MITIGATION MONITORING AND REPORTING PROGRAM
FOR
THE SAN ELIJO LAGOON RESTORATION PROJECT
FINAL ENVIRONMENTAL IMPACT REPORT
State Clearinghouse No. 2011111013

Prepared for:

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SAN ELIJO LAGOON RESTORATION PROJECT

Mitigation measures have been identified in the Final Program Environmental Impact Report for the San Elijo Lagoon Restoration Project to reduce or avoid potential environmental impacts. To ensure compliance, the following mitigation monitoring and reporting program has been formulated. This program provides a checklist of the party responsible for the mitigation, when the mitigation will occur and the measure to document compliance. Project design features are also incorporated into the mitigation monitoring and reporting program because they have been committed to by the project applicant proactively to avoid or minimize impacts, support the overall restoration objectives of the project, or are regulatory requirements with which the project would need to comply. A mitigation checklist and a list of project features designed to construct the project in an environmentally sensitive way have been prepared for the project.

Table 1 summarizes the mitigation measures for Alternative 1B – Refined, selected as "the project" by the County of San Diego and U.S. Army Corps of Engineers. Mitigation measure numbering in Table 1 does not always appear sequential because the EIR/EIS originally considered all project alternatives at an equal level of detail and some mitigation was only applicable to alternatives not selected as the project; those measures are not included in this table and create the occasional disruption in numbering. Information contained within the checklist clearly identifies the mitigation measure, delineates the monitoring schedule, and defines the conditions required to verify compliance. The following list is an explanation of the five columns that constitute the checklist.

Column 1 **Mitigation Measure:** Each measure is numbered and provided with a brief description of mitigation to reduce an impact to a below a level of significance.

Column 2 **Monitor:** Identifies the County department or other public agency that is responsible for determining compliance with the mitigation measure and for informing DPW about compliance.

Column 3 **Schedule:** The monitoring schedule depends upon the progression of the overall project. Therefore, specific dates are not used within the "Schedule" column. Instead, scheduling describes a logical succession of events (e.g., prior to construction, annual) and if necessary, delineates a follow-up program.

Column 4 **Compliance Activities:** Specifies discrete actions that will satisfy the mitigation requirement.

Column 5 **Verification of Compliance:** Verification by the responsible monitor that the mitigation measure has been completed.

Table 2 summarizes the project design features that have been incorporated to minimize and avoid, where possible, impacts to resources. Some project design features are incorporated to avoid or minimize a potential significant impact proactively through design, but others are additional measures that support the overall restoration objectives of the project without being tied to a specific potential impact. Many features also represent regulatory or code requirements that the project would need to comply with to be approved by various agencies and/or implemented legally. Those project design features that were originally included as part of the EIR/EIS, but are only applicable to alternatives other than 1B-Refined have been excluded from the table and thus, numbering does not always appear sequential. The table includes the purpose, timing, and responsibility for implementation of each project design feature. They are provided within this MMRP to ensure inclusion within the appropriate future construction documents to confirm implementation.

Table 1
Mitigation Checklist

Mitigation Measure	Monitor	Schedule	Compliance Action	Verification of Compliance (Date/Notes)
To avoid potential impacts to water and aquatic sediment quality due to temporary turbidity that would be generated by lagoon restoration activities, the following measures shall be implemented.				
Mitigation Measure Water Quality-1: All additional conditions, best management practices (BMPs), and requirements that are identified by regulatory agencies prior to project initiation as part of the permitting process for the project, including Section 404 permit, Coastal Development Permit, Section 1601 permit, Section 401 Water Quality Certification, and the National Pollutant Discharge Elimination (NPDES) System MS4 permit must be implemented. Compliance with those permit conditions would be monitored through the construction monitoring program and the contractor shall certify to the engineer of record that they have been completed.	Contractor	During Construction	Construction Monitoring Report	
Mitigation Measure Water Quality–2: Turbidity shall be actively managed by utilizing a cutterhead dredge and/or temporarily closing the lagoon inlet. The overdredge pit shall be capped with sand material to encapsulate material and prevent it from introducing turbidity or pollutants into the water column or released into the environment. The contractor shall certify to the permit holder that the dredge operations are not responsible for release of sediments into the water column at levels resulting in increased downstream sedimentation.	Contractor	During Construction	Construction Monitoring Report	

