

APPENDIX G
BANK SWALLOW MITIGATION PLAN

M&T CHICO RANCH/ LLANO SECO RANCHO BANK SWALLOW MITIGATION PLAN

MAINTENANCE OF CHANNEL ALIGNMENT RIVER MILE 192.5

INTRODUCTION

HDR Engineering Inc./Surface Water Resources, Inc. (HDR|SWRI) has prepared this bank swallow mitigation plan (Plan) on behalf of the U.S. Fish and Wildlife Service (USFWS) and the M&T Chico Ranch/ Llano Seco Rancho. This Plan has been prepared in support of an Environmental Assessment/ Initial Study (EA/ IS) and an Action Specific Implementation Plan (ASIP) that have been prepared for the M&T Chico Ranch/Llano Seco Rancho Pumping Plant Project. This Plan has been prepared to discuss the potential impacts of the Proposed Action/Project on bank swallow (BANS; *Riparia riparia*) and to discuss the conservation measures that will be incorporated into the proposed project to reduce impacts to BANS. The conservation measures described in this Plan have been agreed upon by USFWS, the California Department of Fish and Game (CDFG), the California Bay-Delta Authority (CBDA) and the project Proponents.

PROJECT LOCATION AND DESCRIPTION

The M&T Chico Ranch/Llano Seco Rancho pumping facility is located downstream of the confluence of Big Chico Creek and the Sacramento River, on the east bank of the Sacramento River just south of the Bidwell-Sacramento River State Park at RM 193 approximately 6-miles southwest of the City of Chico (**Refer to Figure 1-1, Figure 1-2, and Figure 1-3 in the EA/ IS**). The outfall for the City of Chico WWTP is located about 300 feet downstream from the M&T Chico Ranch/Llano Seco Rancho pumping facility. The M&T Chico Ranch/Llano Seco Rancho pumping facility provides a reliable water supply to approximately 15,000-acres of farmland and refuge land, including over 4,000-acres of wetlands owned or managed by the USFWS and the CDFG. Accordingly, USFWS and CDFG have a vested interest in maintaining the viability of the M&T Chico Ranch/Llano Seco Rancho pumping facility.

Sediment deposition poses a threat to the normal operation of the M&T Chico Ranch/Llano Seco Rancho diversion. An upriver gravel bar adjacent to the Bidwell-Sacramento River State Park migrates toward the vicinity of the fish screened diversion and WWTP outfall. As a result of continued sediment deposition and increased river meander, the intake screens could potentially be covered by sediment, which could cause a reduction in sweeping velocities across the screens (parallel to screen). A reduction in sweeping velocities would render the screens out of compliance with the National Oceanographic and Atmospheric Administration's National Marine Fisheries Service (NMFS) and the CDFG fish screen criteria. Immediately downstream of the M&T Chico Ranch/ Llano Seco Rancho diversion facility, the City of Chico WWTP outfall diffusers

also are threatened by the ongoing sediment deposition associated with the upriver gravel bar and river migration.

The project area is within the Sacramento River Conservation Area (SRCA) also called the SB1086 Program. The SCRA currently is administered by the Sacramento River Conservation Area Forum (SRCAF). The project area is at the upstream end of Reach 3 – Chico Landing to Colusa, and is within the inner zone or active meander of the reach. Based on evaluations of aerial photographs taken over the previous 10 years, the river has migrated away from the pumps at a rate of 20 to 60 feet per year. If the current rate of migration continues, the functionality of the existing pumping facility could be compromised.

The goal of the SRCA Program is to preserve remaining riparian habitat and reestablish a continuous riparian corridor along the Sacramento River. The objective of the SRCA Inner Zone management is to retain downstream movement of point bars and the natural river meander. The SCRA recognizes there are places along the Sacramento River where bank stabilization would be necessary to limit meander in the inner river zone. This limitation takes into consideration the need to protect existing land uses, including agriculture, and structures such as buildings, bridges, pumping plants, and flood management structures from bank erosion.

