22nd District Agricultural Association
Salt Marsh Restoration, Maintenance, and Monitoring Plan

FINAL

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1.0 INTRODUCTION

1.1 PROJECT HISTORY AND PURPOSE OF RESTORATION PLAN

In February 1991, the U.S. Army Corps of Engineers (USACE) issued an Order of Corrective Measures for the 22nd District Agricultural Association's (22nd DAA) violation of the Clean Water Act (CWA) (Appendix 1). The CWA violation was issued in June 1990 as a result of inadvertent grading of wetlands on the 22nd DAA's southern overflow parking lot (South Lot or South Lot Phase I restoration area). On April 18, 1991, the 22nd DAA submitted a restoration plan (figures only) in compliance with the 1991 Order of Corrective Measures. USACE provided several rounds of comments, which were responded to with revised restoration plans.

Once the 22nd DAA and USACE agreed on a restoration plan, in April 1993, USACE issued a Restoration Order identifying four specific conditions that the 22nd DAA is required to implement (Appendix 2). In May 1993, it was determined that a Coastal Development Permit (CDP) and review by the California Coastal Commission (CCC) will also be required. Several iterations of the draft Salt Marsh Restoration Plan ensued 2005 through 2008. A revised Salt Marsh Restoration Plan was provided to CCC in October 2008; however, further comments were provided from CCC on May 14, 2009, pointing to the need for further technical details (Appendix 3). Previous draft plans are discussed in more detail in Section 1.4.

The intent of this Salt Marsh Restoration, Maintenance, and Monitoring Plan (herein throughout called the Restoration Plan) is to provide salt marsh restoration to address CCC's remaining comments, and resolve Conditions 1 and 2 of the USACE Restoration Order (Appendix 2). The Restoration Plan includes 2.14 acres of salt marsh restoration in the South Lot, which is the site of the original violation, and an additional 0.93 acre of salt marsh restoration along the northern bank (East Berm restoration area [East Berm]) of the San Dieguito River (Figures 1 and 2).

AECOM was retained by the 22nd DAA to prepare a final revised Restoration Plan, including related grading and landscape plans and specifications. In addition to describing in detail the two previously denoted restoration sites (the South Lot and East Berm restoration areas), this revised Restoration Plan is also designed to be compatible with the conceptual design for the entire South Overflow Parking Lot (South Lot Phase II) restoration area, as requested by CCC in its 2007 and 2009 comment letters on the previously drafted Restoration Plan (Appendices 2 and 3). As such, this revised Restoration Plan also includes a conceptual plan for the entire South Lot Phase II restoration area.

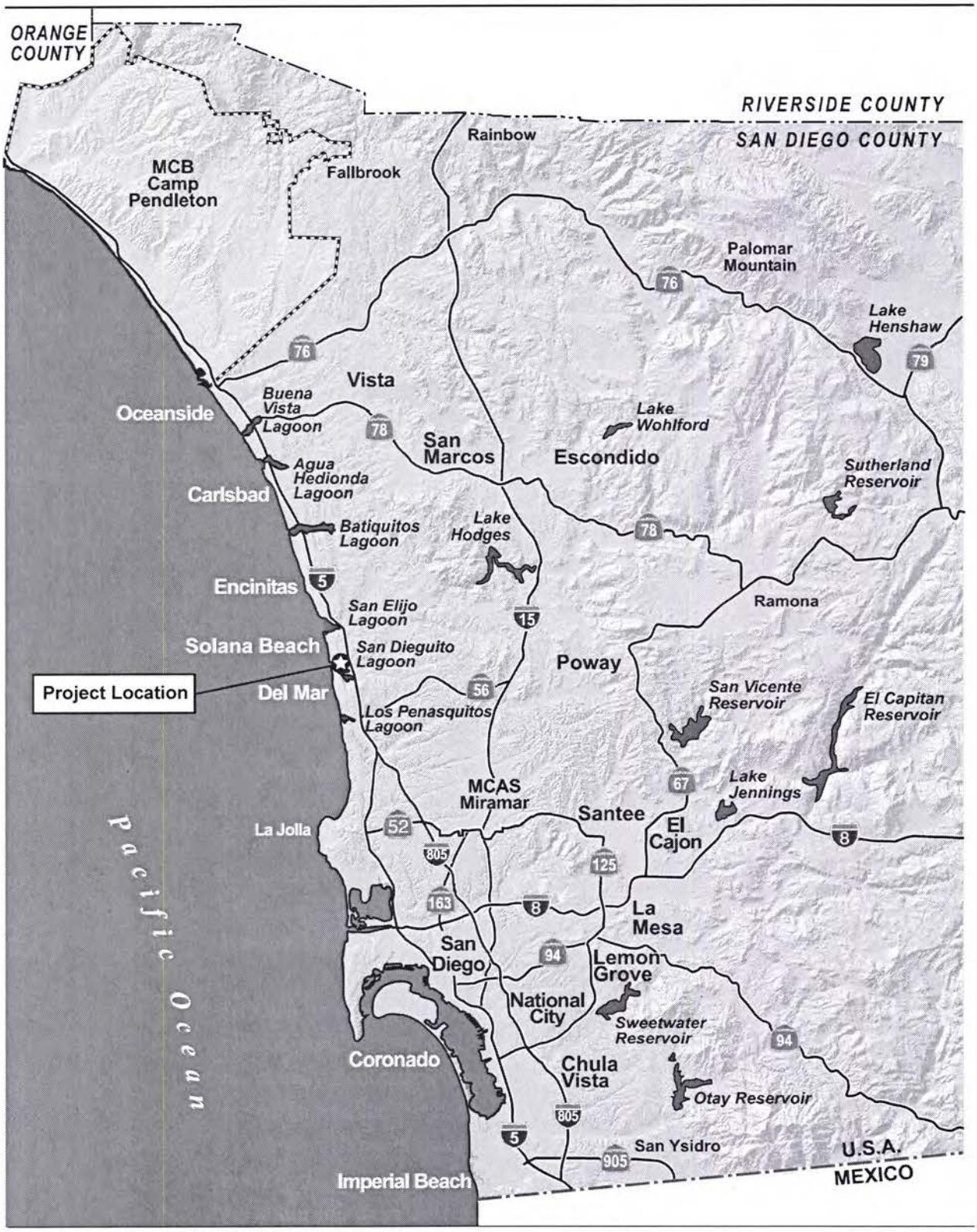
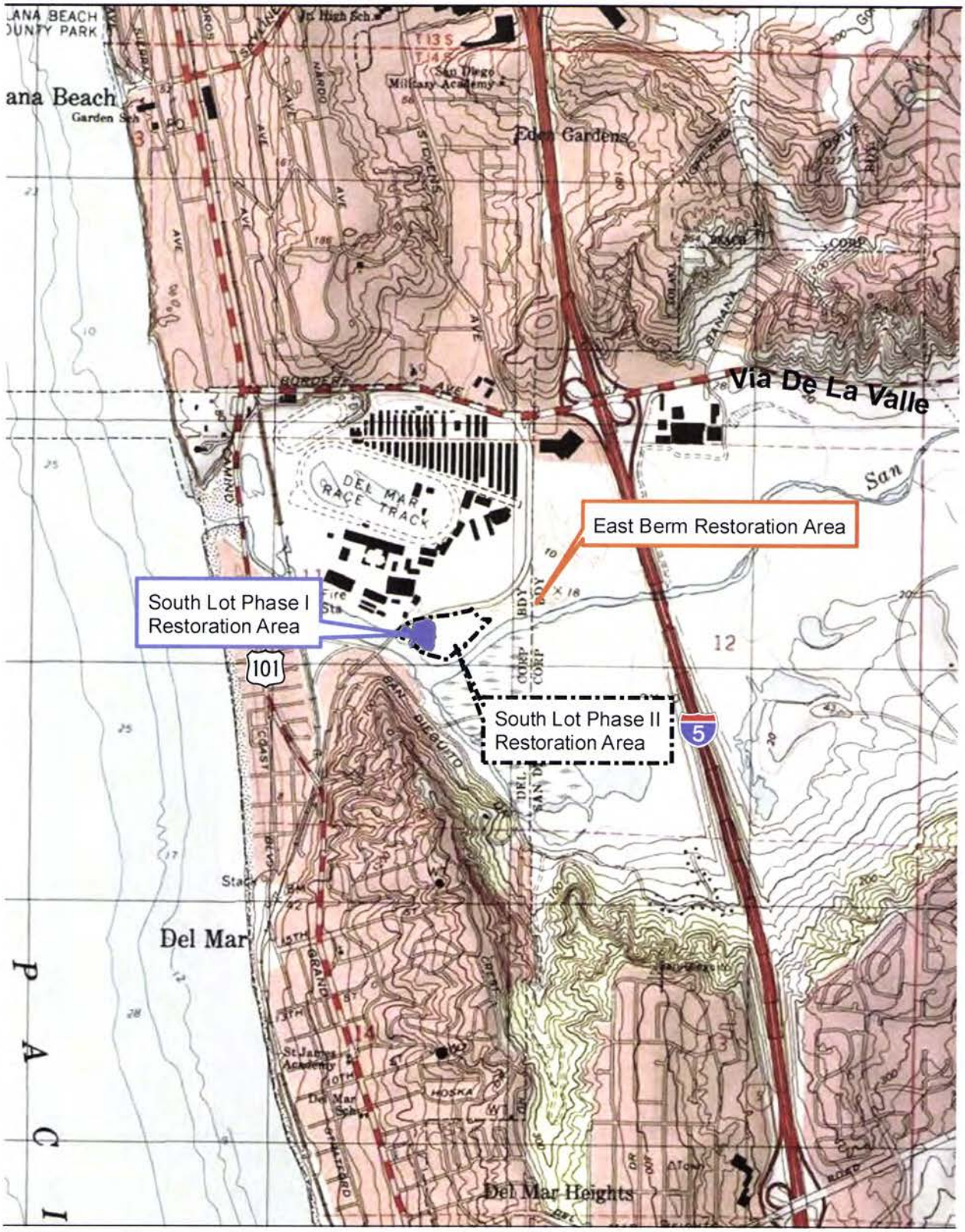


Figure 1
Regional Map



Source: ESRI 2011; AECOM 2011

2,000 1,000 0 2,000 Feet

Scale: 1 = 24,000; 1 inch = 2,000 feet

Figure 2
Vicinity Map

Path: P:\2010\10280245 Salt Marsh\06GIS\6.3 Layout\MitigationReport\Vicinity.mxd, 4/12/2011, StainB

This Restoration Plan reviews project history and existing site conditions, and presents steps and specifications to implement, maintain, and monitor the salt marsh restoration site to support meeting the site's goals and success standards, and create a functioning salt marsh ecosystem. The overall goals of the project are maximizing the creation of three-parameter (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology) federal wetlands within the 3.18-acre site and establishing self-sustaining native wetland habitat that is resilient to a natural range of disturbances (drought, flood, etc.). Based on an assessment of adjacent site conditions, elevations, and tidal hydrology, there is a high confidence level that successful salt marsh habitat can be created. The regional location and general vicinity of the 22nd DAA salt marsh restoration sites are depicted in Figures 1 and 2.

1.2 MITIGATION OBLIGATION

Table 1 outlines the various 22nd DAA mitigation obligations, and indicates what is being fulfilled by this project in each project location (South Lot and East Berm).

Table 1
Summary of Mitigation Obligations, Status, and Location Proposed for Restoration

Mitigation Obligation	Brief Description	Total Restoration Acreage Required	Restoration Acreage Completed to Date	Remaining Acreage to be Restored	Location to be Restored
USACE Restoration Order, Condition 1	Restore salt marsh wetland to the South Overflow Parking Lot	1.51 acres	0.54 acre	0.97 acre	0.97 acre in South Lot
USACE Restoration Order, Condition 2	Restore a portion of the floodplain along the northern bank of the San Dieguito River	2.1 acres	0.0	2.1 acres	1.17 acres in South Lot; 0.93 acre in East Berm

1.3 RESTORATION ORDER CONDITIONS

The 1993 USACE Restoration Order identified four mitigation conditions that the 22nd DAA is required to implement for impacts associated with the original violation (Appendix 2). Each of the four conditions and the status of each are provided below.

- **USACE Condition 1** requires creation of 1.51 acres along the southern edge of the South Lot.

Status: At a meeting with USACE on August 14, 2006, it was determined that the 22nd DAA had fulfilled the requirements for 0.54 acre of the 1.51 acres required through natural recruitment south of the current berm, but will still need to actively restore a 0.97-acre area (Table 1). Mitigation for the remaining 0.97 acre will be achieved in the newly proposed South Lot (Figure 2).

- **USACE Condition 2** requires the restoration of 2.1 acres of disturbed transitional habitat in the area east of the South Lot along the northern bank of the San Dieguito River (Figure 2; Table 1).

  Status: The 22nd DAA met with USACE on May 31, 2005, to determine the best restoration option to fulfill the mitigation requirement of restoring 2.1 acres. This meeting also included the San Dieguito River Park Joint Powers Authority (JPA), as a portion of its proposed Coast to Crest Trail alignment traverses both potential restoration areas (South Lot and East Berm). It was determined at this meeting that the mitigation will be fulfilled in two locations. Of the 2.1 acres, 1.17 acres will be added to the planned restoration of 0.97 acre in the South Lot mitigation site (Condition 1), and the remaining 0.93 acre of restoration will be fulfilled along the northern bank of the San Dieguito River (East Berm).

- **USACE Condition 3** requires the application of a conservation easement for wildlife habitat purposes to both restoration areas (South Lot and East Berm).

  Status: Completion of this condition will occur upon approval of the Restoration Plan.

- **USACE Condition 4** requires the narrowing and re-compaction of the berm along the south edge of the east parking lot.

  Status: Fulfillment of this condition will occur as a result of trail construction by JPA. The trail is planned to traverse the top of the berm. During construction of the trail by JPA, the 22nd DAA anticipates that it will construct the berm to the requirements of USACE, CCC, and the 22nd DAA.

Restoration of the entire South Lot will be in compliance with Consent Order No. CCC-12-CD-02 and Restoration Order No. CCC-12-RO-02. Due to the need for a CDP and the future larger restoration effort, CCC has had the opportunity to review and comment on the Restoration Plan.

1.4 PREVIOUS DRAFT RESTORATION PLANS

Following the initial 1991 Order of Corrective Measures, the 22nd DAA prepared a conceptual restoration plan (in the form of figures) for the South Lot. This was followed by a more formal

restoration plan prepared by Burkhart Environmental Consulting (BEC) in 2005 to comply with the conditions outlined in the 1993 Restoration Order. Three revisions of the plan ensued, one in 2005 in response to USACE comments (BEC 2005), one in 2006 in response to CCC comments (ECORP 2006), and another in 2008 as the result of additional CCC comments (ECORP 2008). The following is a summary of each agency's comments regarding the 2005, 2006, and 2008 draft restoration plans (BEC 2005; ECORP 2006, 2008) and how this 2012 Restoration Plan ultimately addresses and resolves each of the previously received comments. This current Restoration Plan resolves all issues previously identified by USACE and CCC, and will be used to obtain final project permits.

1.4.1 2005 Draft Restoration Plan and USACE Comments

A restoration plan was prepared following the initial 1993 Restoration Order for the South Lot. This plan was amended as a result of a 2005 meeting between the 22nd DAA and USACE. The revised 2005 plan increased the acreage in the South Lot to 2.14 acres and added the 0.93 acre proposed East Berm restoration area (Table 1; BEC 2005). The draft restoration plan was submitted to USACE for review in early 2006.

2006 USACE Comments on 2005 Draft Plan and 2012 Plan Resolutions

On August 14, 2006, USACE concluded that the general provisions of the 2005 restoration plan were adequate to satisfy the conditions of the original USACE violation letter. However, the following changes were requested by USACE:

1. Extend the monitoring and maintenance program after installation to 36 months.

   2012 Restoration Plan: The monitoring and maintenance period now extends for 5 years following a 120-day plant and hydrology establishment period. This is the standard minimum monitoring period for wetland mitigation. *See Section 5 and 6 for addition details on the monitoring and maintenance program.*

2. Relocate the 0.93-acre East Berm restoration area to a new location farther east. This new location provided the opportunity to grade a disturbed area to the same elevations as existing salt marsh along the northern bank of the San Dieguito River. This will allow the 0.93-acre area to be restored to salt marsh instead of the upland cover proposed in the 2005 draft plan.

   2012 Restoration Plan: The proposed East Berm restoration area was moved farther east along the northern San Dieguito River bank. The footprint was further modified

from the 2005 plan by moving it immediately adjacent to the river bank. This will allow lateral water flow to enter the site during average higher high tides and connects remnant patches of native mid-marsh habitat currently flanking the river bank. *See Section 3 for the final location and proposed restoration approach for the East Bank restoration area.*

3. A minimum upland buffer of 25 feet will be maintained between the proposed Coast to Crest Trail and the newly graded East Berm salt marsh. This upland buffer will provide some assurance that the berm along the parking lot edge will remain stable.

   2012 Restoration Plan: As stated above, the proposed East Berm restoration area was moved farther east along the northern San Dieguito River bank. The footprint was further modified from the 2005 plan by moving it immediately adjacent to the river bank, allowing lateral water flow to enter the site and maintain a minimum 25-foot upland buffer between the new restoration site and the adjacent parking lot. *See Section 3 for the final location and proposed restoration approach for the East Bank restoration area.*

4. USACE acknowledged that because of the need for the upland berm buffer adjacent to the East Berm, and the limited potential for grading for additional salt marsh habitat along the river's edge, the originally proposed 0.93 acre of restoration might be slightly changed. USACE indicated that a reduction in acreage is still considered acceptable for meeting the final mitigation needs of Condition 2 of the Restoration Order.

   2012 Restoration Plan: The East Berm final footprint allowed for 0.93 acre of salt marsh wetland creation. CCC defined salt marsh wetlands as all habitats below +4.5 National Geodetic Vertical Datum (NGVD). As such, the mitigation will meet the acreage requirements of the original Restoration Order. *See Section 3 for the final location and proposed restoration approach for the East Bank restoration area.*

1.4.2 2006 Draft Restoration Plan and CCC Comments

Following receipt of the USACE comments, above, the 2005 plan (ECORP 2006) was revised and submitted to CCC for comments in 2007. The following summarizes the 2007 CCC comments.

2007 CCC Comments on 2006 Draft Plan

In spring 2007, the 22nd DAA submitted the revised 2006 draft plan to USACE, and received approval that the modifications satisfied all of the USACE comments described above. Upon

receiving USACE approval, the 22nd DAA submitted the 2006 draft plan to CCC for review and comments. Following review, the CCC biologist stipulated additional conditions that had to be met for the draft plan to be considered acceptable for presentation to CCC. Each of these conditions is described below.

These conditions resulted in modifications and, ultimately, a 2008 revised draft plan that was resubmitted to CCC and initiated additional comments. The interim changes from the 2006 to 2008 draft plans are not included in this document, as the current 2012 Restoration Plan made modifications to fully address CCC comments (discussed in section 1.4.3).

- **CCC Condition 1** required that the restoration plan demonstrate how the South Lot Phase I plan is consistent with the conceptual restoration plan for the entire South Overflow Parking Lot Phase II. The primary concern of CCC was that restoration of the South Lot Phase I could interfere with the future restoration of the entire South Lot Phase II if not considered initially in the conceptual plan. CCC requested that a conceptual restoration plan be developed to show how the South Lot Phase I plan is compatible with this goal.
- **CCC Condition 2** required that the restoration plan demonstrate how the South Lot Phase I plan and South Lot Phase II conceptual plan are consistent with the Southern California Edison (SCE) Approved San Dieguito Lagoon Restoration Plan (SCE 2005). CCC expressed that the South Lot Phase I plan and the larger South Lot Phase II conceptual plan needed to be consistent with the hydrology and tidal inundation levels used to determine the design parameters for the SCE Approved San Dieguito Lagoon Restoration Plan.
- **CCC Condition 3** required that the period of long-term monitoring and maintenance be extended from 3 to 5 years.
- **CCC Condition 4** required the use of a quantitative method for measuring final vegetation success standards. CCC also suggested that there be more consistency with the monitoring program of this project and the SCE San Dieguito Lagoon Restoration Plan.

1.4.3 2008 Revised Draft Restoration Plan and CCC Comments

Following receipt of the CCC comments, described above, the 2006 plan was revised and submitted to CCC for approval in 2009 (ECORP 2008). The following summarizes the 2009 CCC comments received in a formal letter (Appendix 3).

2009 California Coastal Commission Comments and 2012 Plan Resolutions

As stated above, the 2007 CCC conditions resulted in a revised 2008 draft plan that was resubmitted to CCC and elicited additional comments in 2009. Those comments are summarized below, in addition to the solutions presented in this 2012 Restoration Plan.

- **Original CCC Condition 1** required the restoration plan to demonstrate how the South Lot Phase I plan is consistent with the entire South Overflow Parking Lot Phase II conceptual restoration plan.

  The 2009 comment letter reiterated this condition, and indicated that the 2008 plan did not properly address Phase II restoration of the entire South Lot.

  The 2012 Revised Restoration Plan: The conceptual restoration plan for the entire South Overflow Parking Lot Phase II is presented in Section 3. This includes a discussion of the integration of the South Lot Phase I area into the overall South Lot Phase II conceptual plan, the target vegetation communities, and the hydrologic modifications needed. A detailed grading plan for South Lot Phase II will be prepared in compliance with Consent Order No. CCC-12-CD-02 and Restoration Order No. CCC-12-RO-02, and is not considered a final component of this Restoration Plan.

- **CCC Condition 2** required the restoration plan to demonstrate how the South Lot Phase I plan and South Lot Phase II conceptual plan are consistent with the SCE Approved San Dieguito Lagoon Restoration Plan (SCE 2005). CCC expressed that the South Lot Phase I plan and the larger South Lot Phase II conceptual plan needed to be consistent with the hydrology and tidal inundation levels used to determine the design parameters for the SCE Approved San Dieguito Lagoon Plan.

  The 2009 CCC comment letter noted that although the 2008 draft plan attempted to revise the habitat elevations for mid-level salt marsh to mirror those in the SCE San Dieguito Lagoon Restoration Plan, the selected range of +3.25 feet to +4.5 mean sea level (MSL) did not correspond to the tidal inundation ranges for mid-level salt marsh in the San Dieguito Lagoon Restoration Plan. Also, the San Dieguito Lagoon Restoration Plan uses NGVD tidal datum when describing elevation, which is not a directly comparable tidal datum to MSL. In addition to modifying elevations, CCC comments on the 2008 plan requested a review of the plan by the SCE project hydrologist (Howard Chang) and coastal hydrologist (Hany Elwany). Letters from both professionals are included in Appendix 4.

  The 2012 Restoration Plan adopted the final elevation ranges for salt marsh habitat communities in the 2005 SCE San Dieguito Lagoon Restoration Plan, including subtidal,

mudflat (infrequent and frequent exposure), low marsh, mid marsh, and high marsh, and upland transitional habitat. Using these elevation ranges, the project was designed to support proper tidal inundation using NGVD tidal datum. A survey to collect spot elevation data was conducted in January 2010 to ensure that the correct tidal datum was evaluated for grading, and that spot elevations reflected current topographic conditions. A description of each target vegetation community, the corresponding elevation ranges, and the final restoration approach for each restoration area can be found in Section 3.

- **CCC Condition 3** required that the period of long-term monitoring and maintenance be extended from 3 to 5 years.

  The 2009 comment letter had no additional comments regarding this condition, since the 2008 plan did extend the maintenance and monitoring period.

  The 2012 Restoration Plan created a robust monitoring program, including annual vegetation transect monitoring, a condition-based rapid assessment, and qualitative hydrology monitoring. The planned maintenance and monitoring period is 5 years, beginning after a 120-day plant and hydrology establishment period. The details of the maintenance and monitoring program can be found in Sections 5 and 6.

- **CCC Condition 4** required the use of a quantitative method for measuring final vegetation success standards. CCC also suggested that there be more consistency between the monitoring program of this project and the SCE San Dieguito Lagoon Restoration Plan.

  The 2009 comment letter had no additional comments regarding this condition because the 2008 plan did attempt to incorporate the SCE quantitative methods, which are limited to estimations of habitat acreage using aerial surveys. This method is not appropriate for this site and, as such, this Restoration Plan made adjustments.

  The 2012 Restoration Plan replaced this approach with a more comprehensive quantitative monitoring program. The details of the maintenance and monitoring program can be found in Sections 5 and 6.

- **2009 CCC Comment:** Perhaps the most critical of the CCC comments from the 2009 letter is the observation that the lowest proposed elevation for grading in the 2008 draft plan corresponds to +4.5 MSL (+4.68 NGVD), which exceeds the outer range of high salt marsh. In addition, the suggestion that a small erosional feature at the northern edge of the South Lot would adequately provide tidal hydrology was flawed. Although that feature has the potential to be modified to deliver water, at this time, it only serves to move freshwater from the parking lot to the river during large rain events.

This 2012 Restoration Plan made substantial proposed changes to the South Lot Phase I site. This includes relocating the footprint north of the Coast to Crest Trail and grading down to proposed elevations for subtidal and salt marsh habitats ranging from -2.5 feet NGVD to +4.5 feet NGVD. In addition, this Restoration Plan calls for substantially widening and deepening the existing natural inflow/outflow channel and retrofitting a pedestrian bridge to the Coast to Crest Trail boardwalk that will span the natural inlet/outlet channel and include interpretive signage. This is further described in Section 3. The final pedestrian bridge design will be completed by the installation contractor.

1.4.4 Additional Notable Modification in the 2012 Revised Draft Plan

In addition to the various 2012 Restoration Plan modifications discussed above, which were incorporated to address previous comments by USACE and CCC, two additional changes were made in the 2012 Restoration Plan. These changes pertain to the actual restoration area footprints, which were reevaluated and relocated to achieve maximum ecological functions at both restoration sites (South Lot and East Berm). A brief discussion of the footprint modifications and the rationalization are discussed below.

- **The South Lot** restoration footprint was relocated entirely north of the JPA Coast to Crest Trail (Figure 2). Previous versions spanned the trail, which resulted in substantial constraints to the restoration site. By relocating the restoration area north of the trail, the new Restoration Plan results in a contiguous restoration site that will optimize wildlife use and maximize ecological functions within the site, improving hydrology, tidal flushing, and habitat contiguity. For the new footprint to receive tidal water, a new inlet will be created using the existing erosional feature south of the trail. This feature will need to be widened and deepened to accommodate the full tidal range; as such, the existing boardwalk will be modified with a pedestrian bridge to cross the inlet/outlet channel. The new bridge will act as a viewing area for the restoration site, and will allow for additional educational opportunities for the public. An educational interpretive sign has been included in the final Restoration Plan. *See Section 3 for additional details on the restoration footprint, bridge, and educational signage. The final bridge design and educational signage will be completed by the installation contractor.* ***In November 2010, the 22nd DAA, AECOM, and CCC discussed the revised South Lot Phase I footprint and received approval to proceed with preparing the revised Restoration Plan for the new footprint. In addition, a USACE representative approved the new footprint in November 2010.***
- **The East Berm** restoration footprint will be moved south approximately 50 feet to occur immediately adjacent to the north bank of the San Dieguito River. This will allow the

entire bank to be graded to mid-marsh elevations and allow the river to inundate the site through lateral overbanking during moderately high tides. In addition, the new footprint ties together three existing mid-marsh areas located along the bank. The relocated footprint increases ecological functions for wildlife and hydrology, and complements the SCE restoration occurring on the south bank adjacent to the restoration sites. *See Section 3 for complete details on the restoration footprint and integration with existing habitat.*

2.0 EXISTING CONDITIONS

2.1 LOCATION

The salt marsh restoration site for this Restoration Plan is located along the Pacific Coast in San Diego County, California (Figure 1). The site is separated into two distinct restoration areas: the South Overflow Parking Lot (South Lot, Phase I and Phase II) and the East Berm (Figure 2). Both areas are located along the northern bank of the San Dieguito River, south of Jimmy Durante Boulevard and the Del Mar Fairgrounds. The South Lot is broken into two phases. Phase I is 2.14 acres and is the southernmost portion of the South Lot, bound by JPA's Coast to Crest Trail boardwalk and Jimmy Durante Boulevard. The South Lot Phase I and the East Berm restoration areas are the primary focus of this Restoration Plan. The East Berm area is located several hundred feet northeast of the South Lot along the river's northern edge in a disturbed ruderal area on top of a soil berm (Figure 2). It is bound by the Coast to Crest Trail and the San Dieguito River. The remainder of the South Lot comprises the Phase II restoration area, and is discussed in this document as a conceptual plan.

2.2 CLIMATE

The restoration site is located on Southern California's Pacific Coast along the San Dieguito River within San Dieguito Lagoon. This geographic region is dominated by a semiarid Mediterranean climate, and is characterized by warm to hot, dry summers and mild to cool, wet winters. The Mediterranean climate results in relatively long periods of low-flow dry conditions, with modest runoff into the lower San Dieguito River. These dry conditions are punctuated by brief, seasonal episodes of heavy rainfall and higher volume runoff. Daytime temperatures rarely exceed 95 degrees Fahrenheit (°F), and nighttime temperatures usually remain above freezing in the winter. Seasonal rainfall along the coast averages from 10 to 14 inches per year, with approximately 75% of the precipitation falling November through March.

2.3 WATERSHED

Of the six San Diego County coastal lagoons, the San Dieguito Lagoon has the largest watershed, with its major tributaries (San Dieguito River, Guejito Creek, Santa Maria Creek, and Santa Ysabel Creek) draining a 345.5-square-mile area. The watershed extends from the higher elevations on Volcan Mountain (in the Laguna Mountains) near Julian to the Pacific Ocean, and has a total approximate length of 48 miles. The San Dieguito wetland system developed gradually over several thousand years, as slowly rising sea levels flooded the lower San Dieguito

River Valley and marsh vegetation established on sedimentary deposits resulting from tidal and fluvial processes (SCE 2005). From the 1880s through the 1970s, land filling for development, construction of rail and road corridors, and agricultural operations reduced the extent of estuarine open waters and wetlands to about 200 acres, while constraining or eliminating tidal and riverine influences in the remaining wetlands. Development of the watershed resulted in a substantially reduced tidal prism. This, coupled with less frequent scouring from flood events (resulting from the construction of Lake Hodges dam), resulted in increased blocking of the lagoon mouth due to sediment accumulation and berming.

2.4 SOILS

Soils and their respective phases occurring within the restoration areas were mapped, and those soils listed on the National List of Hydric Soils were identified (NRCS 2011a and 2011b). There is one soil series that falls within the restoration area: Tidal Flats series. In addition, the 2011 Geotechnical Reconnaissance Survey of the site and previous surveys associated with the SCE San Dieguito Lagoon Restoration Plan noted two geologic units that fall within the restoration area: Alluvium and Fill Material (Ninyo and Moore 2004 and 2011). The Tidal Flats soil series is listed on the National List of Hydric Soils (NRCS 2011b) and the Local List of Hydric Soils (SCS 1992). Hydric soils are defined as "a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (NRCS 2011b). A brief description of the primary soil series and each geologic unit is presented below.

Tidal Flats Series – The Tidal Flats soil series underlies the entire restoration area. The material is predominantly sandy and well drained. It is assumed that much of the low elevation area adjacent to San Dieguito Lagoon was historically subject to ocean tides. The Tidal Flats series is listed by the U.S. Department of Agriculture (USDA) Soils and Conservation Service (SCS) (1992) Field Office Official List of Hydric Soil Map Units for the San Diego Area as hydric soils.

Alluvium – Alluvial soils exist beneath the fill and underlie the entire restoration site. According to boring logs from the San Dieguito Lagoon Wetland Restoration Plan, the alluvium in this area is anticipated to range in composition from dark gray to dark grayish-brown, wet to saturated, very loose to firm, clayey silt to silty clay to silty fine sand, with scattered shells and shell fragments.

Fill Material – Based on boring performed in the vicinity of the San Dieguito Lagoon Wetland Restoration Plan area, fill soils are expected at depths ranging from approximately 0

to 5 feet below the existing ground surface. The fill soils are expected to range in composition from light yellowish-brown to brown, dry to damp, loose to very loose, silty fine sand and sandy silt. In addition, large pieces of human-made material, including concrete and asphalt, are expected, based on observations on-site.

The soil series mapped by the Natural Resource Conservation Service (NRCS) is based on historical data and may not represent current conditions. Based on the limited geotechnical survey and knowledge of the project area, the South Lot likely supports potential wetland soils beneath fill material. In addition, the South Lot is highly compact as a result of ongoing use, maintenance, and the deposition of soils (fine silt and fine sand) from storm runoff. The East Berm restoration area is expected to support remnant tidal flat soils beneath a 5- to 7-foot-high berm that was likely constructed with imported soils from the fairgrounds and elsewhere. Soil textures vary depending on the site of origin, and there is evidence of large portions of asphalt and concrete debris in the restoration area. Since much of this material will be removed during excavation, soil limitations to native plant growth and establishment are not expected, as there is a high likelihood that the original tidal flat soils and alluvium material will be found underneath.

2.5 TOPOGRAPHY

Throughout the South Lot Phase I restoration area, the topography is nearly level, with elevations ranging from +3.2 to +5.5 feet NGVD, with most of the site in the +4-foot range (Figure 3). Existing topography in the East Berm restoration area is highly variable, with large mounds and uneven surfaces throughout. This feature is likely a result of the previous deposition of fill material used to build up the berm along the southern edge of the restoration area. Elevations range from +4.2 to +8.1 feet NGVD, with almost half of the site greater than +7 feet (Figure 3).

2.6 LAND USE

Both of the restoration areas are considered open space, with the South Lot serving as overflow parking for the Del Mar Fairgrounds and Del Mar Racetrack, and the East Berm consisting of a protective berm for the adjacent parking lot. In addition to open space reserves encompassing the adjacent SCE San Dieguito Lagoon Wetland Restoration Plan area, various land uses surround the restoration sites: open water (San Dieguito River), recreation (Del Mar Fairgrounds, Golf Driving Range, and Del Mar Racetrack), light industry, undeveloped, single-family detached homes, and rural residential (Figure 3). There are three primary property owners immediately adjacent to the restoration sites: 22nd DAA, JPA, and the City of San Diego.

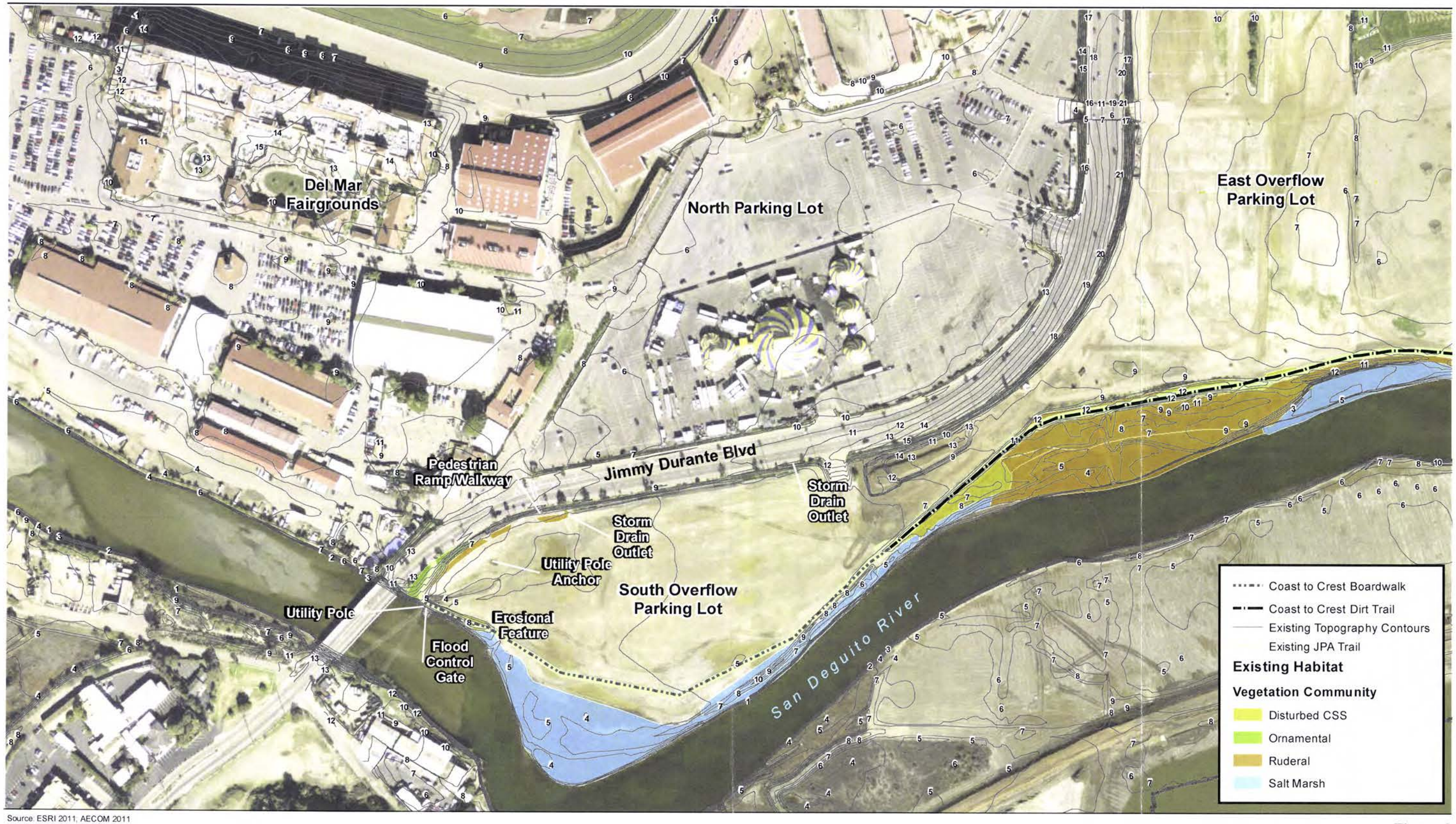
2.7 HYDROLOGY

Currently, hydrology at the South Lot is restricted to rain and runoff from the Del Mar Fairgrounds during storm events. Two large outfalls in the northern portion of the proposed South Lot restoration site drain large portions of the main Del Mar Fairgrounds parking lot west of Jimmy Durante Boulevard and a portion the road (Figure 3). These large outfalls have a combined flow of about 102.5 cubic feet per second (cfs) during a 100-year storm. Large ponded areas often remain in the South Lot after rain events, and usually preclude parking until early spring. The only tidal water to enter the parking lot occurs as a result of wave splash during an extreme high tide coupled with a storm event; otherwise, no tidal water currently enters the parking lot. The Restoration Plan area was designed to receive runoff, and will treat water during low-flow conditions (described in Section 3).

Unlike the South Lot, the East Berm restoration area may be inundated for very short periods of time in select locations during infrequent extreme high tides. The highest observed water level at the La Jolla tide station (the closest tide station) is +5.09 feet NGVD as of September 2010. As a portion of the site along the west end occurs below this elevation, this area likely receives water when the tides are greater than +4.7 feet NGVD. In addition, the site receives water during normal rain events. Although the site may be tidally inundated for short periods of time, this is not sufficient to support functional salt marsh habitat. Many salt marsh species can be observed on-site, but they are dry the majority of the year and compete with invasive nonnative salt-tolerant species.

2.8 EXISTING HABITAT

The following summary is based on qualitative botanical surveys conducted in summer 2004 (Rocks 2004; Tierra 2005). This information was supplemented by vegetation observations made by AECOM biologists during various site visits occurring in November and December 2010, and February 2011. Tables 2 and 3 provide a list of native and nonnative plants detected at each of the restoration areas during the February 2011 site visit. Observations of vegetation communities observed on-site and adjacent to each restoration area are discussed below. In addition, representative photographs of each restoration area footprint and the adjacent habitat are presented in Figure 4 for the South Lot and Figure 5 for the East Berm.



Source: ESRI 2011; AECOM 2011

250 125 0 250 Feet

Scale: 1 = 3,000; 1 inch = 250 feet

Figure 3
Existing Conditions and Constraints

Path: P:\2010\10280245_Salt_Marsh\06GIS\6.3_Layout\MitigationReport\Phase1_PropCond.mxd, 03/03/11, SteinB

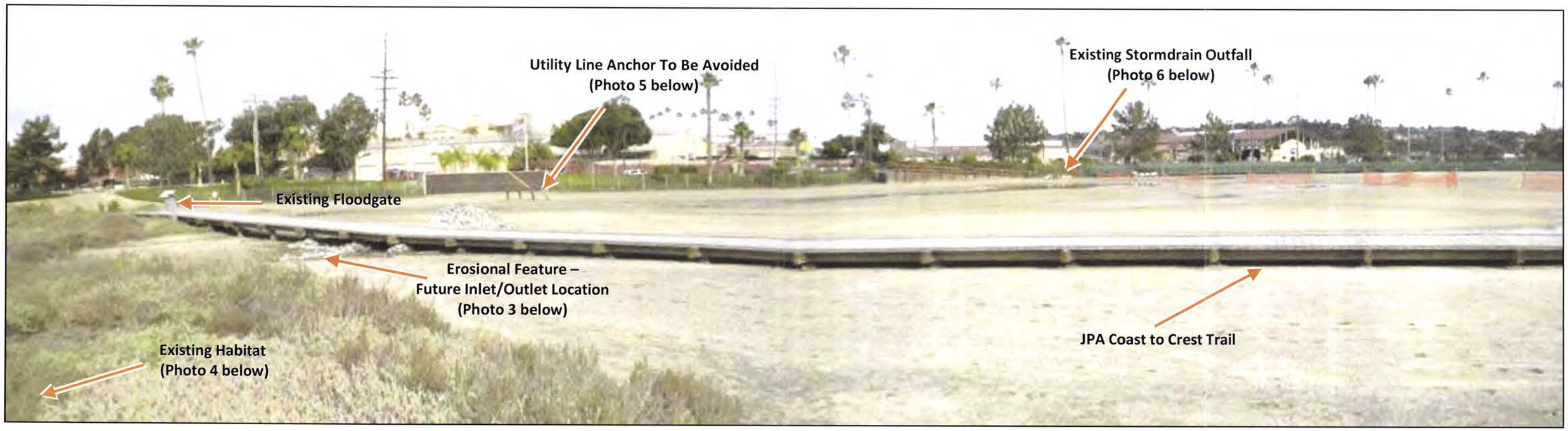


Photo 1. Looking northwest across the South Lot Phase I restoration area. Note the San Dieguito Joint Powers Authority (JPA) Coast to Crest Boardwalk in the foreground which represents the southern boundary of the South Lot. In addition, other notable features or constraints are also identified in the photo with corresponding close-up photos below.