Mitigation Measure	Monitor	Schedule	Compliance Action	Verification of Compliance (Date/Notes)
To avoid potential impacts to cultural resources due to disturbance of unknown human remains or accidental disturbance near sites CA-SDI-13,903 and CA-SDI-20,816, the following measures shall be implemented. **Mitigation Measure Cultural-4:** If human remains are encountered during the proposed project: • Work at that location will be suspended and redirected elsewhere. • Corps and County DPR will be immediately notified of the discovery. • Remains will be left in place and exclusionary fencing will be placed in a 50-foot radius around the discovery. • Under the provisions of the California PRC Section 7050.5, the County Coroner will be notified in the event of discovery of human remains. • If the remains are either determined to be or there is reason to believe they are Native American, the coroner will notify the NAHC within 24 hours. • Disposition of Native American human remains on non-federal lands is within the jurisdiction of the NAHC. The Corps and County DPR, as lead agencies for the proposed project, will initiate consultation with the NAHC. As part of the consultation process, the NAHC will notify persons most likely to be descended (MLD) from the remains. No ground-disturbing work will occur in the location of the remains until consultation between the NAHC, MLD, Corps, and County DPR has been completed, and notification by the Corps and County DPR that construction activities may resume.	Professional Archaeologist	During Construction	Construction Monitoring Report	

Mitigation Measure	Monitor	Schedule	Compliance Action	Verification of Compliance (Date/Notes)
• If the remains are discovered in situ, they will be left in place and covered with weather-proof materials such as a tarp or plywood. If they are discovered in spoils, the remains will be placed in a labeled bag and, on approval by the MLD, transported to a secure locked container. An osteologist or a forensic anthropologist will, in consultation with the MLD, inspect fragmentary bones that are suspected to be human but cannot be identified as such in the field. **Mitigation Measure Cultural-5:** Exclusionary fencing shall be used to avoid inadvertent disturbance of cultural resources in proximity to the APE, staging areas, and access roads. The temporary exclusionary fencing shall be placed parallel to, but outside of the APE, staging areas, or the access road's existing limits of disturbance in locations where within 15 feet. Specifically, exclusionary fencing shall be placed parallel to existing access roads used for construction access near sites CA-SDI-13,903 and CA-SDI-20,816.	Professional Archaeologist	Prior to Construction	Construction Monitoring Report	
To avoid potential impacts to paleontological resources due to grading, trenching or other excavation into undisturbed rock layers, the following measures shall be implemented. **Mitigation Measure Paleo-1**: A monitoring program during grading, trenching, or other excavation into undisturbed substratum or deeper bedrock beneath the soil horizons and a fossil recovery program shall be implemented per County mitigation standards for excavation equal to or greater than 2,500 cy in high or moderate potential areas. A County-approved	County-approved paleontologist	During construction	Paleontological Resource Monitoring Program	

Mitigation Measure	Monitor	Schedule	Compliance Action	Verification of Compliance (Date/Notes)
paleontologist shall be contracted to perform paleontological resource monitoring and a fossil recovery program if significant paleontological resources are encountered during grading, trenching, or other excavation into undisturbed rock layers beneath the soil horizons in proximity to the Delmar Formation along the North Rios Avenue access road. The following shall be completed: • A County-approved paleontologist shall perform the monitoring (and recovery, if necessary, and report preparation) duties pursuant to the most current version of the County of San Diego Guidelines for Determining Significance for Paleontological Resources. The contract provided to the County shall include an agreement that the grading/ trenching/excavation monitoring will be completed. The contract shall include a cost estimate for the monitoring work and reporting. • The cost of the monitoring shall be bonded. **Mitigation Measure Paleo-2:** A final Paleontological Resource Mitigation Report that documents the results, analysis, and conclusions of all phases of the Paleontological Monitoring Program shall be prepared, if excavation into the Delmar Formation occurs and monitoring is required.	County-approved paleontologist	After construction	Paleontological Resource Mitigation Report, (if necessary)	