In response to the potential occlusion of the M&T Chico Ranch/Llano Seco Rancho diversion facility, the California Bay-Delta Authority (CBDA) requested that a team of multidisciplinary experts be consulted to provide a long-term proposal that is functional and able to be permitted by responsible regulatory agencies. This multidisciplinary team of experts and stakeholders is the Steering Committee for the project. The overall purpose of the committee is to provide a balanced and unbiased view of the issues, to characterize the status of knowledge of the project, and to identify and prioritize key scientific issues associated with the project. The Steering Committee will guide development of the project ensuring that any further actions would consider the necessary objectives and parameters to maintain an effective, fish friendly diversion at the M&T Chico Ranch/Llano Seco Rancho pumping plant. The Steering Committee is charged with investigating innovative diversion techniques, fish protection, and natural riverine processes.

The joint EA/ IS and the ASIP have been prepared to assist the USFWS, CDFG, M&T Chico Ranch/ Llano Seco Rancho with developing an action/project to assess and document potential impacts associated with maintaining the viability of the M&T Chico Ranch/ Llano Seco Rancho pumping facility. The Proposed Action/Project has been identified as a temporary solution to the bank erosion and gravel deposition occurring in the Action/Project Area until a permanent solution can be identified and implemented. The lifespan of the temporary solution (i.e., the Proposed Action/Project) was intended to be five years. A long-term solution has not yet been identified, but would undergo a separate and independent environmental compliance process. The Proposed Action/Project may be incorporated into the long-term solution.

The Proposed Action/Project involves dredging of the upriver gravel bar and revetment of a 1,520 segment of the river bank. Gravel bar material would be removed from the river to allow parallel sweeping flows at the pumping site in order to maintain the functionality of the pumping facility while continuing to meet NMFS and CDFG fish screen criteria. In addition, 1,520-feet of rock toe and tree revetment would be placed on the west side of the river. Construction of the Proposed Action/ Project would be performed as soon as possible, during the appropriate work windows of October 1 through October 31, after required permits are issued and Endangered Species Act consultation is completed. The 30 day construction window will be sufficient to complete construction of the Proposed Action/ Project. Refer to Section 2.2 of the EA/IS for further details regarding the Proposed Action/Project.

PURPOSE OF THE MITIGATION PLAN

The purpose of this Plan is to describe the current status of BANS in the Proposed Action/ Project Area, to describe BANS habitat in the Proposed Action/ Project Area and in the proposed conservation easement site, to discuss the potential effects of the project on BANS, and prescribe conservation measures that will be implemented to reduce impacts to BANS to less than significant. In order to fulfill the purpose of this Plan as stated above, the Plan includes a description of:

- the current status of BANS in the Proposed Action/ Project Area;
- the existing BANS habitat values in the Proposed Action/ Project Area and in the proposed conservation easement site that will be protected;
- the potential effects of the project on BANS;
- the specific location and size of the conservation easement site; and
- additional conservation measures that will be implemented to reduce impacts to BANS to less than significant.

BANK SWALLOW MITIGATION BACKGROUND

Legal Status

Legal Status: State Threatened

MSCS Goal: 'r' = Contribute to recovery

The bank swallow is a State threatened species and has no Federal status.

Designated Critical Habitat

Critical habitat has not been designated for bank swallow.

Life History and Habitat Requirements

BANS is a native California species with significant portions of its remaining range found only in Northern California riparian ecosystems, particularly in association with rivers located in larger lowland valleys. The Sacramento Valley riparian system provides

habitat for over 70 percent of the remaining bank swallow population (CDFG 2000). BANS is a neotropical migrant found primarily in riparian and other lowland habitats in California west of the deserts during the spring to fall period (CDFG Website 2007a; CDFG Website 2007b). In California, bank swallows rely on naturally eroding habitats for nesting within lowland river systems (CDFG 2000). Currently, bank swallows are restricted to riparian, lacustrine, and coastal locations where sandy, vertical bluffs or riverbanks are available for nesting (CDFG Website 2007b). Remaining suitable nesting habitat is sparsely distributed throughout the species' remaining California range and occurs primarily at coastal river mouths, north of the town of Colusa along the banks of the Sacramento and Feather rivers, wildlife refuges in northeastern California, and occasionally in gravel and sand mines that provide and maintain nesting habitat (Grinnell and Miller 1944). Soil type, height and slope seem to be the primary selection criteria by which bank swallows choose nest sites (Garrison 1989).

