CITIZENS COMMITTEE TO COMPLETE THE REFUGE

PO Box 23957 San Jose, CA 95153 650-493-5540 cccrrefuge@gmail.com www.bayrefuge.org

November 30, 2023

Makena Wong, Project Manager
OneShoreline
1700 S. El Camino Real, Suite 502
San Mateo, CA 94402
Via email: Projects@OneShoreline.org

RE: Notice of Preparation of an Environmental Impact Report for the Millbrae and Burlingame Shoreline Area Enhancement Project

Dear Ms. Wong:

The Citizens Committee to Complete the Refuge appreciates the opportunity to provide scoping comments in response to the October 10, 2023 Notice of Preparation (NOP) of an Environmental Impact Report (DEIR) for the Millbrae and Burlingame Shoreline Area Enhancement Project (Project) issued by the San Mateo County Flood and Sea Level Rise Resiliency District (OneShoreline).

CCCR is a signatory on a November 30, 2023 NOP comment letter from six environmental organizations submitted jointly under separate cover. By reference, the comments included in the joint letter are incorporated into our scoping comments as well.

The Citizens Committee to Complete the Refuge (CCCR) has spent decades protecting the Bay's tidal wetlands and listed and rare species, and has an ongoing interest in wetlands restoration and acquisition. Our senior members worked with Congressman Don Edwards to obtain congressional authorization in 1972 to establish the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge). Since then, our organization has taken an active interest in Clean Water Act (CWA), Endangered Species Act (ESA) and California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) regulations and implementation at the local, state and national levels, demonstrating our ongoing commitment to wetland, wildlife and Refuge issues.

Additionally, we have participated as a stakeholder in the US Fish and Wildlife Service Tidal Marsh Ecosystem Recovery Plan, the San Francisco Bay Conservation and Development Commission Adapting to Rising Tides and Bay Adapt processes, the San Francisco Estuary Partnership, the San Francisco Bay Joint Venture and the South Bay Salt Pond Restoration Project. Our participation in these processes demonstrates our recognition of the threats posed by climate change and more specifically, sea level rise, and the challenges that face our region as we work to protect the current and future health of San Francisco Bay and our communities.

OneShoreline is proposing to build an offshore barrier and create an artificial lagoon to address impacts from coastal flooding and sea level rise. The area where the barrier and lagoon would be sited is currently submerged bay, intertidal mudflat and tidal marsh. These existing habitats could be severely impacted or decimated by this project. Although the Project proposes to construct new habitat, details on how it would do so, and if it is even feasible, are not provided.

In addition to the serious potential impacts to water quality and Bay habitats in the immediate area offshore of Burlingame and Millbrae, the Project, as described in the NOP, represents an **alarming threat to the health of the San Francisco Bay Estuary because it would set a dangerous precedent for similar barrier/lagoon projects offshore of urbanized areas around the Bay,** reversing decades of work to return lands that have been diked off from the Bay, to tidal flows to restore the ecological health of the Bay. For these reasons, our comments will focus first on the potential project impacts of greatest concern that must be addressed in the DEIR.

Project Description

According to the NOP, the Project would be located along the shoreline of San Francisco Bay, in waters of the state of California, south of San Francisco International Airport (SFO) and immediately adjacent to and within the cities of Millbrae and Burlingame.

Proposed Project:

> "*The purpose of the Project would include a combination of offshore and shoreline features to achieve its objectives. The Project proposes to create a tidal lagoon capable of controlling the offshore water level through the construction of an offshore barrier composed of both hardened and natural materials that include habitat features and could include a pedestrian trail. This barrier with habitat features, which has been described as a "living shoreline" in other contexts, would extend approximately 2.65 miles from southernmost coastal SFO location just north of Highline Canal to the southeast corner of the shoreline of Burlingame (see Figure 2). To expand its benefits, this barrier could be extended an additional 0.6 miles further south to high ground at the northwest edge of Coyote Point within the City of San Mateo. The proposed barrier's height would be sufficient to enable onshore protection from future sea level rise and its width would depend on the amount of habitat and recreational features included in it. To achieve its objectives, the proposed Project may also construct shoreline features, such as trails, beaches, habitat, levees, walls, bridges, tide gates, and pump stations*."

In addition to the identified project with the offshore barrier and tidal lagoon, the NOP states that "an alternative with features along the shoreline" will also be evaluated.

Due to the extremely limited and inadequate project description in the NOP, we relied on a number of OneShoreline documents to piece together pertinent information on the Project that could inform our NOP scoping comments. With the inconsistent numbering of various project alternatives between different reports this was very difficult. **The Draft Environmental Impact Report (DEIR) must include a robust, clear, and stable project description with sufficient detail to ensure agencies, stakeholders and the public can easily grasp the elements of the Project.** Below are the primary documents from the OneShoreline website that informed our NOP comments:

Conceptual Alternatives Feasibility Analysis (ALT Report)
Biological Resources Constraints Analysis (BIO Report)
Coastal Hazards Report (COA Report)
Hazardous Materials Constraints Analysis (HAZ Report)

Comments

IMPACTS TO WATER QUALITY

Based on information from the Project documents, the proposed Project would construct an offshore barrier 2.65 miles long that would create an artificial lagoon of up to 670 acres. Tidal flow would initially be maintained through tidal gates in the barrier. The number of tidal gates has not been determined, but could range from one to eighty, and some number of the gates will have associated pump stations. During extreme rain events during high tides, the tide gates would be closed and floodwaters from five local creeks would be detained in the lagoon until low tide, when the gates would open. During king tides and as sea level rises, the barrier tide gates would be closed more frequently and for longer duration during higher tides. Eventually, the tide gates will need to remain closed and water will be pumped out to simulate a tidal exchange.

There is no question that the hydrology and water conditions offshore could significantly be altered from existing conditions during and after construction of the offshore barrier. For this reason, it is critical that the DEIR ascertains the baseline conditions with respect to water quality including temperature, salinity, nutrients, dissolved oxygen, circulation (both horizontal and vertical), volatile sulfides, sediment, toxins and turbidity, within and adjacent to the project area.

The DEIR impact analysis must determine not only if there will be any initial change in water quality conditions in the lagoon when the barrier is first constructed, but also any post-construction changes in these water quality conditions over time as the extent of tidal exchange is altered, and/or lagoon waters and habitats are impacted from the detention of stormwater and normal seasonal freshwater flows from the creeks into the lagoon. Similarly, the DEIR impact analysis must identify, analyze and potentially mitigate adverse impacts of the proposed project on the areas outboard and adjacent to the Project Area.

