Note: some unnecessary figures have been removed. To see all figures, see original JARPA application.

# Box 7 Attachment – Project Description

## Site Overview and Location

The 2,327-acre Sears Point property (project area) is located in southern Sonoma County, just north of San Pablo Bay (Figure 1-1). The project area is near the intersection of Lakeville Highway-Reclamation Road and State Route 37 (Highway 37). A portion of the Northwestern Pacific Railroad (NWPRR) line, which is presently owned by Sonoma-Marin Area Rail Transit (SMART) District, traverses the project area from west to east and the alignment transitions north near the project's eastern boundary. Although the rail line was inactive for several years, the North Coast Railroad Authority (NCRA) resumed freight service in 2011 on the alignment as part of an existing Operating Agreement with SMART, though maintenance crews began upgrading the rail line in late 2007 (Kleinfelder 2007).

The project area is comprised of two large properties, the North Point Joint Venture (NPJV) parcel and the Dickson Ranch parcel, which are situated on the edge of San Pablo Bay between the mouth of the Petaluma River and Tolay Creek. Sonoma Land Trust acquired the Dickson Ranch and NPJV properties in late 2004 and early 2005. This land was purchased by SLT using funds from several sources with the requirement that the land would be used to protect and restore sensitive species habitat. Since 2004, SLT has held title to the Sears Point properties while it conducts restoration planning. SLT's wetland restoration planning has been guided in part by the requirements and management policies and objectives of the properties' future long-term landowners, California Department of Fish and Game (CDFG) and the US Fish and Wildlife Service (USFWS). Based on the each agency's respective management policies and the potential to achieve management efficiencies with adjacent properties, CDFG and USFWS have agreed to split future ownership and management.

The 1,679-acre NPJV parcel extends both north and south of Highway 37. It is bounded on the north by the Infineon Raceway property, on the east by Cougar Mountain (north of Highway 37) and Paradise Vineyards (south of Highway 37), on the south by the SMART rail line, and on the west by Lakeville Highway-Reclamation Road. The 648-acre Dickson Ranch parcel is located entirely south of Highway 37, and is bounded on the north by the SMART rail line, on the east by Tolay Creek, on the south by San Pablo Bay, and on the west by an existing levee at Sonoma Baylands, a restored tidal marsh held by the California State Coastal Conservancy.

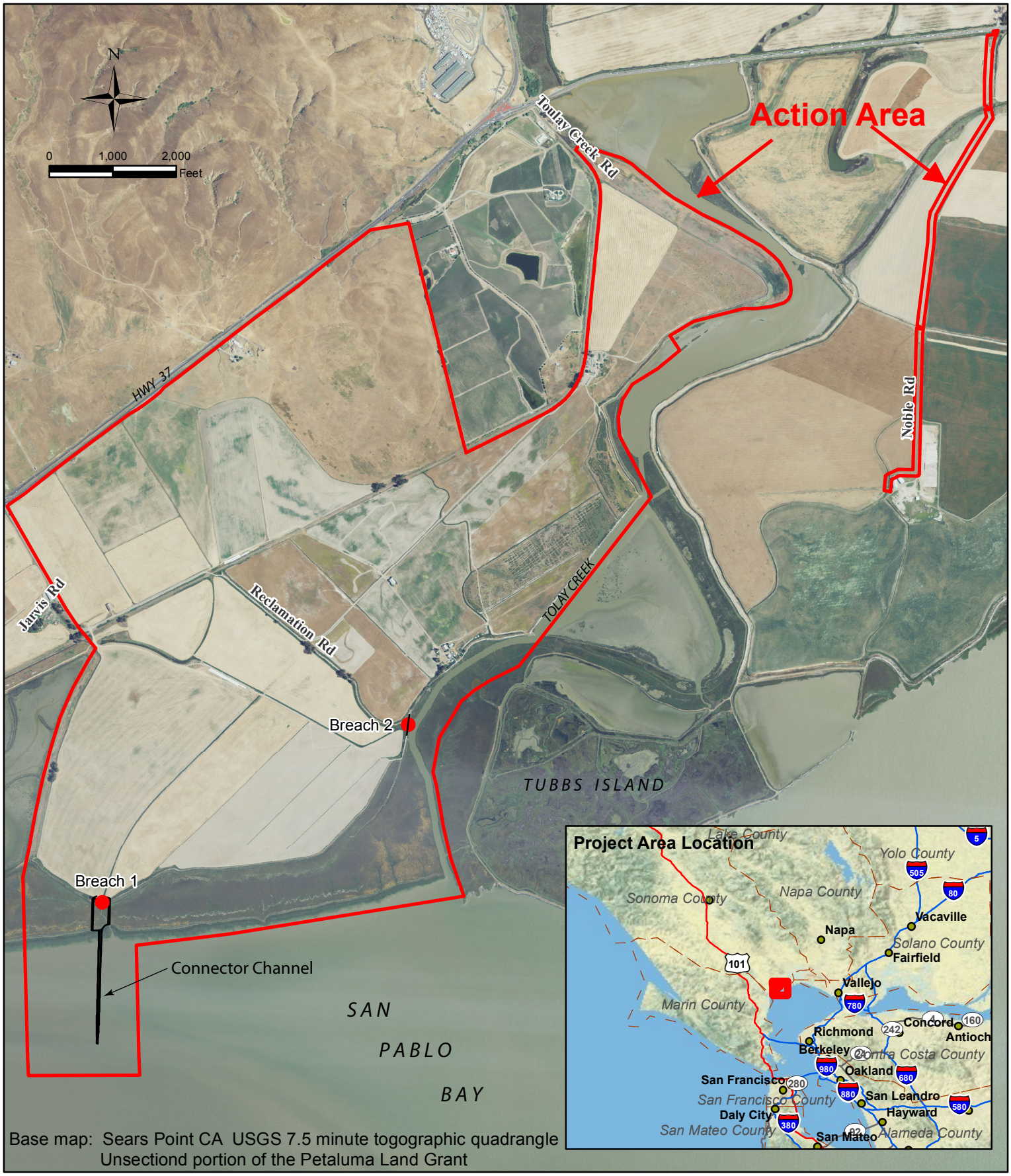
Site topography ranges from below mean sea level in portions of the subsided diked baylands along the southern project boundary to approximately 400 feet above mean sea level (msl) in the uplands north of Highway 37. With the exception of a small number of barns, houses, and outbuildings scattered throughout the project site, the area is predominantly undeveloped diked agricultural baylands, comprising a mixture of, tidal marsh, seasonal wetlands, streams, and upland habitats.

## Description of the Proposed Action

This section describes the components of the proposed action, the expected construction schedule, and equipment to be used. The proposed action includes dredging, breaches, and Bay Trail alignments.

### Project History

Since 2004, SLT has conducted extensive, on-site data collection in support of a multi-stakeholder-driven wetlands and watershed restoration plan, culminating in the proposed action. The proposed action builds




Base map: Sears Point CA USGS 7.5 minute togographic quadrangle
Unsectiond portion of the Petaluma Land Grant

**Figure 1-1**
**Sears Point Wetlands and Watershed Project Action Area**

upon and refines information presented in the previously released Conceptual Restoration Plan (Wetlands and Water Resources 2005b), Draft Preliminary Restoration Plan (DPRP) (Wetlands and Water Resources 2006), Final Preliminary Restoration Plan (FPRP) (Wetlands and Water Resources 2007), and several other related planning efforts.

After developing the Conceptual Restoration Plan, DPRP, and FPRP, SLT selected one of several alternatives, the Partial-Tidal Alternative. This alternative will restore tidal marsh to the southern portion of the site (south of the rail line) and retain agriculture and pasture between the rail line and Highway 37 with improved practices to promote seasonal wetlands.

## Components of the Proposed Action

The proposed action is based on the Partial Tidal Alternative presented in the Sears Point Wetlands and Watershed Restoration Project Final Preliminary Plan (Wetlands and Water Resources 2007).

The proposed action would:

- restore approximately 955 acres of tidal marsh;
- preserve and enhance a 106-acre area of non-tidal seasonal wetland while maintaining existing agriculture between the SMART line and Highway 37; and
- provide public recreation access south of Highway 37.

Figure 2-1 shows an overview of the proposed action for reference. Figure 2-2 shows a more detailed view of the components for the proposed action. Project design is being coordinated with Marin Sonoma Mosquito and Vector Control District (MSMVCD) to develop strategies to reduce site suitability for mosquito breeding; with Sonoma Marin Area Rail Transit (SMART), North Coast Rail Authority (NCRA), and Public Utilities Commission (PUC) for any project elements within the railroad right of way (ROW); with Sonoma County for elements associated with Reclamation Road; and with California Department of Transportation (Caltrans) for any construction adjacent to Highway 37 in the Caltrans ROW.

The following sections summarize the major restoration components of the Proposed Project. For convenience, these are separated by geographic segment (i.e., south of railroad and railroad to Highway 37).

