

EXECUTIVE SUMMARY

INTRODUCTION

To comply with the California Environmental Quality Act (CEQA), the California Department of Fish and Game (DFG) prepared an Environmental Impact Report (EIR) to address the potential impacts of the Bahia Marsh Restoration Project (Bahia Project) in Novato, California.

Marin Audubon Society (MAS) proposes to restore portions of the 632-acre Bahia site to tidal marsh (approximately 375 acres on its lands and those of DFG). The project consists of activities designed to create maximum tidal marsh habitat, including successional brackish tidal marsh and transitional habitat and plant and animal communities similar to historic tidal marshes of the Petaluma River, while maintaining and enhancing the existing seasonal wetland, pond and upland habitat at the site. The Bahia site is strategically located to protect and restore tidal marsh habitat because it is virtually surrounded by publicly owned marshes. Much of the lowland bordering the Petaluma River in this area remains or is slated to be restored to tidal marsh. In addition to creating and protecting habitat, an important goal of the project is to reduce mosquito habitat.

Restoration planning for the Bahia Project is guided by a project team that consists of DFG as Lead Agency, the Marin Audubon Society (MAS), Philip Williams and Associates (PWA), the Point Reyes Bird Observatory (PRBO), ecological consultant Peter Baye, and the Marin Sonoma Mosquito and Vector Control District (MSMVCD). While DFG has ultimate responsibility for the project on its land, MAS is the owner of a portion of the affected area and is the recipient of grant funding for the project and is managing the entire restoration project.

The site was purchased primarily with public funds, including funds from the CALFED Ecosystem Restoration Program (ERP), for the purposes of habitat protection and restoration. Restoring tidal marsh at the Bahia site directly supports the primary elements of the CALFED ERP and is consistent with the intended use of these funds. Proposed activities will assist in the recovery of endangered and special status fish and other wildlife along the Petaluma River, a high priority location for CALFED. Environmental compliance documentation for the Bahia Project tiers from the Calfed Bay-Delta Program Final Programmatic Environmental Impact Statement/Environmental Impact Report (PEIR [CEQA Guidelines, section 15152(g)], July 2000). The Bahia Project EIR refers to the PEIR as appropriate, and provides impacts analysis and proposed mitigations not considered, or not covered at an adequate level of detail, in the PEIR.

In addition to CALFED, the group of donors that banded together to purchase the Bahia site includes the Wildlife Conservation Board, the California Coastal Conservancy, the California Department of Transportation (CalTrans; Environmental Enhancement Grant Program), the National Oceanic Atmospheric Administration (NOAA; through the Bay Institute), the Marin Community Foundation, and individuals and small grantors through the Marin Community Foundation Donor Advised Fund.

PROJECT LOCATION

The 632-acre Bahia site is located less than a mile upstream (west) of the Petaluma River and south of Black John Slough in the northeast corner of the City of Novato, in the northeastern portion of Marin County, California. The Petaluma River forms the boundary between Marin County and Sonoma County to the east. Downtown Novato is approximately 3 miles southwest of the site. Regional access to the site is via U.S. Highway 101 (US 101) and State Route 37 (SR 37). SR 37 runs northeast to southwest approximately one mile south of the site and is connected to US 101 to the west by Atherton Avenue. Local access to the site is via Atherton Avenue, Bugeia Lane, and Bahia Drive (Bugeia Lane becomes Bahia Drive at H Lane).

The site is bordered on the east by tidal marshes of the Petaluma River (owned by the State Lands Commission) and on the north by tidal marshes along Black John Slough (also owned by the State Lands Commission). Some dry farming of hay occurs on diked baylands on the Sonoma County (east) side of the Petaluma River. North of the site and across Black John Slough are diked agricultural fields and a radio tower.

West and directly upstream of the site are Rush Creek Marsh (a 250-acre site owned by DFG) and Cemetery Marsh (a 50-acre managed, muted tidal marsh owned by the Marin County Open Space District [MCOSED]). Basalt Creek and Rush Creek, which drain these areas and feed into Black John Slough are just beyond the northwest corner of the site. Water control structures (culverts) are used to manage the Rush Creek and Cemetery Marsh water levels, as appropriate for flood control, mosquito abatement, and wildlife habitat.

Along the southwest border of the site are approximately 208 acres of blue oak woodlands (also owned by MCOSED). MCOSED maintains a foot and horse trail along the lower margins of the hill slopes. South of the site lies the existing Bahia development, a low-density subdivision of 288 homes, and a cemetery and property owned by the Novato Horsemen's Association. The Bahia community is partially clustered around the West Bahia Lagoon and nearby cul-de-sacs and roads. The community is served by Topaz Drive, which connects to Bahia Drive and follows the edge of the lagoon. At the southeastern end of Topaz Drive is the Bahia Homeowner's Association (HOA) Community Center and a major pumping station for the Novato Sanitary District (NSD). A small NSD feeder pump is located on the westernmost of three peninsulas on the east side of the site. Residences are also located at Green Point and Black Point, less than a mile south of the site, adjacent to Highway 37. A 230-kV electric transmission line crosses the project site within a 150-foot-wide easement that follows the length of the westernmost peninsula along the embankment.

