

**San Francisco – Oakland Bay Bridge
East Span Seismic Safety Project**

***FINAL (REVISED)*
BIRD MONITORING AND MANAGEMENT PLAN**



SEPTEMBER 2003

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04-ALA-80 KP 0.0/KP 2.1**

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BIRD MONITORING AND MANAGEMENT PLAN**



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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. Some of these activities have been identified in several documents as having potential effects on federally endangered or threatened bird species and other bird species of special concern. These documents include:

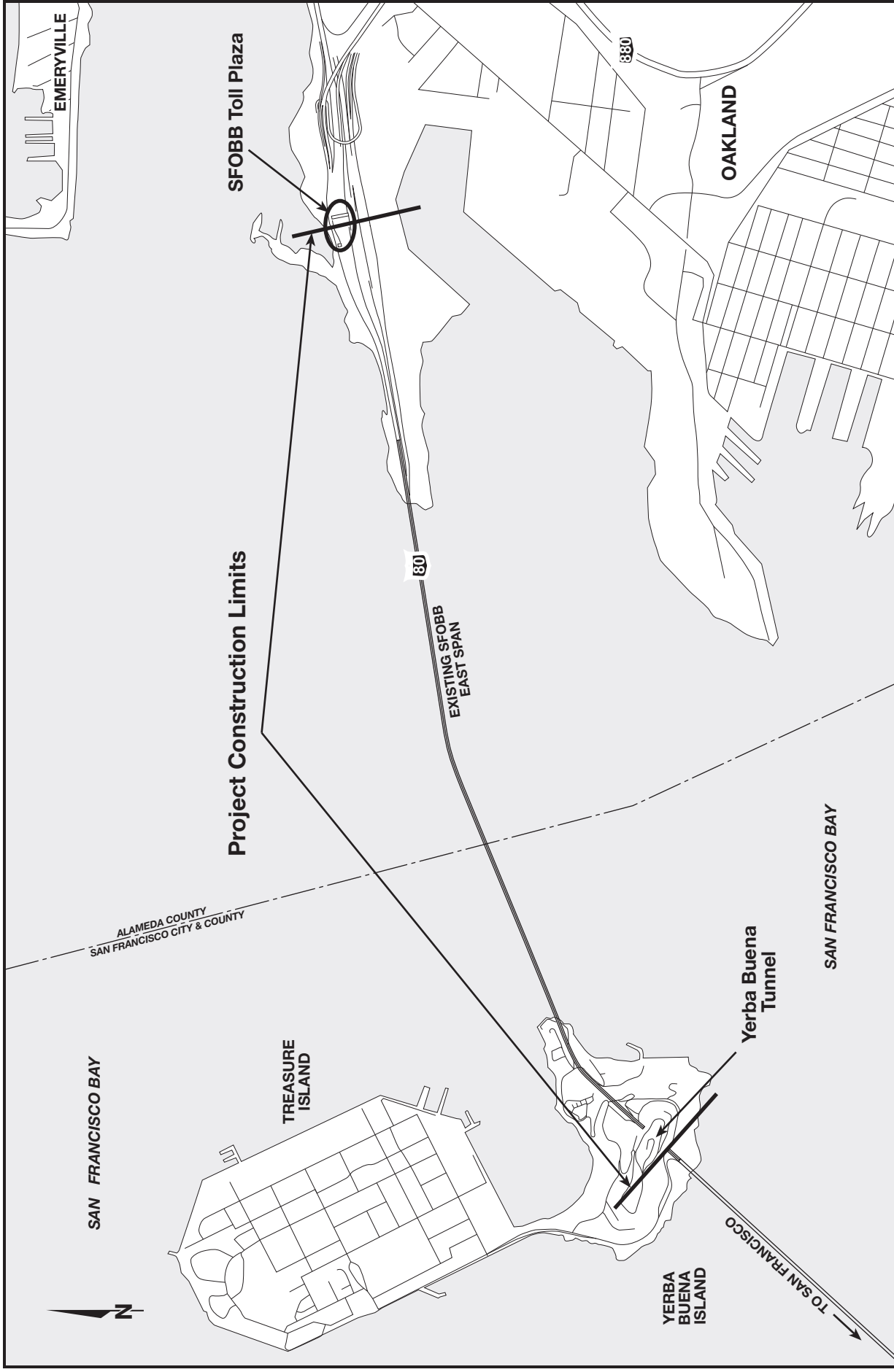
- The San Francisco-Oakland Bay Bridge East Span Seismic Safety Project Final Environmental Impact Statement/Statutory Exemption and Final Section 4(f) Evaluation (U.S. Department of Transportation, Federal Highway Administration [FHWA] May 2001)
- California Endangered Species Act Incidental Take Permit (No. 2081-2001-021-03) for the San Francisco-Oakland Bay Bridge East Span Seismic Safety Project (California Department of Fish and Game [CDFG] November 2001)
- San Francisco Bay Conservation and Development Commission Permit No. 8-01 for the San Francisco-Oakland Bay Bridge East Span Seismic Safety Project (San Francisco Bay Conservation and Development Commission [BCDC] November 2001, last amended September 17, 2003)
- Formal Endangered Species Consultation for the Proposed San Francisco-Oakland Bay Bridge East Span Seismic Safety Project, Alameda County, California (Letter 1-1-02-F-0002 dated October 29, 2001) (U.S. Fish and Wildlife Service [USFWS] October 2001)