## South of Railroad – Tidal Marsh

### New Levee

A levee with a design height of +12 feet (ft) North American vertical datum of 1988 (NAVD) and an initial top elevation of +12 to +15.8 feet NAVD, as described below, would be constructed south of and parallel to the SMART rail line to separate the nontidal and tidal habitats.(Note: the levee would be constructed to elevations above the design height to account for settlement, except in locations where projected settlement is minimal based on geotechnical analysis.) The levee structure would be constructed entirely outside of the SMART rail line right of way. The levee would consist of three parts: a “core” levee, geotechnical stability berms, and erosion protection/habitat slopes. These components are described in more detail below. Conceptual levee designs are shown in Figure 2-3.

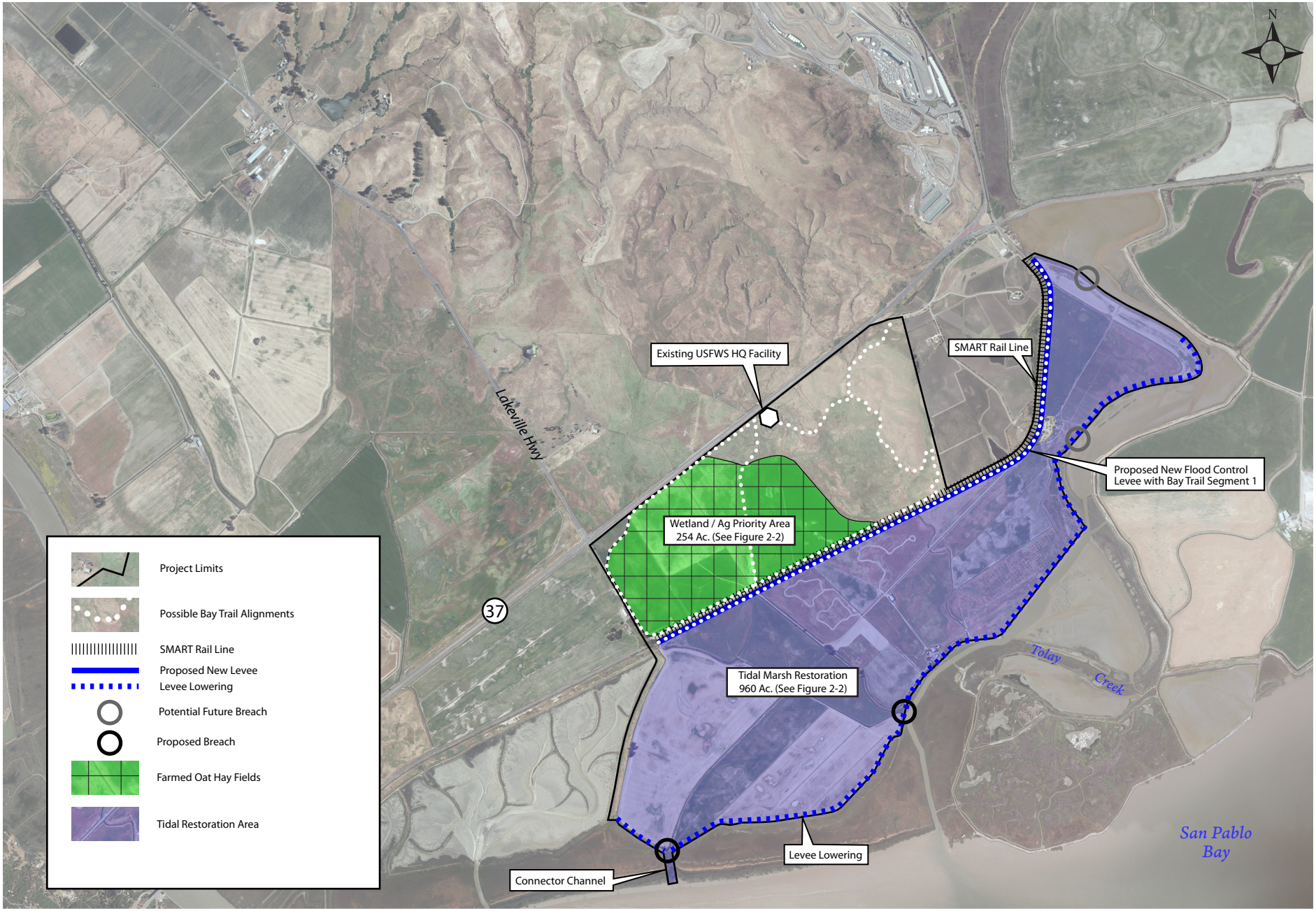



**Figure 2-1**
**Overview of Proposed Project**

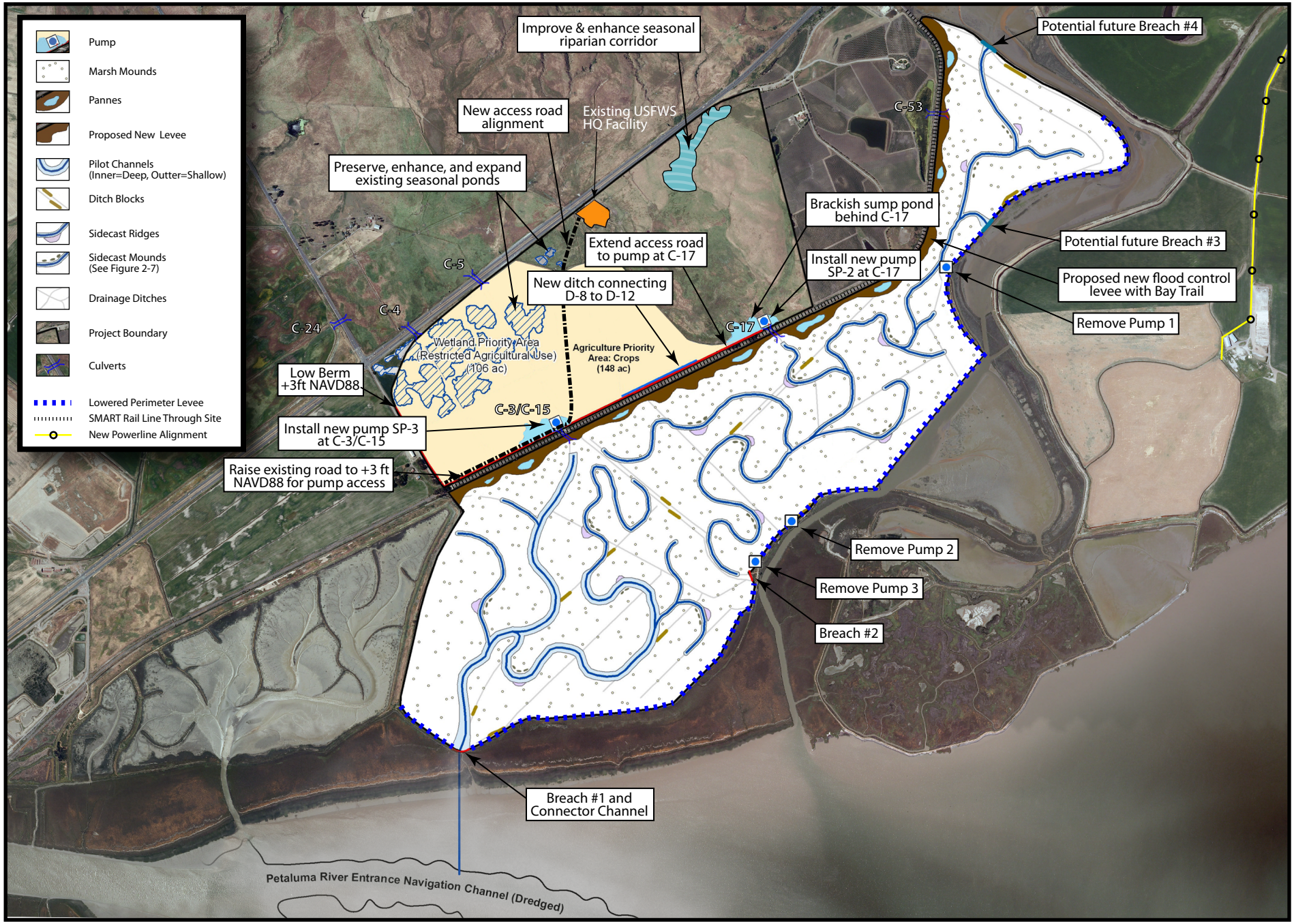
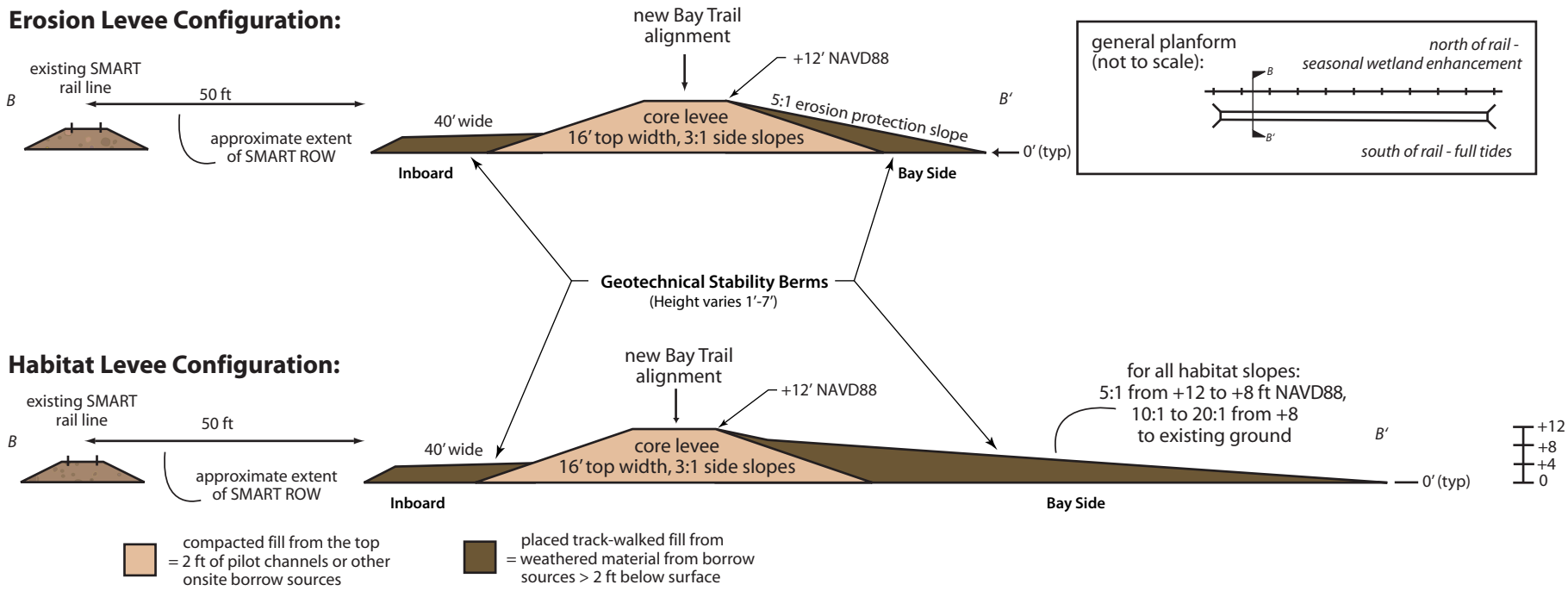