The DEIR Mitigation Monitoring and Reporting Plan (MMRP) must identify who the responsible party(s) will be for periodic monitoring of water conditions in the lagoon, and what interventions would be necessary if water quality deteriorates to levels outside of water quality standards or limits with respect to harmful impacts to fish and wildlife or human health, e.g., formation of Harmful Algal Blooms (HABs), avian botulism, etc. The MMRP should also monitor rate of introduction of coarse organic debris and sediment accumulation within the lagoon. The MMRP should also report on the areal extent of tidal wetlands and other existing habitats within the artificially created lagoon. In addition, the MMRP should track accretion or erosion of sediments in areas adjacent to the barrier. The MMRP should include an Adaptive Management Plan to identify issues that could arise and triggers necessitating remedial measures, identification of agencies that would be involved in the review and approval of proposed remedial measures and the process for implementation of remedial measures.

The following specific, potentially significant adverse impacts need to be analyzed in the DEIR and effective mitigation measures identified. The analysis must identify and analyze the potential for harm to the health and resilience of existing habitats, aquatic invertebrates, fish species, including listed species currently in the area, waterbirds, and marine mammals:

- Dramatic shifts in salinity and temperature, from freshwater flows being detained in the lagoon, that are outside of the tolerance range for organisms currently living in the Project area and migrating through the site. Upstream water retention basins could reduce creek flows into the lagoon during storm events and the DEIR should evaluate this strategy and provide information on its feasibility.

- Changes to circulation. Can the lagoon be managed to avoid creating an environment conducive to poor water exchange with the bay and stratification within the water column?

- Accumulation of excess nutrients and organic matter from upstream creeks can cause low oxygen levels in the water due to eutrophication, leading to fish die-offs. The Project *Coastal Hazard Analysis* mentions that the project lagoon would be, "like the Palo Alto Flood Basin". In 2002, a large fish die-off in the Palo Alto Flood Basin occurred due to low oxygen levels in the water attributed to accumulation of leaf litter following a rainstorm[1]. The DEIR must identify upstream sources of biological material that may accumulate in the lagoon and describe what steps will be taken to avoid low dissolved oxygen concentrations within the lagoon.

- Harmful Algal Blooms (HABs)

- Construction of a barrier could have potentially significant and adverse impacts to sediment transport within the local area since the flows from the five local creeks to the Bay would be cut off during higher tides or King tides, during which time the sediment and coarse organic debris loads the creeks are carrying could settle within the detention basin/lagoon. Increasingly over time, as sea levels continue to rise and the amount of time the tide gates are closed increases, this phenomenon could be magnified. Therefore, placement of an offshore barrier will likely result in the need to dredge the detention basin/lagoon. How will dredging affect eelgrass habitat the project proponent indicates may be established within the lagoon, water quality in terms of sediment toxins and turbidity. The DEIR must document existing sediment toxins and provide a strategy to avoid impacting water quality during dredging.

Sediment appears to be eroding at the south end of the project area in (*Coastal Hazard Analysis* Figure 4-9). It appears from Figure 2 in the NOP that the offshore barrier would cut through the area currently being eroded.

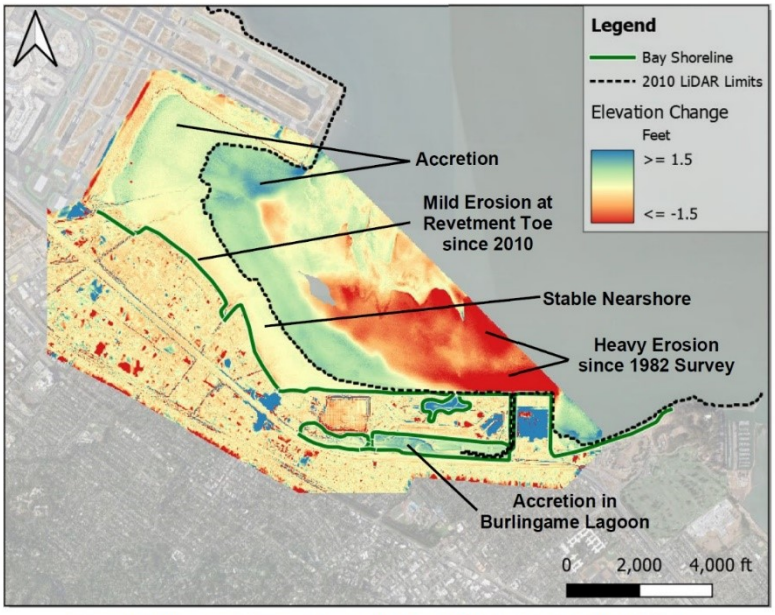


Figure 4-9: Elevation Change Between NOAA CUDEM and 2022 LiDAR Data Sets.

Coastal Hazard Analysis Figure 4-9

[1] https://www.grassrootsecology.org/from-the-field/2017/1/30/grassroots-ecologys-palo-alto-creek-monitoring-program-celebrates-its-third-birthday

- The DEIR must study the impacts of the proposed solid barrier through the erosional area, on areas outboard and adjacent to the proposed barrier. How will sediment loss due to the wall be avoided as wave energy and currents are deflected off the wall?

View from Anza Lagoon Fishing Pier, drainage pipes into the bay. 11.4.2023

Bayside Park drainage pipes into bay 11.4.2023

There are many drainage pipes emptying into the bay along the shoreline, with evidence of algae growing at the pipe outfalls.

- What is the existing quantity and chemical composition of the effluent, and how will those chemicals/nutrients affect water quality within the lagoon? Stormwater runoff and drainage from urban areas can include pesticides, fertilizers, herbicides, polycyclic aromatic hydrocarbons (PAHs), heavy metals such as nickel, copper, zinc, cadmium, lead oil, grease, and debris.

Drainage pipe into bay along Bay Trail 11.8.2023

Algae growing on rocks along shore at end of drainage pipe. 11.8.2023

IMPACTS TO WETLAND HABITATS

The DEIR must address significant concerns regarding potential Project impacts to existing San Francisco Bay wetland habitats, as well as the impacts to the proposed Project habitat enhancements. This includes conversion of habitat types, e.g., conversion of tidal marsh to habitats associated with a lagoon, etc. The DEIR must also identify and analyze and potentially mitigate cumulative losses of habitats such as tidal marsh habitat capable of supporting the endangered Ridgway's Rail.

Salt (Tidal) Marsh Habitat

Tidal marsh in Millbrae between Highland Canal and SFO. This marsh provides nesting habitat for endangered California Ridgway's Rail. 11.4.2023

Tidal marsh habitat occurs at two locations in the project area; at the western end in the area of San Francisco International Airport, Highline Canal and El Portal Creek, and further east at Mills Creek. It is classified as Northern Coastal Salt Marsh (tidal marsh), and is composed of pickleweed, California cordgrass and other salt-tolerant hydrophytes (BIO Report). Salt marshes are an important part of the Bay's ecosystem, providing essential services such as carbon sequestration[2], nutrient cycling, water filtration, and storm protection[3]. In addition, tidal marshes support wildlife food and habitat[4], e.g., the tidal marsh in the Project area provides foraging and nesting habitat for the federal and state endangered California Ridgway's Rail and salt marsh harvest mouse, as well as Essential Fish Habitat and support for fisheries.