For a detailed description of the construction activities, the bird species of concern, their regulatory status, their status in the project area, and potential effects on birds, see the *Assessment of Effects on Birds* (prepared for Caltrans by LSA Associates, 2002).

BCDC, USFWS, and CDFG require a mitigation plan that includes monitoring for the presence and activities of these bird species in and around construction areas and documenting impacts if they occur. BCDC Permit Special Condition F-6 states:

“Prior to any construction authorized herein, proposed in areas that the U.S. Fish and Wildlife Service has determined may impact listed bird species, the permittee shall submit for review and concurrence by or on behalf of the Commission evidence, such as a contract and/or agreement with the U.S. Fish and Wildlife Service, the U.C. Santa Cruz Predatory Bird Research Group and/or the Point Reyes Bird Observatory, that will ensure compliance with the terms of the Biological Opinion issued by the U.S. Fish and Wildlife Service with respect to the California least tern and the brown pelican.

In addition, prior to any construction activities authorized herein, proposed in areas that the California Department of Fish and Game has determined may impact listed bird species, the permittee shall submit for review and concurrence by or on behalf of the Commission, evidence that a plan designed to minimize adverse impacts, such as monitoring procedures approved by the California Department of Fish and Game, in consultation with the Point Reyes Bird Observatory, to the double-crested cormorant (*Phalacrocorax auritus*) colony which exists on the support beams and scaffolding underneath the existing bridge and other migratory bird nesting and breeding on the structure is in place.”



EMERYVILLE

SFOBB Toll Plaza

OAKLAND

Project Construction Limits

80

EXISTING SFOBB EAST SPAN

ALAMEDA COUNTY
SAN FRANCISCO CITY & COUNTY

SAN FRANCISCO BAY

TREASURE ISLAND

Yerba Buena Tunnel

SAN FRANCISCO BAY

YERBA BUENA ISLAND

TO SAN FRANCISCO

Project Construction Limits

Figure 1

SFOBB EAST SPAN SEISMIC SAFETY PROJECT



3/15/02

In addition, BCDC Permit Special Condition F-7 states:

“Prior to opening the eastbound roadway of the new East Span to vehicular traffic, the permittee shall develop and implement a plan, in consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service and local Audubon chapters, and approved by or on behalf of the Commission pursuant to Special Condition II-A, to create approximately 500 square feet of shorebird roosting habitat in the Emeryville Crescent and at other suitable areas near the Oakland Touchdown.”

