-dominance of alkali heath (*Frankenia salina*, FACW), saltwort (*Batis maritima*, OBL), common pickleweed (*Salicornia pacifica*, OBL), alkali weed (*Cressa truxillensis*, FACW), and may also support non-native upland grasses and forbs. This species often forms monotypic stands when it is found above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, in some

instances locations where this alliance is present will not meet the ACOE's three criteria threshold for wetland waters of the U.S.

Salicornia pacifica Herbaceous Alliance (Pickleweed mats): A total of 20.62 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by Common Pickleweed (*Salicornia pacifica*, OBL) that mixes with other co-dominant species including salt grass (*Distichlis spicata*, FAC), fleshy jaumea (*Jaumea carnosa*, FACW), alkali heath (*Frankenia salina*, FACW), saltwort (*Batis maritima*, OBL) and sea lavender (*Limonium californicum*, FACW). Intermixing with the co-dominant species commonly occurs within the tidal reaches of the site, meanwhile, this species often forms monotypic stands when it is found above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, in some instances locations where this alliance is present will not meet the ACOE's three criteria threshold for wetland waters of the U.S.

Frankenia salina Herbaceous Alliance: A total of 2.77 acres of this alliance was identified within the project boundary (Table 2). While alkali heath (*Frankenia salina*, FACW) is common in a variety of alliances, there are numerous locations throughout site where it is found in predominantly monotypic stands. Co-dominant plant species for this alliance commonly include salt grass (*Distichlis spicata*, FAC), alkali heath (*Frankenia salina,* FACW), saltwort (*Batis maritima,* OBL), common pickleweed (*Salicornia pacifica,* OBL), and alkali weed (*Cressa truxillensis,* FACW). This alliance is found above the tidal reaches of the site where hydric soil and wetland hydrology indicators are not present, typically adjacent to pickleweed mats and in upland areas. Therefore, areas where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Ulva lactuca Algal Mat: A total of 1.54 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by the non-vascular algae species sea lettuce (*Ulva lactuca*) and is found exclusively within the tidal channel that allows for tidal flow through the culvert connection. This alliance is found below the high tide line where hydric soil and wetland hydrology indicators are present. Therefore, where this alliance is present will meet the ACOE's criteria threshold for waters of the U.S.

Arthrocnemum subterminale Herbaceous Alliance: A total of 0.31 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by Parish's glasswort (*Arthrocnemum subterminale*, FACW) or co-dominant in the herbaceous and subshrub layers with alkali weed (*Cressa truxillensis,* FACW*),* salt grass (*Distichlis spicata,* FAC)*,* alkali heath (*Frankenia salina,* FACW) *and Common Pickleweed* (*Salicornia pacifica,* OBL). While *Arthrocnemum subterminale* can be found in numerous locations throughout the site the largest and most dominant population occurs near an access road toward the northern end of the project site. This alliance is often found outside of the tidal reaches of the site so its presence does not always meet the minimum threshold as waters of the U.S.

Heterotheca grandiflora Herbaceous Stand: A total of 5.48 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by telegraph weed (*Heterotheca grandiflora*, UPL) or co-dominate in the shrub canopy with California sagebrush (*Artemisia californica*, FACU) and coyote brush (*Baccharis pilularis*, FACU). This alliance is found above the tidal reaches of the site in areas where sandy fill material is present and hydric soil and wetland hydrology indicators are typically not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Isomeris arborea (*Peritoma arborea*) Shrub Stand: A total of 0.04 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by bladderpod (*Peritoma arborea*, UPL). This alliance is only found in a single patch on the property outside of the tidal reach where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Isocoma menziesii Shrubland Alliance: A total of 1.52 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by Menzies's golden bush (*Isocoma menziesii*, FAC) or commonly co-dominated in the shrub canopy by California sagebrush (Artemisia californica, FACU), coyote brush (*Baccharis pilularis*, FACU), and Virginia glasswort (*Salicornia depressa*, FACW). This alliance is found in areas above the high tide line where hydric soil and wetland hydrology indicators are typically not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Baccharis salicifolia Shrubland Alliance: A total of 0.58 acres of this alliance was identified within the project boundary (Table 2). In this alliance mulefat (*Baccharis salicifolia, FAC*) is dominant or co-dominant in the shrub canopy with California sagebrush (*Artemisia californica, FACU*), coyote brush (*Baccharis pilularis, FACU*), and arroyo willow (*Salix lasiolepis, FACW*). This alliance is found in a few patches on the property above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Bassia hyssopifolia Semi-Natural Herbaceous Stand: A total of 0.96 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by five horn bassia (*Bassia hyssopifolia*, FACU) with other California non-native herbaceous species. On the property these stands occur above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Brassica nigra and other mustards Herbaceous Semi-Natural Alliance: A total of 45.34 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by black mustard (*Brassica nigra*, FACU) occurring with other ruderal forbs such as maltese star thistle (*Centaurea melitensis*, FACU) and short podded mustard (*Hirschfeldia incana*, FACU). This alliance occurs above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Bromus diandrus – Bromus rubens Semi-Natural Herbaceous Stand: A total of 4.67 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by ripgut brome (*Bromus diandrus*, FACU) occurring with other non-natives in the herbaceous layer. There is a large single occurrence of this alliance on site that is above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Conium maculatum – Foeniculum vulgare Herbaceous Semi-Natural Alliance: A total of 2.91 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominated by poison hemlock (*Conium maculatum*, FACW) and occurs with other non-native plant species in the herbaceous layer. This alliance occurs above the high tide line where hydric soil and wetland hydrology indicators

