PUBLIC NOTICE

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**
LOS ANGELES DISTRICT (Corps)

APPLICATION FOR 10 YEAR PERMIT
Bolsa Chica Lowlands Restoration Project

Public Notice/Application No.: SPL-2017-00767-RRS
Project: Bolsa Chica Lowlands Restoration Project
Comment Period: December 13, 2017 through January 4, 2018
Project Manager: Robert Smith; (760) 602-4831; Robert.R.Smith@usace.army.mil

Co-applicants

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Location

The Bolsa Chica Lowlands Restoration Project (project) is an approximately 950-acre coastal lagoon and pond/cell system project located on lands owned by the State of California. The proposed project is also located in the City of Huntington Beach and under Pacific Coast Highway and the adjacent beach that is to be nourished is south beach below the ocean inlet on the Bolsa Chica State Beach, in Orange County, CA. Please refer to attached figure(s).

Activity

To perform maintenance dredging and beach nourishment activities for ecological restoration, flood risk management, and beach nourishment at the Bolsa Chica Lowlands Restoration Project site that were previously authorized under prior Corps permits Nos. SPL-970019300-RRS/RLK and No. SPL-2016-000737-RRS and as shown in the following figures (Figure O-1, 1-2, and drawings prepared by Merkel and Associates and Everest International Consultants, Inc. and dated 10/4/2017), including sediment management dredging, oil field soil remediation, and water management activities. This

permit application is for a 10-year permit for maintenance dredging, beach nourishment, ecological restoration, and oil field remediation maintenance. The goal of dredging within the management program is to provide adequate volumetric capacity for continued wetland system functioning per each dredging event, as well as flexibility to respond to material influx rates and beach placement area needs. This will ensure that dredging can be performed in an effective and efficient manner, while still being protective of the overall ecosystem function. Permitted work includes maintenance and operation of previously authorized activities and would not result in any site changes not contemplated in the previously issued permit authorization for the Bolsa Chica Lowlands Restoration Project (Corps Permit No. SPL-970019300-RRS/RLK now expired and could not be extended) and the Corps Regional General Permit Nos. 63 emergency permit (2010-00885-RRS) issued on October 14, 2016 where limited dredging and disposal work was done within the Full Tidal Basin (FTB) and Pond or Cell 0. The Record of Decision (ROD) for the Final Environmental Impact Statement (FEIS) issued by the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service for the original Bolsa Chica Lowlands Restoration Project was issued in June 2002. Future authorized work as shown in the FEIS may include any necessary dredging, oil remediation, dredged material hauling, temporary stockpiling, dredged material disposal, berm reconstruction, gate or culvert re-construction, and beach nourishment shown in the above authorized figures and future Corps approved drawings (work is authorized only if authorized by the USFWS, CSLC, California Coastal Commission, the National Marine Fisheries Service, and the California Regional Water Quality Control Board).

FTB dredging would include land-based excavator or water-based clamshell or pipeline dredging is proposed to occur within the outer 60 acres of the FTB basin and the work would remove sand that would otherwise plug the tidal FTB inlet and basin thus muting the wetlands tidal range. To facilitate sand pumping a booster pump may be used. HDPE pipe will convey dredged sand to beach down shore of the inlet. A work boat may support the dredge and a work barge may be used to pull anchors. A bulldozer will be used to support dredging and beach nourishment. The potential dredge area also includes the inlet under the two bridges to the area adjacent to the end of the jetties. Oil field clean-up will consist of completion of the final elements of remediation and/or removal of contaminated soils.

Bolsa Chica muted tidal basins are designed to allow for intermittent flooding of wetlands by muted tidal waters and drainage of waters to promote vegetation development, manage for endangered and threatened species, and to promote site conditions for wildlife habitat, while controlling mosquitos and managing drainage more efficiently. To accomplish this, drainage systems and culverts are proposed to be kept functional and some culverts replaced at lower elevations to allow for drainage through the MTB system to Freeman Creek when muting of the FTB precludes operations of the individual cell tide gates. This work requires ongoing operations (gate and culvert operation & maintenance) of the water management connections within the wetlands to improve functionality of the facilities. It also requires cleaning culverts and managing flows through culverts by gating various drains. The management of the drains will continue to be performed as an on-going seasonal management action of the CDFW Ecological Reserve staff and interagency oversight committee. Water management activities include cleaning and maintenance of drainage systems, flow management through culverts by gating various drains, and culverts and culvert replacement as needed in association with Bolsa Chica Lowlands Restoration Project (see attached drawings).

Interested parties are hereby notified an application has been received for a Department of the Army permit for the activity described herein and shown on the attached drawing(s). We invite you to

review today's public notice and provide views on the proposed work. By providing substantive, site-specific comments to the Corps Regulatory Division, you provide information that supports the Corps' decision-making process. All comments received during the comment period become part of the record and will be considered in the decision. This permit will be issued, with special conditions, or denied under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.

Comments should be mailed to:

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, U.S. ARMY CORPS OF ENGINEERS
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Alternatively, comments can be sent electronically to: Robert.R.Smith@usace.army.mil

The mission of the U.S. Army Corps of Engineers Regulatory Program is to protect the Nation's aquatic resources, while allowing reasonable development through fair, flexible and balanced permit decisions. The Corps evaluates permit applications for essentially all construction activities that occur in the Nation's waters, including wetlands. The Regulatory Program in the Los Angeles District is executed to protect aquatic resources by developing and implementing short- and long-term initiatives to improve regulatory products, processes, program transparency, and customer feedback considering current staffing levels and historical funding trends.

Corps permits are necessary for any work, including construction and dredging, in the Nation's navigable water and their tributary waters. The Corps balances the reasonably foreseeable benefits and detriments of proposed projects, and makes permit decisions that recognize the essential values of the Nation's aquatic ecosystems to the general public, as well as the property rights of private citizens who want to use their land. The Corps strives to make its permit decisions in a timely manner that minimizes impacts to the regulated public.

During the permit process, the Corps considers the views of other Federal, state and local agencies, interest groups, and the general public. The results of this careful public interest review are fair and equitable decisions that allow reasonable use of private property, infrastructure development, and growth of the economy, while offsetting the authorized impacts to the waters of the United States. The permit review process serves to first avoid and then minimize adverse effects of projects on aquatic resources to the maximum practicable extent. Any remaining unavoidable adverse impacts to the aquatic environment are offset by compensatory mitigation requirements, which may include restoration, enhancement, establishment, and/or preservation of aquatic ecosystem system functions and services.

Evaluation Factors

The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which

reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof. Factors that will be considered include conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people. In addition, if the proposal would discharge dredged or fill material, the evaluation of the activity will include application of the EPA Guidelines (40 CFR Part 230) as required by Section 404 (b)(1) of the Clean Water Act.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Preliminary Review of Selected Factors

EIS Determination- The Record of Decision (ROD) for the Final Environmental Impact Statement (FEIS) was issued by the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service for the original Bolsa Chica Lowlands Restoration Project in June 2002. A preliminary determination has been made that an additional supplemental environmental impact statement is not required for the proposed work in this public notice. The Corps will be preparing a new Environmental Assessment Memorandum for the Record decision document for this action.

Water Quality- The applicant is required to obtain water quality certification, under Section 401 of the Clean Water Act, from the California Regional Water Quality Control Board. Section 401 requires any applicant for an individual Section 404 permit provide proof of water quality certification to the Corps of Engineers prior to permit issuance.

Coastal Zone Management (CZMA) - For those projects in or affecting the coastal zone, the Federal Coastal Zone Management Act requires that prior to issuing the Corps authorization for the project, the applicant must obtain concurrence from the California Coastal Commission the project is consistent with the State's Coastal Zone Management Plan. The co-applicants have received CZMA approval from the California Coastal Commission that the proposed activity would comply with and would be conducted in a manner consistent with the approved State Coastal Zone Management Program for previous permit actions. The USFWS as the lead federal agency for the federal consistency determination will ensure compliance with the CZMA which the Corps may review and adopt. After a review of the comments received on this public notice and in consultation with the California Coastal Commission and the USFWS, per lead agency guidance, the Corps will make a final determination of whether this project affects coastal zone resources.

Essential Fish Habitat (EFH) - Essential Fish Habitat (EFH), as defined by the Magnuson-Stevens Fishery Conservation and Management Act, occurs within the project area and EFH is affected by the proposed project. Therefore, formal consultation under Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) is required at this time by both the Corps and the USFWS as the lead federal agency. The impacts to EFH resources mainly within the FTB are similar to the recent RGP 63 emergency permit where the Corps consulted with NMFS for and received an email from NMFS dated October 4, 2016 approving the project for impacts to EFH resources in the FTB and the adjacent south beach. For the current permit application, the USFWS consulted with NMFS and received an email from NMFS dated December 4, 2017 completing the consultation for EFH resources.

Also note that the EFH consultation requirements of the MSFCMA were initiated during the preparation of the Draft EIS for the original Bolsa Chica Restoration Project, and the EFH Assessment was included in Appendix E of the Draft EIS (Volume I). The Record of Decision (ROD) issued by the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service in June 2002 for the project found that the project would not have a substantial adverse impact on EFH or federally managed fisheries in California waters (ROD). Subsequent to completion of construction of the wetlands, the Bolsa Chica Steering Committee completed eelgrass restoration within the wetlands. Because eelgrass was not part of the original project it was not covered in the EFH Assessment completed with the FEIS. Eelgrass is a Habitat Area of Particular Concern (HAPC), and thus receives focused consideration in EFH consultations. No eelgrass or minimal eelgrass impacts are expected for each dredging event and dredging of the ocean inlet is required to sustain the functions and extent of eelgrass that has been introduced and expanded within the wetlands.

In addition, the NMFS stated in their October 3, 2000 comment letter on the Draft EIS (Vol. V of the FEIS) that the project was anticipated to result in significant benefits to species protected by the Coastal Pelagics and Pacific Groundfish Fish Management Plans. Because the anticipated project impacts were not expected to have a substantial adverse impact on EFH or federally managed fisheries in California Waters, formal consultation pursuant to the MSFCMA was not required. The ROD further states that the Corps and the Service received a letter from NMFS dated November 26, 2001that the project would not have a significant impact on EFH. The Corps seeks to re-use the ROD and the current USFWS/NMFS determination for the current EFH consultation and requests NMFS concurrence to use the previous EFH consultation. I am providing, enclosing, or otherwise identifying the following information:

1. Description of the proposed action: See project description of this public notice.

2. On-site inspection information: After the recent dredging by the CSLC circulation has improved and water depths in the FTB are greater. See baseline information of this public notice.

3. Analysis of the potential adverse effects on EFH: With no annual dredging of the FTB rising mean water levels in the Full Tidal Basin adversely affect EFH resources and groundwater discharge by causing rising groundwater levels throughout the oil field and the adjacent residential developments. The Bolsa Chica wetlands and FTB, the active oil field, and portions of the surrounding residential neighborhoods are situated below sea level. With an inlet closure and or extreme muting of the tidal inlet, the imminent threat to EFH resources from potential flooding of the oil field and residential

neighborhoods is twofold: 1) Adverse impacts to water quality from rising groundwater levels and oil contamination of the project areas may occur, and 2) Adverse impacts to flooding residential areas due to an inability to drain out the water from the project area of the neighborhood and discharge from the municipal pumps discharging into the site may occur.

Project may impact up to 60 acres of the FTB EFH habitat via necessary dredging and up to 6.4 acres of impacts of the adjacent south beach with dredged material disposal impacts to EFH habitats. The dredging of up to 60 acres of the FTB will greatly enhance the project EFH resources in the FTB and adjacent beach areas by restoring water circulation and reduced tidal muting and increased dissolved oxygen levels to the two managed EFH fish groups.

4. Proposed minimization, conservation, or mitigation measures: The proposed maintenance dredging is the primary minimization and mitigation measure to restore the FTB and pond system water depths and reduce tidal muting and will help restore the tidal circulation and EFH resources for both the Coastal Pelagics and Pacific Groundfish Fish Management Plans (FMPs) within the Full Tidal Basin and the adjacent beach areas by increasing the water depths in these areas and providing new suitable sands for shoreline restoration. Other measures include regular annual grain size and bulk chemistry testing of the dredged material and beach disposal sites to ensure compliance with the Inland Testing Manual guidelines, continued oil remediation and cleanup, compliance with eelgrass policies per the California Eelgrass Mitigation Policy (CEMP), regular surveys and eradication efforts for the non-native *Caulerpa* plant within the project area, mitigation for any wetlands impacts with improved circulation to the entire 950 acre Bolsa Chica wetlands areas. Additionally, all activities will be performed in compliance with the Mitigation Monitoring Program per the EIS/EIR for the Bolsa Chica Lowlands Restoration Project.