Photo 2. Small erosion channel populated by high marsh species. Water collects in this area during rain events and leaves through a manually operated floodgate.

Photo 3. Existing erosional feature along the north bank of the San Dieguito River. This will be modified to be the primary inlet/outlet for the South Lot including a bridge modification to the boardwalk.

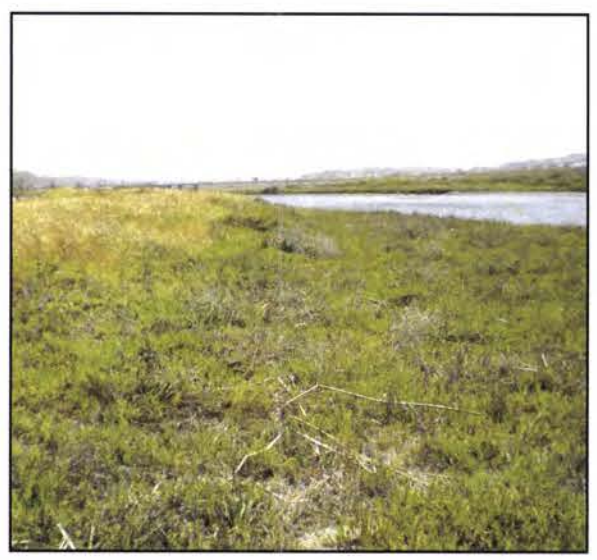


Photo 4. Existing habitat immediately south of the boardwalk and the South Lot. Note the area transitions from quality high marsh on the right of the photo to disturbed upland habitat on the left where elevations are higher.

Photo 5. Existing utility line anchor along the northern border of the South Lot restoration area. The restoration footprint has been designed to avoid this.

Photo 6. Existing stormdrain outlet along the northern edge of the parking lot. This feature drains the entire north parking lot and has been incorporated into the design of the South Lot Phase I restoration area.

Figure 4
South Lot Phase I
Representative Photographs

Photo 1. Looking east from Coast to Crest dirt trail, toward the future East Berm restoration area. Note the terrace is uneven and 3 to 5 feet higher in elevation than the existing restoration project to the south of the San Dieguito River (right background of photo).

Photo 2. Looking west across the East Berm restoration area with the San Diego County Fairgrounds in the background. Note the high cover of nonnative species including ice plant and mustards.

Photo 3. Looking toward the San Dieguito River from the southern boundary of the East Berm restoration area. Note the presence on nonnative iceplant and the steep bank in this area. This area will be graded to allow for proper tidal inundation.

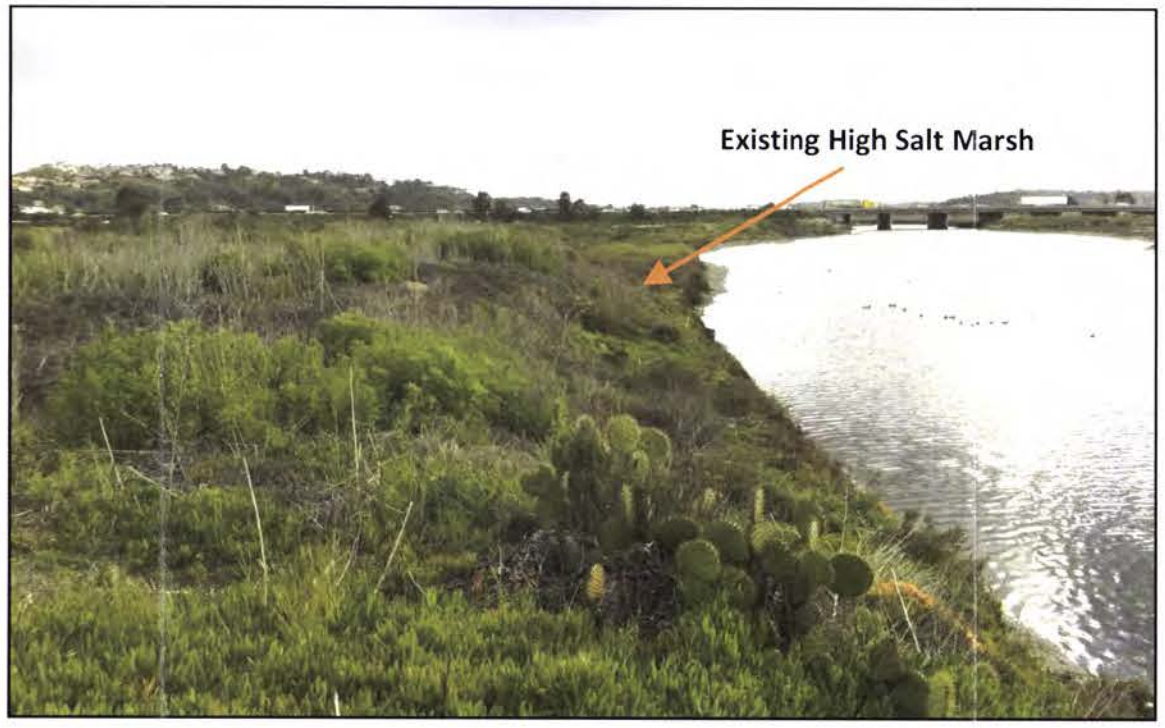


Photo 4. Looking east from the southern edge of the East Berm restoration area. Note the steep transition to the adjacent San Dieguito River on the right. This area will be graded down to allow for various levels of tidal inundation and will tie into the existing salt marsh west and east of the restoration area.

Figure 5
East Berm
Representative Photographs

2.8.1 South Lot Restoration Area

On-Site

Currently, existing habitat within the South Lot Phase I proposed restoration footprint is limited to incidental nonnative species such as ice plant and grasses. The overall site is bare compacted dirt as a result of regular maintenance for parking use by the San Diego County Fair (Figure 4). As such, there is an inadequate amount of time for any vegetation to mature and persist.

Adjacent Off-Site

The South Lot Phase I restoration area is bound by nonnative ornamental plantings along the northern border that are associated with Jimmy Durante Boulevard. To the east, the South Overflow Parking Lot Phase II area remains barren for several hundred meters. Quality habitat can be found along the southwest border between the South Lot Phase I area and the San Dieguito River (Figure 4). The habitat begins approximately 5 meters west of the Coast to Crest Trail boardwalk. The habitat on the top of the berm is dominated by nonnative salt-tolerant ornamentals, including four species of ice plant: hottentot fig (*Carpobrotus edulis*), crystalline iceplant (*Mesembryanthemum crystalline*), slenderleaf iceplant (*Mesembryanthemum nodiflorum*), and New Zealand-Spinach (*Tetragonia tetragonioides*) (Table 2). This area also supports native salt marsh species associated with higher elevations, including alkali heath (*Frankenia salina*), Western marsh rosemary (*Limonium californicum*), and salt grass (*Distichlis spicata*). Although limited, scattered sage scrub species also occur in the higher elevations along the berm, including coastal golden bush (*Isocoma menziesii*) and arrow weed (*Pluchea sericea*).

Just west of the berm, the slope decreases in elevation and functions as a high salt marsh floodplain that abuts the northern bank of the San Dieguito River (Figure 4). This area supports high-quality high salt marsh with a high diversity of species dominated by Pacific pickleweed (*Sarcocornia pacifica*), salty susan (*Jaumea carnosa*), and woolly sea blite (*Suaeda taxifolia*). Less common natives include alkali weed (*Cressa truxillensis*), Western marsh rosemary, and alkali heath. Nonnatives appear to be partially excluded from this area as a result of semi-frequent tidal inundation; however, a few nonnatives were observed, including the escaped ornamental Perez's marsh rosemary (*Limonium perezii*) and Lindley's saltbush (*Atriplex lindleyi*). This area was used as a reference site for the development of plant palettes.

Table 2
2010 and 2011 Plant Species Observed Adjacent to the South Overflow Parking Lot Mitigation Site

Family	Scientific Name	Common Name
ANGIOSPERMS		
EUDICOTS		
Aizoaceae		
	*Carpobrotus edulis***	hottentot fig
	*Mesembryanthemum crystallinum**	crystalline iceplant
	*Mesembryanthemum nodiflorum**	slenderleaf iceplant
	*Tetragonia tetragonioides**	New Zealand-Spinach
Amaranthaceae		
	*Atriplex lindleyi**	Lindley's saltbush
	Sarcocornia pacifica	Pacific pickleweed
	Suaeda taxifolia	woolly sea blite
Asteraceae		
	*Centaurea melitensis**	tocalote
	*Glebionis coronarium**	crown daisy
	Isocoma menziesii	coastal golden bush
	Jaumea carnosa	salty Susan
	Pluchea sericea	arrow weed
	*Sonchus asper**	prickly sow-thistle
	*Sonchus oleraceus**	common sow-thistle
Brassicaceae		
	*Hirshfeldia incana**	short-pod mustard
	*Raphanus sativus**	wild radish
Convolvulaceae		
	Cressa truxillensis	alkali weed
Frankeniaceae		
	Frankenia salina	alkali heath
Malvaceae		
	*Malva parviflora**	cheeseweed
Oxalidaceae		
	*Oxalis pes-caprae**	Bermuda buttercup
Plumbaginaceae		
	Limonium californicum	Western marsh rosemary
	*Limonium perezii**	Perez's marsh rosemary
Rubiaceae		
	Galium aparine	common bedstraw
Poaceae		
	*Avena barbata**	wild oats
	*Bromus rubens***	foxtail chess
	*Bromus diandrus**	ripgut brome
	Distichlis spicata	saltgrass

* Indicates a nonnative plant species (introduced).

** Indicates a nonnative plant species receiving an overall "high" rating on the California Invasive Plant Council's (Cal-IPC) invasive plant inventory (2006). These species can have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure.

2.8.2 East Berm Restoration Area

On-Site

The East Berm restoration area is highly disturbed and includes a large portion of an artificially created berm that flanks the adjacent parking lot. The large pieces of remnant cement and asphalt are further evidence of past disturbance. The habitat within the East Berm footprint is predominantly ruderal, which is typically associated with previous disturbances, often with highly compacted imported soil (Figure 5). This area is dominated by nonnative annual species, including black mustard (*Brassica nigra*), short pod mustard (*Hirshfeldia incana*), wild raddish (*Raphanus sativus*), tocalote (*Centaurea melitensis*), crown daisy (*Glebionis coronarium*), prickly sow-thistle (*Sonchus asper*), and common sow-thistle (*Sonchus oleraceus*), in addition to nonnative annual grasses and the same four nonnative ice plants observed adjacent to the South Lot (Table 3). A small patch of the highly invasive giant reed (*Arundo donax*) was also observed along the northeast boundary of the restoration area. This species, if allowed to spread, represents a significant threat to native habitat, including into the SCE San Dieguito Lagoon Restoration Plan area.

In addition to the nonnative species that dominate the site, native coastal sage scrub and salt marsh species were observed. Most of these species occurred in much lower densities than the nonnative species. Native sage scrub species observed were coastal golden bush, coastal sage brush (*Artemisia californica*), fiddleneck (*Amsinckia menziesii*), prickly pear (*Opuntia* spp.), and bladderpod (*Cleome arborea*). Native salt marsh species observed were alkali heath, Parish's pickleweed (*Arthrocnemum subterminale*), Pacific pickleweed, saltmarsh dodder (*Cuscuta salina*), alkali weed, and salt grass.

Adjacent Off-Site

The habitat surrounding the East Berm restoration area is limited to the area south of the parking lot and the Coast to Crest Trail (Figure 5). The habitat is similar to the upland area described above that occurs in the East Berm footprint. This area is heavily disturbed and dominated by nonnative annuals and shrubs.

Table 3
2010 and 2011 Plant Species Observed In and Adjacent to the East Berm Mitigation Site

Family	Scientific Name	Common Name
ANGIOSPERMS		
EUDICOTS		
Aizoaceae		
	*Carpobrotus edulis***	hottentot fig
	*Mesembryanthemum crystallinum**	crystalline iceplant
	*Mesembryanthemum nodiflorum**	slenderleaf iceplant
	*Tetragonia tetragonioides**	New Zealand-Spinach
Amaranthaceae		
	Arthrocnemum subterminale	Parish's pickleweed
	*Salsola tragus**	tumbleweed
	Sarcocornia pacifica	Pacific pickleweed
Asteraceae		
	Artemisia californica	coastal sage brush
	*Centaurea melitensis**	tocalote
	*Glebionis coronarium**	crown daisy
	Isocoma menziesii	coastal golden bush
	*Sonchus asper**	prickly sow-thistle
	*Sonchus oleraceus**	common sow-thistle
Brassicaceae		
	*Brassica nigra**	black mustard
	*Hirshfeldia incana**	short-pod mustard
	*Raphanus sativus**	wild raddish
Boraginaceae		
	Amsinckia menziesii	fiddleneck
Cactaceae		
	Opuntia spp.	prickly pear
Capparaceae		
	Cleome arborea	bladderpod
Convolvulaceae		
	Cuscuta salina	saltmarsh dodder
	Cressa truxillensis	alkali weed
Euphorbiaceae		
	*Euphorbia peplus**	petty spurge
Frankeniaceae		
	Frankenia salina	alkali heath
Geraniaceae		
	*Erodium cicutarium**	red-stem filaree
Malvaceae		
	*Malva parviflora**	cheeseweed
Oxalidaceae		
	*Oxalis pes-caprae**	Bermuda buttercup
Plumbaginaceae		
	*Limonium perezii**	Perez's marsh rosemary
Rubiaceae		
	Galium aparine	common bedstraw

Family	Scientific Name	Common Name
Poaceae		
	*Arundo donax***	giant reed
	*Avena barbata**	wild oats
	*Bromus rubens***	foxtail chess
	*Bromus diandrus**	ripgut brome
	Distichlis spicata	saltgrass
	*Hordium murinum**	barley
Solanaceae		
	*Nicotiana glauca**	tree tobacco
Urticaceae		
	*Urtica urens**	dwarf nettle

* Indicates a nonnative plant species (introduced).

** Indicates a nonnative plant species receiving an overall "high" rating on the California Invasive Plant Council's (2006) invasive plant inventory. These species may have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure.

2.9 WILDLIFE

No formal wildlife surveys were conducted. At this time, wildlife species within the restoration sites are limited due to the lack of native habitat and the disturbed nature of the sites. However, based on qualitative observations during AECOM site visits and a 2004 site survey by Rocks Biological Consulting, wildlife diversity around the restoration sites is expected to be relatively high. This is a result of the extensive wetland habitat along the San Dieguito River and the adjacent coastal resources. At this time, diversity may be lower as a result of the extensive grading that occurred as part of the SCE San Dieguito Lagoon Restoration Plan effort; that habitat restoration project is still in progress.

2.10 SENSITIVE SPECIES

Prior to conducting fieldwork, the California Natural Diversity Database (CNDDB) (CDFG 2011) was reviewed for the most recent distribution information for special-status plant and wildlife species within the Del Mar U.S. Geological Survey (USGS) quadrangles. Table 4 depicts the approximate locations of these observations within a 1-mile radius of the project area.

Table 4
CNDDB Species Recorded Within 1-Mile Radius of the Restoration Areas*

Scientific Name	Common Name	Accuracy	Nearest Distance (feet)
Senecio aphanactis	chaparral ragwort	1-mile radius	4,627
Euphorbia misera	cliff spurge	1-mile radius	4,627
Suaeda esteroa	estuary seablite	1 mile radius	4,627
Aphanisma blitoides	aphanisma	1 mile radius	4,627
Nemacaulis denudata var. *denudata*	coast woolly-heads	1 mile radius	1,099
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	1 mile radius	1,099
Heterotheca sessiliflora ssp. *sessiliflora*	beach goldenaster	2/5-mile radius	4,918
Cicindela senilis frosti	senile tiger beetle	nonspecific area	524
Tryonia imitator	mimic tryonia (=California brackishwater snail)	nonspecific area	524
Rallus longirostris levipes	light-footed clapper rail	nonspecific area	524
Sternula antillarum browni	California least tern	nonspecific area	524
Passerculus sandwichensis beldingi	Belding's savannah sparrow	nonspecific area	524
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	nonspecific area	4,789
Suaeda esteroa	estuary seablite	nonspecific area	1,288
Southern maritime chaparral	southern maritime chaparral	specific bounded area	4,825
Centromadia parryi ssp. *australis*	southern tarplant	nonspecific area	3,330
Centromadia parryi ssp. *australis*	southern tarplant	nonspecific area	2,449
Aphanisma blitoides	aphanisma	1/5 mile	4,068
Chorizanthe orcuttiana	Orcutt's spineflower	1/5 mile	1,749
Dudleya brevifolia	short-leaved dudleya	1/5 mile	4,927
Iva hayesiana	San Diego marsh-elder	specific bounded area	5,100
Polioptila californica californica	coastal California gnatcatcher	nonspecific area	4,871
Neotoma lepida intermedia	San Diego desert woodrat	specific bounded area	3,683
Cicindela hirticollis gravida	sandy beach tiger beetle	nonspecific area	2,513
Lotus nuttallianus	Nuttall's lotus	nonspecific area	2,513
Charadrius alexandrinus nivosus	western snowy plover	nonspecific area	2,513
Leptosyne maritima	sea dahlia	1/10 mile	4,387
Nyctinomops femorosaccus	pocketed free-tailed bat	1/10 mile	2,199
Perognathus longimembris pacificus	Pacific pocket mouse	1/10 mile	3,788
Southern maritime chaparral	Southern maritime chaparral	specific bounded area	5,247

Scientific Name	Common Name	Accuracy	Nearest Distance (feet)
Polioptila californica californica	coastal California gnatcatcher	specific bounded area with a 1/20-mile radius	2,995
Corethrogyne filaginifolia var. *incana*	San Diego sand aster	specific bounded area with a 1/20-mile radius	3,364
Danaus plexippus	monarch butterfly	specific bounded area with a 1/20-mile radius	3,139
Polioptila californica californica	coastal California gnatcatcher	specific bounded area with a 1/20-mile radius	2,306
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	specific bounded area	4,747

* Species may be listed more than once if multiple observations are recorded in distinct locations.

Special-status species are those that meet any of the following criteria:

- Listed as endangered, threatened, or proposed for listing as endangered by the U.S. Fish and Wildlife Service (USFWS);
- Listed as endangered, threatened, or rare by the California Department of Fish and Game (CDFG);
- Considered special vascular plants, bryopytes, or lichens by CDFG;
- Listed on the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants of California; or
- Considered "special animals" by CDFG.

A search of the CNDDB revealed 95 species of plants and wildlife that were recorded in the Del Mar quadrangle. This is not surprising due to the diversity of habitats found throughout Southern California and their relative proximity to each other in this coastal zone. Although sensitive species are known in the vicinity, the habitat in each restoration area is either absent (South Lot) or substantially degraded (East Berm), and no sensitive or endangered plant species were documented within either restoration area. Belding's savanna sparrow (*Passerculus sandwichensis beldinngii*), a state-listed endangered species, is known to forage and breed in salt marsh habitat, and is known in the adjacent San Dieguito Lagoon. Although not documented in the project area, there is the potential for this species to forage and breed in the salt marsh habitat adjacent to both restoration areas.

The likelihood of the restoration areas supporting sensitive species under current conditions is minimal. However, improving on-site conditions for common native and sensitive species is a primary goal of the restoration effort. Implementation activities for the restoration sites will protect adjacent native habitat and be timed to avoid direct and indirect impacts to sensitive species during their breeding seasons. This is discussed further in Section 4.

3.0 MITIGATION PLAN OVERVIEW

The following section outlines the goals of this Restoration Plan and details the overall approach for each of the restoration areas (South Lot and East Berm). When the restoration approach is similar for the two restoration areas for a particular plan component, only one description is provided. In addition, the conceptual plan for the South Lot Phase II area is discussed.

3.1 GOAL OF MITIGATION

The overall goal of the Restoration Plan is to fulfill the requirements of the 1993 USACE Restoration Order and the CCC comments received to date. The primary goal for the restoration itself is to create an ecologically functional, self-sustaining wetland that is resilient to a range of natural disturbances (drought, flood, etc.). The following are the specific goals of the restoration project:

- Restore proper tidal hydrology and inundation periods
- Create and maximize habitat diversity and structural complexity
- Maximize wildlife use opportunities
- Treat low (dry weather) flow and average storm runoff
- Foster public "ownership" and interest in the San Dieguito Lagoon and salt marsh restoration

3.2 RESTORING WETLAND HYDROLOGY

The most important component to properly restoring a salt marsh is adequate tidal hydrology. Although many salt marsh species can exist above the tide line, a functioning salt marsh with a diverse vegetation community structure and maximum wetland functions will be exposed to and benefit from daily fluctuations in the tidal range. For both restoration areas, determining how and where tidal water would enter each area was the first step in designing this Restoration Plan. After the tidal inlets/outlets and secondary and tertiary channels were designed by the project hydrologist and civil engineer, restoration ecologists designed the restoration area to support varying salt marsh communities based on the known elevations and tidal inundation curves for the San Dieguito Lagoon. This information was based on the 2005 SCE San Dieguito Lagoon Restoration Plan for the adjacent salt marsh, and is discussed in Section 3.3. Figures 6a and 6b

depict the current Restoration Plan and a tidal hydrology simulation for the South Lot. Figures 7a and 7b depict the current Restoration Plan and a tidal hydrology simulation for the East Berm.

3.2.1 South Lot Restoration Area

Due to the constraints of the South Lot, including the existing JPA Coast to Crest Trail boardwalk and the need to protect the remaining parking lot, the decision was made to have one primary inlet/outlet deliver tidal water to the restoration area. Two potential inlet/outlet locations were identified: the current flood gate at the northwest corner that crosses under a cement walkway or a natural erosional feature adjacent to the boardwalk that is continuing to expand (Figure 4; Photo 1). The decision to use the erosional feature was made, as this represents the greatest opportunity for an unconstrained natural inlet/outlet, and proposes to take advantage of what is already naturally occurring on-site (Figure 4; Photo 3). In addition, the floodgate is located close to a utility pole and enters the river immediately upstream of the Jimmy Durante Boulevard bridge crossing. These two features by the floodgate raised cost and safety concerns, and would likely require the use of a box culvert. This further supported the selection of the natural inlet/outlet location.

The proposed inlet/outlet was designed and sized to allow for the full tidal range from the San Dieguito River with no tidal muting. A new pedestrian bridge will be designed to span the inlet/outlet and allow the existing JPA Coast to Crest Trail boardwalk to continue along the river and the western edge of the restoration area (final bridge design will be completed by the installation contractor). This will be an excellent opportunity for the public to view the ongoing progress in the restoration area. As part of the restoration design, from the primary inlet/outlet, the channel splits into two secondary channels that feed tidal water to the majority of the site. Additional tertiary channels will branch off in an effort to simulate the natural hydrological processes of salt marsh estuaries. All channels will be excavated to a depth of -1 foot NGVD or greater so that they will remain subtidal at all times and offer the opportunity for eelgrass recruitment and fish utilization. The slopes of the secondary and tertiary channels will have vertical or near vertical slopes less than -1 foot NGVD, and the salt marsh will be allowed to recontour the slopes through natural hydrological processes or erosion and deposition. The details of each channel are included in Figure 6a and in the 100% Submittal, Wetland Restoration Plans (Appendix 5).

Source: ESRI 2011; AECOM 2011

75 0 75 Feet

Scale 1 = 900; 1 inch = 75 feet

NOTES:
* Treatment buffer is 100-feet on both sides of boardwalk, as required by the June 2007 CCC Staff Report

Figure 6a
South Lot Phase I
Restoration Plan

Path: P:\2010\10280245_Salt_Marsh\06GIS\6.3_Layout\MitigationReport\Phase1_PropCond.mxd, 7/12/2011, SteinB

Source: ESRI 2011; AECOM 2011

125 0 125 Feet

1 inch = 125 feet

Figure 6b
South Lot Phase I
Tidal Inundation Simulation

Source: ESRI 2011; AECOM 2011

75 0 75 Feet

1 inch = 75 feet

Figure 7a
East Berm
Restoration Plan

Path: P:\2010\10280245_Salt_Marsh\06GIS\6.3_Layout\MitigationReport\East_PropCond.mxd, 7\5\2011, SteinB

Source: ESRI 2011; AECOM 2011

125 62.5 0 125 Feet

1:1,500 1 inch = 125 feet

Figure 7b
East Berm
Tidal Innundation Simulation

Path: P: 2010/10280245 Salt Marsh 06GIS 6.3 Layout MitigationReport/East TidalCond.mxd, 5/2011, SteinB

3.2.2 East Berm Restoration Area

Unlike the South Lot, the East Berm restoration area will receive tidal water through two delivery mechanisms: a primary tidal channel that will flood during lower high tides and lateral flow caused by overbanking of the northern bank of the San Dieguito River during moderate high tides. The primary water delivery mechanism is considered to be the overbanking of the river, which should occur during tides greater than +2 feet NGVD. This corresponds to the new elevations proposed along the northern bank within the restoration area and the remaining natural high salt marsh that the restoration area will tie into. The primary inlet/outlet channel created at the northern end of the restoration area will deliver water to the interior of the restoration site during lower high tides greater than +0.5 feet NGVD. These two hydrology processes allow for increased habitat complexity within the restoration area and cause lower elevations to occur in the interior.

3.3 TYPES OF HABITAT TO BE RESTORED

A variety of wetland and transitional habitats are proposed for creation, although the primary habitats to be restored are southern coastal salt marsh (Figure 6a and Figure 7a). Southern coastal salt marsh is an association of herbaceous and suffrutescent, salt-tolerant hydrophytes that form a moderate to dense cover and can reach a height of 1 meter (3 feet). Most species are active in summer and dormant in winter (Holland 1986). Coastal salt marsh plants are distributed along distinct zones depending on environmental factors such as frequency and length of tidal inundation, salinity levels, and nutrient status (MacDonald 1977). In the higher littoral zone, there is much less tidal inflow, resulting in lower salinity levels, while soil salinity in the lower littoral zone is fairly constant due to everyday annual tidal flow (Adam 1990).

Within the different littoral zones, species can be segregated, with California cordgrass (*Spartina foliosa*) nearest the open water in the low littoral zone; Pacific pickleweed (*Sarcocornia pacifica*) and saltwort (*Batis maritima*) in the mid-littoral zones; and a richer mixture of species, including alkali-heath (*Frankenia salina*) and Parish's pickleweed (*Arthrocnemum subterminale*), in the higher littoral zone (Holland 1986). Other characteristic species are coastal saltgrass (*Distichlis spicata*), alkali weed (*Cressa truxillensis*), and salty Susan (*Jaumea carnosa*).

Each restoration area was designed to support the spectrum of southern coastal salt marsh communities based on the known elevations and tidal inundation curves for the San Dieguito Lagoon (SCE 2005). In addition to southern coastal salt marsh habitat, subtidal transitional upland habitat is also included as part of this Restoration Plan. Each site was designed to

maximize habitat complexity and wetland functions. The design also took into account the adjacent native habitat and overall integration of the restoration areas into the larger San Dieguito Lagoon. Table 5 presents the target habitats that are included in the restoration design, which are based on the habitat elevations provided in the 2005 SCE San Dieguito Lagoon Restoration Plan.

Table 5
Target Salt Marsh Habitats, Elevations, Associated Floral Species

Target Habitat	Elevation NGVD (feet)[1]	Elevation MLLW (feet)[1, 2]	Associated Floral Species
Subtidal	below -1	below +1.29	eelgrass (*Zostera marina*) or non-vegetated
Frequently Flooded Mudflat	-1 to +0.9	+1.29 to +2.28	non-vegetated
Frequently Exposed Mudflat	+0.9 to +1.3	+2.28 to +3.59	non-vegetated
Low Marsh	+1.3 to +2.2	+3.59 to +4.49	California cordgrass (*Spartina foliosa*) or non-vegetated
Mid Marsh	+2.2 to +3.8	+4.49 to +6.09	dwarf saltwort (*Salicornia bigelovii*), Pacific swampfire (*Salicornia virginica*), *Jaumea carnosa, Batis maritime,* Parish's glasswort (*Arthrocnemum subterminale*)
High Marsh	+3.8 to +4.5	+6.09 to +6.79	*Salicornia virginica,* Parish's glasswort (*Arthrocnemum subterminale*), *Monanthochloe littoralis, Distichlis spicata, Frankenia salina, Limonium californicum, Suaeda taxifolia*
Upland Transition	above +4.5	above +6.79	California buckwheat (*Eriogonum fasciculatum*), wild rye (*Leymus condensatus* and *L. triticoides*), western ragweed (*Ambrosia psilostachya*), California poppy (*Eschscholzia californica*), purple needlegrass (*Nasella pulchra*), coast goldenbush (*Isocoma menziesii*), black sage (*Salvia mellifera*), coyote brush (*Baccharis pilularus*), bladderpod (*Cleome isomeris*), coast sunflower (*Encelia californica*), deerweed (*Lotus scoparius*), arrow weed (*Pluchea sericea*)

[1] The difference between National Geodetic Vertical Datum (NGVD) and Mean Low Lower Water (MLLW) is 2.29; i.e., when MLLW = 0.0 then NGVD = -2.29 and when NGVD = 0.0 then MLLW = +2.29.

[2] MLLW is the common tidal datum presented on the local news and is the datum that most people are familiar with.

Source: SCE 2005

3.3.1 South Lot Restoration Area

As shown in Figure 6a, all of the target habitats have been incorporated into the final plan for the South Lot Phase I restoration area. Table 6 shows the final acreage of each habitat to be created, resulting in the creation of 2.41 acres of wetland habitat and 0.77 acre of upland/transitional habitat (primarily for site protection and as part of Phase II restoration integration). The additional wetland acreage (0.27 acre) over and above the 2.14 acres required for mitigation were necessary to properly tie into existing grade and to create a salt marsh floodplain that can receive runoff from the storm drain north of the restoration area, which drains the main parking lot. Low-marsh elevations occur throughout the restoration area as a transitional area between exposed mudflat and mid marsh. Cordgrass is the dominant species for this low marsh, however the San Dieguito Lagoon does not support a high percentage of this vegetation community. The wetland design for the South Lot minimizes the overall cover of this habitat and, instead, increases the amount of mudflat and mid-/high-marsh habitat. There are only two locations where cordgrass will specifically be planted; all other areas occurring in the elevation range for low marsh will either remain unvegetated and serve as frequently exposed mudflat, or be vegetated by mid-marsh species that recruit and volunteer on-site (Figure 8 and Figure 9). In addition, a portion of the restoration area occurring above the acceptable wetland elevation for the San Dieguito Lagoon (+4.5 NGVD or +6.79 MLLW) will be planted using a high-marsh plant palette (identified as non-wetland high marsh in Table 6). These areas do not count toward the wetland restoration acreage, but are intended to create natural habitat transitions between wetland and upland habitats and tie into the future Phase II restoration area (Figure 6a, Figure 8 and Figure 9). As staging and access to the restoration area will occur in the adjacent parking lot, no temporary impacts will occur as a result of the South Lot installation (Appendix 5).

Table 6
South Lot Restoration Area Planned Salt Marsh Habitats

Target Habitat	Acre(s)	Planting Strategy
Subtidal	0.12	Plant 0.02 acre of eelgrass in primary channel
Frequently Flooded Mudflat	0.33	No planting
Frequently Exposed Mudflat	0.23	No planting
Low Marsh	0.19	Cordgrass planted in select areas (0.05 acre) 1 year after grading
Mid Marsh	0.94	Select planting 1 year after grading
High Marsh	0.6	Planting immediately following grading
Non-Wetland High Marsh	0.55	Planting immediately following grading
Upland Transition	0.22	Planting and seeding immediately following grading
Total Restoration Area	3.18	
Total Wetland Area	2.41	

3.3.2 East Berm Restoration Area

As shown in Figure 7a, most of the target habitats were incorporated into the final plan for the East Berm restoration area. Table 7 shows the final acreage of each habitat to be created, resulting in the creation of 1.07 acres of wetland habitat and 0.39 acre of upland/transitional habitat (primarily for transition to the adjacent berm). The additional 0.39 acre of upland/transitional habitat and the 0.17 acre of wetland habitat are necessary for the site to properly tie in to existing grade, and will also provide a buffer between the restoration area and the adjacent disturbed habitat. Note that low-marsh elevations occur throughout the restoration area as a transitional area between exposed mudflat and mid marsh, and the East Berm restoration plan minimizes the overall cover of this habitat. For the East Berm restoration area, distinct locations of low marsh will be planted with cordgrass; all other areas occurring in the elevation range of low-marsh habitat will either remain unvegetated and serve as frequently exposed mudflat, or will be vegetated by mid-marsh species that recruit and volunteer on-site (Figure 10). In addition, a portion of the restoration area occurring above the acceptable wetland elevation for the San Dieguito Lagoon (+4.5 NGVD or +6.79 MLLW) will be planted with a high-marsh plant palette (identified as non-wetland high marsh in Table 7). These areas do not count toward the wetland restoration acreage, but are intended to create natural habitat transitions between wetland and upland habitats (Figure 7a and Figure 8). Temporary impacts from restoration efforts are expected north of the East Berm restoration area as a result of equipment access during installation (Appendix 5). This area is currently vegetated, and is predominantly disturbed upland habitat with scattered natives and a high cover of nonnative shrubs and annuals. The maximum temporary impact area is 0.27 acre, which will be revegetated with seed and container plants prior to completion of the installation phase and at the end of the 120-day plant and hydrology establishment period (Table 7).

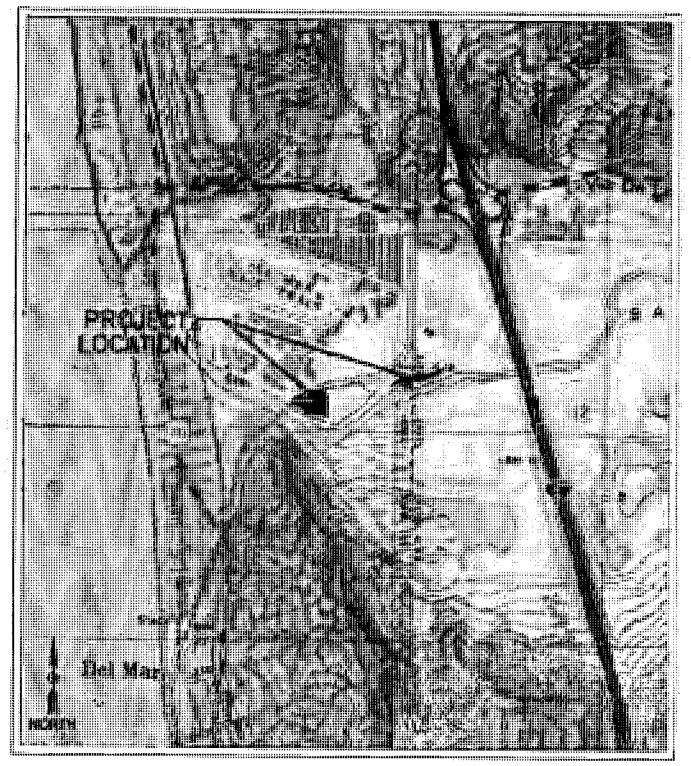
Table 7
East Berm Restoration Area Planned Salt Marsh Habitats

Target Habitat	Acre(s)	Planting Strategy
Subtidal	0.01	No planting
Frequently Flooded Mudflat	0.02	No planting
Frequently Exposed Mudflat	0.04	No planting
Low Marsh	0.12	Cordgrass planted in select areas (0.03 acre) 1 year after grading
Mid Marsh	0.49	Select planting 1 year after grading
High Marsh	0.39	Planting immediately following grading
Non-Wetland High Marsh	0.18	Planting immediately following grading
Upland Transition	0.21	Planting and seeding immediately following grading
Upland Revegetation (Temporary Impact Area)	0.27	Planting and seeding completed prior to completion of 120-day plant and hydrology establishment period
Total Restoration Area (not including temporary impacts)	1.46	
Total Wetland Area	1.07	

DEL MAR SALT MARSH
RESTORATION PROJECT
22ND DISTRICT AGRICULTURAL ASSOCIATION
CONTRACT NO. K-10-69

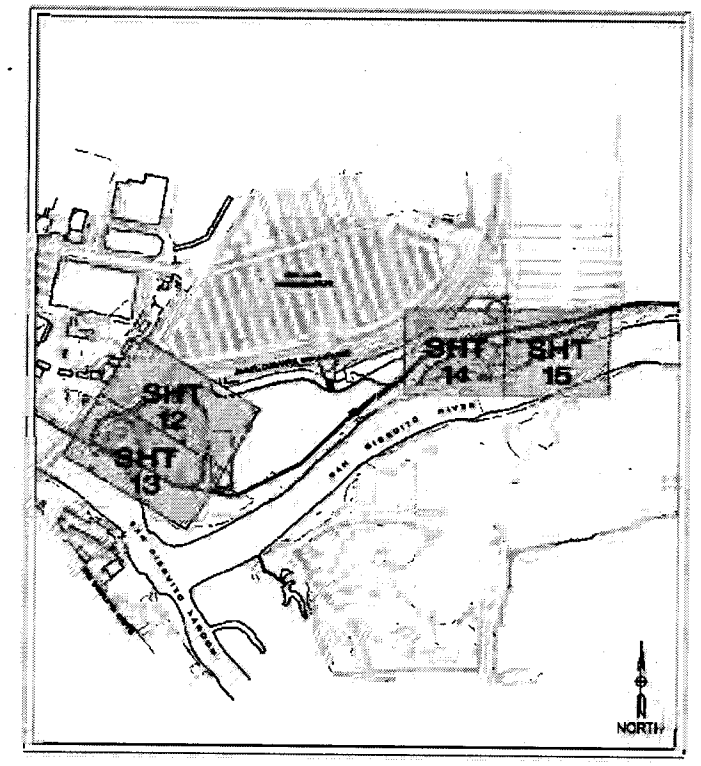
INDEX TO SHEETS

SHEET NO.	DESCRIPTION
1	COVER SHEET
2-5	GRADING PLANS
6	GRADING DETAILS
7	EROSION CONTROL NOTES AND DETAILS
8-9	EROSION CONTROL PLANS
10	REVEGETATION PROJECT NOTES, LEGENDS, AND DETAILS
11	REVEGETATION OVERALL SITE PLAN
12-15	PLANTING PLANS



LOCATION MAP

NOT TO SCALE



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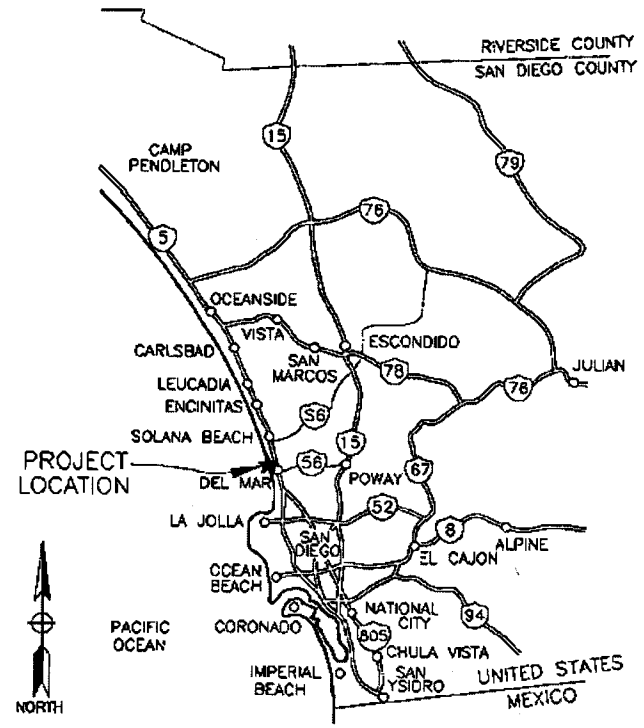

VICINITY MAP

NOT TO SCALE

HORIZONTAL CONTROL
Horizontal control for this survey is based on the California Coordinate System for Zone VI, NAD 1983.

VERTICAL CONTROL
The Vertical datum is NGVD 29.