Mitigation Measure	Monitor	Schedule	Compliance Action	Verification of Compliance (Date/Notes)
To reduce adverse impacts to the visual quality and character of the lagoon, the following measure shall be implemented. **Mitigation Measure Visual-1**: Temporary screening would be placed around construction areas that are secured with a chain-link fence (such as booster pumps, staging areas, etc., as shown in Figure 2-15) to provide visual screening of the equipment located within the secured area. Screening could be brown or green mesh or other similar screening material attached to the fencing that would visually hide or obscure the interior of the fenced areas. The screening would extend as high as the chain-link fence, which would range from approximately 6 to 10 feet, depending on the area being secured.	Contractor	Prior to construction	Construction Monitoring Report photos	
To minimize traffic impacts of bridge replacement construction activities, the following measures shall be implemented. **Mitigation Measure Traffic-1:** Prepare work zone traffic control plans for lane closures and related construction along Coast Highway 101. The work zone traffic control plans shall be prepared in accordance with the California Manual of Uniform Traffic Control Devices (CAMUTCD), Caltrans Standard Plans (2010), and current standards and best practices of the reviewing and approving agencies. These plans are intended to accommodate workers within the roadway, while facilitating continued circulation for road users (motorists, bicyclists, and pedestrians including persons with disabilities in accordance with the ADA) through the work zone.	Contractor	Prior to construction	Traffic Control Plans	

Mitigation Measure	Monitor	Schedule	Compliance Action	Verification of Compliance (Date/Notes)
Mitigation Measure Traffic-2: Provide advanced notification to motorists that delays and traffic congestion will occur during bridge construction and retrofitting activities to encourage avoidance of the construction area. This notification may be accomplished through various measures such as information and detour routes included on the project website; traffic details included in all notifications sent to local residents; traffic and alternative route information published in local media; and physical traffic control measures, such as temporary signage located at various distances from the construction area.	SELC/Contractor	Prior to and during construction	Traffic Control Plan	
To minimize construction-generated ROG and NOX emissions, the following measures shall be implemented. **Mitigation Measure AQ-1:** Off-road construction diesel engines not registered under ARB's Statewide Portable Equipment Registration Program that have a rating of 50 horsepower (hp) or more, shall meet, at a minimum, the Tier 3 California Emissions Standards, unless such an engine is not available for a particular item of equipment. Tier 2 engines will be allowed on a case-by-case basis when the Contractor has documented that no Tier 3 equipment or emissions equivalent retrofit equipment is available for a particular equipment type that must be used to complete construction. Documentation shall consist of signed written statements from at least two construction equipment rental firms.	Contractor	During construction	Construction Monitoring Report	

Mitigation Measure	Monitor	Schedule	Compliance Action	Verification of Compliance (Date/Notes)
Mitigation Measure AQ-2: AQ-2: Harbor craft with a Category 1 or 2 marine engine, such as tugboats used for materials disposal, shall meet, at a minimum, EPA Tier 2 marine engine emission standards.	Contractor	During construction	Construction Monitoring Report	
Mitigation Measure AQ-3: Dredging equipment shall be electric, if determined by the contractor to be feasible, based on availability and cost.	Contractor	During construction	Construction Monitoring Report	
Mitigation Measure AQ-4: Contractors shall use alternative fueled (e.g., compressed natural gas [CNG], liquefied natural gas [LNG], propane), or electric-powered construction equipment, if determined by the contractor to be feasible, based on availability and cost.	Contractor	During construction	Construction Monitoring Report	
Mitigation Measure AQ-5: The following measures shall be implemented by the construction contractor to reduce fugitive dust emissions associated with offroad equipment and heavy-duty vehicles: • Exposed surfaces (e.g., unpaved access roads) shall be watered, as necessary, to control fugitive dust. • Sweepers and water trucks shall be used to control dust and debris at public street access points. • Dirt storage piles shall be stabilized by chemical binders, tarps, fencing, or other suppression measures. • Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads. • Cover haul trucks or maintain at least 12 inches of freeboard to reduce blow-off during hauling. • Enforce a 15-mph speed limit on unpaved surfaces.	Contractor	During construction	Construction Monitoring Report	