5. Conclusions regarding effects of the proposed project on EFH: In addition to increased risks of the inlet closure and resulting rise of groundwater into oil field infrastructure and adjacent neighborhoods, the lack of tidal inlet maintenance through sediment removal results in increased risk of surface water flooding of oil infrastructure and contaminated sediment areas. Should this occur, flooding of the oil fields would be expected to increase the risk of oil and oil field contaminants dispersal from contained areas and risk harm to EFH resources associated with exposure to contaminants. With no annual dredging of the FTB rising mean water levels in the Full Tidal Basin adversely affect EFH resources and groundwater discharge causing rising groundwater levels throughout the oil field and the adjacent residential developments with increased risk of flooding and potential oil field contamination. NMFS has previously supported the regular Bolsa Chica maintenance dredging and beach disposal. The USFWS consulted with NMFS for and received an email from NMFS dated December 4, 2017 approving the project for impacts to EFH resources in the FTB and the adjacent south beach. The Corps supports the lead agency efforts of the USFWS during its consultation with NMFS and will review the USFWS/NMFS final EFH determination and adopt as necessary per lead agency guidance.

Therefore, it is the Corps' initial determination that the proposed activity would not have a substantial adverse impact on EFH or federally managed fisheries in California waters and may restore EFH resources. My final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the USFWS as lead agency and the above NMFS response.

Cultural Resources- The latest version of the National Register of Historic Places has been consulted and this site is not listed. This review constitutes the extent of cultural resources investigations by the District Engineer, and he is otherwise unaware of the presence of such resources. Due to prior dredging and dredged material disposal and the original project construction during the initial construction of the Bolsa Chica Lowlands Restoration project the area was previously disturbed and there is little to no likelihood that any impacts to cultural resources would occur. Additionally, as part of the FEIS and previous permit actions for the Bolsa Chica Lowlands Restoration Project, consultation with SHPO was conducted in compliance with Section 106 of the National Historic Preservation Act and consultations with six Native American groups designated by the California Native American Heritage Commission were conducted. The FEIS concluded that no significant impacts to cultural resources would occur and no mitigation measures were necessary.

Endangered Species- Preliminary determinations indicate the proposed activity would affect federally-listed endangered or threatened species, or their critical habitat. A preliminary determination indicates the proposed activity would affect federally listed endangered or threatened species, or their critical habitat and the Corps has previously received a Biological Opinion (BO 1-6-01-F-1653) dated April 16, 2001 for impacts to the federally-listed Western Snowy Plover (*Charadrius alexandrus nivosus*; WSP). No designated critical habitat from the USFWS for WSP is within the project area. The Corps seeks to adopt this authorization and now seeks expedited concurrence with the previous USFWS ESA determination covered in the previous BO and ESA determinations from the previous Corps permits that expired. Therefore, formal re-consultation under Section 7 of the Endangered Species Act has been initiated at this time and the Corps has already received an email from the USFWS dated November 27, 2017 that states that the BO 1-6-01-F-1653 would remain valid for this action which closes consultation unless we receive new information.

Public Hearing- Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearing shall state with particularity the reasons for holding a public hearing.

Proposed Activity for Which a Permit is required

Basic Project Purpose- The basic project purpose comprises the fundamental, essential, or irreducible purpose of the proposed project, and is used by the Corps to determine whether the applicant's project is water dependent (i.e., requires access or proximity to or siting within the special aquatic site to fulfill its basic purpose). Establishment of the basic project purpose is necessary only when the proposed activity would discharge dredged or fill material into a special aquatic site (e.g., wetlands, pool and riffle complex, mudflats, coral reefs). Because no fills are proposed within special aquatic sites, identification of the basic project purpose is not necessary. The basic project purpose for the proposed project is ecological restoration, flood control, and beach nourishment. The project is water dependent.

Overall Project Purpose- The overall project purpose serves as the basis for the Corps' 404(b)(1) alternatives analysis and is determined by further defining the basic project purpose in a manner that more specifically describes the applicant's goals for the project, and which allows a reasonable range of alternatives to be analyzed. The overall project purpose for the proposed project is to perform maintenance dredging and beach nourishment activities for ecological restoration, flood risk

management, and beach nourishment at the Bolsa Chica Lowlands Restoration Project site as constructed in Orange County, CA.

Additional Project Information

Baseline information-

In 1996, eight state and federal agencies entered into an Interagency Agreement (Agreement) to establish a project for acquisition and restoration of the Bolsa Chica Lowlands (Restoration Project or Project). The Agreement and subsequent amendments provided that the project would be managed with the guidance of an oversight committee composed of six of the Agreement's signatory agencies: the USFWS, NMFS, Corps, U.S. Environmental Protection Agency, California Department of Fish and Game (now Department of Fish and Wildlife)(CDFW), and the CSLC.

The Bolsa Chica Lowlands Restoration Project is an approximately 950-acre coastal wetland restoration project located on lands owned by the State of California. It is the largest coastal wetland restoration project completed in California, where a new coastal inlet has been developed to restore tidal influence to previously diked and drained wetlands. The project was opened to tidal influence in 2006 and included the construction of an approximately 167-acre Full Tidal Basin (FTB) along with muted tidal basins consisting of the Pocket Marsh, West Muted Tidal Basin (MTB), Central MTB, and East MTB. In addition to these areas where tidal influence was restored, the project included the Seasonal Ponds and the Future Full Tidal Basin, areas which are not open to tidal influence and support broad expanses of interconnected seasonal ponds that hold freshwater during the winter season and drain down to salt flats during the summer months. The California State Lands Commission and the U.S. Fish and Wildlife Service are jointly submitting this application as co-applicants. The USFWS administered the final design and primary construction contracts necessary to accomplish the restoration, has historically acted as the federal lead in obtaining permits for the project, and remains involved in decision making and oversight of the project as a member of the oversight committee pursuant to the Project's Interagency Agreement. The CSLC has been responsible for practical administration of the activities necessary to bring the full system on-line and to complete operational activities, including dredging of the FTB, while CDFW provides on site, day-to-day management.

Wetland restoration was completed under a Corps permit issued in August 2002 under section 10 of the Rivers & Harbors Act and section 404 of the Clean Water Act (Permit No. SPL–9700-19300-RRS/RLK), a Clean Water Act section 401 state water quality certification was issued by the Santa Ana Regional Water Quality Control Board (April 23, 2002), and the USFWS issued a Federal Coastal Consistency Determination for the Project (CD-061-01) with which the California Coastal Commission concurred on Nov. 26, 2001. These authorizations covered construction activities for the project and also included the first two sediment management dredging cycles required for the project. Additional dredging, which was contemplated in the original environmental review for the project has been performed periodically under extensions of the previous permits and per the FEIS for the Bolsa Chica Lowlands Restoration Project and the 2002 Corps Permit (first to April 1, 2013 and later to April 1, 2016), as well as an emergency RGP 63 permit for dredging in 2016-2017.

As a consequence of El Niño generated storms in 2016 and multiple south swell events in the summer of 2016, the inlet area became unstable and threatened to close, creating the need for an emergency permit (RGP 63) to allow the maintenance dredging to occur. The ongoing proposed general

management and sediment management activities described in this permit application are necessary for the long-term health of the habitat system and can avoid emergency closures of the inlet. Inlet closure may cause a loss of tidal range and the effective increase of water levels in the Full Tidal Basin relative to the rest of the wetland complex. The Bolsa Chica wetlands, the active oil field, and portions of the surrounding residential neighborhoods are situated below sea level. Rising mean water levels in the Full Tidal Basin may also adversely affect groundwater discharge causing rising groundwater levels throughout the oil field and the adjacent residential developments.

With an inlet closure and/or muting of the tidal inlet, there may be an imminent threat to property from potential flooding of the oil field and residential neighborhoods due to surface flow impacts from rising groundwater levels and surface flow impacts from stormwater. At present, the oil operator has been conducting a voluntary remediation/cleanup of oil field contaminants in various project areas including Cell 0 which is also proposed under this permit application.

Tidal circulation was provided to the restored wetlands and FTB through the construction of a new coastal inlet. The inlet requires periodic dredging in order to remove accumulated sand from the flood shoal that forms inside the FTB and to return the sand to the littoral cell from which it is captured. Since the opening of the inlet in 2006, the first of the two sediment management cycles included in project construction permits was completed in the early 2009, during which 235,499 cubic yards (cy) (180,045 cubic meters) of sand was dredged from the flood shoal and placed on the down coast beach. The second sediment management dredging cycle occurred in 2010-2011 and removed approximately 396,310 cy (303,000 m3) of sand, which was placed on the down coast beach between the inlet jetty and the Huntington Bluffs, approximately 5,000 feet to the southeast, as contemplated in the FEIS for the project. The third sediment management dredging cycle of 2014 to early 2016 removed approximately 235,000 cy (305,000 m3) of sand, and emergency dredging conducted under the RGP 63 in late 2016-early 2017 totaled approximately 127,917 cy (97,800 m3). All dredging events from 2010 through 2017 placed the dredge sand on the down coast beach in the same manner as earlier sediment management cycles.

During prior years of project dredging, sediment characterization and compatibility testing was performed periodically (2008, 2010, 2014) to assure the suitability and compatibility of dredged materials for beach placement. Test results were supplied to the Corps, which determined the material met all Tier 1 exclusionary criteria under the Inland Testing Manual (ITM) and so was suitable for beach nourishment. The 2014-2016 Maintenance Dredging Sediment Characterization and Compatibility Testing Results determined that the dredged material was greater than 96% sand with inconsequential components of fine gravel (shell hash) and silt/clay fractions" and concluded that the dredged material has not changed in character since inlet opening and thus will remain compatible, as there are no sources for sediment contamination. Additional testing shall be required per the ITM for future dredging and beach disposal work. Impacts to waters of the U.S. include up to 60 acres of potential dredging of the FTB within marine waters with some eelgrass impacts and up to 6.4 acres of dredged material disposal on the south Bolsa State Beach.

Project description- The sediment management dredging program for the Bolsa Chica Lowlands is proposed to continue removing sands from the Full Tidal Basin entrance channel and flood shoal deposits on a recurrent cycle of every one to three years, with the next cycle anticipated to begin in fall-winter 2017. Each dredging cycle would dredge approximately 50,000 to 350,000 m3 (65,397 to 457,782 cy) of material, depending on conditions. These amounts would be consistent with those

allowed under prior Corps permits for the project. As in previously permitted dredging cycles, the material would be excavated from intertidal and shallow subtidal deposits and placed back into the littoral cell at the down coast beach in an area extending from the southern inlet channel jetty a distance of up to 5,000 feet down coast to the location of the Huntington Bluffs, a natural headlands that does not retain a wide beach. The receiver beach is the Bolsa Chica State Beach and the Huntington Beach City Beach, both State Parks-owned properties. The dredged sand would be deposited along the beach face, or within near shore subtidal areas, to provide feed sand for littoral transport southeastward along the shoreline. Placement elevations for sand will range from +16.4 feet to –9.8 feet (+5.0 meters to –3.0 meters) NAVD 88. The lower depth of dredge material removal within the basin would extend to –8.2 feet (–2.5 meters) NAVD 88.

The material removal will primarily occur within the extent of a 60-acre previously designated maintenance basin in the southern end of the FTB; however it is anticipated that the majority of the sand removal will be limited to a much smaller footprint near the ocean inlet where the sands fall out of suspension, so the area of impacts to waters of the United States would include up to 60 acres. The potential dredge area also includes the inlet under the two bridges to the area adjacent to the end of the jetties. A decision on whether any material in that area will be excavated during any particular dredging cycle will wait until the bulk of the dredging within the basin is completed, so that a determination how the outer section (between the oil service bridge and the area adjacent to the end of jetties) reacts to the other dredging. The inlet is variable with regards to the amount and location of shoals adjacent to the jetties and changes on a weekly basis. Dredging and beach placement will be conducted as one continuous process of excavation, transport, and placement. Material may be removed via suction dredge, clamshell, Sauerman/dragline, or land-based excavator with work limited to extraction, transport, and placement of beach-derived sands. The dredging and maintenance of the ponds or cells will also allow for gate and culvert maintenance and management of flows through each cell to achieve greater ecological benefits to each wetlands area within each cell. Limited dredging of each cell or pond area may avoid any wetlands impacts but may be necessary along with maintenance of the gates and culverts as needed over the life of the 10-year permit proposal.

The proposed project is for flood risk management, ecological restoration and beach nourishment. The activities to be completed include annual removal by dredging of up to 457,782 cy of sediment from the ocean inlet and full tidal basin (To a depth of 5.5 ft. MLLW with a 2 ft. overdepth in the FTB over a 100 acre area) per the attached drawings, beach disposal of dredged material from the Bolsa Chica inlet area as beach replenishment down coast of the inlet on the southern beach adjacent to the inlet (1,700 linear ft. of beach nourishment via direct pipeline placement over 6.4 acres), and completion of related water conveyance structure maintenance and contaminant control activities in preparation for winter storm periods. The first proposed dredging cycle under this permit would remove approximately 89,000 cubic yards of sand and is less than one third of the more than 390,000 cubic yards of littoral sand that has accumulated in the inlet area and Full Tidal Basin and is the minimum anticipated to be necessary to maintain an open inlet for the next 12 months. Work contemplated would be consistent with previously authorized activities and would not result in any site changes not contemplated in the previously issued permit authorization for the Bolsa Chica Lowlands Restoration Project (Corps Permit No. SPL-970019300-RRS/RLK now expired and could not be extended).