Page 23 of the USFWS Biological Opinion states:

“FHWA/Caltrans, or a third party accepting the responsibility, will submit to the Service the following documents, reports, or plans prior to beginning on-site construction activities, or prior to implementation of activities to adequately mitigate the project’s impacts.”

Included in the list are mitigation-related project plans. The Biological Opinion covers the California least tern and the California brown pelican.

Pages 4 and 5 (Fully Protected Species, Items 1 and 2) of the CDFG Incidental Take Permit require that the permittee monitor for and report any impacts to the California least tern and California brown pelican. In addition, Fully Protected Species, Item 3 (page 5) states that “Caltrans, in consultation with the Department, shall develop a management plan that addresses potential impacts to peregrine falcons and cormorants. The management plan shall discuss all bridge construction, removal, and maintenance activities and develop schedules for activities in order to avoid the take of peregrine falcons and cormorants, especially during their critical nesting periods.”

The following plan is intended to guide the bird monitoring and management efforts for approximately six years, during construction of the new bridge and dismantling of the existing bridge. The plan has been prepared for the review and approval by the USFWS, CDFG, and BCDC to ensure compliance with their respective permit requirements, as described above.

This plan summarizes the monitoring requirements for the relevant bird species and provides a detailed methodology for monitoring these birds over the course of the project. It also presents a general management plan for minimizing adverse effects on American peregrine falcons and double-crested cormorants. This monitoring plan does not address bird monitoring activities for the dredge disposal operations at the San Francisco Deep Ocean Disposal Site (SF-DODS), which are addressed in a separate monitoring protocol (*Deep Ocean Disposal Seabird and Marine Mammal Monitoring Protocol*, prepared for Caltrans by LSA Associates and SRS Technologies, 2002).

BIRD MONITORING AND MANAGEMENT REQUIREMENTS

The following sections outline the species-specific monitoring and management requirements that have been established by the relevant permitting agencies or identified in the FEIS. Table 1 provides a summary of these requirements.

California Least Tern

USFWS (page 22) and CDFG (Fully Protected Species, Items 1 and 2 on pages 4 and 5) require monitoring to avoid impacts to individual terns that may forage, rest, or travel through the project area. USFWS (page 22) requires that “a monitor ... be placed to observe construction areas where

project-related pile driving and dredging activities are underway in an effort to minimize impacts to federally listed species” and that “an observer, approved by USFWS, ... be placed to monitor the driving of the 259 in-Bay, large diameter steel pipe piles.” These pile driving operations are to be “monitored continuously for associated impacts to least terns and brown pelicans from April 1 to October 1 each year of project-related pile driving operations.”

Based on the survey results of the first year of bird monitoring for the East Span Project, which showed that large-diameter pile driving activities have not been adversely affecting the California least terns and brown pelicans, the terms and conditions of the USFWS Biological Opinion and the California Endangered Species Act Incidental Take Permit (No. 2081-2001-021-03) have been revised. In consultation with USFWS and CDFG¹, these changes do not require amendments to the permits.

The new conditions to the monitoring program are as follows:

- Monitoring every day of pile driving from April 20 through May 20;
- Monitoring every other day of pile driving from August 1 through September 30; and
- In the event that injury or mortality to any least terns or brown pelicans occurs as a result of pile driving operations, monitoring will immediately revert to full-time every day monitoring during pile driving operations until the project is completed.

In the event that, through monitoring, it is determined that construction activities result in a taking of a least tern, Caltrans is required to consult with USFWS (page 45) and CDFG (Fully Protected Species, Item 1 on page 5) within 24 hours from the discovery to determine the cause and to identify measures to prevent additional take. In addition, if take occurs, Caltrans will be required to take actions to provide additional predator and vegetation controls at the least tern breeding colony on the Alameda Naval Air Station (NAS) (CDFG Fully Protected Species, Item 1 on page 5).

California Brown Pelican

USFWS (page 22) and CDFG (Fully Protected Species, Item 2 on page 5) monitoring requirements for the brown pelican are the same as those for the least tern. In the event that take of this species is observed, Caltrans is required to notify CDFG and USFWS within 24 hours of discovery and to work with these agencies to evaluate methods to avoid additional project-related impacts to brown pelicans.