Mitigation Measure	Monitor	Schedule	Compliance Action	Verification of Compliance (Date/Notes)
To ensure that unforeseen wastes and hazardous materials dredged from the lagoon do not cause a public health hazard, the following measure shall be implemented. **Mitigation Measure HAZ-3:** A Sediment Management Plan will be developed and implemented to test dredged materials for proper placement in the overdredge pit or for off-site transport and proper disposal and to be in compliance with local, state, and federal regulations. The plan shall specify that if unknown contamination or other buried hazards are encountered during dredging, procedures must be carried out according to applicable regulations. Any material encountered that appears to contain contaminants will be handled in accordance with local, state, and federal guidelines, and permit conditions.	Contractor	Prior to and during construction	Sediment Management Plan	
To reduce construction-related greenhouse gas emissions, the following measures shall be implemented. **Mitigation Measure GHG-1**: On-site material hauling shall be performed with trucks equipped with on-road engines to the extent practicable. **Mitigation Measure GHG-2**: Limit deliveries of materials and equipment to the site to off-peak traffic congestion hours to the extent practicable.	Contractor Contractor	During construction During construction	Construction Monitoring Report Construction Monitoring Report	

Mitigation Measure	Monitor	Schedule	Compliance Action	Verification of Compliance (Date/Notes)
Mitigation Measure GHG-3: Restrict material hauling on public roadways to off-peak traffic congestion hours to the extent possible. During construction scheduling and execution minimize, to the extent possible, uses of public roadways that would increase traffic congestion.	Contractor	During construction	Construction Monitoring Report	
Mitigation Measure GHG-4: Use high-efficiency lighting and Energy Star-compliant heating and cooling units. Implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.	Contractor	During construction	Construction Monitoring Report	

Table 2
Project Design Feature (PDF) Checklist

Project Design Feature ID	Design Features	Purpose	Timing	Implementation Responsibility
	General			
PDF-1	Implement a public information program to assist nearby residents in understanding the purpose of the project and disseminate pertinent project information.	Reduce impacts related to land use incompatibilities.	Prior to and during construction	SELC
PDF-2	Maintain project website with current construction schedule.	Ensure timely public notification; minimize land use conflicts.	During construction	SELC
PDF-3	Conduct fueling and/or maintenance activities at designated staging areas and designated fueling areas, and prepare a Spill Prevention, Control, and Countermeasure plan for hazardous spill containment.	Minimize safety hazards associated with release of hazardous materials.	During construction/ Maintenance	Contractor
PDF-4	Stake construction areas and no construction zones. Limit construction equipment and vehicles to within these limits of disturbance.	Protect sensitive habitat areas; reduce public safety hazards.	During construction/ Maintenance	Contractor
PDF-5	Restrict access to portions of lagoon trails and beaches to maintain public safety.	Reduce risks to public health and safety.	During construction/ Maintenance	Contractor
PDF-6	Maintain alternative access to beaches adjacent to placement sites, portions of trails not under active construction, and the Nature Center.	Minimize impact on public access.	During construction	Contractor
PDF-7	Shield and direct night lighting toward nonsensitive lagoon areas or the ocean and away from residences and habitat.	Minimize effects on residents and sensitive species.	During construction/ Maintenance	Contractor
PDF-8	Equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers.	Minimize noise impacts.	During construction/ Maintenance	Contractor
PDF-9	House exposed engines on dredging equipment to the greatest extent possible.	Minimize noise impacts.	During construction/ Maintenance	Contractor
PDF-10	Contractors will maintain equipment and vehicle engines in good condition and properly tuned per manufacturers' specifications. Idling time for construction equipment will be minimized, as appropriate.	Minimize air quality impacts and greenhouse gas (GHG) emissions.	During construction/ Maintenance	Contractor