PROJECT STANDARD SPECIFICATIONS
Standard Specifications for Public Works Construction, 2009 Edition

PROJECT STANDARD PLANS
SAN DIEGO REGIONAL STANDARD DRAWINGS (SDRSD)
D-40 D-76D D-79A M-24
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION (SPPWC)
342-1

GENERAL NOTES:
ATTENTION IS DIRECTED TO THE POSSIBLE EXISTENCE OF UNDERGROUND UTILITY FACILITIES NOT KNOWN OR IN A LOCATION DIFFERENT FROM THAT WHICH IS SHOWN ON THE PLANS. THE CONTRACTOR SHALL TAKE STEPS TO DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND FACILITIES PRIOR TO PERFORMING WORK THAT MAY DAMAGE SUCH FACILITIES OR INTERFERE WITH THEIR SERVICE. FORTY-EIGHT HOURS BEFORE EXCAVATING, THE CONTRACTOR SHALL VERIFY THE LOCATION OF UNDERGROUND FACILITIES BY CONTACTING UNDERGROUND SERVICE ALERT AT TELEPHONE 1-800-422-4133. OPERATORS OF GRAVITY SEWER SYSTEMS AND CERTAIN OTHER UTILITIES, WHO ARE NOT MEMBERS OF UNDERGROUND SERVICE ALERT, MUST BE INDIVIDUALLY CONTACTED.

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422-4133
TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK
DESCRIPTION:
LOCATION:
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ELEVATION: DATUM:

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PLAN CHECK ENGR. NAME TYPED DATE
PLAN CHECK FIRM
R.C.E. NO
EXP. DATE

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VERTICAL
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DESIGN + PLANNING
1420 Kettner Blvd., Ste. 500
San Diego, CA 92101
T 619.233.1454 F 619.233.0952
www.aecom.com

PREPARED BY: DATE
ENGR. NAME TYPED
R.C.E. NO. EXP. DATE

ENGINEER OF WORK DATE	INITIAL	REVISION DESCRIPTION	APPROVAL SHT. NO.	DATE	INITIAL

FINAL SUBMITTAL - 07/15/2011

SHEET 1 | 22ND DISTRICT AGRICULTURAL ASSOCIATION | SHEETS 16

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS

COVER SHEET

APPROVED
ENGINEER DATE
EXP. DATE

CHKD BY:
PROJECT NO.
DRAWING NO.

NOTES

1. THE 22ND DAA MAY DECIDE IN THE FTURE TO INSTALL A MANUAL STORM DRAIN GATE AT THE EXISTING 30" STORM DRAIN, ON THE SOUTH SIDE OF JIMMY DURANTE BOULEVARD. THIS STORM DRIAN GATE WILL BE DESIGNED AND INSTALLED BY OTHERS.
2. CONTRACTOR TO VERIFY CURRENT FIELD CONDITIONS AND ELEVATIONS PRIOR TO STARTING WORK.
3. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO LOCATE AND PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE REQUIRED TO NOTIFY UNDERGROUND SERVICE ALERT FOR UTILITY MARK-OUT PRIOR TO EXCAVATING.
4. CONTRACTOR TO REMAIN A MINIMUM OF 20' FROM THE EXISTING SDGE&E FACILITIES AND TO NOTIFY SDGE&E PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL DESIGN, CONSTRUCT, AND MAINTAIN ALL SAFETY DEVICES AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENTS SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE PREVENTION OF DAMAGE TO ADJACENT PUBLIC OR PRIVATE PROPERTY OR IMPROVEMENTS. EXCAVATION SHALL NOT BE PERFORMED SO CLOSE AS TO ENDANGER ADJACENT PROPERTY. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR REPAIR OR CORRECTION OR ANY DAMAGE CAUSED TO EXISTING PROPERTY OR IMPROVEMENTS BY GRADING ACTIVITIES.
7. ALL PROPERTY CORNERS SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO A PRE-CONSTRUCTION MEETING AND COMMENCEMENT OF ANY CONSTRUCTION/GRADING ACTIVITY.
8. ALL GRADING SHALL BE DONE UNDER THE SUPERVISION OF A REGISTERED CIVIL ENGINEER, SOILS ENGINEER, OR GEOLOGIST.
9. EXISTING DRAINAGE COURSES SHALL CONTINUE TO FUNCTION AT ALL TIMES. NO OBSTRUCTION OF FLOOD PLAINS OR NATURAL WATER COURSES SHALL BE PERMITTED.
10. ALL FILL MATERIALS SHALL BE COMPACTED TO A MINIMUM OF 90% DENSITY PER ASTM D-1557-64T.
11. THE SLOPES SHALL BE ROUNDED INTO EXISTING TERRAIN TO PRODUCE A CONTOURED TRANSITION FROM MANUFACTURED CUT OR FILL FACES TO THE TOPOGRAPHY OF THE NATURAL SURFACE.
12. GEOTECHNICAL RECONNAISSANCE WAS PREPARED BY NINYO & MOORE ON MARCH 23, 2011 FOR THIS PROJECT.
13. MAXIMUM CUT SLOPES SHALL BE 2:1, EXCEPT WHERE SHOWN AS VERTICAL UP TO -1.0 FEET, AND SHALL COMPLY WITH RECOMMENDATIONS OF THE GEOTECHNICAL RECONNAISSANCE.
14. WEST SITE EXCAVATION (CY): 7,360 FILL (CY): 1,270 EXPORT (CY): 6,090
    EAST SITE EXCAVATION (CY): 6,330 FILL (CY): 30 EXPORT (CY): 6,300
15. CONTRACTOR TO PROVIDE A POST-GRADING TOPO PLAN TO BE VERIFIED BY THE ENGINEER.
16. POST GRADING ACTIVITIES SHALL INCLUDE, BUT NOT BE LIMITED TO, INSTALLING WHERE APPLICABLE, GROUNDCOVER, TREES, SHRUBS, PER THE LANDSCAPE PLANS.

IN ACCORDANCE WITH THE PROJECT MITIGATION AND MONITORING PLAN (APRIL 2011) APPROVED BY THE RESOURCE AGENCIES:

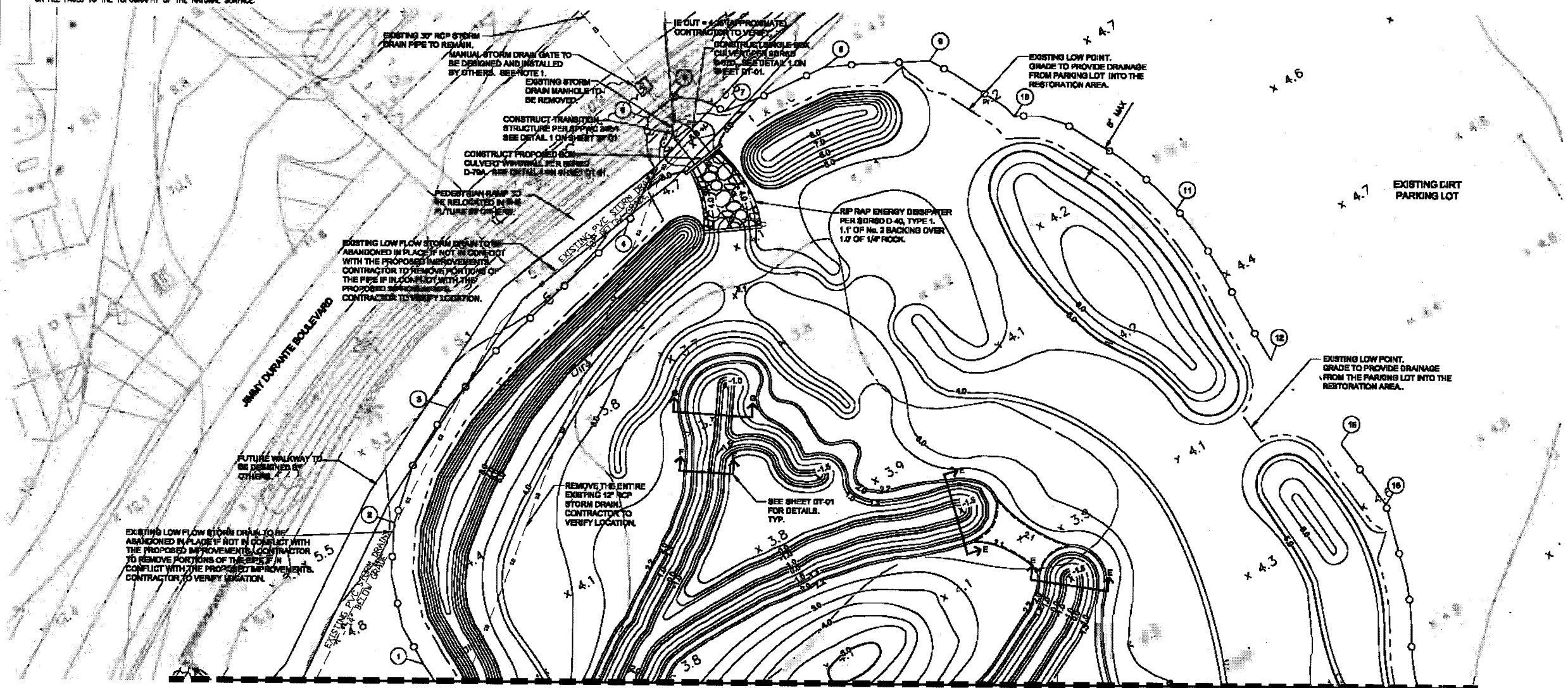
1. SITE PREPARATION SHALL INCLUDE REMOVAL OF ANY DEBRIS (TRASH, CONCRETE, NONNATIVE PLANTS, ETC.), INSTALLATION OF EROSION-CONTROL MATERIALS, AND ERADICATION AND REMOVAL OF ANY NONNATIVE INVASIVE SPECIES THAT OCCUR ONSITE BEFORE OR AFTER GRADING OPERATIONS. SOIL DECOMPACTION FOR THE ENTIRE MITIGATION SITE IS REQUIRED TO OCCUR AS PART OF THE GRADING OPERATION.
2. ANY REMAINING NONNATIVE INVASIVE PLANT SPECIES ALONG THE PERIMETER AND WITHIN THE MITIGATION AREA SHALL BE REMOVED AT THE DIRECTION OF THE OWNER AND RESTORATION ECOLOGIST.
3. THE CONTRACTOR SHALL NOT PERFORM ANY CONSTRUCTION ACTIVITIES IN, OR ACCESS, AREAS OF SENSITIVE HABITAT. THE AREA OUTSIDE THE CONSTRUCTION LIMIT OF WORK IS NOT TO BE DISTURBED.
4. NATURAL CONTOUR GRADES WITH SUBTLE UNDULATIONS SHALL BE ESTABLISHED, INCLUDING NATURAL GRADE TRANSITIONS WITH ADJACENT NATIVE WETLAND AND UPLAND HABITAT AREAS.
5. AFTER SOIL EXCAVATION, THE ENTIRE MITIGATION AREA (I.E., SOIL EXCAVATION AND NON-EXCAVATION AREAS) WILL BE DECOMPACTED BY CROSS-RIPPING THE SOIL TO A DEPTH OF 18 INCHES TWO TIMES IN A PERPENDICULAR PATTERN.
6. FOR THE FIRST 60 DAYS OF THE 120-DAY PLANT AND HYDROLOGY ESTABLISHMENT PERIOD, THE RESTORATION ECOLOGIST WILL MONITOR HYDROLOGY AT THE SOUTH LOT ONCE A WEEK AT VARYING TIDAL ELEVATIONS AND DOCUMENT ANY MODERATE EROSION OR DEPOSITION THAT MAY INDICATE ADDITIONAL GRADING IS NEEDED. THE RESTORATION ECOLOGIST WILL NOTE WHETHER THE TOES ARE REACHING AND INUNDATING THE FLOODPLAIN AT ELEVATIONS APPROPRIATE FOR THE TARGET HABITATS IN THE RESTORATION PLAN (I.E. MID-MARSH HABITAT SHOULD BE INUNDATED WHEN TIDES RANGE FROM ~4.09 TO +1.51 MLLW). IN ADDITION, THE RESTORATION ECOLOGIST WILL ALSO DOCUMENT NATIVE SPECIES THAT RECRUIT INTO THE LOW- AND MID-MARSH HABITAT.
7. AT THE END OF THE FIRST 60 DAYS THE RESTORATION ECOLOGIST WILL MAKE A FORMAL RECOMMENDATION TO THE DISTRICT AGRICULTURAL ASSOCIATION AND THE INSTALLATION CONTRACTOR REGARDING HYDROLOGY AND THE NEED (IF ANY) FOR ADDITIONAL GRADING. THE INSTALLATION CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL GRADING UP TO A MAXIMUM OF 1,000 CUBIC YARDS. IF GRADING IS DEEMED NECESSARY THE WORK WILL BE COMPLETED WITHIN 30 DAYS OF RECEIVING THE RESTORATION ECOLOGIST RECOMMENDATIONS AND PRIOR TO THE END OF THE 120-DAY PLANT AND HYDROLOGY ESTABLISHMENT PERIOD.
8. THE RESTORATION ECOLOGIST AND RESIDENT ENGINEER WILL INSPECT THE EXCAVATION AREA TO CONFIRM PROPER GRADES AND DECOMPACTION HAVE BEEN ACHIEVED PRIOR TO PLANTING.

ABBREVIATIONS

FG	FINISHED GRADE
IE	INVERT ELEVATION
MAX	MAXIMUM
MIN	MINIMUM
RCP	REINFORCED CONCRETE PIPE
SDRSD	SAN DIEGO REGIONAL STANDARD DRAWINGS
SPPWC	STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING CONTOUR
- AREA OF SAME ELEVATION
- DAYLIGHT LINE
- ESA FENCE/CONSTRUCTION LIMIT
- EXISTING STORM DRAIN
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- PROPOSED BOX CULVERT WINGWALL PER SDRSD D-79A
- PROPOSED RIP RAP PER SDRSD D-40
- PROPOSED TRANSITION STRUCTURE PER SPPWC 342-1
- PROPOSED SINGLE BOX CULVERT PER SDRSD D-78D



ESA FENCE DATA TABLE		
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2	1934776.57	6251540.10
3	1934803.26	6251576.67
4	1934827.36	6251689.15
5	1934857.50	6251695.10
6	1934858.34	6251709.18
7	1934845.37	6251721.52
8	1934840.79	6251761.41
9	1934823.05	6251795.15
10	1934789.52	6251812.55
11	1934729.59	6251848.49
12	1934664.17	6251847.87
13	NOT USED	
14	NOT USED	
15	1934624.26	6251854.87
16	1934598.88	6251857.48

Scale 1" = 20'

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BENCH MARK
DESCRIPTION:
LOCATION:
RECORDED:
ELEVATION: DATUM:

APPROVED FOR SIGNATURE
PLAN CHECK ENGR. NAME TYPED DATE
PLAN CHECK FIRM
R.C.E. NO.
EXP. DATE

SEAL: KERI L. HEUBERGER, No. 69577, Exp. 09/30/11, CIVIL, STATE OF CALIFORNIA

SCALE
HORIZONTAL: AS NOTED
VERTICAL: AS NOTED

AECOM
7600 Dunsmuir Court, Ste. 300, San Diego, CA 92111
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www.aecom.com

PREPARED BY DATE
KERI L. HEUBERGER
ENGR. NAME TYPED
R.C.E. NO. 69577 EXP. DATE 09/30/2011

ENGINEER OF WORK DATE	ENGINEER OF WORK INITIAL	REVISION DESCRIPTION	SHT. NO.	APPROVAL DATE	APPROVAL INITIAL

FINAL SUBMITTAL - 07/15/2011

SHEET 2 | 22ND DISTRICT AGRICULTURAL ASSOCIATION | SHEETS 15

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS

GRADING PLAN - WEST SITE

APPROVED
ENGINEER RCE EXP. DATE DATE

DSN BY:
CHKD BY:
FIELD BK:

PROJECT NO.

DRAWING NO. GP-01

NOTES

1. THE PREFABRICATED PEDESTRIAN BRIDGE AND FOOTINGS ARE BEING DESIGNED AND PROVIDED THROUGH A SEPARATE CONTRACT.

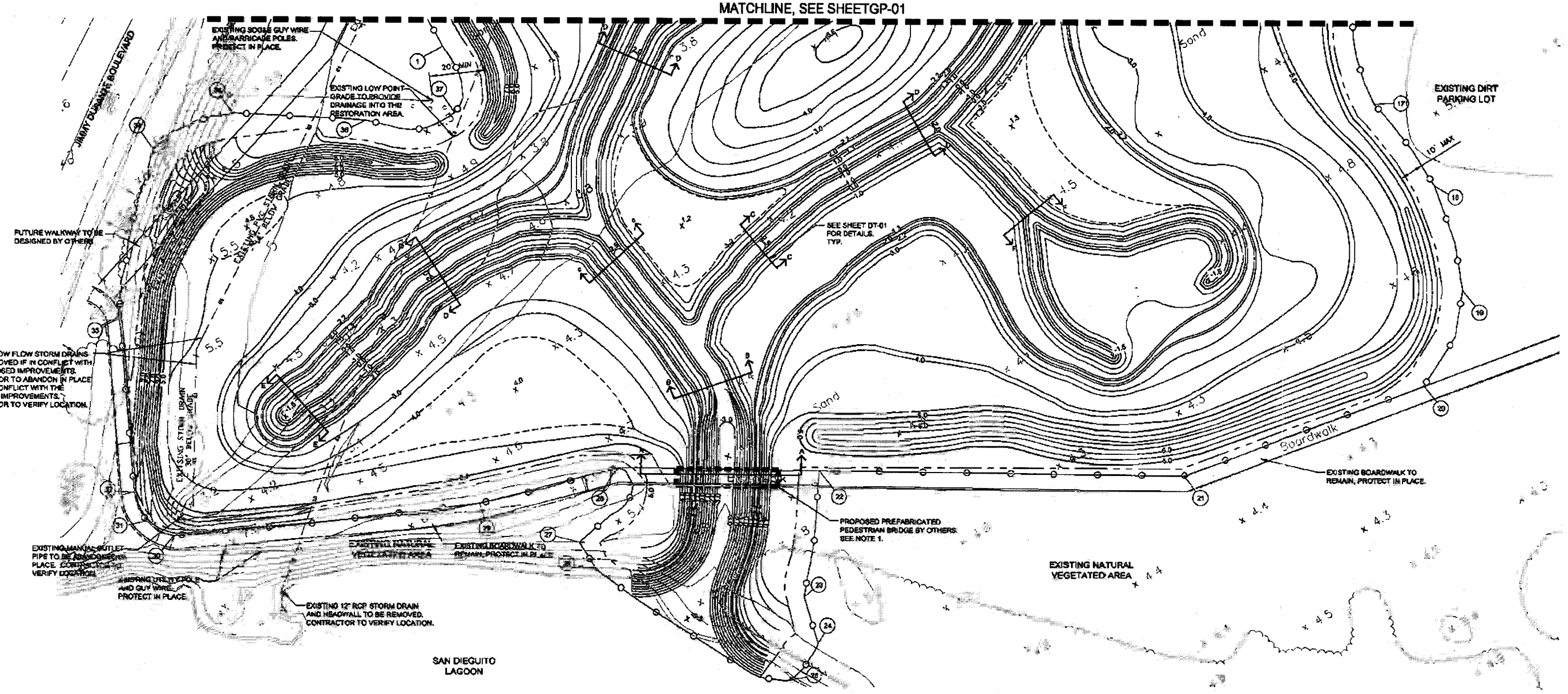
ESA FENCE DATA TABLE		
LOCATION	NORTHING	EASTING
17	1934515.86	6251830.54
18	1934475.48	6251834.80
19	1934433.82	6251823.01
20	1934408.94	6251790.04
21	1934427.34	6251688.98
22	1934503.70	6251565.09
23	1934483.52	6251533.98
24	1934444.41	6251525.29
25	1934438.03	6251518.85
26	1934514.77	6251468.51
27	1934528.02	6251468.13
28	1934546.02	6251496.31

ESA FENCE DATA TABLE		
LOCATION	NORTHING	EASTING
29	1934561.78	6251441.95
30	1934613.01	6251330.86
31	1934625.54	6251324.57
32	1934635.94	6251326.18
33	1934699.78	6251356.57
34	1934750.12	6251402.78
35	1934746.24	6251437.14
36	1934718.28	6251481.63
37	1934701.08	6251513.36

LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING CONTOUR
- DAYLIGHT LINE
- ESA FENCE/CONSTRUCTION LIMIT
- EXISTING STORM DRAIN
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- AREA OF SAME ELEVATION
- PROPOSED PREFABRICATED PEDESTRIAN BRIDGE

MATCHLINE, SEE SHEETGP-01



FINAL SUBMITTAL – 07/15/2011

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BENCH MARK
DESCRIPTION:
LOCATION:
RECORDED:
ELEVATION: DATUM:

APPROVED FOR SIGNATURE

PLAN CHECK ENGR. NAME TYPED DATE
PLAN CHECK FIRM
R.C.E. NO.
EXP. DATE

SEAL

SCALE
HORIZONTAL
AS NOTED
VERTICAL
AS NOTED

AECOM
7807 Convoy Court, Ste. 200
San Diego, CA 92111
T 858.268.8540 F 858.492.9161
www.aecom.com

PREPARED BY: DATE
KERI L. HEUBERGER
CA(RL NAME TYPED
R.C.E NO. 53877 EXP. DATE 09/30/2011

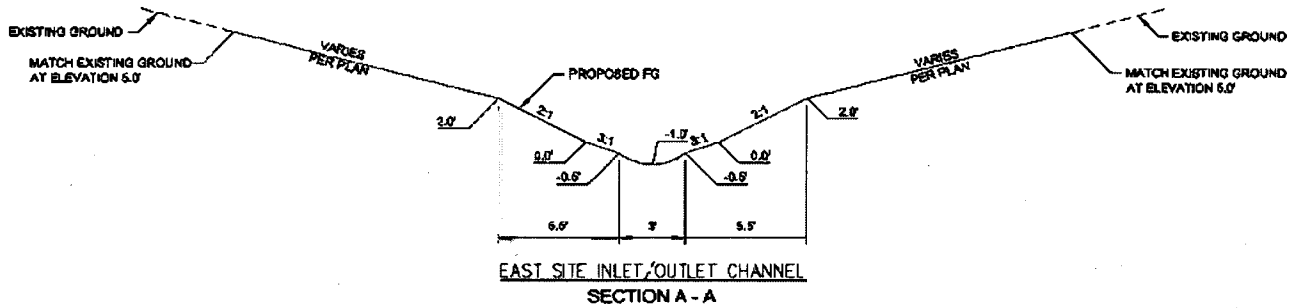
ENGINEER OF WORK DATE	INITIAL	REVISION DESCRIPTION	SHT. NO.	APPROVAL DATE	INITIAL

SHEET 3 — 22ND DISTRICT AGRICULTURAL ASSOCIATION — SHEETS 15

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS
GRADING PLAN - WEST SITE

APPROVED:
ENGINEER RCE EXP. DATE

DWN BY:
CHKD BY:
FIELD BK:
PROJECT NO.
DRAWING NO. GP-02



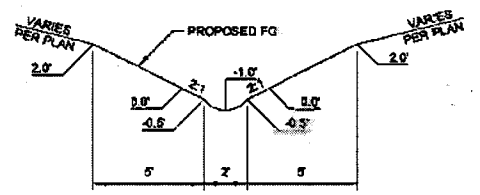
EAST SITE INLET/OUTLET CHANNEL
SECTION A - A

ESA FENCE DATA TABLE		
LOCATION	NORTHING	EASTING
1	1934985.48	6253182.86
2	1934983.43	6253139.62
3	1934975.32	6253124.91
4	1934930.96	6253134.13
5	1934927.96	6253134.37
6	1934917.37	6253097.56
7	1934915.54	6253084.19
8	1934937.85	6253068.80
9	1934954.78	6253027.30
10	1934929.86	6252940.46
11	1934915.57	6252877.43
12	1934902.25	6252842.92

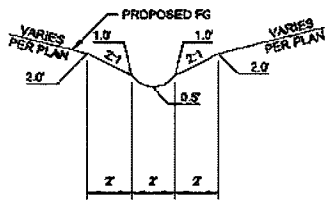
ESA FENCE DATA TABLE		
LOCATION	NORTHING	EASTING
13	1934887.82	6252829.83
14	1934887.02	6252798.55
15	1934901.41	6252807.12
16	1934974.87	6252861.53
17	1935028.66	6252971.20
18	1935058.38	6253370.66
19	1935074.12	6253393.36
20	1935080.29	6253110.40
21	1935076.25	6253145.68
22	1935089.97	6253158.91

LEGEND

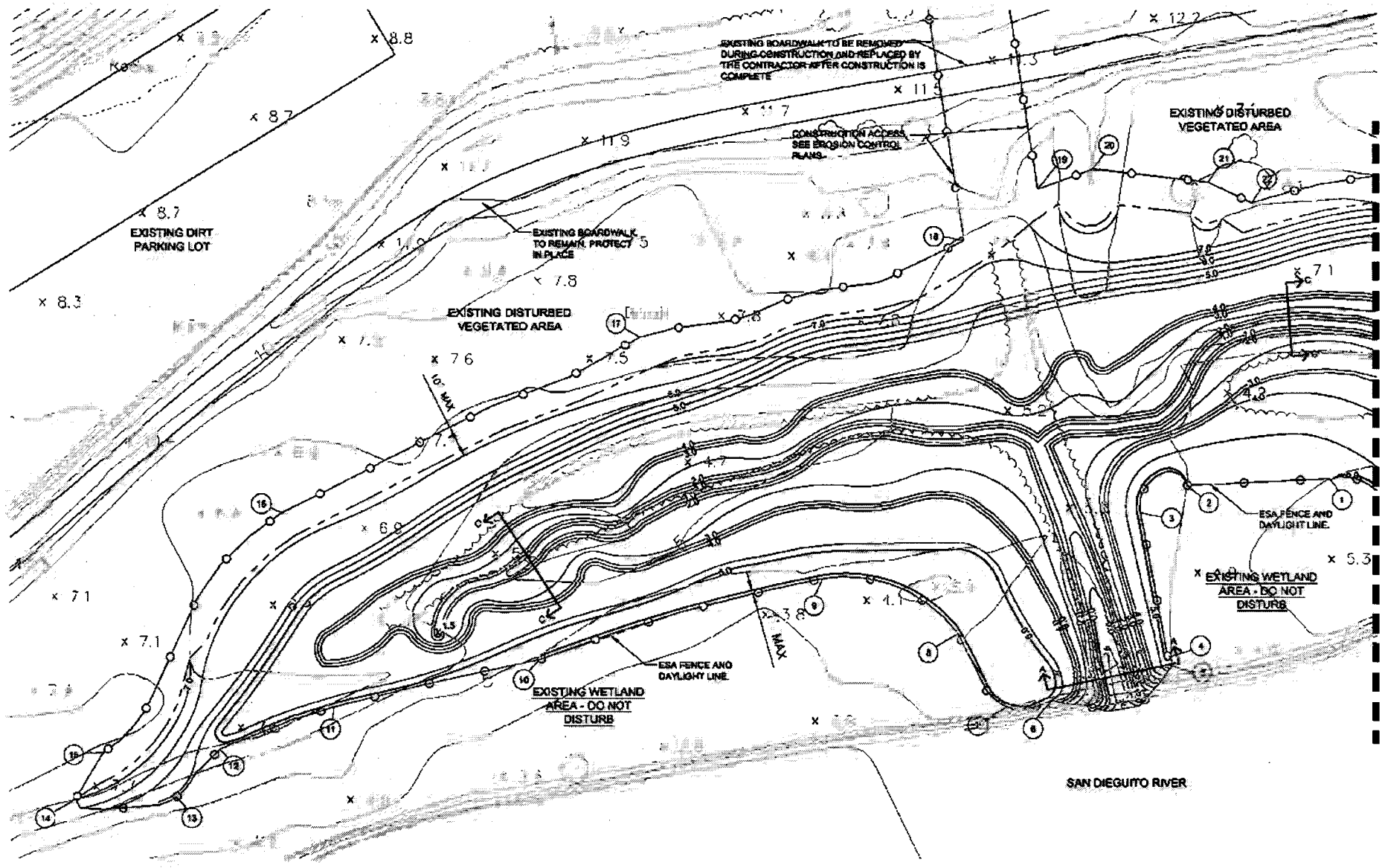
- 5.0 — PROPOSED MAJOR CONTOUR
- 1.0 — PROPOSED MINOR CONTOUR
- EXISTING CONTOUR
- DAYLIG-IT LINE
- ESA FENCE/CONSTRUCTION LIMIT
- x 4.8 PROPOSED SPOT ELEVATION
- x EXISTING SPOT ELEVATION

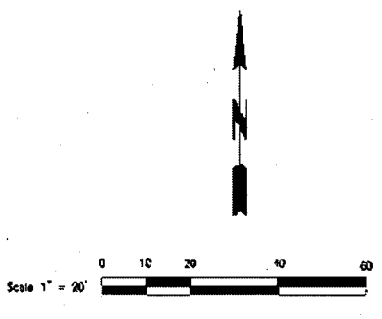


EAST SITE INLET/OUTLET CHANNEL
SECTION B - B



EAST SITE TERTIARY CHANNEL
SECTION C - C





FINAL SUBMITTAL – 07/15/2011

Underground Service Alert
Call TOLL FREE
1-800
422-4133

BENCH MARK
DESCRIPTION:
LOCATION:
RECORDED:
ELEVATION: DATUM:

PLAN CHECK FIRM
R.C.E. NO.
EXP. DATE

SEAL:
Exp. 09/30/11

SCALE
HORIZONTAL
AS NOTED
VERTICAL
AS NOTED

AECOM
7407 Convoy Court, Ste. 200
San Diego, CA. 92111
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PREPARED BY: DATE
KERI L. HEUBERGER
ENGR. NAME TYPED
R.C.E. NO. 66877 EXP. DATE 09/30/2011

Submittals of Work		REVISION DESCRIPTION	SHT. NO.	APPROVAL	
DATE	INITIAL			DATE	INITIAL

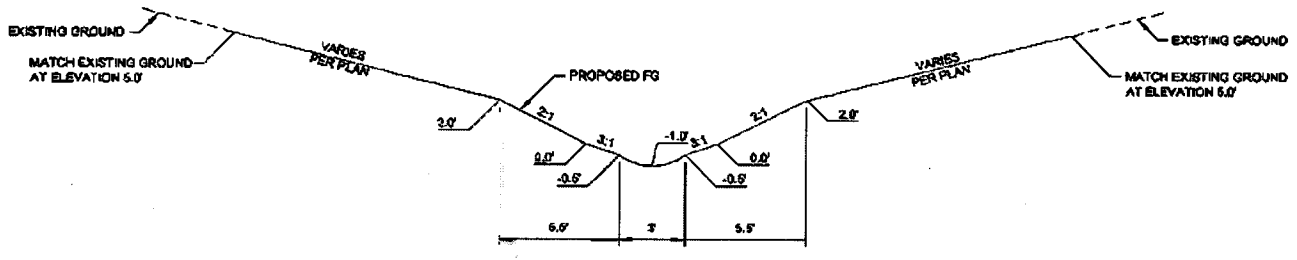
SHEET	22ND DISTRICT AGRICULTURAL ASSOCIATION	SHEETS
4		15

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS

GRADING PLAN – EAST SITE

APPROVED
ENGINEER RCE EXP. DATE
DATE

DWN BY:	PROJECT NO.	DRAWING NO.
CHKD BY:		GP-03
FIELD BK:		



EAST SITE INLET/OUTLET CHANNEL
SECTION A - A

ESA FENCE DATA TABLE		
LOCATION	NORTHING	EASTING
1	1934985.48	6253182.86
2	1934983.43	6253139.62
3	1934975.32	6253124.91
4	1934930.98	6253134.13
5	1934927.96	6253134.27
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11	1934915.57	6252877.43
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ESA FENCE DATA TABLE		
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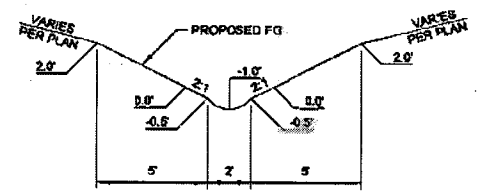
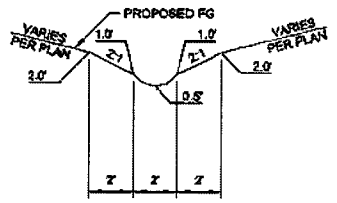
15	1934901.41	6252807.12
16	1934974.82	6252861.53
17	1935028.66	6252971.20
18	1935058.58	6253370.66
19	1935074.12	6253393.58
20	1935080.29	6253110.40
21	1935075.25	6253145.68
22	1935069.97	6253158.91

LEGEND

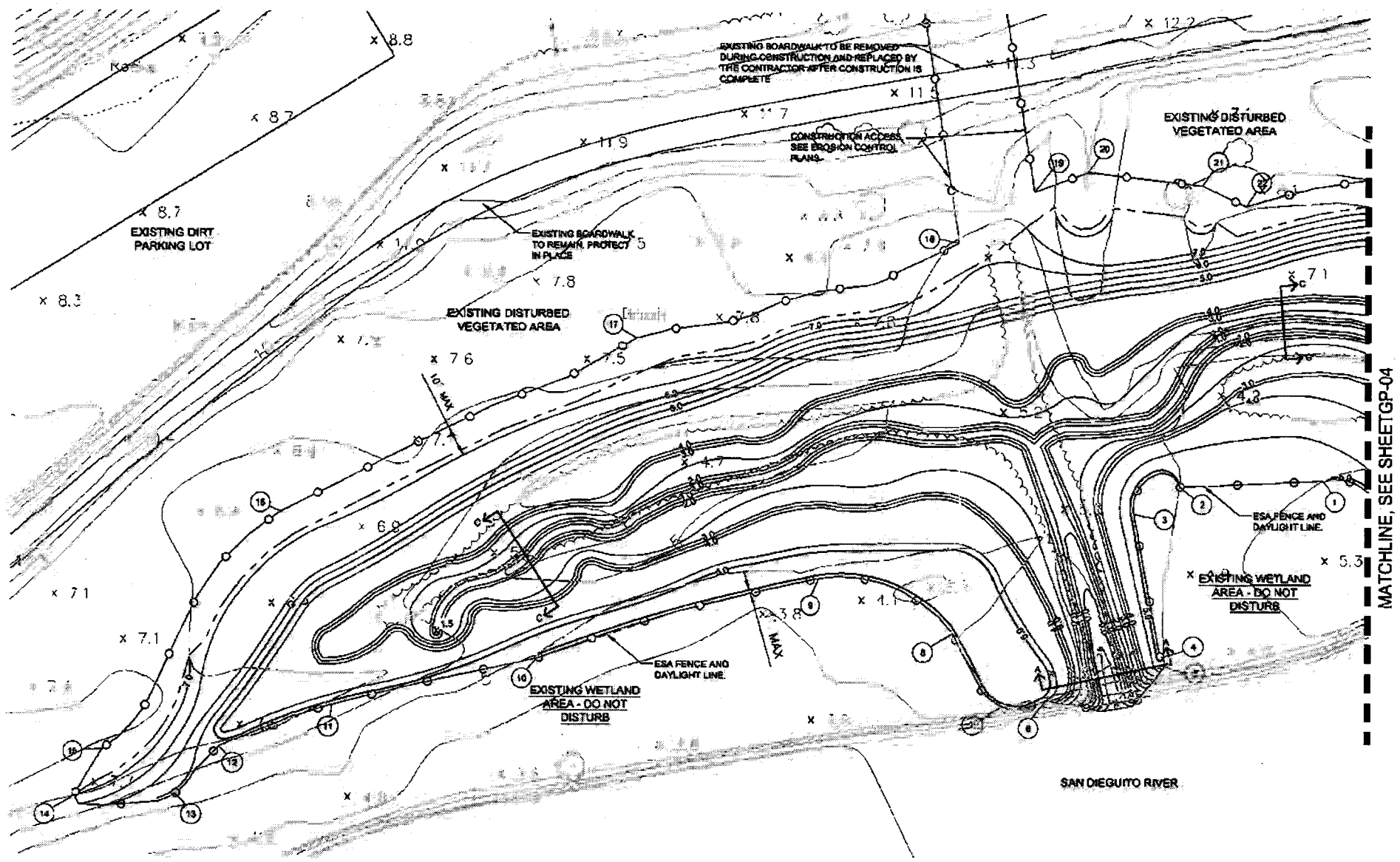
- 5.0 — PROPOSED MAJOR CONTOUR
- 1.0 — PROPOSED MINOR CONTOUR
- EXISTING CONTOUR
- DAYLIGHT LINE
- ESA FENCE/CONSTRUCTION LIMIT
- x 4.8 — PROPOSED SPOT ELEVATION
- x 7.1 — EXISTING SPOT ELEVATION



EAST SITE INLET/OUTLET CHANNEL
SECTION B - B



EAST SITE TERTIARY CHANNEL
SECTION C - C



Scale 1" = 20'

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BENCH MARK
DESCRIPTION:
LOCATION:
RECORDED:
ELEVATION: DATUM:

PLAN CHECK FIRM
R.C.E. NO.
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KERI L. HEUSINGER
ENGR. NAME TYPED
R.C.E. NO. 68877 EXP. DATE 09/30/2011

REVISION DESCRIPTION	SHT. NO.	APPROVAL DATE	APPROVAL INITIAL

FINAL SUBMITTAL – 07/15/2011

SHEET 4 | 22ND DISTRICT AGRICULTURAL ASSOCIATION | SHEETS 15

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS

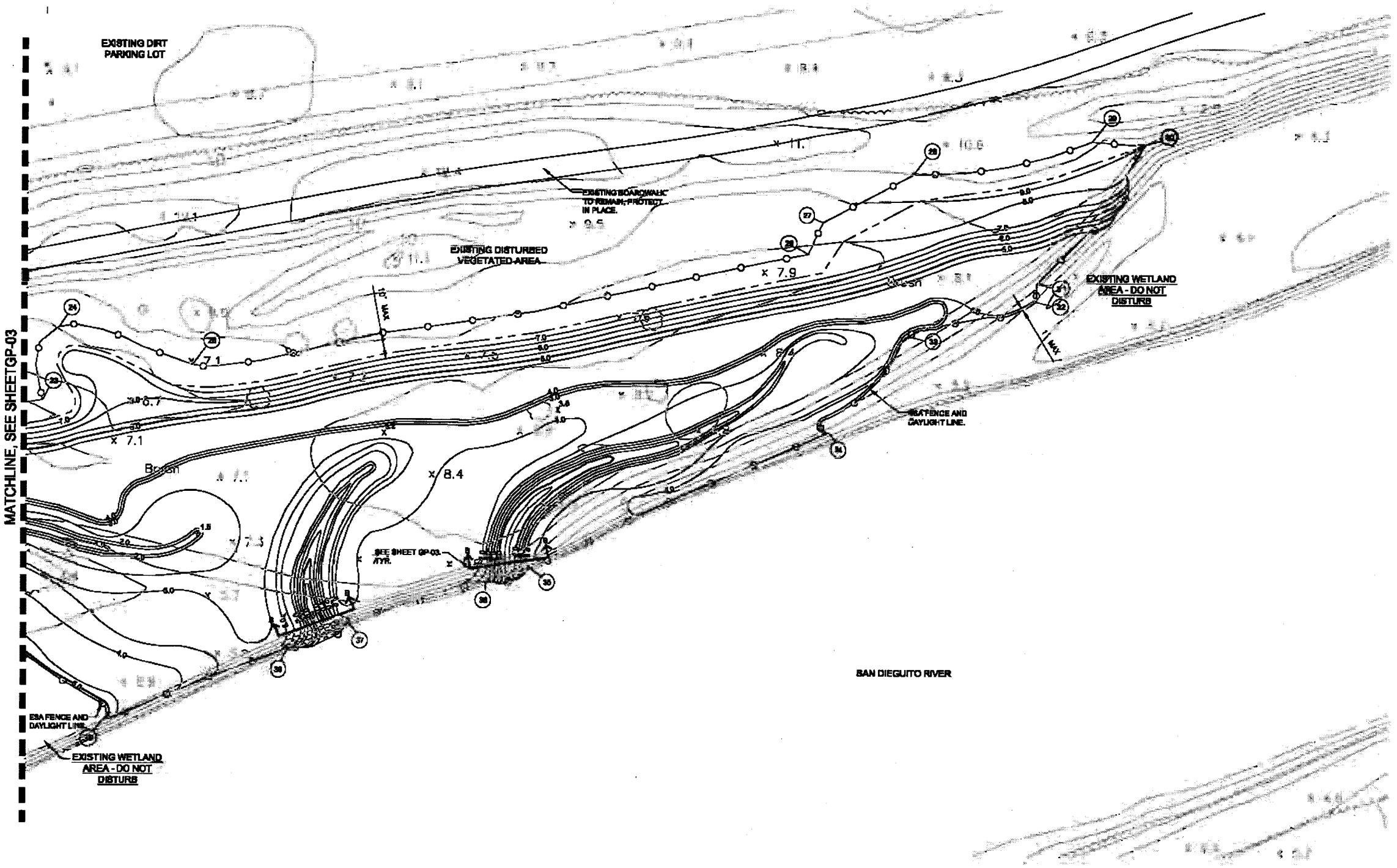
GRADING PLAN – EAST SITE

APPROVED
ENGINEER RCE DATE EXP. DATE

DWN. BY:
CHKD BY:
FIELD BK:

PROJECT NO.

