San Francisco – Oakland Bay Bridge
East Span Seismic Safety Project

FINAL
MARINE MAMMAL MONITORING PLAN FOR TEMPORARY PILE DRIVING

AUGUST 2002

EA 012023
04-SF-80 KP 12.2/KP 14.3
04-ALA-80 KP 0.0/KP 2.1

San Francisco – Oakland Bay Bridge
East Span Seismic Safety Project

FINAL
MARINE MAMMAL MONITORING PLAN FOR TEMPORARY PILE DRIVING

Prepared by

Phil Thorson
SRS Technologies

Reviewed by

Ivy Edmonds-Hess
Parsons Brinckerhoff Quade & Douglas, Inc.

Approved by

Mara Melandry
Caltrans District 4

INTRODUCTION

In order to improve the seismic safety of the San Francisco-Oakland Bay Bridge (SFOBB), the State of California, Department of Transportation (Caltrans) is replacing the existing East Span with a new bridge immediately to the north (see Figure 1). This is a multi-year effort that will involve a number of construction activities on land as well as in the Bay, including the driving of 259 large-diameter piles to support the Skyway and Self-Anchored Suspension components of the new bridge.

Pursuant to the Marine Mammal Protection Act, Caltrans has requested an Incidental Harassment Authorization (IHA) from the National Marine Fisheries Service (NMFS) to incidentally take, by harassment, a small number of California sea lions, Pacific harbor seals, and possibly gray whales. A comprehensive Marine Mammal Monitoring Plan for the driving of permanent piles was submitted to NMFS in May 2002 and is currently being finalized.

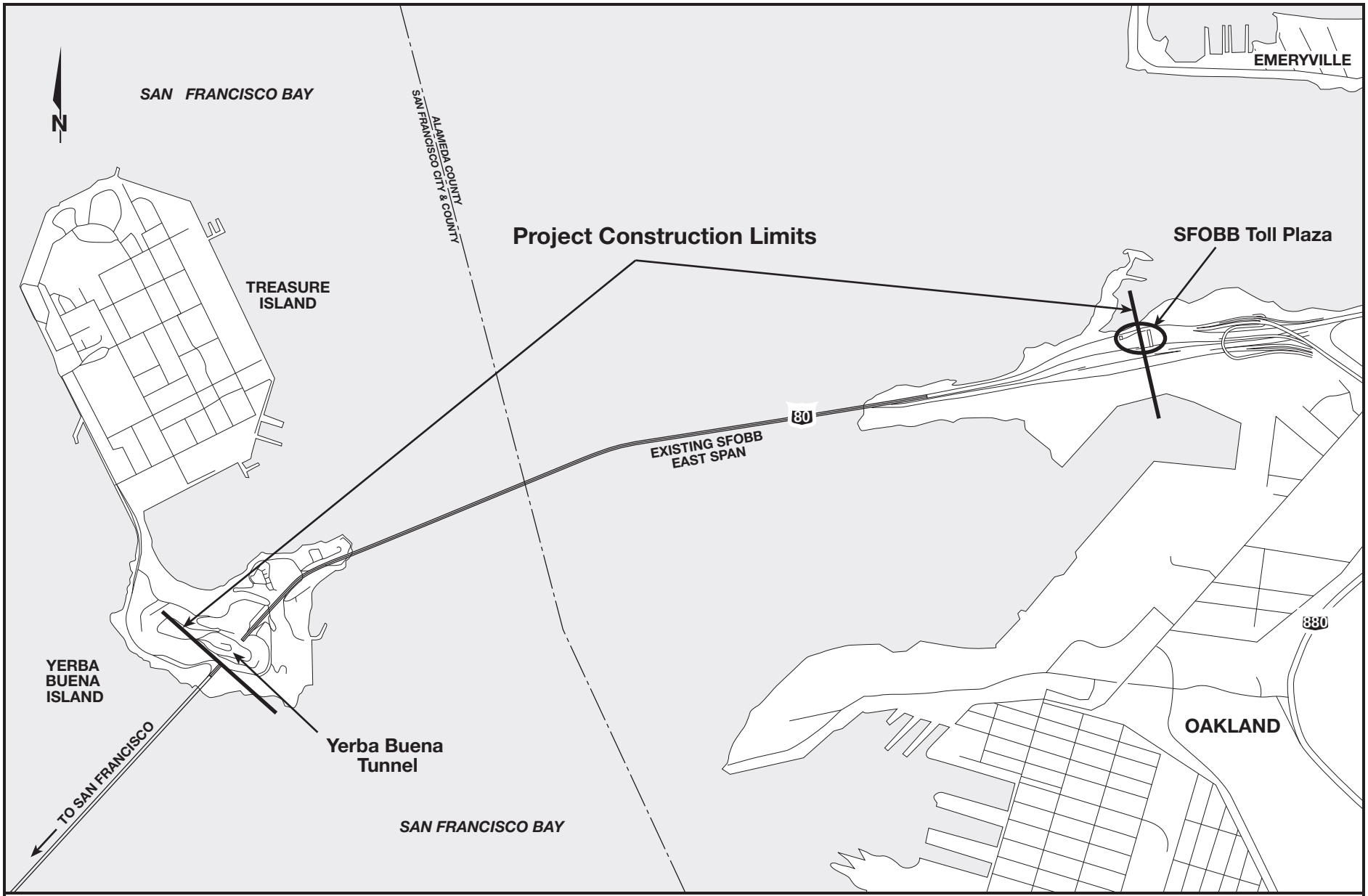
Temporary piles are also being driven. The temporary piles (1.6 to 3.6 feet [0.5 to 1.1 meters] in diameter and 40 to 100 feet [12 to 30 meters] long) are smaller than the large permanent piles (5.9 to 8.2 feet [1.8 to 2.5 meters] in diameter and 100 feet [30 meters] long). The energy to drive the smaller piles is much smaller than the energy required to drive the large piles (hammer energy levels of less than 100 kilojoules (kJ) versus 1,700 kJ) and therefore pile driving would be much quieter.