are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Mesembryanthemum spp. – *Carpobrotus* spp. Herbaceous Semi-Natural Alliance: A total of 4.49 acres of this alliance was identified within the project boundary (Table 2). This alliance is dominant in the herbaceous layer and can contain iceplant (*Carpobrotus edulis, FACU*), crystalline iceplant (*Mesembryanthemum crystallinum, FACU*), or other ice plant taxa. Emergent trees and shrubs may also be present at low cover within this alliance. This alliance occurs above the high tide line where hydric soils and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Ornamental: A total of 0.35 acres of this land cover type was identified within the project boundary (Table 2). This land cover type includes non-native species such as Mexican fan palm (*Washingtonia robusta*, FACW), Brazilian pepper tree (*Schinus terebinthifolia*, FACU), and other various non-native plant species in the shrub and tree stratum. This land cover type occurs primarily around developed areas on the property that are above the high tide line where hydric soils and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Disturbed – mowed/disked fire break: A total of 0.06 acres of this alliance was identified within the project boundary (Table 2). This land cover type consists of a small area adjacent to a perimeter fence line in the upland areas that was disked to reduce the fire risk in the area. This land cover type is above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Unvegetated Salt Flat: A total of 2.93 acres of this land cover type was identified within the project boundary (Table 2). This land cover type consists of areas absent of any vegetation and is above the high tide line but may contain hydric soil indicates such as a salty crust on the soil surface. Given that unvegetated salt flats lack the vegetative cover required to be considered wetland waters, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

Unvegetated Tidal Flat: A total of 3.40 acres of this land cover type was identified within the project boundary (Table 2). This land cover type is absent of vegetation but occurs below the high tide line. These areas can show hydric soil and wetland hydrology indicators. Therefore, due a lack of vegetation, where this alliance is present will likely not meet the ACOE's criteria threshold for wetland waters of the U.S. but could qualify as waters of the U.S.

Developed: A total of 3.70 acres of this land cover type was identified within the project boundary (Table 2). This land cover type consists of asphalt roads, concrete pads, established dirt roads and other areas developed prior to acquisition by the LCWA. This land cover type occurs above the high tide line where hydric soil and wetland hydrology indicators are not present. Therefore, where this alliance is present will not meet the ACOE's criteria threshold for wetland waters of the U.S.

4.2 Soils

The project site is composed of five types of soils that include: Balcom clay loam, Bolsa silty clay loam, Bolsa drained-Typic Xerorthents, Myford loamy sand, and Urban land of dredged fill substratum (USDA, 2021; Appendix B). Most of the project site is covered by Bolsa drained-Typic Xerorthents and Bolsa silty clay loam. These determinations are also consistent with previous investigation that have taken place on site.

Bolsa drained-Typic Xerorthent soils consist typically of dredge spoils and are somewhat poorly draining, typically occur in filled marshland and tidal marshes and consist of coarse to loamy grain sizes. The average slope in areas with Bolsa drained-Typic Xerorthent soils range from 0 to 2 percent. Bolsa silty clay loam soils consist of fine to silty grain sizes, are somewhat poorly drained and occur in coastal plain areas. Balcom clay loam soils typically exist along hill slopes and drain well. The average slope in areas with Balcom clay loam soils range from 15 to 30 percent. Myford loamy sand soils have moderately well-draining soils, occur in areas with slopes of 2 to 9 percent, and occur along terraces and backslopes. Urban land of dredged fill substratum soils consist of dredged fill and occur in areas with 0 to 2 percent slopes. (USDA, 2021)

The locations of the 18 soil pits used to investigate the presence of hydric soil are depicted in Exhibit D and photographs are displayed in Appendix C. The soil pit locations were chosen to determine if jurisdictional wetlands extended above the Ordinary High Water Mark (OHWM) where indicators of hydrophytic vegetation appeared to be present. Indicators for hydric soils were found in pits 2, 3, 5, 6, 9, 16, and 18. All soil pits were done in Bolsa-type soils, with soil pits 1 and 7 through 18 collected in Bolsa drained-Typic Xerorthents and soil pits 2 through 6 taken in Bolsa silty clay loam. The leading hydric soil indicators were the presence of Redox Dark Surface (F6) and Sandy Redox (S5). Furthermore, no instances of naturally problematic soils were identified, however all 18 locations (sample points 1 through 18) exhibited soils that were identified to be significantly disturbed. This disturbance was indicated by the presence of debris in the form of glass, gravel, debris, and asphalt.

