February 23, 2018

Mr. Bruce H. Wolfe
Executive Officer
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, California 94612

RE: Board Order No. R2-2002-0011

Dear Mr. Wolfe,

The California Department of Transportation (Department) is in the process of developing a project that would provide public access and a shoreline observation area as part of the pier retention effort from the former San Francisco Oakland Bay Bridge (SFOBB) East Span Seismic Safety Project (SFOBB Project). Pier E21, Pier E22, and Pier E23 from the marine foundation of the former SFOBB will be retained and utilized as part of the structural support for the new project. A separate proposal for retention of Pier E2 was provided on January 25, 2018.

The Department is hereby requesting that the San Francisco Bay Regional Water Quality Control Board (Water Board) issues a modification to the SFOBB Project’s Waste Discharge Requirements (WDR) (Board Order No. R3-2002-0011) to cover this new project. This project will not only benefit the public by providing new public access to the San Francisco Bay (Bay) shoreline, but it will be consistent with the beneficial uses established for the Bay; specifically non-contact water recreation.

SFOBB Project Status and Pier E21/E22/E23 Retention

The Water Board issued its WDR on January 30, 2002, to the Department for the SFOBB Project. The WDR covered construction of the new SFOBB East Span, which is complete, and demolition of the original East Span, which is nearing completion. Pier E2, Pier E19, Pier E20, Pier E21, Pier E22, and Pier E23 of the SFOBB original east span currently remain, all other SFOBB original east span marine foundations (Pier E3 to Pier E18) were removed by the Department between 2015 and 2017 following the removal of the superstructure. Piers E19 and E20 would be removed using similar methods to the removal of Piers E3 to E18 and the work will be conducted under a project-
specific storm water pollution prevention plan (SWPPP). Pier E23 is located on the Oakland shoreline while the other five remaining piers are located within the waters of the Bay.

This letter describes a proposal to beneficially reuse portions of Piers E21, E22, and E23 as a publicly accessible observation area at the Bay shoreline.

**Piers E21, E22, and E23 Retention: Site and Structure Description**

Piers E21, E22, and E23, located in the City of Oakland (Figure 1) would be repurposed by constructing a new observation area that would use the existing Piers E21, E22, and E23 marine foundations as anchors for a public access facility (Figure 2 and Figure 3).

Piers E21 to E23 were constructed originally to support the steel superstructure of the SFOBB original east span. The piers are cellular concrete structures, none of which reach bedrock. Each pier is supported by untreated Douglas fir timber piles that were driven below bay mud. For each pier, a concrete seal was poured on top of each set of piles. The concrete seals were poured well below the surrounding mudline elevation and extended from the mudline elevation to a depth of between 10 to 20 feet below mudline. A flat, unreinforced concrete slab was poured on top of each concrete seal; this concrete slab was poured to support the cellular concrete piers that were cast in place.

**Proposed Project: Pier E21, E22, and E23 Observation Area**

**Overview**

The Department would construct an over-water observation area utilizing the existing Piers E21, E22, and E23 marine foundations as an anchor for the proposed public access facility. In addition, construction of access walkways and roads to the new structure on the Oakland Touchdown (OTD) would be provided. All new structures would be designed to meet current state guidance for sea level rise to end-of-century projections. The construction of these facilities would require mechanical removal of some or all of the pedestals and pier slabs to elevations required by the design.

**Observation Area**

The total footprint in the Bay for the proposed observation area structure, including existing Piers E21 and E22, would be approximately 19,830 square feet (sq. ft.; 0.45 acre). New shading caused by construction of two 290-foot span bridge decks placed between the piers (E23 to E22 and E21 to E20) would be approximately 16,550 sq. ft. (0.38 acre).

In addition to the pedestrian bridges, modifications to the tops of the marine foundations and pedestals would be required to support girders and create bearing seats above anticipated sea-level rise elevations. Two bridge deck spans would connect Pier E23 to Pier E22 and Pier E22 to Pier E21. Between the spans and directly above Piers E21 and E22 the deck would bulb out with reinforced concrete slabs to approximately 40 feet by 90 feet to serve as observation platforms.
Lighting could be incorporated in the railing or could be provided through luminaires on the bridge approaches and observation platform.

Appendix A provides plan sheets for the Piers E21, E22, and E23 retention proposal in addition to draft structure plans.

**OTD Upland Features**

Minor contour grading would be required to create embankments and ramps at the OTD to access the observation at Pier E23. New pathways and lighting would be installed on land to connect the proposed observation area to the Bay Trail at the landing of the SFOBB new east span bike path.

Proposed new pathways would create impervious and pervious surfaces on-land at the OTD. The area of new impervious surfaces would be approximately 38,768 square feet (0.89 acre). Approximately 27,000 square feet of new pervious surfaces would also be created.