American Peregrine Falcon

The FEIS (page 4-87) discusses mitigation approaches to avoid impacts to this species. Mitigation includes continuation of monitoring and release efforts by the Santa Cruz Predatory Bird Research Group. If construction activities disturb nesting activities, the monitors would collect the eggs and/or capture and release any chicks present to a natural off-site location. In addition, CDFG (Fully Protected Species, Item 3 on page 5) requires that Caltrans, in consultation with CDFG, “develop a management plan that addresses potential impacts to peregrine falcons and cormorants. This management plan should include schedules for activities in order to avoid the take of peregrine falcons and cormorants, especially during their critical nesting period.”

Double-crested Cormorant and Western Gull

¹ Email and telephone conversations between Dan Buford of USFWS, Tom Napoli of CDFG, and Andrea Hitt of Caltrans on August 7, 2003.

BCDC Permit Special Condition F-6 and CDFG (Fully Protected Species, Item 3 on page 5) require that a plan to minimize or avoid adverse impacts to double-crested cormorants be developed. In addition, the FEIS (page 4-130) states that Caltrans will monitor the double-crested cormorant colony during the breeding season and prevent the birds from nesting on the existing bridge where potential impacts by construction activities could occur. Similar measures are required for the western gulls because they are now known to nest on the existing bridge (LSA Associates observations, July 2002).

Species Potentially Nesting on Yerba Buena Island

The FEIS (page 4-130) states that nest surveys will be conducted for five bird species that may nest on Yerba Buena Island (YBI): black-crowned night heron, white-tailed kite, Allen's hummingbird, bank swallow, and Bewick's wren. Specifically, it states that a biological monitor will conduct a nest survey prior to the removal of vegetation and trees during construction on YBI. In addition, the Migratory Bird Treaty Act (MBTA) prohibits the killing or injuring of birds listed under the MBTA or the disturbance or destruction of their nests and eggs, except as authorized under a valid permit (50 CFR 21.11). The MBTA protects most regularly occurring, native bird species in the United States. Any vegetation or trees with nests, or those adjacent to areas with nests, will not be removed until the nesting period is complete. This provision allows for removing vegetation prior to the breeding season, which for most birds is defined as January through August, in order to avoid delays in construction.

Shorebirds

To offset indirect impacts due to loss of shorebird foraging and roosting habitat, the FEIS (page 4-130) and BCDC Permit Special Conditions F-5 and F-7 require enhancement or restoration of sand flats, creation of upland refugia, and construction of 500 square feet (46 square meters) of roosting habitat near the Emeryville Crescent. In addition, BCDC Permit Special Condition F-7 states that "the shorebird roosting plan should include provisions for monitoring and submitting reports to the Commission of shorebird use of the created roosting habitat." This condition further specifies that these surveys will include monthly bird counts at appropriate tidal stages between September and April for a three-year period.

BIRD MONITORING AND MANAGEMENT PROGRAM

The following section describes the bird monitoring and management program, which is designed to meet the bird monitoring and management requirements specified by the permitting agencies or in the FEIS. All of the construction monitoring and surveys will be carried out by qualified observers who are familiar with these species. As required, resumes will be submitted to USFWS (page 22) for approval for each observer who will "monitor the driving of the 259 in-Bay, large-diameter steel pipe piles."

Monitoring of Active Construction Areas

To address the requirements of USFWS, CDFG, and the FEIS, five species of birds that have been identified as potentially affected by the project will be monitored during pile driving, dredging, and other construction activities that are in or adjacent to the Bay. These target species are the California least tern, California brown pelican, American peregrine falcon, double-crested cormorant, and western gull. Construction monitoring will consist of regular visits to record the presence and absence of target species in or near the construction zone and to document any observed or potential effects on these species due to the project. This section does not apply to peregrine falcon nest surveys, which are addressed separately below. During monitoring the following protocol will be used.