4.3 Hydrology

The presence of wetland hydrology indicators is evident around the entire perimeter of the project area's tidal reaches and is most notably observed by the presence of high tide line water marks and tidal drainages. Of the 18 locations surveyed for the presence of wetlands hydrology, sample points 2, 3, 5, 6, 9, 11, 12, 13, 14, 16, and 18 contained indicators. Of these points, none were within the reach of the highest high tide. The mean high tide line was not delineated in the field due to the fact that this boundary is encompassed by the limits of Section 404 jurisdiction that extends to the highest high-water line.

A total of 3 land cover types were found to contain wetlands hydrology indicators:

Unvegetated Flats: A total of 6.33 acres of this land cover type is found on the site separated into three distinct locations throughout the project area, some of which is tidally influenced, and the remaining is above high tide lines. This land cover type is predominantly fill consisting of a very high salt content that has resulted in the lack of vegetation establishment with some of it being intertidal and some being non-tidal. Wetland hydrology indicators most common on this land cover type was surface soil cracks and salt crust. Most of this unvegetated land cover type is found above the high-tide line and therefore is seasonally flooded by rainfall or other non-tidal inputs and qualifies as non-wetland waters of the U.S.

Southern Coastal Salt Marsh: A total of 25.57 acres of this land cover type is found on the site adjacent to the tidal channel that flows through the project area. A majority of this land cover type is under both federal and state jurisdiction. Most of this vegetated land cover type is found below the high-tide line and therefore is inundated regularly and qualifies as wetland waters of the U.S.

Subtidal Marine: A total of 1.42 acres of this land cover type is found in the form of a tidal channel that nearly bisects the entire project area. All of this land cover type is found below the high tide line and qualifies as waters of the U.S.

5.0 Jurisdictional Determinations

5.1 Jurisdictional Waters of the U.S. and State

The extent of the potential jurisdictional waters of the United States within the project area is 10.69 acres. Within the jurisdictional waters of the United States, 2.44 acres are potentially wetland waters of the United States. The potential jurisdictional wetlands of the State based on the California Coastal Commission's jurisdiction extends beyond the federal jurisdictional and total 27.19 acres within the project area. California Department of Fish and Wildlife potential jurisdictional wetlands covers 1.42 acres within the CCC jurisdictional boundary. A summary of the jurisdictional waters and wetlands of the U.S. and State, with the corresponding regulatory authority, occurring within the survey area, is provided in Table 3 and mapped in Exhibit E.

Table 3. Summary of potential jurisdictional waters of the U.S. & State (*= 0.05 acres extend outside of the project area; **= 0,02 acres extend outside of the project area).

Type of Potential Jurisdictional Waters of the U.S. and State	Regulatory Authority	Acres
Potential Jurisdictional Waters of the U.S.		
Wetland Waters Section 404	ACOE, USFWS, and RWQCB	2.44*
Waters of the U.S. Section 10	ACOE, USFWS, and RWQCB	8.25**
	Subtotal Potential Jurisdictional Waters of the U.S.	*10.69*
Potential Jurisdictional Wetlands of the State		
Wetland Waters	CCC	27.19
	CDFW	1.42

5.2 ACOE Jurisdiction

5.2.1 ACOE Section 10 Jurisdiction

The project area has a direct connection to the San Gabriel River which is a navigable water of the U.S. that is an extension of the Pacific Ocean (a navigable water of the U.S.). Thus, the marine water within the project area is considered as waters of the U.S. and is subject to ACOE jurisdiction to the mean high-water line under Section 10 of the Rivers and Harbors Act (Exhibit F). This amounts to 8.25 acres of waters of the U.S. on site under the Section 10 definition (Table 3). This amount is lower than previous investigation including the 1995 Chambers Jurisdiction Wetlands Determination which is likely due to habitats shifting overtime due to tidal muting as well as changes in the definitions and determination process of what is considered waters of the U.S.

5.2.2 ACOE Section 404 Jurisdiction

Due to the direct connection with the San Gabriel River, the marine water in the project area is considered as waters of the U.S. and is subject to ACOE jurisdiction at least to the high tide line under Section 404 of the Clean Water Act. There are locations on site where both wetland vegetation and soils are present above the OHWM, so ACOE jurisdiction extends beyond the observed OHWM and are considered as Wetland Waters (Exhibit G). These Wetland Waters account for 2.44 acres on site. This is a decrease compared to previous investigations of the site, but this again is due to habitats shifting over time due to drought conditions as well as changes in the definitions and determination process of what is considered Wetland Waters of the U.S.

Pursuant to the Clean Water Act, ACOE will assert jurisdiction over traditional navigable waters and their adjacent wetlands. This site has a well-documented direct connection to a designated navigable water of the United States. Due to this connection, ACOE will likely verify that a "significant nexus determination" is not required to determine the jurisdictional status of this site. There is a total of 10.69 acres of waters potentially subject to ACOE jurisdiction, of which 8.25 acres is OHWM/Waters of the US and 2.44 acres are wetland waters of the United States. A map of potential ACOE jurisdictional areas is provided in Exhibit E and summarized in Table 3.