Nesting colonies are located in the upper portions of vertical banks or bluffs and on the Sacramento River generally prefer a soil composition of evenly textured fine sandy loam to silt loam (Garrison et al. 1987, Humphrey and Garrison 1987). However, the use of man-made sites such as sand and gravel quarries, road cuts, or construction sites is also expected in California (Garrison 1999). Nests with an approximate depth of two to three feet are dug perpendicularly into vertical banks along streams and coastal bluffs (CDFG 2000). Burrow locations from the base of the bank may range between 0.25 meters and 0.5 meters while suitable bank height is generally 3.3 meters tall in order to reduce predator access (Garrison 1987). The length of nesting banks in California ranges between 13 meters and 1,900 meters (Garrison 1999). Vegetation surrounding breeding sites may be varied because sites are selected primarily for the presence of eroding banks (Garrison 1999).

Garrison et al. (1987) conducted the first investigation of colony and nesting habitat, which included a description of the soils and other bank characteristics. Soil samples from most of the burrows analyzed consisted of evenly textured loam, fine sandy loam, and silt loam soils of the Columbia soil series. Columbia silt loam with 0 to 2 percent slopes is typical of BANS colony sites, and occurs along the banks of the middle Sacramento River from Red Bluff to Colusa in Tehama, Glenn and Colusa counties. Gianella soil series replaces the Columbia soil series in Butte County. Begg (1968 Glenn County Soil Survey) describes the upper 12 to 58 inches of Columbia silt loam as slightly hard silt loam and very fine sandy loam containing stratified, thin layers of loamy fine sand, and sands that are brown and friable when moist. BANS do not burrow in banks with coarser soils, or soils containing small rocks and pebbles. Colonies often occur in narrow bands or layers of Columbia silty loam, between layers of finer or coarser soils; even when these alternating layers occur in non-level, undulating patterns.

Bank slope is a function of soil texture, and is an important factor affecting bank stability and habitat suitability. For example, slump at the base of the bank due to coarse soil materials results in predator access to BANS burrows from below, which is especially critical for relatively low banks. Soil scientists note that the Columbia soils (and Gianella soils in Butte County) are azonal (i.e., they do not show profile characteristics) so

stratification does not show a typical pattern of soil horizons. Therefore, suitable BANS habitat is transitory, with erosion moving both into and out of suitable soil strata. In order to reliably predict future suitable nesting habitat, soil core samples would need to be collected across the floodplain in areas expected/modeled to erode.

Insects are the primary food source of bank swallows, which hunt over grassland, shrubland, savannah, and open riparian areas during the breeding season, and over grassland, brushland, wetlands, and cropland during their migration (CDFG Website 2007a; CDFG Website 2007b). Moffatt et al. (2005) identified grassland restoration as an important factor for BANS colony vitality presumably due to relatively high levels of insect prey. Bank swallows may arrive in California during early March, but generally breed from April to August with peak activity occurring during mid-May through mid-June (CDFG Website 2007a; CDFG Website 2007b). Migration to South America generally begins by late July or early August and migrants usually are observed through early or mid-September (CDFG Website 2007a; CDFG Website 2007b).

BANS was designated as threatened under CESA during March 1989 (CDFG 2000). CDFG (2006) estimate that the habitat range for bank swallows in California has been reduced by 50 percent since 1900. CDFG reported that only approximately 110 to 120 colonies remain within California (CDFG Website 2007b). Channelization and bank stabilization, and other destruction and disturbance of nesting areas, reportedly are major factors causing the decline in abundance and distribution during recent decades (CDFG 1989). During 1999, 75 percent of the current breeding population in California occurred along banks of the Sacramento and Feather rivers in the northern Central Valley (CDFG Website 2007b). About 50 to 60 colonies remained along the Sacramento River and 15 to 25 colonies occurred along lower Feather River where the river meanders in a mostly natural state (CDFG Website 2007b).

Status in the Proposed Action/Project Area

The CDFG conducts an Annual Bank Swallow Survey on the Sacramento River, including the segment of the river in the Proposed Action/Project Area. The results of the Annual Bank Swallow Survey indicate that from 1999 through 2007 estimates ranging from 50 (during 2002) to 340 (during 2001) nesting pairs were observed on the west bank of the Sacramento River in the Proposed Action/Project Area. A bank swallow colony of approximately 110 nesting pairs was reported using the eroded bank at the proposed revetment location during 2005 and 220 in 2007 by USFWS and CDFG biologists (**Refer to Figure 3-3 of the EA/IS**) (Kevin Foerster, pers.comm. 2007). Nesting individuals were not observed during 2006 during surveys conducted on June 27, 2006 by Gallaway Consulting, Inc. biologists.