**Construction and Water Pollution Control Measures**

For marine-based work, support barges would be used to move hydraulic excavators equipped with hoe rams, shearing attachments, drills, and other equipment, including cutting lances and torches to the site. This equipment would be used during operations on the piers. A barge-mounted crane would be used to move equipment between the piers and barge. For land-based work, cranes, excavators, graders and trucks for hauling debris or soil would be required. The construction operations would also require land- or barge-based concrete trucks and concrete pumps.

The Department would construct a temporary trestle to access Piers E21 to E23 to allow for demolition and construction operations. In 2012, the SFOBB Project was authorized by State and federal environmental agencies to construct temporary access trestles on YBI and at OTD. These permits and authorizations covered the construction and temporary placement of 2,540 temporary piles to build an approximately 96,000-square-foot, pile-supported trestle, extending from the Oakland shoreline to Pier E9, and a 7,000 square foot, pile-supported trestle at YBI to Pier E2.

To access Piers E21 to E23, the Department would construct and install a substantially smaller temporary access trestle within the existing authorized methods and parameters, and would remove the trestle after completion of the proposed Pier E21/E22/E23 retention project. This trestle would support equipment which will also be used on barges (as described previously) as well as additional equipment including trucks, light vehicles, and pile-driving equipment.

Water pollution control measures implemented during construction activities will be described in a project-specific storm water pollution prevention plan (SWPPP) that will be submitted to the Water Board for acceptance.

**Schedule**

The Department plans to begin operations on newly proposed construction in June 2018. The construction of these facilities would be completed by December 31, 2019. In water impact-pile
driving would be restricted to the period from June 1 to November 30, to avoid peak salmonid migration periods. Additional land-based construction activities may extend into 2019.

**Impacts to Surface Area of Waters of the State**

As indicated in the original WDR application for the SFOBB Project, the marine foundations would be removed as a result of dismantling the old east span. However, this proposal would retain Piers E21, E22, and E23, and create an observation area spanning from Pier E23 to Pier E21. This would change the impacts to surface waters of the State from the originally proposed project and would result in an increase of approximately 0.27 acres. The surface area impacts of these activities are described in the following table.

<table>
<thead>
<tr>
<th>Alternative Project Element</th>
<th>Area Impact to Surface Waters of the State (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Originally Proposed Project</td>
<td></td>
</tr>
<tr>
<td>New East Span Piers and Fenders</td>
<td>2.43</td>
</tr>
<tr>
<td>Original East Span Piers Removal (E2 to E22)</td>
<td>-1.98</td>
</tr>
<tr>
<td><strong>Net from Original Proposed Project</strong></td>
<td><strong>0.45</strong></td>
</tr>
<tr>
<td>Pier Retention Proposal</td>
<td></td>
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<tr>
<td>New East Span Piers and Fenders</td>
<td>2.43</td>
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<tr>
<td>Removal of Piers E3 to E18</td>
<td>-1.71</td>
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<tr>
<td>Retention of Pier E2</td>
<td>0.19</td>
</tr>
<tr>
<td>Retention of Piers E21 and E23</td>
<td>0.08</td>
</tr>
<tr>
<td>New Piles</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td><strong>Net for Pier Retention Proposal</strong></td>
<td><strong>0.72</strong></td>
</tr>
</tbody>
</table>
| \( \Delta \)  
**Change from Originally Proposed Project as Compared with Pier Retention Proposal** | \( +0.27 \) |

Additionally, the proposed retention of these piers would add new high suspended fill shadowing over Waters of the State. The new shadow fill would occupy approximately 0.38 acres over the water. However, since the proposed suspended fill would not interact with surface waters or wetlands, no net loss to wetlands or Waters of the State would be realized by the proposed shadow area.

**Impacts to Special Aquatic Sites - Eelgrass Beds**

An area of approximately 7,300 square feet (0.17 acre) eelgrass habitat with 20% to 40% estimated coverage was observed between Piers E22 and Pier E23 in 2014 (NMFS 2014). Because of this, the 290-foot span between Piers E22 and Pier E23 may permanently shade up to 0.02 acres of new eelgrass habitat. However, it should be noted that the observed eelgrass bed was recorded while the SFOBB original east span was still in place and the proposed observation area would occupy...
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a reduced area in comparison. The Department believes that the recently observed eelgrass bed may have potential to succeed even after installation of the new observation area

In order to access Piers E21 and E22, the Department would construct a temporary access trestle directly to the south of those piers, as described above. At the time the original trestle was considered and approved, there was no eelgrass observed in the proposed trestle area. The trestle as proposed would temporarily impact approximately 0.07 acres of existing eelgrass beds.