The proposed project is shown in Figure 1-2 for the entire project maintenance area and includes the Lowland Cell and Cell Number and Spoil Handling and Treatment Areas as follows by area with each cell:

Full Tidal Basin (339 acres) -01A, 01, 03, 04, 05, 06, 07, 08, 15, 16, 17, 18, 43, 44, 58, 59, 60, 61, 62, and also the areas that now go out into the inlet channel below Pacific Coast Highway and to the ocean (supplemented by the Inlet Shoal Maintenance Dredging Area figure and plans from last dredging cycle)

Seasonal Ponds (112.5 acres) - Cell 0, 02, 09, 10, 11, 12, 13

Future Full Tidal East - 21, 22, 23, 24, 25, 26, 27, 33, 34, 34N, 35, 37, Cell 36
& Future Full Tidal West- 14, 19, 20, 28, 29, 30, 31, 32, 38, 39, 40 (256.5 acres)

Muted Tidal Basin (189.3 acres) - 41, 42, 45, 46, 47, 48, 49, 50, 51 and 66

Muted Tidal Pocket (34.7 acres) - 53, 55, and 67

The project does not include Inner Bolsa or the East Garden Grove Flood Channel maintained by the County of Orange. Also note that the Corps is doing a feasibility study of the East Garden Grove channel system with our Chicago District and the Corps LA District is coordinating with them.

Proposed Mitigation– The proposed mitigation may change as a result of comments received in response to this public notice, the applicant's response to those comments, and/or the need for the project to comply with the 404(b)(1) Guidelines. In consideration of the above, the proposed mitigation sequence (avoidance/minimization/compensation), as applied to the proposed project is summarized below:

Avoidance: Since the project is a maintenance dredging activity then other various alternatives for the maintenance dredging portion were not evaluated due to onsite need to maintain operational depths at the project facilities within the FTB. Also hydraulic dredging is the preferred method given the need for periodic re-nourishment of the down coast beach areas. Any unsuitable material from Cell 0 and other ponds may require upland disposal at an approved landfill and will remove more of the unsuitable materials within the entire project area. Also some clamshell dredging may involve the use of an environmental bucket which is the least environmentally damaging dredging method for dredging unsuitable material. For the disposal options and alternatives the Corps has consulted under the ITM and with EPA and the CSLC and the USFWS regarding the volume and location for discharge of the material suitable for beach disposal and the vast majority of the material was determined to be suitable for beach disposal with the Cell 0 material or other cells in the future that may be deemed to be unsuitable to be disposed of at an approved landfill. Beach disposal is generally the least environmentally damaging practicable alternative given the amount of suitable material which is mostly greater than 90% sand and the need to periodically renourish down coast beach areas. The Corps has not required an extensive offsite alternatives analysis given the urgent onsite need to do maintenance dredging shoreline restoration of the project area and the project is largely restorative but the Corps welcomes public comment on other alternatives that may be less damaging but practicable.

Minimization: The dredge and attendant dredging vessels shall prepare and submit an anchoring plan that minimizes impacts to eelgrass with a night and weekend lighting and noise plan to minimize light and noise impacts to avian and marine species. Monitoring for marine mammals, whales, dolphins, porpoises, sea turtles, and other aqautic resources will occur during construction with work cessation if needed. Also any debris dredged up or discharged into the water will be collected, transported to, and disposed of, at an appropriate upland disposal site, or recycled, if appropriate to minimize impacts to the above species. Also turbidity and vessel or dredge monitoring may occur to avoid any impacts to EFH resources or marine mammals, sea turtles, listed species, flow operations and tidal muting and to any other listed species, eelgrass, wetlands, or marine mammals. Dredged disposal on the beach shall minimize impacts to reefs and surfgrass with turbidity berms and be monitored also for excessive turbidity and if grunion are present. Also the BO has minimization measures for the WSP to avoid the breeding season where practicable and other WSP measures outlined in the BO. Also the Corps standard dredging conditions have minimization conditions for submittal of dredging and operations plans and dredge reports to the Corps to minimize impacts to adjacent property owners, aquatic species, wetlands, turbidity, noise, lighting, and eelgrass.

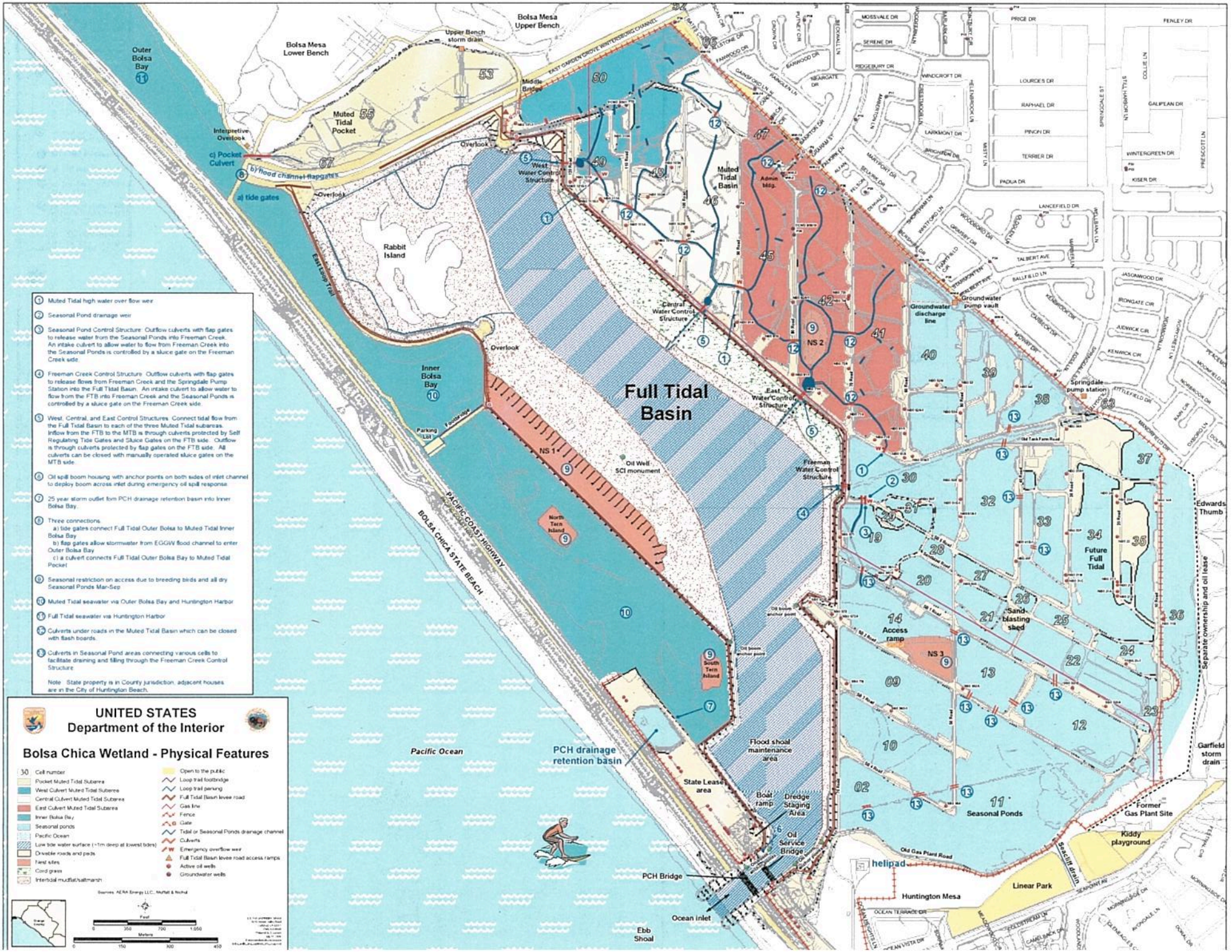
Compensation: During project implementation the co-applicants will regularly monitor activities to ensure that no deviation from the proposed action is occurring from the approved dredge and operations plans to avoid eelgrass or wetlands or WSP habitat. If turbidity is observed beyond the immediate vicinity of the project area, dredging will be adjusted to allow turbidity to dissipate. The majority of the dredging will occur in unvegetated substrate that has been previously impacted by historic dredging, original project construction, dredge and vessel anchoring impacts and no mitigation is currently proposed except for CEMP compliance and monitoring. Eelgrass and caulerpa (invasive plant monitoring) will occur as well as all of the original measures in the FEIS project as constructed. The project will remove unsuitable material from the ponds and cells and dispose of this to an upland landfill mitigating any future water quality impacts to the FTB and coastal areas and remove it from the waters of the project area thereby restoring the areas and the entire Bolsa Chica restoration area and adjacent beaches to a cleaner and more restored state.

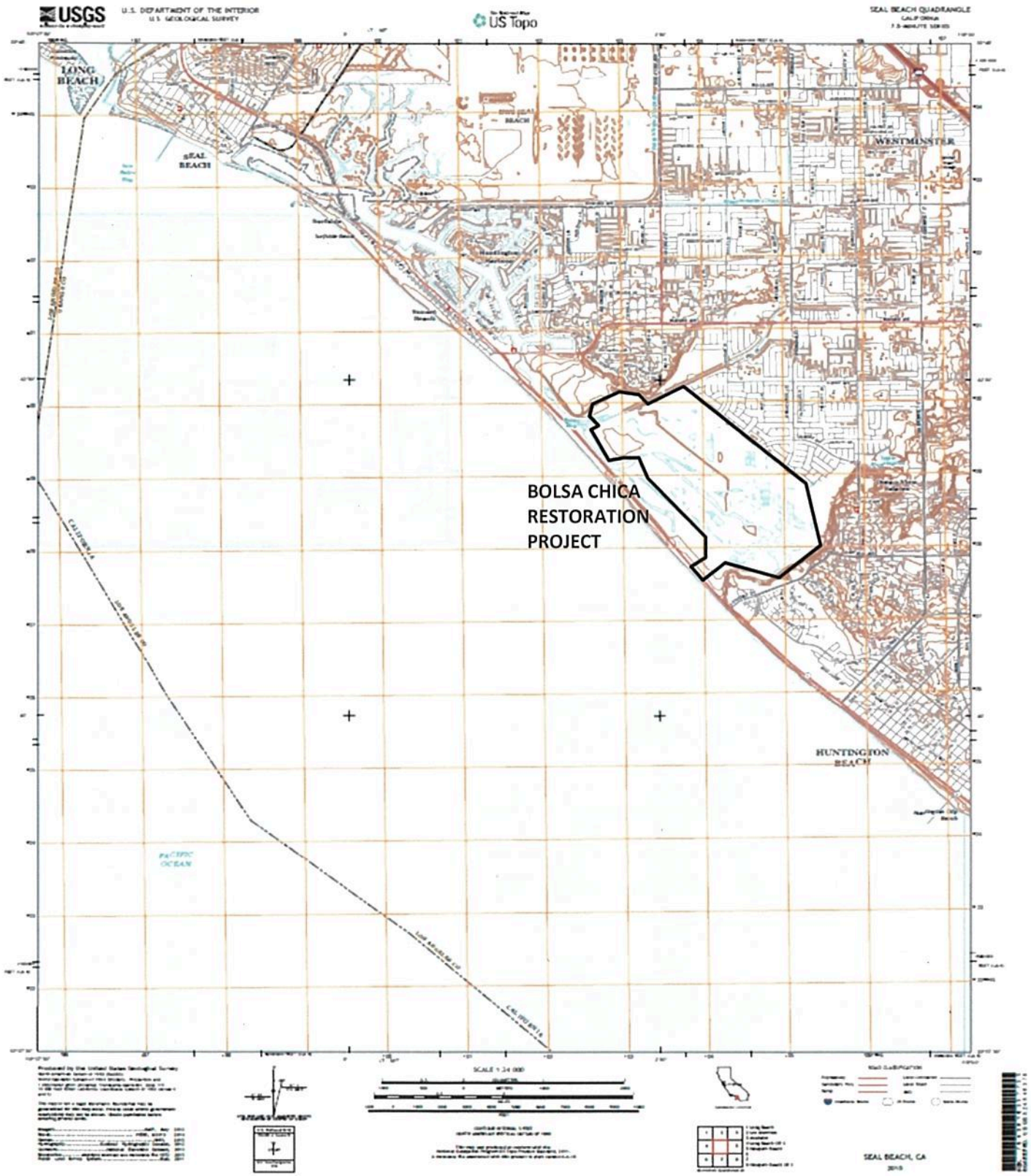
Proposed Special Conditions

No special conditions are proposed at this time. For additional information please call Robert Smith of my staff at (760) 602-4831 or via e-mail at Robert.R.Smith@usace.army.mil. This public notice is issued by the Chief, Regulatory Division.