Habitat in the Proposed Action/Project Area

BANS habitat assessments of the Proposed Action/Project Area have been independently conducted by personnel with the CDFG and the USFWS. Ron Schlorff, the acknowledged BANS expert with CDFG, assessed the habitat suitability of sites along the Sacramento River between Red Bluff (RM 243) and Colusa (RM 143) during a June 2007 survey (the Action/Project Area is located within the surveyed reach at RM 193.0-

193.5 R). Mr. Schorff rated the Capay Unit, which includes the Proposed Action/Project Area, an "A" for comparative habitat suitability and condition. Joe Silveira, wildlife biologist for the Sacramento River National Wildlife Refuge Complex, assessed the habitat suitability of the Proposed Action/Project Area in September 2007 (Silveira 2007). Mr. Silveira rated the current habitat condition in the Proposed Action/Project Area as "good." The following excerpt is taken from a letter written by Mr. Silveira to Greg Mensik, Acting Refuge Manager, Sacramento National Wildlife Refuge (NWR) Complex titled "Evaluation of Bank Swallow Habitat on Sacramento River NWR's Capay Unit and the Proposed M&T Chico Ranch Mitigation Site."

"The Capay Unit, which is proposed for bank armoring, is characterized by 1,500 feet of eroding bank. From 1998 to present, this site has supported from 50 to 340 nesting pairs. In 2007, BANS colonies occurred in three distinct locations at this site, totaling 220 nesting pairs. The banks are high and steep, affording the colony relatively high security from predation. There is a lack of roots covering the bank, which provides more exposed soil for construction of burrows and a lack of substrate for predators, such as snakes and avian species, to access the burrows. The Capay Unit site has distinct bands of suitable soils above layers of soils which are too coarse to support burrows. Bank erosion in 2002 resulted in more exposed unsuitable coarse soils and declining colony sizes. However, since 2005, continuing erosion has resulted in the exposure of silt loam textured soils and consequently, increasing colony sizes. Further erosion may result in a continued trend of improving habitat. In addition, the restoration planting design in this portion of the Capay Unit is savanna, which will expose very few roots upon erosion."

PROJECT EFFECTS

Dredging, Spoils Deposition, and Other Construction Activities

Bank swallows are a colonial nesting species that migrate and nest from mid-march through mid-September and are restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured, sandy soils (CDFG Website 2007a; CDFG Website 2007b; Garrison 1999; Garrison 2002; Humphrey and Garrison 1987). Within the Proposed Action/Project Area, known and potential bank swallow habitat exists on the west bank of the Sacramento River, but no habitat exists on the east bank. Therefore, potential effects associated with dredging, spoils deposition, and other construction activities include nesting activity disruption due to noise and other human disturbances. An evaluation of the potential impacts of dredging, spoils deposition, and other construction-related activities under the Proposed Action/Project to BANS and BANS habitat have been conducted in the EA/IS and ASIP.

Effects of Longitudinal Stone Toe Revetment Construction

Potential effects to BANS associated with construction of the rock toe and tree revetment include direct mortality and nesting activity disruption due to noise and construction disturbance (i.e., rock placement). An evaluation of the potential construction-related

impacts associated with the longitudinal stone toe revetment under the Proposed Action/Project to BANS and BANS habitat have been conducted in the EA/IS and ASIP.

Habitat Alteration (Five-year Time Frame of the Proposed Action)

Implementation of the Proposed Action would affect by temporarily making an approximately 1,520 feet segment of river bank, which contains known habitat and potential bank swallow habitat unsuitable for nesting. Specifically, the revetment would reduce the suitability of the habitat above the revetment and remove the opportunity for recolonization during the five-year planning period in the revetment area, potentially resulting in a loss of habitat in the Proposed Action/Project Area. An evaluation of the potential impacts associated with habitat alteration under the Proposed Action/Project to have been conducted in the EA/IS and ASIP.

Proposed Action/Project lifespan

Because the Proposed Action/Project is a temporary feature identified as having a five-year lifespan by the Steering Committee, upon removal of the revetment following the five-year period, the bank could potentially become suitable for recolonization by BANS. However, the potential for the bank to again become suitable for BANS recolonization after the five-year planning period would depend on the type of permanent solution implemented by the Steering Committee. The long-term solution has not yet been identified, but would undergo a separate and independent environmental compliance process.