SITE DESCRIPTION

Prior to the twentieth century, the project site was a tidal wetland with well-developed sinuous tidal channels extending from the Petaluma River to the base of the uplands. Today, the 632-acre Bahia site is divided into several areas.

Most of West Bahia, Central Bahia, and Mahoney Spur are owned or leased (in the case of Mahoney Spur) by DFG. This portion of the site consists primarily of diked former tidal marsh. Also included in Central Bahia is a 1-acre pond (formerly used to decant dredge spoils), and an approximately 7-acre diked seasonal wetland that served as a disposal site for Bahia HOA

dredging. A 5-acre lot formerly used as a recreational vehicle (RV) parking lot is owned by MAS.

East Bahia is owned by MAS and includes three peninsulas (East, Central and West Peninsulas) constructed as future building sites from materials dredged from the adjacent HOA West Lagoon and HOA channel. East Bahia contains a PG&E transmission line within a 150-foot easement and a Novato Sanitary District pump station. No other structures exist at the project site.

Although the Bahia site was originally diked for agricultural use, it has not been cultivated in more than 30 years. Since being diked, the site has subsided several feet. In the past, a pump station in the northeast corner of West Bahia drained excess water in order to manage mosquito production. However, the pump collapsed shortly after DFG assumed title to the property in June 2003.

Since that time, the extent and duration of ponding has increased due to the lack of pumping, rainfall and overtopping of the perimeter embankments during high tides and storm surges. Seasonal freshwater and brackish wetlands have developed behind the embankments. Persistent high water levels at the site would continue to suppress emergent plant growth and the development of other wetland habitat and associated species. Inundation of the site following the collapse of the pump house destroyed salt marsh harvest mouse (SMHM) habitat. Mosquitoes breed in slow moving shallow water. The water that covers the site offers excellent mosquito breeding habitat and therefore has become a public health concern.

PROJECT PURPOSE AND NEED

While the existing diked wetlands at the Bahia site provide some seasonal habitat for waterfowl and shorebirds, they have minimal complexity and significantly reduced ecological richness. Furthermore, other shallow, seasonal wetlands in the lower Petaluma River area provide waterfowl/shorebird habitat. The critical need in the lower Petaluma River area is for additional tidal wetlands.

The primary stressor at Bahia is the presence of embankments and levee type structures that alter and block tidal flows to the historic marshes. At Bahia, populations of fish and wildlife have been extirpated and other species have declined as a result of the placement of these structures, thereby contributing to the decline of species in the region and the Bay-Delta ecosystem. Many of these species are listed as endangered, rare or threatened.

Breaching and lowering portions of remaining embankments will restore significant tidal wetland acreage, natural salinity regimes, channel complexity and vegetative habitat. Please note that a restored Bahia marsh will support the recovery of endangered and special status birds and fish. A restored marsh will also provide habitat for anadromous and estuarine fish and migratory birds, and will contribute to the recovery of the Bay-Delta estuary as a whole. Restoration activities will also improve the important upland-wetland ecotone and provide high-tide refugia habitat along the upland-wetland interface and remnant embankments that will remain as islands. Restoration of the Bahia wetland to a natural tidal system will facilitate stewardship because minimal maintenance will be required. Finally, and importantly, it will assist with mosquito abatement efforts.

PROJECT DESCRIPTION

The project consists of activities designed to create maximum tidal marsh habitat, including successional brackish tidal marsh and transitional habitat, and plant and animal communities similar to historic tidal marshes of the Petaluma River, while maintaining and enhancing seasonal wetland, pond and upland habitat. Activities to remove impediments to tidal flows consist primarily of restoring (excavating) a complex system of tidal channels; lowering levees and inboard ground elevations; and creating levee culverts and breaches. Note that the word “levee” is used in this document to refer to embankments and other structures which are not engineered to protect life or property from weather or tidal events. Other activities to facilitate the restoration of tidal marsh and improve habitat include grading in some areas and reusing excavated materials to raise ground elevations in some areas. Two temporary structures are proposed: a pump and a 48-inch culvert and tide gate. Specific design elements of the proposed project are subject to some refinement throughout the CEQA process. Final project design will take into account new and more detailed information from the permitting and design processes.