The western end of the Project offshore barrier would bisect the large tidal marsh near the airport before connecting to the shoreline levee. This marsh has confirmed nesting Ridgway's Rail. Both during construction and post-construction, the proposed barrier will likely have significant and adverse impacts to the tidal wetlands inboard and outboard of the proposed barrier. The barrier would permanently bisect the marsh habitat, impeding wildlife movement between the two areas, and for reasons identified above, adversely impact tidal marsh habitat. **All of the marshes internal to the proposed barrier would be within the created, artificial lagoon and would be subject to the hydrologic changes related to altered tidal flows and detention of freshwater flows from the creeks**. Conversion of tidal marsh to other habitats must be identified in the list of direct and indirect impacts. All of the existing

[2] USGS Hydrologic Restoration in Coastal Wetlands Enhances Climate Change Mitigation Benefits. https://www.usgs.gov/centers/whcmsc/news/hydrologic-restoration-coastal-wetlands-enhances-climate-change-mitigation#:~:text=Coastal%20wetlands%20are%20known%20for%20the%20numerous%20critical,of%20atmospheric%20carbon%20in%20their%20soil%20and%20plants.

[3]NOAA, National Ocean Service. Why Are Estuaries Important? Ecosystem Services. https://oceanservice.noaa.gov/education/tutorial_estuaries/est03_ecosystem.html#:~:text=Salt%20marshes%20are%20one%20type,nutrients%20from%20the%20surrounding%20watershed.

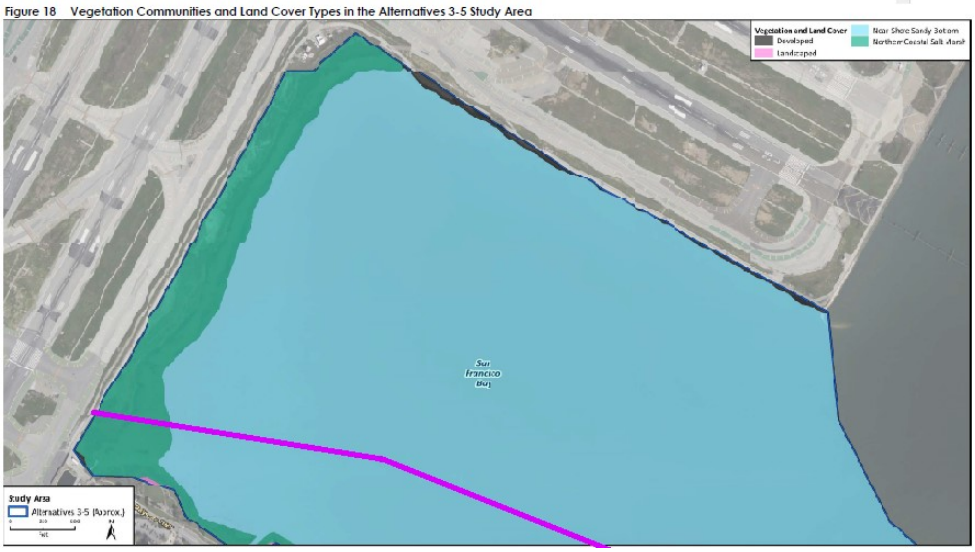
[4] USEPA. About Coastal Wetlands. https://www.epa.gov/wetlands/about-coastal-wetlands

tidal wetlands outboard of the barrier wall could be adversely impacted from the proposed construction of a barrier wall as well.

The DEIR must:

- Document the extent and location of existing salt marsh habitat in the area.
- Identify, analyze and propose mitigation for potential adverse impacts on marsh vegetation, hydrology and wildlife from construction activities.
- Identify, analyze and propose mitigation for post-construction impacts resulting from building a solid wall through the existing marsh near the airport.
- Identify, analyze and propose mitigation for potential adverse impacts to existing tidal wetlands on the outboard side of the proposed barrier, not only from construction activities, but also the post-construction impacts of the proposed barrier including decreased local sediment supply and erosion from wave deflection from the proposed barrier.
- Identify, analyze, and propose mitigation for changes in the physical environment for the marshes and other habitats within the lagoon which could include changes in salinity, sedimentation, nutrients, toxics, temperature, changes in submersion/exposure time from the current tidal regime, and other water quality parameters that could affect this critically important habitat.

The DEIR must analyze these potentially significant adverse impacts and provide measures to avoid or mitigate damage to this habitat.



The proposed offshore barrier (purple) would cut through existing saltmarsh habitat (green). Figure 18 from the project's BIO Report with approximate location of the offshore barrier from the project NOP overlayed.

Tidal Marsh between El Portal Creek and Highland Canal 11.4.2023

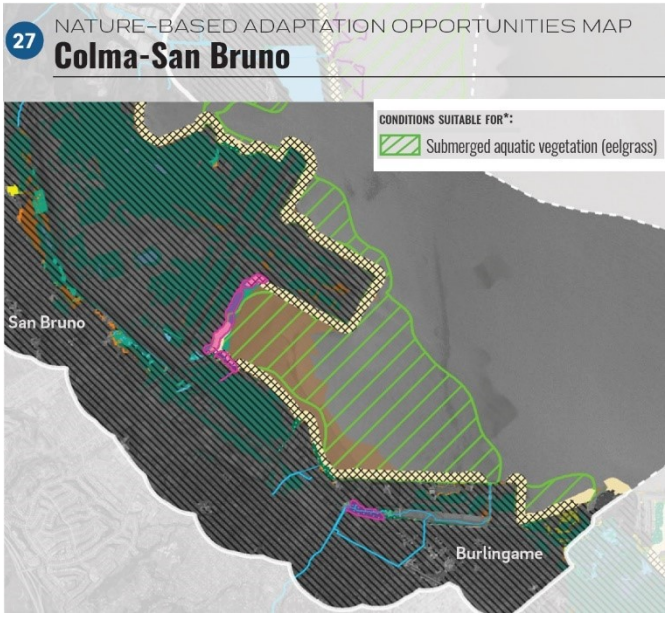
Salt marsh at Mills Creek, Burlingame Shorebird Sanctuary 11.4.2023

Eelgrass Beds

According to the Project BIO Report, eelgrass is a “Special Status Marine Plant Species” and eelgrass beds have been previously documented throughout the Project area. “Eelgrass beds provide foraging and refuge habitat for juvenile fish species including salmonids, Pacific herring and rockfish species. A variety of seabirds utilize this habitat…” (Pages 50,60)

The *San Francisco Bay Shoreline Adaptation Atlas* recommends establishing eelgrass habitat as a nature-based strategy for sea level rise in the entire area of the Project (see map below). The proposed offshore barrier and lagoon would physically isolate 670 acres of that area from San Francisco Bay waters. If the lagoon is not properly managed, 670 acres of potentially restorable eelgrass habitat in this

section of the Bay could be lost.