Figure revised by DU, February 2012

**Figure 2-2**
**Detailed View of Proposed Action**




WETLANDS AND WATER RESOURCES, INC.

Figure revised by DU, October 2011

**Figure 2-3**
**Project Levee Configurations**

The design height selected is equal to the design height of the adjacent Sonoma Baylands levee, with a more gentle outboard slope to dissipate wave energy and provide marsh/upland transition habitat. The dominant soil type, bay mud, is a weak and highly compressible material and varies in depth along the levee alignment. Levee construction will place a load on the foundation soils causing them to compress in relation to their depth. To account for settlement, the new levee would be constructed to initial elevations at or above the design height (approximately +12 to +15.8 NAVD),. The design height accounts for the current 100-year flood elevation combined with wave run-up and freeboard. At 50 years the new levee is expected to settle to an elevation equal to the 100-year flood level adjusted for sea level rise. During this time sediments would be expected to have accreted throughout the interior of the site to a height sufficient to support tidal marsh vegetation and limit wave run-up. There are a broad range of projections for rates of sea level rise in the future and a large degree of uncertainty surrounding the projections based on the current state of the science (U.S. National Research Council 2010). In order to address this uncertainty, the new levee has been designed to facilitate any potential future maintenance activities to raise the crest elevation.

A stormwater pollution prevention plan (SWPPP) would be prepared for the project during the construction phase in order to comply with requirements of applicable permits under the NPDES program. Compliance with permit conditions is designed to prevent unacceptable erosion during construction and accelerated erosion following construction.

**Core Levee**

The proposed core levee would be comprised of bay muds and alluvial soils, and would be designed to greatly reduce the potential for cracking. It would have 2:1-3:1(horizontal:vertical) side slopes and would serve as the primary impervious layer for seepage control. The top width of this levee would be 12 feet to allow for construction of a combined Bay Trail/maintenance roadway, provide flood protection, and serve as a wide foundation to allow potential future levee improvements.

The construction of the approximately 13,000-foot long core levee would require placing approximately 500,000 cubic yards (CY) of approved alluvial/Bay Mud fill. This fill would primarily be provided from the near surface excavation of on-site pilot tidal channels. Adjacent project areas may also serve as borrow areas to obtain the needed quality and quantity of levee fill and construct other tidal features detailed below.

Prior to constructing the levee, the footprint would be cleared and grubbed and a seepage cutoff trench approximately four feet wide and deep would be excavated along its length. The material from this trench would be removed and then recompacted to backfill the trench. The purpose of the cut-off trench is to intersect any fissures in the foundation soils that may allow water seepage through the core. The equipment used to construct these levee features would typically include bulldozers, excavators, off-road trucks, scrapers, loaders, compacting rollers, and water trucks. The long term levee management plan would include periodic levee inspections, no less frequently than annually, by qualified personnel to inspect for erosion and other potential failures.

**Geotechnical Stability Berms with Erosion Protection/Habitat Slope**

Geotechnical stability berms would be located on the inboard (landward) and outboard (bayward) sides of the flood control levee core to stabilize the core levee weight and foundation material. Fill for stability berms would consist of on-site material, including Bay Mud material too wet to be used for the core levee. The width of the inboard stability berm would be 40 feet and would vary from 1 to 7 feet in height depending on the depth of the underlying Bay Mud. Soils required for long-term levee maintenance could be borrowed from the inboard geotechnical stability berm in the future. The equipment used to construct these levee features would likely be the same equipment used for the core levee discussed above. However, these features could use wetter material and have lower compaction requirements than the core

levee, therefore requiring less compaction equipment and water trucks. The material for the stability berms and erosion protection/habitat slopes could be taken from the lower portions of the pilot channels and/or adjacent project areas.

An erosion protection/habitat slope would be constructed on the outboard (bay side) of the levee. The equipment used to construct this levee feature would likely be the same equipment used for the core levee. This levee feature would also not be compacted as densely as material in the levee core and would not require specific moisture-conditioned fill. Potential levee configurations are described below.

- The "erosion slope" would have a 5:1 slope from the top of the levee to the existing ground surface to protect the raised tracks from erosion and wind-waves. Construction of the geotechnical stability and erosion berms would require placement of approximately 110,000 CY of material excavated from the deeper portions of the pilot tidal channels. This configuration minimizes fill placement while still allowing for a gradual transition between the tidal marsh and the upland edge of the levee.
- The habitat slope would have a 5:1 slope from the levee top down to an approximate elevation of +8 feet NAVD. Below +8 feet NAVD, the levee slopes would range from 10:1 to 20:1. If sufficient material is available and funding allows, the 10:1 to 20:1 levee slopes would be continued to the levee crest. Construction of the geotechnical stability berms with erosion/habitat slopes would require placement of approximately 205,000 CY of material excavated from the deeper portions of the pilot tidal channels. In selected wide areas of the habitat slope, as designated during final design, depressions would be created at elevations ranging from mean higher high water (MHHW) to elevations that would be flooded during extreme high tides. These depressions would be scraped to depths of 0.5-1 foot and may be enclosed with a low berm less than 1 foot in height. The depressions would be flooded by tides and by rainfall, forming high marsh pannes. The long axes of pannes would be roughly aligned with west winds, if feasible, and/or the pannes themselves would be of sufficient size to ensure they experience sufficient wind-wave turbulence to inhibit mosquito production.

**Stockpiled Soil for Future Levee Maintenance**
Approximately 30,000 CY of soil may be needed for future levee maintenance (i.e., capping or crowning) due primarily to foundation settlement. This material would likely be excavated as part of pilot tidal channel excavation or other on-site borrow and would likely be stockpiled on the inboard geotechnical stability berm near the levee crest for ease of future levee maintenance and to reduce potential future habitat disturbance. Another potential source for this material would be stockpiled materials obtained from the lowered perimeter levees, as discussed below.

**Lead Contaminated Soil**
Approximately 12,000 CY of lead contaminated surface soils are located on the eastern portion of the tidal restoration site at the Black Point Sports Club. Consistent with a Corrective Acton Plan approved by the San Francisco Regional Water Quality Control Board (SFRWQCB), this material would be remediated by being encapsulated in geotextile fabric and covered by at least 3 feet of clean on-site soils within the habitat slope to prevent migration of contaminants. Because the soil must be encapsulated in geotextile fabric, it would not be placed into the core levee. Dust control methods would be utilized during construction to prevent soil migration and standard SWPPP Best Management Practices would be implemented to prevent runoff. The new levee would be designed to minimize the potential for erosion and the resulting risk of exposing the encapsulated material.