DFG is ultimately responsible for the project on their land (West and Central Bahia), MAS is acting as grant recipient and project manager for design, implementation, and management of proposed restoration activities on the DFG property and the East Bahia site (which MAS holds in fee title). However, as proposed, earth removed from the Western and Eastern Peninsulas of East Bahia to achieve objectives in that portion of the site would be transported to Central Bahia and the Central Peninsula of East Bahia and used to achieve restoration objectives there. Coordination of the restoration efforts would have the dual benefit of providing needed fill material for Central Bahia and of increasing the area available for tidal wetland restoration at East Bahia. Since these projects are logistically and hydrologically connected, they are evaluated jointly in the Bahia Marsh Restoration Project EIR.

A two-phase approach to tidal restoration is proposed at the Bahia site, with most activities completed during Phase 1. This approach would allow for some flexibility and adjustments to project design as suggested by the response in tidal and habitat regimes to the first phase of construction. This approach would also allow for natural widening of Black John Slough to avoid adverse impacts to upstream marshes that could result if the project captured most or all of the presently limited tidal flows in Black John Slough. Like portions of the project site, Black John Slough has been subjected to significant sedimentation which has reduced the tidal exchange between the Petaluma River and upstream marshes. Measures proposed in Project Phase 1 are partially intended to create a scouring effect in Black John Slough and naturally increase the tidal capacity of the slough.

Proposed activities for each of the phases are outlined below and are discussed in further detail in the EIR.

Project Phase 1-Central and West Bahia

- Install a temporary pump
- Excavate interior (inboard) starter channels and berms
- Excavate exterior (outboard) Pilot Channels to Black John Slough
- Grade former RV parking lot and construct transitional habitat and vegetation bench along the southern edge of Central Bahia

- Lower perimeter levees along Mahoney Spur and Central Bahia
- Construct a temporary flow structure at West Bahia
- Construct ditch blocks along West Bahia borrow ditch
- Enhance seasonal wetlands at the former decant pond in Central Bahia
- Construct three breaches in the perimeter levees of Mahoney Spur and Central Bahia

Project Phase 1-East Bahia

- Lower surface of Western and Eastern Peninsulas
- Western Peninsula - construct levee along PG&E easement and grade transition zone from new levee
- Eastern Peninsula – remove outer levee and grade transition zone from existing inner levee
- Central Peninsula – grade transition zone and establish tidal connection to Eastern Peninsula

Project Phase 2-West Bahia

- Lower additional perimeter and interior levees
- Construct four West Bahia breaches

Note: All work in Central and East Bahia would be completed under Project Phase 1.

ALTERNATIVES TO THE PROPOSED PROJECT EVALUATED IN THE EIR

In addition to evaluating the Proposed Project, the Bahia Marsh Restoration Project EIR evaluates three alternatives, including the No Project Alternative, Alternative 1 – Reduced Fill Removal from East Bahia, and Alternative 2 – No Fill Removal from East Bahia. These alternatives are described below.

No Project Alternative-The No Project Alternative would eliminate anticipated construction impacts of the Proposed Project and impacts from hauling excavated East Bahia fill material through a residential area (i.e., wildlife disturbance, traffic and pedestrian safety, noise, fugitive dust and equipment and truck emission impacts). However, the No Project Alternative would not meet the objectives of the project to maximize tidal restoration, restore habitat, improve species diversity, enhance water management, and reduce mosquito breeding habitat.

Overall, the No Project Alternative would not aid the recovery and restoration of populations of fish and wildlife that have declined or been extirpated as a result the emplacement of existing levees. Many of these species are listed as endangered, rare or threatened. Biotic diversity would be lower under the No Project, compared to the Proposed Project. Thus, the No Project Alternative would fail to help reverse the general decline of species diversity in the region and the Bay-Delta ecosystem and would fail to meet the overall project goal to maximize the restoration of tidal marsh habitat. To leave areas unrestored that could be restored would be contrary to the intended purpose of public and private funds used to acquire the project.

Under the No Project Alternative, unmaintained levees at the project site could be breached simultaneously in an unplanned event. If this occurs, sedimentation patterns would be adversely impacted. Sediments would be eroded from nearby mudflats and tidal marsh habitat in the

project vicinity would be adversely impacted. Given the reduced tidal prism of Black John Slough, an accidental or un-phased breach of the Bahia site levees has the potential to capture all or most of the tidal signal from the slough and to adversely impact sedimentation in areas that have a hydrologic connection to the Bahia site (e.g., at Cemetery and Rush Marshes). Changes in sedimentation patterns can cause impacts on human-made structures within the water bodies, alter water quality, and affect aquatic habitat important to vegetation, aquatic organisms, and terrestrial wildlife that depend on the aquatic habitat.

Finally, management of site water levels would not be possible and the mosquito problem, which is already bad at the site, would continue to worsen, with potentially significant public health consequences and costs.

Alternative 1 (Reduced Fill Removal from East Bahia)- Alternative 1 to the Proposed Project would implement tidal restoration at West and Central Bahia and reconfigure the eastern peninsulas at East Bahia, but would reduce grading and fill removal on the Western Peninsula. This would result in the removal of approximately 11,000 cy of fill from the site (a reduction of more than 50% of the Proposed Project fill removal).