Because the west bank of the Sacramento River is suitable habitat for BANS, and nesting colonies often (almost annually) have been observed using the site, the Proposed Action/Project includes mitigation for the loss of BANS habitat through the acquisition of a permanent 1,520-foot long, 600-foot wide conservation easement on the M&T Chico Ranch (discussed below). Because the Proposed Action/Project is a short-term project, mitigation proposed for loss of habitat generally is proposed to offset a short-term loss.

Conservation Measures

The Conservation Prescriptions and Guidelines for bank swallow as outlined in the Multi Species Conservation Strategy (MSCS) states, “*allow reaches of the Sacramento River and its tributaries that are unconfined by flood control measures (i.e., bank revetment and levees) to continue to meander freely, thereby creating bank nesting substrates through the process of bank erosion*”. Under the MSCS, for species designated as “r” species such as the bank swallow, CALFED will make specific contributions toward the recovery of the species for which CALFED actions affect only a limited portion of the species’ range and/or CALFED actions have limited effects on the species (CALFED 2000).

The objective of contributing to a species recovery implies that CALFED will undertake some of the actions under its control and within its scope that are necessary to recover the species. When a species has a recovery plan, CALFED may implement plan measures that are within the CALFED Problem Area, and measures that are outside the Problem

Area. For species such as the bank swallow, CALFED implements specific conservation measures that will benefit the species per the MSCS (CALFED 2000).

The proposed project will affect bank swallows by temporarily altering approximately 1,520 feet of known and potential bank swallow habitat. The following conservation measures taken from the MSCS will be incorporated to mitigate impacts:

- Before implementing actions that could result in take or the loss or degradation of occupied habitat, conduct surveys in suitable habitat within portions of the species' range that proposed project actions could affect to determine the presence and distribution of the species.
- Avoid actions near active colonies from April through August.
- To the extent practicable, avoid actions that would create suitable, but temporary, nesting habitat that could create population sinks by attracting bank swallows, or implement additional actions to render such habitat unattractive to bank swallows.
- Coordinate permanent protection and restoration of channel meander belts and existing bank swallow colonies with other Federal and State programs (e.g., the Senate Bill [SB] 1086 program and the COE Sacramento and San Joaquin Basin Comprehensive Study), Federal and State refuges, and private landowners via fee title or conservation easement in the affected reach (RM 169-199, Butte City to Hamilton City). Coordination would avoid conflicts among management objectives and identify opportunities for achieving multiple management objectives.

In addition to the Conservation Prescriptions and Guidelines for bank swallow as outlined in the MSCS, the Action/Project Proponents will mitigate for the temporary loss of bank swallow habitat through the acquisition of a permanent conservation easement on the M&T Chico Ranch (discussed below).

CONSERVATION EASEMENT

The Action/Project Proponents will mitigate for the loss of bank swallow habitat through the acquisition and subsequent donation to USFWS of a permanent 1,520-foot long by 600-foot wide conservation easement on the M&T Chico Ranch that has provided habitat for bank swallow nesting colonies since 1998 (**Figure G-1**).

BANS habitat assessments of the proposed mitigation site were conducted by Ron Schlorff (CDFG) and Joe Silveira (USFWS). Mr. Schlorff rated the M&T site a "C", commenting the site (bank) was too low, had good riparian (vegetation), and contained approximately 100 feet of suitable BANS habitat. Mr. Schlorff further stated that the rating was based on current habitat features, and did not take into account other factors useful for site by site comparisons such as willing sellers or eminent threats. Mr. Silveira commented that these ratings did not consider soil coring to determine future suitable habitat.