## Lowering of the Existing Outboard (Perimeter) Levee

Up to 6,850 feet of the existing perimeter levee along San Pablo Bay would be lowered to elevations between MHHW and 1 foot above MHHW from existing heights of about 10 to 11 feet NAVD (Figure 2-4a) to create additional habitat for high marsh plants such as gumplant, coyote bush, and other native species that are dependent upon infrequent tidal inundation. To the extent feasible, invasive upland weed species that currently exist on the levee tops such as *Lepidium* would be eliminated. Grading the levee to this elevation would create conditions suitable for native vegetation colonization which would provide high-tide habitat (refuge) for wildlife such as salt marsh harvest mouse and California clapper rail. An additional 19,150 feet of the existing perimeter levee along San Pablo Bay and Tolay Creek will be graded. The levee will be slightly lowered to elevation 10 NAVD or less and be left with a 3 ft top width.

Some of the soil may be used for onsite construction activities; the majority of the soil would likely be pushed into the drainage ditch at the inboard toe of the perimeter levee being lowered or sidecast into the project site to create topographic diversity. Levee lowering could be conducted with tracked excavators and off-road trucks or scrapers and bull dozers. Approximately 40,000 CY of soil would be generated by lowering the perimeter levee. Any excess material generated from levee lowering (i.e., material not required to fill the drainage ditch) or other onsite construction activities may be added to the inboard slope of the lowered perimeter levee to create additional habitat and provide further erosion protection.

## Levee Breaches

Up to four breaches would be utilized in the existing outboard levee to restore the area to full tidal marsh. Breaches 1 and 2 would be excavated during the initial restoration phase (see Figure 2-2). These breaches are included in the proposed action. This option was studied by Moffatt & Nichol in the supplemental hydrodynamic analysis as Scenario 9b (M&N 2011). Up to two additional breaches (Breaches 3 and 4), as described by Moffatt & Nichol Scenario 7 (M&N 2008) may be installed in the future as adaptive management if it is deemed that connectivity with Tolay Creek would be beneficial, and/or to improve circulation within Sears Point. Breaches 3 and 4 are not included as part of the proposed project being evaluated at this time but described here for completeness. Excavated materials from Breaches 1 and 2 would be used to fill the adjacent drainage ditch or placed on the inboard side of the perimeter levee to create additional habitat. Breach 1 would be located on the southernmost part of the tidal restoration area and would connect the site to San Pablo Bay through a connector channel excavated through the perimeter marsh and mudflats. Breach 1 would require approximately 74,000 CY of excavation, and would have an approximate top width of 285 feet at MHHW elevation, a 2 horizontal (H):1 vertical (V) side slope and a bottom elevation of -5 feet NAVD. Breach 2 would be located near the southwestern corner of the Dickson Ranch complex and connect to Tolay Creek. Breach 2 would require approximately 14,000 CY of excavation. The dimensions of Breach 2 would be identical to Breach 1 (Figure 2-4b).

Breaches 3 and 4 would be added at a later date as needed to meet habitat and species goals in coordination with the Technical Advisory Committee. Breach 3 would likely be located east of the current hunt club location and would connect to Tolay Creek. Breach 4 would likely be located on the northernmost portion of the tidal restoration area and would connect to Tolay Creek just south of the northern lagoon. Breaches 3 and 4 would most likely be smaller than Breaches 1 and 2, and would require less excavation (not more than 60,000 CY). If Breaches 3 and/or 4 are required, they would either be constructed once Caltrans has implemented improvements to protect Highway 37 from flooding at the Upper Lagoon of Tolay Creek (as a separate and independent project), or would require hardening a small portion of Tolay Creek just south of the Upper Lagoon to mute the tidal range reaching Highway 37. In the case of the latter, the narrowest point of the channel south of the Upper Lagoon in Tolay Creek would be hardened using riprap, gravel, cobble, articulated mats, or similar armoring. This would require up to

approximately 2,000 CY of material, placed along the side slopes and bottom of Tolay Creek, and cover a footprint of up to approximately 30,000 square feet.

Constructing all four breaches and the connector channel (see below) could require removing up to approximately 145,000 CY of material and disturbing a total of up to approximately 2.6 acres of tidal marsh and 2.8 acres combined of tidal mudflat and subtidal aquatic habitat. Because these small volumes of excavated materials would be highly saturated and would be difficult to transport to other areas of the project site, they could be used to construct Marsh Mounds or side cast inside the site adjacent to the breaches. The typical equipment used for this work would be an excavator or a long reach excavator. If material was hauled to other areas of the site for reuse off-road trucks would likely be used.

## Connector Channel

Dredging would be utilized to create a connector channel between Breach 1 and San Pablo Bay. The Connector Channel would be approximately 2,100 feet long, and consist of two segments. The segment through the marsh immediately outboard of the existing perimeter levee (perimeter marsh area) would be 500 feet long by 200 feet wide at the top, with a bottom elevation of -5 feet NAVD, and the second pilot channel segment through the mudflats would be 1,600 feet long by 50 feet wide at the top, also with a bottom elevation of -5 feet NAVD (Figure 2-2). The perimeter marsh could be excavated with low ground pressure land based equipment or by dredge. The pilot channel through the mudflats would require a dredge. Dredging could be conducted with either a hydraulic dredge or a clamshell dredge. An estimated total of 56,000CY of sediment would be removed from the Connector Channel. The dredged sediment is expected to be similar in quality to the material that would naturally be deposited within the site from San Pablo Bay. The preferred reuse of the material would be within the site to fill drainage ditches and construct other project elements. If the material fails to meet the criteria set by DMMO for surface placement within the site, it would be capped with a minimum of three feet of on-site material. Any decant water would be allowed to dissipate onsite.

The material would be dredged using either a clam shell or hydraulic dredge. The estimated production rate for dredging is 1,500 CY/day, resulting in a approximately 38 days of active dredging. If a hydraulic dredge is used, the pump would be limited to a maximum of a 10 inch pump (i.e. has a 10 inch outlet). Fish screens would be installed on any hydraulic offloader water intakes.

## Internal Features

Two types of interior features, pilot channels and ditch blocks, are included in the project to enhance water circulation. These features are described below, followed by a discussion of topographic features.

**Pilot Channels**
Approximately 29,500 linear feet of pilot channels south of the SMART rail line would be excavated from the diked baylands area to facilitate tidal flow between the site and adjacent waterways. Finished channel geometry would consist of a two-tiered profile with the middle half of the channel being deeper (Figure 2-4c). Channels within the proposed network would conform to two size classes: smaller distribution channels and larger trunk channels. Distribution channels would be 75 feet wide and have an invert elevation of -3 feet NAVD. Trunk channels would be 150 feet wide with invert elevations of -5 feet NAVD. Trunk channels would widen as they near breach locations, eventually equaling the breach widths.

Pilot channels would have an irregular, sinuous planform layout that emulates the channel configuration of historic tidal sloughs of similar scale on and near the project site (Figure 2-2). The channel design

would also take advantage of many pre-existing agricultural drainage channels, many of which are in the location of historic tidal sloughs. Agricultural ditches that are not part of the proposed channel network would be plugged with ditch blocks where necessary to discourage flow capture. Over time, tidal action and sedimentation would create a naturally-formed secondary network of intertidal channels extending out into the marsh plain from these pilot channels, guided by the marsh mounds and sidecast ridges

Construction of the new pilot channels would require excavation of approximately 1,100,000 CY of material. As discussed above, some of this material will be used in the new project levee; the remainder of the material would likely be used adjacent to the pilot channels to construct approximately 12 sidecast ridges and possibly marsh mounds (defined further below).

The equipment used to clear and grub the pilot channel footprint would likely be a bulldozer or scraper. Excavating the pilot channels could be done with a tracked excavator and/or scrapers. Off-road haul trucks or scrapers would be used to haul the excavated materials to the levee fill area and ridges and mounds.

Ditch blocks would consist of fills placed in existing agricultural ditches where they intersect the pilot channels and at other selected locations to prevent these existing features from becoming linear tidal channels (see Figure 2-2). Approximately 7,500 CY of material would be required for ditch blocks in the tidal wetlands area. This activity will be completed during excavation of the pilot channels.

## Topographic Features

A series of graded topographic features—including marsh mounds, sidecast ridges, sidecast mounds, and gentle habitat slopes—would be included in project design to help dissipate wind and wave energy to reduce erosion. Habitat slopes were described previously. The other features are described below and shown in Figures 2-5 through 2-8. These features would be constructed using the initial surface layer clearing and grubbing materials, a portion of the lower wet soil materials generated during pilot channel construction, and other onsite material as needed. Many of these features would also provide areas at elevations suitable for immediate vegetation colonization, which would benefit endangered species such as the California clapper rail and salt marsh harvest mouse by providing high tide refuge.