5.3 CDFW Jurisdiction

CDFW asserts jurisdiction only over wetland areas that are a part of a river, stream, or lake as defined by CDFW. There is potential that CDFW could determine that this association is present within the survey area due to the connection of the site with the San Gabriel River as well as the overall San Gabriel River Watershed A map showing the potential areas that could be under CDFW jurisdiction is attached as Exhibit H.

5.4 CCC Jurisdiction

Pursuant to the California Coastal Act the CCC will assert jurisdiction over all of the areas satisfying the ACOE jurisdictional criteria for waters and wetlands of the United States. This jurisdictional area usually tends to be more inclusive and extensive than that of ACOE due to the CCC employment of a "one-parameter" approach to delineating jurisdictional wetlands. As described previously CCC wetlands need only contain wetlands hydrology and, hydrophytic vegetation, or hydric soils. Within the project area a total of 27.19 acres are potentially subject to CCC wetland jurisdiction, equaling 16.50 acres more than that of ACOE. This difference is due to areas existing where salt marsh (wetland) vegetation or salt flat habitat extended beyond the limit of the highest high-water line. A map of potential CCC jurisdictional areas is provided in Exhibit I and summarized in Table 3. The 1996 delineation found at total of 23.2 acres of CCC jurisdiction and therefore a larger CCC jurisdiction was identified by this investigation.

6.0 Literature Cited

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Exhibit A

Project Vicinity Map

Project Vicinity

Southern Los Cerritos Wetlands Area - Seal Beach, CA

1 inch = 2,000 feet

0 900 1,800 3,600 5,400 7,200 Feet

Project Boundary

Tidal Influence

Exhibit B

Project Site Map

Produced by Hannah Craddock May 13, 2021

Datum: NAD 1983

Project Site

Southern Los Cerritos Wetlands Area - Seal Beach, CA

1 inch = 458 feet

0 210 420 840 1,260 1,680 Feet

Project Boundary

Tidal Influence

Exhibit C

NWI Potential Wetlands Map

U.S. Fish and Wildlife Service

National Wetlands Inventory

LCWA South Area

May 14, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Exhibit D

Soil Sample Locations Map

Soil Sample Locations

Southern Los Cerritos Wetlands Area - Seal Beach, CA

0 180 360 720 1,080 1,440 Feet

Survey Area (103.54 acres)

Soil Sample Locations

Tidal Influence

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
May 11, 2021
1 inch = 458 feet

Exhibit E

Jurisdictional Wetland Delineation Map

Jurisdictional Wetland Delineation

Southern Los Cerritos Wetlands Area - Seal Beach, CA

0 180 360 720 1,080 1,440 Feet

- Survey Area (103.54 acres)
- Jurisdictional Waters of the U.S. (8.29 acres)
- Jurisdictional Wetland Waters of the U.S. (2.44 acres)
- Control Points
- Wetland Sampling Point
- Upland Sampling Point

Tidal Influence

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
June 17, 2021
1 inch = 458 feet

Exhibit F

Jurisdictional Waters of the U.S. Map

Jurisdictional Waters of the U.S.

Southern Los Cerritos Wetlands Area - Seal Beach, CA

Survey Area (103.54 acres)

Jurisdictional Waters of the U.S. (8.25 acres)

0 185 370 740 1,110 1,480 Feet

Tidal Influence

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
June 17, 2021
1 inch = 458 feet

Exhibit G

Jurisdictional Wetland Waters of the U.S. Map

Jurisdictional Wetland Waters of the U.S.

Southern Los Cerritos Wetlands Area - Seal Beach, CA

Survey Area (103.54 acres)

Jurisdictional Wetland Waters of the U.S. (2.44 acres)

0 185 370 740 1,110 1,480 Feet

Tidal Influence

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
June 17, 2021
1 inch = 458 feet

Exhibit H

Potential CDFW Jurisdictional Wetlands Map

Potential California Department of Fish and Wildlife Jurisdictional Wetlands

Southern Los Cerritos Wetlands Area - Seal Beach, CA

Survey Area (103.54 acres)

Potential CDFW Jurisdictional Wetlands (1.42 acres)

0 185 370 740 1,110 1,480 Feet

Tidal Influence

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
June 17, 2021
1 inch = 458 feet

Exhibit I

CCC Jurisdictional Wetlands Map

California Coastal Commission Jurisdictional Wetlands

Southern Los Cerritos Wetlands Area - Seal Beach, CA

Survey Area (103.54 acres)

CCC Jurisdictional Wetlands (27.19 acres)