This alternative would reduce anticipated impacts from hauling excavated East Bahia fill material through a residential area and would therefore significantly reduce impacts from traffic, noise, fugitive dust, and truck emissions throughout much of the Bahia community. However, under this alternative, earth-moving and truck transport activities would be concentrated in the eastern portion of the site and the noise and air impacts to residents in the eastern portion of the Bahia community (e.g., around Bolero Court) would actually be greater. By restoring tidal influence in West Bahia, Alternative 1 would at least partially meet the objectives of the project to restore habitat, improve species diversity, enhance water management, and reduce mosquito breeding habitat. However, enhancement of habitat for specific species that have been identified or are likely to occur within the East Bahia area, would not occur or would be significantly reduced.

Alternative 2 (No Fill Removal from East Bahia)- This alternative would excavate approximately 23,000 cy of fill material from the peninsulas at East Bahia (the same amount as the Proposed Project), but would deposit those materials within the East Bahia area, restoring tidal marsh to portions of East Bahia, creating seasonal wetlands and raising the elevation of the uplands by compacting the fill on site. Under Alternative 2, fill materials from the Eastern and Western peninsulas of East Bahia would be transported to the Central Peninsula or elsewhere within East Bahia.

This alternative would eliminate impacts from hauling excavated East Bahia fill material through a residential area and would therefore significantly reduce impacts from traffic, noise, fugitive dust, and truck emissions throughout much of the Bahia community. However, under this alternative, earth-moving and truck transport activities would be concentrated in the eastern portion of the site and the noise and air impacts to residents in the eastern portion of the Bahia community (e.g., around Bolero Court) would be greater than the Proposed Project and Alternative 1. It would also at least partially meet objectives of the project to restore habitat, improve species diversity, enhance water management, and reduce mosquito breeding habitat. There would be some creation of additional seasonal wetlands in the East Bahia area and

enhancement of habitat for some species identified or likely to occur within the East Bahia area. However, enhancement of habitat for specific species in the Central Bahia area would be greatly reduced and the restoration of wetlands in Central Bahia would be much slower due to the large reduction of imported fill from East Bahia.

Table ES-1 provides an evaluation of the degree to which each of the alternatives meets the project objectives. Plus (+) and minus (-) signs are used, with more plus signs signaling greater achievement of the project goals, and more minus signs signaling failure to achieve those goals. The evaluation takes into consideration proposed mitigation measures for each of the alternatives.

Table ES-1. Comparison of Alternatives in Meeting Project Objectives

Project Objective	Proposed Project	No Project Alt.	Alt. 1 (Limited Fill Removal from E. Bahia)	Alt. 2 (No Fill Removal from E. Bahia)
Re-introduce tidal circulation (restore full exchange)	+++	---	+++	+++
Restore historic habitat	+++	---	++	++
Maximize benefits for special-status species	+++	---	++	+
Improve species/habitat richness (diversity)	+++	---	++	++
Minimize disturbances to habitat and wildlife, especially special-status species	++ ^a	+++	++ ^a	++ ^a
Minimize invasion by foreign plants	++ ^a	+++	++ ^a	++ ^a
Maintain or improve tidal exchange along Black John Slough, Bahia HOA channel, and upstream marshes, and minimize risk to existing fringe marsh	+++	---	+++	+++
Maintain, enhance, and restore existing freshwater ponds, seasonal wetlands, and upland habitat	+++	---	++	+
Minimize conditions favorable for mosquito production	+++	---	+++	+++
Minimize impacts to nearby residents	+ ^a	++ ^b	++ ^a	+++ ^a

Project Objective	Proposed Project	No Project Alt.	Alt. 1 (Limited Fill Removal from E. Bahia)	Alt. 2 (No Fill Removal from E. Bahia)
Meet all regulatory requirements	+++	--- ^c	+++	+++
Work within existing funding constraints	+++	--- ^c	+++	+++
Meet intended purpose of funding	+++	--- ^c	++	+

^a Evaluation assumes proposed mitigation measures are implemented.

^b Residents could be impacted by ongoing or worsening stagnant pond odors and mosquitoes.

^c No Project Alternative would fail to implement the intended use of public funds.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The EIR addresses potential direct, indirect and cumulative potential environmental impacts of the Proposed Project and the three alternatives described above and proposes mitigation measures for those impacts that exceed specified significance thresholds. Although impacts of the Proposed Project are anticipated to be largely beneficial, some negative (primarily short-term) impacts may result from proposed earth-moving and construction activities, and from transportation of fill material from one portion of the project site to another. As noted above, Alternatives 1 and 2 are proposed to reduce some of the construction-related impacts of the Proposed Project. However, these alternatives also do not achieve all the benefits of the Proposed Project.