DRAWING NO. GP-03



LEGEND

- 6.0 — PROPOSED MAJOR CONTOUR
- 1.0 — PROPOSED MINOR CONTOUR
- EXISTING CONTOUR
- DAYLIGHT LINE
- ESA FENCE/CONSTRUCTION LIMIT
- x 4.6 — PROPOSED SPOT ELEVATION
- x 4.1 — EXISTING SPOT ELEVATION

ESA FENCE DATA TABLE		
LOCATION	NORTHING	EASTING
23	1835078.52	6253803.63
24	1835107.38	6253209.63
25	1835093.04	6253260.56
26	1835135.08	6253494.98
27	1835148.30	6253502.84
28	1835166.54	6253535.30
29	1835178.55	6253533.49
30	1835178.12	6253523.42
31	1835125.14	6253502.20
32	1835118.20	6253502.20
33	1835104.78	6253533.87
34	1835057.75	6253502.84
35	1835018.00	6253389.58
36	1835010.43	6253372.84
37	1834994.45	6253319.75
38	1834984.58	6253287.17
39	1834956.80	6253228.18

FINAL SUBMITTAL - 07/15/2011

Underground Service Alert
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422-4133

BENCH MARK
DESCRIPTION:
LOCATION:
RECORDED:
ELEVATION: DATUM:

APPROVED FOR SIGNATURE
PLAN CHECK ENGR. NAME TYPED DATE
PLAN CHECK FIRM
R.C.E. NO.
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PREPARED BY DATE
KERI L. HEUBERGER
ENGR. NAME TYPED
R.C.E. NO. 66877 EXP. DATE 08/30/2011

ENGINEER OF WORK DATE	ENGINEER OF WORK INITIAL	REVISION DESCRIPTION	SHT. NO.	APPROVAL DATE	APPROVAL INITIAL

SHEET 5 — 22ND DISTRICT AGRICULTURAL ASSOCIATION — SHEETS 15

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS

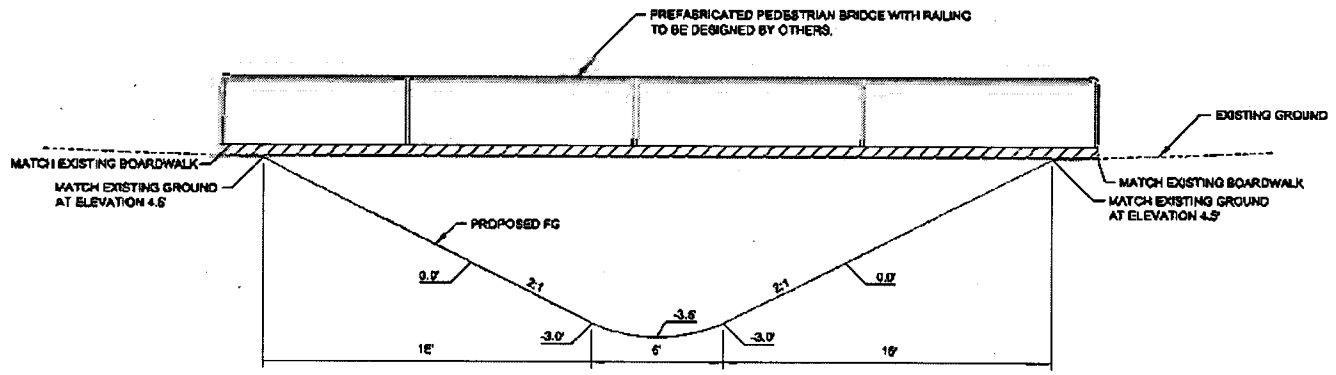
GRADING PLAN - EAST SITE

APPROVED
ENGINEER RCE EXP. DATE

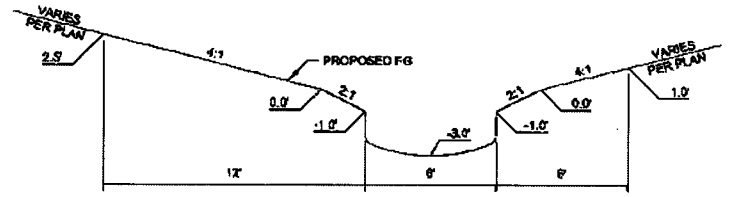
DWN BY:
CHKD BY:
FIELD BK:

PROJECT NO.

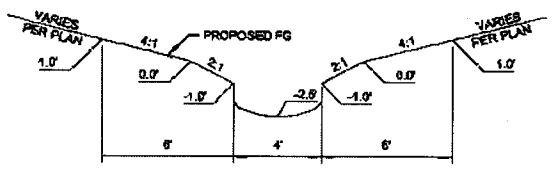
DRAWING NO. GP-04



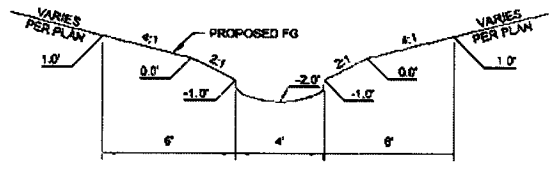
WEST SITE INLET/OUTLET CHANNEL
SECTION A - A



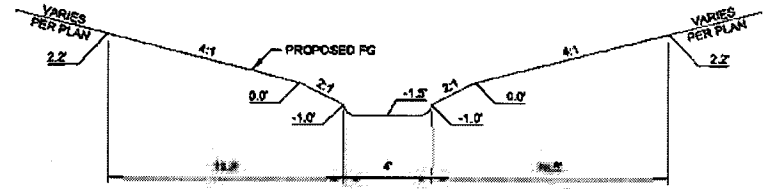
WEST SITE PRIMARY CHANNEL
SECTION B - B



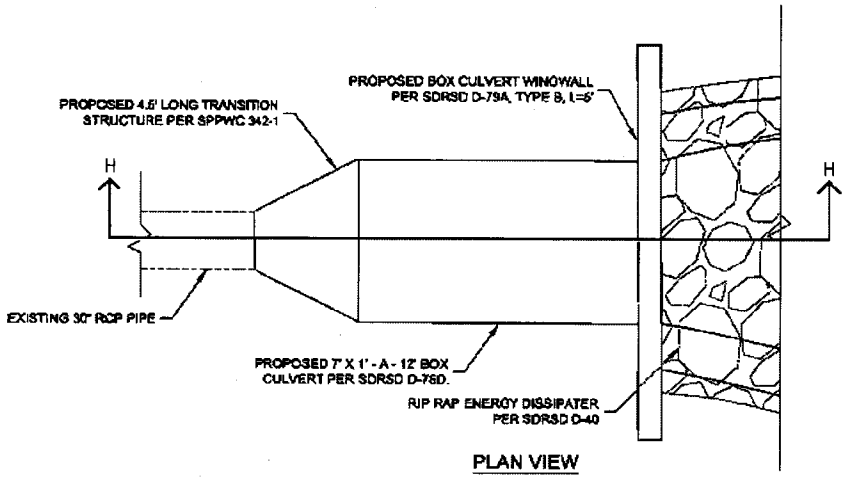
WEST SITE TERTIARY CHANNEL
SECTION C - C



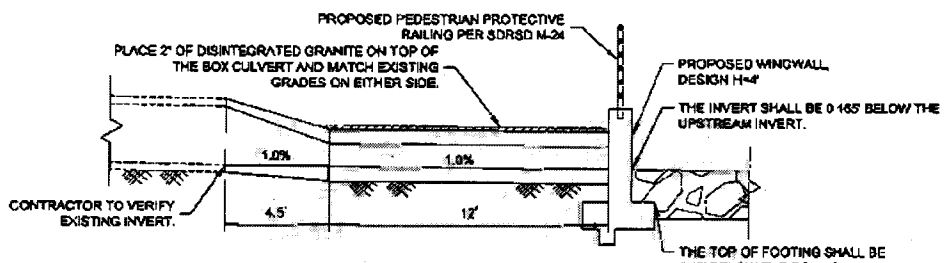
WEST SITE TERTIARY CHANNEL
SECTION D - D



WEST SITE TERTIARY CHANNEL
SECTION E - E

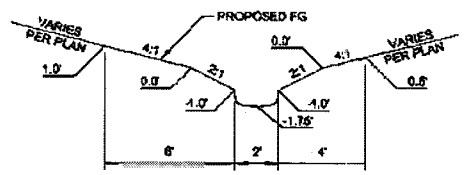


PLAN VIEW

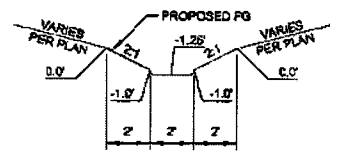


SECTION H - H

DETAIL 1 – PROPOSED STORM DRAIN OUTFALL



WEST SITE TERTIARY CHANNEL
SECTION F - F



WEST SITE TERTIARY CHANNEL
SECTION G - G

Underground Service Alert
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1-800
422-4133
TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK
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LOCATION:
RECORDED:
ELEVATION: DATUM:

APPROVED FOR SIGNATURE
PLAN CHECK ENGR. NAME TYPED DATE
PLAN CHECK FIRM
R.C.E. NO
EXP. DATE

SEAL:
SCALE
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AS NOTED
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AS NOTED

AECOM
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PREPARED BY: DATE
KERI L. HEUBERGER
SIGN. NAME TYPED
R.C.E. NO. 58877 EXP. DATE 09/30/2011

ENGINEER OF WORK DATE	INITIAL	REVISION DESCRIPTION	SHT. NO	APPROVAL DATE	INITIAL

FINAL SUBMITTAL – 07/15/2011

SHEET 6 | 22ND DISTRICT AGRICULTURAL ASSOCIATION | SHEETS 15

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS

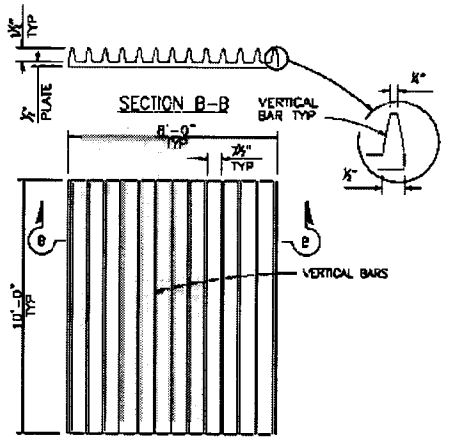
DETAILS

APPROVED
ENGINEER RCE EXP. DATE DATE

DWN BY:
CHKD BY:
FIELD BK:

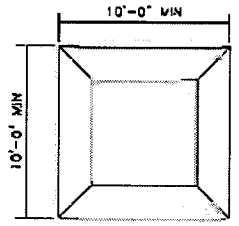
PROJECT NO.

DRAWING NO. DT-01

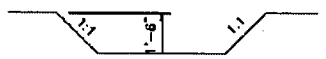


PLAN

TYPICAL CORRUGATED STEEL PANEL DETAIL

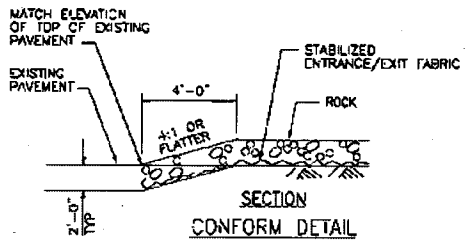


PLAN



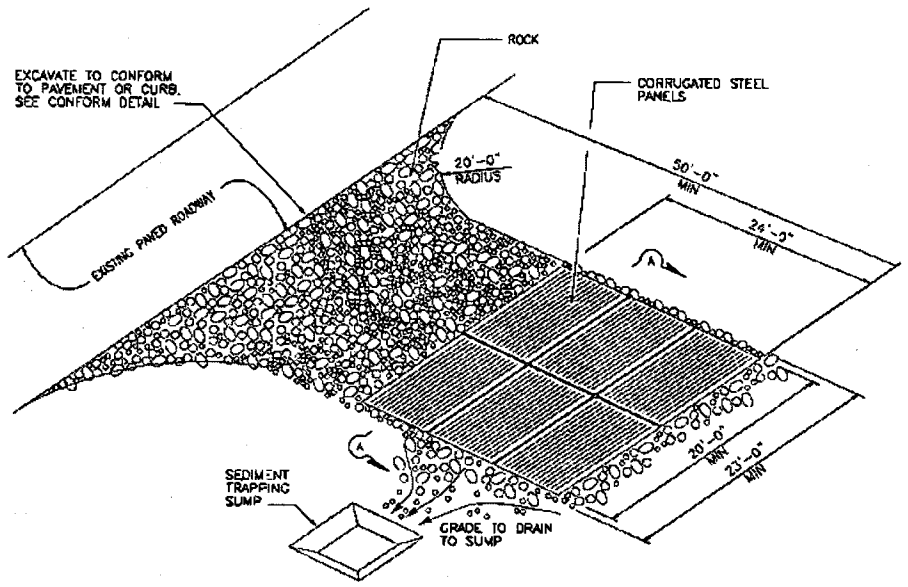
ELEVATION

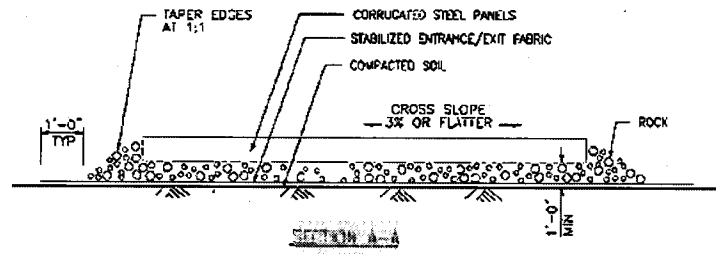
SEDIMENT TRAPPING SUMP



SECTION

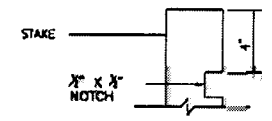
CONFORM DETAIL





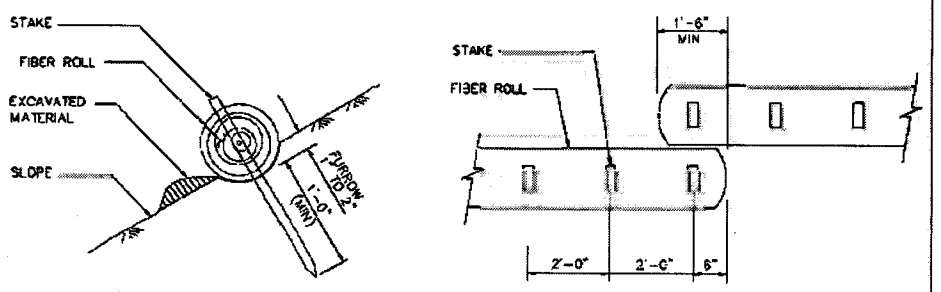
SECTION A-A

1 STABILIZED CONSTRUCTION ENTRANCE/EXIT
N.T.S.



ELEVATION

STAKE NOTCH DETAIL

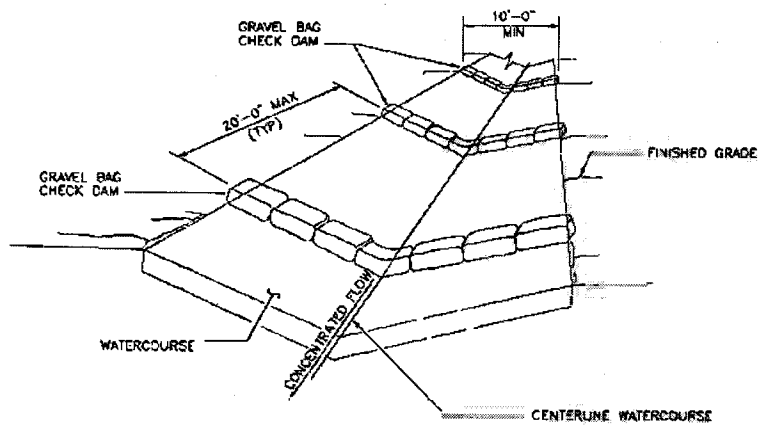


SECTION

PLAN

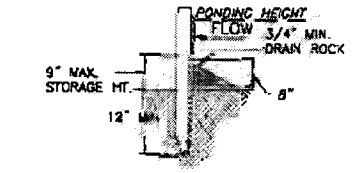
2 FIBER ROLL ALONG ESA FENCE
N.T.S.

CROSS SECTION

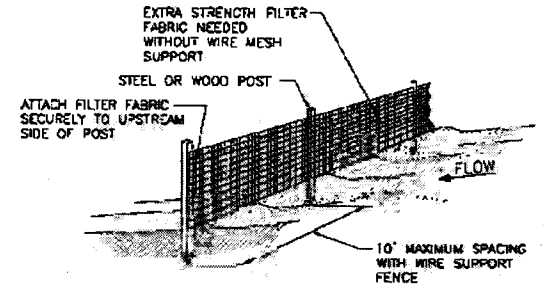


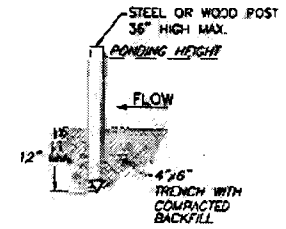
PERSPECTIVE

3 TEMPORARY CHECK DAM – GRAVEL BAG
N.T.S.



INSTALLATION WITHOUT TRENCHING





TRENCH DETAIL

NOTES:
1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
2. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. 9" MAXIMUM RECOMMENDED STORAGE HEIGHT.

4 SILT FENCE
N.T.S.

EROSION CONTROL NOTES

1. THESE NOTES ARE GENERAL AND SHOULD BE APPLIED ACCORDING TO SITE-SPECIFIC CONDITIONS. YEAR-ROUND POLLUTION PREVENTION MEASURES AS OUTLINED IN THE STORMWATER POLLUTION PREVENTION PLAN TO BE DEVELOPED BY THE CONTRACTOR, ALSO KNOWN AS BEST MANAGEMENT PRACTICES (BMPS), MUST BE INSTALLED PRIOR TO ANY FIELD ACTIVITIES. ADDITIONAL EROSION PREVENTION AND SEDIMENT CONTROLS MUST BE INSTALLED AND MAINTAINED PRIOR TO AND THROUGH-OUT EACH RAINY SEASON. THE CONTRACTOR IS RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS THROUGHOUT THE DURATION OF THE PROJECT FOR ALL CLEARING, GRADING, EXCAVATING AND STOCKPILING ACTIVITIES, AND ON ALL EXPOSED SLOPES AND INACTIVE PADS THROUGHOUT THE ENTIRE SITE. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ANY DISCHARGES FROM SUBCONTRACTORS.
2. STORM WATER RUNOFF SHALL BE FILTERED PRIOR TO DISCHARGING FROM A SITE OR TO PRIVATE OR PUBLIC STORM WATER, CONVEYANCE SYSTEM (NATURAL WATERCOURSES, STREETS, FLOW-LINES, INLETS, OUTLETS, ETC.). ALL NON-PERMITTED DISCHARGES ARE PROHIBITED FROM ENTERING ANY STORM WATER CONVEYANCE SYSTEM YEAR-ROUND.
3. A NOTICE OF INTENT (NOI) HAS BEEN, OR WILL BE FILED WITH THE STATE WATER RESOURCES CONTROL BOARD (SWRCB) AND THAT A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN OR WILL BE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF CALIFORNIA GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (PERMIT NO. CASOOOOO2) FOR ALL OPERATIONS ASSOCIATED WITH THESE PLANS. THE PERMITTEE SHALL KEEP A COPY OF THE SWPPP IN SITE AND AVAILABLE FOR REVIEW.
4. ADDITIONAL EROSION AND SEDIMENT CONTROL MATERIALS SHALL BE STOCKPILED AT VARIOUS LOCATIONS THROUGHOUT THE SITE FOR IMMEDIATE IMPLEMENTATION WITHIN SEVEN (7) DAYS PRIOR TO ANY FORECASTED RAIN THE DEVELOPER/CONTRACTOR SHALL MAKE AVAILABLE EQUIPMENT AND WORKERS FOR EMERGENCY WORK TO PROTECT THE SITE.
5. PERIMETER PROTECTION MUST BE INSTALLED PRIOR TO ANY CLEARING ACTIVITIES. CLEARING SHALL BE LIMITED TO AREAS THAT WILL BE IMMEDIATELY GRADED OR DISTURBED. A COMBINATION OF EROSION AND SEDIMENT CONTROLS SHALL BE IMPLEMENTED IN AREAS THAT HAVE BEEN CLEARED. ALL DISTURBED AREAS OF AN INACTIVE SITE SHALL ALSO BE PROTECTED.
6. DURING THE RAINY SEASON, THE AMOUNT OF EXPOSED SOIL ALLOWED AT ONE TIME SHALL NOT EXCEED THAN WHICH CAN BE ADEQUATELY PROTECTED BY THE CONTRACTOR IN THE EVENT OF A RAINSTORM. 125% OF ALL SUPPLIES NEEDED FOR BMP MEASURES SHALL BE RETAINED ON THE JOB SITE IN A MANNER THAT ALLOWS FULL DEPLOYMENT AND COMPLETE INSTALLATION IN 48 HOURS OR LESS OF FORECASTED RAIN.
7. ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED, RESTORED, REPAIRED OR MODIFIED YEAR-ROUND, AND PRIOR TO AND AFTER RAIN EVENTS, THROUGHOUT THE SITE TO PROTECT PERIMETERS, ADJACENT PROPERTIES, ENVIRONMENTALLY SENSITIVE AREAS, AND ALL PRIVATE AND PUBLIC STORM WATER CONVEYANCE SYSTEMS. IF ANY EROSION OR SEDIMENT CONTROLS FAIL DURING ANY RAIN EVENT, MORE EFFECTIVE ONES WILL BE REQUIRED IN THEIR PLACE.
8. EROSION CONTROLS SHALL INCLUDE, BUT ARE NOT LIMITED TO, APPLYING AND ESTABLISHING VEGETATIVE COVER, WOOD MULCH, STAPLED OR PINNED BLANKETS (STRAW, COCONUT OR OTHER), PLASTIC SHEETING (MINIMUM 10-MIL), POLYPROPYLENE MATS, SPRAY-ON CONTROLS TO ALL DISTURBED AREAS, OR OTHER MEASURES APPROVED BY THE RESIDENT ENGINEER. JUTE NETTING SHALL NOT BE USED AS A STAND-ALONE EROSION CONTROL.
9. SEDIMENT CONTROLS SHALL INCLUDE, BUT ARE NOT LIMITED TO, DESILTING BASINS, GRADED BERMS, FIBER ROLLS, SILT FENCES, GRAVEL BAG CHEVRONS (FILLED WITH MINIMUM ¾" GRAVEL), CHECK DAMS, DRAINAGE INLET PROTECTION, ETC.
10. ALL ONSITE AND OFFSITE FLOW LINES (V-DITCHES, BROW-DITCHES, TERRACE DRAINS, RIBBON GUTTERS, CURB GUTTERS, ETC.) AND STORM WATER CONVEYANCE SYSTEMS, CHECK DAMS, CHEVRONS, SILT FENCES AND DESILTING BASINS SHALL BE FREE OF SEDIMENT, CONSTRUCTION MATERIALS, WASTE, MISCELLANEOUS DEBRIS, AND DETERIORATED EROSION AND SEDIMENT CONTROLS YEAR-ROUND.
11. FLAT AREAS OF LESS THAN 5% SHALL HAVE 100% PROTECTION USING GEOTEXTILES, MATS, OR OTHER MATERIAL APPROVED BY THE RESIDENT ENGINEER FOR STABILIZING SLOPES, OR USING TRACKING AND SOIL STABILIZERS/BINDERS, MULCH/WOOD CHIPS, OR JUTE MATTING
12. THE USE OF BONDED FIBER MATRIX (BFM) IS SUBJECT TO THE FOLLOWING LIMITATIONS AND RESTRICTIONS:
    A. APPLICATION RATES SHALL BE 3,500 POUNDS PER ACRE MINIMUM FOR 2:1 SLOPES OR SHALLOWER SLOPES AND 4,000 POUNDS PER ACRE FOR SLOPES STEEPER THAN 2:1
    B. BFM SHALL BE APPLIED AT LEAST 24 HOURS BEFORE OR AFTER RAINFALL AND SHALL BE APPLIED TO PROVIDE 100% COVERAGE.
    C. THE SITE MUST BE PROTECTED WITH BROW DITCHES AND/OR DIVERSION BERMS AT THE TOP OF SLOPES TO DIVERT FLOW FROM THE FACE OF THE SLOPE.
13. CONSTRUCTION WASTE AND MISCELLANEOUS DEBRIS SHALL BE PLACED IN WATER-TIGHT BINS. WIRE MESH RECEPTACLES WILL NOT BE ALLOWED. WASH-OUT STATIONS SHALL BE PROVIDED FOR CONCRETE, PAINTS, STUCCO, AND OTHER LIQUID WASTE SHALL BE LINED WITH PLASTIC AND LOCATED AWAY FROM STREETS, SIDEWALKS, RIGHT-OF-WAYS AND FLOW-LINES, ETC. PRIOR TO ANY FORECASTED RAIN, BINS AND WASH-OUTS SHALL BE COVERED WITH A LID OR PLASTIC TARP.
14. CONSTRUCTION ACCESS POINTS SHALL BE STABILIZED WITH A COMBINATION OF ROCK AND SHAKER PLATES YEAR-ROUND TO PREVENT TRACK-OUT. INTERIOR ACCESS POINTS (ALL PROPOSED DRIVEWAYS, MATERIAL STORAGE AND STAGING AREA ENTRANCES/EXITS, ETC.) SHALL ALSO BE PROTECTED WITH ROCK TO PREVENT TRACK-OUT ONTO INTERIOR STREETS. ROUTINE STREET SWEEPING SHALL BE PERFORMED ON ALL PAVED STREETS WHERE TRACKING IS OBSERVED. VACUUM SWEEPERS SHALL BE USED WHEN STREET SWEEPING BECOMES INEFFECTIVE. CONTROLLED STREET WASHING WILL ONLY BE ALLOWED PRIOR TO THE APPLICATION OF ASPHALT SEAL COATS, AND ONLY WHEN ALL PERTINENT DRAINAGE INLETS ARE PROTECTED.
15. DESILTING BASINS SHALL BE SIZED ACCORDING TO THE STATE GENERAL CONSTRUCTION PERMIT (3600 CUBIC FEET OF STORAGE PER ACRE OF DISTURBED SITE), EVEN IF THE SITE DOES NOT REQUIRE COVERAGE UNDER THIS PERMIT. WATER SHALL BE FILTERED AND DRAINED FROM BASINS WITHIN 72 HOURS.
16. STORM WATER RUNOFF SHALL NOT BE DIRECTED OVER ANY SLOPES WITHOUT PERMANENT DOWN DRAINS INSTALLED. EROSION AND SEDIMENT CONTROLS ARE REQUIRED ON ALL EXPOSED SLOPES UNTIL SUFFICIENT PERMANENT LANDSCAPING HAS BEEN ESTABLISHED
17. MATERIAL STORAGE AND STAGING AREAS SHALL BE ESTABLISHED. FUEL TANKS, PORTABLE TOILETS, LIQUIDS, GELS AND POWDERS SHALL BE STORED AWAY FROM ALL PRIVATE / PUBLIC STORM WATER CONVEYANCE SYSTEMS, SIDEWALKS, RIGHT-OF-WAYS AND FLOW-LINES AND SHALL HAVE SECONDARY CONTAINMENT. INACTIVE STOCKPILES OF SOIL SHALL BE COVERED AT ALL TIMES. ACTIVE STOCKPILES SHALL BE COVERED PRIOR TO A FORECASTED RAIN AND SHOULD HAVE PERIMETER CONTROL AT ALL TIMES.
18. ALL PORTABLE MIXERS SHALL HAVE PLASTIC LINERS UNDERNEATH WITH GRAVEL-BAGS PLACED ON THE DOWN-HILL SIDE OF THE LINERS TO CONTAIN DISCHARGES.
19. NO OBSTRUCTIONS, OTHER THAN BMPS, SHALL BE ALLOWED WITHIN ANY STORM WATER CONVEYANCE SYSTEM, UNLESS ALTERNATIVE DRAINAGE FACILITIES HAVE BEEN APPROVED BY THE RESIDENT ENGINEER.
20. WHEN CONSTRUCTION ACTIVITIES ARE COMPLETE, ALL MATERIALS NEED TO BE DISPOSED OF PROPERLY AND THE PROJECT STAGING AND ACCESS AREAS RETURNED TO THEIR PRE-PROJECT STATE.

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PREPARED BY: DATE
KERI L. HEUBERGER
ENGR. NAME TYPED
R.C.E NO. 58877 EXP. DATE 09/30/2011

ENGINEER OF WORK DATE	ENGINEER OF WORK INITIAL	REVISION DESCRIPTION	SHT. NO	APPROVAL DATE	APPROVAL INITIAL

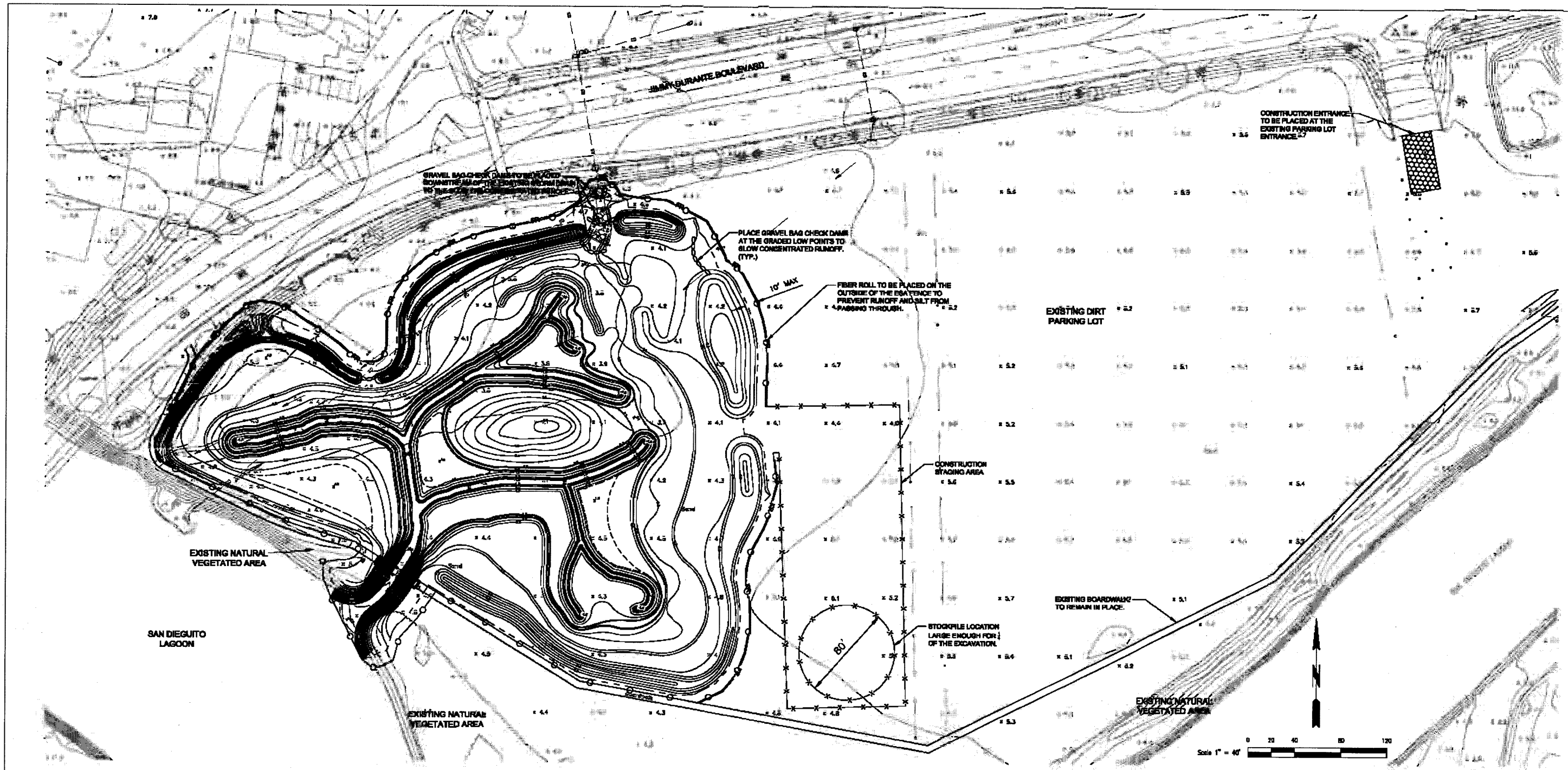
SHEET 7 | 22ND DISTRICT AGRICULTURAL ASSOCIATION | SHEETS 15

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS

EROSION CONTROL NOTES & DETAILS

APPROVED:
ENGINEER RCE DATE EXP. DATE

DWN BY:
CHKD BY:
FIELD BK:
PROJECT NO.
DRAWING NO. EC-01



LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING CONTOUR
- AREA OF SAME ELEVATION
- DAYLIGHT LINE
- ESA FENCE/CONSTRUCTION LIMIT
- EXISTING STORM DRAIN
- FIBER ROLL
- SILT FENCE
- GRAVEL BAG CHECK DAM
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- PROPOSED CONSTRUCTION ENTRANCE

ABBREVIATIONS

MAX MAXIMUM

NOTES

1. PRIOR TO GRADING, THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE EROSION CONTROL TECHNIQUES (I.E. SILT FENCE, FIBER ROLLS, ETC.) ALONG THE PERIMETER OF THE RESTORATION SITE TO PROTECT EXISTING WETLAND AND UPLAND HABITAT AND PROVIDE SEDIMENT AND EROSION CONTROL. THE CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPs) SHALL BE CONSISTENT WITH THE EROSION CONTROL PLANS AND THE SWPPP TO BE PREPARED BY THE CONTRACTOR.
2. SUPPLEMENTAL EROSION-CONTROL MATERIALS (STRAW WATTLES, NATURAL FIBER MATTING, ETC.) SHALL BE INSTALLED AS DETERMINED BY THE SWPPP, RESTORATION ECOLOGIST, AND RESIDENT ENGINEER.
3. THE INSIDE OF THE RESTORATION AREA IS TO BE GRADED FIRST. THEN THE INLET/OUTLET CHANNEL WILL BE GRADED WITH A TEMPORARY DIRT BERM CONSTRUCTED TO KEEP THE TIDAL WATERS OUT OF THE SITE. THE BERM WILL THEN BE REMOVED AND THE HYDROLOGY EVALUATED. THE PLANTING WILL BEGIN AFTER THE HYDROLOGY OF THE SITE IS DEEMED ADEQUATE.
4. AS SOON AS CUT AND FILL SLOPES ARE COMPLETED, ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITH A HYDROMULCH MIXTURE OR AN EQUAL TREATMENT APPROVED BY THE RESIDENT ENGINEER.
5. EXCESS EXCAVATED FILL SHALL BE STORED SEPARATELY FROM OTHER MATERIALS, AND IN STOCKPILES NOT IN EXCESS OF 6 FEET HIGH. THE STOCKPILED FILL SHALL BE STORED AND PROTECTED WITH SILT FENCE UNTIL IT IS TO BE USED FOR THE RESTORATION PROJECT OR EXPORTED OFF-SITE. THE EXCESS FILL SHALL BE STOCKPILED FOR THE MINIMUM TIME NECESSARY AND AWAY FROM DRAINAGE COURSES.
6. FILL STOCKPILES SHALL BE COVERED WITH A BREATHABLE MATERIAL (JUTE MESH, OR EQUIVALENT) TO PREVENT SOIL LOSS FROM WIND AND RAIN, AND MINIMIZE POTENTIAL WEED INVASION.
7. ANY WEEDS THAT GROW FROM THE STOCKPILED MATERIAL SHOULD BE REMOVED BEFORE THEY SET SEED.
8. NO OVERNIGHT STORAGE OF EQUIPMENT, CONSTRUCTION MATERIALS, OR EXCAVATED MATERIALS SHALL OCCUR WITHIN WETLANDS OR NATIVE VEGETATION AREAS OR ON THE PUBLIC BOARDWALK/TRAIL.
9. STORAGE AND STAGING AREAS SHALL BE LOCATED IN A MANNER THAT HAS THE LEAST IMPACT ON VEHICULAR AND PEDESTRIAN TRAFFIC ALONG JIMMY DURANTE BOULEVARD AND THE PUBLIC BOARDWALK/TRAIL SYSTEM.
10. UNLESS AUTHORIZED BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME (DFG) OR THE U.S. FISH & WILDLIFE SERVICE, NO WORK SHALL OCCUR DURING THE BREEDING SEASONS OF ANY THREATENED OR ENDANGERED AVIAN SPECIES NESTING IN THE VICINITY.
11. STAGING SITES AND TEMPORARY EROSION CONTROL BMPs SHALL BE REMOVED AND DISPOSED OF PROPERLY AFTER COMPLETION OF CONSTRUCTION. THE PROJECT DISTURBED AREA SHALL BE RETURNED TO THE PRE-PROJECT STATE.

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FINAL SUBMITTAL - 07/15/2011

SHEET 8 — 22ND DISTRICT AGRICULTURAL ASSOCIATION — SHEETS 15

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS

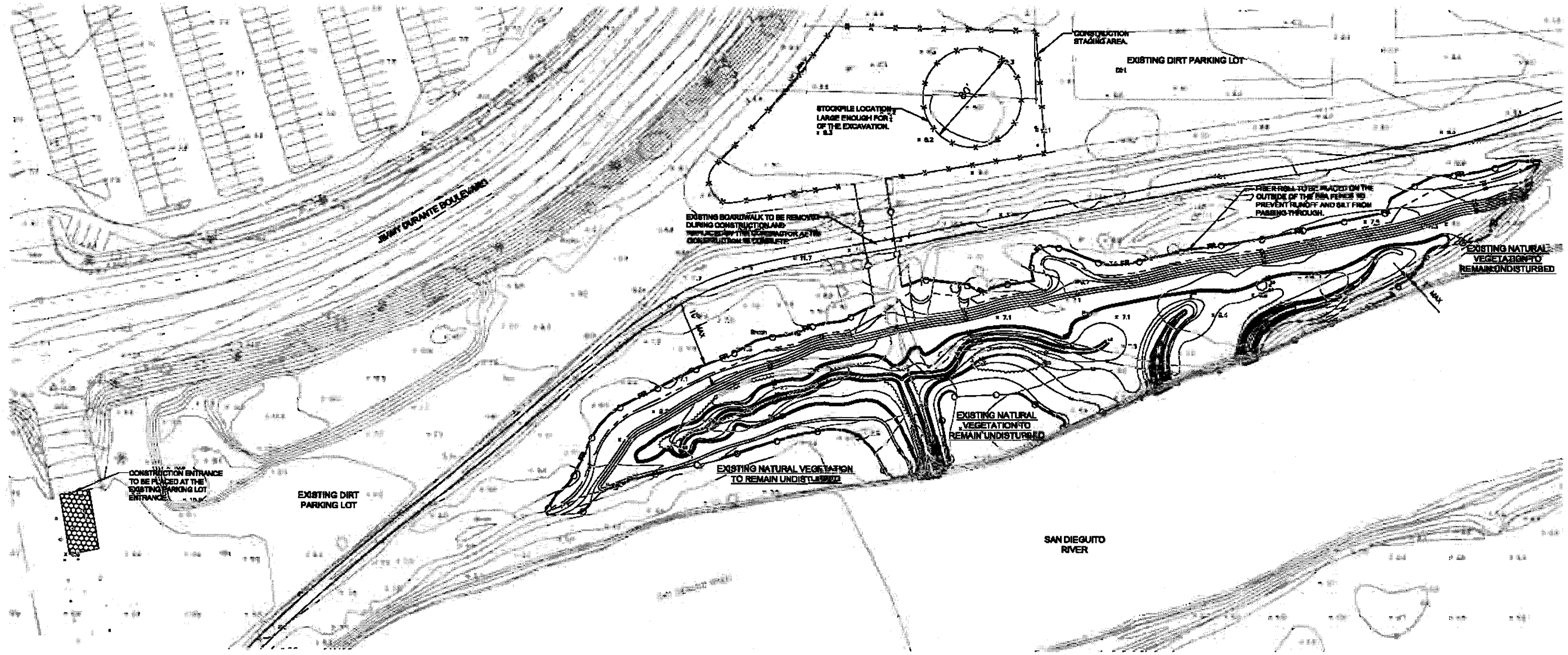
EROSION CONTROL PLAN - WEST SITE

APPROVED
ENGINEER RCE EXP. DATE DATE

DWN BY:
CHKD BY:
FIELD BK:

PROJECT NO.

DRAWING NO. EC-02



LEGEND

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING CONTOUR
- DAYLIGHT LINE
- ESA FENCE/CONSTRUCTION LIMIT
- FIBER ROLL
- SILT FENCE
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION

Scale 1" = 40'

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SHEET 9 | 22ND DISTRICT AGRICULTURAL ASSOCIATION | SHEETS 15

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS

EROSION CONTROL PLAN - EAST SITE

APPROVED
ENGINEER RCE DATE EXP. DATE

DWN BY:
CHKD BY:
FIELD BK:

PROJECT NO.