Recommended location for eelgrass establishment in the project area. Adapted from SFEI and SPUR[5].

The DEIR must identify, analyze and propose mitigation for potential impacts resulting from the offshore barrier and the lagoon to the natural eelgrass beds that occur in subtidal habitat both inboard and outboard of the proposed barrier, as the impacts are likely to be different. Additionally, the Project includes "habitat enhancement" as an objective, including restoration of eelgrass beds in the Project area. Impacts to existing, natural eelgrass beds could occur from construction activities to build the offshore barrier wall, tide gates and pump stations and the DEIR must look at this potential adverse impact. As part of the DEIR analysis, surveys for eelgrass must be conducted to map the specific locations of the beds.

Specific concerns are listed below:

- Eelgrass grows between +1 ft MLLW and -6 ft MLLW[6] . How are those optimal depths going to be maintained within the managed lagoon?
- Eelgrass is not tolerant of low water salinity[7]. With the lagoon serving as a stormwater detention basin during high tide storm events, how would water salinity within the lagoon be maintained within the salinity tolerance range for eelgrass?

- Eelgrass grows in a specific temperature range[8]. How would water temperature within the lagoon be maintained within the temperature tolerances of eelgrass?

[5] SFEI and SPUR. 2019. *San Francisco Bay Shoreline Adaptation Atlas: Working with Nature to Plan for Sea Level Rise Using Operational Landscape Units.* Publication #915, San Francisco Estuary Institute, Richmond, CA.

[6] WRA. 2006. Eelgrass Survey Paradise Cay Belvedere, Marin County, California

[7] Nejrup LB, Pederson MF. 2008. Effects of salinity and water temperature on the ecological performance of *Zostera marina.* Aquatic Botany 88: 239–246

[8] Ibid

- Algal blooms negatively impact eelgrass restoration projects[9]. How would algal blooms be avoided in a lagoon with potentially reduced circulation, elevated nitrogen levels and water temperature?

- Waves hitting the outboard side of the barrier wall, may create conditions outboard of the barrier that impact eelgrass beds such as turbidity and erosion.

Mudflat Habitat

Extensive mudflat off Millbrae with foraging shorebirds 11.8.2023

The *San Francisco Bay Subtidal Habitat Goals Report* (2010) describes the value of mudflat habitat several different ways:

> *"Intertidal mudflats are well known to support various species of birds that are either species of concern, have intrinsic value, or provide recreational opportunities for birdwatchers. This may be reason enough to protect such habitat*." (Page 19)
>
> *"Invertebrates living in intertidal to subtidal mudflats support large numbers of shorebirds and diving ducks that feed during low tide*." (Page 58)
>
> *"Benthic organisms support many demersal fish, including recreationally important species (e.g., California halibut, striped bass) and threatened species such as green sturgeon. Some demersal fish such as bat rays forage on mudflats at high tide. Numerous bird species forage in shallow soft substrate, including diving ducks (canvasback, greater and lesser scaup, surf scoter). The San Francisco Estuary is a key stop on the Pacific Flyway for ducks and shorebirds, which forage in salt ponds and intertidal mudflats (Warnock et al. 2002). Marine mammals forage on the bottom (gray whales) or consume demersal and pelagic fish (seals, sea lions)*." (Page 59)

[9] Boyer KE, Wyllie-Echeverria S. 2010. Eelgrass Conservation and Restoration in San Francisco Bay: Opportunities and Constraints Final Report for the San Francisco Bay Subtidal Habitat Goals Project

The Clean Water Act Section 404(b)(1) Guidelines (Guidelines) lists mudflats as a "special aquatic site", providing this habitat with greater regulatory protection. Given the importance of intertidal mudflat habitat, the DEIR must:

- Document the extent of mudflat habitat in the Project area and identify potential adverse impacts and mitigation for the construction and permanent footprint of the barrier, including tide gates and pump stations.
- Determine to what extent the barrier/lagoon would alter the natural tidal flow and exposure period for mudflat habitat within the lagoon area, analyze any impacts and provide measures to mitigate impacts.
- Determine not only construction, but also post-construction impacts of the construction of a barrier on the mudflats outboard of the proposed barrier.
- Determine if dredging will be needed, the frequency of dredging episodes and how dredging would affect the quantity and quality (with respect to wildlife) of mudflat habitat within the detention basin/lagoon. Appropriate mitigation measures must be provided. Sediment essential to the stability of mudflats appears to be accreting in most of the project area (*Coastal Hazard Analysis* Figure 4-9). The placement of an offshore barrier could result in the need to dredge within the lagoon due to the sediment load transported by the five local streams.
- Sediment also appears to be eroding at the south end of the project area in Figure 4-9. It appears from Figure 2 in the NOP that the offshore barrier would cut through the area currently being eroded. The DEIR must study the impacts of putting a solid barrier through the erosional area on the sediment levels, and how any acceleration of sediment loss due to the barrier wall can be mitigated.

The offshore barrier will have tide gates with sills. The sills will create, "…some limited muting of the lowest tidal range" (COA Report page 5-31). **In other words, the mudflat within the Project lagoon will not completely drain as it had prior to the installation of the tide gate(s)**. **It is unclear from reviewing the project documents, whether mudflat areas in the lagoon will be completely exposed at the lower low tides**. Nor is it clear what will happen to water levels when the elevation of the mudflat within and outside of the tide gates changes due to accretion or depletion of sediment.

- The DEIR must determine to what extent the Project offshore barrier/lagoon would alter the natural tidal flow and exposure period for mudflat habitat within the lagoon area, both initially and as sea levels rise, analyze any impacts and provide mitigation measures.