The major environmental impacts of the Proposed Project and alternatives are briefly described by topic in the paragraphs and Table ES-2 below. Table ES-2 is followed by a summary comparison of the Proposed Project and alternatives and identification of the environmentally superior alternative.

Hydrology and Water Quality-The project is designed to improve on-site drainage, circulation, and water quality. The project is designed to increase the rate at which estuarine sediments are deposited at the project site. According to aerial photography and ground-based surveys, subsidence has lowered ground elevations at the site by up to 6 feet or more below natural elevations for tidal marsh. By reintroducing full tidal exchange to the site, and assuming other conditions (i.e., negligible wind-wave agitation), the project is expected to result in an increased sedimentation rate such that high marsh vegetation will become established throughout the majority of the site within approximately 30 years (low marsh vegetation would colonize much earlier).

However, the project also has the potential to adversely impact regional hydrology, including having an adverse impact on the tidal range and sedimentation in waters that have a hydrologic connection to the project site. The project would capture some of the tide waters from Black John Slough. This slough supplies the upstream Cemetery and Rush Marshes with tide water, but already has limited conveyance as sedimentation has reduced the carrying capacity of the slough over the years. Therefore, there is concern that, depending upon the timing and phasing of the project, it could degrade these tidal marshes by reducing tides upstream from the project

site. This potential impact is avoided by the phased project design, which should minimize impacts to Black John Slough, the HOA channel, and upstream marshes and should actually improve tidal prism and sedimentation at these locations.

Project construction activities could generate some short-term water quality impacts to water quality (elevation of suspended sediment and turbidity levels) and mitigation, including Best Management Practices (BMPs), is proposed to reduce the likelihood and significance of such impacts.

Geology and Soils- Proposed levee modifications and proposed temporary structures (e.g., the proposed pump and 48-inch culvert) could be subject to damage in the event of a geologic disaster, such as an earthquake, strong seismic ground-shaking or liquefaction. However, the project reduces the likelihood of an unplanned or un-phased breach, with concomitant impacts occurring.

Biological Resources-The proposed project would restore native habitat and is expected to provide a net long-term benefit to sensitive habitat and plant and wildlife species, including special-status species. The project would increase biological diversity, and productivity, and connectivity, and would reduce predator access to interior portions of the site.

However, there is a concern that the project could have (primarily short-term, construction-related) impacts on plants and wildlife and sensitive habitats. Implementation of the project may involve interruption or modification of the hydrologic function of jurisdictional wetlands, federally protected under Section 404 of the Clean Water Act (e.g., removal of fringe marsh habitat, brackish and freshwater wetlands, and alteration of tidal channel hydrology). There could be direct impacts to these resources as a result of site construction activities and indirect impacts as a result of impacts to habitat, including changes in water levels and vegetation and disruption of movement patterns for resident or migratory fish and wildlife. Mitigation is proposed to reduce the likelihood and significance of such impacts. Mitigation is also proposed to reduce the likelihood that the project could promote the spread of invasive weeds.

Finally, concerns about potential impacts tidal range and sedimentation in Black John Slough, the HOA channel, and upstream marshes were presented above, under Issue 1 above: Hydrology and Water Quality. Changes in tidal range and sedimentation would have subsequent impacts on habitat and on plants and wildlife. As explained above, the phased project design is expected to maintain or improve tidal range and sedimentation at these locations and is therefore expected to benefit plant and wildlife species.

Traffic and Transportation-Trucks hauling fill material through residential streets from East to West Bahia could cause traffic and pedestrian safety impacts.

Air Quality-The project could cause short-term construction-generated dust and vehicle emissions. However, by restoring tidal influence and water circulation at the project site, the project is also expected to improve existing odor problems related to microbial activity in standing water at the site.

Noise-Trucks and other equipment operating at the project site and transporting materials through adjacent residential streets could cause short-term noise impacts for sensitive noise receptors.

Public Health (Mosquito Abatement)-Under current conditions, still or stagnant water at the site provides mosquito breeding habitat and therefore constitutes a public health concern. One of the stated project objectives is to provide mosquito abatement.

Aesthetics-Restoration-related construction activities may result in temporarily de-vegetated ground at the project site, which could have short-term adverse impacts on the visual setting of the site. Changes to the visual setting of the site could impact nearby residents and travelers on State Route 37 (SR 37), a CalTrans-eligible “scenic roadway” in Marin and Sonoma counties. However, given the short duration of these impacts and the fact that de-vegetated areas would be partially obscured by tidal waters, this impact is not significant.

Recreation and Public Access-The project may result in changes to public access and recreational use of the site. These changes are also not expected to be significant.

Cultural Resources-The project has the potential to impact recorded and unrecorded archaeological resources or human remains and mitigation is proposed to reduce the likelihood of such impacts occurring.