Frequency and Duration. The frequency and duration of each monitoring visit will vary depending on the bird species, the time of year, and the construction activity taking place, as discussed below.

During Pile Driving. The most intensive monitoring will be carried out during periods when pile driving of the 259 large-diameter piles occurs during April 20 through May 20 and August 1 through September 30. If pile driving is in progress during April 20 through May 20, the period when least terns arrive in the Bay Area and initiate breeding activities, pile driving sites will be monitored every day of pile driving. If pile driving is in progress during August 1 through September 30, the period when adult and juvenile least terns are more likely to have dispersed away from the nesting colony in Alameda, pile driving sites will be monitored every other day of pile driving. In the event that injury or mortality to any least tern or brown pelican occurs as a result of pile driving operations, monitoring will immediately revert to full-time, every day of pile driving activities, until the project is completed.

During Other Construction Activities. During construction periods that do not include pile driving of the large diameter piles, or are scheduled during October 1 through April 19 and May 21 through July 31, bird monitors will conduct a survey one day per week for 3 hours.

Timing. Monitoring sessions will be carried out primarily in the morning, when bird activity is normally at its peak. Over the course of this project, different tidal stages will occur in the morning and, as a result, bird activity will be recorded during different tidal stages. To the extent possible, monitors will avoid scheduling surveys on consecutive days, to ensure that the monitoring assesses a representative sample of construction activities and bird activities each week.

Monitoring Locations. Bird monitors will be stationed at different locations, depending on the nature and location of the construction activities taking place. Monitoring will be carried out from the Bay if needed to sufficiently monitor on-the-Bay construction. These surveys will be carried out from small boats, or from the construction barges (if feasible). Monitoring will also be carried out from land at the Oakland Touchdown and YBI, to assess the effects of land-based activities and work taking place near the shoreline. In addition, multiple locations may be used during any given day to ensure adequate coverage of the work areas. The monitoring will cover every active construction contract on each monitoring visit.

Survey Methods. During each survey, one or two bird monitors will use binoculars and/or spotting scopes to scan for target bird species. Monitors will observe bird behavior within 1,640 feet (500 meters) of construction activities and will note their presence within 3,280 feet (1,000 meters) of construction activities. Bird monitors will also note the presence of all other species of birds and marine mammals within 1,640 feet (500 meters) of construction. Observations will be recorded on project-specific data sheets (see attached example), with separate sheets used for each day and each construction contract. In addition, the location of the current construction activities surveyed will be recorded on a map and attached to the corresponding data sheet.

For the California least tern, California brown pelican, and American peregrine falcon, the following information will be collected:

- Number of individuals observed (separately for adults, juveniles, and nestlings);
- Distance to construction activities;
- Behaviors and activities, especially any behavior seemingly in response to construction; and
- Disturbance or incidental take of individuals during construction.

Monitoring of double-crested cormorants and western gulls will focus on the East Span of the existing bridge, which already supports a large cormorant colony and at least several western gull nests. The following information will be collected for these two species:

- Nesting behavior; and
- Responses to construction activities.

American Peregrine Falcon Nest Monitoring

As discussed in the FEIS (page 4-130), the peregrine nest(s) on the East Span will be monitored to assess the potential effects on this species from construction activities.

Frequency and Duration. Site visits will be made weekly during the nesting season for 1 to 4 hours per visit to determine the nesting status of any peregrine falcons nesting on the existing bridge. The survey frequency will be increased to once per day if a nest is active during construction or demolition activities. This survey frequency may be reduced to 3 times per week if, in the judgement of the bird monitor, the construction activities are unlikely to disturb the birds' nesting activity.

Timing. Peregrine falcon nest monitoring will be conducted at varying times of day during the course of monitoring to account for changes in their activity patterns relative to tide and prey species abundance.

Monitoring Locations. The peregrine nest monitoring will be carried out from an observation point near the eastern shore of YBI, just north of the bridge alignment. This site provides an ideal viewing area of the existing nest site on the bridge as well as foraging activities of the peregrines.