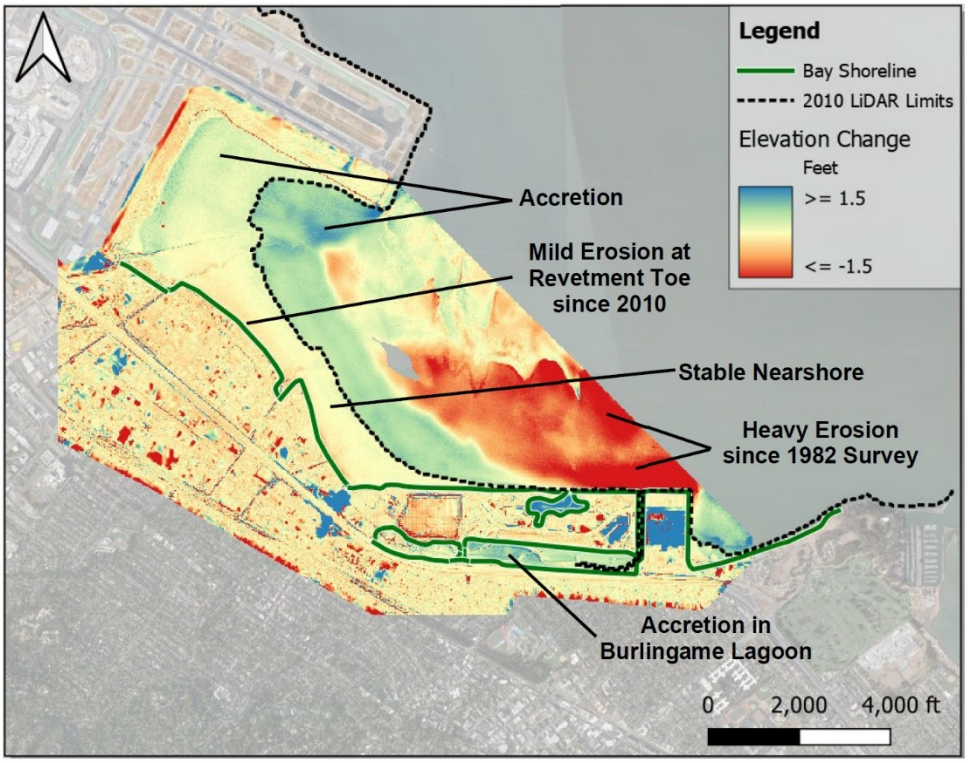


Figure 4-9: Elevation Change Between NOAA CUDEM and 2022 LiDAR Data Sets.

Coastal Hazard Analysis Figure 4-9

IMPACTS TO WILDLIFE

California Ridgway's Rail

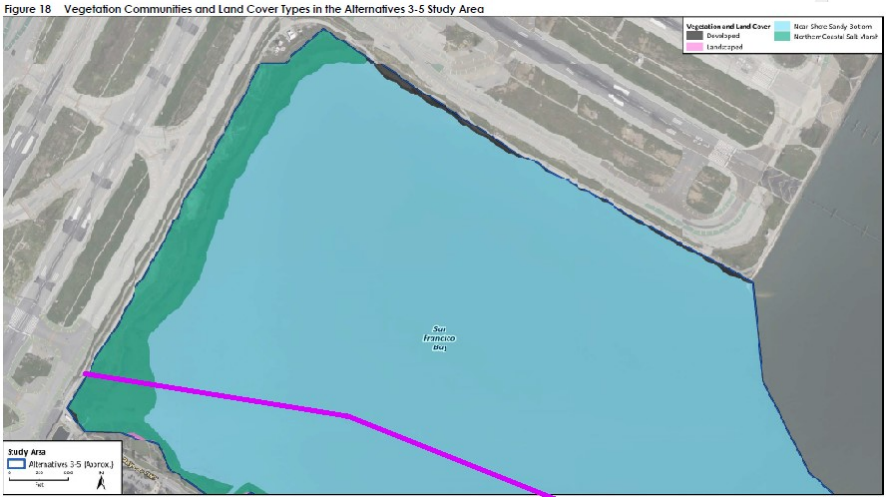
According to the Project BIO Report (Page 59):
"This species has frequently been documented along the shoreline adjacent to SFO and in the tidal sloughs along the San Francisco Bay (CDFW 2022a, Cornell Lab of Ornithology 2022b). Six documented occurrences of California Ridgway's rail are recorded in the CNDDB within five miles of the study areas for all alternatives (CDFW 2022a). Several areas of fragmented salt marsh habitat suitable for nesting are present throughout the study areas. This species has a high potential to nest and forage within the study areas for all alternatives."

California Ridgway's Rail, a federal and state endangered species, forages and nests in the tidal marsh adjacent to San Francisco Airport (SFO), and would be greatly impacted by the proposed Project. The west end of the offshore barrier would be constructed within this area, **permanently bisecting the marsh and separating each side of the tidal marsh with an impenetrable wall**.

The bird's marsh habitat would be bisected by the proposed barrier with a portion of the tidal marsh habitat that supports this species falling within the Project's artificial lagoon. Tidal marsh habitat within the lagoon would be subject to possible changes in tidal hydrology, water salinity variability, and loss of vegetation from construction activities. The rails would be subjected to noise and human disturbance during construction, and loss of habitat connectivity.

- The DEIR must identify and analyze these and any other identified potential impacts to the rails, and provide mitigation measures to avoid and minimize any direct, indirect adverse, or cumulative impacts both during and post-construction.
- The DEIR must also identify and analyze any possible indirect and cumulative impacts to Ridgway's Rail tidal marsh habitat on the outboard side of the levee, including but not limited to the impacts of decreased sediment load and erosion and scour of the existing marsh resulting from wave deflection off the barrier.

<u>The Project will likely trigger formal consultation with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act because of these potential impacts.</u>



The proposed offshore barrier (purple) would cut through existing salt marsh habitat (green). Figure 18 from the project's BIO Report with approximate location of the offshore barrier from the project NOP overlayed.

<u>Migratory and Wintering Shorebirds</u>

Shorebirds foraging on extensive mudflat off the Burlingame shoreline in area that would be within the proposed project lagoon. 2023.11.8 DSC_0511

The San Francisco Bay Estuary is an important part of the Pacific Flyway and thousands of migratory and overwintering shorebirds forage seasonally on the expansive mudflat in the Project area.

The project area is designated an “Important Shorebird Site” by the Western Hemisphere Shorebird Reserve Network (https://whsrn.org/about-whsrn/):

- The DEIR must document the current use of this area by shorebirds and analyze adverse impacts to the mudflat habitat from the construction of the proposed offshore barrier, and the conversion of mudflat habitat subject to natural, daily tidal cycles to a damped and artificially managed muted tidal lagoon, and eventually to a lagoon that no longer experiences natural tidal flows.
- The analysis must include project impacts to the mudflat, both inboard and outboard of the barrier, from barrier construction activities, and both physical changes (i.e., water depth, length of time mudflats are exposed, loss of mudflat habitat, etc.) and biological changes (i.e., shorebird prey abundance and species composition) from lagoon water management practices. How would variable conditions in the lagoon in the future impact aquatic invertebrates? How would human disturbance from a possible trail on top of the offshore barrier affect the birds?
- The DEIR must identify and analyze cumulative loss of mudflat habitat.