Regulatory Program Goals:

- To provide strong protection of the nation's aquatic environment, including wetlands.
- To ensure the Corps provides the regulated public with fair and reasonable decisions.
- To enhance the efficiency of the Corps' administration of its regulatory program.


Outer Bolsa Bay
Bolsa Mesa Lower Bench
Bolsa Mesa Upper Bench
Upper Bench storm drain
Middle Bridge
Muted Tidal Pocket
Interpretive Overlook
c) Pocket Culvert
b) flood channel flapgates
a) tide gates
Overlook
West Water Control Structure
Muted Tidal Basin
Admin bldg.
Rabbit Island
East Loop Trail
Central Water Control Structure
Groundwater discharge line
Groundwater pump vault
NS 2
Springdale pump station
Inner Bolsa Bay
Full Tidal Basin
East Water Control Structure
Parking Lot
Footbridge
Oil Well SCI monument
Freeman Water Control Structure
NS 1
North Tern Island
South Tern Island
PACIFIC COAST HIGHWAY
BOLSA CHICA STATE BEACH
Oil boom anchor point
Access ramp
Sand-blasting shed
NS 3
Future Full Tidal
Edwards Thumb
Separate ownership and oil lease
Pacific Ocean
PCH drainage retention basin
Flood shoal maintenance area
State Lease area
Boat ramp
Dredge Staging Area
Oil Service Bridge
Garfield storm drain
Former Gas Plant Site
Kiddy playground
Seacliff drain
Seasonal Ponds
helipad
Old Gas Plant Road
Linear Park
Huntington Mesa
PCH Bridge
Ocean inlet
Ebb Shoal
Muted high water over flow weir
Seasonal Pond drainage weir
Seasonal Pond Control Structure: Outflow culverts with flap gates to release water from the Seasonal Ponds into Freeman Creek. An intake culvert to allow water to flow from Freeman Creek into the Seasonal Ponds is controlled by a sluice gate on the Freeman Creek side.
Freeman Creek Control Structure: Outflow culverts with flap gates to release flows from Freeman Creek and the Springdale Pump Station into the Full Tidal Basin. An intake culvert to allow water to flow from the FTB into Freeman Creek and the Seasonal Ponds is controlled by a sluice gate on the Freeman Creek side.
West, Central, and East Control Structures: Connect tidal flow from the Full Tidal Basin to each of the three Muted Tidal subareas. Inflow from the FTB to the MTB is through culverts protected by Self Regulating Tide Gates and Sluice Gates on the FTB side. Outflow is through culverts protected by flap gates on the FTB side. All culverts can be closed with manually operated sluice gates on the MTB side.
Oil spill boom housing with anchor points on both sides of inlet channel to deploy boom across inlet during emergency oil spill response.
25 year storm outlet for PCH drainage retention basin into Inner Bolsa Bay.
Three connections:
a) tide gates connect Full Tidal Outer Bolsa to Muted Tidal Inner Bolsa Bay
b) flap gates allow stormwater from EGGW flood channel to enter Outer Bolsa Bay
c) a culvert connects Full Tidal Outer Bolsa Bay to Muted Tidal Pocket
Seasonal restriction on access due to breeding birds and all dry Seasonal Ponds Mar-Sep
Muted Tidal seawater via Outer Bolsa Bay and Huntington Harbor
Full Tidal seawater via Huntington Harbor
Culverts under roads in the Muted Tidal Basin which can be closed with flash boards.
Culverts in Seasonal Pond areas connecting various cells to facilitate draining and filling through the Freeman Creek Control Structure.
Note: State property is in County jurisdiction, adjacent houses are in the City of Huntington Beach.
UNITED STATES
Department of the Interior
Bolsa Chica Wetland - Physical Features
Cell number
Pocket Muted Tidal Subarea
West Culvert Muted Tidal Subarea
Central Culvert Muted Tidal Subarea
East Culvert Muted Tidal Subarea
Inner Bolsa Bay
Seasonal ponds
Pacific Ocean
Low tide water surface (~1m deep at lowest tides)
Drivable roads and pads
Nest sites
Cord grass
Intertidal mudflat/saltmarsh
Open to the public
Loop trail footbridge
Loop trail parking
Full Tidal Basin levee road
Gas line
Fence
Gate
Tidal or Seasonal Ponds drainage channel
Culverts
Emergency overflow weir
Full Tidal Basin levee road access ramps
Active oil wells
Groundwater wells
Sources: AERA Energy LLC., Moffatt & Nichol
Feet
Meters

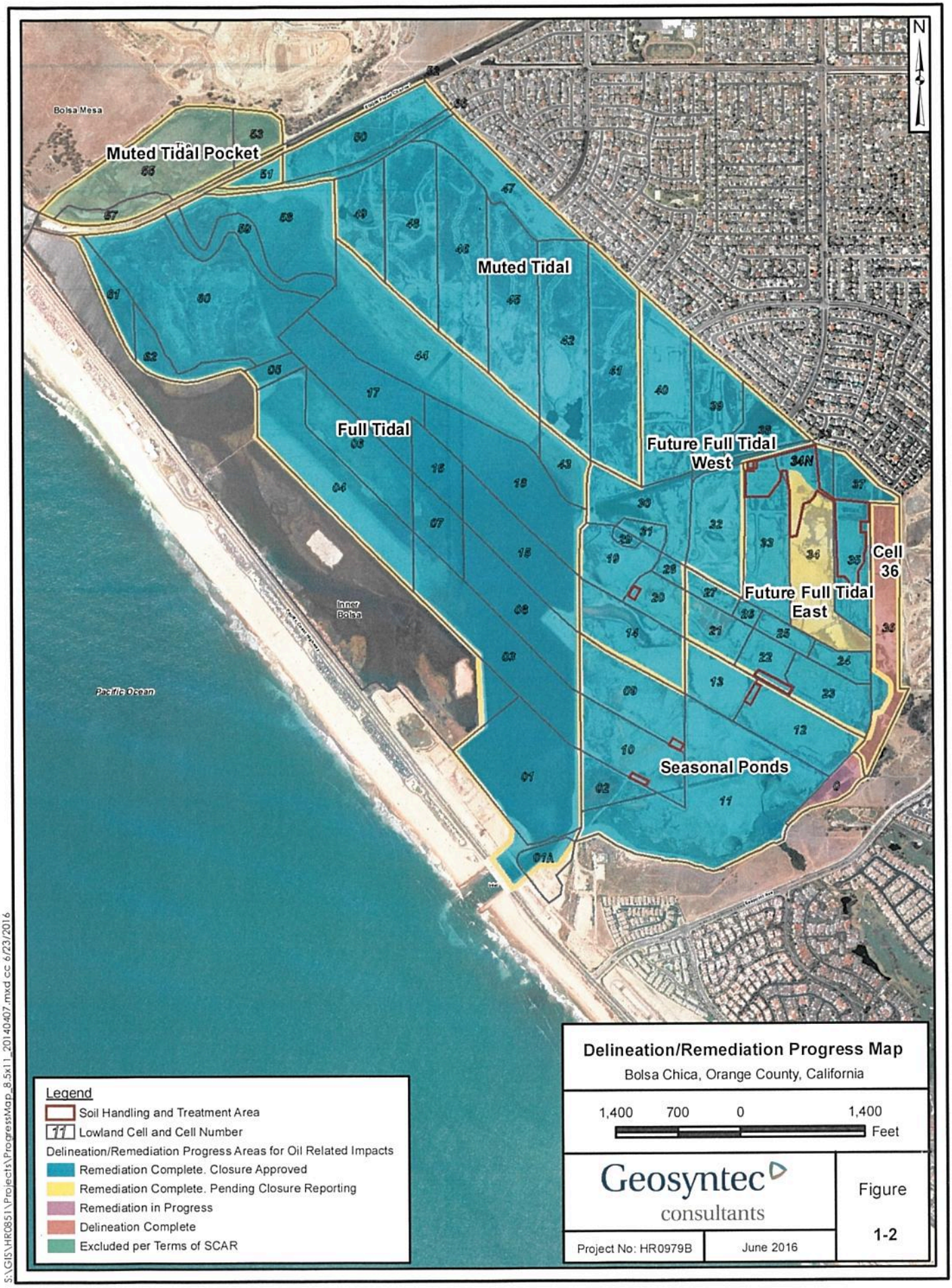

USGS
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
US Topo
SEAL BEACH QUADRANGLE
LONG BEACH
SEAL BEACH
WESTMINSTER
BOLSA CHICA
RESTORATION
PROJECT
HUNTINGTON BEACH
PACIFIC OCEAN
SEAL BEACH, CA

Site locator and vicinity map

Bolsa Chica Lowlands Restoration Project

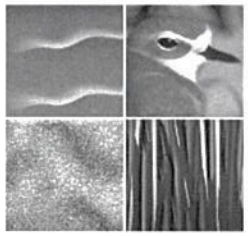
Figure 0-1

Merkel & Associates, Inc.

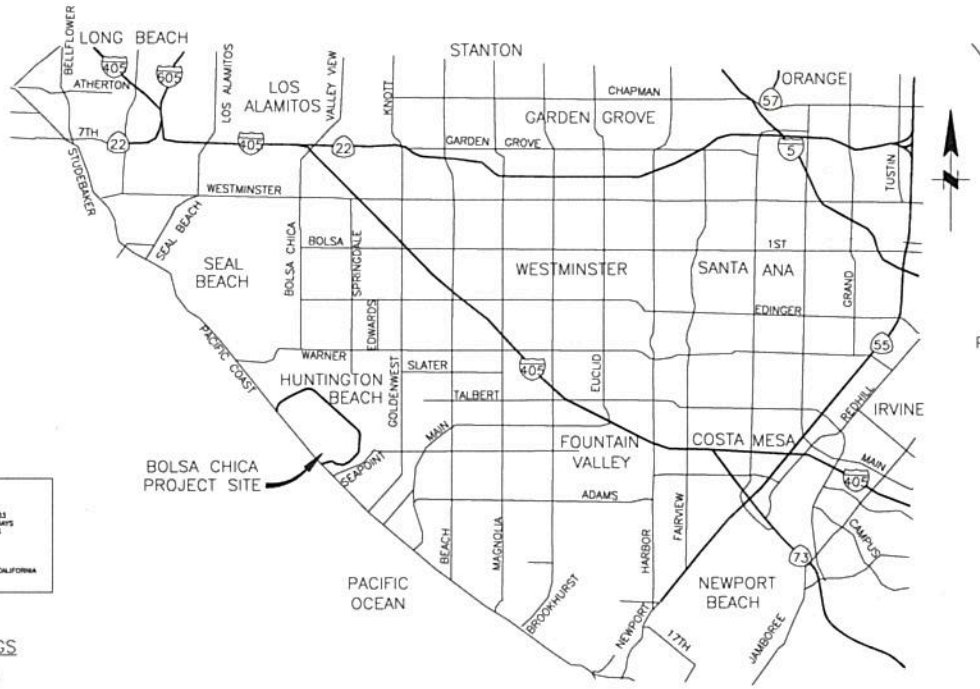


S:\GIS\HR0851\Projects\ProgressMap_8.5x11_20140407.mxd cc 6/23/2016

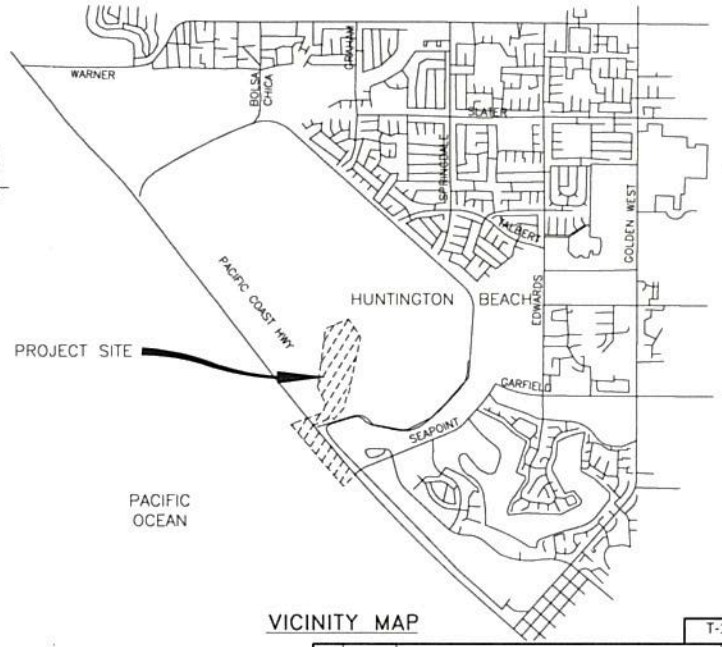
BOLSA CHICA LOWLANDS
2014–2016 MAINTENANCE DREDGING PROJECT
CALIFORNIA STATE LANDS COMMISSION