Survey Methods. The bird monitor will use binoculars and a spotting scope to scan the bridge for peregrine nests and/or nesting activity. The following information will be collected during each visit:

- Number of individuals observed (separately for adults, juveniles, and nestlings);
- Activities that indicate possible, probable, or confirmed nesting;
- Location of each nest observed. This will be recorded on a detailed map of the bridge indicating pier numbers; and
- Current stage of the nesting cycle (e.g., parents carrying food, nestlings observed).

Nest Surveys on Yerba Buena Island

As stated in the FEIS (page 4-130), a bird monitor will conduct nest searches, prior to vegetation removal on YBI, for five species of concern that may nest on YBI: black-crowned night heron, white-tailed kite, Allen's hummingbird, bank swallow, and Bewick's wren. In addition, these surveys will include nest searches for all other bird species protected under the Migratory Bird Treaty Act.

Frequency and Duration. Nest searches will be conducted prior to each construction activity that will require vegetation removal on YBI during the breeding season. The breeding seasons for different bird species vary, but one or more of these species may be nesting between January and August. The duration of each survey will vary according to the total area to be searched. To confirm the presence or absence of breeding, the observer will survey the site once. To determine nest locations, up to two more surveys may be conducted. Nest surveys are required during any breeding season when vegetation removal will take place, for the duration of the project.

Timing. These surveys will take place no earlier than two weeks before the start of vegetation removal. This will help to ensure that no nesting activity begins in the intervening period between a survey and the actual work. The bird monitors will conduct these surveys in the morning and will avoid windy or rainy days, if possible.

Survey Methods. The bird monitors will conduct a walking search using binoculars to scan for nests or nesting activity and listening for bird calls. The surveys will cover the construction zone and the adjacent areas out to 328 feet (100 meters) from the construction limits. Care will be taken to avoid disturbing nests or breeding birds. The following information will be collected for each of the target species:

- Number of individuals observed (separately for males, females, juveniles, and nestlings);
- Activities that indicate possible, probable, or confirmed nesting;
- Location of each nest observed. This will be recorded on a topographic map of 1" = 100' or larger scale;
- Current stage of the nesting cycle (e.g., parents carrying food, nestlings observed); and
- Estimated time to completion of breeding activities.

Management Plan for American Peregrine Falcon, Double-crested Cormorant, and Western Gull

Because these three species nest on the existing bridge, there is concern that construction activities may have an effect on their breeding success (see the *Assessment of Effects on Birds*, prepared for Caltrans by LSA Associates, 2002). This section outlines avoidance measures and scheduling guidelines to help avoid the take of these species, as required by CDFG (Fully Protected Species, Item 3 on page 5), BCDC (Special Condition F-6), and the FEIS (page 4-130).

During the dismantling work, to avoid take, Caltrans will prevent cormorants and gulls from nesting in portions of the bridge where potential impacts from construction activities could occur by following the methods implemented for maintenance activities on the existing bridge (FEIS page 4-130). As specified in the FEIS:

- Nesting will be prevented by monitoring such areas regularly during the breeding season and washing partially constructed nests off the bridge with water when the nests are actively occupied; and
- If the nests are completed and the birds have laid eggs, the nests will not be disturbed.

Partially constructed nests will be washed off by members of the construction crew who have been trained by the bird monitors.

During the construction and dismantling phases, bird monitors will assess whether construction activities are disturbing the nesting activities of peregrine falcons to the point that the pair may abandon the nest. If so, the monitors will collect the eggs and/or capture and release any chicks present to a natural off-site location, as specified in the FEIS (page 4-130). The eggs and chicks will be collected/captured and released by the Santa Cruz Predatory Bird Group or by other biologists who have the appropriate expertise and authorizations from CDFG.