Other Waterbirds

- What impacts would the Project have on other water-dependent birds such as grebes, dabbling ducks, diving ducks, terns, egrets, herons, Black Skimmers, pelicans, cormorants, Sora, Virginia Rail and Osprey that have been documented (ebird.org) at the site?

Fish

- The DEIR must include analysis of any Project adverse impacts on fish that currently live within the proposed project area and those that naturally move through the area. What impacts will the construction of this barrier and tidal gates have on fish use and migration patterns?
- Within the proposed lagoon, impacts to water quality from changes in suspended sediment, salinity due to extended freshwater flooding from creeks during rain events, water temperature within the lagoon, prey abundance due to potential eutrophication, harmful algal blooms and

water depth, can all affect the fish utilizing the lagoon and each of these factors needs to be analyzed and mitigation proposed. Measures to avoid these impacts must be provided.

Fish can become trapped in the lagoon and exposed to low water levels and deteriorating water quality when the tide gates are closed on the proposed offshore barrier. Additionally, the pump station(s) associated with the offshore barrier could entrap fish.

- The DEIR must identify if this is an impact and if so, how it will be mitigated.

The Project BIO Report in Table 7: "Project Constraints and Opportunities Summary for Biological Resources" states the Essential Fish Habitat is designated for all the Project alternatives. The same report (p. 67) defines Essential Fish Habitat (EFH) in the following manner:

> "Essential Fish Habitat (EFH) is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growing to maturity. Substrate includes the sediment, hard bottom, structures underlying the waters and the associated biological communities."

Clearly, the proposed barrier could adversely impact all aspects of EFH and consultation with the National Marine Fisheries Service (NMFS) will likely be required.

Marine Mammals

The Project BIO Report documents that both harbor seals and sea lions are in the Project area, and both species have haul outs at nearby Coyote Point.

The only access to the Project lagoon will be through one or more tide gates in the offshore barrier.

- The DEIR must determine whether the barrier will essentially wall-off this foraging site. If they are able to gain access through a tide gate, are these marine mammals at risk of being injured from the gate or trapped inside the lagoon? As sea levels rise, and the tide gates are closed more frequently and for longer durations, this could be a possibility.
- Would the offshore barrier create habitat changes outboard of the structure that would impact the animals directly or through a decrease in prey species?
- The DEIR must identify and analyze all potential adverse impacts and provide measures to avoid or mitigate any harm to marine mammals.

Harbor seals are sensitive to human disturbance, and one management action recommended by the Baylands Ecosystem Habitat Goals Science Update 2015 is to, "Maintain current mudflat/rocky habitat and buffer from human population".

- The DEIR must evaluate the potential adverse impacts on marine mammals from human disturbance if a trail is placed on the offshore barrier, and propose effective mitigation measures.

Other Concerns

Airport Safety Hazards

The Project would create an offshore barrier and a lagoon and both could potentially create an increased risk of bird-strike hazards at San Francisco International Airport (SFO) and jeopardize public safety.

The ALT Report (page 2-5) states:

"…the proximity to runways also constrains the Project's ability to encourage the use of nature-based solutions and habitat enhancement. The Federal Aviation Administration (FAA) restricts the creation of "Hazardous Wildlife Attractants" near airports. Creating a shoreline habitat more heavily used by waterfowl may not be allowable based on guidelines set by the FAA."

Creating a feature that may attract birds can be a serious problem. In 2022 a United Airlines flight was forced to return to SFO shortly after takeoff due to a potential bird strike[10]. And there have been reports almost on a yearly basis of bird strikes.[11]

Depending on the type of habitat, "nature-based solutions and habitat enhancement" may not be more of an attraction to birds than an offshore barrier structure and a lagoon. The barrier structure would be located much closer to airport runways than any shoreline features and would introduce surfaces for birds to perch where there are none currently. The structure would most likely be an attractant for gulls, cormorants and pelicans.

The lagoon could change habitat conditions in areas closer to the airport runways, leading to less exposed mudflat and more shallow, calm water. These changes could make the lagoon area less attractive to smaller shorebirds, and more attractive to larger waterbirds like ducks, geese, grebes, egrets and herons.

The DEIR must identify and analyze possible impacts from the barrier structure and lagoon creating hazardous wildlife attractants for waterbirds, and determine if constructing these Project elements would violate FAA safety guidelines.

Management of Lagoon

The Project proposes to manage an artificial, gated tidal lagoon for flood protection from sea level rise and freshwater runoff from five creeks, while enhancing bay wetland habitats within the lagoon. This would occur in San Franisco Bay which is subject to a mixed semidiurnal tidal cycle. The DEIR must:

- Describe how Bay wetland habitats would be enhanced within the lagoon. What are the restoration targets, how will monitoring be done, and what applied studies will be used in the decision-making process? Describe any habitat conversion that may occur as a result of implementing this project, including acreages of existing habitat that may be lost. The DEIR should also analyze the cumulative impacts of the proposed project on the loss of tidal marsh and mudflats.
- Identify offshore barrier/lagoon projects that have developed best management practices to achieve these goals. Describe how the tide gates/pumps will be operated with respect to tide levels and creek runoff.
- Identify how the lagoon will be managed into the future to achieve the flood protection and habitat enhancement goals as sea level rises and rainfall patterns change due to climate change.

[10] https://www.sfgate.com/travel/article/sfo-flight-makes-emergency-landing-17607356.php
[11] https://aviation-safety.net/wikibase/302648

Please note: the ALT Report states that the offshore barrier tide gates would be closed, "…about once every year or so during a king tide." (page 4-31). That is incorrect; king tides occur several times each year[12].

Offshore Barrier

According to Project documents, an offshore barrier 2.65 miles long would run southeast from SFO to the Anza Fisherman's Park would be built, with between 1 and 80 tide gates and an undetermined number of pump stations.

- The DEIR must provide a clear, stable and complete description of the Project: including the number and location of tide gates, the number and location of pump stations, total extent of the barrier imprint on the floor of the Bay, construction methods and anticipated schedule of construction, and total height of the barrier above the Bay mud at low tide.
- The DEIR should describe how the tide gates and pump stations would operate, and how frequently the interior portions of the lagoon will be subject to daily tidal fluctuations both initially and as sea levels continue to rise; information should be provided regarding the anticipated ongoing costs for operation and maintenance of tide gates and pump stations – both initially and in the future under various sea level scenarios. Additionally, information should be provided regarding the estimated life span of the tide gates and pump stations – how often will they need to be replaced? These costs should be identified, including energy costs, as this information speaks to the financial sustainability of the proposed project.

Offshore barrier stability: The Project ALT Report (Page 4-20) states: "An offshore barrier, therefore, needs to be built on deep foundations in the stiffer materials below the Bay Mud."