Table ES-2. Comparison of Impacts of Project Alternatives

<i>Impacts</i>	Proposed Project	No Project Alt.	Alt. 1 (Limited Fill Removal from E. Bahia)	Alt. 2 (No Fill Removal from E. Bahia)
<i>HYDROLOGY AND WATER QUALITY</i>				
Water Impact-1. Short-term construction impacts to water quality (elevation of suspended sediment and turbidity levels).	PS	NI	PS	PS
Post-mitigation Significance <ul style="list-style-type: none"> • Mitigation Measure for Water Impact-1: Implement Best Management Practices (BMPs) for siltation and hazardous materials controls, as specified in the Bahia Marsh Restoration EIR (see Section 3.4.1). 	LTS	NI	LTS	LTS
Water Impact-2 Substantial adverse changes in rates of sedimentation or erosion	NI	PS (--)	NI	NI

Impacts:

S = Significant Impact

PS= Potentially Significant Impact

LTS = Less than Significant Impact

NI = No Impact

Other abbreviations/symbols:

-- = No mitigation proposed

<i>Impacts</i>	Proposed Project	No Project Alt.	Alt. 1 (Limited Fill Removal from E. Bahia)	Alt. 2 (No Fill Removal from E. Bahia)
GEOLOGY AND SOILS				
Geo Impact-1. Substantial removal, filling, grading, or disturbance of soils	PS	NI	PS	PS
Post-mitigation Significance <ul style="list-style-type: none"> Mitigation for Geologic Impact 1: Use Best Management Practices (BMPs) to protect soil during and immediately after construction, as specified in the Bahia Marsh Restoration EIR (see Section 4.4.1). 	LTS	NI	LTS	LTS
Geo Impact-2. Potential for seismic activity or vulnerability of soil – comprised structures to seismic events.	LTS	PS (--)	LTS	LTS
Geo Impact-3. Potential for soil erosion by wind, waves, or currents.	NI	PS (--)	NI	NI
Geo Impact-4. Potential for soil subsidence producing adverse effects.	NI	PS (--)	NI	NI
BIOLOGICAL RESOURCES				
Bio Impact-1: Direct impacts to on-site and adjacent plants from construction activities.	LTS	NI	LTS	LTS
Bio Impact-2: Direct impacts to sensitive plant communities (e.g., brackish and freshwater wetlands and tidal fringe marsh) from construction activities.	LTS	NI	LTS	LTS
Bio Impact-3: Direct impacts to existing wildlife from construction activities.	PS (short-term)	NI	PS (short-term)	PS (short-term)
Post-mitigation Significance <ul style="list-style-type: none"> Mitigation Measure A for Bio Impact-3. Avoid construction operations during the breeding season. 	LTS	NI	LTS	LTS

<i>Impacts</i>	Proposed Project	No Project Alt.	Alt. 1 (Limited Fill Removal from E. Bahia)	Alt. 2 (No Fill Removal from E. Bahia)
Bio Impact-4: Indirect impacts to wildlife due to a temporary loss of habitat in some locations.	LTS	NI	LTS	LTS
Bio Impact-5: Disturbance of existing vegetation could promote the spread of invasive weeds.	PS	NI	PS	PS
Post-mitigation Significance <ul style="list-style-type: none"> • Mitigation Measure A for Bio Impact-5: MAS will coordinate with San Francisco Estuary Invasive Spartina Project to determine where the nearest populations of invasive cordgrass are located and to ensure that invasive cordgrass is not introduced to the Project Site during or prior to project implementation. • Mitigation Measure B for Bio Impact-5: Gain control of new, establishing populations of invasive cordgrass using protocols suggested by the San Francisco Estuary Invasive Spartina Project. • Mitigation Measure C for Bio Impact-5: Conduct post-implementation monitoring for new, establishing populations of invasive cordgrass. If populations invasive cordgrass is detected implement Mitigation Measure B. • Mitigation Measure D for Bio Impact-5: Conduct post-implementation monitoring for new, establishing populations of pepperweed. If new populations are detected, appropriate control measures will be implemented. 	LTS	NI	PS	PS
Bio Impact-6: Potential indirect impacts to upstream Cemetery and Rush Marshes from unplanned breaching of site levees.	NI	PS (--)	NI	NI
TRAFFIC AND TRANSPORTATION				
Traffic Impact-1: Increased traffic on Bolero Court and Topaz Drive during construction.	S (short-term, 4 weeks est.)	NI	S (short-term, 2 weeks est.)	NI