REGION MAP



LOCATION MAP



VICINITY MAP

DIGALERT
DIAL TOLL FREE 1-800-422-4133 AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

INDEX TO DRAWINGS

SHEET NO.	TITLE
T-1	TITLE SHEET AND SHEET INDEX
T-2	NOTES, ABBREVIATIONS, SYMBOLS & SURVEY INFORMATION
C-1	SITE PLAN, SITE ACCESS AND EQUIPMENT STAGING PLAN
C-2	DREDGE PLAN
C-3	BEACH REPLENISHMENT PLAN
XS-1	TYPICAL DREDGING SECTIONS
XS-2	TYPICAL DREDGING SECTIONS
D-1	BEACH FILL PLACEMENT SECTIONS

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MERKEL & ASSOCIATES, INC.
5434 RUFFIN ROAD, SAN DIEGO, CA 92123
TEL (858) 560-5465 FAX (858) 560-7779

EVEREST INTERNATIONAL CONSULTANTS, INC.
444 WEST OCEAN BLVD., SUITE 1104, LONG BEACH, CA 90802
TEL (562) 435-9305 FAX (562) 435-9310

T-1

REV.	DATE	DESCRIPTION	BY

CALIFORNIA RESOURCES AGENCY
STATE LANDS COMMISSION
100 HOWE AVE, SUITE 100-SOUTH
SACRAMENTO, CA 95825

REVIEWED FOR SAFETY COMPLIANCE
REVIEWED FOR ENVIRONMENTAL COMPLIANCE
REVIEWED FOR ADA COMPLIANCE
CERTIFIED TO CPC AND COMPLIANCE (ENERGY)
SUBMITTED BY REGIONAL ENGINEER
PROGRAMMATIC REVIEW

BOLSA CHICA WETLANDS, CA

2014-2016
BOLSA CHICA LOWLANDS
MAINTENANCE DREDGING PROJECT

TITLE SHEET AND SHEET INDEX

ORANGE COUNTY CA

SURVEYED	DESIGNED	DRAWN	CHECKED
	ML	ML	DC

DATE 10/19/2015
DRAWING NO.

SHEET 1 OF 8

ABBREVIATIONS

ABBREVIATIONS	DESCRIPTIONS
APPROX	APPROXIMATE
AVE	AVENUE
AMPS	AMPERES
BEG.	BEGIN
B.M.	BENCHMARK
BTM.	BOTTOM
CA	CALIFORNIA
CIR	CIRCLE
CSLC	CALIFORNIA STATE LANDS COMMISSION
DIA	DIAMETER
DR	DRIVE
E	EAST
EL, ELEV	ELEVATION
EX, EXIST	EXISTING
EXP	EXPIRES
FT	FEET
HWY	HIGHWAY
INC	INCORPORATED
KG	KILOGRAM
KV	KILOVOLTS
LB	POUND
LF	LINEAR FEET
LLC	LIMITED LIABILITY CORPORATION
LN	LANE

ABBREVIATIONS	DESCRIPTIONS
PCH	PACIFIC COAST HIGHWAY
PI	POINT OF INTERSECTION
PT	POINT, POINT OF TANGENT
m	METER
MHW	MEAN HIGH WATER
MHHW	MEAN HIGHER HIGH WATER
MLW	MEAN LOW WATER
MLLW	MEAN LOWER LOW WATER
mm	MILLIMETER
MSL	MEAN SEA LEVEL
N	NORTH
NAD	NORTH AMERICAN DATUM
NAVD 88	NORTH AMERICAN VERTICAL DATUM OF 1988
NGVD 29	NATIONAL GEODETIC VERTICAL DATUM OF 1929
NO.	NUMBER
OCS	ORANGE COUNTY SURVEYOR
PCH	PACIFIC COAST HIGHWAY
RD	ROAD
REV	REVISED
STA	STATION
SCE	SOUTHERN CALIFORNIA EDISON COMPANY
ST	STREET
ST-PL	STATE-PLANE
TYP	TYPICAL
V:H	VERTICAL TO HORIZONTAL
W	WEST
W/	WITH
ZN	ZONE

SYMBOLS

SYMBOLS	DESCRIPTIONS
&	AND
±	APPROXIMATE
@	AT
ø	DIAMETER
#	NUMBER
%	PERCENT
1:3	1 VERTICAL TO 3 HORIZONTAL
1:3	1 VERTICAL TO 3 HORIZONTAL
℄	STATION LINE
℄	CENTERLINE
℄	PROPERTY LINE, PLANE

BENCH MARK

THE BENCHMARK FOR THIS SURVEY IS BOLSA CHICA DREDGING PROJECT B.M. "PROJECT B.M." SET BY PSOMAS DECEMBER 2010 (PSOMAS 32LEB020100).

THE BENCHMARK IS LOCATED ON THE SOUTHERN END OF THE EASTERLY BRIDGE RAIL FOR THE BOLSA CHICA OIL SERVICE BRIDGE OVER THE INLET OF THE BOLSA CHICA LOWLANDS FULL TIDAL BASIN (33°40'59.6755"N : 118°02'04.2768"W)

ELEVATION = 6.53m (21.44 FT)

DATUM = NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88), 1995 OCS ADJUSTMENT.

SURVEY CONTROL (PROJECT DATUM)

HORIZONTAL DATUM: CA STATE-PLANE ZONE 6 NAD 83

VERTICAL DATUM: NAVD 88

ALL UNITS IN METERS.

TIDAL ELEVATIONS ON STATION DATUM

DATUM IN MLLW METERS		DATUM IN NAVD 88 METERS
+2.414m	EXTREME HIGH WATER (1/10/2005)	+2.352m
+1.674m	MHHW	+1.612m
+1.449m	MHW	+1.387m
+0.861m	MSL	+0.799m
+0.802m	NGVD 29	+0.740m
+0.287m	MLW	+0.225m
+0.062m	NAVD 88	0.000m
0.000m	MLLW	−0.062m
−0.832m	EXTREME LOW WATER (12/17/1933)	−0.894m

NOTE: ELEVATIONS BASED ON NOAA TIDE STATION 9410660 (LOS ANGELES) FOR THE 1983-2001 TIDAL EPOCH

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REGISTERED PROFESSIONAL ENGINEER — Exp. ____ CIVIL — STATE OF CALIFORNIA

MERKEL & ASSOCIATES, INC.
5434 RUFFIN ROAD, SAN DIEGO, CA 92123
TEL (858) 560-5465 FAX (858) 560-7779

EVEREST INTERNATIONAL CONSULTANTS, INC.
444 WEST OCEAN BLVD., SUITE 1104, LONG BEACH, CA 90802
TEL (562) 435-9305 FAX (562) 435-9310

T-2

REV	DATE	DESCRIPTION	BY

BOLSA CHICA WETLANDS, CA

2014-2016 BOLSA CHICA LOWLANDS MAINTENANCE DREDGING PROJECT
NOTES, ABBREVIATIONS, SYMBOLS & SURVEY INFORMATION

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
ML	ML	DC	10/19/2015	

NOTES:

1. CONTRACTOR SHALL COORDINATE WITH CSLC REPRESENTATIVE BEFORE SETTING UP THE STAGING AREAS.
2. FOR DREDGING PROJECT LIMIT LINE CONTROL POINTS SEE SHEET C-2.
3. LEFT TURN FROM SEAPOINT AVE TO GATE REQUIRES FLAGGING.
4. LARGE AND LONG LOADS MUST ENTER THROUGH SOUTHERN OIL FIELD SITE FROM PCH AND CROSS SEAPOINT AVE THROUGH OIL GATES. ACCESS MUST BE COORDINATED WITH SOCAL HOLDING, LLC.
5. SECURITY CODE REQUIRED FOR ENTRY THROUGH GATE (TO BE PROVIDED BY SOCAL HOLDING, LLC).
6. POINT OF CONNECTION FOR ELECTRIC DREDGE SWITCHGEAR AND A SOUTHERN CALIFORNIA EDISON METER AVAILABLE ON SITE, 12 KV, 3 PHASE, 200 AMPS. IF ELECT DREDGE IS USED CONTRACTOR SHALL ESTABLISH AN ACCOUNT WITH SCE TO ACCESS POWER AND SHALL BE RESPONSIBLE FOR ALL FEES AND PAYMENTS.
7. FINAL LOCATION AND DIMENSIONS OF BEACH STAGING AREA TO BE COORDINATED WITH CALIFORNIA DEPARTMENT OF PARKS AND RECREATION. FENCED STAGING AREA SHALL NOT EXCEED 1,200m² (12,800 SF).
8. CONTRACTOR SHALL REFER TO CALIFORNIA DEPARTMENT OF PARKS AND RECREATION RIGHT OF ENTRY PERMIT FOR ALL INGRESS/EGRESS TO BEACH.
9. ACCESS TO ALL ROAD WAYS, BOAT LAUNCH RAMP, OIL BOOM STORAGE AND BEACH ACCESS SHALL BE MAINTAINED AT ALL TIMES.
10. CONTRACTOR MAY CLOSE NO MORE THAN 100m (300 LF) OF BEACH AREA TO THE PUBLIC AT ANY GIVEN TIME.
11. **CONTRACTOR SHALL AVOID AREA WITH CONCRETE ANCHOR BLOCKS & BUOY. THE LAST TIME THE BLOCKS WERE OBSERVED PRIOR TO BEING OVERRUN BY SAND SHOALING THEY WERE LOCATED AT THE APPROXIMATE CENTER POINT NOTED. THE BLOCKS WERE ANCHOR POINTS FOR BOOMS AND THUS MAY DRAG OR BE REPOSITIONED OVER TIME. WHILE THE OWNER AND ITS REPRESENTATIVES DO NOT KNOW OF ANY CHANGE IN ANCHOR POSITION NO WARRANTIES ARE MADE WITH RESPECT TO ANCHOR POSITION. IT IS INCUMBENT UPON THE CONTRACTOR TO VERIFY POSITION OF THE BLOCKS ADEQUATE TO AVOID EQUIPMENT IMPACTS AND DAMAGE. COORDINATE WITH SOCAL HOLDING, LLC OIL FIELD PROCESS SUPERVISOR.**

40m 0m 40m 80m
SCALE

LEGEND

- CONTRACTOR EQUIPMENT STAGING AREA
- PROJECT LIMIT LINE
- INGRESS/EGRESS
- CONCRETE-ANCHOR BLOCK

PLAN

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TEL (562) 435-9305 FAX (562) 435-9310

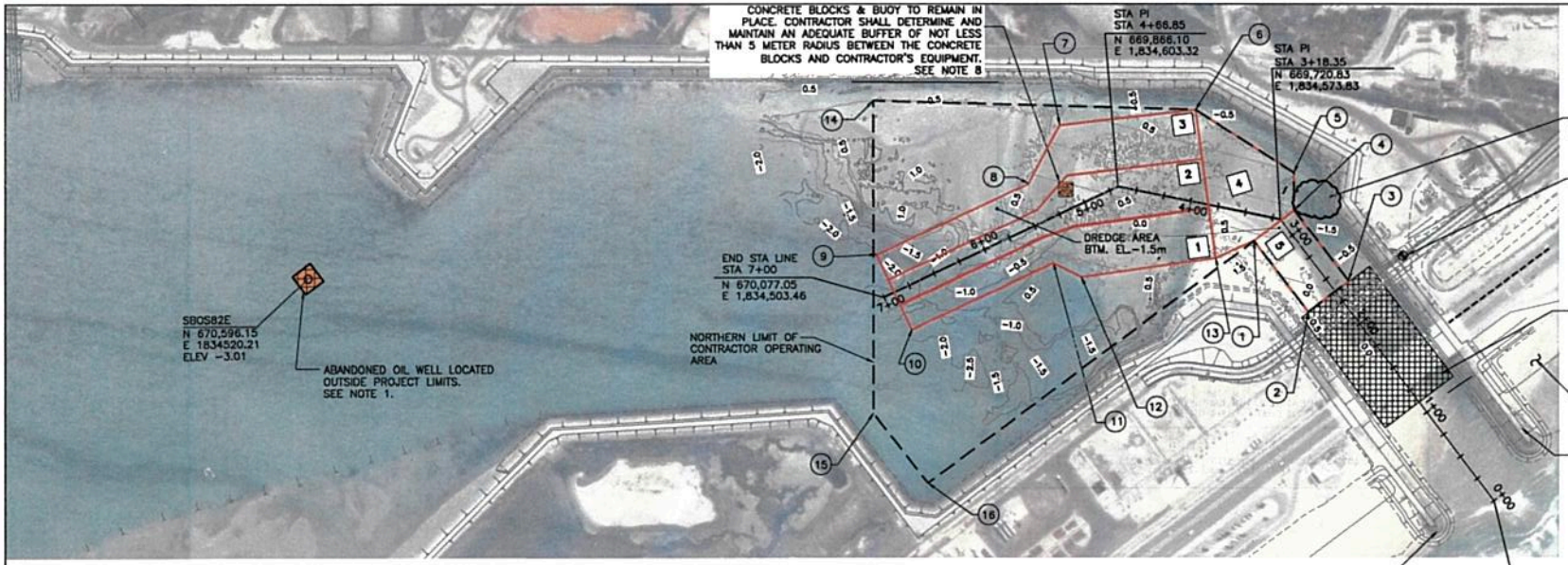
C-1

REV.	DATE	DESCRIPTION	BY

BOLSA CHICA WETLANDS, CA

2014-2016 BOLSA CHICA LOWLANDS MAINTENANCE DREDGING PROJECT
SITE PLAN, SITE ACCESS AND EQUIPMENT STAGING PLAN

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
ML	ML	DC	10/19/2015	

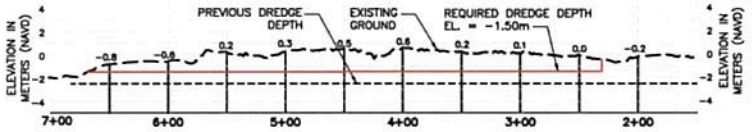


PLAN

SCALE 40m 0m 40m 80m

WORK SEQUENCE:

1. WORK SHALL PROGRESS IN THE DREDGE ZONE ORDER OF 1, 2, 3, 4, 5 UNLESS OTHERWISE MODIFIED BY THE OWNER.
2. DREDGING AREAS MAY BE MODIFIED BY THE OWNER THROUGH THE DREDGING SEASON TO RESPOND TO THE LOCATIONS AND PATTERNS OF SAND INFILL.
3. DREDGE DEPTHS IN DREDGE ZONES MAY BE MODIFIED BY THE OWNER TO LOWER ELEVATIONS OF UP TO -2.5m NAVD 88 AS AN ADAPTIVE DREDGING PATTERN.