- What are the "stiffer materials"? The DEIR must identify the actual depth of the foundations, and determine if the barrier will be subject to settlement issues.
- The southern section of the barrier would be built in an erosional environment (COA Report Figure 4-9). What kind of lateral pressure would be put on the barrier if sediment outboard is being depleted while sediment accumulates inboard of the barrier?
- How deep would the barrier need to be installed to ensure the structure will not be compromised by erosion at the toe of the barrier, and how will the structure be tied in the area of heavy erosion?
- If the offshore barrier were to experience a catastrophic failure, what would be the impacts, initially, and with higher sea levels?
- An analysis of how the barrier is anticipated to function under different magnitude seismic events must be provided in the DEIR.

Impacts to neighboring communities: Seawalls and levees may protect this section of shoreline in the project area, but can shift rising sea level waters to other areas in San Francisco Bay[13].

- The DEIR needs to evaluate potential impacts of the offshore barrier on neighboring communities, including those disadvantaged, along the Bay shoreline and nearby natural shorelines and wetlands.

[12] https://www.adaptingtorisingtides.org/project/king-tides-project-high-tide-photo-viewer/

[13] Hummel MA, Griffin R, Arkema K, Guerry AD. 2021. Economic evaluation of sea-level rise adaptation strongly influenced by hydrodynamic feedbacks. Proc Natl Acad Sci U S A. 2021 Jul 20;118(29):e2025961118. doi: 10.1073/pnas.2025961118. PMID: 34253614; PMCID: PMC8307291.

Converging shorelines and tidal amplitude: Converging shorelines increase tidal amplitude towards the landward end of enclosed estuaries[14]. Without knowing the alignment of the proposed offshore barrier, which may create converging shorelines where none currently exist, it is not possible to determine what impact increased tidal amplitude at the western end of the barrier may have on the existing outboard wetland and mudflat habitats or SFO flood control structures.

- In the advent the new offshore barrier creates converging shorelines, the impacts must be evaluated in the DEIR.

Reflected Waves: Impacts from the offshore barrier reflecting waves onto existing outboard wetland and mudflat habitats and SFO flood control structures must be analyzed in the DEIR.

Land Ownership

Who are the property owners within the boundary of the Project and how would that impact the Project's feasibility? Where is the property of San Francisco Airport relative to the offshore barrier and lagoon? Where are State Lands relative to the Project?

- The DEIR must identify the location and property owner for all parcels where the offshore barrier would be located and anchored, and parcels within the lagoon. Any impacts on the feasibility of the Project due to over-riding concerns of landowners should be analyzed.

Impacts to Anglers

As written, the Project description does not necessarily include a pedestrian trail on the offshore barrier. Without a trail providing access to the "new Bay shoreline", an offshore barrier would eliminate existing Bay shoreline public fishing areas and replace it with a lagoon.

Current public fishing areas like the Anza Fisherman's Park and the fishing pier by the Robert E. Woolley State Park, known as the Anza Lagoon Pier or Robert E. Woolley Pier, have handicapped parking, curb ramps and solid walkways for people with mobility limitations.

- How will the Project provide for comparable ADA compliant access for anglers with mobility limitations? How would the species of fish change in the lagoon, and will the fish people desire still be available and in the same size range? The lagoon may concentrate toxins and pollutants – what impacts could this have on the health of people consuming the fish? Answers to these questions should be provided in the DEIR.

A 2020 study by the San Francisco Estuary Institute[15] found that, "*Shore-based anglers tended to be non-Caucasian, whereas boat anglers were predominately Caucasian. Asians were the largest group fishing from piers and beach and bank sites, with Filipinos comprising the largest Asian group. A higher proportion of shore-based anglers reported household incomes less than $20,000/year…"*

- The DEIR must evaluate the impacts of the potential loss of shore-based fishing opportunities on members of the community, including underrepresented groups, currently utilizing public fishing areas.

[14] Holleman RC, Stacey MT. 2014.Coupling of sea level rise, tidal amplification, and inundation, J. Phys. Oceanogr., 44(5), 1439–1455, doi:10.1175/JPO-D-13-0214.1.

[15] SFEI. 2000. San Francisco Bay Seafood Consumption Study. San Francisco Estuary Institute, Richmond, CA.

Impacts to Kite Boarders and other Water Sports

The area enclosed by the offshore barrier is currently popular for kiteboarding and other water sports.

- How would an offshore barrier impact members of the public engaged in water sports? The DEIR must identify and analyze potential impacts to currents and waves outside the barrier, changes in conditions within the lagoon, and any changes to public access points.
- There may be periods of degraded water quality within the lagoon – what impacts would this have on the health of people exposed to the water? The CEQA process for the Project should include outreach to community members involved in water sports for input on the Project.

Impacts to the New SPHERE Institute Shoreline Park

In 2022, the San Francisco Bay Restoration Authority provided grant funding of up to $991,499 to the SPHERE Institute to augment the grant of $500,000 previously authorized to conduct site studies, engage community members and prepare plans to transform a 9.4-acre vacant parcel of State-owned bayfront land in Burlingame into a public nature and recreation park. The project area will include restoration of approximately 3-3.5 acres of tidal marsh and transition zone habitats in one of the few remaining suitable locations along the City of Burlingame's heavily developed shoreline[16].

- The new nature park will be within the lagoon. What impact will the Project lagoon have on the hydrology and vegetation of this new tidal marsh?

Existing Conditions

In order to provide substantive NOP comments, information on existing conditions in and around the Project site must be provided. The following deficiencies need to be addressed in the DEIR.

1) The Project *Biological Resources Constraints Analysis* does not mention that the Project area is designated as an "Important Shorebird Site" by the Western Hemisphere Shorebird Reserve Network (https://experience.arcgis.com/experience/bb389a6c909145269f3bb1c52992eefc)

- Given the importance of mudflat habitat to wildlife, including fish, birds and marine mammals, why didn't the BIO Report include detailed information on the extent and importance of this habitat within the Project area? This significant oversight must be corrected in the DEIR.

2) According to the BIO Report, two field surveys were made in July 2022 to document actual conditions in the Project area. The survey only covered areas within the shoreline and creek barriers alternative and did not include observations in the areas of the offshore barrier/lagoon alternative, which is the Preferred Project Alternative.

- Appropriate surveys should have been conducted for all alternatives under consideration for the NOP, including the areas that will be outboard of the proposed barrier.
- The survey was made in the summer, when the majority of Bay waterbirds are on their breeding grounds elsewhere.

[16] https://www.sfbayrestore.org/projects/shoreline-park-burlingame-project-bay-rise-park-project

- The information in the BIO Report is inadequate for the Project because the thousands of migratory and wintering shorebirds that forage on the mudflat (potentially affected by the offshore barrier and lagoon) were not included. The DEIR must include information from field surveys that cover areas for all alternatives under consideration, and survey locations and timing of surveys must be appropriate for capturing information on all important wildlife in all habitats, including areas adjacent and outboard of the proposed barrier.