Prior to beginning dismantling of the existing East Span, Caltrans will explore the possibility of timing the dismantling activities to minimize disturbance of nesting by peregrine falcons, double-crested cormorants, and western gulls, e.g., by scheduling dismantling activities in the vicinity of known nest-sites outside of the breeding season. The breeding seasons for these three species vary. Peregrine falcons may begin breeding activity as early as December; they typically lay eggs in early March, and the young generally fledge in the third week of May (FEIS page 3-74). Double-crested cormorants may have active nests on the East Span any time between March and September (FEIS page 4-127). The nesting season for western gulls is similar to double-crested cormorants and they may have active nests anytime between April and August (*Water Birds of California*, by H.L. Cogswell, 1977).

A plan designed to minimize adverse impacts to these three species within known nesting areas on the existing bridge will be developed prior to the beginning of dismantling activities. This plan will address impact avoidance measures such as appropriate scheduling of work activities, the timing of measures to prevent nesting on the existing East Span, and buffer zones around the breeding colony. As required for minimizing impacts to the double-crested cormorant (BCDC Permit Special Condition F-6), the plan will be submitted for review and concurrence by BCDC and will be developed in consultation with CDFG and the Point Reyes Bird Observatory.

Post-construction Shorebird Roosting Site Surveys

Following the construction of 500 square feet (46 square meters) of roosting habitat near the Emeryville Crescent, as mitigation for the temporary loss of roosting habitat during construction, a bird monitor will monitor the constructed roosting sites to determine the extent to which shorebirds use the sites.

Frequency and Duration. Surveys will be carried out once per month during September through April for three years, as required by BCDC Permit Special Condition F-7. Each survey will be about 2 hours long.

Timing. Each survey will be timed to occur during one of the highest tides of the month when the greatest numbers of shorebirds would be expected to use the roosting sites.

Survey Methods. The bird monitor will use binoculars and/or a spotting scope to scan the constructed roosting sites for shorebirds. The surveyor will also record the shorebirds roosting at

nearby existing roosting sites (if any), for comparison. Each survey will include the known shorebird roosting site around the radio towers north of the SFOBB toll plaza. The following information will be collected and recorded on data sheets:

- Shorebird species present at each roosting site, including the constructed roosting site and other existing roosting sites;
- Approximate number of each species; and
- Differential use or avoidance of different portions of the constructed roosting sites.

Notification

The bird monitors will contact the Caltrans Permit Compliance Manager prior to each survey to inform her of the starting time, duration, and location of the survey.

The bird monitors will also notify Caltrans promptly if incidental take of a California least tern, California brown pelican, or American peregrine falcon is observed during the surveys, so that Caltrans can notify USFWS and CDFG within 24 hours of the take incident, as required by their permits.

Reporting

The bird monitoring team will submit a weekly memo to Parsons Brinckerhoff and the memo will subsequently be forwarded to Caltrans by Wednesday of each week. Each memo will summarize the bird monitoring activities and observations made of the target species during the previous week. These results will be summarized as necessary to meet annual report requirements (e.g., an annual status report to CDFG describing avoidance, minimization, and mitigation measures; an annual report to USFWS summarizing impacts to the California least tern and California brown pelican during pile driving conducted from April 1 to October 1; and an annual report to BCDC regarding shorebird use of constructed roosting sites).

Table 1: Bird Monitoring and Management Components

BIRD MONITORING OR MANAGEMENT COMPONENT	MONITORING OR MANAGEMENT ACTIVITY	SPECIES	PERMIT/DOCUMENT REQUIRING THIS COMPONENT*
Monitoring of active construction areas	<p>In order to monitor active construction areas and assess effects on the target species, the following monitoring will be carried out:</p> <ul style="list-style-type: none"> • Conduct surveys on every day of large diameter pile driving during April 20 through May 20; and • Conduct surveys on every other day of large diameter pile driving during August 1 through September 30; and • Conduct surveys one day per week for 3 hours during all other times of year. 	California least tern California brown pelican American peregrine falcon Double-crested cormorant Western gull	USFWS, CDFG USFWS, CDFG FEIS FEIS FEIS
American peregrine falcon nest monitoring	Conduct one to seven surveys per week, depending on construction activity and activity at the nest-site.	American peregrine falcon	FEIS
Nest surveys on Yerba Buena Island	Conduct up to three nest searches within two weeks prior to each vegetation removal project on Yerba Buena Island, if vegetation will be removed during the breeding season.	All bird species protected under the Migratory Bird Treaty Act	FEIS MBTA
Management plan for American peregrine falcon, double-crested cormorant, and western gull	Provide plan with avoidance measures and scheduling guidelines to help avoid the take of these species.	American peregrine falcon Double-crested cormorant Western gull	CDFG, FEIS BCDC, CDFG, FEIS BCDC, FEIS