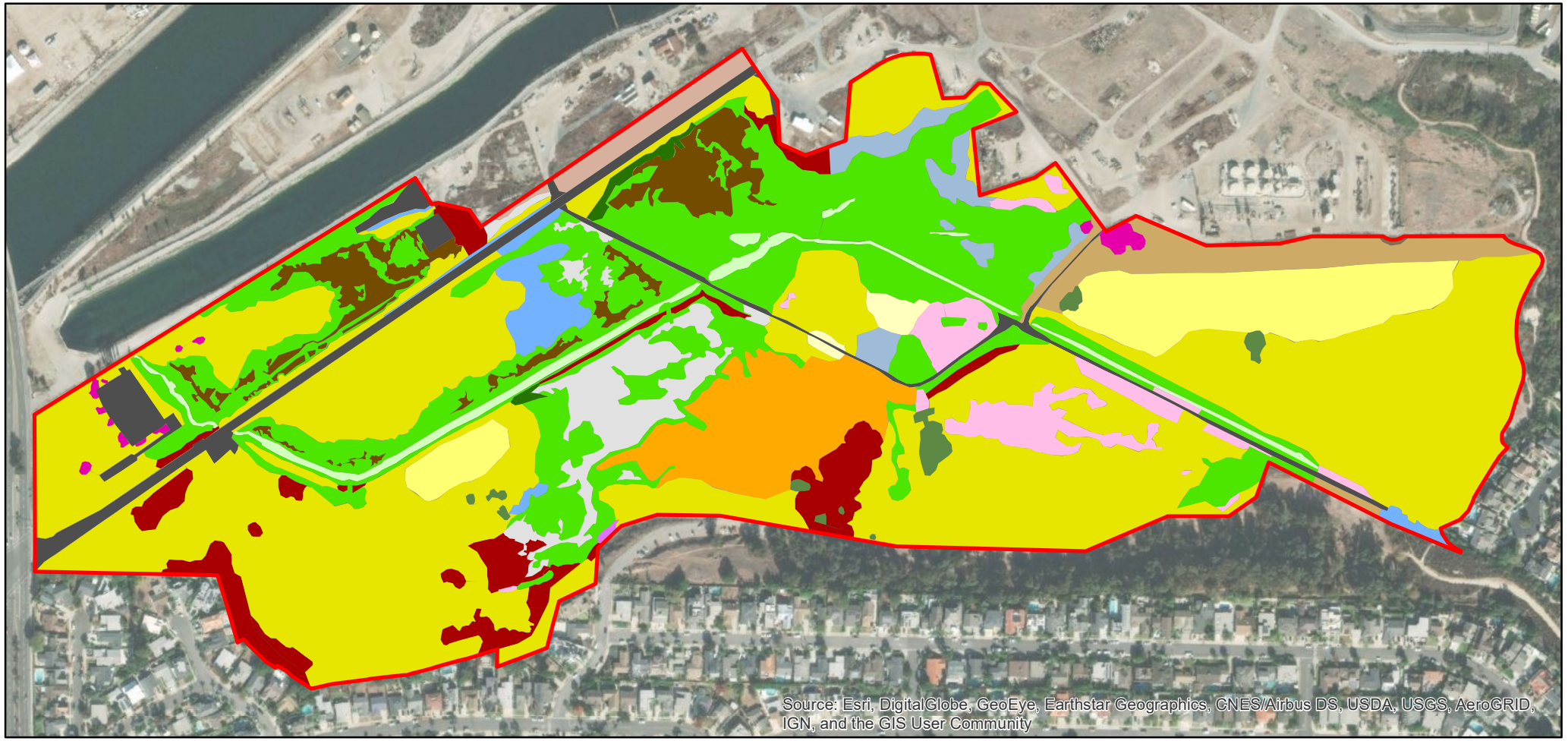
0 185 370 740 1,110 1,480 Feet

Tidal Influence

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
June 17, 2021
1 inch = 458 feet

Exhibit J

Vegetation Alliances Map



Vegetation Alliances

Southern Los Cerritos Wetlands Area - Seal Beach, CA

- Survey Area (103.54 acres)
- Cressa truxillensis - Distichlis spicata Herbaceous Alliance
- Distichlis spicata Herbaceous Alliance
- Sarcocornia pacifica Herbaceous Alliance
- Frankenia salina Herbaceous Alliance
- Ulva lactuca algal mat
- Arthrocnemum subterminale Herbaceous Alliance
- Heterotheca grandiflora herbaceous stand
- Isomeris arborea shrub stand
- Isocoma menziesii Shrubland Alliance
- Baccharis salicifolia Shrubland Alliance
- Bassia hyssopifolia Semi-Natural Herbaceous Stand
- Brassica nigra and other mustards Herbaceous Semi-Natural Alliance
- Bromus diandrus,rubens Semi-Natural Herbaceous Stand
- Conium maculatum - Foeniculum vulgare Herbaceous Semi-Natural Alliance
- Mesembryanthemum spp. - Carpobrotus spp. Herbaceous Semi-Natural Alliance
- Ornamental
- Disturbed - mowed/disked fire break
- Unvegetated salt flat
- Unvegetated tidal flat
- Developed

Coordinate System: NAD 1983 2011
StatePlane California VI FIPS 0406 ft US
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Produced by Hannah Craddock
May 13, 2021
1 inch = 458 feet