Project Design Feature ID	Design Features	Purpose	Timing	Implementation Responsibility
PDF-11	All storage, handling, transport, emission, and disposal of hazardous materials will be in full compliance with local, state, and federal regulations (Health and Safety Code, Division 20, Chapter 6.95, Article 2, Section 25500-25520)	Avoid impacts associated with hazardous materials.	During construction/ Maintenance	Contractor
	Lagoon Restoration			
PDF-12	Utilize continuous construction, with internal phases to (1) restrict vegetation clearing and grubbing to outside the breeding season (February 15–September 15) (2) limit active construction to two basins at a time (excludes construction of Coast Highway 101).	Minimize impacts to sensitive wildlife species and their habitats.	During construction	Contractor
PDF-13	Have Biological Monitor, experienced with each of the listed species, on-site during construction; frequency may vary depending upon activity but could be daily during breeding season. If California gnatcatcher nests are found and need to be inspected, or if California gnatcatcher calls are required for survey efforts, a Biological Monitor with section 10a1a certification will be used. While clearing and grubbing activities are occurring, walk along the impacted habitat ahead of machinery in an effort to flush the birds and other wildlife.	Confirm implementation of biological permit conditions, design features, mitigation measures, and applicable construction specifications.	During construction	Qualified biologist
PDF-14	Remove sources of impounded water resulting from construction equipment (if any) and confirm compliance with construction specifications regarding no ponding. At the discretion of the Biological Monitor, release water controls during construction as needed to enable tidal exchange and circulation.	Minimize vector breeding opportunity during construction.	During construction	Qualified biologist/Contractor
PDF-15	Ensure no encroachment into sensitive “no construction” zones. Visually inspect construction equipment prior to use for evidence of soils or other material that might contain invasive species. Examine equipment history to ascertain if the equipment has been involved in work within areas known to contain invasive species.	Minimize the potential to introduce aquatic invasive species into the site.	During construction	Qualified biologist

Project Design Feature ID	Design Features	Purpose	Timing	Implementation Responsibility
PDF-16	Prior to initiating construction, identify sensitive “no construction zones” and fence or flag those areas	Minimize impacts to sensitive habitat areas.	Prior to construction/ Maintenance	Qualified biologist/Contractor
PDF-17	Initiate flooding of habitat areas outside of the breeding season. If flooding is reduced and required again within the same year, reinitiation of flooding will occur outside the breeding season as well.	Minimize impacts to breeding bird nests and nesting activity.	During construction	Contractor
PDF-18	Clear and grub activities will occur in sensitive habitats in flooded areas. If clear and grub is required in dry conditions, a qualified biological monitor will walk ahead of the impact area to flush birds and other wildlife if conditions are appropriate and safe.	Minimize impacts to resident bird species and sensitive wildlife species.	During construction	Contractor/Qualified biologist
PDF-19	Controlled inundation will be used prior to clearing and grubbing in low- and mid-marsh habitat to actively encourage wildlife to relocate from vegetation to be cleared to adjacent nonimpacted habitat. After at least 24 hours of consistent inundation, grubbing of vegetation within the grading footprint will occur while still inundated to minimize the likelihood of contacting marsh birds.	Minimize impacts to resident marsh bird species.	During construction	Contractor
PDF-20	Site staging areas and access roads at existing access points and previously disturbed areas, where feasible.	Minimize impacts to intact habitat and reduce site preparation requirements.	Final design	Engineer
PDF-21	Prepare a targeted habitat enhancement plan for light-footed Ridgway’s rail and Belding’s savannah sparrow. Enhancement activities will be identified to minimize impacts to these species during construction. Activities will include fencing, public signage, selective vegetation removal (i.e., invasive species or native species not preferred by Belding’s savannah sparrow), nesting platforms, perch removal, predator trapping/control, and other techniques to minimize predation and encourage nesting of the species. The plan will be finalized in conjunction with the permitting and approval process for the project in order to incorporate agency and permit conditions. Due to these timing constraints, final plans will not be completed prior to issuance of the Final	Minimize impacts to light-footed Ridgway’s rail and Belding’s savannah sparrow.	Final design;	Qualified biologist, with approval of the Corps and County.