**Marsh Mounds**
Marsh mounds would consist of un-engineered piles of soil measuring approximately 10 feet in diameter and having top elevations between mean tide level (MTL) and MHHW. The mound sides would consist of gentle, dissipative slopes (7:1) that would facilitate seed spread of low marsh vegetation, buffer natural wind-wave energy, and provide minor topographic relief to otherwise flat, open tidal expanses that initially lie below the intertidal range of marsh vegetation. As such, they would establish “nurseries” or topographic oases for marsh vegetation early in mudflat-marsh succession. Additionally, the mounds would act as local seed sources and would effectively distribute vegetation throughout the marsh. The vegetation on the mounds as well as the lowered velocity of the water traveling over the mounds would enhance sediment deposition in the vicinity of the mounds. Vegetation on the higher mounds would provide important high tide refuges within the marsh. Mounds also would guide natural channel formation to some degree by promoting lateral variations in flow velocities.

As discussed above, excavated materials from the pilot channels would be used to construct marsh mounds located adjacent to these areas. Additionally, some mounds may be constructed using excavated materials from the breaches. Mounds located away from other work areas would typically be constructed by pushing adjacent soil into the desired shape with a bulldozer. Mounds near pilot channel excavations or levee lowering areas may be constructed with the soil and equipment from those operations. The

number, size, and location of these mounds have not been specifically designed at this time, and would be determined during construction based on quantity of available material and project budget. The total number will not exceed 500.

**Sidecast Ridges**
As discussed above, excavated materials from the pilot channels would likely be used to construct approximately 12 sidecast ridges. These ridges would consist of 6-foot wide tops with crest elevations near MHHW that would emulate the topographic relief of natural tidal creek bank levees associated with historic or mature tidal marshes. The inner channel bank slopes would range from relatively gentle (approx. 5:1) to relatively steep (approx. 3:1 to 2:1), while outer mudflat-facing slopes would be more gentle (approx. 7:1 to 10:1).

The ridges would follow the contours of major outside bends of the pilot channels, and would support well-drained high marsh vegetation such as gumplant and pickleweed that trap tidal debris. The intertidal slopes of the ridges would be stabilized by wave-damping tidal marsh vegetation that would in turn provide important high tide flood refuges within the marsh. At maturity, these marsh patches would provide potential dispersal habitat for the clapper rail.

**Habitat Levee Edges**
Gently sloping habitat levee edges with gentle, wide, planted slopes ranging between 10:1 to 20:1 would be constructed along the marsh side of the new flood control levee to dissipate wave energy and minimize erosion potential while maximizing the width of high marsh transition zones. Incorporation of this feature into levee design would ensure rapidly forming fringing high marsh zones, which would serve as critical habitat for small mammals inhabiting the tidal marsh.

Specifics regarding construction of the erosion/habitat levees are discussed in the "Geotechnical Stability Berms with Erosion Protection/Habitat Slopes" section above.

## Building and Infrastructure Demolition

Building demolition in the south of the railroad tidal wetland area would include removing all buildings and appurtenances associated with the Dickson Ranch and the Black Point Sports Club. In addition, approximately 12,000 CY of contaminated surface soils from the vicinity of the club's skeet shooting range would be placed next to the levee core within the geotechnical stability berms and/or erosion protection/habitat slopes, as described above (see Figure 2-9).

The Dickson Ranch structures include 3 large barns, 2 houses, an airplane hangar, and numerous shops, sheds, pumps, and related agricultural debris. The largest barn is a metal structure that is relatively new and in good condition. This structure has a high potential for disassembly and off-site reuse. All other buildings are older wooden and wooden-framed sheet metal-clad structures in various conditions that would be demolished. Several pumps and wells are also located on the property and would require abandonment; the pumps would be removed from the wells as part of the abandonment process. All wells will be abandoned in accordance with applicable regulatory requirements. The Black Point Sports Club includes a clubhouse, a residence, numerous large kennels and bird pens, and various sheds. These structures are primarily wooden and wooden-framed and appear in good condition from the exterior. Several water and propane tanks, a drainage pump, and a well are also located on the property. All structures would likely be demolished. The tanks are associated with the BPSC and will be removed in accordance with all regulatory requirements. The well will be abandoned in accordance with applicable requirements. SLT will make every effort to sort and recycle demolition debris to the extent feasible; debris that cannot be recycled will be placed in local landfills.

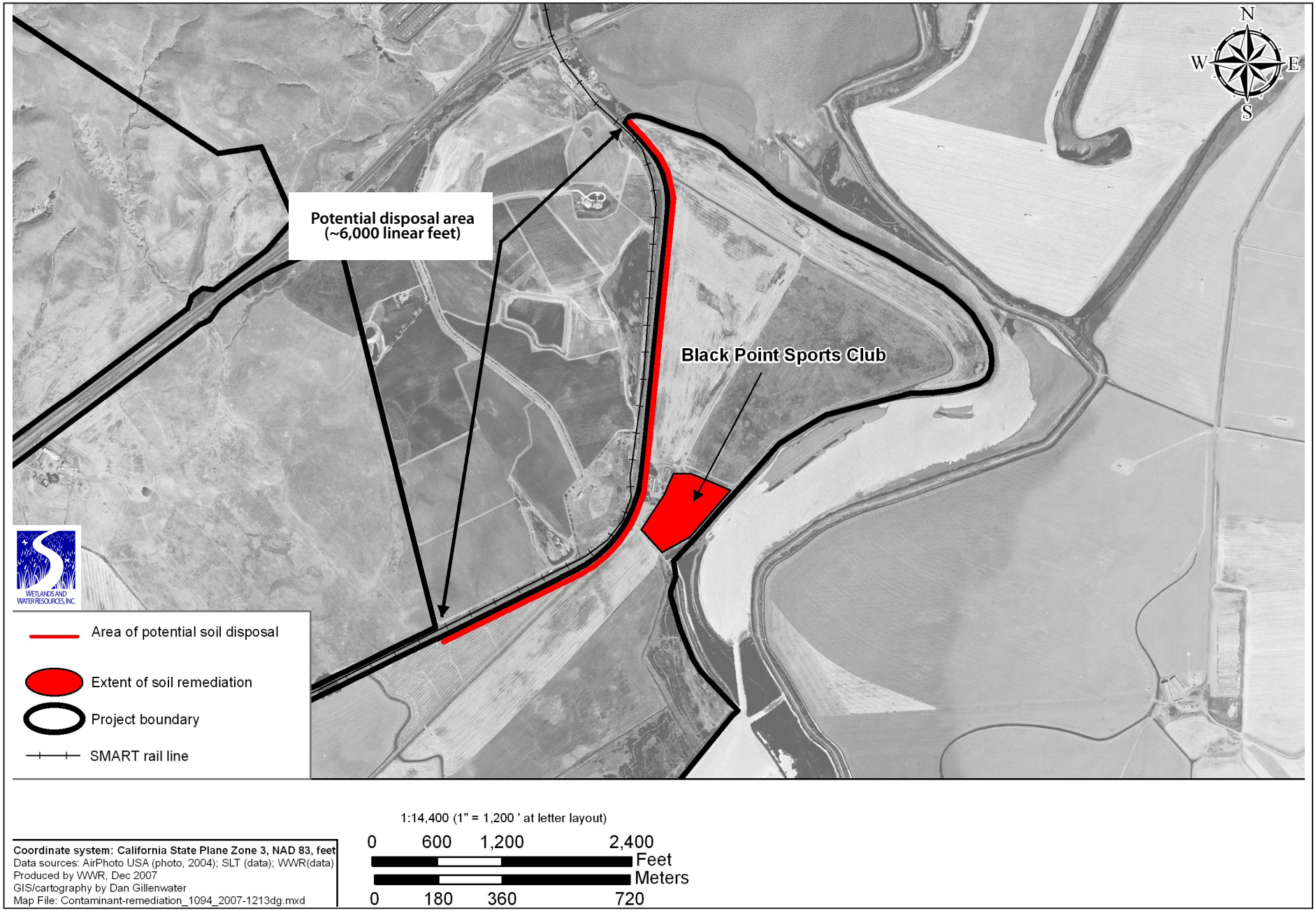



Figure revised by DU, October 2011

**Figure 2-9**
**Soil Remediation and Disposal**

Both the Dickson Ranch structures and the Black Point Sports Club have numerous large stands of trees near structures and several isolated groves. Tree removal would require felling and limited limbing and bucking to get the trees to near ground level. All trees within the railroad right of way would be removed. It is assumed that all felled trees would remain on site or be harvested by others for firewood without having impacts on the proposed action.