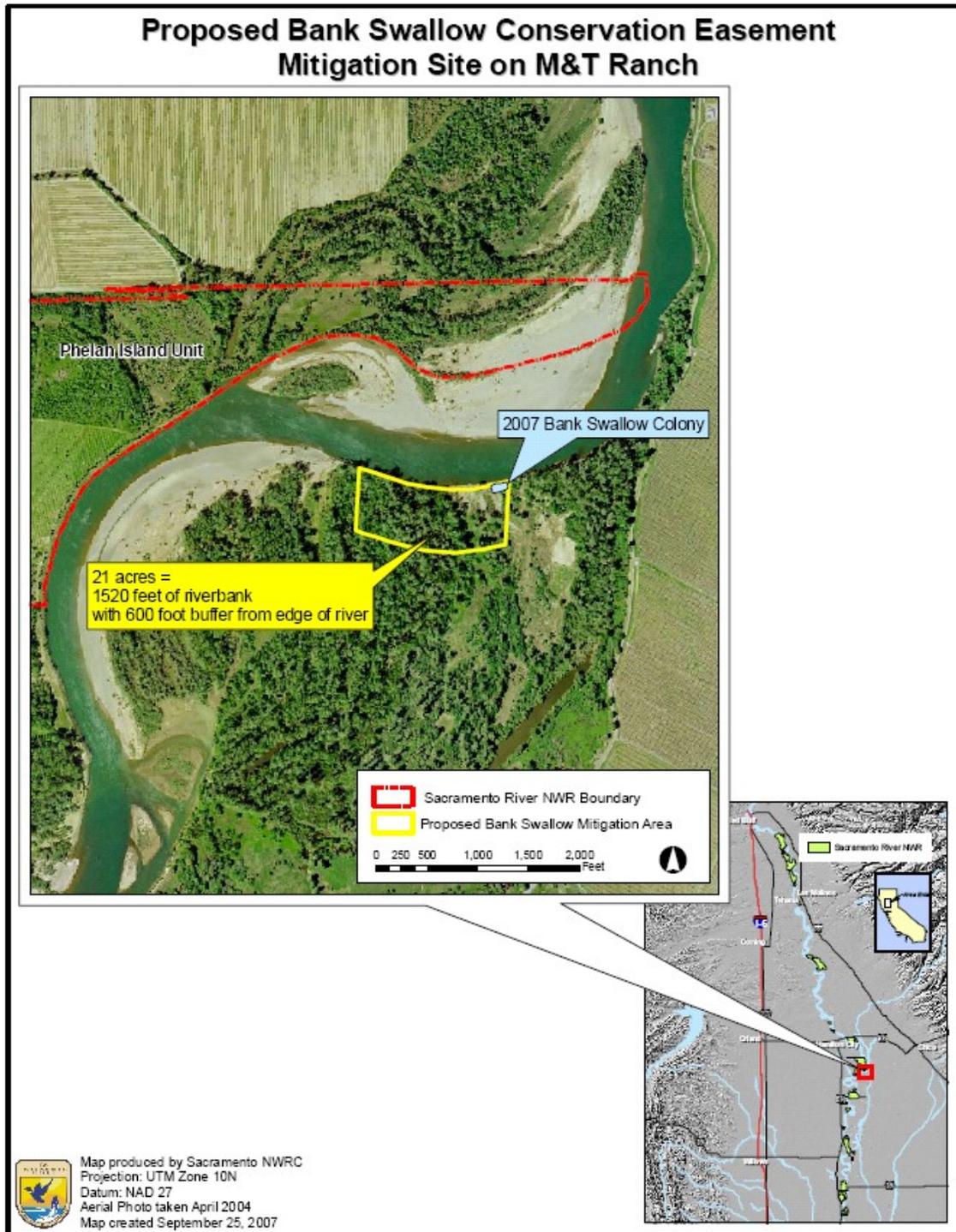


Figure G-1. Bank Swallow Conservation Easement Map

The following is an excerpt from Mr. Silveira's letter introduced above in the Habitat in the Proposed Action/ Project Area section.

“The proposed M&T Chico Ranch mitigation site is characterized by 1,500 feet of eroding bank. From 1998 to the present, it has supported from 40 to 870 nesting pairs. In 2007, a BANS colony of 110 nesting pairs occurred at one location. The current habitat condition is fair. Banks on the northern end (400 feet) are relatively low with a small gravel bar base, from which predators such as raccoons can begin a short climb to the burrows. However, the banks are composed of highly suitable silt-loam soil, and this was the only location of a nesting colony at the proposed mitigation site in 2007. Banks throughout the remaining portion of the mitigation site (1,100 feet) show increasing height and are composed of mostly silt loam soils, but are covered with trapped large woody debris and roots from the above mixed riparian forest. As a result, there was only one small area of exposed suitable habitat. This area was not occupied by BANS in 2007, and only showed signs of a single attempted burrow being excavated. Between the occupied northern portion and the unoccupied remainder, there is currently only about 100 feet of suitable BANS colony and nesting habitat. However, continued and further erosion is predicted and based on past surveys, it is reasonable to expect improved habitat conditions in the future.”