Project Design Feature ID	Design Features	Purpose	Timing	Implementation Responsibility
	EIR/EIS, but will be completed prior to project implementation.			
PDF-22	Implement targeted habitat enhancement plan for light-footed Ridgway's rail and Belding's savannah sparrow, specifically within designated refugia areas and other suitable habitat not directly impacted by construction activities.	Provide refugia and promote nesting by light-footed Ridgway's rail and Belding's savannah sparrow during construction in areas not directly impacted by construction activities.	During construction, prior to impacting suitable habitat areas	Qualified biologist
PDF-23	Consult with resource agencies, including USFWS, on final nesting area design during the permitting process.	Encourage nesting of special-status species.	Prior to construction	Qualified biologist
PDF-24	Where practicable, invasive species will be removed by hand or hand tools rather than chemical means. When necessary, herbicide application will be conducted by personnel with a California Department of Pesticide Qualified Applicators Certificate (QAC) or by personnel under the supervision of a person with a California Department of Pesticide Qualified Applicators License (QAL). All herbicide applied will be consistent with the label, as well as state and local regulations. Any herbicide used will be approved for use in an aquatic environment (i.e., AquaNeat®) as the entire restoration area is within the confines of the lagoon. Herbicide application will be conducted using backpack sprayers and will consist of spot spraying nonnative plant species. Herbicide application will be conducted using methods that limit overspray to adjacent native plant species and will be discontinued when wind speeds are higher than the designated label standard or above 10 miles per hour.	Reduce overspray and drift of herbicides to nontargeted species and areas.	During and after construction	Contractor
PDF-25	Prepare a Storm Water Pollution Prevention Plan (SWPPP). Prepare a Storm Water Management Plan (SWMP), a Hydromodification Management Plan (HMP), and Low Impact Development (LID) best management practices in compliance with the County MS4 Permit. The SWPPP and SWMP must be approved by the County and City of Encinitas as	Prevent pollutant discharge.	Prior to construction	Prepared by QSD certified Contractor

Project Design Feature ID	Design Features	Purpose	Timing	Implementation Responsibility
	appropriate prior to approval of associated grading plans to confirm that the limits of disturbance will be maintained within the identified footprint.			
PDF-26	Implement best management practices in compliance with SWPPP, SWMP, HMP and LID.	Prevent pollutant discharge.	During construction and future maintenance activities	QSP certified Contractor on-site
PDF-27	Actively manage turbidity by using a cutterhead dredge and/or temporarily closing the lagoon inlet.	Minimize release of disturbed sediment to the coast.	During construction	Contractor
PDF-28	Cap overdredge pit with sand material to encapsulate material and prevent it from being introduced into the water column or released into the environment.	Minimize sedimentation, turbidity, and potential release of contaminants.	During construction	Contractor
PDF-29	Coordinate with the utility service provider for relocating and/or avoiding utilities infrastructure.	Reduce and/or avoid impacts to existing utilities infrastructure.	Prior to construction	SELC and Contractor
PDF-30	Coordinate with affected utility service provider in the event relocation is required or if maintenance needs for agency-owned structures are identified during SELRP monitoring activities.	Minimize utility service disruptions.	During construction/ Maintenance	Contractor
PDF-31	Near Solana Beach sewer pipe or other utilities to be left in place, require dredging and excavation activities to stay above the minimum cover required by the utilities' owner.	Avoid impacts to existing utilities and infrastructure.	Prior to and during construction	Contractor
PDF-32	Coordinate with NCTD regarding phasing and timing to minimize impacts to the railroad during construction.	Avoid impacts to existing utilities and infrastructure.	Prior to and during construction	Contractor
PDF-33	Equipment fueling and maintenance will occur at the designated staging areas and designated fueling areas away from publicly accessible areas.	Ensure public safety.	During construction/ Maintenance	Contractor
PDF-34	During off working hours, secure heavy equipment and vehicles in staging area.	Ensure public safety.	During construction/ Maintenance	Contractor
PDF-35	Provide fire suppression equipment on board equipment and at the worksite.	Reduce fire hazard risks.	During construction/ Maintenance	Contractor
PDF-36	Require heavy equipment operators to be trained in appropriate responses to accidental fires.	Reduce fire hazard risks.	During construction/ Maintenance	Contractor