DRAWING NO. EC-03

PROJECT NOTES

1. CONTRACTOR SHALL REVIEW PLANTING AND SEEDING INSTALLATION DETAILS, SPECIFICATIONS, AND NOTES, AND SHALL NOTIFY THE PROJECT ENGINEER OF ANY DISCREPANCIES IN THE EXISTING CONDITIONS OR WITHIN THE PLANS PRIOR TO BEGINNING WORK.
2. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOBSITE CONDITIONS DURING THE COURSE OF REVEGETATION INSTALLATION OF THIS PROJECT, INCLUDING: SAFETY OF ALL PERSONS AND PROPERTY, AND THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER AND LANDSCAPE ARCHITECT HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE ARCHITECT.
3. CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH CONDITIONS UNDER WHICH WORK SHALL BE PERFORMED PRIOR TO BIDDING.
4. LOCATION AND ELEVATION OF EXISTING IMPROVEMENTS SHALL BE CONFIRMED BY FIELD MEASUREMENTS PRIOR TO CONSTRUCTION OF NEW WORK. NOTIFY THE OWNER'S PROJECT ENGINEER OF DISCREPANCIES PRIOR TO COMMENCEMENT OF WORK.
5. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE PROJECT RESTORATION PLAN (APRIL 2011) AND THE LATEST EDITION OF STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK).
6. WORK MAY NOT START UNTIL PERMITS HAVE BEEN OBTAINED AS CONFIRMED BY THE PROJECT ENGINEER.
7. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS AS TO OFFER THE LEAST POSSIBLE OBSTRUCTION AND INCONVENIENCE TO PUBLIC TRAFFIC, AND SHALL HAVE UNDER CONSTRUCTION NO GREATER EXTENT OR AMOUNT OF WORK THAN HE CAN EXECUTE IN A PROPER AND TIMELY MANNER.
8. APPROVAL OF THESE PLANS BY THE OWNER OR ITS AGENTS DOES NOT RELIEVE THE APPLICANT AND HIS ENGINEER FROM THE RESPONSIBILITY FOR THE CORRECTION OF ERRORS OR OMISSIONS DISCOVERED DURING CONSTRUCTION. UPON REQUEST, THE APPROPRIATE PLAN REVISIONS SHALL BE PROMPTLY SUBMITTED BY THE CONTRACTOR TO THE OWNERS ENGINEER FOR REVIEW AND APPROVAL.
9. PRIOR TO THE START OF CONSTRUCTION, THE PROJECT ENGINEER AND RESTORATION ECOLOGIST SHALL EDUCATE ALL PERSONNEL ON THE PROJECT PERMIT REQUIREMENTS, INCLUDING SENSITIVE HABITAT AND WILDLIFE, EROSION AND POLLUTION PREVENTION MEASURES (E.G. NEED FOR ONSITE MATERIALS) AND VIOLATION AND NOTIFICATION RESPONSES.
10. THE LIMITS OF WORK ARE AS DEPICTED ON THE DRAWINGS. LIMITS ARE INTENDED TO FOLLOW THE AREAS THAT WILL BE GRADED OR OTHERWISE DISTURBED AND THAT LIE OUTSIDE THE NEW TOE OF SLOPE ESTABLISHED BY THE PROJECT. IF ACTUAL PROJECT DISTURBANCE DIFFERS FROM LIMITS SHOWN ON THE DRAWINGS, CONTRACTOR SHALL ADJUST REVEGETATION LIMITS TO MATCH, AT THE DIRECTION OF THE RESTORATION ECOLOGIST.
11. SUPPLEMENTAL EROSION CONTROL MATERIALS (STRAW WATTLES, NATURAL FIBER MATTING, ETC.) SHALL BE INSTALLED TO AID SUCCESS OF REVEGETATION AS DETERMINED BY THE RESTORATION ECOLOGIST AND OWNER'S PROJECT ENGINEER.
12. REFER TO CIVIL DRAWINGS AND PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR EROSION CONTROL REQUIREMENTS.
13. THE RESTORATION ECOLOGIST AND OWNER WILL INSPECT THE GRADING AREA TO CONFIRM PROPER GRADES AND SEEDBED PREPARATION HAVE BEEN ACHIEVED PRIOR TO PLANTING AND SEEDING INSTALLATION. APPROVED STAGING AREAS AND ACCESS ROUTES WILL BE DETERMINED BY THE PROJECT ENGINEER PRIOR TO START OF WORK.
14. CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION MEETING WITH THE PROJECT ENGINEER AND RESTORATION ECOLOGIST PRIOR TO THE COMMENCEMENT OF ANY WORK. CONTRACTOR SHALL NOTIFY AND SCHEDULE WITH THE PROJECT ENGINEER AND RESTORATION ECOLOGIST SITE OBSERVATION AT THE FOLLOWING TIMES AFTER THE SITE BOUNDARY HAS BEEN FLAGGED:
    A. WEED AND NONNATIVE PLANT CONTROL AND SEEDBED PREPARATION INSPECTION PRIOR TO PLANTING OR SEEDING.
    B. CONTAINER PLANT SPOTTING PRIOR TO PLANTING.
    C. PRE-FINAL WALK THROUGH (START OF 120-DAY PLANT AND HYDROLOGY ESTABLISHMENT PERIOD).
    D. FINAL WALK THROUGH/APPROVAL (END OF 120-DAY PLANT AND HYDROLOGY ESTABLISHMENT PERIOD).
15. ANY REVISIONS MADE TO APPROVED PLANS SHALL NEED SUBSEQUENT WRITTEN APPROVAL BY THE PROJECT ENGINEER AND RESTORATION ECOLOGIST BEFORE STARTING THE WORK.
16. TEMPORARY STAGING SHALL BE CONDUCTED IN A MANNER THAT AVOIDS DIRECT OR INDIRECT IMPACTS TO ADJACENT NATIVE HABITAT AREAS.
17. ANY VEGETATED AREAS WITHIN THE LIMITS OF WORK DISTURBED DURING CONSTRUCTION SHALL BE PLANTED AND SEEDED AS SPECIFIED IN THE PLANS BY THE CONTRACTOR PRIOR TO START OF THE 120 DAY PLANT AND HYDROLOGY ESTABLISHMENT PERIOD. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT ENGINEER AND RESTORATION ECOLOGIST FOR A LIST OF REPLACEMENT PLANTS AND QUANTITIES TO BE INSTALLED.
18. AT COMPLETION OF ALL WORK OUTLINED IN THESE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER AND ARRANGE FOR A WALK THROUGH TO DETERMINE THAT ALL ASPECTS OF WORK ARE COMPLETED. WORK MUST BE FULLY COMPLETED ACCORDING TO THE PLANS AND MUST BE COMPLETED IN A GOOD WORKMANSHIP MANNER AND MUST BE ACCEPTED BY THE PROJECT ENGINEER AND RESTORATION ECOLOGIST IN WRITING.
19. DURING THE REVEGETATION INSTALLATION PERIOD, SEEDING AREAS SHALL BE MAINTAINED PER THE SPECIFICATIONS.
20. AN "AS-BUILT" REPORT SHALL BE SUBMITTED TO THE U.S. ARMY CORPS OF ENGINEERS, CALIFORNIA DEPARTMENT OF FISH AND GAME, AND REGIONAL WATER QUALITY CONTROL BOARD WITHIN 30 DAYS OF COMPLETION OF FINAL WALK-THROUGH/APPROVAL. THE REPORT SHALL INCLUDE:
    A. A DESCRIPTION AND MAP OF THE ACTIVITIES PERFORMED AND TIMING OF ACTIVITIES.
    B. PHOTOGRAPHS OF THE REVEGETATION AREA BEFORE AND AFTER INSTALLATION.
    C. PLAN SHEETS DEPICTING ANY CHANGES TO GRADING, OR PLANTING LIMITS, OR PLANTING OR SEEDING QUANTITIES.
21. REVEGETATION AREAS SHALL BE APPROVED BY THE PROJECT ENGINEER AND RESTORATION ECOLOGIST PRIOR TO FINAL ACCEPTANCE.
22. "NO PUBLIC ACCESS" SIGNAGE SHALL BE PLACED. CONTRACTOR SHALL SUBMIT A SHOP DRAWING OF THE SIGN DESIGN FOR APPROVAL BY THE PROJECT ENGINEER AND RESTORATION ECOLOGIST PRIOR TO INSTALLATION. SIGNS SHALL READ "RESTORATION PROJECT IN PROGRESS - PLEASE KEEP OUT"
23. RESTORATION SITE INTERPRETIVE SIGNAGE IS A DEFERRED SUBMITTAL. CONTRACTOR SHALL COORDINATE GRAPHICS WITH RESTORATION ECOLOGIST. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL BY THE PROJECT ENGINEER AND RESTORATION ECOLOGIST PRIOR TO INSTALLATION. SEE DETAIL 'E' THIS SHEET.

WETLAND CONTAINER PLANT PALETTE

SALT MARSH RESTORATION CONTAINER PLANT PALETTE

Symbol	Species[1] Scientific Name	Species[1] Common Name	Container Size	Approx. Spacing (feet on center)	Number per Acre[3]	Total for Project	Planting Phased	Planting Detail
	Subtidal (Primary Inlet/Outlet)							
	Zostera marina	eelgrass	Plugs	3 ft.	4840	87	Winter Year 1	
Symbol	**Low Marsh**							
	Spartina foliosa	California cordgrass	Plugs	3 ft.	4840	387	Winter Year 1	
Symbol	**Mid Marsh**							
	Arthrocnemum subterminale	Parish's pickleweed	rose pot/4-inch	4 ft.	300	432	Winter Year 1	B, C
	Batis maritima	turtleweed	rose pot/4-inch	[illegible]	450	[illegible]		
	Jaumea carnosa	salty susan	rose pot/4-inch	3 ft.	860	836		
	Sarcocornia pacifica	Pacific pickleweed	rose pot/4-inch	5 ft.	350	504		
				5 ft. Average	1,750 Total	2,520 Total		
Symbol	**High Marsh[2]**							
	Arthrocnemum subterminale	Parish's pickleweed	rose pot/4-inch	4 ft.	250	448	Post-Grading	B, C
	Cressa truxillensis	alkali weed	rose pot/4-inch	2 ft.	250	448		
	Distichlis spicata	salt grass	rose pot/4-inch	3 ft.	375	670		
	Frankenia salina	alkali heath	4-inch	3 ft.	425	760		
	Limonium californicum	western marsh rosemary	4-inch	6 ft.	150	269		
	Monanthochloe littoralis	shoregrass	rose pot/4-inch	2 ft.	200	358		
	Sarcocornia pacifica	Pacific pickleweed	rose pot/4-inch	6 ft.	250	448		
	Suaeda taxifolia	woolly sea blight	4-inch	3 ft.	250	448		
				4 ft. Average	2,150 Total	3,848 Total		
Symbol	**High Marsh[2]**							
	Arthrocnemum subterminale	Parish's pickleweed	rose pot/4-inch	[illegible]	250	23	Winter Year 1	B, C
	Cressa truxillensis	alkali weed	rose pot/4-inch	2 ft.	250	23		
	Distichlis spicata	salt grass	rose pot/4-inch	3 ft.	375	33		
	Frankenia salina	alkali heath	4-inch	3 ft.	425	38		
	Limonium californicum	western marsh rosemary	4-inch	6 ft.	150	13		
	Monanthochloe littoralis	shoregrass	rose pot/4-inch	2 ft.	200	18		
	Sarcocornia pacifica	Pacific pickleweed	rose pot/4-inch	6 ft.	250	[illegible]		
	Suaeda taxifolia	woolly sea blight	4-inch	3 ft.	250	23		
				4 ft. Average	2,150 Total	194 Total		
Symbol	**Upland Transition**							
	Artemisia californica	coastal sage brush	1-gal.	7 ft.	65	45	Post-Grading	B, C
	Cylindropuntia prolifera	coast cholla	1-gal.	6 ft.	35	25		
	Encelia californica	[illegible] brittlebush	1-gal.	7 ft.	85	[illegible]		
	Ferocactus viridescens var. viridescens	coast barrel cactus	1-gal.	[illegible]	35	25		
	Isocoma menziesii var. vernonioides	coastal Goldenbush	1-gal.	20 ft.	25	17		
	Leymus condensatus	giant wildrye	1-gal.	10 ft.	35	25		
	Muhlenbergia rigens	[illegible]	[illegible]	[illegible]	30	[illegible]		
	Opuntia littoralis	coast prickly-pear	1-gal.	10 ft.	35	[illegible]		
	Peritoma arborea	bladderpod	1-gal.	12 ft.	45	31		
	Pluchea sericea	arrow weed	1-gal.	6 ft.	45	31		
				10 ft. Average	435 Total	[illegible] Total		

1 Any potential substitutions or changes to quantity must be approved by the restoration ecologist.

2 In discrete locations at both restoration areas, the high marsh plant palette will be used above the maximum elevation range (+4.5 NGVD) associated with this habitat. These areas are identified clearly on the plan drawings and Figure 7c and 8c.

3 The average container plant spacing is given based on the total plant-per-acre for each habitat type.

UPLAND SEED MIX

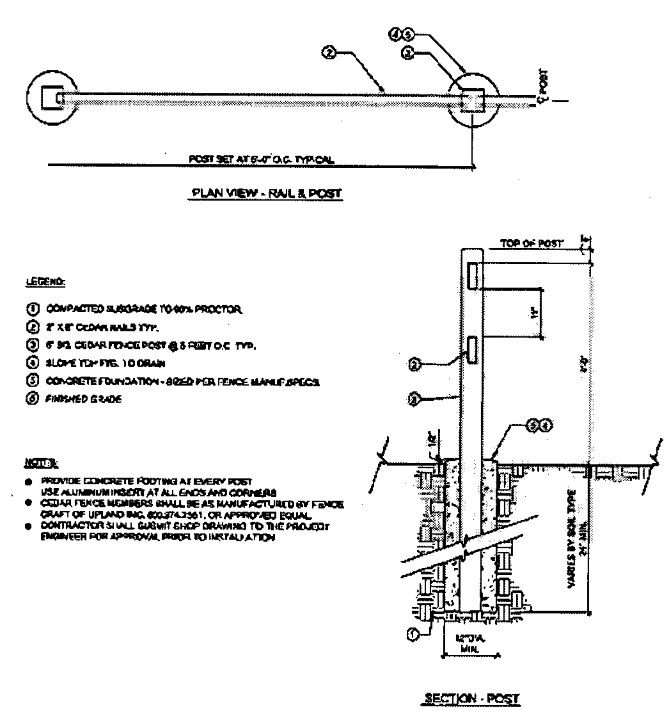
UPLAND TRANSITIONAL HABITAT SEED MIX

Symbol	Species	Common Name	Pounds of Pure Live Seed (PLS) per Acre[3]	Total Pounds of Pure Live Seed (PLS) for Project
	SEED MIX [1/2]			
	Ambrosia psilostachya	western ragweed	0.25	0.10
	Amsinckia menziesii	fiddleneck	0.5	0.21
	Camissonia bistorta	California suncup	0.25	0.10
	Croton californicus	California croton	1.5	0.64
	Dalea fasciculata	fasciculated tarweed	[illegible]	[illegible]
	Encelia californica	California bush sunflower	0.5	0.21
	Eriophyllum confertiflorum	golden yarrow	0.25	0.10
	Heliotropium curassavicum	salt heliotrope	0.25	[illegible]
	Isocoma menziesii	coastal goldenbush	0.25	[illegible]
	Lasthenia glabrata ssp coulteri	coulter's salt-marsh daisy	0.25	0.10
	Leymus condensatus	giant wildrye	1	0.43
	Limonium californicum	western marsh-rosemary	0.5	0.21
	Lotus scoparius	deerweed	1	0.43
	Lupinus bicolor	pygmy-leaved lupine	2	[illegible]
	Lupinus succulentus	arroyo lupine	3	1.28
	Muhlenbergia rigens	deergrass	0.5	0.21
	Salvia columbariae	chia	0.5	0.21
	Total		12.75	5.45

1 Seed will be applied by hydroseed with standard amendments (i.e., cellulose fiber mulch and organic soil stabilizer) "per the specifications".

2 Any potential substitutions or quantity adjustments must be approved by the restoration ecologist.

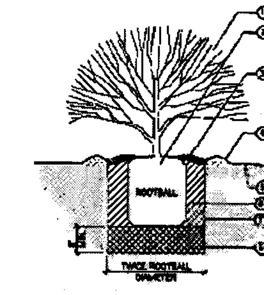
3 The pounds per acre PLS in this table have been rounded. The pounds per acre of seed will be adjusted to achieve the specified pounds per acre of PLS when actual percent purity and germination rates are calculated.



LEGEND:
1. COMPACTED SUBGRADE TO 90% PROCTOR.
2. 2" X 6" CEDAR RAILS TYP.
3. 6" SQ. CEDAR FENCE POST @ 8 FEET O.C. TYP.
4. SLOPE TOP FTG. TO DRAIN
5. CONCRETE FOUNDATION - SIZED PER FENCE MANUF. SPECS.
6. FINISHED GRADE

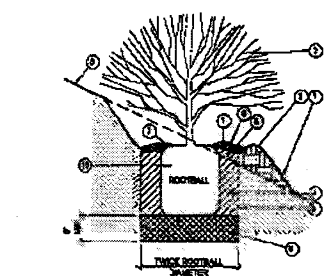
NOTES:
- PROVIDE CONCRETE FOOTING AT EVERY POST. USE ALUMINUM INSERT AT ALL ENDS AND CORNERS.
- CEDAR FENCE MEMBERS SHALL BE AS MANUFACTURED BY FENCE CRAFT OF UPLAND INC. 800.274.3561, OR APPROVED EQUAL.
- CONTRACTOR SHALL SUBMIT SHOP DRAWING TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

(A) WOODEN SPLIT RAIL FENCE



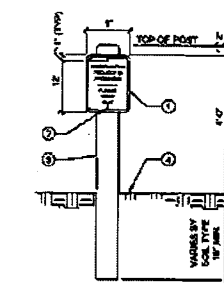
LEGEND:
1. SHRUB. CENTER IN PIT.
2. SET TOP OF ROOTBALL 1" ABOVE SURROUNDING GRADE AND SLOPE FOR DRAINAGE.
3. PROVIDE 3-INCH LAYER OF APPROVED MULCH AT PLANT BASINS. MULCH TO BE 6-INCHES AWAY FROM THE SHRUB STEM.
4. 2" HIGH BERM TO CREATE WATERING BASIN.
5. FINISH GRADE.
6. NATIVE SOIL.
7. SCARIFY SIDES AND BOTTOM OF PLANTING PIT.
8. TRANSITION ZONE OF COMPACTED AND UNAMENDED NATIVE SOIL.

(B) SHRUB PLANTING
SCALE: NTS



LEGEND:
1. FINISH GRADE.
2. SHRUB - CENTER IN PIT.
3. 2" HIGH BERM TO CREATE WATERING BASIN.
4. NATIVE SOIL.
5. SCARIFY SIDES AND BOTTOM OF PLANTING PIT.
6. TRANSITIONAL ZONE OF COMPACTED AND UNDISTURBED NATIVE SOIL.
7. SET TOP OF ROOTBALL 1" ABOVE SURROUNDING GRADE AND SLOPE FOR DRAINAGE.
8. ORIGINAL GRADE BEYOND.
9. PROVIDE 3-INCH LAYER OF APPROVED MULCH AT PLANT BASINS. MULCH TO BE 6-INCHES AWAY FROM THE SHRUB STEM.
10. SET TOP OF ROOTBALL 1" ABOVE SURROUNDING GRADE AND SLOPE FOR DRAINAGE.

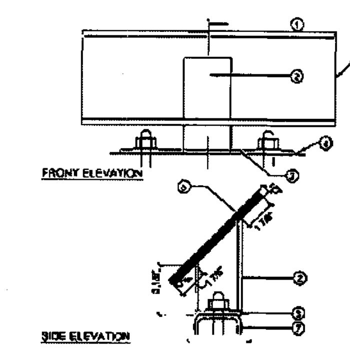
(C) SHRUB PLANTING ON SLOPE



1. ALUMINUM SIGN
2. 2" LONG LAG BOLT (TYP)
3. 4" SQ. CEDAR FENCE POST
4. FINISHED GRADE

NOTES:
1. ALL SIGNAGE SHOWN ARE DESIGN INTENT ONLY.
2. SIGNAGE IS A DEFERRED SUBMITTAL. CONTRACTOR SHALL SUBMIT SHOP DRAWING TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

(D) RESTORATION SITE PROTECTION SIGN



LEGEND:
1. CENTER ALIGN TUBE AND DISC
2. 1/2" THICK STEEL TUBE
3. BASE PLATE BOLTED TO TOP RAIL
4. LINE OF TOP RAIL
5. CONTRACTOR SHALL COORDINATE SIGN AND GRAPHIC WITH THE RESTORATION ECOLOGIST PRIOR TO FABRICATION.
6. 2" x 2" TOP RAIL
7. LINE OF TOP RAIL

NOTES:
1. ALL SIGNAGE SHOWN ARE DESIGN INTENT ONLY.
2. SIGNAGE IS A DEFERRED SUBMITTAL. CONTRACTOR SHALL SUBMIT SHOP DRAWING TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

(E) RESTORATION INTERPRETIVE SIGNAGE

FINAL SUBMITTAL-07/15/2011

Underground Service Alert
Call TOLL FREE
1-800
422-4133

BENCH MARK
DESCRIPTION:
LOCATION:
RECORDED:
ELEVATION: DATUM:

APPROVED FOR SIGNATURE
PLAN CHECK ENGR. NAME TYPED DATE
PLAN CHECK FIRM
R.C.E. NO.
EXP. DATE

SEAL:
SCALE
HORIZONTAL: AS NOTED
AS NOTED

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www.aecom.com

PREPARED BY DATE
ENGR. NAME TYPED
R.C.E. NO. EXP. DATE

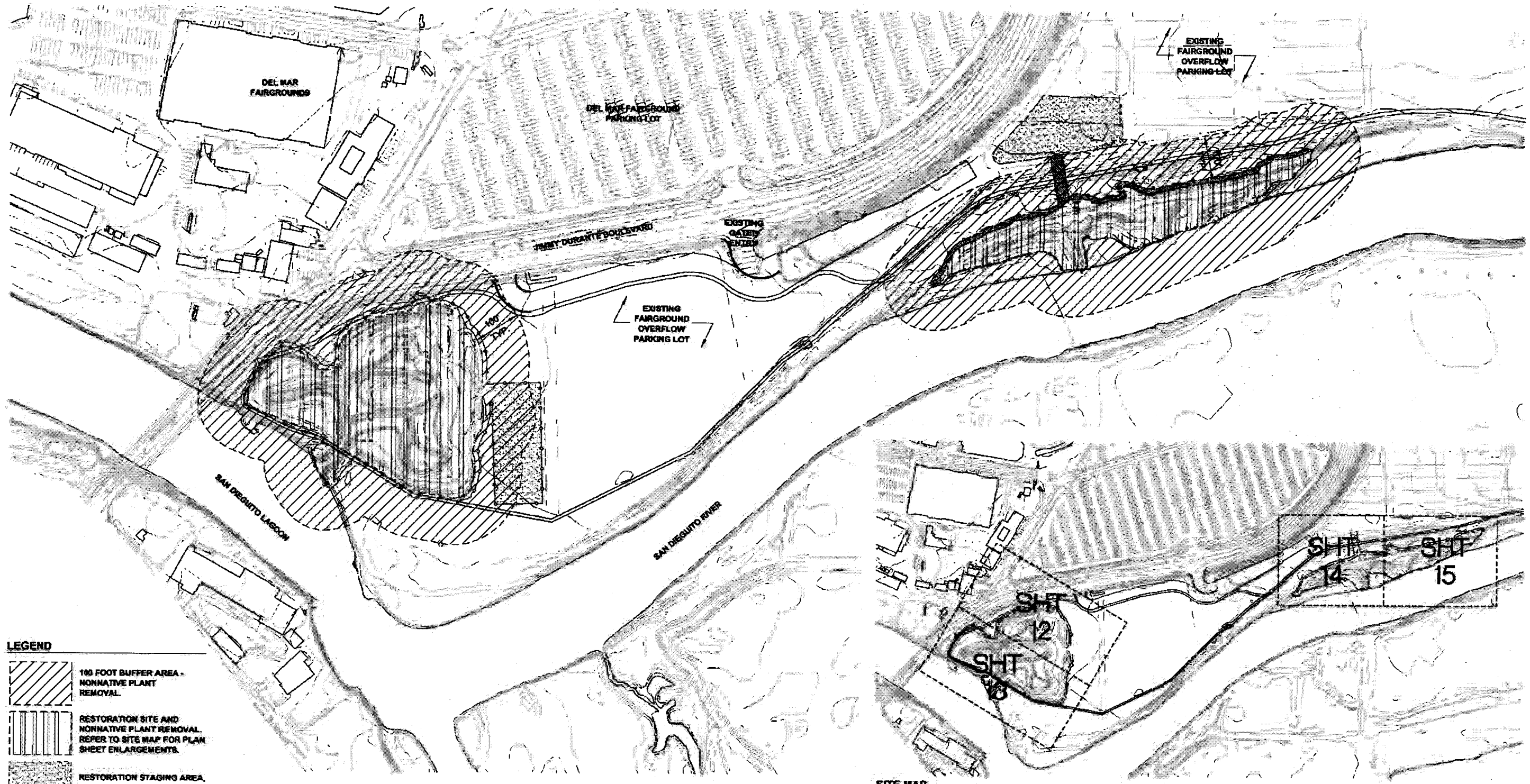
ENGINEER OF WORK DATE	INITIAL	REVISION DESCRIPTION	SHT NO	APPROVAL DATE	INITIAL

SHEET 10 | 22ND DISTRICT AGRICULTURAL ASSOCIATION | SHEETS 15

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS

PROJECT NOTES, LEGEND, AND DETAILS

APPROVED: ENGINEER / RCE / DATE / EXP. DATE
DWN BY: / CHKD BY: / FIELD BK.
PROJECT NO.
DRAWING NO.



SITE MAP

Scale 1" = 200'

LEGEND

- 100 FOOT BUFFER AREA - NONNATIVE PLANT REMOVAL.
- RESTORATION SITE AND NONNATIVE PLANT REMOVAL. REFER TO SITE MAP FOR PLAN SHEET ENLARGEMENTS.
- RESTORATION STAGING AREA. REFER TO GRADING AND EROSION CONTROL DRAWINGS.
- TEMPORARY ACCESS AREA

N

Scale 1" = 100' 0 50 100 200 300

FINAL SUBMITTAL - 07/15/2011

Underground Service Alert
Call: TOLL FREE
1-800
422-4133
(No working days before you do)

BENCH MARK
DESCRIPTION:
LOCATION:
RECORDED
ELEVATION DATUM:

APPROVED FOR SIGNATURE
PLAN CHECK ENGR. NAME TYPED DATE
PLAN CHECK FIRM
R.C.E. NO
EXP. DATE

SEAL:
SCALE
HORIZONTAL
AS NOTED
VERTICAL
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ENGINEER OF WORK DATE	INITIAL	REVISION DESCRIPTION	SHT NO	APPROVAL DATE	INITIAL

SHEET 11	22ND DISTRICT AGRICULTURAL ASSOCIATION	SHEETS 15

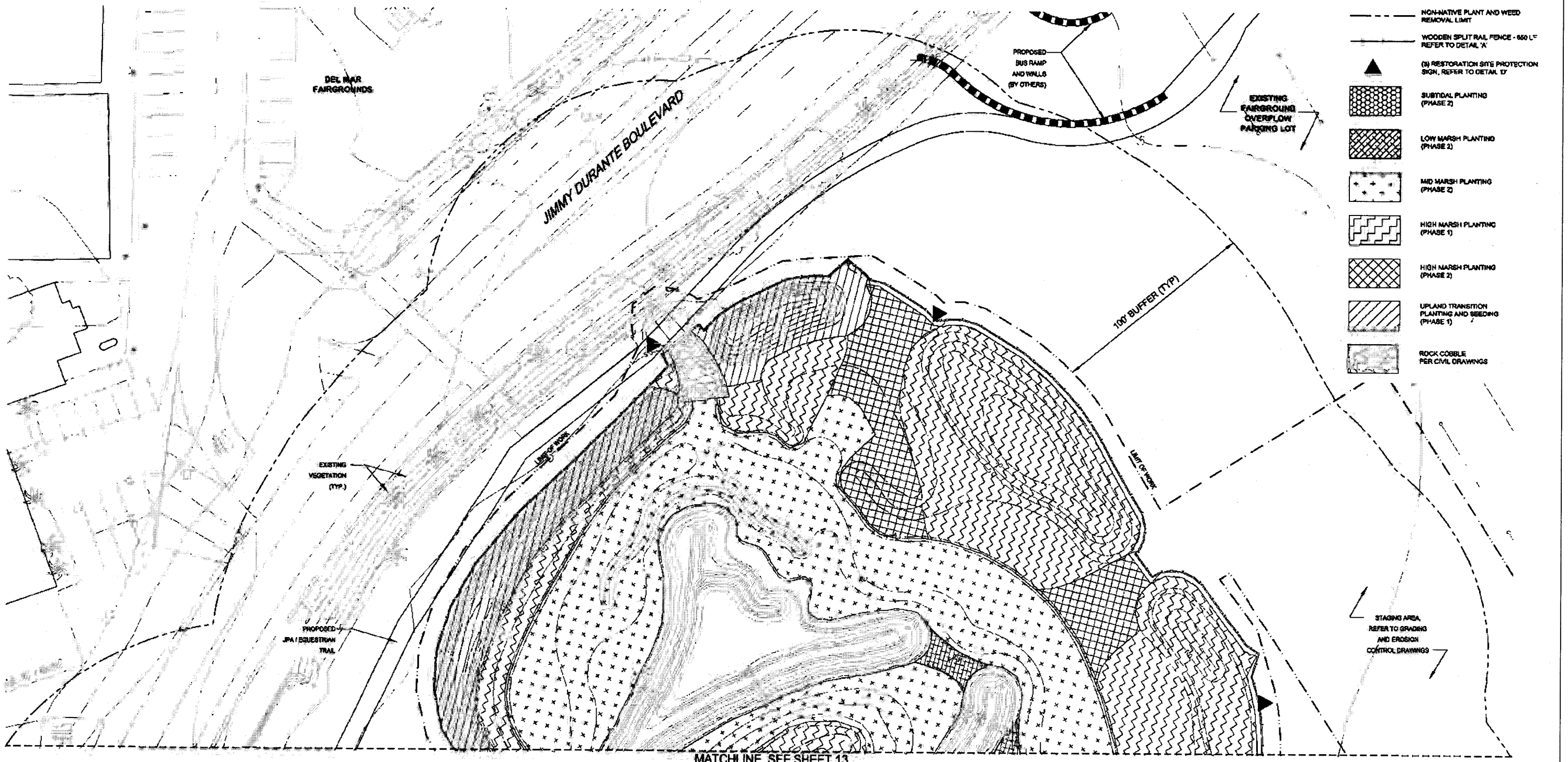
DEL MAR SALT MARSH
WETLAND RESTORATION PLANS

OVERALL SITE PLAN

APPROVED
ENGINEER RCE EXP. DATE
DATE

DWN BY:
C-RED BY:
FIELD BK.

PROJECT NO. DRAWING NO.



MATCHLINE, SEE SHEET 13

Scale 1" = 20' (0, 10, 20, 40, 80)

FINAL SUBMITTAL–07/15/2011

Underground Service Alert
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TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK
DESCRIPTION:
LOCATION:
RECORDED:
ELEVATION _____ DATUM: _____

APPROVED FOR SIGNATURE
_____ DATE
PLAN CHECK ENGR. NAME TYPED
PLAN CHECK FIRM
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EXP. DATE

SEAL

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R.C.E NO. _____ EXP. DATE

ENGINEER OF WORK DATE	INITIAL	REVISION DESCRIPTION	SHT NO	APPROVAL DATE	INITIAL

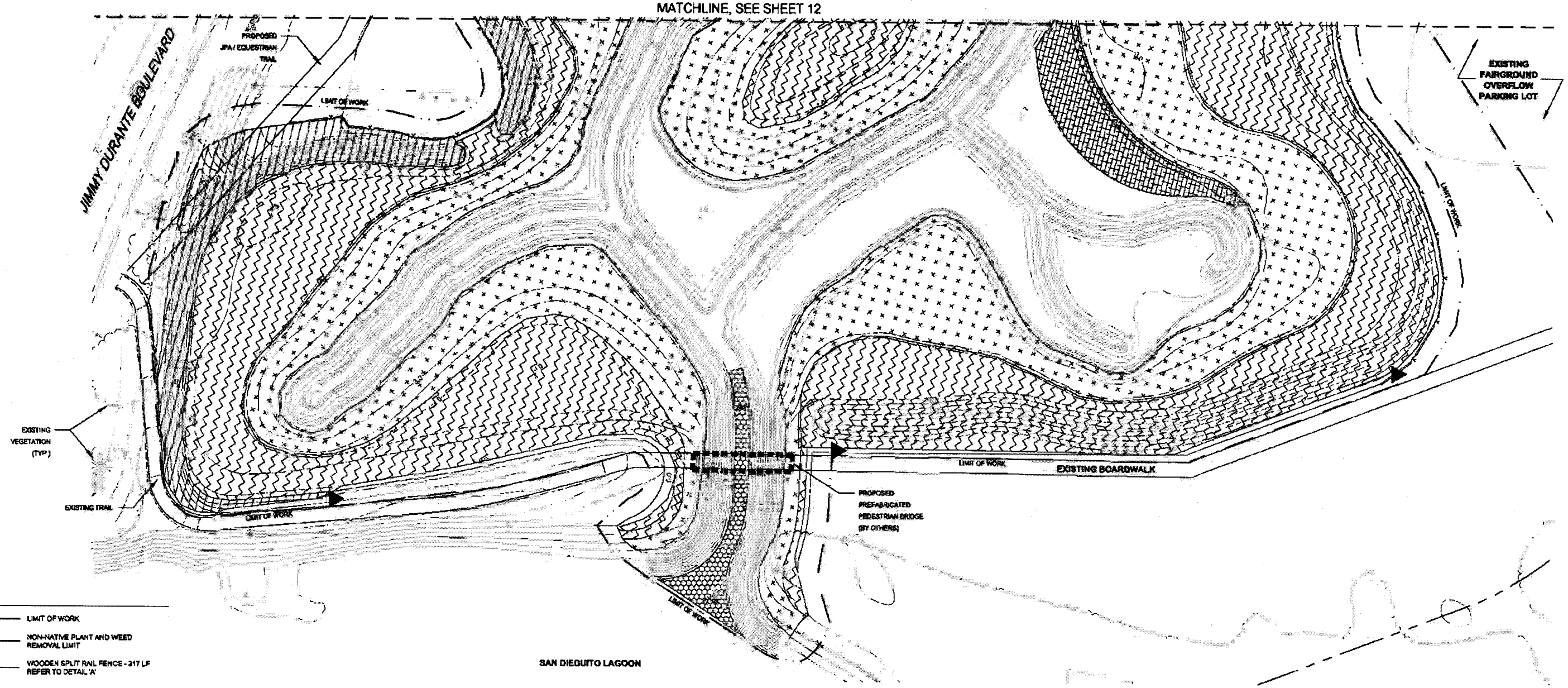
SHEET 12 — 22ND DISTRICT AGRICULTURAL ASSOCIATION — SHEETS 15

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS
PLANTING PLAN

APPROVED
ENGINEER _____ RCE _____ EXP. DATE _____ DATE

DWN BY:
CHKD BY:
FIELD BK.
PROJECT NO.
DRAWING NO.

MATCHLINE, SEE SHEET 12



LEGEND

- LIMIT OF WORK
- NON-NATIVE PLANT AND WEED REMOVAL LIMIT
- K — WOODEN SPLIT RAIL FENCE - 317 LF REFER TO DETAIL 'A'
- (3) RESTORATION SITE PROTECTION SIGN, REFER TO DETAIL 'D'
- SUBTIDAL PLANTING (PHASE 2)
- LOW MARSH PLANTING (PHASE 2)
- MID MARSH PLANTING (PHASE 2)
- HIGH MARSH PLANTING (PHASE 1)
- UPLAND TRANSITION PLANTING AND SEEDING (PHASE 1)

Scale 1" = 20' (0, 10, 20, 40, 60)

Underground Service Alert
Call: TOLL FREE
1-800
422-4133
(No excavation can be started before you do)

BENCH MARK
DESCRIPTION:
LOCATION:
RECORDED:
ELEVATION: DATUM:

APPROVED FOR SIGNATURE
PLAN CHECK ENGR. NAME TYPED
DATE
PLAN CHECK FIRM
R.C.E. NO
EXP. DATE

SEAL:

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ENGINEER OF WORK DATE	INITIAL	REVISION DESCRIPTION	SHT NO	APPROVAL DATE	INITIAL

SHEET 13 | 22ND DISTRICT AGRICULTURAL ASSOCIATION | SHEETS 15

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS

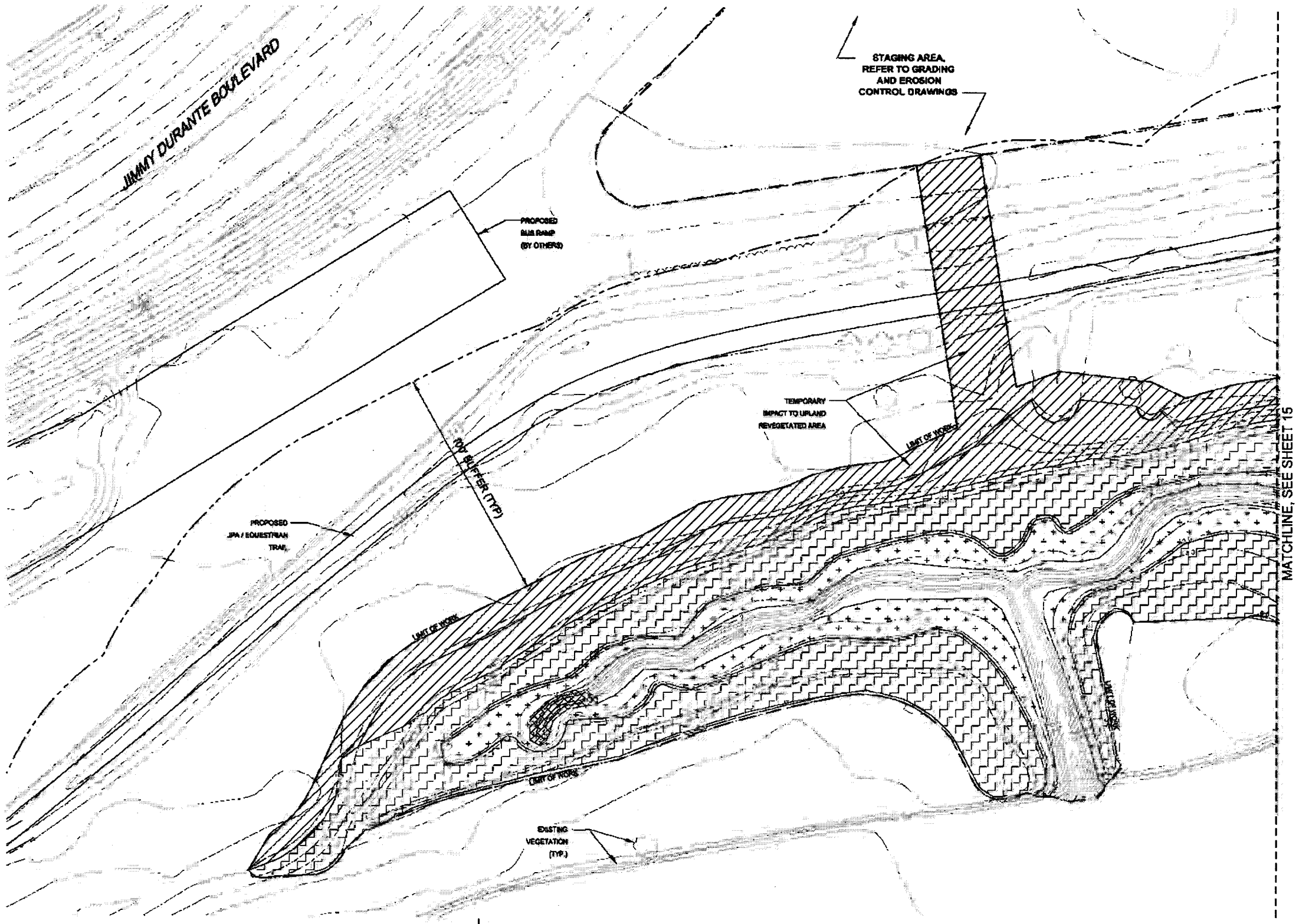
PLANTING PLAN

APPROVED
ENGINEER RCE EXP. DATE

DWN BY:
CHKD BY:
FIELD BK.

PROJECT NO.

DRAWING NO.