Tidal Influence

0 185 370 740 1,110 1,480
Feet

Appendix A

Wetland Determination Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 1

Investigator(s): Eric Zahn,Marcelo Ceballos Jr,Hannah Craddock Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR): LRRC Lat: 33.751714 N Long: -118.095969 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerothents dredged spoil-Typic Fluvaquents comple NWI classification: PEM1Cx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 2m)			
1. Baccharis salicifolia	60	X	FAC
2.			
3.			
4.			
5.			
	60 = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Melilotus indicus	5		FACU
2. Conium maculatum	35		FACW
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 35	x 2 =	70
FAC species 60	x 3 =	180
FACU species 5	x 4 =	20
UPL species	x 5 =	
Column Totals: 100 (A)		270 (B)

Prevalence Index = B/A = 2.7

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-22	2.5Y, 3/2	100	N/A				Sandy	clay balls

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

Sandy top layer

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authroity State: CA Sampling Point: 2

Investigator(s): Eric Zahn,Marcelo Ceballos Jr,Hannah Craddock Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR): LRRC Lat: 33.752207 N Long: -118.09361 W Datum: WGS84

Soil Map Unit Name: Bolsa silty clay loam, drained NWI classification: PEM1Cx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Conium maculatum	75	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 75	x 2 = 150
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 75 (A)	150 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
20	7.5YR, 3/1	98	7.5YR, 5/8	2	D	PL	Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✔ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 3

Investigator(s): Eric Zahn,Marcelo Ceballos Jr,Hannah Craddock Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): LRRC Lat: 33.752238 N Long: -118.093484 W Datum: WGS84

Soil Map Unit Name: Bolsa silty clay loam, drained NWI classification: PEM1Cx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2m)			
1. Frankenia salina	50	x	FACW
2. Bassia hyssopifolia	50	x	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 50	x 2 = 100
FAC species _____	x 3 = _____
FACU species 50	x 4 = 200
UPL species _____	x 5 = _____
Column Totals: 100 (A)	300 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
21	2.5YR, 2.5/1	95	7.5YR, 3/4	5	C	PL	Loamy Clay	Loamy Clay

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ✔ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 4

Investigator(s): Eric Zahn,Marcelo Ceballos Jr,Hannah Craddock Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): LRRC Lat: 33.751339 N Long: -118.094047 W Datum: WGS84

Soil Map Unit Name: Bolsa silty clay loam, drained NWI classification: PEM1Cx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 2m)			
1. Baccharis salicifolia	35		FAC
2.			
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Brassica nigra	25		UPL
2. Ambrosia psilostachya	5		FACU
3. Melilotus indicus	25		FACU
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 35	x 3 = 105
FACU species 30	x 4 = 120
UPL species 25	x 5 = 125
Column Totals: 90 (A)	350 (B)

Prevalence Index = B/A = 3.89

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
24	2.5Y/3-2	100					sandy	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 5

Investigator(s): Eric Zahn,Marcelo Ceballos Jr,Hannah Craddock Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.750882 N Long: -118.093482 W Datum: WGS84

Soil Map Unit Name: Bolsa silty clay loam, drained NWI classification: PEMC1x

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Mesembryanthemum nodiflorum	63	x	FACU
2. Laennecia coulteri	35		FAC
3. Brassica nigra	2		UPL
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 35	x 3 = 105
FACU species 63	x 4 = 252
UPL species 2	x 5 = 10
Column Totals: 100 (A)	367 (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
16	5Y, 4/2	90	5YR, 3/4	10	C	PL	Sandy/Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 0-16

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 6

Investigator(s): Eric Zahn,Marcelo Ceballos Jr,Hannah Craddock Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.750888 N Long: -118.093218 W Datum: WGS84

Soil Map Unit Name: Bolsa silty clay loam, drained NWI classification: PEM1Cx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Mesembryanthemum nodiflorum	5		FACU
2. Brassica nigra	2		UPL
3.			
4.			
5.			
6.			
7.			
8.			
	7 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 93 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species 5	x 4 = 20
UPL species 2	x 5 = 10
Column Totals: 7 (A)	30 (B)

Prevalence Index = B/A = 4.29

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

SOIL

Sampling Point: 6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	5Y, 3/2	80	7.5YR, 4/6	20	C	PL	Sandy Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 0-10

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/19/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 7

Investigator(s): Eric Zahn,Marcelo Ceballos Jr,Hannah Craddock Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): convex Slope (%): 10

Subregion (LRR): LRRC Lat: 33.750291 N Long: -118.094235 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents comp NWI classification: PEM1Cx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2m)			
1. Brassica nigra	25		UPL
2. Hirschfeldia incana	25		FACU
3. Frankenia salina	5		FACW
4. Salicornia pacifica	5		OBL
5. Polypogon monspeliensis	40	x	FACW
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 3 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 5	x 1 =	5
FACW species 45	x 2 =	90
FAC species _____	x 3 =	
FACU species 25	x 4 =	100
UPL species 25	x 5 =	125
Column Totals: 100 (A)		320 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

SOIL

Sampling Point: 7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5Y, 3/2	97.5	7.5YR, 5/8	2.5	C	PL	Silt/Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

very small occurances dotted throughout

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/26/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 8