Project Design Feature ID	Design Features	Purpose	Timing	Implementation Responsibility
PDF-39	Channel bank and bridge abutment protection will be installed along the inlet channel and at bridge crossings (Coast Highway 101, NCTD railroad, and I-5) to protect channels and structures from erosion during severe storm flow events. Rock armoring will be placed directly along the toe of bridge abutments and will "wrap" around the end of the earthen berms supporting each bridge. Bridge protection will be designed in accordance with design standards of bridge owners (and placed as part of new bridge structures, as applicable).	Minimize erosion and undermining of channels and structures.	During and post-construction	Engineer and SELC
PDF-40	Monitor shoal development semi-annually and remove during regular maintenance or as-needed.	Maintain tidal exchange.	Maintenance	SELC
PDF-42	Temporary speed limit reduction for the traffic detour approaches and exits will conform to safe highway design speeds.	Ensure public safety.	Prior to construction	Contractor
PDF-43	Maintain two-way circulation on public roadways and access to neighboring commercial establishments during project construction.	Minimize traffic conflicts and access issues.	During construction	Contractor
PDF-46	All temporary facilities used for contractor activities will be returned to either original or enhanced conditions upon completion of the project to the greatest extent possible, if not needed for future maintenance activities.	Minimize land use conflicts and access issues.	Post-construction	Contractor
PDF-47	Restore North Rios, Solana Hills, and Santa Inez trails and access to them to pre-project conditions after completion of construction use.	Minimize recreational conflicts and access issues.	Post-construction	Contractor
PDF-49	Complete Letter of Map Revision (LOMR) to formally modify the Flood Insurance Rate Map (FIRM) and/or Flood Boundary and Floodway map (FBFM), as required by City of Encinitas and FEMA.	Document revised floodway/floodplain boundaries.	Post-construction	Engineer and Contractor
PDF-50	Channels and infrastructure improvements (Coast Highway 101/inlet, railroad trestle, or I-5 bridge) will be reviewed by the County, Caltrans, City of Solana Beach, and City of Encinitas as appropriate prior to approval of associated grading plans.	Ensure structural integrity of proposed structures.	Prior to and during construction	Engineer and Contractor

Project Design Feature ID	Design Features	Purpose	Timing	Implementation Responsibility
	Materials Disposal/Reuse			
PDF-51	Construct longitudinal training dikes at sand placement sites.	Reduce nearshore turbidity.	During construction	Contractor
PDF-52	Release material at offshore stockpile and nearshore sites close to the ocean floor (e.g., directly from a subsurface pipe or via a vertical pipe extending from the barge downward toward the ocean floor).	Reduce drop height, settling time (and potential sand drift and loss), and surface turbidity at offshore (SO-5 and SO-6) and nearshore (off Cardiff) sites.	During construction	Contractor
PDF-53	Monitor water quality per RWQCB 401 Certification; if outside parameters then implement operational controls or halt materials placement, as necessary.	Verify permit compliance.	During construction as per RWQCB 401 Certification	Qualified biologist
PDF-54	Place material around storm drain outlets to allow continuation of proper drainage.	Continue proper drainage.	During construction	Contractor, in coordination with City Engineer
PDF-55	Conduct underwater survey of proposed anchoring, monobuoy, and routes of sinker discharge pipeline to verify absence of sensitive hard-bottom habitat; if found, relocate to avoid impacts.	Avoid direct impacts to sensitive hard-bottom habitats.	Prior to and during construction	Qualified biologist
PDF-56	Design offshore and nearshore placement sites to avoid artificial reefs, kelp, and other hard-bottom features to the satisfaction of the Corps. Provide a minimum 500-foot buffer zone from kelp beds and potential kelp habitat.	Avoid direct impacts to kelp and sensitive hard bottom habitats.	Final engineering and during materials placement	Engineering contractor and construction contractor
PDF-57	Assess habitat suitability for grunion spawning prior to construction, if construction is to occur during the spawning season. During the grunion spawning period of March through August, all proposed sand disposal sites will be monitored for grunion runs concurrently, unless the beach consists of 100% cobble (i.e., there is not sand on the beach). Grunion monitoring will be conducted by qualified biologists for 30 minutes prior to and 2 hours following the predicted start of each spawning event. If a grunion run consisting of more than 100 fish is reported, the biologist will coordinate with the resource agencies to determine appropriate avoidance	Minimize impacts to grunion.	March through August and per CDFW annual pamphlet *Expected Grunion Runs* (CDFG 2010a)	Qualified biologist