<i>Impacts</i>	Proposed Project	No Project Alt.	Alt. 1 (Limited Fill Removal from E. Bahia)	Alt. 2 (No Fill Removal from E. Bahia)
Post-mitigation Significance <ul style="list-style-type: none"> • Mitigation for Traffic Impact-1: Restrict truck traffic to the hours between 9am and 6pm. 	LTS	NI	LTS	NI
Traffic Impact-2: Increased safety risks to pedestrians, bicyclists, and motorists on Bolero Court and Topaz Drive during construction.	S (short-term, 4 weeks est.)	NI	S (short-term, 2 weeks est.)	NI
Post-mitigation Significance <ul style="list-style-type: none"> • Mitigation A for Traffic Impact-2: Reduce speed limit for project trucks to 10mph. • Mitigation B for Traffic Impact-2: Restrict street parking along Topaz Drive and Bolero Court during construction/truck hauling hours. • Mitigation C for Traffic Impact-2: Notify the Bahia Community immediately prior to the beginning of excavations at East Bahia. 	LTS	NI	LTS	NI
AIR QUALITY				
Air Quality Impact-1: Operation of construction equipment and vehicles (worker commute trips and truck transport of fill material) during project construction would generate air emissions.	LTS (short-term)	---	LTS(short term, less impact than proposed project)	LTS(short term, less impact than proposed project)
Air Quality Impact-2: Project construction would generate fugitive dust.	LTS (short-term)	---	LTS(short term, greater impact than proposed project)	LTS(short term, greater impact than proposed project)
Air Quality Impact-3: Generation of noxious odors from existing ponds.	NI	PS (--)	NI	NI

<i>Impacts</i>	Proposed Project	No Project Alt.	Alt. 1 (Limited Fill Removal from E. Bahia)	Alt. 2 (No Fill Removal from E. Bahia)
NOISE				
Noise Impact-1: Construction-related truck traffic noise on Albatross Drive and Topaz Drive during construction.	S (short-term, 4 weeks est.)	NI	S (short-term, 2 weeks est., less impact than proposed project)	NI
Post-mitigation Significance: <ul style="list-style-type: none"> • Mitigation A for Noise Impact-1: Restrict truck traffic to the hours between 9am and 6pm. • Mitigation B for Noise Impact-1: Instruct the drivers not to use engine braking on Topaz Drive. 	LTS	NI	LTS	LTS
Noise Impact-2: Construction-related noise from operation of heavy equipment	S (short-term)	NI	S (short-term, greater impact than proposed project)	S (short-term, greater impact than proposed project)
Post-mitigation Significance <ul style="list-style-type: none"> • Mitigation A for Noise Impact-2: Locate staging and stockpile areas, and supply and construction vehicle routes as far away from sensitive receptors as possible. • Mitigation B for Noise Impact-2: Establish and enforce construction site and haul road speed limits. • Mitigation C for Noise Impact-2: Restrict the use of bells, whistles, alarms, and horns to safety warning purposes. • Mitigation D for Noise Impact-2: Equip all construction vehicles and equipment with appropriate mufflers and air inlet silencers. • Mitigation E for Noise Impact-2: Restrict hours of construction to daylight hours. • Mitigation F for Noise Impact-2: Locate equipment as far from sensitive receptors as possible. 	LTS	NI	LTS	LTS

<i>Impacts</i>	Proposed Project	No Project Alt.	Alt. 1 (Limited Fill Removal from E. Bahia)	Alt. 2 (No Fill Removal from E. Bahia)
<i>PUBLIC HEALTH (MOSQUITO ABATEMENT)</i>				
Public Health Impact-2. Less water circulation, less wind-wave action, higher temperatures, higher organic content and emergent vegetation, and less saline waters create favorable conditions for mosquitoes.	NI	PS (---)	NI	NI
<i>AESTHETICS</i>				
Visual Impact-1. Impacts to views of the project site resulting from changes in wildlife populations.	LTS (short-term)	NI	LTS(short term, slightly greater impact than proposed project)	LTS(short term, slightly greater impact than proposed project)
Visual Impact-2. Temporary impacts to views of the project site resulting from de-vegetated ground in graded portions of the site.	LTS (short-term)	NI	LTS(short term, slightly greater impact than proposed project)	LTS(short term, slightly greater impact than proposed project)
Visual Impact-3: Temporary impacts to views of the project site resulting from the operation of heavy construction equipment, vehicles, and material storage.	LTS (short-term)	NI (also no indirect benefits from wildlife diversity, abundance)	LTS(short term, slightly greater impact than proposed project)	LTS(short term, slightly greater impact than proposed project)
<i>RECREATION AND PUBLIC ACCESS</i>				
Recreation Impact-1: Truck traffic along Topaz Drive will create a safety hazard for the users of Topaz and Santana Parks.	S (short-term, 4 weeks est.)	NI	S (short-term, 2 weeks est.)	NI
Post-mitigation Significance	LTS	NI	LTS	NI
<ul style="list-style-type: none"> Mitigation for Recreation Impact-1: Post construction barriers (two level tapes) along the street boundary of the parks during the time of construction and pre-construction notification of the neighborhood. 				