Investigator(s): Eric Zahn,Marcelo Ceballos Jr,Hannah Craddock Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.751968 N Long: -118.09983 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents comp NWI classification: R2UBHx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Arthrocnemum subterminale	20		FACW
2. Salicornia pacifica	10		OBL
3. Mesembryanthemum nodiflorum	5		FACU
4. Cressa truxillensis	15		FACW
5.			
6.			
7.			
8.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	35	x 2 =	70
FAC species		x 3 =	
FACU species	5	x 4 =	20
UPL species		x 5 =	
Column Totals:	50 (A)		100 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	2.5Y, 3/2	100					Clay	Silty clay

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/26/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 9

Investigator(s): Eric Zahn,Marcelo Ceballos Jr,Hannah Craddock Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.751895 N Long: -118.099862 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents comp NWI classification: R2UBHx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2m)			
1. Arthrocnemum subterminale	40	x	FACW
2. Mesembryanthemum nodiflorum	5		FACU
3.			
4.			
5.			
6.			
7.			
8.			
	45 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 55 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 40	x 2 = 80
FAC species _____	x 3 = _____
FACU species 5	x 4 = 20
UPL species _____	x 5 = _____
Column Totals: 45 (A)	100 (B)

Prevalence Index = B/A = 2.22

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 9

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5Y, 3/2	90	7.5YR, 4/6	10	C	M	Sandy	
10-16	5Y, 3/2	98	10YR, 5/8	2	C	M	Clay	Sandy clay

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 0-16

Wetland Hydrology Present? Yes ✔ **No** ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 2/26/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 10

Investigator(s): Eric Zahn,Marcelo Ceballos Jr,Hannah Craddock Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.751016 N Long: -118.101627 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents comp NWI classification: R2UBHx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Salicornia pacifica	40	x	OBL
2. Cressa truxillensis	20		FACW
3.			
4.			
5.			
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	20	x 2 =	40
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	60 (A)		80 (B)

Prevalence Index = B/A = 1.33

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 10

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5Y, 3/2	99	2.5YR, 2.5/4	1	C	M	Sandy	Clumps of clay within core

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 0-18

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/5/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 11

Investigator(s): Hannah Craddock,Marcelo Ceballos,Wanisa Jai Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): LRRC Lat: 33.751859 N Long: -118.10031 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents comp NWI classification: R2UBHx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Mesembryanthemum nodiflorum	5		FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species 5	x 4 = 20
UPL species _____	x 5 = _____
Column Totals: 5 (A)	20 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

SOIL

Sampling Point: 11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y, 3/2	100						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Rock

Depth (inches): 12

Hydric Soil Present? Yes _____ No ✔

Remarks:

The area is likely salty fill material

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 12

Wetland Hydrology Present? Yes ✔ No _____

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

Remarks:

Drainage patterns likely due to runoff

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/5/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 12

Investigator(s): Hannah Craddock,Marcelo Ceballos,Wanisa Jai Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.752674 N Long: -118.099921 W Datum: WGS84

Soil Map Unit Name: Bolsa silty clay loam, drained NWI classification: PUSCx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Arthrocnemum subterminale	25	x	FACW
2. Mesembryanthemum nodiflorum	5		FACU
3. Salicornia pacifica	5		OBL
4. Symphyotrichum subulatum	5		OBL
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	25	x 2 =	50
FAC species		x 3 =	
FACU species	5	x 4 =	20
UPL species		x 5 =	
Column Totals:	40 (A)		80 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 12

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y, 3/1	100					clay	
2-9	2.5Y, 3/2	100					sandy	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 9

Wetland Hydrology Present? Yes ✔ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/5/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 13

Investigator(s): Hannah Craddock,Marcelo Ceballos,Wanisa Jai Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.751863 N Long: -118.098854 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents comp NWI classification: PEM1Cx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Arthrocnemum subterminale	60	x	FACW
2. Mesembryanthemum nodiflorum	2		FACU
3.			
4.			
5.			
6.			
7.			
8.			
	62 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 38 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 60	x 2 = 120
FAC species _____	x 3 = _____
FACU species 2	x 4 = _____
UPL species _____	x 5 = 8
Column Totals: 62 (A)	128 (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 13

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR, 3/2	100						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No redox

No indicators present, so likely not hydric due to these observations

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 12

Wetland Hydrology Present? Yes ✔ No _____

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

Remarks:

Salt crust in the immediate surrounding areas

Area moist likely due to recent rain event

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/5/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 14

Investigator(s): Hannah Craddock,Marcelo Ceballos,Wanisa Jai Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): LRRC Lat: 33.749846 N Long: -118.097925 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents comp NWI classification: PEM1Cx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Rumex crispus	5		FAC
2. Carpobrotus edulis	20		UPL
3. Eleocharis macrostachya	75	x	OBL
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	75	x 1 =	75
FACW species	_____	x 2 =	_____
FAC species	5	x 3 =	15
FACU species	_____	x 4 =	_____
UPL species	20	x 5 =	100
Column Totals:	100 (A)		190 (B)

Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	2.5Y, 3/2	100					Silty Sand	very saturated

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

90% silt, 10% clay

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✔ No _____ Depth (inches): 6

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

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 14

Wetland Hydrology Present? Yes ✔ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/5/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 15

Investigator(s): Marcelo Ceballos Jr,Hannah Craddock,Wanisa J Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.750239 N Long: -118.097454 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents comp NWI classification: PEM1Cx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Salicornia pacifica	40	x	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	_____	x 2 =	_____
FAC species	_____	x 3 =	_____
FACU species	_____	x 4 =	_____
UPL species	_____	x 5 =	_____
Column Totals:	40 (A)		40 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 15

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y, 3/2	100					Sandy	Sandy fill, chunks of clay
12	5Y, 3/2	100					Clay	Chunks of clay

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Mainly sand, but there are chunks of clay. This clay is likely imported from when fill material from the surrounding area was dumped onto the site. The area has an old history of dumping.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

Salt crust due to sand fill. No tidal connection.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/5/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 16

Investigator(s): Marcelo Ceballos Jr, Hannah Craddock, Wanisa Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.750224 N Long: -118.103226 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents comp NWI classification: R2UBHx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Salicornia pacifica	80	x	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 80	x 1 =	80
FACW species _____	x 2 =	_____
FAC species _____	x 3 =	_____
FACU species _____	x 4 =	_____
UPL species _____	x 5 =	_____
Column Totals: 80 (A)		80 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 16

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y, 3/2	95	5YR, 3/4	5	D	M	Clay	Spotted redox throughout

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** _____

Remarks:

The redox isn't typical but it is distributed throughout

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 12

Wetland Hydrology Present? Yes ✔ **No** _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/12/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 17

Investigator(s): Eric Zahn,Marcelo Ceballos Jr,Hannah Craddock Section, Township, Range: T5S, R12W

Landform (hillslope, terrace, etc.): depression in terrace Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): LRRC Lat: 33.752169 N Long: -118.102477 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents comp NWI classification: PUBHx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 2m)			
1. Bassia hyssopifolia	5		FACU
2. Brassica nigra	20		UPL
3. Atriplex semibaccata	15		FAC
4. Ditrichia graveleons	5		UPL
5. Mesembryanthemum nodiflorum	5		FACU
6. Bromus diandrus	40	x	UPL
7. Galium angustifolium	5		FACU
8. Cressa truxillensis	1		FACW
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 1	x 2 = 2
FAC species 15	x 3 = 45
FACU species 18	x 4 = 72
UPL species 66	x 5 = 330
Column Totals: 100 (A)	449 (B)

Prevalence Index = B/A = 4.49

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Additional Herb Stratum Species: Melilotus indicus, 3%, FACU. Sonchus oleraceus, 1%, UPL.

SOIL

Sampling Point: 17

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-18	5YR, 2.5/2	100						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Rocky fill on top layer, loamy bottom layer

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

Recent rains may account for saturation

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: LCWA South Area City/County: Seal Beach/Orange County Sampling Date: 3/12/21

Applicant/Owner: Los Cerritos Wetlands Authority State: CA Sampling Point: 18

Investigator(s): Marcelo Ceballos Jr., Hannah Craddock Section, Township, Range: T5S, R12W

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

Subregion (LRR): LRRC Lat: 33.749934 N Long: -118.100546 W Datum: WGS84

Soil Map Unit Name: Bolsa, drained-Typic Xerorthents, dredged spoil- Typic Fluvaquents comp NWI classification: R2UBHx

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 2m)			
1. Salicornia pacifica	95	x	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 95	x 1 =	95
FACW species _____	x 2 =	_____
FAC species _____	x 3 =	_____
FACU species _____	x 4 =	_____
UPL species _____	x 5 =	_____
Column Totals: 95 (A)		95 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 18

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR, 4/2	100					Sandy clay	
4-7	2.5Y, 4/2	95	7.5YR, 4/4	5	D	M	Clay	
7-16	Gley 1 410Y	100						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Top layer was sandy clay, lower layer is clay
One layer clearly present due to saturation, hard to discern.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 6

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Rained last 2 days, soil pit was filled with water.
Normal to see rain in this area each winter.
Saturated soils may be due to recent rain storm.

Appendix B

Soil Resource Report

Custom Soil Resource Report
Soil Map

Map Scale: 1:8,960 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 400 800 1600 2400

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

Appendix C

Soil Sample Photos

Soil Sample & Location #1

Soil Sample & Location #2

Soil Sample & Location #3

Soil Sample & Location #4

Soil Sample & Location #5

Soil Sample & Location #6

Soil Sample & Location #7

Soil Sample & Location #8

Soil Sample & Location #9

Soil Sample & Location #10

Soil Sample & Location #11

Soil Sample & Location #12

Soil Sample & Location #13

Soil Sample & Location #14

Soil Sample & Location #15

Soil Sample & Location #16

Soil Sample & Location #17

Soil Sample & Location #18