Concrete slabs and foundations would either remain in place or the concrete would be reused on-site and metal debris would be recycled in Vallejo or Richmond, or at another suitable location. Woody debris would be disposed of or reused at Redwood Landfill near Novato or another appropriate landfill.

The equipment used for building and infrastructure demolition would include excavators, dozers, loaders, and a water truck. The debris would be hauled off-site in dump trucks for disposal and recycling. Temporary stockpiling of debris may occur within the area of the former building complexes.

## Utility Relocation

In order to accommodate tidal marsh restoration south of the railroad, existing above-ground utility infrastructure (the PG&E power line south of the SMART rail line) would have to be relocated. This would include the removal of approximately 36 PG&E power poles and related lines located within the tidal wetlands area that currently provide power to the Dickson Ranch complex and the Black Point Sports Club.

Power must still be provided to neighboring Tubbs Island and the vineyard, located east of Tolay Creek. The proposed alignment for the replacement power line is shown in Figure 2.2, and would be entirely outside the tidal restoration area. The project proposes a new route that would run parallel to to Highway 37, then along Tolay Creek to Tubbs Island. Power poles would also be located along the north side of the railroad tracks to provide power to the vineyard. The proposed alignment avoids the need to cross Tolay Creek with power lines. If the proposed alignment cannot be implemented, the alternate alignment initially presented in the Draft EIR/EIS would be used, in which poles would run parallel to the SMART line then along Tolay Creek to Tubbs Island. Further consultation with PG&E has indicated that this alignment would require construction of a substantial, tall tower to support the approximately 2,000 feet span required to cross Tolay Creek. It is anticipated that up to 60 new poles and 18 guys (wires used to strengthen the poles and keep them in position) will be required for either new alignment. To facilitate the relocation process, SLT initiated utility relocation consultation with PG&E in November 2008.

A water line running from Infineon Raceway to the BPSC supplies water to the BPSC. Three wells are also present at the site on the NPJV parcel. Two of these wells provide water to Paradise Vineyards, and one supplies the USFWS Refuge Headquarters as well as numerous cattle troughs. Water lines that are no longer needed would be removed or capped as appropriate.

## Stormwater Pump Removal and Relocation

To facilitate tidal restoration south of the railroad, three stormwater discharge pumps currently located on the outboard levee would be removed and replaced with pumps located on the north side of the railroad. The existing pumps include both manually activated and water-level automated activation, and are principally used by local farmers and landowners to drain storm water runoff for all lands within the watershed and to manage groundwater levels on the agricultural fields used for oat-hay dry farming (i.e., no applied irrigation). Currently, stormwater flows through culverts under Highway 37. The stormwater accumulates onsite until it is collected by ditches and conveyed under the railroad embankment to the three pumps located on the perimeter levee, where it is discharged into Tolay Creek and San Pablo Bay.

Highway 37 is currently protected from localized stormwater flooding due to the storage capacity of the site. The tidal restoration south of the rail road tracks would significantly reduce the site's storage capacity.

To accommodate the tidal wetland restoration, the existing pump stations would be removed and two new ones constructed adjacent to the berm north of the railroad tracks (see discussion of features north of the rail line, below). The pump stations would convey water through the railroad embankment and into the tidal restoration area. Existing Pump 1 would be eliminated and the drainage ditches within the SMART rail line ROW would be graded to allow gravity flow from Culvert C-53 to the nearest pump station (SP-2) (Figure 2-2).

The existing pumps are also used by local farmers and SLT to manage groundwater levels on the agricultural fields used for oat-hay farming; the new stormwater pump station would provide the same or better groundwater management capability for the areas that will continue to be farmed.

Affected pumps that would be removed include:

- **Pump 1.** A single, small float-activated electric pump permanently installed that drains the eastern portion of Dickson Ranch and some runoff from the adjacent vineyard.
- **Pump 2.** A relatively large float-activated electric pump, permanently installed and two smaller mobile manual-start pumps operated by tractors or other external power sources as backup pumps. The Sonoma Land Trust has upgraded the electric pump due to its poor condition, and continues to maintain it. These three pumps drain the remainder of Dickson Ranch and the eastern portion of the NPJV Parcel.
- **Pump 3.** A single, large manual-start electric pump permanently installed that drains a significant portion of the NPJV parcel on both sides of Highway 37 plus drainage across a neighboring property (the Silva property) along Lakeville Highway.

See pages 2-13 and 2-14 for additional details regarding the modifications to the stormwater conveyance system. New stormwater pump stations would be established northward of either Culvert 15 or Culvert 3 (SP-3), and Culvert 17 (SP-2). It is anticipated that SP-2 and SP-3 would consist of new 50 cfs pumping stations. These pump stations would pump stormwater from lands in between Highway 37 and the SMART rail line across the new flood control levee south of the rail line and into the tidal restoration area.

## Pre-Vegetation

Pre-vegetation of the tidal marsh area south of the SMART rail line would be implemented prior to tidal breaching, if feasible. The goals of pre-vegetation would be to:

- enhance surface roughness to reduce water velocity, increase sediment trapping, and enhance conditions for seedling colonization;
- develop root mass to stabilize the existing soil surface; and
- provide seed/nursery sources for tidal marsh vegetation.

Pre-vegetation is be expected to reduce the time required for restoration by five to ten years. The pre-vegetation process is expected to require at least one growing season of non-tidal water management

before tidal action is reintroduced to the site. Depending on construction phasing, pre-vegetation may occur in part of the site while construction activities are being completed in the remaining areas. The type of vegetation that would be established has not been determined. While it would be preferable to establish salt-tolerant tidal marsh vegetation such as pickleweed, saltgrass, or alkali-bulrush, or submerged aquatic vegetation such as wigeongrass, it would be difficult to provide sufficient brackish water for irrigation to ensure the establishment of tidal marsh vegetation.

Instead, irrigation would be accomplished using water pumped from ditches and/or onsite wells. Because all types of vegetation would contribute to meeting the first two objectives, any pre-vegetation activities would be considered a benefit for the site.

Because the existing soil surface is subsided below sea level, much of the primary vegetation would be sacrificial after tides are restored. Marsh vegetation established at higher elevations (ridges, mounds, etc.) may persist as live plants, but the fibrous remains of submergence-killed vegetation would likely persist for years and contribute to sediment stability and trapping.

Some active transplanting of alkali-bulrush corms at low density may be undertaken to accelerate its establishment. This may be done by volunteer crews, using abundant local vegetative sources dredged from agricultural ditches on site. Additional mosquito control measures would be developed in coordination with MSMVCD, if needed.

### Mosquito Abatement Adaptive Management

Tidal marshes are not generally a large source for mosquito production. However, several species of mosquitoes could potentially breed in the restored tidal habitat. MSMVCD has indicated that excavation of ditches may be required in the restored tidal marsh habitat in the future (once sediments have accreted to marsh plain elevation) to improve water circulation. MSMVCD would perform monitoring of mosquito populations, and, if trigger levels are reached, would determine whether enhanced water circulation may reduce mosquito breeding. Should enhanced water circulation be desirable, MSMVCD would obtain review and approval from USFWS and CDFG and other appropriate agencies to excavate small ditches to improve water circulation.

## Railroad to Highway 37—Diked Seasonal Wetlands and Ongoing Wetland-Compatible Agriculture

### Agricultural Modifications

On the diked baylands portion of the site that extends from the SMART rail line to Highway 37, the project proposes to retain agriculture and pasture while at the same time enhancing seasonal wetland functions. A portion of these areas totaling 106 acres would be managed as a “wetland priority area”, with timing of some agricultural activities optimized for seasonal wetland and wildlife values. The wetland priority area has the highest concentration and best quality of wetlands interior of the existing perimeter levees. Less than half of the wetland priority area actually consists of wetlands; the wetlands are scattered in patches throughout this area.

Areas managed as “agriculture priority areas” would be managed for crop production while maintaining agricultural activities favorable to seasonal wetland enhancement (such as disking).

## Freshwater Habitat Enhancement and Stormwater Conveyance System Modifications

Riparian woodland would be established through vegetation planting at the downstream end of the existing culvert under Highway 37 that outfalls parallel to the existing Refuge entrance road (See Figure 2-2). No soil excavation will be conducted in this area.

The three pumps currently located on the perimeter levee would be removed as part of the tidal restoration and replaced by two pump stations (SP-2 and SP-3) located on the north side of the railroad tracks. These two storm water pump stations, located either at Culvert 3 (C-3) or Culvert 15 (C-15) and also at Culvert 17 (C-17), would be constructed at the southern side of the diked baylands segment north of the railroad embankment (Figure 2-2). It is estimated that these electrically-powered pumps would each discharge 35 cubic feet per second (cfs). A third pump station, SP-1, was proposed for placement at Culvert 53, however, based on subsequent discussions with the adjacent landowner, this pump would not be constructed, and the existing drainage system would instead be recontoured to the extent necessary to allow gravity flow of water from this area to the other two pump stations. Ditches within the SMART right-of-way would be improved to provide drainage within this area. An estimated total of 2,500 feet of conveyance ditches currently exist on the diked baylands between Highway 37 and the railroad tracks.