Project Design Feature ID	Design Features	Purpose	Timing	Implementation Responsibility
	and minimization measures (e.g. relocation/rescheduling of work/equipment or specification of acceptable vehicle routes).			
PDF-58	A Marine Mammal and Turtle Contingency Plan will be prepared prior to construction approved by National Marine Fisheries Service. A pre-construction contractor training will be conducted by a qualified biologist to educate workers with respect to protected marine species and avoidance measures required by the contingency plan. Monitoring during construction will include marine mammal observers on project vessels who will notify the vessel operator if a protected marine species is in the vicinity.	Reduce interactions between vessels and protected marine species.	Prior to initiation of construction and during construction	Qualified biological
PDF-59	Coordinate barge operations with the U.S. Coast Guard (USCG).	Minimize restricted areas/durations to maximize fishing opportunities.	Prior to initiation of construction and during construction	Contractor
PDF-60	Clearly mark pipelines used during materials transport (including offshore stockpiling efforts), including both floating and submerged, as “navigational hazards.”	Warn recreational users of water-based activities to ensure safety and avoidance.	Before and during activities in the ocean	USCG (via construction contractor)
PDF-61	Issue Notice to Mariners and maintain 300-foot buffer around monobuoy.	Warn recreational users of water-based activities to ensure safety and avoidance.	Before and during activities in the ocean	USCG (via construction contractor)
PDF-62	Designate a 300-foot buffer around the lane designated for barges to use to reach disposal/reuse sites and track actual routes. Employ Global Positioning System (GPS) tracking on barges to track disposal activity.	Minimize gear loss and fishing conflicts.	During construction	Contractor
PDF-63	Restrict public access at sand placement sites, both on the beach and in the nearshore ocean adjacent to the pipeline and monobuoy	Public safety during construction.	During construction	Contractor, in coordination with local lifeguards
PDF-64	Temporarily relocate mobile lifeguard towers, if necessary	Ensure public safety during construction.	During construction	Contractor, in coordination with local lifeguards

Project Design Feature ID	Design Features	Purpose	Timing	Implementation Responsibility
PDF-65	Place sand to avoid blocking line-of-sight at permanent lifeguard towers. All sight lines from the viewing platforms of the lifeguard towers will be maintained and there will be no interference with views for the lifeguards.	Ensure public safety during construction.	During construction	Contractor, in coordination with local lifeguards
PDF-66	Post signs advising the public of the presence of steep sand slopes (e.g., scarps) should they develop on beaches where sand is being placed.	Reduce risks to public health and safety.	During construction	SELC in coordination with Marine Safety departments in the cities of Encinitas, Solana Beach, and San Diego
PDF-67	Prior to opening areas of beach with placed materials, spread the material and check it for potential hazards (e.g., foreign objects in the sand).	Reduce risks to public health and safety.	During construction	Contractor
PDF-68	Coordinate the schedule at individual materials placement site to the extent possible to avoid major holidays and special events.	Minimize land use and recreation conflicts.	During construction	SELC
PDF-69	Dedicated parking lots will be identified for employee parking during peak beach attendance to minimize effects to public parking availability, as necessary. A shuttle will likely be necessary for some of the more distant lots.	Maintain public beach access.	During construction	Contractor
PDF-70	Maintain horizontal access along the back beach where adjacent vertical access is not available. Where horizontal access is limited, (e.g., where a wet beach directly abuts bluffs), vertical access will remain to allow public access on either side of the active sand placement area as long as public safety is not compromised.	Maintain public beach access.	During construction	Contractor
PDF-71	Cover discharge pipeline with sand at consistent intervals to facilitate access from the back beach to the water.	Maintain public beach access.	During construction	Contractor

Project Design Feature ID	Design Features	Purpose	Timing	Implementation Responsibility
PDF-72	Notify residents at least 1 week in advance of nighttime construction work within 100 feet of residences; Restrict construction work to no longer than 3 consecutive nights within 100 feet of a specific residence where sleep disturbance may occur.	Notify residents of nighttime noise.	During construction	Contractor
PDF-73	Conduct surf condition monitoring in areas with placement of sand to verify the modeling results and document any changes in coastal conditions.	Ensure no adverse changes to coastal conditions.	Prior to, during, and following construction activities	SELC and Engineer
PDF-74	Conduct sand placement at the Torrey Pines placement site outside of the bird breeding season (April 1 through September 15, or after August 1 with confirmation of cessation of nesting). Sand placement at Cardiff placement site may happen year round. However, at both placement sites, monitoring shall be conducted during sand placement to avoid impacts to foraging snowy plover. Should foraging plover be present, the monitor will direct sand placement away from the foraging plover to allow time for the bird(s) to leave the site. In addition, night lighting shall be shielded and directed away from the back beaches. Should nesting plover be detected, a buffer around the nest would be established in consultation with the wildlife agencies and sand placement directed away from the nest.	Minimize impacts to snowy plover at placement sites.	During materials placement.	Qualified biologist