3) Page 49 of the BIO Report states that, "*Nearshore sandy bottom marine habitat is found throughout the study areas for all alternatives. This habitat consists mainly of sands, mud, and sedimentary particles in locations of lower water movement*.", Figures 12 – 17 show a continuous line of "Near-shore sandy Bottom" depicted in the project site, and Figures 18-21 appear to show extensive "Near-shore sandy Bottom" in the entire project area.

The San Francisco Bay Subtidal Habitat Goals Project Interactive Soft Substrate Habitat Distribution Map indicates that this entire project area is mudflat habitat. (https://sfbaysubtidal.org/map_portal/softsubhabitat.html), and CCCR observations along the shoreline did not reveal a line of sandy substrate.

- Please clarify, and ensure that the characterization of the substrate in the Project area is accurate in the DEIR.

4) On page 48, the BIO Report characterizes the salt marsh vegetation in the project area as Northern Coastal Salt Marsh and specifically documents the presence of California cordgrass, and in both areas of tidal marsh in the Project area, California cordgrass appears to be the dominant plant.

> *"Northern coastal salt marsh is primarily found along the Bay shoreline, within Sanchez Marsh, in estuaries where creeks and canals drain into the Bay and in Mills and Easton creeks (Table 3). This vegetation community is dominated by herbaceous, salt-tolerant hydrophytes, typically forming a dense mat of vegetation up to three feet high. The plant species most characteristic of the northern coastal salt marsh within the study areas is pickleweed (Salicornia pacifica). Other native salt marsh species co-dominant in these areas include salt grass, marsh jaumea, California cordgrass (Spartina foliosa), alkali heath (Frankenia salina), and Oregon gumweed. … This vegetation community most closely corresponds to the Salicornia pacifica Herbaceous Alliance in MCV2 (Sawyer et al. 2009)."*

The California Department of Fish and Wildlife "Sensitive Natural Communities" lists *Spartina foliosa* "California Cordgrass Marsh" as G3/S3 and the *Spartina foliosa* – *Sarcocornia* Alliance is considered "Sensitive". (file:///C:/Users/mtled/Downloads/3_CaliforniaSensitiveNaturalCommunities_20230601.pdf

Based on the site description on page 48, the Special Status Species Evaluation Table for Plant and Lichen species (Appendix B, pages B1 – B9) should include cordgrass (*Spartina foliosa*) and the cordgrass-pickleweed (*Spartina foliosa* – *Sarcocornia*) Alliance so that impacts to that sensitive community will be analyzed in the DEIR.

Conclusion:

Our NOP comments have focused almost entirely on the preferred alternative of constructing an offshore, in-Bay barrier. The reason for this focus, is that, as we have stated, the proposal to construct an in-Bay barrier is both unprecedented and highly controversial. It reverses decades of work of removing barriers that were historically constructed atop baylands, in an effort to restore and sustain the ecological health and resilience of the Bay through restoration of tidal marshes and protection of

transition zones and other associated habitats. Tidal marsh restoration provides enormous benefits in terms of carbon sequestration, and other benefits that contribute to the health of our shoreline communities, provide resilience to climate change, and support the important biodiversity of the Bay region. We are fully aware that this segment of shoreline poses challenges because we have historically developed right to the edges of the Bay in some reaches, however the NOP support documents indicate that alternatives to the in-Bay barrier do exist.

It is perplexing, as illuminated in the Joint Letter submitted by environmental groups on November 30, 2023, that the NOP identifying the offshore, in-Bay barrier as the preferred alternative, was issued prior to consulting with key stakeholders such as the City Council of Millbrae, and the San Francisco International Airport (SFO). It is frustrating, that in failing to consult with key stakeholders, regulatory and resource agencies and landowners, there are significant issues that cannot be over-ridden and should have been considered in the selection of the preferred alternative – for example, issues of public safety as described by SFO during the November 2, 2023 Public Scoping meeting.

It is imperative, that should this project continue to the preparation of a DEIR, that across the many reports that will be created, there is a consistent description of the project that is clearly stated, stable (meaning key features are consistently identified and analyzed across the gamut of documents) and with sufficient details to enable the decision-makers and the public to provide substantive comments. As an example of the lack of consistency, the biological constraints document mentions six tide gates installed within the barrier, as opposed to the feasibility report that for modeling purposes used a number of 80 tide gates. It is impossible to assess what potential impacts to the environment might arise when given such a huge variation in something as crucial to the proposed project as tide gates.

The proposed project could create significant and adverse water quality issues within the created lagoon and the receiving waters of the Bay, as well as adverse impacts to existing Bay habitats, federally listed species, Essential Fish Habitat, and all the other concerns that were cited above, and in the letters submitted by the Sierra Club, Sequoia Audubon, and San Francisco Baykeeper.

We urge the OneShoreline Board of Directors to withdraw the current NOP and consult with key stakeholders prior to continuing with this environmental review process. It is better to spend the effort upfront, than to find at the end of several years of design and review expenditures, that the project is not permittable. Failing withdrawal of the NOP, we urge the OneShoreline Board of Directors to consider assembling a strong multi-disciplinary consultant team qualified to address complex water quality and ecosystem-level effects of the proposed tidal lagoon impoundment and damping of the tidal flows of the Bay.

Thank you for the opportunity to provide comments. We request that we be informed of the OneShoreline Board of Director response to the suggestion that the NOP be withdrawn until key stakeholders have been consulted. We also request that we be notified of future opportunities for public review and comment on shoreline protection for this segment of the Bay.

Respectfully submitted,

Gail Raabe

Gail Raabe, Co-Chair
CCCR

Carin High

Carin High, Co-Chair
CCCR

cc:
OneShoreline Board Members
U.S. EPA, Lisa Valiela
U.S. Army Corps of Engineers, Katerina Gallacatos
U.S. Army Corps of Engineers, Julie Beagle
San Francisco Bay Regional Water Quality Control Board, Tahsa Sturgis
San Francisco Bay Regional Water Quality Control Board, Elizabeth Morrison
San Francisco Bay Regional Water Quality Control Board, Keith Lichten
San Francisco Bay Conservation and Development Commission, Steve Goldbeck
U.S. Fish and Wildlife Service, Joseph Terry
U.S. Fish and Wildlife Service, Jana Affonso
California Department of Fish and Wildlife, Tami Schane
California Department of Fish and Wildlife, Garrett Allen
California Department of Fish and Wildlife, John Krause
National Marine Fisheries Service, Alison Weber-Stover
National Marine Fisheries Service, Gary Stern