PROFILE @ STATION CONTROL LINE

NOTES:

1. NO MAINTENANCE DREDGING, ANCHORING OR SPUDDING SHALL OCCUR IN SHALLOW CUT-OFF WELL AREA. SEE WELL CONTROL POINT, THIS SHEET.
2. NO DREDGING OR SPUDDING WITHIN 10m OF ARMORED SLOPE PROTECTION TOE.
3. NO DREDGE ANCHORING TO PCH BRIDGE, OIL SERVICE BRIDGE, OR OIL INFRASTRUCTURE.
4. DREDGING SHALL BE LIMITED TO ACCUMULATED SEDIMENT ABOVE ELEVATION -1.50m NAVD 88. SEE ALSO WORK SEQUENCE NOTE 3.
5. DREDGED MATERIAL TO BE PLACED ON BEACH AS SHOWN ON SHEET C-3.
6. EXISTING PLAN AND PROFILE ELEVATIONS BASED ON SURVEY PERFORMED BY MERKEL AND ASSOCIATES, INC. ON SEPTEMBER, 2015.
7. ACCEPTANCE SURVEYS TO BE CONDUCTED WITHIN 24 HOURS OF COMPLETION OF AREAS.
8. **CONTRACTOR SHALL AVOID AREA WITH CONCRETE ANCHOR BLOCKS & BUOY. THE LAST TIME THE BLOCKS WERE OBSERVED PRIOR TO BEING OVERRUN BY SAND SHOALING THEY WERE LOCATED AT THE APPROXIMATE CENTER POINT NOTED. THE BLOCKS ARE ANCHOR POINTS FOR BOOMS AND THUS MAY DRAG OR BE REPOSITIONED OVER TIME. WHILE THE OWNER AND ITS REPRESENTATIVES DO NOT KNOW OF ANY CHANGE IN ANCHOR POSITION NO WARRANTIES ARE MADE WITH RESPECT TO ANCHOR POSITION. IT IS INCUMBENT UPON THE CONTRACTOR TO VERIFY POSITION OF THE BLOCKS ADEQUATE TO AVOID EQUIPMENT IMPACTS AND DAMAGE. COORDINATE WITH SOCAL HOLDING, LLC OIL FIELD PROCESS SUPERVISOR.**
9. CONTRACTOR SHALL FIELD VERIFY THE EXTENTS OF AREA WITH SUPPLEMENTAL TOE STONE AND AVOID DREDGING IN THIS AREA.

LEGEND

- DREDGE PAYMENT ZONE
- STATION CONTROL LINE
- SHALLOW CUT-OFF OIL WELL
- EXISTING LEVEE
- PROJECT CONTROL POINT
- CONCRETE ANCHOR BLOCKS
- BRIDGE EXCLUSION ZONE
- EXISTING CONTOUR
- LIMIT OF CONTRACTOR OPERATING AREA

PROJECT LIMITS/CONTROL POINTS

POINT NO.	NORTHING	EASTING
1	669,744.38	1,834,554.43
2	669,695.21	1,834,490.16
3	669,658.94	1,834,517.91
4	669,708.29	1,834,581.59
5	669,708.29	1,834,616.11
6	669,796.53	1,834,672.98
7	669,918.87	1,834,659.33
8	669,946.95	1,834,605.98
9	670,083.42	1,834,541.89
10	670,051.80	1,834,474.58
11	669,924.35	1,834,534.44
12	669,899.19	1,834,521.65
13	669,778.42	1,834,538.91
14	670,086.73	1,834,681.20
15	670,086.43	1,834,399.04
16	670,037.47	1,834,335.87

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TEL (562) 435-9305 FAX (562) 435-9310

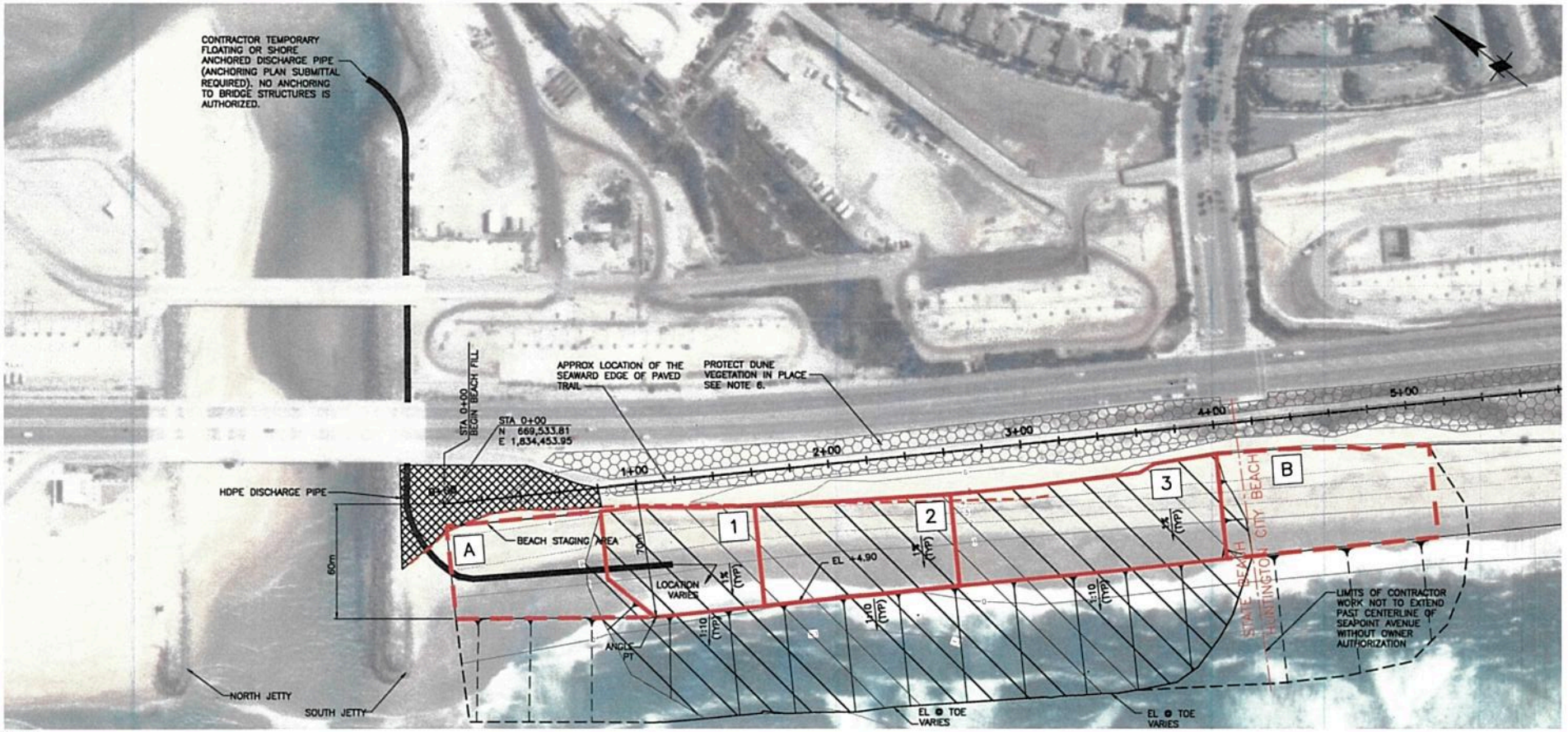
C-2

REV.	DATE	DESCRIPTION	BY

BOLSA CHICA WETLANDS, CA

2014-2016 BOLSA CHICA LOWLANDS MAINTENANCE DREDGING PROJECT
DREDGE PLAN

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
ML	ML	DC	10/19/2015	



PLAN

NOTES:

1. FOR BEACH FILL DETAILS, SEE SHEET D-1.
2. IF REQUIRED, THE CONTRACTOR SHALL EXTEND BEACH REPLENISHMENT SECTIONS FARTHER SOUTH TO ACCOMMODATE DREDGING VOLUME. MAXIMUM ALLOWABLE FILL ELEVATIONS AND DESIRED SLOPES, VOLUMES OF DREDGING WILL DICTATE FINAL BEACH PROGRESSION TO THE SOUTH. IF EXTENSION TO HUNTINGTON BEACH CITY BEACH IS REQUIRED, CONTRACTOR SHALL NOTIFY OWNER AT LEAST 30 DAYS PRIOR.
3. COORDINATES FOR STATION CONTROL LINE ARE APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING SEAWARD EDGE OF PAVED TRAIL BETWEEN STA 1+00 AND STA 4+00 AND ESTABLISH STATION CONTROL LINE WITH SAME BEARING.
4. AERIAL IMAGE WAS TAKEN ON MAY 10, 2010. IT IS NOT ORTHORECTIFIED AND IS SHOWN FOR GENERAL LAYOUT PURPOSES ONLY.
5. CONTRACTOR SHALL REFER TO CALIFORNIA DEPARTMENT OF PARKS AND RECREATION RIGHT OF ENTRY PERMIT FOR ALL INGRESS/EGRESS TO BEACH.
6. CONTRACTOR SHALL FIELD COORDINATE LOCATION OF PROTECTED DUNE AREA WITH CALIFORNIA DEPARTMENT OF PARKS & RECREATION.
7. EXISTING CONTOUR ELEVATIONS BASED ON SURVEY PERFORMED IN JUNE 2010.
8. NO DIRECT OCEAN PLACEMENT FROM DREDGE PIPELINE.
9. WORK SEQUENCE PROGRESS IN THE BEACH FILL ZONE ORDER OF 1, 2, 3 UNLESS OTHERWISE MODIFIED BY THE OWNER. INCLUDE FILL PLACEMENT IN ZONE A IF REQUESTED BY OWNER WHEN SIGNIFICANT EROSION IS PRESENT IN ZONE A. WORK IN ZONES A AND B MUST BE APPROVED BY OWNER.