LEGEND

- LIMIT OF WORK
- WEEDS AND NON-NATIVE PLANT REMOVAL 100 FOOT BUFFER LIMIT
- LOW MARSH PLANTING - (PHASE 2)
- MID MARSH PLANTING (PHASE 2)
- HIGH MARSH PLANTING (PHASE 1)
- UPLAND TRANSITION PLANTING AND SEEDING (INCLUDES TEMPORARY IMPACTS TO UPLAND REVEGETATED AREA) (PHASE 1)

Scale 1" = 20' 0 10 20 40 60

FINAL SUBMITTAL-07/15/2011

Underground Service Alert
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1-800
422-4133
TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK
DESCRIPTION:
LOCATION:
RECORDED:
ELEVATION _____ DATUM: _____

APPROVED FOR SIGNATURE
PLAN CHECK ENGR. NAME TYPED _____ DATE
PLAN CHECK FIRM
R.C.E. NO
EXP. DATE

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HORIZONTAL
AS NOTED
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AS NOTED

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ENGR. NAME TYPED
R.C.E. NO. EXP. DATE

ENGINEER OF WORK: DATE | INITIAL

REVISION DESCRIPTION	SHT NO	APPROVAL DATE	APPROVAL INITIAL

SHEET 14 | 22ND DISTRICT AGRICULTURAL ASSOCIATION | SHEETS 15

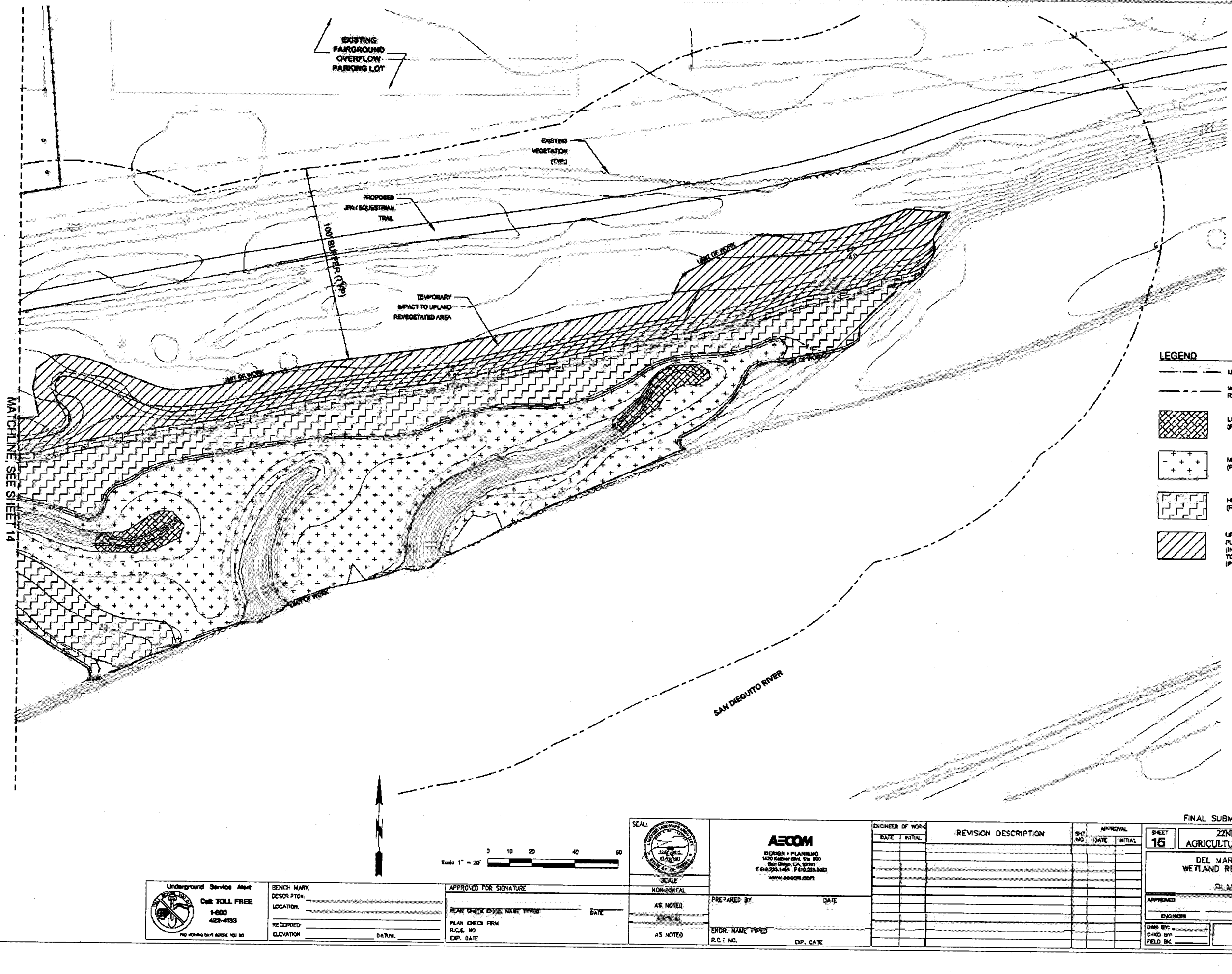
DEL MAR SALT MARSH
WETLAND RESTORATION PLANS
PLANTING PLAN

APPROVED _____ DATE _____
ENGINEER RCE EXP. DATE

DWN BY: _____
CHKD BY _____
FIELD BK. _____

PROJECT NO. | DRAWING NO.

Do Not Roll-Back The Overlay



Underground Service Alert
Call TOLL FREE
1-800
422-4133
TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK
DESCRIPTION:
LOCATION:
RECORDED
ELEVATION DATUM:

APPROVED FOR SIGNATURE
PLAN CHECK ENGR. NAME TYPED DATE
PLAN CHECK FIRM
R.C.E. NO
EXP. DATE

SEAL:

SCALE
HORIZONTAL
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AS NOTED

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PREPARED BY DATE
ENGR. NAME TYPED
R.C.E. NO. EXP. DATE

ENGINEER OF WORK DATE	INITIAL	REVISION DESCRIPTION	SHT NO	APPROVAL DATE	INITIAL

FINAL SUBMITTAL–07/15/2011

SHEET	22ND DISTRICT AGRICULTURAL ASSOCIATION	SHEETS
15		15

DEL MAR SALT MARSH
WETLAND RESTORATION PLANS
PLANTING PLAN

APPROVED
ENGINEER RCE EXP. DATE

Date BY:
C-ADD BY:
FIELD BK.

PROJECT NO.

DRAWING NO.

3.4 FUNCTIONS AND SERVICES TO BE RESTORED

Wetland functions are defined as the normal or characteristic activities that take place in wetland ecosystems. Wetland areas perform a wide variety of functions, in a hierarchy from simple to complex, as a result of their physical, chemical, and biological attributes. At the highest level of this hierarchy is the maintenance of ecological integrity, the function that encompasses all of the structural components and processes in a wetland ecosystem (Smith et al. 1995).

Key elements considered in a qualitative evaluation of the existing condition of a mitigation site are structural and species diversity, the dominance of native versus nonnative plants, potential wildlife use, plant density, extent of vegetation (e.g., patch sizes), and adjacent land uses. This restoration site offers an excellent wetland restoration opportunity, as wetland habitat functions currently do not exist at the site, and implementation of appropriate habitat creation measures will significantly increase the ecological wetland function of the site and adjacent habitats. Proposed site modifications and implementation steps (i.e., excavation and contour grading, site preparation and decompaction, and planting and seeding) will create diverse wetland habitat that is expected to significantly "lift" biotic and abiotic processes and functions within the mitigation site. As described in Section 6, Mitigation Monitoring and Success Standards, a condition-based rapid assessment method—the California Rapid Assessment Method (CRAM)—will be used to measure the improvements to wetland conditions on-site. These conditions relate to the ultimate ecological functions of the wetland, but are not directly quantified using CRAM.

3.5 TREATMENT OF RUNOFF (DRY WEATHER FLOW AND AVERAGE STORM EVENT)

Currently, the South Lot receives runoff via two culverts. The source of runoff through these culverts is mechanically pre-treated flow from the fairgrounds arena and surrounding areas east of the main horseracing track, the main paved parking area north and west of Jimmy Durante Boulevard, and a portion of Jimmy Durante Boulevard.

Runoff is directed into the parking lot through a small system of culverts and drains that convey both low-flow runoff from the dry season and storm runoff from the wet season. The runoff is fed into the South Lot Phase I restoration area through two primary culverts, which currently results in large areas of ponded water that often limit parking through the winter and early spring (Figure 3). The runoff then flows to the northwest corner of the site where there is a manual outfall that needs to be opened to drain the runoff into the lagoon.

As part of the proposed Restoration Plan, the two culverts that outlet into the parking lot are to remain, but the low-flow pipes and manual outfall are to be removed as part of the South Lot Phase I restoration. The western culvert, which releases approximately 98 cfs of flow during a 100-year storm, will be piped and rerouted to flow into the northern corner of the restoration area. Here, the flow will be split and directed through two shallow and relatively flat vegetated areas to allow for infiltration into the wetland, settling out of fine sediments, and treatment of dry weather flows and average storm events before flowing into the restoration channels (Figure 6a). No modifications to the eastern culvert will occur at this time, but water will continue to flow to the southwest across the South Lot and will be allowed to enter the wetland along the eastern boundary where a low point (+5.5 feet NGVD) was designed directly in its path (Figure 6a). The eastern culvert will be addressed in the future, when detailed plans are prepared for the South Lot Phase II restoration area.

3.6 COMMUNITY EDUCATION AND SIGNAGE

The JPA Coast to Crest Trail boardwalk exists along the southwestern border of the South Lot, which presents an opportunity to educate the public. As part of the South Lot restoration, a new inlet/outlet will be created, and the boardwalk will be modified to span the inlet/outlet with a pedestrian bridge. At least one interpretive sign will be placed on the north rail of the bridge, which will directly overlook the South Lot restoration area. The sign will be designed to promote a conservation ethic through the preservation of native habitats and the communities of plants and animals they support. Specifically, the information in the sign will focus on the creation of and changes to wetlands in Southern California, the process of wetland restoration, native plants and wildlife that will use the restoration area, the ecological benefits of wetlands (wildlife habitat, flood capacity, treatment of runoff), current threats to wetlands, and ways to minimize human impacts on the remaining wetlands (planting native species, keeping dogs on a leash, not wasting water).

3.7 NONNATIVE TREATMENT BUFFER

Based on the 2010 and 2011 site visits and the recorded observations of flora in the existing habitat, it is evident that nonnative species are a significant threat to the success of the restoration project. Although the low- and mid-marsh habitats are considered resilient to invasion due to the high salinity in these tidal ranges, the high-marsh and upland transitional areas are highly susceptible to invasion. Many of the nonnative species documented on-site are known to spread rapidly, including giant reed, crown daisy, Lindley's saltbush, brome grasses, thistles, and the four recorded species of iceplant. To protect the restoration areas and maximize the project's success during the 5-year maintenance and monitoring period, a 100-foot-wide nonnative

treatment buffer is included in the design around each restoration area, with components and limited uses as described in Section 3.2.F of Consent Order No. CCC-12-CD-02 and Restoration Order No. CCC-12-RO-02 (Figures 6a and 7a). Maintenance of this area will begin at the start of installation and continue for the 5-year maintenance and monitoring period, or until the restoration ecologist determines that nonnative control has been successful (no invasive species observed and overall nonnative cover less than 10%). The specific maintenance approach and measures of success are documented in Sections 4 and 5.

3.8 RATIONALE FOR EXPECTING SUCCESS

Hydrology is generally considered the most important variable driving wetland development (Mitsch and Gosselink 2000). It is expected that the new inlet/outlet will allow the site to be exposed to the full natural lagoon tidal prism with no tidal muting (other than what would naturally occur at the mouth of the San Dieguito River). Since the mitigation site was known to have historically supported salt marsh habitat, and the soil is likely remnant tidal flat, there is a high confidence that, after restoring tidal hydrology and grading to appropriate habitat elevations, the restored conditions will successfully support the conversion of disturbed habitat to restored salt marsh and subtidal habitats. These habitats will include subtidal channels (possibly with eelgrass), infrequently exposed mudflat, frequently exposed mudflat, low salt marsh, mid salt marsh, and high salt marsh habitats, in addition to an upland sage scrub buffer. It is expected that, once the mitigation habitat is established, it will be a healthy and self-sustaining complex.

Based on the site conditions, it is expected that temporary irrigation (hand or truck watering) would only be needed for 2 (or 3) years to help establish the upland transitional area; no irrigation will be required in the wetland area (below +3.8 feet NGVD), where regular tidal inundation will occur.

The mitigation is also expected to be successful because of the location of the site within an open space portion of the lagoon, and its proximity to a large regionally significant salt marsh restoration project (i.e., SCE San Dieguito Wetland Restoration Plan). The existing SCE mitigation project and other potential future restoration and mitigation efforts (that may occur in this area as a result of separate projects) will contribute to improved native habitat connectivity and wildlife habitat within the western portion of the lagoon.

3.9 TIME LAPSE

The wetland maintenance and monitoring program will take place over a 5-year period, following installation and a 120-day plant and hydrology establishment period. The success standards described in Section 6 are intended to be met at the end of this 5-year period. Establishment of mature high-quality wetland habitats may take longer than 5 years. Therefore, for the establishment of new habitat, the 5-year success standard represents an intermediate stage in the long-term successional development of the habitat and site.

3.10 SOUTH LOT PHASE II RESTORATION CONCEPTUAL PLAN

As described in Section 1 (Project History), CCC requested in both the 2007 and 2009 comment letters that the 22nd DAA demonstrate how the Phase I portion of the South Lot restoration is consistent with an overall conceptual plan for the entire South Overflow Parking Lot (South Lot Phase II). The following describes the conceptual plan for the South Lot Phase II restoration, including the ultimate integration of the South Lot Phase II area. A South Lot Phase II Restoration, Monitoring, and Maintenance Plan, including a detailed grading plan, will be prepared in compliance with Consent Order No. CCC 12-CD-02 and Restoration Order No. CCC-12-RO-02. The detailed Phase II plan is not considered a final component of this 2012 Restoration Plan.

Figure 8 presents the conceptual plan for the South Lot Phase II area, including specific tie-in locations with the South Lot Phase I restoration area. This conceptual plan includes an additional inlet/outlet placed east of the South Lot Phase I footprint. This new inlet/outlet will connect to the San Dieguito River, supply water to the Phase II restoration area, and allow for full tidal flushing. As with the South Lot Phase I restoration area, target habitats were identified using the known elevation ranges for these habitats within the San Dieguito Lagoon (Table 5). These mirror the elevation ranges used in the 2005 SCE San Dieguito Lagoon Restoration Plan, and correlate to the appropriate tidal inundation curve for each wetland habitat type. There is an existing culvert that outfalls in the vicinity of the South Lot Phase II area. This culvert conveys runoff from the roadway and will be incorporated into the design of South Lot Phase II to allow for infiltration into the wetland, settling out of fine sediments, and treatment of dry weather flows and average storm events before flowing into the restoration area.

Separate inlet/outlets will supply the primary tidal flushing for each phase of the South Lot restoration area. However, the eastern boundary of the South Lot Phase I area was designed to integrate into the larger Phase II conceptual plan and result in one large salt marsh complex. Specifically, the East Berm of the South Lot Phase I was designed with two low-point locations

(saddles). The Phase I grading plan set areas to an elevation of +5.5 feet NGVD, but, as part of the South Lot Phase II conceptual plan, these areas will be regraded down to +3.5 feet NGVD. This will allow water exchange between the two restoration phases at higher high tides that reach greater than +3.5 feet NGVD. The remaining portion of the East Berm will continue to function as high marsh/upland transition areas that will allow for wildlife refuge during extreme high tides and add increased vegetation diversity and structure to the wetland. It is expected that these low points will be supporting high marsh species by the end of the 5-year maintenance and monitoring program for the South Lot Phase I restoration area. Prior to grading the South Lot Phase II area, this vegetation will be harvested and used to revegetate the newly graded low points.

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4.0 MITIGATION PLAN IMPLEMENTATION

The following section describes responsible parties, access and staging, implementation steps and potential schedule, contour grading including construction drawings, site preparation, temporary irrigation, and the revegetation plan. Although the Restoration Plan is divided into two distinct project areas (South Lot and East Berm), many of the processes will be the same for both areas. Any distinctions between the two restoration areas are discussed below.

4.1 RESPONSIBLE PARTIES AND QUALIFICATIONS

The 22nd DAA and its contractors are responsible for installation, maintenance, and monitoring in accordance with this Restoration Plan to successfully complete the mitigation program.

4.1.1 22nd District Agricultural Association

The 22nd DAA will be responsible for contracting a qualified habitat restoration ecologist and a licensed landscape contractor(s) for project installation, maintenance, and monitoring to carry out the provisions of this Restoration Plan. The 22nd DAA may select separate contractors for the installation and maintenance phases. Both contractors will meet the minimum requirements described below. The 22nd DAA will establish contractual mechanisms to ensure the completion of installation, maintenance, and monitoring activities delineated in this Restoration Plan. The 22nd DAA may, with sole discretion, replace any of these parties.

The 22nd DAA or the contracted consultant will obtain all required project permits, which may include the following:

- CCC Coastal Development Permit
- CDFG 1600 Lake and Streambed Alteration Agreement
- San Diego Regional Water Quality Control Board (RWQCB) 401 Permit
- USACE Nationwide Permit (NWP) 27 for Aquatic Habitat Restoration, Establishment, and Enhancement Activities

4.1.2 Restoration Ecologist

The restoration ecologist will be an individual or team of individuals with a degree in botany, ecology, or related field, and a minimum of 5 years of experience in Southern California with successful wetland restoration (preferably salt marsh). The lead restoration ecologist must have knowledge of the salt marsh vegetation associations proposed for the restoration effort and nonnatives of concern. The restoration ecologist, in coordination with the contractor, will oversee protection of existing biological resources; nonnative plant removal; contour grading; site preparation; planting and seeding; and maintenance, monitoring, and reporting.

The restoration ecologist will be responsible for the following:

- Supervision of all phases of restoration installation, including contractor education, site protection, site preparation, planting installation, seeding, and final installation inspection and approvals as delineated in this section (Section 3) of this Restoration Plan.
- The authority to stop work by the installation contractor at any point where the provisions of this Restoration Plan are not being adhered to until such times as the inconsistency is resolved with the 22nd DAA.

After installation, the restoration ecologist will be responsible for monitoring and making remedial recommendations (regarding weeding, irrigation frequency, erosion control, etc.) for ongoing maintenance activities performed by the maintenance contractor after Restoration Plan installation, as specified in Section 5 of this Restoration Plan.

The restoration ecologist will be responsible for carrying out the biological monitoring and reporting program delineated in Section 6 of this Restoration Plan. The program will include the following tasks: agency notification (as needed), qualitative and quantitative data collection as required to measure success progress, photo documentation, post-installation monitoring reports documenting project progress, and a final assessment of project success at the end of the 5-year maintenance and monitoring program.

4.1.3 Installation Contractor

The installation and maintenance contractor will be a qualified firm (or more than one firm) with successful experience in Southern California and direct experience installing and maintaining native habitat mitigation projects. The installation contractor will be responsible for design of the project's temporary irrigation system (if needed) for the high marsh and upland transitional habitats in consultation with the restoration ecologist. Currently, this Restoration Plan does not

include an automated temporary irrigation system, and assumes that irrigation will primarily include supplemental hand watering and/or truck watering. Subsequently, the installation contractor will be responsible for site protection, grading, contouring, pedestrian bridge design and construction, and installing all vegetation in accordance with the provisions of this Restoration Plan and as approved by the 22nd DAA and the restoration ecologist. In addition, the installation contractor will prepare a Storm Water Pollution Prevention Plan (SWPPP) and any other requirements of the project permits. These responsibilities will include all those delineated in Section 3 of this Restoration Plan. The responsibilities of the installation contractor will end with the completion of the requirements for the 120-day plant and hydrology establishment period.

The installation contractor will verify in writing to the 22nd DAA prior to starting work the following minimal qualifications: a C-27 California Landscape Contractor's license, certification as a California Pest Control Applicator, previous successful experience with at least three prior native habitat restoration project installations, and knowledge of local flora and fauna.

4.1.4 Maintenance Contractor

After the 120-day plant and hydrology establishment period, a separate maintenance contractor may be hired by the 22nd DAA to maintain all plantings for the remaining balance on the 5 years according to the provisions of Section 4 of this Restoration Plan. The 22nd DAA may choose to use the same contractor for both installation and post-installation maintenance if the contractor meets both sets of qualifications. Prior to starting work, the maintenance contractor will demonstrate the same qualifications as the installation contractor, including demonstrating past maintenance experience with habitat restoration projects, previous successful experience maintaining at least three native restoration projects, and knowledge of local flora and fauna.

4.2 SITE PROTECTION

4.2.1 Fencing

To protect the restoration site from pedestrian access, a permanent split rail wooden fence with appropriate signage (denoting sensitive wetland habitat) will be installed along the northern and eastern edges of the South Lot. In addition, the restoration ecologist will oversee installation of a temporary orange fence to clearly demarcate sensitive habitat areas (salt marsh) adjacent to both restoration areas that are to be avoided at all times by the contractor during installation.

4.2.2 Installation Signage

Signs indicating that the restoration areas are being installed and planted as native habitat restoration areas and not to be entered by people, dogs, bikes, or vehicles will be posted every 50 feet along the fence that will protect the South Lot restoration area and along the Coast to Crest Trail edges of both restoration areas. The signs will be made of material that can withstand the natural elements and can last for installation and the 5-year maintenance and monitoring period. These signs will have a telephone number to call to report illegal entry, dumping, or other damage to project areas.

4.2.3 Erosion Control

To prevent erosion from the South Overflow Parking Lot into the South Lot Phase I restoration area, a rice straw wattle will be placed on the inside of the temporary orange fence, as per the erosion control plan.

Minimal erosion from other restoration areas is expected during implementation; however, the restoration ecologist may have the installation contractor install 6-inch-diameter rice straw wattle, if needed, to prevent siltation from entering existing salt marsh or other wetland areas adjacent to the restoration areas. The wattles will be installed at least 1 inch below grade and staked in place every 4 feet with 1- by 2- by 18-inch wooden stakes driven vertically through the wattles until the stake top is flush with the top of the wattle.

At the outfall of the two existing storm drain culverts, gravel bag check dams will be placed along the runoff flow path to slow the runoff and settle any debris and sediment before reaching the construction site. These check dams will be left in place until construction and planting are complete.

It is also recommended that the graded site be protected with a bonded fiber matrix if it is going to be exposed for more than 7 days or if a rain event is predicted. The bonded fiber matrix will help prevent erosion of the steep graded slopes until planting commences.

Refer to the erosion control plan in the 100% Submittal, Wetland Restoration Plans for further details (Appendix 5).

4.2.4 Contractor Education

Before beginning any installation activities, the installation landscape contractor and the lead field foreman will meet at the site with the restoration ecologist to review all installation, scheduling, and resource protection measures specified in the Restoration Plan. The restoration ecologist will review all aspects of the Restoration Plan, including site protection, inspections, landscape installation procedures, and guarantees. It will be made clear at that time that the restoration ecologist will have final say over review and acceptance of field installation.

Prior to initiating any installation activities (including construction equipment placement or other non-ground-breaking activities), the restoration ecologist will develop and implement environmental training for the contractor and all subcontractor personnel, explaining the sensitive resources within the work area and adjacent areas. The environmental training will include information on the following:

- Project regulatory and permit requirements
- Environmental compliance procedures and protocols
- Water quality requirements and proper construction best management practices (BMPs)
- Sensitive environmental areas and no access areas
- Sensitive species and nesting birds
- Consequences of noncompliance
- Emergency response protocols

The installation contractor will notify the restoration ecologist when new crew personnel will be on-site, and an additional environmental training will be scheduled before they are allowed to work.

4.2.5 Native Habitat

There is good-quality native salt marsh immediately adjacent to both restoration areas. This habitat has the potential to support breeding birds, including the listed Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), a state endangered species. In addition, this habitat supports a variety of flora and fauna that are sensitive to human disturbances. Although restoration installation will likely occur outside the nesting season, which should minimize the potential for impacts to nesting birds, no work or crossing of native habitat will be allowed unless prior approval is given by the restoration ecologist. In addition, the restoration ecologist

must be on-site to oversee any activity that requires crossing native habitat. As stated above, these sensitive native habitats will be demarcated with orange fencing for avoidance, as determined by the restoration ecologist.

4.3 ACCESS AND STAGING

Prior to commencement of installation activities, the area limits of the restoration site will be surveyed and marked in the field. These limits will be checked and confirmed by the restoration ecologist and the 22nd DAA before the contractor begins the installation phase.

Vehicle and equipment access to the site will be available to contractors who will be conducting installation, maintenance, and monitoring activities. Access to the site will be available by using Jimmy Durante Boulevard and the main entrance to the Del Mar Fairgrounds. Access and staging at the site will be conducted in a manner that avoids direct and indirect impacts to adjacent native habitat areas. In the South Lot, vehicle access will be limited to the project footprint and the adjacent parking lot (Appendix 5).

Access to the East Berm is more complex and will require crossing the JPA Coast to Crest Trail and potentially working from the upland berm and adjacent parking lot (Appendix 5). Although the upper berm is dominated by ruderal habitat consisting of annual nonnative species, there are still native species present. The restoration ecologist will work with the installation contractor to identify staging areas on the upper berm that minimize impacts to native species. This area will be flagged or fenced to clearly demarcate areas where equipment can access. If impacts to habitat (nonnative or native) occur as a result of staging in the East Berm area, the contractor will be required to revegetate the staging area with native upland species following installation. The restoration ecologist will recommend a plant palette and quantity of container plants and seed, and will oversee and approve any revegetation efforts. A schedule of proposed work days and hours will be coordinated and approved by the 22nd DAA prior to the initiation of installation activities.

To protect against contaminant leakages during access and staging, the contractor will be responsible for taking measures to prevent chemicals, fuels, oils, and other hazardous materials from entering public water, air, and/or soils. Disposal of any materials, waste, effluent trash, garbage, oil, grease, and chemicals will be done in accordance with state and federal regulations. These protection measures will be detailed in the contractor's SWPPP, which will be required under the RWQCB 401 permit. Refer to the erosion control plan in the 100% Submittal, Wetland Restoration Plans for preliminary construction entrance locations and staging areas (Appendix 5).

4.4 RESTORATION IMPLEMENTATION STEPS AND SCHEDULE

Implementation of the restoration effort will include demarcation of the mitigation limits, removal and disposal of nonnative vegetation, modest excavation and contour grading at both locations to restore tidal hydrology and drainage patterns (including establishing the new inlet/outlet and the low-flow channels), decompaction, site preparation, pedestrian bridge design and installation, and container planting and seeding. To avoid indirect impacts (e.g., noise) to sensitive wildlife species during the bird breeding season (February 15 through August 31) and to avoid potential sediment and erosion issues while working during the rainy season, all attempts will be made to complete the contour grading phase of the project from September 1 through October 31. In addition, planting and seeding of native species should occur during the winter to take advantage of winter rains to maximize germination success. Based on an assumed timeline of receiving CCC approval of the revised Restoration Plan in July 2012 and an expedited Request for Proposal (RFP) process, the following schedule is proposed:

Task	Completed by
Final Wetland Mitigation Plan	March 2012
Receive CCC Approval at Hearing	June or July 2012
Demarcation of Mitigation Limits and Staging Areas	September 2012
Installation of Protective Fencing and Environmental Training	September 2012
Excavation and Contour Grading (including establishing the new inlet/outlet and low-flow channels)	October 2012
Reroute and Re-Pipe Western Culvert	October 2012
Bridge and Inlet/Outlet Construction	October 2012
Site Decompaction	November 2012
Initial Container Planting and Seeding of High Marsh and Upland Transitional	November 2012 – March 2013
Complete 120-Day Plant and Hydrology Establishment Period (revegetate temporary impact area)	June 2013
Year 1 Container Planting of Mid Marsh and Low Marsh	November 2013 – March 2014
5-Year Maintenance and Monitoring Program	June 2013 – June 2018

4.5 NONNATIVE PLANT REMOVAL

Due to the extensive grading at both restoration areas, neither site will require pre-treatment (i.e., herbicide application) of nonnative plants prior to installation activities. However, treatment of nonnatives within the 100-foot-wide nonnative treatment buffer must begin when installation is initiated, and should occur on a monthly basis during installation. In addition, prior to grading and contouring, nonnative vegetation biomass within the restoration footprints will be removed and properly disposed of off-site to prevent nonnative propagules (i.e., seed or vegetative material) from spreading to adjacent areas during site implementation activities. Initial removal of vegetation during the installation phase of the project will occur primarily through physical means (i.e., hand-pulling and cutting) prior to contour grading. In addition to removing nonnative biomass, there are patches of native salt marsh habitat in the East Berm area that should be salvaged prior to contour grading (and stored for subsequent planting). Once all aboveground nonnative vegetation is removed and natives are salvaged in the restoration areas, as confirmed by the restoration ecologist, the contour grading phase of the work may begin. Once contouring and decompaction of the site are completed, nonnative control during the revegetation phase and post-installation maintenance period will occur, primarily through physical means and herbicide treatment.

Table 8 provides a list of invasive species and potentially troublesome nonnative species that have been detected within the mitigation area vicinity or have the potential to appear during the mitigation program. For this Restoration Plan, the list includes those species recognized by the California Invasive Plant Council (Cal-IPC 2006) as "high" and "moderate" threats to California wildlands, and also those recognized as occurring (or potentially occurring) on-site that can become problematic in inhibiting the establishment and development of native plant species. The restoration ecologist and contractor will coordinate to determine the most effective removal methods for each of the nonnative species. If seed heads are present, they will be bagged for disposal to minimize the potential spread of nonnative seed on-site. All nonnative plant debris will be properly disposed of off-site.

Table 8
Nonnative Invasive Species Detected or Potentially Occurring in the Restoration Areas[1]

Family	Scientific Name	Common Name	Invasive Level[2]
ANGIOSPERMS			
EUDICOTS			
Aizoaceae			
	*Carpobrotus edulis**	hottentot fig	High
	*Mesembryanthemum crystallinum**	crystalline iceplant	Moderate
	*Mesembryanthemum nodiflorum**	slenderleaf iceplant	N/A
	*Tetragonia tetragonioides**	New Zealand-Spinach	N/A
Amaranthaceae			
	*Atriplex lindleyi**	Lindley's saltbush	N/A
	*Salsola tragus**	tumbleweed	Limited
Asteraceae			
	*Centaurea melitensis**	tocalote	Moderate
	Cynara cardunculus	globe thistle	Moderate
	*Glebionis coronarium**	crown daisy	N/A
	*Lactuca serriola**	prickly lettuce	N/A
	*Sonchus asper**	prickly sow-thistle	N/A
	*Sonchus oleraceus**	common sow-thistle	N/A
Brassicaceae			
	*Brassica nigra**	black mustard	Moderate
	*Hirshfeldia incana**	short-pod mustard	Moderate
	*Raphanus sativus**	wild raddish	Limited
Euphorbiaceae			
	*Euphorbia peplus**	petty spurge	N/A
	Ricinus communis	castor-bean	Limited
Fabaceae			
	Melilous spp.	sweet clover	N/A
Geraniaceae			
	Erodium cicutarium	red-stem filaree	Limited
Malvaceae			
	*Malva parviflora**	cheeseweed	N/A
Oxalidaceae			Moderate
	*Oxalis pes-caprae**	Bermuda buttercup	
Plumbaginaceae			
	*Limonium perezii**	Perez's marsh rosemary	N/A
Poaceae			
	*Arundo donax**	giant reed	High
	*Avena barbata**	wild oats	Moderate
	*Bromus rubens**	foxtail chess	High
	*Bromus diandrus**	ripgut brome	Moderate
	Cortaderia jubata	pampas grass	High
	Cortaderia selloana	pampas grass	High
	Cynodon dactylon	Bermuda grass	Moderate
	*Hordium murinum**	barley	Moderate
Solanaceae			
	*Nicotiana glauca**	tree tobacco	Moderate

Family	Scientific Name	Common Name	Invasive Level[2]
Tamaricaceae	*Tamarix parviflora*	tamarisk	High
Urticaceae	*Urtica urens**	dwarf nettle	N/A

[1] The installation and maintenance contractor(s) is responsible for eradication/removal of additional exotics that may be identified by the restoration ecologist in the restoration areas and the 100-foot treatment buffer. Any exotics recognized by the California Invasive Plant Council (Cal-IPC) and/or the University of California Statewide Integrated Pest Management Project that are identified on-site must be removed wherever they occur in the restoration areas. Additionally, less problematic nonnative species that may be identified on-site will be controlled when it is determined by the restoration ecologist that they are inhibiting the establishment and development of native plant species.

[2] Cal-IPC 2010 rating: Threat to California Wildlands: H = High, M = Moderate, L = Limited, N/A = not listed

* Species that have been detected within or adjacent to the site as of June 2010.

4.6 CONTOUR GRADING AND EXCAVATION, AND REMOVAL OF FILL

The scope of work for the installation contractor includes soil excavation, contour grading to prepare the site for salt marsh mitigation installation, and removal of fill material. Proposed contour grading (including modest excavation) will improve physical and hydrological conditions for the establishment of salt marsh habitat. Contour grading will improve drainage patterns, increase areas appropriate for salt marsh habitat creation, and establish primary tidal flow and low-flow channels within each of the restoration areas. Excess material generated by contour grading at both restoration areas will be used to create the upland transitional area surrounding the South Lot; remaining material will be transported off-site (Figure 3).

After grading is completed, the restoration ecologist must independently verify that the restoration area has been built to plan, which will require accurate measurements of elevations by someone other than the grading contractor. If there are discrepancies, the grading would be corrected immediately. A report demonstrating that the site was graded and contoured to plan must be completed and submitted to the CCC Executive Director for review and approval prior to planting or seeding.

4.6.1 South Lot Phase I Grading

Extensive grading of the South Lot Phase I restoration area will be required to successfully create salt marsh habitat and deliver tidal water to the site. A primary inlet/outlet, in addition to secondary and tertiary tidal channels, will be created and will range in elevation from -2.5 feet NGVD to -1 feet NGVD (Figure 6a). It is understood and considered desirable that tidal action and storm events occurring after the contour grading is complete will result in shifts in the secondary and tertiary drainage patterns over time. The remaining site will be graded and

contoured to support the variety of salt marsh habitats, ranging from -1 feet NGVD (low elevation for frequently inundated mudflat) to +4.5 feet NGVD (high elevation for high salt marsh) (Figure 6a). In addition, the site will be bound by an upland/transitional area ranging in elevation from +4.5 feet NGVD to +8 feet NGVD, with most of the upland berm occurring at +6 feet NGVD. Where possible, the upland area will tie into existing grades, including the northwest corner where the site quickly slopes up to Jimmy Durante Boulevard. There are three low points provided in the upland berm to allow for the existing parking lot drainage patterns to remain (Figure 6a). In most cases, the upland area was designed as a gently rolling mound that mimics natural upland areas and that will allow for seamless incorporation into the South Lot Phase II Conceptual Plan (Figure 8). A simulation of tidal hydrology at varying tidal elevations is shown in Figure 6b.

4.6.2 East Berm Grading

Moderate grading of the East Berm restoration area will be required to successfully create salt marsh habitat and deliver tidal water to the site. The restoration area will receive water from overbanking of the adjacent San Dieguito River and from three moderately sized secondary channels (Figure 7a). These channels will deliver water farther into the floodplain during lower high tides, when the river does not overbank. These channels will also provide additional habitat complexity, as they will support mudflat habitat. The restoration area will be graded to between +2 feet NVDG and +4.5 feet NGVD (Figure 7a). In addition to tying into the adjacent upland berm along the northern border, the restoration area will seamlessly merge with the existing salt marsh patches that flank the river bank. It is understood and considered desirable that tidal action and storm events occurring after the contour grading is complete will result in shifts in the secondary drainage patterns over time. In addition, the site will be bound by an upland/transitional area along the northern border, ranging in elevations from +4.5 feet NGVD to +8 feet NGVD. The upland area will tie into the existing grade at the top of the berm (Figure 7a). No large inorganic debris will be left exposed at the soil surface at the completion of grading. A simulation of tidal hydrology at varying tidal elevations is shown in Figure 7b.

4.7 SITE PREPARATION

After initial nonnative plant removal and completion of contour grading, site preparation activities will include soil decompaction, installation of erosion control materials per the erosion control plan, and removal of any remaining debris and nonnative plants.

Decompaction will occur by ripping the site 18 inches down from the surface, two times, in a perpendicular pattern. As part of decompaction activities and the establishment of final grades on-site, it is appropriate and desirable to have subtle undulations and a roughened soil surface.

After decompaction activities are complete, the restoration ecologist and installation contractor will determine if installation of erosion-control materials, per the erosion control plan, are necessary within the site. Erosion-control materials may be appropriate, for example, along some of the perimeter slope locations. Erosion-control materials include straw wattles, natural fiber matting, and gravel bags. As a final site preparation step, any debris (trash) and new volunteer nonnative plants in the restoration areas or nonnative treatment buffer will be removed and properly disposed of off-site.

4.8 TEMPORARY IRRIGATION

Although supplemental irrigation may be required to establish the high marsh habitat and the upland transitional habitat, an automated temporary irrigation system is not proposed for either site due to cost, potential damage to an irrigation system from periodic flows, and potential damage to native plants from removal of an irrigation system; however, an irrigation system is not considered to be critical for meeting project success. Therefore, watering during the installation phase and 5-year maintenance and monitoring program is proposed through a water truck and hand-watering. There are suitable access locations adjacent to both restoration areas where a water truck could park. Spray nozzles and/or hoses will need to be extended to be able to reach the restoration areas. Prior to planting and seeding, the soil should be moist from watering by the contractor or rainfall.

The high marsh will likely need supplemental watering for the first year, but should quickly become established and receive adequate water from the higher high tides. For the upland transitional habitat, it is expected that supplemental watering will only be needed during the first 2 to 3 years after restoration installation. The lower elevation habitats (mid marsh and low marsh) will be regularly inundated by tidal waters and should not need supplemental watering. A goal of the mitigation is to have the site persist without temporary irrigation for at least 2 years before the mitigation program is considered complete. Watering during the maintenance period is discussed further in Section 5.

Attainment of the final success standards is expected to result in the creation and establishment of salt marsh habitat on-site. Yearly success criteria are also provided as milestones to help determine if the restoration is on an adequate trajectory and to aid in adaptive management decisions, including the need for planting and/or seeding or other remedial measures. A combination of horticultural and botanical monitoring will determine if success criteria are being met and if management measures need to be adjusted or implemented to meet final success criteria.

6.7.1 Success Criteria

Success standards are presented in Tables 12, 13, and 14. Table 12 details primary success criteria for the wetland habitat that must be met for the project to be considered successful. Table 13 provides success standards for the upland habitat that must be met for project release. Table 14 details secondary success criteria that do not have to be met for the project to be considered successful, but will be used to guide adaptive management decisions. Based on monitoring results, the restoration ecologist and the 22nd DAA will determine when success standards have been achieved during the milestone periods. This will be communicated to the resource agencies in the annual reports that document horticultural and botanical survey results.

In addition to the primary and secondary success criteria outlined in Tables 12, 13, and 14, the site must be completely off irrigation for at least 2 years to verify that the site is established and self-sustaining prior to agency sign-off. No irrigation is proposed for the lower elevation salt marsh habitats, as the hydrology and ultimate success of this habitat is dependent on tidal flow. However, temporary irrigation (by hand watering or truck watering) will be needed for the upland transitional habitat (likely for 2 years) and possibly the high marsh for the first year.

6.7.2 Remedial Measures

The success criteria above will also be used to determine whether to implement remedial measures to correct any issues impacting the potential success of the restoration areas. The restoration ecologist will have discretion to implement appropriate measures (by the installation and/or maintenance contractor) or determine whether additional measures not discussed here are necessary. Different remedial measures or a combination of measures will be implemented depending on the condition of a particular location within each of the restoration areas. Appropriate measures will be determined by the restoration ecologist in consultation with the maintenance contractor, and measures will be approved by the 22nd DAA. Potential remedial measures may include minor modifications to tertiary channels, replacement planting, additional seeding, increased treatment of nonnative or invasive species, adjustments to the watering

6.4 EELGRASS MONITORING

Although the success of the planted eelgrass is not required for final project buyoff, the planted bed will be monitored throughout the life of the restoration project. As part of the annual monitoring event, an eelgrass biologist will snorkel to the eelgrass planting area near the mouth of the inlet to determine location of the eelgrass, the size of the planted area, and the average turion (shoot) density. In addition, a qualitative assessment of the condition of the bed and observed marine life will be documented. The results of the eelgrass survey will be included in each annual report.

6.5 HYDROLOGY MONITORING

The primary and secondary channel depths at the South Lot Phase I location will be monitored for the duration of the monitoring program using standard data loggers placed at the tidal inlet and at the terminus of each constructed tidal channel. The depth at these locations will be monitored post-installation, quarterly during Year 1, twice annually during Years 2 and 3, and annually during Years 4 and 5. Yearly information will be compared to the initial depths (from post-installation monitoring) and used to determine if excessive erosion or sedimentation is occurring and whether remediation measures are needed.

6.6 PHOTOGRAPHIC DOCUMENTATION

In addition to the photo stations associated with the permanent vegetation transects, up to five fixed photo stations will be set up at representative points for both the South Lot and East Berm restoration areas. These photo stations will be established during the implementation phase and used to document the installation process. After installation, photos will be collected twice per year (June and December) for the first 2 years of the 5-year maintenance and monitoring program, and then once a year (June), concurrent with botanical monitoring, for the remaining 3 years. Representative photos taken from these points will be included in annual reports to document progress of the restoration areas. All photo stations will be marked using GPS units and displayed on a site map in the annual report.

6.7 SUCCESS CRITERIA AND REMEDIAL MEASURES

Success criteria are provided to verify that the project achieves desirable native salt marsh habitat characteristics within 5 years. Success criteria are based on the composition of native salt marsh habitat adjacent to the South Lot (proposed reference site), experience on other similar projects, and reasonable expectations regarding the condition of created/restored habitats after 5 years.

Table 11
CRAM Attributes and Metrics

Attributes		Metrics and Submetrics
Buffer and Landscape Context		Landscape Connectivity
		Buffer:
		–Percent of Assessment Area with Buffer
		–Average Buffer Width
		–Buffer Condition
Hydrology		Water Source
		Hydroperiod or Channel Stability
		Hydrologic Connectivity
Structure	Physical	Structural Patch Richness
		Topographic Complexity
	Biotic	Plant Community:
		–Number of Plant Layers Present
		–Number of Codominant Species
		–Percent Invasion
		Horizontal Interspersion and Zonation
		Vertical Biotic Structure

Source: Collins et al. 2008a

6.3.4 Reference Site

Quality salt marsh habitat exists immediately east of the proposed South Lot Phase I restoration area. This area is proposed to serve as a reference site for species cover, diversity, richness, and wetland conditions as part of the success criteria for comparison with the restoration areas. Three 50-meter point-intercept transects will be used to determine native and nonnative cover at the reference site for comparison to the South Lot and East Bern restoration areas. The transects will be installed during Year 1, and data will be collected at the same time as the annual monitoring for the restoration areas. Transects will be placed perpendicular to the San Dieguito River and span from the river bank to 50 meters or to the upper edge of the vegetated area. If a 50-meter transect does not fit in this area, then shorter transects are acceptable. Species data will be recorded, as described above, for both the point-intercept transect and the band transect.