<i>Impacts</i>	Proposed Project	No Project Alt.	Alt. 1 (Limited Fill Removal from E. Bahia)	Alt. 2 (No Fill Removal from E. Bahia)
<i>CULTURAL RESOURCES</i>				
Cultural Resource Impact-1. Potential impact to unrecorded and unknown archaeological sites from ground disturbance and operation of heavy vehicles and machinery.	PS	NI	PS	PS
Post mitigation Significance <ul style="list-style-type: none"> • Mitigation A for Cultural Resources Impact-1: Contractors and construction personnel involved in ground-disturbing activities will be advised of the possibility of encountering cultural resources (including, but not limited to, chipped or ground stone, historic debris, building foundations, and non-human bone) during construction work. • Mitigation B for Cultural Resources Impact-1: There is low probability that historic archaeological materials (including, but not limited to, structural remains, privies, or refuse deposits containing metal, glass, and ceramic items) may be encountered. • Mitigation C for Cultural Resource Impact-1: DFG will pursue a strategy of avoiding impacts to cultural resources, where feasible. If avoidance of potentially significant resources is determined to be infeasible, DFG will conduct a controlled archaeological test excavation to determine archaeological site significance. 	LTS	NI	LTS	LTS(MMA, NI, C, for Cultural Impact-1)
Cultural Resource Impact-2. Potential impact to unrecorded and undiscovered human remains from ground disturbance and operation of heavy vehicles and machinery. (Note that according to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052)).	PS	NI	PS	PS

<i>Impacts</i>	Proposed Project	No Project Alt.	Alt. 1 (Limited Fill Removal from E. Bahia)	Alt. 2 (No Fill Removal from E. Bahia)
<p>Post Mitigation Significance</p> <ul style="list-style-type: none"> • Mitigation for Cultural Resource Impact-2: If bone is encountered and appears to be human, California law (PRC Section 7050.5) requires that potentially destructive construction work in the vicinity of the find and in nearby areas reasonably suspected to overlie adjacent human remains is halted and the County Coroner (in the county where the find occurs) is contacted. 	LTS	NI	LTS	LTS

COMPARISON OF THE ALTERNATIVES

The Proposed Project would cause a number of short-term impacts from earth-moving and other construction activities and from the transportation of excavated fill materials from the East Bahia peninsulas to Central Bahia. Impacts to traffic, air quality, and noise would be significant, but short in duration (approximately 2 to 6 weeks) and would be reduced to less than significant by proposed mitigation measures. Selection of Alternative 1 would reduce the significance of impacts related to trucking fill materials from East Bahia through the Bahia residential community along Topaz Drive. Selection of Alternative 2 would eliminate the trucking impacts, but would still create some short-term air and noise impacts from operation of heavy equipment on site.

On the other hand, the Proposed Project and Alternatives 1 and 2 would result in long-term improvements to site hydrology, water quality, biological diversity, and threatened and endangered species populations, consistent with the rationale for the public funding used to acquire the project site. Improvements to water quality would also probably result in a reduction in mosquito breeding habitat and a lessening of nuisance odors emanating from the project site. Implementing either Alternative 1 or 2 would somewhat reduce the project benefits to biological and water resources and would not be as successful as the Proposed Project at attaining the stated project objectives. Although the No Project Alternative is generally associated with more environmentally benign protection of existing natural resources, in this case the No Project Alternative could result in a worsening of water quality, mosquito populations, subsidence, and odors. Furthermore, it would not produce the benefits of the Proposed Project or Alternatives 1 and 2 and it would not attain the stated project objectives.

IDENTIFICATION OF THE ENVIRONMENTALLY SUPERIOR (CEQA) ALTERNATIVE

The No-Project Alternative does not meet the project objectives. It would not restore tidal wetlands to the project site, remedy existing problems with sedimentation and tidal capture in Black John Slough, reduce the site conditions favorable for noxious odors and mosquito production, or reduce the potential for impacts from unplanned, un-phased site breaching. Therefore, the No Project Alternative is not considered the environmentally superior alternative.

Although Alternatives 1 and 2 would reduce or eliminate some of the project nuisance impacts to nearby residents (e.g., traffic, air quality, noise impacts), these impacts are short-term, mitigated, and outweighed by the anticipated benefits of the Proposed Project to habitat, plants, and wildlife over the long term.

Only the Proposed Project meets all the project objectives. As stated above, the primarily short-term impacts of the project are mitigated and outweighed by the anticipated benefits of the Proposed Project to habitat, plants, and wildlife. Furthermore, the site was purchased primarily with public funds, including funds from the CALFED Ecosystem Restoration Program (ERP), for the purposes of habitat protection and restoration. Restoring tidal marsh at the Bahia site directly supports the primary elements of the CALFED ERP and is consistent with the intended use of these funds. Maximizing tidal wetland restoration would also avoid leaving avenues open

for impact on existing endangered species habitat and on nearby restored habitat. Given the above considerations, the Proposed Project is the environmentally superior under CEQA.