The two proposed pump stations would convey stormwater that previously flowed by gravity onto the Dickson property from lands in between Highway 37 and the SMART rail line through the existing, or if deemed necessary by SMART, upgraded culverts in the railroad embankment and through the new flood control levee south of the rail line and into the tidal restoration area. The equipment expected to construct these new pump stations and associated features would include service trucks, an excavator or backhoe, generators and welders, and concrete trucks.

Detention basins would be constructed at both pump stations to help compensate for reduced storage capacity within the project area, and facilitate water conveyance to the pumping facilities. The detention basins would be located to avoid or minimize potential impacts on delineated wetlands. Each pump station would be designed to accommodate a range of storm events. The system as a whole would be designed to provide protection equal to or greater than existing conditions as well as from a 24-hour, 100-year rainfall event.

The detention basins would have an invert (bottom) elevation equal to or lower than the ditches flowing into to them. The shape of the detention basins would be irregular and their side slopes would be gently graded to encourage habitat development. However, the primary purpose for the detention basins would be stormwater detention and pumping, and routine maintenance of seasonal wetland vegetation within the basins would be performed as needed to maintain the capacity of the basins. Maintenance would also be performed on other parts of the stormwater conveyance system, and would include removal of debris and excessive sediment build-up that interferes with stormwater flow. All maintenance would be performed in accordance with applicable permits.

Excavation of the detention basins is estimated to generate 12,000 CY of excavated soil each. This soil would likely be used to build other project features such as levees and berms near this site. The equipment used to excavate these basins would include an excavator and off-road trucks or scrapers and bull dozers. At maturity, the bed of the detention basins could support wigeongrass, which is widespread and abundant in existing ditches. Thus, they would have the potential to support numerous wildlife species, including California red-legged frogs. The pond would also provide stormwater detention and would serve as the sump pond for the new pump P-2. Outside the wet season, this pond would not be pumped, and would likely incidentally create conditions suitable for California red-legged frog. Maintenance of the detention basins would be completed in September/October, which is outside of the breeding season and

after larval metamorphosis, for California red-legged frogs. If maintenance were necessary at other times, a USFWS-approved biologist would conduct surveys for California red-legged frogs, and maintenance would be performed only if no red-legged frogs were detected.

### Access Road

An access road would be constructed from Reclamation Road to the USFWS San Pablo Bay NWR headquarters (Figure 2-1). The access road would be constructed by raising a portion of Reclamation Road, and extending Reclamation Road. The primary purpose of the access road is to allow school and tour buses signalized site access, as visitor usage is expected to increase over the coming years.

Wet weather vehicular access would be provided to both pump locations to allow for maintenance. The access road would also serve maintenance vehicles for the portion of the alignment parallel to the SMART rail line. From the point where the access road diverges from the railroad tracks towards the Refuge headquarters, a maintenance access road would be constructed. The access road would continue parallel to the railroad tracks and extended east to the pump station at Culvert 17 (C-17) in order to allow access to both pump locations in wet weather, and a vehicle turnaround would be included at its eastern terminus at the C-17 pump station. Most construction activities would occur outside of the SMART ROW. A trail or berm would be built on the north side of approximately 4,450 feet of the existing roadway at an elevation of +3 feet NAVD extending beyond the existing private rail line crossing to protect low spots in the existing road. The new segment of the access road would then turn north/northeast for 3,700 feet, terminating at the Refuge Headquarters. A 4,500 foot maintenance road would extend from the turn in the access road to the eastern property boundary.

The improved roadway section would have an approximately 26-foot top width and 2:1 to 3:1 side slopes. Trail Segment 5a, discussed below, would parallel the new access road, and would be separated from the access road by a 2-foot vegetated buffer. The access road would require an estimated 9,000 CY of material to construct, and the maintenance road would require an estimated 9,000 CY of material. The equipment used to construct these roads would include dozers, compactors, and water trucks.

SLT may close two of the three existing private rail crossings and, with approval of the California Public Utilities Commission (CPUC), make the remaining rail crossing into a public rail crossing. SMART may also convey two parcels (approximately 1.86) acres to SLT.

## Utility Relocation

As discussed previously, the existing above-ground utility infrastructure south of the SMART line would need to be relocated so as not to impede tidal restoration of that area. The project team in consultation with PG&E is proposing a route that would run parallel to the SMART line.

New poles would be located along the north side of the railroad tracks to provide power to the vineyard to the east of Sears Point. PG&E typically removes and/or improves any poles and lines they own. Pole relocation work within the project area would likely require two or three trucks and a crew of 6, and could take one week or less to complete. In addition, new poles would be located along the Vallejo Sanitation District access road to provide power to several buildings as well as a pump along Tolay Creek

## Bay Trail System

### Trail Segments

The discussion of proposed trail segments is based on information presented in the Final Bay Trail Feasibility Study, prepared for the Proposed Project by Questa Engineering in December 2008. As part of the restoration effort, SLT would attempt to partially bridge the gap between two disconnected segments of the San Francisco Bay Trail by constructing one or more trail alignments across the Sears Point property, as well as providing additional trails on the property if funding allows. Up to five trail segments are proposed for the project, and would be constructed if funding is available. The design features of each segment are summarized in Table 2-1, and proposed trail routes are shown in Figure 2-10a and 2-10c.

Segment 1 is the only segment that has been proposed and adopted as part of ABAG's Bay Trail Plan. All other segments are optional alternate alignments that are not part of the Bay Trail Plan or the Sonoma County Parks Sonoma Bay Trail Corridor Plan. Nonetheless, these alternate alignments achieve the primary purpose of the Bay Trail, in that they connect two existing segments of the Bay Trail, and are located in the vicinity of the Bay margin. Segments 1 and 5/5a would be prioritized based on available funding during construction.

A graded earthen pad adjacent on the north side of the rail line would provide parking for visitors utilizing Segment 1. The parking area would be located in the vicinity of the public crossing, and would provide a firm and stable surface and designated parking spaces consistent with ADA requirements. The exact location would be determined in coordination with SMART. The total number of parking spaces would not exceed 15.

**Table 2-1.** Summary of Trail Segment Design Features

| Trail Segment | Segment Length (feet) | Trail Surface Types |
|---|---|---|
| 1 | 13,340 | 12-foot wide, compacted aggregate base |
| 2 | 6,400 | 10-12-foot wide, compacted aggregate base; boardwalk/bridge as needed to cross restored swale |
| 3 | 7,000 | 10-12-foot wide, compacted aggregate base; boardwalk/bridge over wetlands |
| 3A | 1,920 | 10-12-foot wide, compacted aggregate base(emergency access road/spur trail) |
| 4 | 6,000 | 10-12-foot wide, compacted aggregate base |
| 5/5a* | 10,000 | 10-12-foot wide, compacted aggregate base; boardwalk/bridge as needed over wetlands paralleling access road with 2-foot vegetated buffer between trail and road |

Source: Questa Engineering 2007, as amended.

**All Segments**

All trails would conform to Bay Trail Design Guidelines for multi-use trails, if feasible, and would be fully compliant with the Americans with Disabilities Act (ADA) access guidelines wherever feasible (i.e., provide a firm, stable surface for trails). An exception would be that Bay Trail Design Guidelines for

multi-use trails specify asphalt, and the trails proposed for the project would have a more natural surface of compacted aggregate base rather than asphalt. Trails would have a maximum gradient of 5% in most places, and would generally be elevated slightly above existing grade, with a cross slope of 2% to provide drainage.

In general, trail segments would be designed so as to provide sufficient width and clearance for emergency, patrol, and maintenance vehicles, as well as to accommodate pedestrians, bicycles, and other non-vehicular traffic moving in two directions. In places where the trail is located near an existing road, the trail would be flanked by a divider to separate trail users from vehicular travel, where feasible. Trails running parallel to the SMART rail line would be set back a minimum of 50 feet from the centerline of the track to be consistent with standard rail-compatible trail design and ensure that they remain outside the SMART right of way.

Construction materials for the Bay Trail segments would be similar to those used on the Sonoma Baylands trail to the west. These materials would typically be delivered to the Proposed Project by on-highway trucks.

The equipment used to grade and surface the Bay Trail segments would include dozers, road graders, compactors, smooth rollers, a backhoe and a water truck and possibly paving machines. In general, this equipment will be smaller in size and horsepower than the equipment used for other features of this project.

All crossings, signage, benches, and related features would likely be completed after paving. The schedule for modifications to the existing SMART railroad grade and Highway 37 crossings is dependent on review and approval from the responsible agencies.