In the original project description for the SFOBB Project, the Department anticipated and completed mitigation for permanent and temporary impacts to 3.6 acres of eelgrass beds in the project area. These impacts included 1.5 acres of permanent shade impacts from the SFOBB new east span; 1.7 acres of temporary impacts for a temporary barge access channel near the Oakland shore, and 0.4 acres to be shaded by temporary construction trestle within Clipper Cove. The 2.1 acres of impacts from the temporary barge access channel and the temporary trestle at Clipper Cove were not realized, as those temporary features were never constructed. The Department asserts that the original eelgrass mitigation completed for the SFOBB Project more than mitigates for the new estimated 0.05 acres of permanent and 0.12 acres of temporary impacts to the recently observed eelgrass beds within the project area. Therefore, the Department is not proposing new mitigation for these impacts.

**Storm Water Treatment Strategy**

Low impact development (LID) measures will be implemented for the land-based portions of the project. To promote LID, impervious surfaces will be minimized by installing pervious surfaces where applicable. For impervious surfaces, stormwater treatment will be implemented to the maximum extent practicable, and shall be achieved via either biofiltration or bioretention measures.

If you have any questions or feedback on this submittal, please contact me at (510) 867-6007.

Sincerely,

DRAGOMIR BOGANIC, MS., PE.  
District Branch Chief  
Division of Environmental Planning & Engineering  
California Department of Transportation, District 4

“Provide a safe, sustainable, integrated and efficient transportation system to enhance California’s economy and livability”
“Provide a safe, sustainable, integrated and efficient transportation system to enhance California’s economy and livability”
References
References
California Department of Transportation (Caltrans). 2001 (September). *Application for Water Quality Certification for the San Francisco-Oakland Bay Bridge East Span Seismic Safety Project*.


National Marine Fisheries Service (NMFS).

United States Coast Guard (USCG). 2001. *SFOBB Project Bridge Permit No. 3a 01 11*.
Figures
Appendix A
Plan Sheets
Piers E21, E22, and E23
Pier E23
New East Span
Pier E22
Pier E21
Pier E20
Pier E19
Oakland Touchdown

Service Layer Credits: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SITE LOCATION
SFOBB Pier Retention Project
Piers E19-E23
Oakland, CA

Date: 02/15/2018
FACING NORTHWEST
PIERS E22, E21, E20, AND E19
SFOBB Pier Retention Project
Piers E19-E23
Oakland, CA
Date: 02/15/2018

Figure 3
LEGEND:
X Indicates 10' Intervals along station line

NOTES:
1. 0.1' Contour intervals shown.
2. Contours do not include barriers.
3. Top of concrete deck shown.
NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD
DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.
**PRESTRESSING NOTES**

JACKING FORCE (P):
The manufacturer's jacking force required at point of control along the span. The jacking force does not include any fabrication specific forces.

CONCRETE STRENGTH:

- Tc (cyl) is at time of initial stressing
- Tc (cyl) is at 28 days

DEFLECTION COMPONENTS:
Inelastic - to be used in setting screed line elevation.

Screed line elevations for deck concrete will be determined by the Engineer.

**BOTTOM PRESTRESSING:**

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>JACKING FORCE (Pips)</th>
<th>CONCRETE STRENGTH (b.sl.)</th>
<th>DEFLECTION COMPONENTS (inches)</th>
<th>GRADING &quot;a&quot;</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>40</td>
<td>1140</td>
<td>6</td>
<td>351</td>
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**TOP PRESTRESSING:**

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>JACKING FORCE (Pips)</th>
<th>GRADING &quot;b&quot;</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>615</td>
<td>8 Strands - 0.0&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 Strands - 0.0&quot;</td>
</tr>
</tbody>
</table>

END DISPLACEMENT 6" FOR EACH SIDE FOR TRANSVERSE POLE TENSIONING

LONGITUDINAL SECTION

\[ \frac{1}{2} " = 1'-0" \]
PEDESTRIAN PATH
OTD 273+16 TO 276+00

PEDESTRIAN PATH
OTD 276+00 TO 277+00

PEDESTRIAN PATH
OTD 282+00 TO 286+60

MULTI-PURPOSE PATH
OTD 277+00 TO 282+00

TYPICAL CROSS SECTIONS
NO SCALE
CONSTRUCTION DETAILS
LIGHTWEIGHT FILL

"OTD" PROFILE
0'14"6/00 TO 0'27"6/00

PROFILE GRADE
See Detail B

ROADWAY STRUCTURAL SECTION

+0.000

FILL STEPS WITH CL 2 AE

PROFILE GRADE

ROADWAY STRUCTURAL SECTION

LIGHTWEIGHT ENHANCEMENT MATERIAL
(CELLULAR CONCRETE)

6" (MAX)

6" THICK REINFORCED
CONCRETE SLAB TO
PROTECT PIGEON GAS

APPROX Location AND
ELEVATION OF PIGEON
10" HP GAS LINE

DETAIL B

ALL DIMENSIONS ARE IN
METERS UNLESS OTHERWISE SHOWN

C-2