LEGEND:

- BEACH FILL ZONES
- EQUIPMENT STAGING AREA (12,800 SF MAXIMUM WITHIN HATCHED AREA)
- EXISTING DUNE VEGETATION
- STATION CONTROL LINE
- DREDGE SLURRY
- EXISTING CONTOUR
- APPROXIMATE SCARP LINE
- DISCHARGE PIPE

SCALE: 20m 0m 20m 40m

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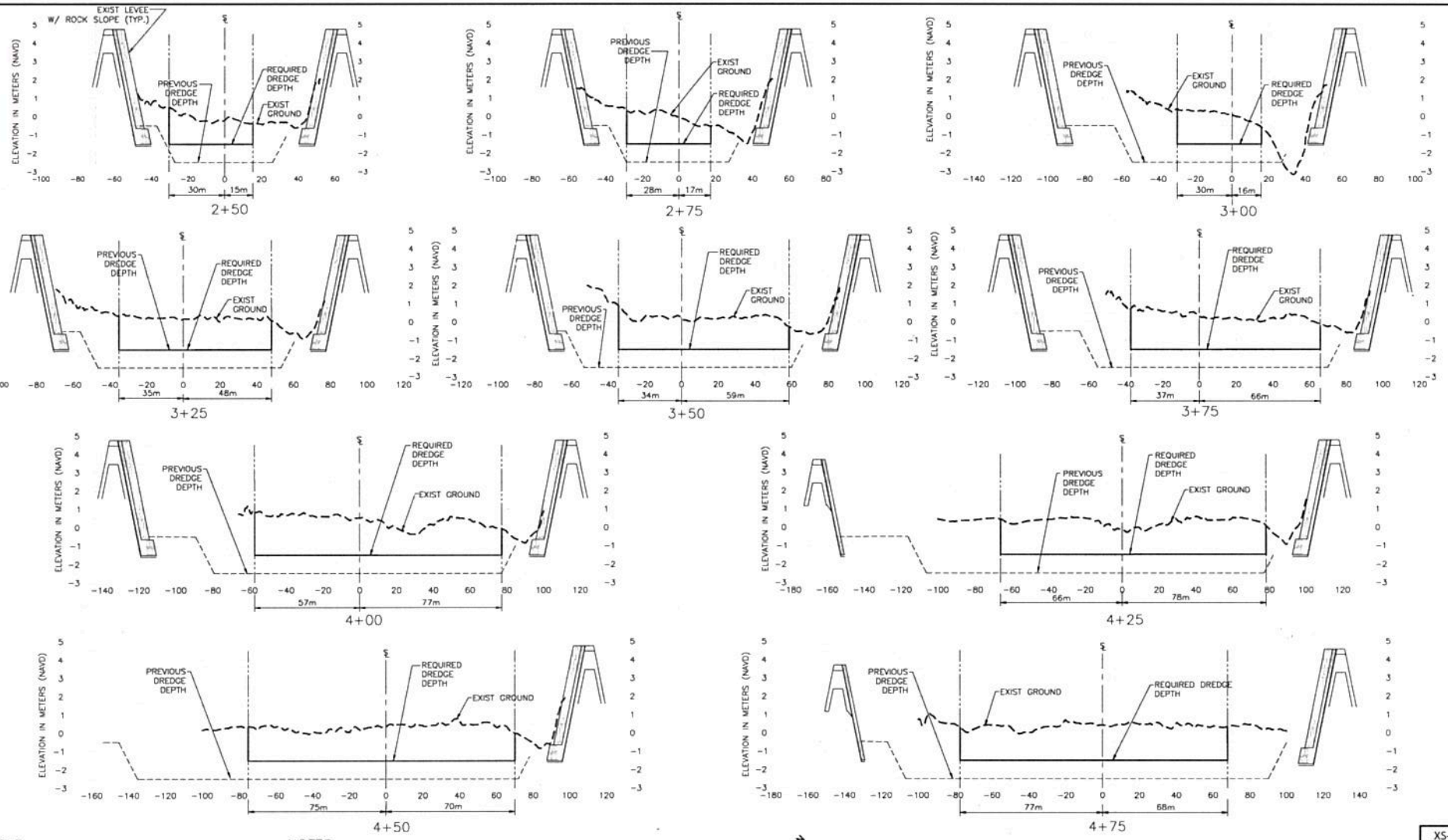
C-3

REV.	DATE	DESCRIPTION	BY

BOLSA CHICA WETLANDS, CA

2014-2016 BOLSA CHICA LOWLANDS MAINTENANCE DREDGING PROJECT
BEACH REPLENISHMENT PLAN

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
ML	ML	DC	10/19/2015	



LEGEND:

- ℄ DREDGE STATION LINE
- REQUIRED DREDGING DEPTH = −1.50m
- EXISTING GROUND (SURVEY SEPTEMBER, 2015)
- LIMITS OF DREDGING (AT TOE OF SLOPE)
- PREVIOUS DREDGE DEPTH = −2.50m

NOTES:

1. DREDGE CUT SLOPE MAY BE VERTICAL WITHIN LIMITS OF DREDGING. BANKS ARE EXPECTED TO RELAX RESULTING IN LAYBACK OF LESS THAN 1:5 (V:H). PAY QUANTITIES WILL BE CALCULATED BASED ON POST-DREDGE SURVEY.
2. EXISTING GROUND ELEVATIONS VARY WITH TIME AND ARE SHOWN FOR REFERENCE ONLY TO INDICATE GENERAL LOCATIONS OF ANTICIPATED DEEP AND SHALLOW CUTS.
3. FINAL DEPTHS OF CUT ARE TO BE DETERMINED BY CONTRACTOR PREDREDGE SURVEYS.

20m 0m 20m 40m
HORIZONTAL SCALE
2m 0m 2m 4m
VERTICAL SCALE

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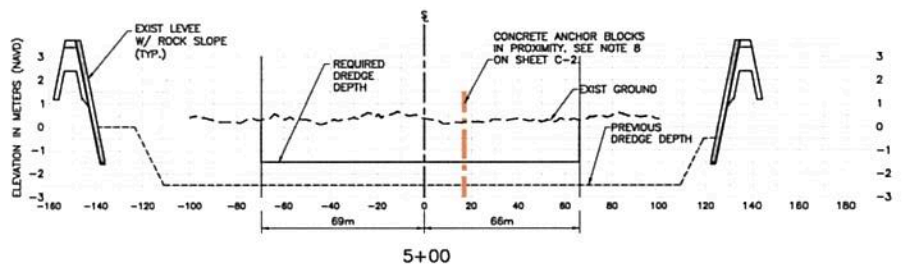
XS-1

REV.	DATE	DESCRIPTION	BY

BOLSA CHICA WETLANDS, CA

2014-2016 BOLSA CHICA LOWLANDS MAINTENANCE DREDGING PROJECT
TYPICAL DREDGING SECTIONS

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
ML	ML	DC	10/19/2015	



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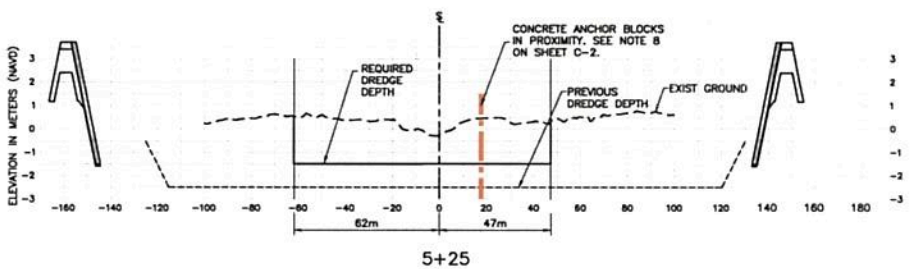

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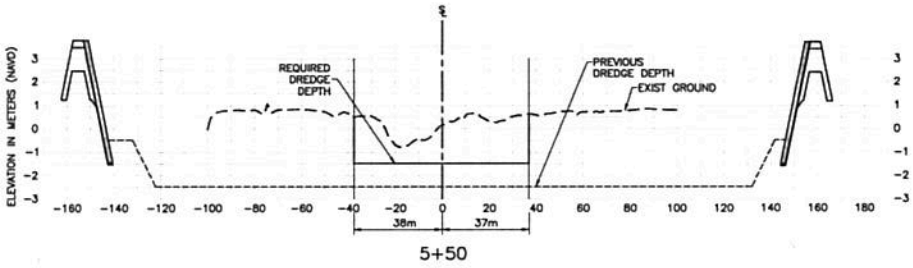

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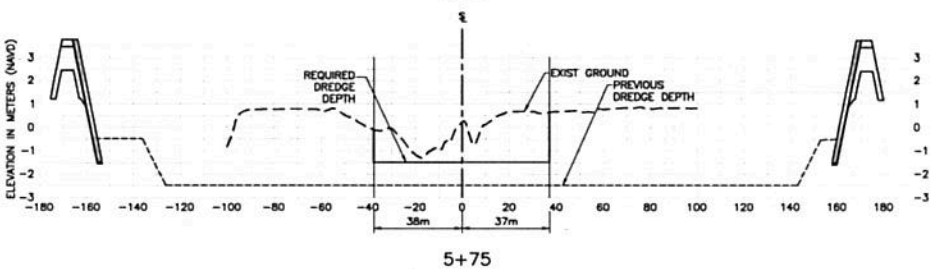

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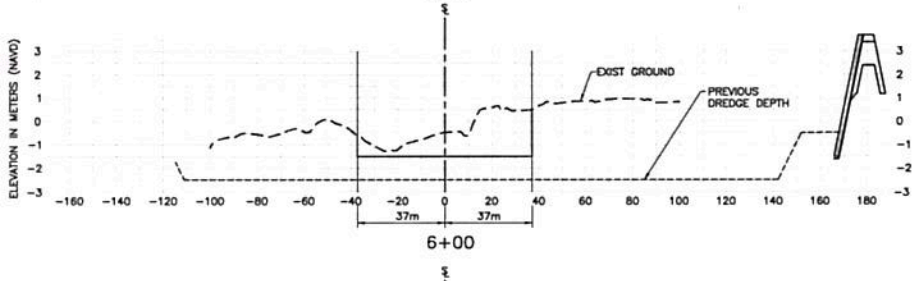

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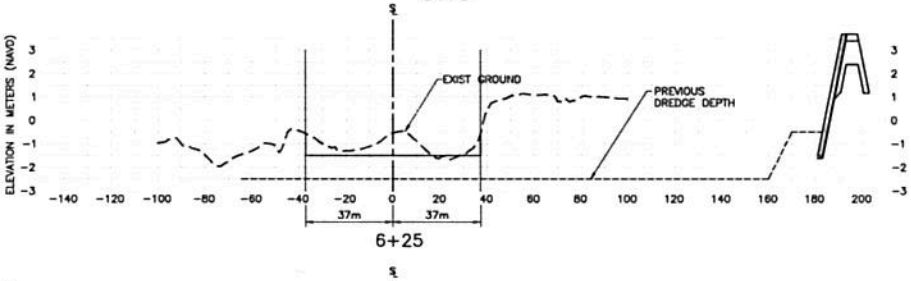

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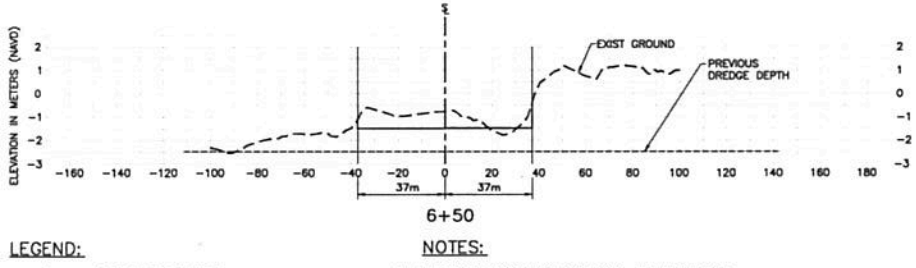

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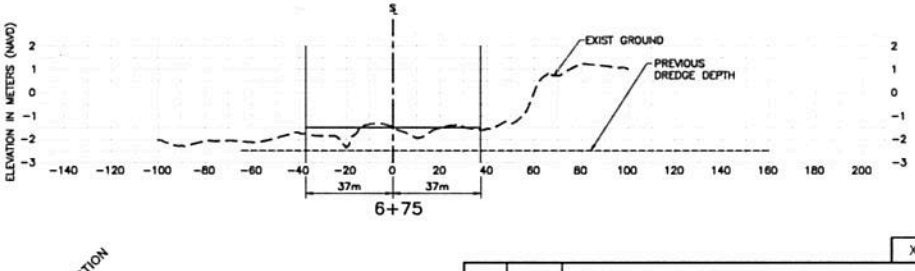


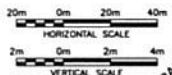
6+75

LEGEND:

- ℄ DREDGE STATION LINE
- REQUIRED DREDGING DEPTH = −1.50m
- EXISTING GROUND (SURVEY SEPTEMBER, 2015)
- LIMITS OF DREDGING (AT TOE OF SLOPE)
- PREVIOUS DREDGE DEPTH = −2.50m
- APPROX LOCATION OF CONCRETE ANCHOR BLOCK

NOTES:

1. DREDGE CUT SLOPE MAY BE VERTICAL WITHIN LIMITS OF DREDGING. BANKS ARE EXPECTED TO RELAX RESULTING IN LAYBACK OF LESS THAN 1:5 (V:H). PAY QUANTITIES WILL BE CALCULATED BASED ON POST-DREDGE SURVEY.
2. EXISTING GROUND ELEVATIONS VARY WITH TIME AND ARE SHOWN FOR REFERENCE ONLY TO INDICATE GENERAL LOCATIONS OF ANTICIPATED DEEP AND SHALLOW CUTS.
3. FINAL DEPTHS OF CUT ARE TO BE DETERMINED BY CONTRACTOR PREDREDGE SURVEYS.