In addition, one CRAM AA will be placed in the reference site and used to track the conditions of the reference area over time. It is expected that the restoration areas will eventually exceed the conditions observed in the reference area, as the reference area does not typify the physical structure that the restoration is attempting to achieve.

6.3.3 Condition-Based Rapid Assessment

In addition to monitoring the progress of each restoration area using vegetation data and general qualitative observations, the restoration ecologist will use a condition-based rapid assessment method to assess each restoration area. Specifically, the CRAM Estuarine Module will be used to determine the baseline condition of the restoration areas and document progress over the 5-year maintenance and monitoring period (Collins et al. 2008a). CRAM has been in development over the last 5-plus years in collaboration with resource agencies and scientists throughout California. The overall goal of CRAM is to "provide rapid, scientifically defensible, standardized, cost-effective assessments of the status and trends in the condition of wetlands and related policies, programs, and projects throughout California" (Collins et al. 2008a). CRAM is a rapid assessment method that requires collecting Level 2 data (coarse data) for monitoring wetland conditions. It is expected to become the chosen functional assessment method for future permitted projects throughout California.

One of the benefits of CRAM is that it does not require an intensive watershed-level assessment to calibrate variable scores. Instead, CRAM has been calibrated throughout California and in various wetland types. Manuals have been or will be developed for each of the seven major types of wetlands recognized by CRAM: riverine and riparian wetlands, lacustrine wetlands, depressional wetlands, wet meadows, vernal pools, playas, and estuarine wetlands. As stated above, the CRAM Estuarine Module will be used for the restoration areas. The final CRAM score is composed of four main attribute scores (landscape context and buffer, hydrology, physical structure, and biotic structure), which are further divided into different metrics (a measurable component of an attribute), each with its own associated score (Table 11).

For conducting the CRAM assessment, one assessment area (AA) will be placed in each restoration area based on the maximum size allowed for estuarine wetlands (1-hectare circle or other shape) (Collins et al. 2008b). A certified estuarine CRAM practitioner (the restoration ecologist) will conduct the CRAM assessments before installation to serve as a baseline measure of the conditions of the site before restoration. CRAM will also be performed each year during the 5-year maintenance and monitoring program to measure any increase in conditions as the restoration areas develop. The assessment should occur during the peak growing season (May through July) at the same time as the quantitative vegetation transects. The most recent version of CRAM available will be used.

intervals for the East Berm, a third transect will be added, for a total of three transects. For both restoration areas, the transects will be placed perpendicular to the primary tidal channels (i.e., San Dieguito River for the East Berm restoration area) at random starting locations across each restoration area. At 0.5-meter intervals along each transect, every plant species that intercepts the transect will be recorded. This sampling method is based on the field sampling protocol designed by the California Invasive Plant Council (Cal-IPC) (Sawyer and Keeler-Wolf 1995). During Year 1, each transect will be installed and marked at the higher elevation end with a 4-foot-tall metal T-post. The location of all transects will be marked using a Global Positioning System (GPS) unit and displayed on a site map in the annual report. Data will be collected each year during late spring/early summer (May to July), and sampling times will be consistent from year to year to minimize variation in the data.

A list of additional species occurring within a 5-meter band along each 50-meter transect will also be recorded to measure species richness and diversity. Additionally, one end of each vegetation transect will be used as a photo station to visually record the progress of the restoration over the 5-year maintenance and monitoring period.

In addition to the transects described above, during Year 5 (or the final monitoring program year), random quadrats will be used to assess each restoration area. At least 10 randomly placed 1-square-meter quadrats will be placed in each restoration area and the reference site. Within each quadrat, the percent cover of each species, total native cover, and total nonnative cover will be recorded. Species richness and total native and nonnative cover will be used to compare each restoration area to the reference site. Each restoration area must be within 15% of the standards in the reference site.

6.3.2 Sampling Design and Statistical Rigor

After Year 2, a power analysis using paired (permanent) data will be conducted to ensure 90% power is being achieved for each restoration area with a sample size of 4 or 3 (depending on the area), alpha of 0.1, and a minimum detectable change of 15% native cover. If 90% power is not being achieved, additional transects may be added.

Additionally, 90% confidence intervals will be calculated each year around native and nonnative cover of the restoration areas. These confidence intervals will be compared to vegetation success standards calculated based on the reference site to determine if success is being achieved. For native cover, the entire confidence interval must be higher than the success standard for success to be achieved. For nonnative cover, the entire confidence interval must be less than the success standard for success to be achieved.

survival and condition during horticultural visits. During each annual September site visit, the restoration ecologist will assess the need for potential remedial planting during the winter. Recommendations will be included in the October monthly/quarterly memoranda. Recommendations may include container planting and broadcast seeding.

Following each horticultural site visit, the restoration ecologist will prepare a short memorandum, as described in Section 6.7. These memoranda will focus on issues such as replacements of dead or diseased plants, weeding, irrigation scheduling, trash removal, and pest control. In addition, the restoration ecologist will coordinate with the installation or maintenance contractor for the following:

- Schedule upcoming maintenance based on the maintenance needs and priorities at each of the restoration areas
- Walk the restoration areas to identify any problem issues, including erosion issues, irrigation damage, occurrence of invasive nonnative species, and potential human impacts such as from dirt bikes and vandalism
- Provide support to field maintenance crew in the identification of common native and nonnative species
- Determine an irrigation schedule (for a given period of the project) based on seasonal and annual variation in rainfall, native plant water requirements, and site-specific conditions (e.g., soil condition and slope)

6.3 BOTANICAL (QUANTITATIVE) MONITORING

A restoration ecologist with the qualifications specified in Section 4.1 will supervise all botanical (quantitative) monitoring. At a minimum, quantitative botanical monitoring will consist of point-intercept transects, diversity belt transects, and a condition-based rapid assessment for each restoration area and a common reference site. Although the method will be the same, the monitoring will be conducted and analyzed separately for each restoration area. This will allow for adaptive management decisions and site progress to be tracked for each distinct area.

6.3.1 Point-Intercept and Diversity Belt Transects

Permanent 50-meter-long point-intercept transects will be placed at a density of 1 per 0.5 acre, and will be used to determine native and nonnative cover across each of the restoration areas during the 5-year maintenance and monitoring program. This will result in five transects for the South Lot and two transects for the East Berm. However, to allow for averaging and confidence

6.2 HORTICULTURAL (QUALITATIVE) MONITORING

A restoration ecologist with the qualifications outlined in Section 4.1 will direct the project's horticultural (qualitative) monitoring program. The goal of this monitoring is to proactively assess site conditions to address issues before they become a problem. Horticultural monitoring will include design review of the contractor-designed irrigation system (if needed) for the upland transitional area, performing pre-installation environmental education, and performing all required installation inspections described above. An important feature of the horticultural monitoring is effective coordination with the installation and maintenance contractor(s) to exchange information, provide feedback, and agree on priority maintenance items and potential remedial measures during different stages of the salt marsh restoration. The restoration ecologist will perform qualitative horticultural monitoring throughout the installation period and the 5-year maintenance and monitoring program. Each horticultural visit will focus on soil conditions (e.g., moisture and fertility), container plant health and growth, seed germination rates, presence of native and nonnative plant species, any significant disease or pest problems, and any erosion problems.

During installation, the restoration ecologist will inspect progress on a weekly basis and then at least once a month during the 120-day plant and hydrology establishment period. The restoration ecologist will monitor the restoration areas monthly during the first 2 years of the 5-year maintenance and monitoring program and then quarterly during Years 3, 4, and 5. During each horticultural site visit, the restoration ecologist will conduct a site overview of the restoration areas to evaluate the following:

- Overall site conditions
- General condition of plants, including plant health/vigor and mortality
- Seed germination rates
- Native plant recruitment
- Potential issues, including hydrology, irrigation problems (too much or too little), invasive nonnative species of concern (e.g., tamarisk, pampas grass, and Brazilian pepper tree), vandalism, and other problems that need to be addressed by the installation or maintenance contractor

It is unrealistic to require a formal plant count, as plant installation will be conducted in phases throughout the first year and will likely include large quantities of small rose pot (liner) plantings. As such, the restoration ecologist will be responsible for a visual estimate of plant

6.0 MITIGATION MONITORING AND SUCCESS STANDARDS

The following section outlines the monitoring program from installation to completion. In addition, primary and secondary success standards are proposed.

6.1 IMPLEMENTATION MONITORING

The restoration ecologist will coordinate with the installation contractor and the 22nd DAA to monitor the project's implementation, as described in Chapter 4, including initial grading, contouring, and native planting and seeding, and the 120-day plant and hydrology establishment period, to ensure that installation is performed in accordance with this Restoration Plan. During this period, the restoration ecologist will prepare a brief weekly memo that reviews implementation progress, which will be submitted to the 22nd DAA. The installation contractor will be responsible for the 120-day plant and hydrology establishment period after the grading, erosion control, and native plant installation are complete to ensure that the site meets certain success criteria and is established in a desirable manner prior to the start of the 5-year maintenance and monitoring program. The installation contractor will receive approval from the restoration ecologist and the 22nd DAA, indicating a successful implementation and 120-day plant and hydrology establishment period before the start of the 5-year maintenance and monitoring program. In addition, the installation process will require the restoration ecologist to inspect and approve progress at the following times:

- During and after environmental protection fencing installation
- During demarcation of the restoration area boundaries
- During inlet/outlet channel grading and contouring of each restoration area
- At the end of grading and contouring for both restoration areas
- After completion of grubbing and soil ripping for decompaction before the start of planting
- At the time of container plant delivery when container plant materials will be inspected by the restoration ecologist to confirm the receipt of the correct species and that the plants are healthy, disease free, and of proper size prior to planting
- During final container plant layout to ensure correct ecological positioning
- When the contractor requests inspection to determine if installation is complete
- At completion of the 120-day plant and hydrology establishment period

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The contractor will exercise care so that trash removal activities minimize or avoid impacts to plantings in the restoration areas. Organic debris such as dead limbs provides habitat value for wildlife and may be left in place.

5.8 PEST CONTROL

During horticultural site visits, the restoration ecologist will monitor for plant insects and diseases. Only minor pest control efforts, if necessary, are expected to be required to achieve project success. Plants that are severely diseased will be removed and replaced to prevent the spread of disease and insects. Pesticides will be largely avoided unless recommended for special problems by the restoration ecologist. Rodent control, if necessary, will be restricted to trapping or anti-coagulants with no secondary poisoning effect. Any pest control measures that require pesticide use will be recommended by a licensed Pest Control Advisor with review and input by the project restoration ecologist.

5.9 PRESERVATION OF THE SITE AS NATURAL OPEN SPACE

As required by Condition 3 of the USACE Restoration Order, the 22nd DAA will place a conservation easement over both the South Lot Phase I and East Berm restoration areas prior to completion of the 5-year maintenance and monitoring program.

kind (original size and species) unless otherwise specified by the restoration ecologist, and watered as needed to ensure their survival. If considered appropriate by the restoration ecologist, naturally occurring seedlings of planted species or native plant volunteers may be used as replacement plantings if they are in close proximity to dead or diseased plants and provide roughly equal ecological value.

5.6 IRRIGATION

Although supplemental irrigation will be required to establish the high marsh habitat and upland transitional habitat, an automated temporary irrigation system is not proposed for either site due to cost, potential damage to an irrigation system from periodic flows, and potential damage to native plants from removal of an irrigation system; an irrigation system is not considered critical for meeting project success. Therefore, watering during the installation phase and 5-year maintenance and monitoring program is proposed through a water truck and hand-watering. There are suitable access locations adjacent to both restoration areas where a water truck could park. Spray nozzles and/or hoses would need to be extended to reach the restoration areas. Prior to planting and seeding, the soil should be moist from watering by the contractor or from rainfall.

The high marsh will likely need supplemental watering for the first year, but should quickly become established and receive adequate water from the higher high tides. For the upland transitional habitat, it is expected that supplemental watering will only be needed during the first 2 to 3 years after restoration installation. The restoration ecologist will coordinate with the installation or maintenance contractor about appropriate times to water during the year. It is the intent of this Restoration Plan that watering be conducted judiciously and only when needed. Minimal watering will promote the establishment of hearty plants with well-developed root systems. In general, infrequent deep watering will be performed to promote deeper root development, as compared to frequent surface watering. The schedule for watering will be adjusted accordingly during the maintenance period depending on factors such as plant size and health and weather conditions. Generally, watering will be used to supplement rainfall (to simulate an average to above-average rainfall year), and will be used as modestly as possible during the summer months. As the habitat becomes established, the contractor and restoration ecologist will agree on a reduced watering schedule, and will eventually phase out supplemental watering.

5.7 TRASH REMOVAL

The contractor will remove all trash and debris from the restoration areas during regular maintenance visits, including trash brought in by storm flow, and properly dispose of it off-site.

buffer. Based on the species observed during future site monitoring, the restoration ecologist will update the list of species that need to be removed.

Nonnative plant species will be removed from container plant basins until the native plants are established. Nonnative plants will be removed either before they become 12 inches high or they set seed. Nonnative plants, including invasive exotics, will be either hand-pulled, cut, and treated with herbicide, or just treated with herbicide. No mechanical methods or hand tools (such as a shovel) will be used to excavate nonnative species, as the soil disturbance often results in additional nonnative recruitment. If root systems of particular nonnative plants that are in a young/small stage cannot be feasibly removed with hand-pulling, herbicides may be applied under the supervision of a licensed Pest Control Advisor by a licensed applicator. Weed debris will be properly disposed of off-site. If nonnatives reach maturity (indicating inadequate maintenance frequency) and have either flowered or set seed, they will be cut and placed directly onto a tarp before being transported off-site. The remaining vegetative base will be treated with herbicide.

If herbicides are used judiciously in accordance with label instructions and in compliance with state and federal laws, they should pose no harm to water quality, biological resources, or people. If weed ecology information indicates herbicide application is necessary to eradicate certain species, then it is recommended that direct application (instead of foliar sprays) of selective herbicides be used.

5.5 PLANT CARE AND SUPPLEMENTAL PLANTING/SEEDING

Container plant care will be performed as necessary to assist with plant survival and establishment. Plant care includes controlling competing weeds within plant basins, supplemental watering, and replacing any diseased or dead plants, as needed. Plant care will also be provided for native species that are seeded and volunteer on-site by removing competing nonnative species.

The maintenance contractor will replace dead and diseased plants that fall below project success standards (Section 6) annually, as needed, during the 5-year maintenance and monitoring period. The restoration ecologist will flag dead and diseased plants in the field and provide a list to the maintenance contractor of replacement plant species and quantities. The restoration ecologist may also recommend additional species for planting as a remedial measure. The maintenance contractor will provide the cost estimate for supplemental planting on a unit-price basis as part of the initial bid for annual maintenance. Replacement planting will be treated as a change order, and will be approved on an as-needed basis by the 22nd DAA. All dead plants will be replaced in

maintenance "punchlist" of correction items. After the installation contractor has satisfactorily completed the "punchlist," the restoration ecologist will recommend acceptance of the 120-day plant and hydrology establishment period to the 22nd DAA.

5.2 SITE PROTECTION

Unauthorized foot traffic and impacts are not expected to occur within the restoration areas, and the proposed fencing and signage should further deter unauthorized entry. Temporary lighting needed for safety/security during the San Diego County Fair and horseracing season will be shielded and directed away from wetland habitat. If impacts occur, site protection measures will be further evaluated to determine the best approach to protect the site.

5.3 EROSION CONTROL

Each restoration area was designed to accommodate the full tidal prism, thereby allowing development of salt marsh habitats at varying elevations. The ultimate success of the restoration project is dependent on achieving proper tidal hydrology. As such, the restoration ecologist will evaluate erosion and deposition in the primary, secondary, and tertiary tidal channels throughout the 5-year maintenance and monitoring period. Although sediment scour and deposition resulting from surface flows are part of the natural wetland system process, evidence of severe erosion in the primary and secondary tidal channels may require management to ensure a stable inlet/outlet. Every attempt has been made to design a natural, self-sustaining inlet/outlet without artificial structures. However, if there is evidence that the inlet/outlet may close from sedimentation, maintenance of the primary channel and minor armoring (ungrouted cobble or boulders) may be required. Any action affecting the primary inlet/outlet will be discussed with regulatory agency representatives.

Any significant erosion in the upland transitional habitat should be reported by the contractor to the restoration ecologist and repaired immediately by the installation or maintenance contractor. If required, standard erosion-control practices will be used to stabilize eroding areas, including straw wattles, additional silt fencing, and additional planting.

5.4 WEED CONTROL

Nonnative plant species can be divided between aggressive, invasive exotics that can outcompete desirable native species if they are not controlled, and benign species that tend to diminish as native species become established. Nonnative plants listed in Table 8 will be eradicated wherever they occur within each of the restoration areas and within the 100-foot nonnative treatment

5.0 MAINTENANCE

The installation contractor will be responsible for maintenance during the 120-day plant and hydrology establishment period, and the maintenance contractor will be responsible for the remainder of the scheduled 5-year maintenance and monitoring period. As a guideline, the contractor is expected to perform maintenance approximately once a month during the first 4 months (i.e., 120-day plant and hydrology establishment period). The contractor is also expected to perform maintenance approximately monthly during the next 8 months of Year 1; every 2 months during Year 2; and quarterly during Years 3, 4, and 5. Maintenance may be needed more frequently to perform remedial measures (e.g., replanting, erosion control). The contractor will coordinate with the restoration ecologist on a regular basis to determine priority maintenance activities during different periods of the project. The primary maintenance obligations are reviewed below.

5.1 120-DAY PLANT ESTABLISHMENT PERIOD

After installation work is completed, a 120-day (4-month) plant and hydrology establishment period will begin. At the completion of installation planting, the installation contractor will request a pre-maintenance inspection by the restoration ecologist. The restoration ecologist will prepare a "punchlist" of correction items for completion by the contractor. After "punchlist" items are corrected, the restoration ecologist will recommend to the 22nd DAA that the landscape installation phase is complete and that the 120-day plant and hydrology establishment period has begun. During the plant and hydrology establishment period, the installation contractor will provide regular maintenance of the restoration area, including trash removal, supplemental irrigation, erosion control, and nonnative treatment.

The installation contractor will perform maintenance visits and activities in accordance with the goals presented in this Restoration Plan. The number of maintenance visits will vary depending on the amount of work necessary for the mitigation area to meet its success standards on schedule. As a guideline, the contractor is expected to perform maintenance approximately once a month during the first 4 months (i.e., 120-day plant and hydrology establishment period). Weed control during the plant and hydrology establishment period will focus on the restoration area and the 100-foot nonnative treatment buffer. Treatment will include all species listed in Table 9 and any additional problematic species identified by the restoration ecologist. Herbicide application will be in accordance with BMPs, manufacturers' recommendations, and agency regulations. At the end of the 120-day plant and hydrology establishment period, the restoration ecologist will flag all dead and diseased plant materials requiring replacement and prepare a final

4.9.6 Seed Application Steps

The contractor will install seed in the upland transitional areas using standard hydroseed practice, as follows:

- Seed application rates are provided in Table 10. If the delivered seed differs from specified purity and germination rates, the total pounds-per-acre rates will be adjusted accordingly to achieve the specified pounds of pure live seed.
- Seed will be applied by hydroseed application. Application steps include the following:
    - Create a slurry of seed (at specified rates per acre), 2,000 pounds per acre of organic fiber mulch, and 150 pounds per acre of organic tackifier.
    - Evenly apply; spray hydroseed from at least two directions to help interlock mulch fibers.

4.9.7 Planting and Seeding Timing

A phased planting approach is proposed for Year 1 in the South Lot restoration area to properly monitor and address any hydrology issues that may arise during the first year. This will allow for regrading or contouring, as needed, while minimizing impacts to new plantings. If regrading or contouring is needed, the work must occur outside of the migratory bird breeding season, February through September. In addition, there is an ideal window for planting native plants, which occurs in winter generally between November and February. The phased planting schedule outlined in Section 4.9 accounts for the restrictions of these varying time periods. In addition, the contractor will need to coordinate installation efforts with tidal tables to ensure that work is not being conducted on the site during periods of inundation. All installation work will be coordinated with 22nd DAA staff so as not to interfere with regularly scheduled activities at the fairgrounds.

4.10 FINAL LANDSCAPE CONSTRUCTION PLANS AND AS-BUILT CONDITIONS

Once the installation phase and 120-day plant and hydrology establishment period is complete, the restoration ecologist and installation contractor will coordinate to prepare a summary of as-built information detailing any changes in the restoration limits, contour grading, or planting or seeding (i.e., species and quantities) compared to the approach and specifications provided in this Restoration Plan. Figures 6a, 7a, 9, and 10 will be revised and serve as an as-built plan, in addition to an attached text summary, if there are any implementation changes made to this Restoration Plan.

Mission Bay to support harvesting. Biologists will minimize disturbances within donor beds.

- Diver biologists will use the preferred transplant bundle method (Fonseca et al. 1982) and collect eelgrass from the donor site, transfer it to shore, and separate it into planting units. It will then be replanted by snorkelers in the inlet/outlet for the South Lot.
- Donor material from two areas will be mixed together and then integrated into planting units consisting of about 10 shoots and associated substrate and root mass. Shoots will be bundled and tied together with biodegradable line and a sediment anchoring device.
- The bundles will be planted in spacing units of 1 unit per 0.5 square meter. This is a higher density than usual, but is appropriate, as there will only be one planting effort and the total planted area is small. This approach is recommended to maximize success.
- Although no formal success standards exist, the restoration ecologist will qualitatively monitor the eelgrass plantings for the duration of the 5-year maintenance and monitoring program, and will include a brief summary in the annual reports.

4.9.5 Seed Specifications

Seed will be applied to the upland transitional habitat at both restoration areas. No seeding will occur in the salt marsh habitats. Seed will be from Del Mar, San Diego, or alternative sources (closest commercially available sources) approved by the restoration ecologist. If seed is not available from these areas, at minimum, seed will be obtained from within 1 mile of the coast between Ventura and the Mexican border. Seed will be delivered to the site in sealed and labeled packaging, along with a California State Agricultural Code seed certification that includes the supplier's name, geographic location, and collection date, and the tested purity and germination percentage rates. The seeds will be ordered and delivered in separate, original containers by species, and inspected by the restoration ecologist. Seed will be labeled with the species, purity, germination, percent live seed, and quantity of seed in pounds.

The seed mix will be applied by hydroseeding with a hydroseed slurry containing seed, natural fiber mulch, and organic tackifier. Although hydroseed mulch with seed can be carried and moved by flowing water, the mulch will help more of the seed stay in place and germinate compared to hand seeding.

place on top of the moistened backfill so that the plant collar is approximately 1 inch above finish grade. Backfill the remaining hole with native soil.

- For upland transitional plantings 1 gallon or larger, create a planting basin berm roughly 2 feet in diameter around the plant and apply 1 to 2 inches of coarse, organic, weed-free mulch inside the berm.
- No mulching or berms will be used around container plantings within salt marsh habitat.
- Thoroughly water and allow the basin to drain.
- No plant will be planted in areas of standing water or during tidal inundation.

4.9.3 Container Plant Guarantee

All plants determined by the restoration ecologist to be dead or diseased will be replaced by the installation contractor before the end of the 120-day plant and hydrology establishment period and as required by the maintenance program. Unless the restoration ecologist approves changes, the replacement plants will be of the same size and species as originally planted.

4.9.4 Eelgrass Planting

As stated in the phased planting scheduled outlined in Section 4.9, a small area of eelgrass will be planted in the inlet/outlet for the South Lot Phase I area. This planting is proposed as an enhancement to the inlet/outlet. The 22nd DAA is not required to conduct any formal subtidal habitat restoration; as such, there is no success standard associated with the eelgrass planting, and only one planting attempt will be made. Permission to harvest and plant eelgrass will be required from the State of California through CDFG. The CDFG contact is Bill Paznokas (wpaznokas@dfg.gov.ca). The restoration ecologist will submit a brief letter to Mr. Paznokas in February, prior to planting, indicating the proposed location of the donor site and the quantity to be harvested.

The following eelgrass harvest and planting methods will be used:

- Eelgrass planting will occur during the early active growing period for eelgrass (March through June).
- Transplant material will be harvested by a diver or scuba biologists from shallow subtidal eelgrass beds (two locations) in Mission Bay, as the eelgrass beds are large enough in

Mar, San Diego, or alternative sources (closest commercially available sources) approved by the restoration ecologist. If container plant material is not available from these areas, at minimum, seed will be obtained from within 1 mile of the coast between Ventura and the Mexican border. Source locations should be as close to the restoration site as possible. Plants must be certified by the supplier (nursery) to be free of exotic pests (e.g., Argentine ants) prior to delivery on-site.

The restoration ecologist will confirm that plants are delivered to the site in a healthy and vigorous condition before they are installed. Plants will not be installed that are root-bound, stunted, pest-infested, diseased, or unacceptable for other reasons. The restoration ecologist and contractor will coordinate the layout for plant material in ecologically appropriate locations and natural groupings. The restoration ecologist will direct all planting, and may place flag, directly place containers, or direct the contractor on the placement of plants. In general, container plants will be installed in a manner that mimics natural plant distribution (e.g., random and/or aggregate distributions rather than uniform rows).

No substitutions of specified plants will be allowed, and container sizes will not be changed unless approved in advance by the restoration ecologist. If the installation contractor is unable to obtain the specified size or species at the time of planting, commencement of the 120-day plant and hydrology establishment period will be delayed until all specified plants are installed or until a suitable substitution is determined by the restoration ecologist. The specific planting areas, corresponding plant palettes, and planting phase (if applicable) for each restoration area are shown in Figures 9 and 10 and in the 100% Submittal, Wetland Restoration Plans (Appendix 5).

4.9.2 Container Plant Installation Steps

Prior to planting, the contractor will make sure that the site is wet from rainfall or adequately watered so that the first few inches of soil are saturated. The contractor will install container plants using standard horticultural practice, as follows:

- Thoroughly water all plants in their containers before planting.
- Dig a hole twice as deep and three times as wide as the container. Break up soil clods and roughen the side of the hole to avoid a smooth-sided "bathtub" effect. Fill the planting hole with water and allow water to drain completely into the soil; repeat twice.
- Partially backfill the hole with native soil to allow planting at the proper depth. The backfill mix will contain only native soil with no rocks larger than 3/4-inch diameter. Moisten and gently tamp the backfill into place. Remove the plant from its container and

The following is a schedule of the phased planting approach proposed for the South Lot:

- ***Following contour grading and site prep***, container plants will be installed in the upland transitional habitat, followed by hydroseed application of the seed mix. This should occur between November and February to allow for successful plant establishment.
- ***Following contour grading and site prep***, a large portion of the high marsh species will be installed, while still leaving room for mechanical equipment that may need to enter the site to modify hydrology (Figure 9). This should occur between November and February to allow for successful plant establishment.
- The installation contractor will be responsible for all plantings through the 120-day plant and hydrology establishment period, and will replace any diseased or dead plants during this time.
- ***During the 120-day plant and hydrology establishment period***, the restoration ecologist will monitor hydrology on-site once a week at varying tides for 60 days, and document any moderate erosion or deposition that may indicate additional grading is needed. The restoration ecologist will note whether the tide levels are reaching and inundating the floodplain at elevations appropriate for the target habitats. In addition, the restoration ecologist will document native species that recruit into the low- and mid-marsh habitat.
- The maintenance contractor will complete any additional grading needed to correct hydrology by the end of the 120-day plant and hydrology establishment period.
- ***During winter (December through February) of Year 1***, the maintenance contractor will plant the low-marsh and mid-marsh habitat and the remaining high-marsh habitat, filling in the bare areas that were left for mechanical equipment.
- ***Beginning May 1 in Year 2***, the restoration ecologist will install approximately 240 square feet of eelgrass in the primary inlet/outlet at the South Lot restoration area (unless eelgrass has recruited).

Specific container plant and seed specifications are as follows.

4.9.1 Container Plant Specifications

When possible, plantings will be harvested from adjacent salt marsh habitat or from within the restoration area footprints. Although the East Berm is highly degraded, there are remnant patches of native salt marsh habitat that should be salvaged prior to contour grading. All other plantings will be obtained from nursery sources. Plants will be provided from source material from Del

Table 10
Upland Transitional Habitat Seed Mix

Species	Common Name	Pounds of Bulk Seed per Acre	Minimum Percent Purity/ Germination	Pounds of Pure Live Seed (PLS) per Acre[4,5]
SEED MIX[1,2,3]				
Ambrosia psilostachya	western ragweed	4.17	20/30	0.25
Amsinckia menziesii	fiddleneck	4.17	40/30	0.5
Camissonia bistorta	California suncup	1.39	30/60	0.25
Croton californicus	California croton	4.17	90/40	1.5
Deinandra fasciculata	fasciculated tarweed	1.79	20/70	0.25
Encelia californica	California bush sunflower	2.08	40/60	0.5
Eriophyllum confertiflorum	golden yarrow	1.19	30/70	0.25
Heliotropium curassavicum	salt heliotrope	2.08	20/60	0.25
Isocoma menziesii	coastal goldenbush	2.08	40/30	0.25
Lasthenia glabrata ssp. *coulteri*	Coulter's salt-marsh daisy	0.33	90/85	0.25
Leymus condensatus	giant wildrye	1.56	80/80	1
Limonium californicum	western marsh-rosemary	3.13	80/20	0.5
Lotus scoparius	deerweed	1.32	95/80	1
Lupinus bicolor	pygmy-leaved lupine	2.40	98/85	2
Lupinus succulentus	arroyo lupine	3.60	98/85	3
Muhlenbergia rigens	deergrass	0.89	80/70	0.5
Salvia columbariae	chia	0.93	90/60	0.5
	Totals	**37.27**		**12.75**

[1] Seed will be applied by hydroseeded with standard amendments (i.e., cellulose fiber mulch and organic soil stabilizer).

[2] Seeds will be collected within the watershed or within a 10-mile radius of the site to the extent feasible. Seeds that cannot be collected from the immediate vicinity will be provided from the closest available sources.

[3] Any potential substitutions or quantity adjustments must be approved by the restoration ecologist.

[4] The pounds per acre of pure live seed (PLS) in this table have been rounded. The pounds per acre of seed will be adjusted to achieve the specified pounds per acre of PLS when actual percent purity and germination rates are calculated.

[5] Quantities in this table are presented on a per-acre basis. The estimated upland transitional area is 0.43 acre (0.22 acre for the South Lot and 0.21 acre for the East Berm). In addition, seeding will be required in the 0.27-acre upland temporary impact area in the East Berm restoration area.

Species[1, 2, 3]		Container Size	Approx. Spacing (feet on center)[4]	Number per Acre[6]	Planting Phased
Scientific Name	Common Name				
High Marsh[4,5]					
Arthrocnemum subterminale	Parish's pickleweed	rose pot/ 4-inch	4 feet	250	Post-Grading AND Winter Year 1
Cressa truxillensis	alkali weed	rose pot/ 4-inch	2 feet	250	
Distichlis spicata	salt grass	rose pot/ 4-inch	3 feet	375	
Frankenia salina	alkali heath	4-inch	3 feet	425	
Limonium californicum	western marsh rosemary	4-inch/ 1-gallon	5 feet	150	
Monanthochloe littoralis	shoregrass	rose pot/4-inch	2 feet	200	
Sarcocornia pacifica	Pacific pickleweed	rose pot/ 4-inch	5 feet	250	
Suaeda taxifolia	woolly sea blight	4-inch	3 feet	250	
			4-Foot Average	**2,150 Total**	
Upland Transitional Habitat[4]					
Artemisia californica	coastal sage brush	1-gallon	7 feet	65	Post-Grading
Cylindropunta prolifera	coast cholla	1-gallon	8 feet	35	
Encelia californica	California brittlebush	1-gallon	7 feet	85	
Ferocactus viridescens var. *viridescens*	coast barrel cactus	1-gallon	6 feet	35	
Isocoma menziesii var. *vernonioides*	coastal goldenbush	1-gallon	20 feet	25	
Leymus condensatus	giant wildrye	1-gallon	10 feet	35	
Muhlenbergia rigens	deer grass	1-gallon	10 feet	30	
Opuntia littoralis	coast prickly-pear	1-gallon	10 feet	35	
Peritoma arborea	bladderpod	1-gallon	12 feet	45	
Pluchea sericea	arrow weed	1-gallon	8 feet	45	
			10-Foot Average	**435 Total**	

1 Any potential substitutions or changes to quantity must be approved by the restoration ecologist.

2 Plants should be propagated on-site or from material from the watershed or within 10 miles of the mitigation site. Plants that cannot be provided from the immediate vicinity will be provided from the closest commercially available sources.

3 Plants will be certified as free of exotic pests (e.g., Argentine ants) prior to delivery on-site.

4 The restoration ecologist will lay out the species and will provide appropriate composition layouts within different ecological settings. Container plants will be installed in a manner that mimics natural plant distribution (e.g., random and/or aggregate distributions rather than uniform rows).

5 In discrete locations at both restoration areas, the high marsh plant palette will be used above the maximum elevation range (+4.5 NGVD) associated with this habitat. These areas are identified clearly on the plan drawings and Figures 9 and 10.

6 The average container plant spacing is given based on the total plant-per-acre for each habitat type.

4.9 PLANTING AND SEEDING PLAN

A container plant palette and seed mix were developed for application at both of the restoration areas. The salt marsh plant palette for each target habitat and the upland transitional habitat is provided in Table 9. The seed mix prepared for the upland transitional habitat is provided in Table 10. The plant selections are based on native plant species observed or known to occur within the project reference area and adjacent salt marsh habitat, and in the vicinity of the site. A total of 36 native species are proposed for planting or seeding (Tables 9 and 10). As with the SCE San Dieguito Lagoon Restoration Plan, any habitat above +4.5 feet NGVD is considered non-wetland; however, high marsh species are known to occur above these elevations and, as such, will be planted to an elevation of +5.5 feet NGVD (Figures 9 and 10, Appendix 5).

This Restoration Plan proposes a phased planting approach over the first year for the South Lot to allow for proper establishment of tidal hydrology (Figure 9). No phased planting is recommended for the East Berm area, as tidal inundation will be achieved by overbanking and is not solely dependent on a primary inlet/outlet like the South Lot is (Figure 10).

Table 9
Salt Marsh Restoration Container Plant Palette

Species[1, 2, 3]		Container Size	Approx. Spacing (feet on center)[4]	Number per Acre[6]	Planting Phased
Scientific Name	Common Name				
Subtidal (Primary Inlet/Outlet)					
Zostera marina	eelgrass	Plugs	3 feet	4,840	Winter Year 1
Low Marsh[4]					
Spartina foliosa	California cordgrass	Plugs	3 feet	4,840	Winter Year 1
Mid Marsh[4]					
Arthrocnemum subterminale	Parish's pickleweed	rose pot/ 4-inch	4 feet	300	Winter Year 1
Batis maritima	turtleweed	rose pot/ 4-inch	3 feet	450	
Jaumea carnosa	salty Susan	rose pot/ 4-inch	3 feet	650	
Sarcocornia pacifica	Pacific pickleweed	rose pot/ 4-inch	5 feet	350	
			5-Foot Average	**1,750 Total**	

Table 12
Primary Wetland Success Criteria

Milestone	Native Cover (absolute and relative)[1]	Native Species Richness	Nonnative Cover (absolute)	Container Plant Survival	Tidal Hydrology
120-Day Maintenance Period	N/A	100 % occurrence of planted wetland species	<10% overall, <5% target invasive species on-site and within 100 feet	100%	Inlet/outlet flushing adequately; no significant erosion; tertiary channels and mid-marsh flooding during moderate high tides, to be verified using depth meters
Year 1	20% of native cover at reference site	100% occurrence of planted wetland species	<10% overall, <5% target invasive species on-site and within 100 feet	100%	Inlet/outlet remains open; no significant erosion; tertiary channels continue to develop; evidence of flooding (rack) in high marsh, to be verified using depth meters
Year 2	40% of native cover at reference site	80% occurrence of planted wetland species	<10% overall, <5% target invasive species on-site and within 100 feet	90%	Inlet/outlet remains open; no significant erosion; tertiary channels continue to develop; evidence of flooding (rack) in high marsh, to be verified using depth meters
Year 3	55% of native cover at reference site	70% occurrence of planted wetland species	<5% overall, <1% target invasive species on-site and within 100 feet	80%	Inlet/outlet remains open; no significant erosion; tertiary channels continue to develop; evidence of flooding (rack) in high marsh, to be verified using depth meters
Year 4	70% of native cover at reference site	70% occurrence of planted wetland species or similar (+/- 10%) species richness to reference site	<5% overall, <1% target invasive species on-site and within 100 feet	80%	Inlet/outlet remains open; no significant erosion; tertiary channels continue to develop; evidence of flooding (rack) in high marsh, to be verified using depth meters
Year 5	90% of native cover at reference site	70% occurrence of planted wetland species or similar (+/- 10%) species richness to reference site	<5% overall, 0% target invasive species on-site and within 100 feet	80%	Inlet/outlet remains open; no significant erosion; tertiary channels continue to develop; evidence of flooding (rack) in high marsh, to be verified using depth meters

[1] Native plant cover percentages in the restoration areas will be compared to the salt marsh reference site adjacent to the South Lot Phase I area.

Table 13
Upland Success Standards

Milestone	Native Cover (absolute and relative)[1]	Native Species Richness	Nonnative Cover (absolute)	Container Plant Survival
120-Day Maintenance Period	N/A	100% occurrence of planted upland species	<10% overall, <5% target invasive species on-site and within 100 feet	100%
Year 1	20% native shrub cover	100% occurrence of planted upland species	<10% overall, <5% target invasive species on-site and within 100 feet	90%
Year 2	40% native shrub cover	80% occurrence of planted upland species	<10% overall, <5% target invasive species on-site and within 100 feet	80%
Year 3	50% native shrub cover	70% occurrence of planted upland species	<5% overall, <1% target invasive species on-site and within 100 feet	70%
Year 4	60% native cover	60% occurrence of planted upland species	<5% overall, <1% target invasive species on-site and within 100 feet	70%
Year 5	65% native cover	50% occurrence of planted upland species	<5% overall, 0% target invasive species on-site and within 100 feet	60%

Table 14
Secondary Success Standards

Milestone	Native Plant Recruitment	Germination of Seed Mix	Native Species Diversity (Simpson's Diversity Index [SDI])	CRAM	Wildlife Usage[1]	Other
120-Day Maintenance Period	N/A	50% of species	N/A	N/A	N/A	Control of on-site erosion and sediment transport; no trash
Year 1	Evidence of native recruitment	75% of species	Baseline	Year 1 CRAM score ≥ baseline	Evidence of wildlife usage (non taxa specific)	Control of on-site erosion and sediment transport; no trash
Year 2	Evidence of native recruitment	75% of species	SDI ≥ Year 1	Year 2 CRAM score ≥ Year 1	Evidence of wildlife usage (non taxa specific)	Control of on-site erosion and sediment transport; no trash
Year 3	Evidence of native recruitment	N/A	SDI ≥ Year 2	Year 3 CRAM score ≥ Year 2 AND on trajectory to meet reference site CRAM score	Evidence of bird use	Control of on-site erosion and sediment transport; no trash
Year 4	Evidence of native recruitment	N/A	SDI ≥ Year 3	Year 4 CRAM score ≥ Year 3 AND on trajectory to meet reference site CRAM score	Evidence of continued bird use and small mammal and invertebrate community development (terrestrial and subtidal)	Control of on-site erosion and sediment transport; no trash
Year 5	Evidence of native recruitment	N/A	SDI ≥ Year 4	Year 5 CRAM score ≥ Year 4 AND on trajectory to meet or exceed reference site CRAM score	Evidence of continued bird use and small mammal and invertebrate community development (terrestrial and subtidal)	Control of on-site erosion and sediment transport; no trash

[1] Evidence of wildlife usage can be from direct or indirect observations.

approach, repair of erosion, and removal of trash. Table 15 presents success criteria and potential remedial measures.

Table 15
Success Criteria and Potential Remedial Measures

Primary Success Criteria	Potential Remedial Measure[1]
Native cover should increase annually as described in Table 12.	If adequate native cover fails to establish, then either additional planting or weed control may be recommended.
Nonnative cover should decrease annually as described in Table 12.	Standard hand measures will be used to achieve nonnative control criteria. Herbicide application will be necessary for invasive nonnative control. Failure to meet nonnative success criteria may require additional maintenance visits and more frequent oversight by the restoration ecologist to detect nonnatives prior to them becoming established. Replanting may be needed to revegetate areas where nonnatives have precluded adequate native plant establishment.
Container plant survival will remain at 100% through Year 1; 90% for Year 2; and 80% for Years 3, 4, and 5.	Container losses to below Restoration Plan standards (Table 12) will be replaced in kind annually, December through February. The restoration ecologist will provide a species table and quantity to be planted annually, as necessary, in the 3rd Quarter Horticulture Memo. Species substitutions may be recommended by the restoration ecologist if considered necessary to achieve this success standard.
Successful tidal hydrology is critical to the ultimate success of the project.	Evidence of significant erosion in the primary and secondary tidal channels may require additional grading to pull back the slopes. If there is evidence that the inlet/outlet may close from sedimentation, then additional maintenance of the primary channel will be required, and minor armoring (ungrouted riprap) may be needed.
No evidence of significant erosion of tidal channels or upland/transitional banks.	Any significant erosion should be reported to the restoration ecologist and repaired immediately by the installation or maintenance contractor. If required, standard erosion-control practices will be used to stabilize eroding areas, including straw wattles, additional silt fencing, and additional planting.