Although monitoring is not required by NMFS for the driving of temporary piles, Caltrans has decided to conduct limited monitoring over the next several months to ensure there are no adverse effects to marine mammals during the driving of temporary piles. This Marine Mammal Monitoring Plan is designed to cover only the temporary pile driving associated with the temporary access trestle at the Oakland Mole (see Figure 2).

METHODS

Two NMFS-approved marine mammal observers will conduct observations for approximately 4 hours per day, 1 day per week. Observation periods will encompass different tide levels and hours of the day. Monitoring of the marine mammals around the construction site will be conducted using high quality binoculars (e.g., Zeiss, 10 x 42 power) from small boats, bridge piers, construction barges, or shore. Initially, the observers will be on the Oakland shore, one at 164 feet (50 meters) south of the access trestle and the second north of the existing SFOBB, 197 feet (60 meters) north of the access trestle (see Figure 2). The observation platform sites are as close to the pile driving site as practical to ensure optimal viewing without impeding the pile driving or any other construction work. As the access trestle moves further into the Bay observers may move to observation platforms within the Bay (e.g., boats, bridge piers and construction barges).

Data collection will consist of a count of all pinnipeds and cetaceans by species, behavior (based on the Richmond Bridge Harbor Seal Survey classification system), sex and age class if possible, location, direction of movement, type of construction that is occurring, time that pile driving begins and ends, any acoustic or visual disturbance and time of the observation. Environmental conditions such as wind speed, wind direction, visibility, temperature, tide level, current, and sea state (described using the standard Beaufort sea scale) will also be recorded on a data sheet (see attached example).



SFOBB
EAST SPAN
SEISMIC SAFETY
PROJECT

SCALE
0 250 500 1000 m

Project Construction Limits

Figure 1

3/15/02

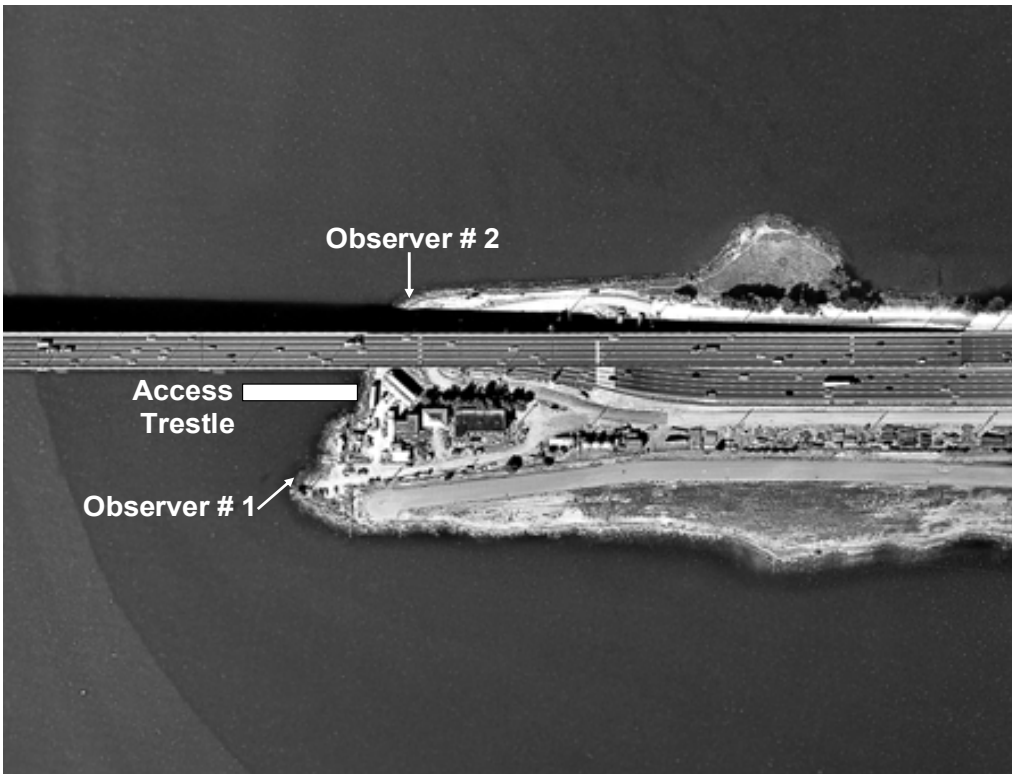


Figure 2. **Aerial photograph of the Oakland Mole area showing the position of the two marine mammal observers relative to the access trestle construction and pile driving.**

When possible, digital video or 35 mm still cameras will also be used to document the behavior and response of pinnipeds to construction activities or other disturbances. Each monitor will have a marine radio for contact with other researchers or work crews if necessary, a GPS unit for determining observation location, and an electronic range finder to determine distance to marine mammals, boats, buoys and construction equipment.

REPORTING

A weekly report summarizing the marine mammal observations, environmental conditions and construction activities will be submitted to Parsons Brinckerhoff for subsequent submittal to Caltrans. Included in the report will be an Excel spreadsheet of the observation data.

Any marine mammal carcass found floating in the area will be tagged and the species, age, sex and possible cause of death will be recorded. A stranding report will be submitted to Parsons Brinckerhoff/Caltrans so that Caltrans can contact NMFS.