Barrier posts at trail intersections and entrances would be necessary to restrict vehicle access. Removable bollards would be installed at trail locations to maintain access control and to accommodate entry by maintenance, law enforcement, or emergency services vehicles.

**Segment 1**

Segment 1 is the highest priority segment. It would be a 2.6-mile (13,340-foot) Bay Trail spine and would connect with the existing Sonoma Baylands trail to the west. This segment would also include an at-grade crossing of the SMART rail line at Reclamation Road. The trail would be constructed on top of the proposed new levee, and would be designed as an all-weather pathway, capable of accommodating pedestrians, bicycles, and emergency vehicles. Seasonal closures, if necessary to protect federal and state endangered species, would be at the discretion of the future property owners, USFWS and CDFG.

Because of the need to meet the above requirements, the alignment would consist of a 12-foot wide surfaced trail, with turnouts located in key areas. Construction of this segment would require approximately 3,000 CY of AB for the trail, shoulders, turnouts, and ramps. It is also expected that the trail would be designed with a vehicular load rating sufficient for access by maintenance and emergency services staff, with a minimum weight capacity of 10,000 pounds.

In order to provide a connection from the Bay Trail spine to the Sears Point Ranch Headquarters north of the SMART rail line, the project could potentially utilize the at-grade crossing currently located at the bend in Reclamation Road south of Highway 37, or another agreed upon location. Vehicular emergency response to the south of the SMART tracks would also utilize the existing at-grade crossing at Reclamation Road, or another agreed upon location.

The at-grade crossing would have safety signage, crossing improvements, and warning devices similar to the crossing at Sonoma Baylands, as required. Fencing and barriers would be installed to funnel trail users to the crossing location, to avoid unregulated crossings and entry into the agricultural fields on the north side of the railroad tracks. All signs, safety markings, and other improvements would conform to the Manual of Uniform Traffic Control Devices (Caltrans 2010).

**Segment 2**
Segment 2 is an optional segment that would be constructed if funding becomes available. It would consist of a 1.2-mile (6,400-foot) connector trail along Reclamation Road and Highway 37 to the Sears Point Ranch and would include a bridge or boardwalk to cross a restored swale area. The alignment would consist of a 10- to 12-foot wide trail (with a minimum 8-foot surfaced section), with turnouts located in key areas. Construction of Segment 2 would require approximately 800 CY of AB for the trail, shoulders, turnouts, and ramps. Additionally, to avoid trail user/habitat conflicts in the seasonal wetland area north of the SMART rail line, the project would provide elevated passage by means of a bridge, boardwalk, or culvert over seasonal wetlands and ditches, to the extent feasible, based on the wetland delineation (Ducks Unlimited 2010 and 2012) (Figure 2-10a and Figure 2-10c).

If implemented, the bridge would be approximately 8-10 feet wide, and would consist of a prefabricated steel clear-span design capable of providing pedestrian and bicycle access, while also supporting occasional emergency access by ATVs, or other light vehicle access. Bridge abutments would typically be constructed on concrete piles or piers driven or drilled to a minimum depth of 20 feet. All construction activities would occur outside of the swale, and after the seasonal wetlands have dried out and agricultural activities have resumed.

If a boardwalk is used, it would connect to the adjacent grade with approach ramps constructed of engineered fill at a maximum 5% slope.

**Segment 3**
Segment 3 is an optional segment that would be constructed if sufficient funding is available. Segment 3 would consist of a 1.3-mile (7,000-foot) connector trail from the eastern end of Segment 5 to the ranch headquarters. This segment would include a 0.4-mile (1,920-foot) spur trail (3A) to the highest lands south of Highway 37 (Figure 2-10a and Figure 2-10c). Segment 3 would require approximately 900 CY of AB for the trail, shoulders, turnouts and ramps. The design of Segment 3 and the boardwalk would be similar to that described above for Segment 2.

Segment 3A would provide an emergency access connection to the Paradise Vineyard parcel to the east. As such, it is expected that the trail would be designed with a vehicular load rating sufficient for access by emergency vehicles. Similar to the levee top Bay Trail (Segment 1), Segment 3A would consist of a 10- to 12-foot wide trail (with a minimum 8-foot surfaced section), with turnouts located in key areas. This segment would require approximately 210 CY of AB for the trail, shoulders, turnouts, and ramps.

**Segment 4**
Segment 4 is an optional segment that would be constructed if sufficient funding is available. Segment 4 would consist of a 1.1-mile (6,000-foot) loop trail north of Highway 37 that would originate at the ranch headquarters and utilize an existing/improved cattle crossing under Highway 37. The alignment would consist of a 10- to 12-foot wide trail (with a minimum 8-foot wide surfaced section), with turnouts located in key areas. Segment 4 would require approximately 750 CY of AB for the trail, shoulders, turnouts, and ramps.

In order to access northern portions of the site, the existing cattle crossing under Highway 37 would be retrofitted to provide pedestrian access. The undercrossing would require regrading of the existing 150-

foot long approach ramps to ensure a maximum 5% slope. The trail extending between the approach ramps would be approximately 8 feet wide and would have 8.5 feet of vertical clearance to accommodate pedestrians and bicyclists; however, it would be too narrow for vehicle access. The floor of the undercrossing and the approach ramps below grade would consist of reinforced concrete with associated drainage facilities.

**Segment 5**
Segment 5 would be an approximately1.9-mile (10,000-foot) trail constructed north of and parallel to the SMART rail line, extending from the current terminus of Reclamation Road to the eastern project boundary. A 3,600-foot segment referred to as Segment 5a (Figure 2-10a and Figure 2-10c) would commence approximately 2,500 feet eastward along Segment 5, turning north/northeast, paralleling the access road and terminating at the Ranch Headquarters. Segment 5 would consist of a 10- to 12-foot wide trail (with a minimum 8-foot wide surfaced section), with turnouts located in key areas. This segment would require approximately 1,300 CY of AB for the trail, shoulders and ramps. A portion of the trail/roadway would also serve as an extension of Reclamation Road to serve the proposed pump stations.

## Construction Schedule

All construction is expected to occur over a two-to three-year period with a construction window between April and December, or as feasible based on weather. Construction activities would be implemented to ensure compliance with regulatory requirements.

The first year of construction would include the initial stage of construction for the new levee, excavation of contaminated soil, the removal of the existing buildings, stormwater conveyance system, and excavation for the tidal marsh features south of the rail line. The second year would include completing the new levee construction, completing the storm water conveyance system, constructing tidal marsh features, and road and trail features. Prevegetation of the site is anticipated during the third year, at the end of which perimeter levees would be lowered, the Connector Channel to San Pablo Bay would be excavated, and Breaches 1 and 2 would be excavated. Depending on the rate and location of construction activities, pre-vegetation may also be accomplished in portions of the property during years 1 and 2, potentially allowing completion of restoration construction in Year 2.

# Operation and Maintenance

Operations and maintenance activities will be limited in scope and effect.

### South of Highway 37—Tidal Marsh

The primary operations and maintenance activities related to tidal restoration south of the rail line are levee maintenance, vegetation management, and mosquito control. Minor levee repairs using stockpiled soil may be performed if necessary; however, the levee will not be raised further to accommodate sea level rise. Weed inspections and interim weed control via spot-spray herbicide and/or mowing may be conducted primarily along the levee shoreline. A mosquito abatement program would be established by CDFG in coordination with MSMVCD as needed.

During tidal marsh succession, maintenance would focus on invasive weed inspection, detection and removal, through the summer and fall, focusing on June and October, during peak flowering of principal weeds, as funding allows. Annual shoreline inspections for hazardous or nuisance debris, such as flotsam including boat docks, creosote-treated pilings or lumber, oil-contaminated debris, and plastic refuse, would be conducted.

## Railroad to Highway 37—Diked Seasonal Wetlands and Ongoing Wetland-Compatible Agriculture

Operation and maintenance activities within the remaining diked baylands would primarily involve vegetation management within restoration areas, maintenance of the stormwater conveyance system including culverts and ditches, maintenance of the stormwater pumping stations, and mosquito control. Maintenance of the agricultural wetlands will include yearly discing of the soils to control invasive non-native plants. Vegetation management and mosquito abatement in the area owned by USFWS would be conducted in accordance with the Comprehensive Conservation Plan. Mosquito abatement would be subject to the Mosquito Management Plan.

**Stormwater Conveyance System**
In order to assure that existing levels of flood protection are provided, the stormwater conveyance system would require the following regular maintenance activities.

- Maintenance of the Stormwater Pumping Stations – The stormwater pumps would be serviced as necessary and as funding allows.
- Maintenance of the Culvert and Ditches – The various culverts and ditches that comprise the Sears Point stormwater conveyance system would require regular maintenance to remove debris and excessive sediment build-up that interferes with stormwater flow. Maintenance of culverts and ditches would be performed as necessary as funding allows.

**Trails**
Trail operations and maintenance would be performed as necessary and as funding allows.