[1] Additional remedial measures not discussed in this Restoration Plan may be required to ensure project success. The restoration ecologist will provide remedial measure recommendations in the horticultural memoranda, at which point the installation or maintenance contractor will be responsible for implementing the recommended measures in a timely manner.

6.8 REPORTING

6.8.1 Restoration Installation

The restoration ecologist will supervise the installation contractor during the design-build phase, and will prepare brief weekly memorandum documenting installation progress. After grading is complete, the restoration ecologist must independently verify that the restoration area has been built to plan. A report demonstrating that the site was graded and contoured to plan must be completed and submitted to the CCC Executive Director for review and approval prior to planting or seeding.

At the end of the 120-day plant and hydrology establishment period, the restoration ecologist will write a letter to the 22nd DAA and USACE, verifying completion of restoration installation and the beginning of the 5-year maintenance and monitoring program. The 120-day installation completion letter will also summarize any significant changes made to the Restoration Plan during installation, and will include final as-built figures. A copy of the report will be submitted to the CCC Executive Director.

6.8.2 Quarterly Memoranda

Following the 120-day plant and hydrology establishment period, the project restoration ecologist will prepare quarterly memoranda summarizing qualitative site observations, positive restoration developments, and issues documented in the restoration areas. These memoranda will focus on issues such as replacement of dead or diseased plants, weeding, irrigation scheduling, trash removal, and pest control. A detailed description of the horticulture monitoring is described in Section 6.2. The memorandum will be submitted electronically to the 22nd DAA by the 15th of each month following each quarter (i.e., April 15, July 15, October 15, and January 15). A copy of each memoranda will be submitted to the CCC Executive Director. The memorandum will include a punchlist of priorities for the maintenance contractor.

During each September site visit, the restoration ecologist will assess the need for winter planting. Recommendations will be included in the October quarterly memorandum. Recommendations may include container planting and broadcast seeding.

6.8.3 Annual Report

The restoration ecologist will prepare annual monitoring reports that will include horticultural and botanical methods and monitoring results, CRAM assessment, photographic documentation,

an assessment of salt marsh restoration progress relative to success standards, and a review of maintenance activities and any remedial measures that have occurred (e.g., supplemental planting). A draft of the annual report will be submitted to the 22nd DAA for review. Once the report has been reviewed and approved by the 22nd DAA, it will be submitted to the appropriate resource agencies, including the CCC Executive Director.

6.8.4 Final Monitoring

Final monitoring for success will take place after at least 3 years of no remediation or maintenance activities, other than weeding, or after 5 years following initial restoration, whichever is longer. Within 90 days of the final monitoring event, a final monitoring report will be submitted to the CCC Executive Director. If the final report indicates that the restoration project has been unsuccessful, partially or wholly, based on the approved success criteria, the applicant will submit, within 90 days, a revised or supplemental restoration program to compensate for those portions of the original program that did not meet the approved success criteria. The revised restoration program will be processed as an amendment to the CDP, unless the CCC Executive Director determines that no permit amendment is required.

6.9 PROJECT RELEASE

As stated above, if success standards have not been met after 5 years (or 3 years without remediation), then maintenance and monitoring may be extended beyond 5 years or until standards are met. After the project has achieved the success standards, the restoration ecologist will write a notification letter to resource agency representatives (including the CCC Executive Director), documenting the successful completion of the restoration program and requesting final approval and release from the USACE Restoration Order conditions.

7.0 REFERENCES

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APPENDIX 1

U.S. ARMY CORPS OF ENGINEERS
1991 ORDER OF CORRECTIVE MEASURES

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT CORPS OF ENGINEERS
P.O. BOX 2711
LOS ANGELES CALIFORNIA 90053-2325

February 14, 1991

REPLY TO ATTENTION OF

Office of the Chief
Regulatory Branch

SUBJECT: ORDER FOR CORRECTIVE MEASURES

22nd District Agricultural Association
Attn: Mr. Andrew Mauro
2260 Jimmy Durante Boulevard
Del Mar, California 92014-2216

Gentlemen:

This letter concerns the Cease and Desist Order issued to you on July 16, 1990 for the unauthorized discharge of fill material into wetlands located on the north shore of the San Dieguito lagoon, immediately adjacent to Jimmy Durante Boulevard in the City of Del Mar, San Diego County, California.

Following an investigation and with input from the resource agencies, the U.S. Army Corps of Engineers Regulatory Branch is requiring you to restore 16.0 acres back to wetland habitat. This area includes a 4.0 acre site previously identified as an interim least tern nesting site, and a 12.0 acre site identified as the south overflow parking area.

A restoration plan with an implementation schedule must be prepared by a qualified biologist and submitted to the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, and California Department of Fish and Game by April 1, 1991.

If you have any questions regarding this matter, please contact Elizabeth White in our Regulatory Branch at (619) 279-4303.

Sincerely,

for Charles S. Thomas LT. COL. CE
Colonel, Corps of Engineers
District Engineer Acting Dist. Engr.

Enclosure

Copies Furnished:

U.S. Fish and Wildlife Service
ATTN: Jack Fancher
24000 Avila Road
Laguna Niguel, CA 92656

U.S. Environmental Protection Agency
ATTN: Clyde Morris
Wetlands and Dredged Material Section (W-7-2)
75 Hawthorne Street
San Francisco, CA 94105

U.S. Department of Justice
U.S. Attorneys Office
ATTN: Mr. Fred Brosio
213 North Spring Street
Los Angeles, CA 90012

California Department of Fish and Game
ATTN: Environmental Services Supervisor
330 Golden Shore, Suite 50
Long Beach, CA 90802

APPENDIX 2

U.S. ARMY CORPS OF ENGINEERS
1993 RESTORATION ORDER

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2711
LOS ANGELES, CALIFORNIA 90053-2325

APR 26 1993

REPLY TO
ATTENTION OF:

Office of the Chief
Regulatory Branch

SUBJECT: RESTORATION ORDER

22nd District Agricultural Association
Attn: Andrew Mauro
2260 Jimmy Durante Boulevard
Del Mar, California 92014-2216

Gentlemen:

Reference is made to the Corps' enforcement investigation (UA002-90) regarding the June, 1990 grading in the 22nd Agricultural District's south overflow parking lot. Following several meetings, your recent letter dated February 19, 1993 and a conversation with John Gleason of our Office of Counsel, the Corps has come to a resolution with the 22nd Agricultural District on the violation of the Clean Water Act.

The 22nd Agricultural District shall implement the following measures:

1. Move the existing concrete barriers in the outer parking lot northward, to allow creation of an additional 0.97 acre of wetlands in the dirt parking area. The total wetland restoration area in the south lot is 1.51 acres, or 56 percent of the area south of the former berm which was under investigation. This area is identified in a blue diagonal pattern on the "Revised Wetlands Restoration Project" plan dated August 3, 1992. Restoration will consist of breaking up the ground surface to encourage natural revegetation. If 75% native salt marsh habitat ground cover has not occurred in two years after breaking up the ground surface, the 22nd Agricultural District shall submit to the Corps a restoration plan and will conduct supplemental planting to meet this goal. A monitoring report shall be submitted to the Corps on the condition of the site at 12 and 18 months after site preparation is completed.

2. Restore 2.1 acres of disturbed transitional habitat to salt marsh wetlands located on the 22nd Agricultural District's property to the immediate east of the south lot, adjacent to the San Dieguito River as identified in the "Revised Berm Configuration Map" vegetation mapping, dated November 23, 1992. The 22nd Agricultural District shall submit to the Corps by June 1, 1993, a restoration plan as well as a monitoring and maintenance plan for the site.

3. Apply a conservation easement for wildlife habitat purposes to the restoration area.

4. Narrow and recompact the existing berm along the south edge of the east parking lots. This berm shall remain within its' existing footprint as identified in the "Revised Berm Configuration Map" vegetation mapping, dated November 23, 1992.

The Corps agrees to issue a nationwide permit #3 verification letter to the 22nd Agricultural District for the maintenance of the south overflow parking lot. The permit shall include conditions that no toxic fill shall be used, maintenance shall consist of soil redistribution, and the permittee shall create depressions in the parking lot during the off season to facilitate winter ponding and consequently waterfowl use. In addition, the Corps agrees to conduct a Federal wetland delineation of 22nd Agricultural District property as identified by the District. The Corps will initiate coordination with your staff in preparation of the delineation.

Successful implementation of the items identified in this letter resolves the Order for Corrective Measures dated February 14, 1991.

If you have any questions, please contact Elizabeth White of my staff at (619) 455-9422.

Sincerely,

John A. Gill

John A. Gill
Chief, Regulatory Branch

enclosure


Boundary for
Enforcement Investigation
(UA002-90)
Boundary for
Enforcement Investigation
(UA002-90)

APPENDIX 3

CALIFORNIA COASTAL COMMISSION
2009 COMMENT LETTER

STATE OF CALIFORNIA—THE NATURAL RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE (415) 904-5200
FAX (415) 904-5400
TDD (415) 597-5885

MEMORANDUM

FROM: John Dixon, Ph.D.
Ecologist

TO: Ellen Lirely

SUBJECT: 22nd DAA Wetland Mitigation

DATE: May 14, 2009

Documents reviewed:

Wood, B. (LSA). December 1, 2008. Letter to E. Lirely (CCC) regarding "Addendum to Coastal Development Permit Application (#6-08-037) for the emergency flood control channel (Stevens Creek channel) maintenance project at the Del Mar Fairgrounds, Del Mar, San Diego County, California – LSA Project No. DLM0701" with three attachments.

ECORP Consulting. October 2008. Salt Marsh Restoration Plan. 22nd District Agricultural Association Fairgrounds Northern Bank of the San Dieguito River and the South Parking Lot.

The 22nd District Agricultural Association is proposing habitat restoration to mitigate for wetland impacts associated with flood control activities in and adjacent to the Steven's Creek channel and to resolve a Restoration Order from the Army Corps of Engineers. The restoration is proposed to take place in two parts. Adjacent to the east parking lot 0.98 acres of a raised berm will be excavated and graded to the level (~ +4 feet MSL) of the existing saltmarsh next to the river. The remainder of the mitigation is proposed to take place in the southern extreme of the south overflow parking lot.

The 0.98-acre area at the eastern site is on the river side of the berm and JPA trail and will be returned to full tidal action. This is very appropriate and true "restoration" to tidal saltmarsh. A grading plan and a disposal plan have not been submitted. It is not clear whether this area will be planted or simply be allowed to recruit naturally.

The south overflow parking lot is historical tidal saltmarsh but is currently disturbed seasonal wetland that tends to support saltmarsh species when the ground surface is protected for a period of time (personal observations). In discussions with Commission staff in 2004, 22nd DAA staff agreed in principle to restore the south overflow lot to tidal salt marsh, probably incrementally as their parking needs lessen as a result of planned improvements elsewhere. During those discussions, Commission staff recommended that the 22nd DAA develop a technical salt marsh restoration plan for the whole parking

lot to guide future restoration steps. This has not been done. The ECORP Salt Marsh Restoration Plan includes a plan sheet entitled "Concept Restoration Plan," which is so lacking in detail and technical analysis that it is not useful. The conceptual plan does not include discussion or maps of the habitats that are the goal of the ultimate restoration, the results of any hydrological modeling, or a detailed grading plan. The conceptual plan suggests that tidal waters would be introduced to the site through two artificial structures and through two areas that are labeled as "existing tidal inlet to be widen (sic) and deepened." Neither of those areas is actually a tidal inlet. I visited the site on March 5, 2009 and was unable to locate the eastern feature that bore that label (Figure 1). The western feature is not a tidal inlet; it is an erosion channel that probably developed from freshwater runoff after large flooding events such as occurred following heavy rainfall (~ 2 inches) on November 30 and December 1, 2007 (Figures 1-3).

In order to empirically assess whether the portion of the south parking lot proposed for saltmarsh restoration is subject to periodic tidal inundation, I asked Dr. Stephen Schroeter, a wetland scientist at the University of California at Santa Barbara, to visit the site during an extreme high tide. On February 8, 2009 the predicted oceanic high tide was +6.6 feet MLLW and was measured in La Jolla[1] at +7.15 feet MLLW at 0736. Although this is approximately equal to the annual extreme high tide, no tidal waters were flowing onto the south overflow parking lot via the erosional feature except in occasional pulses associated with storm surges (Figure 4). Most of the time, freshwater was flowing from the parking lot to the river (S. Schroeter, personal communication)[2]. It is clear that the area proposed for restoration is currently above the reach of the tides. Although the elevations shown in Figure 1 and Figure 2 of the restoration plan differ somewhat, the upper end of the erosional feature appears to be at about +4.5 feet MSL, which is equivalent to +7.25 feet MLLW. Wetland scientists from the University of California at Santa Barbara have determined that +4.5 feet NGVD[3] (= +4.3 feet MSL) should be considered the upper boundary of existing tidal salt marsh at San Dieguito.

The proposed restoration plan includes grading the higher areas down to +4.5 ft MSL (= +4.7 ft NGVD) and "slightly" widening the "tidal opening" (erosion channel) at the southwest corner "to assure adequate tidal inundation." Under this plan (even if graded to +4.5 NGVD), most of the area proposed for restoration would not have tidal hydrology. It would be a high plain that would very occasionally be subjected to brackish water. Therefore, the restoration that is proposed is essentially a horticultural project that involves planting saltmarsh species and artificially watering them until they have developed a root system that will allow them to persist by utilizing water from seasonal rainfall. I think it is likely that seasonal saltmarsh could be created, particularly within areas that tend to pond water, such as the large depression just north of the boardwalk (Figure 5) or similar low spots that could be created. The restoration area would probably be patchily covered with vegetation, as is the area that has been identified as "existing restored wetland" (Figure 6), although the planting plan might result in more uniform cover of vegetation. High elevation seasonal saltmarsh certainly

[1] NOAA Station 9410230.

[2] Local residents have also observed that incursions of marine waters only take place when extreme high tides coincide with flood waters (J. Winterer, personal communication to J. Dixon).

[3] The tidal datum used by UCSB scientists is NGVD, not MSL as asserted in the Restoration Plan. This is probably a mistake. Presumably the intent is to grade to +4.5 ft NGVD.

has ecological value, and in some places has even been utilized by the endangered Belding's savannah sparrow. Nevertheless, the highest ecological potential of this area is fully tidal saltmarsh with associated tidal channels and mudflats.

If the restoration goes forward as planned, it is likely that the "restored" habitat that is the subject of the ECORP plan will forever be above the reach of the tides or will be destroyed and replaced when the south overflow parking lot is eventually converted to tidal habitats. If the 22nd DAA had a technical restoration plan for the entire parking lot, then this project could be implemented as a portion of that overall plan. It is still my opinion that such a plan should be developed before restoration begins in the south parking lot. In the absence of such a plan, I recommend that a more-or-less linear basin containing a sinuous channel be created on each side of the boardwalk. The substrate under the boardwalk and along the area that will continue to be used for parking should be maintained at about +4.5 feet MSL to prevent erosion of the boardwalk and flooding of the parking lot. The basins should be gently sloping depressions with the channel thalweg varying from about +3.3 feet MSL at the inlet to about +4.0 feet MSL at the distal end. The existing erosional feature should be widened and lowered to provide an appropriate tidal connection. Actual dimensions and elevations of the various features of the restoration must be determined through formal hydrological modeling, which has not been done. Habitats created would be intertidal channel and mudflat, and middle and high saltmarsh. The boardwalk would have to be altered somewhat in the vicinity the new inlet where the boardwalk would cross a new channel.

Figure 1. Inundation of 22nd District Agricultural Association property (Del Mar Fairgrounds) following heavy rainfall at the end of November 2007. The south overflow lot is in the center between Jimmy Durante Boulevard and the river. The ellipse numbered "1" surrounds the erosional feature that drains the south overflow parking lot after significant rainfall. The ellipse numbered "2" surrounds the area designated as an "existing tidal inlet," but where no inlet was found on March 5, 2009. Photograph courtesy of Jacqueline Winterer.

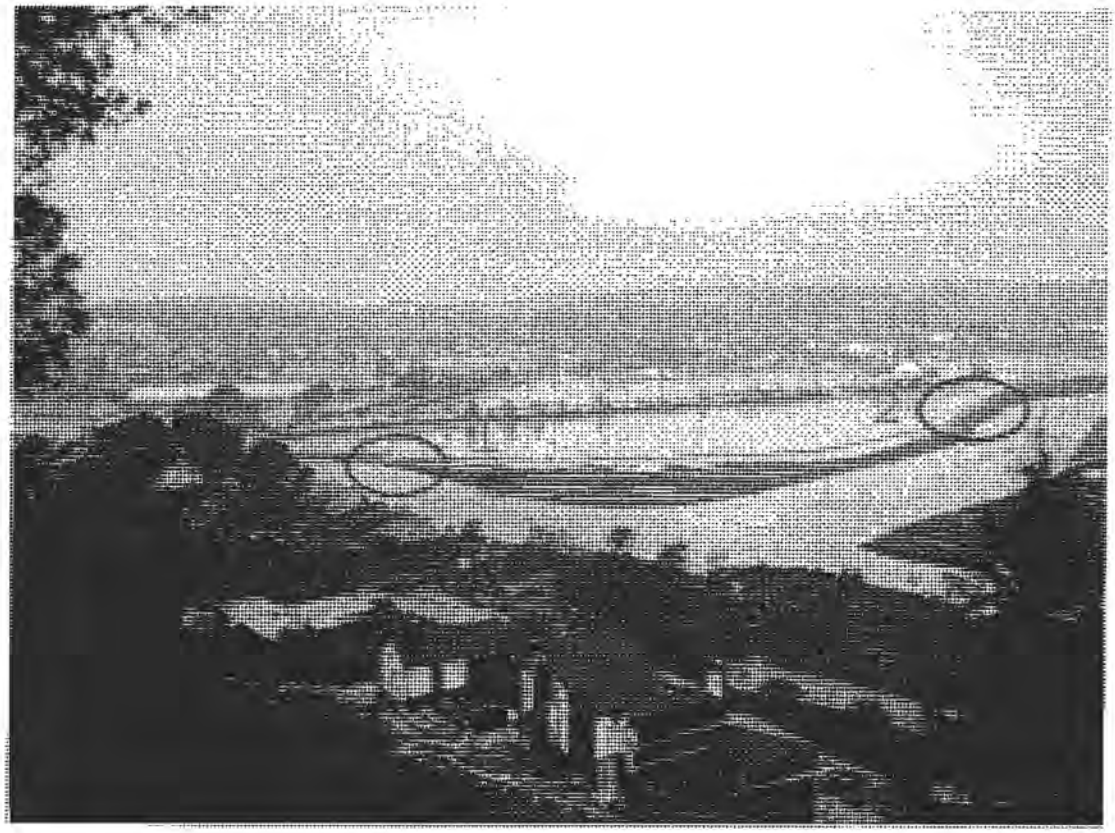
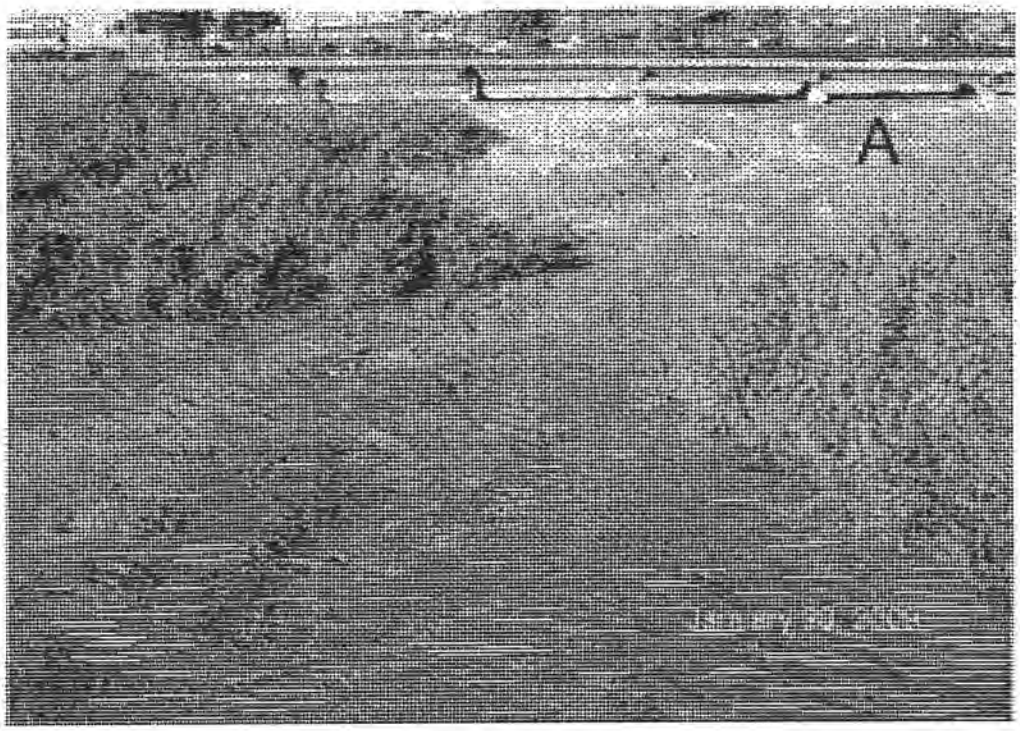


Figure 2. Upper portion of the erosional feature that drains the south overflow parking lot following significant rainfall (photograph taken after heavy rainfall at the end of November 2007). Photograph courtesy of Jacqueline Winterer.

Figure 3. Erosional feature that drains the south overflow parking lot following significant rainfall. A. Looking north toward the parking lot and raised boardwalk. B. Looking south toward the river.



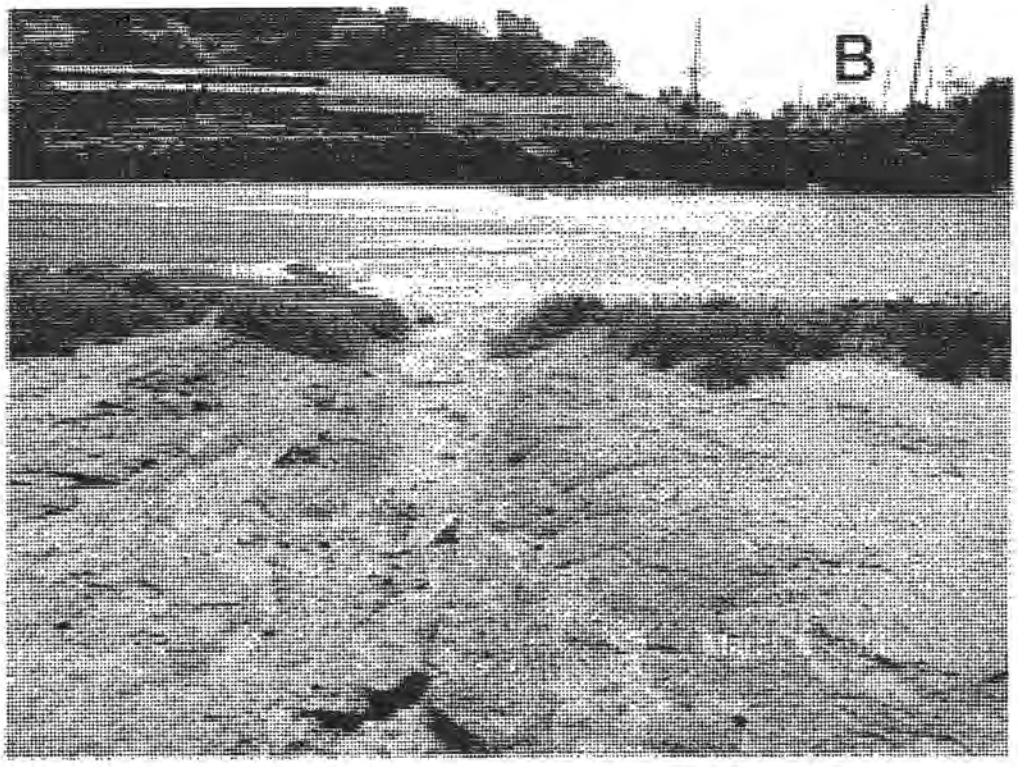
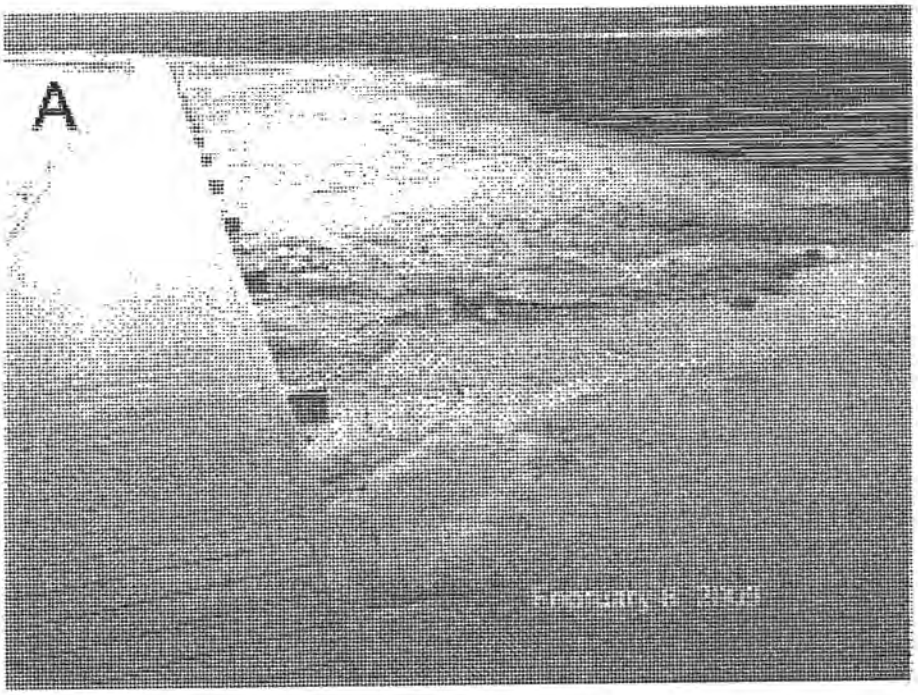


Figure 4. Incursion of marine waters onto the south overflow parking lot during storm surges when flood water coincided with an extreme high tide on February 8, 2009.
A. Water is draining from the parking lot to the river (to the right) between surges.
B. Water is flowing onto the parking lot during a surge.



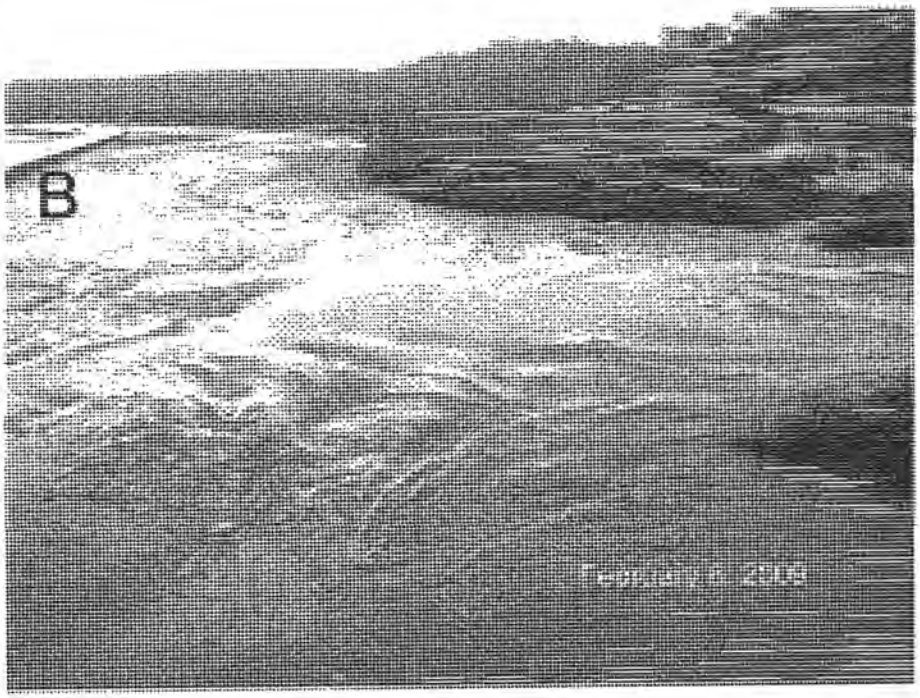
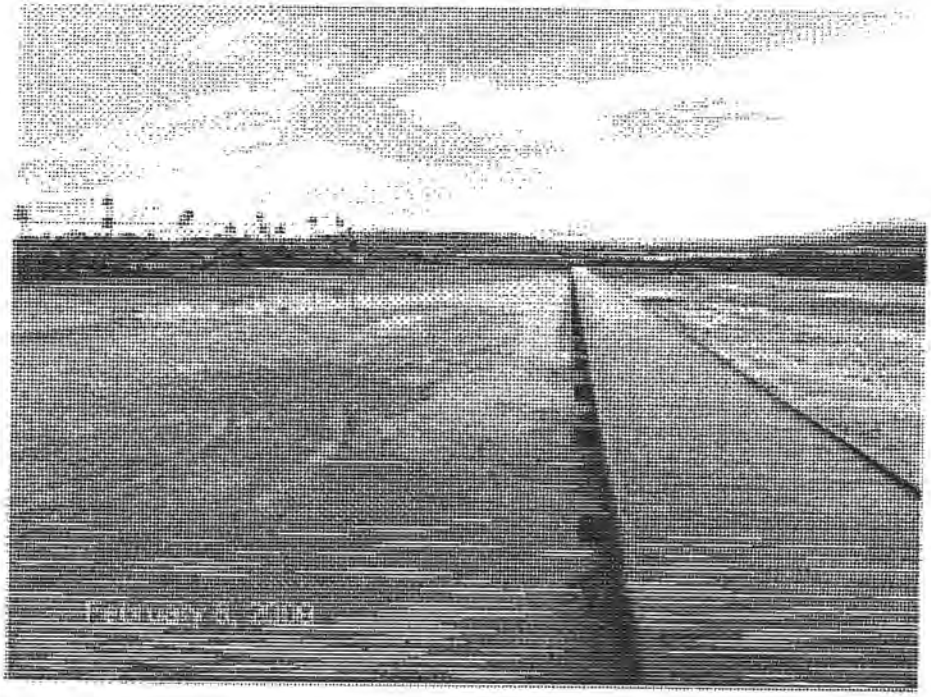


Figure 5. Depressions that tend to pond water following rainfall. These shallow depressions are not evident in the estimated spot elevations in Figure 1 of the restoration plan.



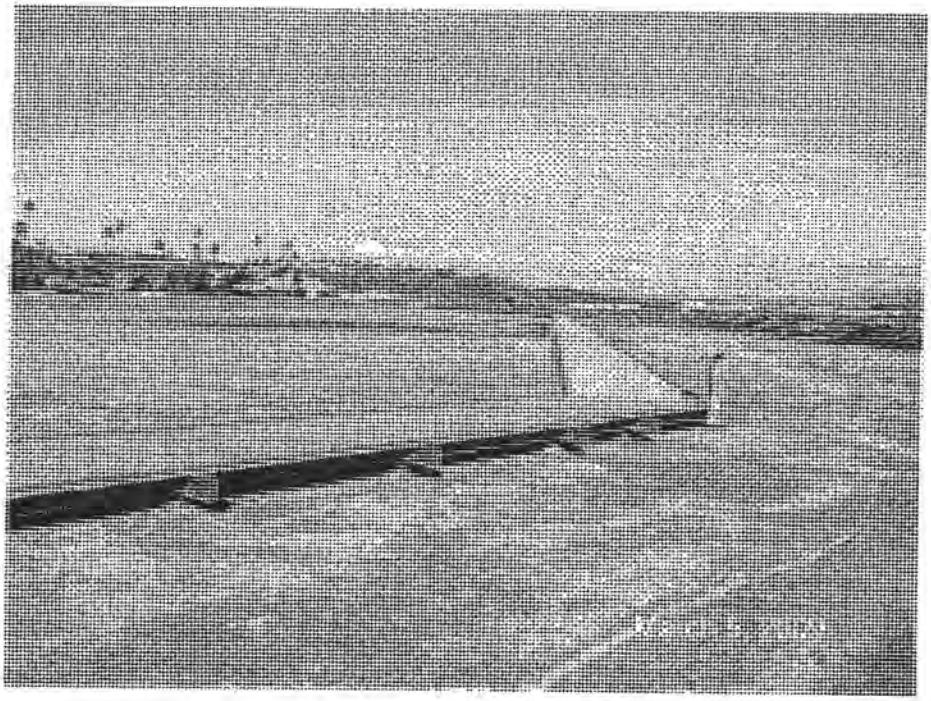
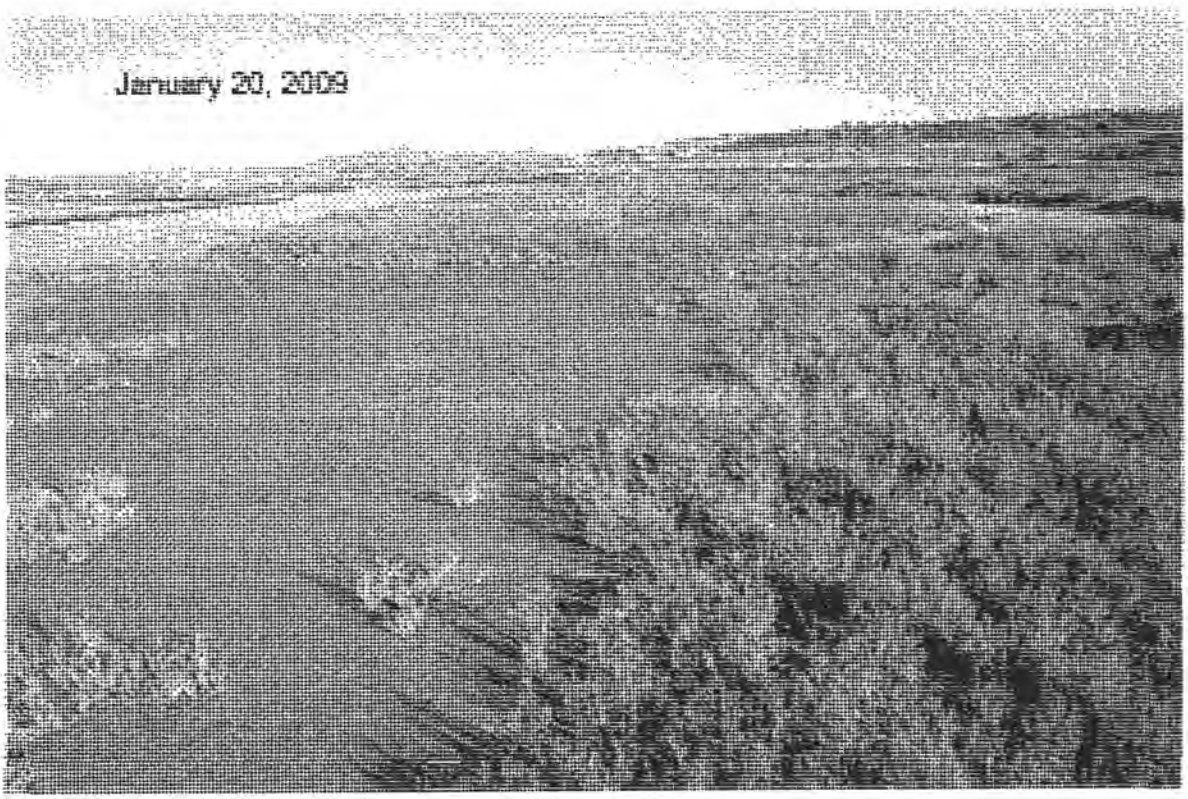


Figure 6. Mosaic of saltmarsh vegetation and bare ground in area characterized in the restoration plan as "existing restored wetland."



APPENDIX 4

HYDROLOGY COMMENT LETTERS

Coastal Environments
Oceanographic and Coastal Services

22 October 2007

Mr. Brad Burkhart
BEC/ECORP Consulting, Inc.
4709 Biona Drive
San Diego, CA 92116

Subject: **22nd Agricultural District Salt Marsh Project – Del Mar Fairgrounds, South Parking Lot, Conceptual Restoration Plan**

Dear Brad:

Thank you very much for meeting with me on October 2nd to review the draft conceptual salt marsh restoration plan for the subject project. I have reviewed the conceptual restoration plan for water circulation and lagoon tidal prism and found no significant impacts of your project (Del Mar Fairgounds south parking lot). I am also in agreement with Dr. Howard Chang's detailed letter and conclusions that the project will have insignificant effects on the river flow and sediment transport.

If you have any further questions, please feel free to call me at (858) 459-0008 or email me at hany@coastalenvironments.com.

Sincerely,

COASTAL ENVIRONMENTS

Hany Elwany, Ph.D.
President

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(858) 756-9050, (858) 692-0761, FAX: (858) 756-9460
E-mail: changh@mail.sdsu.edu Web Page: chang.sdsu.edu

October 22, 2007

Mr. Brad Burkhart
BEC /ECORP Consulting, Inc
4709 Biona Drive
San Diego, CA 92116

Dear Brad:

RE: 22nd Agricultural District Salt Marsh Project

Pursuant to our recent meeting and discussion, I have prepared this letter to provide my opinion on the 22nd Agricultural District's South Parking Lot Salt Marsh Restoration Project proposed in the floodplain of the San Dieguito River near Jimmy Durante Bridge. The project site is along the north bank of the main channel. Figure 1 is the conceptual grading plan for the project prepared by BEC/ECORP Consulting, Inc. Figure 2 shows the San Dieguito River in the vicinity of the project site. At this time, the area south of the main channel is being graded for the San Dieguito Wetlands Restoration Plan being constructed by the Southern California Edison Company. The Edison project received approval from all agencies after detailed project studies. Figure 1 shows additional areas on the north side of the channel proposed for phased restoration by the 22nd Agricultural District as part of agreements reached with the U.S. Army Corps of Engineers and the California Coastal Commission to mitigate wetland impacts caused by past District impacts to salt marsh areas.

As a hydrologist, I made studies for the Edison project covering hydrologic issues for wetland restoration. Such issues include the following: (1) project impacts on flood level, (2) project impacts on potential river channel scour at infrastructures, (3) project impacts on sediment delivery to the beach, and (4) project impacts on the flow velocity at infrastructure locations. In order to avoid such impacts, the Edison project was designed to maintain the existing pattern of river flow and sediment transport.

I have compared the proposed grading plan for the Salt Marsh project shown in Figure 1 with the existing topography of the area. The project proposes limited grading to create elevations suitable for salt marsh covering a strip of land along the center portion of the project site as shown in Fig. 1. The area to be graded is about 100 feet in width, for which the ground elevation is lowered gradually from the edge to a center inflow channel 10 feet in width. The lowering of the ground elevation varies from zero at the edge to the elevation of 1 foot at the middle of the 10-foot wide center strip. The project site has an existing berm along the bank of the main channel. This berm will be maintained. Two 10-foot wide culverts will be installed to provide tidal flow exchange between the main channel and the marsh

The impacts of the marsh project on the river flow and sediment transport are assessed as described below:

(1) The salt marsh project site is on the north overbank area of the river channel; it is subject to flooding when the river discharge exceeds the banks of the main channel. The marsh project site has no effective flow unless the discharge overflows the banks of the main channel.
(2) When the river stage is 6 feet or lower, the berm along the upstream edge of the marsh project site keeps such small to moderate flood flows away from the project site. The project site may be under water, but it has insignificant flow velocity, and it may thus be considered as an ineffective flow area. During such flows, the project with the proposed grading does not affect the river flow and sediment transport.
(3) During larger flows, the berm around the river bank will be overtopped and the project site will have effective flow. It can be seen from Fig. 2, the main channel is much lower in bed elevation than the project site. For this reason, the flow is concentrated in the main channel and the overbank area has a small portion of the total river flow. The small amount of grading at the project site will have insignificant effects on the flow pattern along this channel reach.
(4) During a major event, such as the 100-yr flood, flood flow occurs in the main channel and overbank area with an effective flow width of about 1,000 feet. The flow depth is about 25 feet in the main channel and it is about 15 feet in the overbank area. The total cross-sectional area of flow is over 18,000 square feet. The proposed grading increases the cross-sectional area of flow by about 180 square feet. In other words, the proposed grading will cause an increase of the cross-sectional area of less than 1 %. Such a change in channel cross-sectional area of flow will have insignificant effects on the flood flow.
(5) Sediment transport along the channel reach is concentrated in the main channel with a very small portion occurring in the overbank area. The small amount of channel change in the overbank area for the salt marsh project will have insignificant effects on the flow and even less effects on sediment transport.
(6) The two new culverts installed through the berm along the channel bank are used for tidal flow exchange between the channel and marsh. The culverts are oriented almost perpendicular to the river flow; therefore they will have insignificant effects on the flow and sediment transport of the river channel.

From the above analysis, I have come to the opinion that the proposed grading for the 22nd Agricultural District's South Parking Lot Salt Marsh Restoration Project will have insignificant effects on the river flow and sediment transport.

Please feel free to call me if you have any questions.

Sincerely yours,

Howard H. Chang
Ph.D. and P.E.

APPENDIX 5

100% SUBMITTAL, WETLAND RESTORATION PLANS
(Provided Separately)