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XS-2

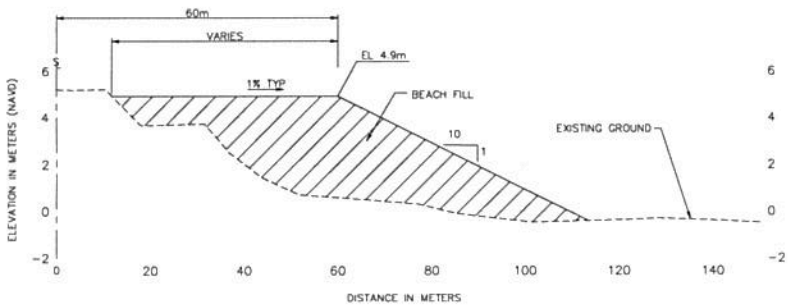
REV.	DATE	DESCRIPTION	BY

BOLSA CHICA WETLANDS, CA

2014-2016 BOLSA CHICA LOWLANDS MAINTENANCE DREDGING PROJECT

TYPICAL DREDGING SECTIONS

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
ML	ML	DC	10/19/2015	



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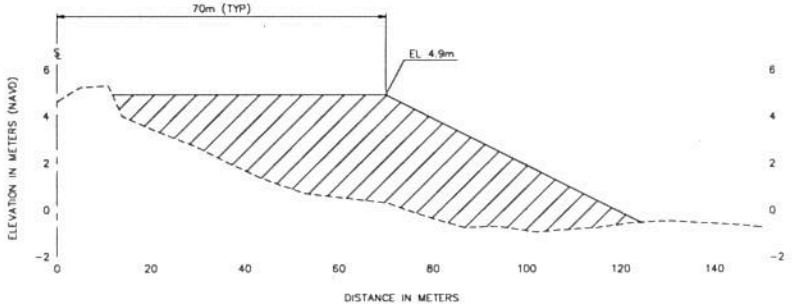

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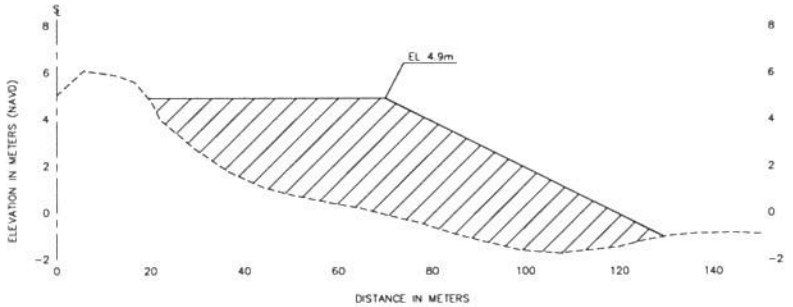

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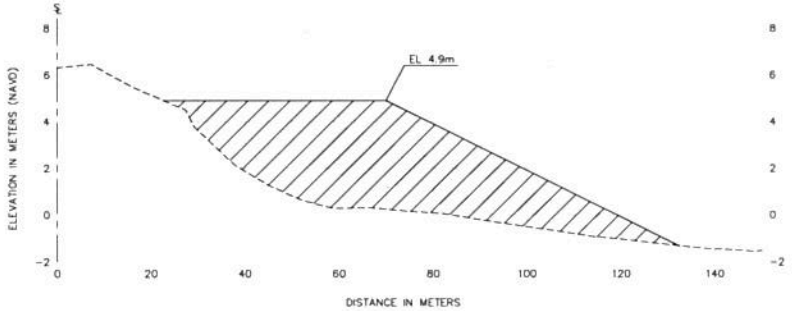

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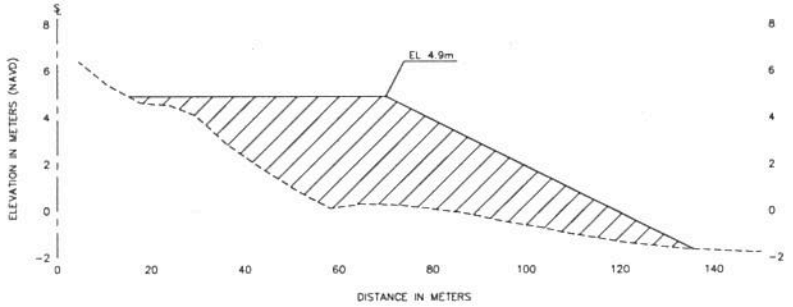

4+00

LEGEND:

- ℄ STATION CONTROL LINE
- PROPOSED BEACH FILL TEMPLATE
- EXISTING GROUND SURVEY (JUNE, 2010)
- BEACH FILL

10m 0m 10m 20m
HORIZONTAL SCALE
2m 0m 2m 4m
VERTICAL SCALE

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D-1

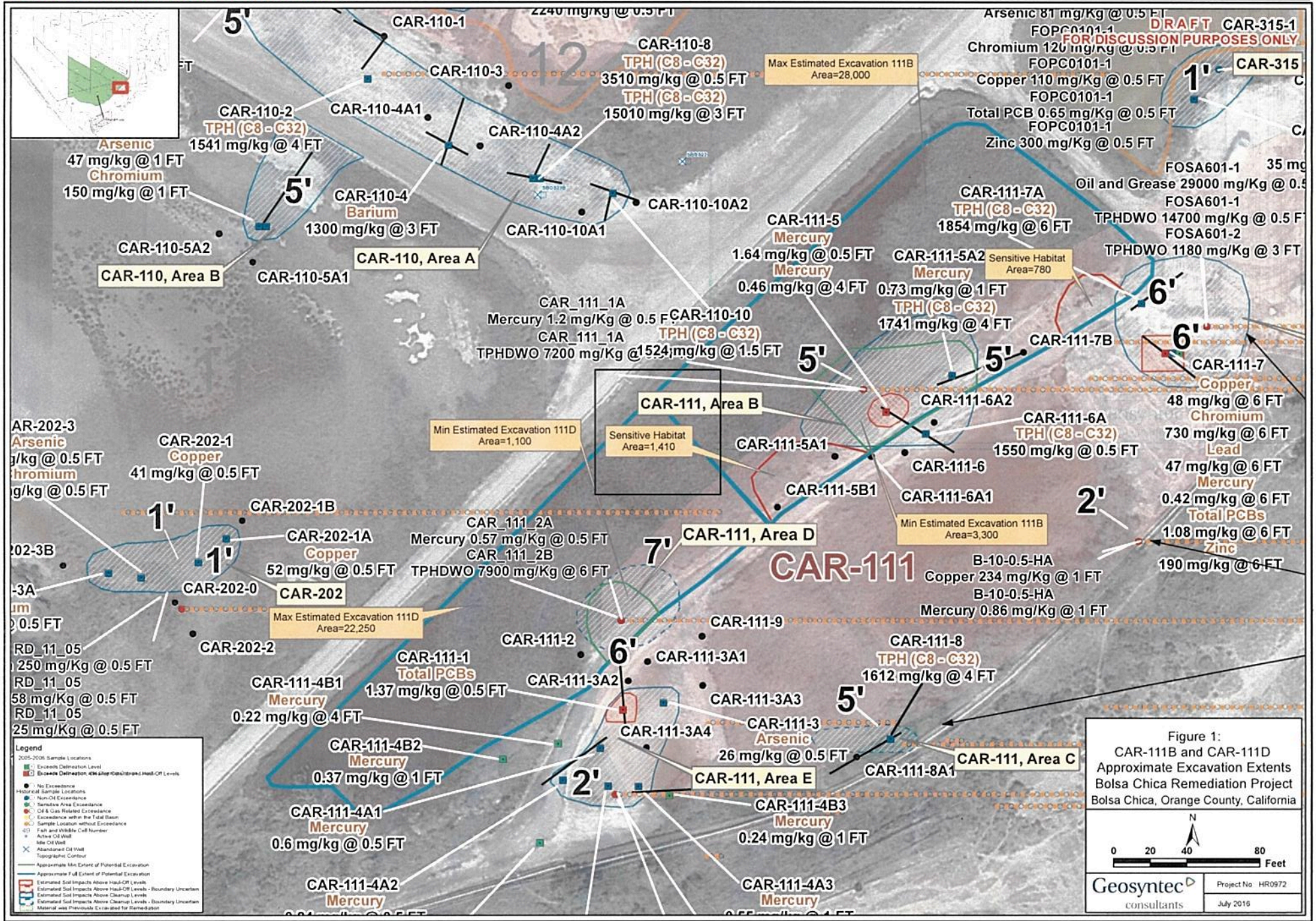
REV.	DATE	DESCRIPTION	BY

BOLSA CHICA WETLANDS, CA

2014-2016 BOLSA CHICA LOWLANDS MAINTENANCE DREDGING PROJECT
BEACH FILL PLACEMENT SECTIONS

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
ML	ML	DC	10/19/2015	

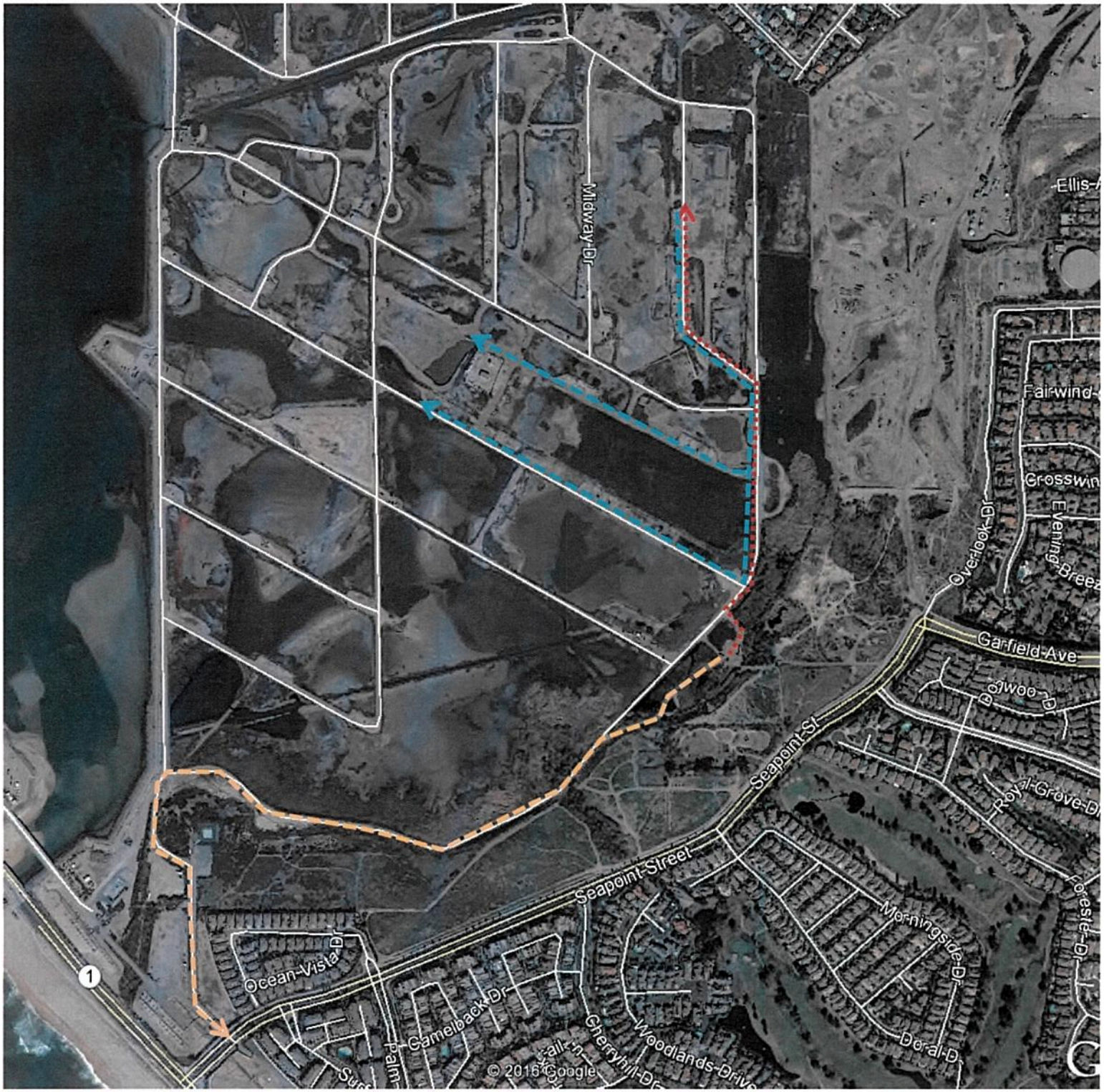
The light blue lines outline the estimated maximum extent of excavation work in Cell O; the green lines outline the estimated minimum. Please note that since this map was prepared, substantial progress has been made and excavations in CAR-111B and CAR-111D have reached the minimum extent outlines.



S:\GIS\HRG851\Projects\2016\CAR111_B_D.mxd lv 7/26/2016

Haul Routes

- Red – soil to mixing pad
- Blue – soil from mixing pad to backfill site
- Orange – soil hauled off to landfill



Red square is mixing pad for this season's work

Cell 21 is the backfill site for clean soils