Final Bird Monitoring and Management Plan

BIRD MONITORING OR MANAGEMENT COMPONENT	MONITORING OR MANAGEMENT ACTIVITY	SPECIES	PERMIT/DOCUMENT REQUIRING THIS COMPONENT*
Post-construction shorebird roosting site surveys	Conduct surveys once per month, September through April, for 3 years following construction of new roosting site(s).	All shorebirds	BCDC

*BCDC: San Francisco Bay Conservation and Development Commission. *SFOBB East Span Project Permit No. 8-01*. November, 2001.

FEIS: Federal Highway Administration. *San Francisco-Oakland Bay Bridge East Span Seismic Safety Project, Final Environmental Impact Statement/Statutory Exemption and Final Section 4(f) Evaluation*. May, 2001.

USFWS: U.S. Fish and Wildlife Service. *Formal Endangered Species Consultation for the San Francisco-Oakland Bay Bridge East Span Seismic Safety Project, Alameda County, California* (Letter 1-1-02-F-0002). October 29, 2001.

CDFG: California Department of Fish and Game. *California Endangered Species Act Incidental Take Permit (No. 2081-2001-021-03) for the San Francisco-Oakland Bay Bridge East Span Seismic Safety Project*. November, 2001.

MBTA: Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755) as amended by: Chapter 634; June 20, 1936; 49 Stat. 1556; P.L. 86-732; September 8, 1960; 74 Stat. 866; P.L. 90-578; October 17, 1968; 82 Stat. 1118; P.L. 91-135; December 5, 1969; 83 Stat. 282; P.L. 93-300; June 1, 1974; 88 Stat. 190; P.L. 95-616; November 8, 1978; 92 Stat. 3111; P.L. 99-645; November 10, 1986; 100 Stat. 3590 and P.L. 105-312; October 30, 1998; 112 Stat. 2956

DATA SHEET EXAMPLE (2 pages)

Bird Monitoring - Bay Bridge East Span Project

Page 1 of 2

Construction Contract: _____	Date: _____	Start time: _____
Observers: _____	Survey type: Boat / Land	Stop time: _____
Construction Activities¹: _____	Cloud cover (%): _____	Wind (Beaufort): _____
_____	Temp (F): _____	Tide²: _____

Species	Tally of Individuals	Total	Distance to Construction ³	Behavior/Activity ⁴
Calif. Least Tern (LETE) (Status ⁵ : FE, SE, FP)				
Brown Pelican (BRPE) (Status ⁵ : FE, SE, FP)				
Peregrine Falcon (PEFA) (Status ⁵ : SE, FP)				
Double-crested cormorant (DCCO) (Status ⁵ : CSC)	Observations⁶			
Western Gull (WEGU)	Observations⁶			

Notes: _____

¹ DR = Dredging; PD = Pile Driving; DEM = Demolition; EQ = equipment traffic

² Tide: record the tide level at the Start Time and Stop Time, and the peak (high or low) tide during the survey.
Use MLLW datum (in feet).

³ Record approximate distance from construction site for every sighting (in meters; 500+ = 500 to 1000 meters).

⁴ FO = fly over; F = foraging; R = resting; PR = pair; N = at a nest; FC = carrying food; FL = fledglings;
AV = avoidance of construction activity.

⁵ FE = Federally Endangered; SE = State Endangered; FP = State Fully Protected; CSC = State Species of Special Concern

⁶ Nesting behavior and responses to construction activities.