CDFG determined that the proposed easement is appropriate for the short-term loss of bank swallow habitat associated with implementation of the Proposed Action/Project although the habitat suitability for BANS at the proposed mitigation site is potentially lower quality than the habitat in the Proposed Action Area. Specifically, because the rock revetment will be removed in five years unless incorporated into the long-term project, and additional mitigation will be required if the revetment is incorporated into the long-term solution, the conservation of an equal length of existing bank swallow habitat in perpetuity has been deemed appropriate by CDFG.

Conservation Easement Lifespan

The conservation easement on the M&T Chico Ranch will remain in place for perpetuity (i.e. it is a permanent easement with no defined time limit). As such, the conservation easement will be in perpetuity. The permanent 1,520-foot long by 600-foot wide conservation easement on the M&T Chico Ranch will mitigate for potential impacts to bank swallow at a rate of 2:1 due to the depth of the easement. The conservation easement is expected to remain (e.g., continue to erode) for a minimum of ten years. Therefore, the conservation easement will potentially be in place for several years after the revetment is removed from the Proposed Action/Project Area (assuming that the revetment is not incorporated into the long-term solution).

Restoration and Monitoring

The focus of this Plan is to establish a permanent conservation easement along a section of river bank that supports existing BANS colonies and provides the potential for establishment of future BANS colonies as the bank erodes and suitable soil is exposed (Silveira 2007). The Recovery Plan for Bank Swallow (CDFG 1992) states “*the most*

practical, and probably the most cost effective, system to maintain suitable habitat in perpetuity is through conservation of a natural riverine system such as that which has historically supported BANS populations.” Techniques for artificially enhancing BANS habitat such as clearing of vegetation and excavating burrows with hand tools are not generally feasible because they are costly to maintain and monitor over time. In addition, an evaluation study of these enhancement techniques deemed them inappropriate for long-term maintenance of BANS habitat (CDFG 1992). In a study by Garrison in 1991, two artificial banks and six enhanced natural banks were built along the Sacramento River as mitigation for loss of BANS colony sites from flood control projects. BANS occupied one of the two artificial sites and five of the six enhanced sites for up to three years following construction, with nestlings produced at equivalent levels to natural sites. However, all of the sites were abandoned after three years due to lack of maintenance (Garrison 1991 cited in CDFG 1992). This study suggests that yearly maintenance may be required to provide BANS habitat in areas where they do not already occur. In a different study conducted by Ron Schlorff in 1986, one hundred artificial burrows were dug. None of these artificial burrows were subsequently occupied by BANS. A reason suggested for the lack of success of these artificial burrows were that BANS colonies had not previously occupied the bank (Garrison 1998). These studies suggest that artificial enhancement of currently unoccupied areas (such as portions of the easement) has a low likelihood of success, as well as being a short term solution that requires regular costly maintenance. In addition, the easement is expected to continue increasing in value as BANS nesting habitat as natural erosion processes uncover more suitable soils. Therefore, active restoration is not currently proposed for the conservation easement area. If active restoration is deemed necessary by the Proponents over the lifespan of the easement, it may be performed under coordination with USFWS and CDFG.

The conservation easement will be monitored yearly by USFWS and the results of the monitoring will be provided to CDFG. This will allow an assessment of the success/viability of the site for supporting BANS and can assist in the guidance of decisions regarding the feasibility of artificial enhancement and other management decisions.

Funding

The land set aside for the proposed conservation easement will be provided by the M&T Chico Ranch.

SUMMARY

The Proposed Action/ Project will temporarily impact a 1,520 foot segment of river bank that provides habitat for BANS by placing of longitudinal stone toe revetment. In addition, construction activities associated with dredging, spoils deposition, and other activities could potentially effect BANS if they were to occur in the Proposed Action/Project Area. The Project Proponents have committed to mitigating for temporary impacts to bank swallow and their habitat by conducting preconstruction surveys prior to work in suitable BANS habitat, by limiting all construction activities to the period between October 1 and October 31 when BANS are not expected to occur, by setting aside and subsequently donating to USFWS a permanent 1,520-foot long by 600-foot

deep conservation easement on the M&T Chico Ranch that will be in place in perpetuity, and other conservation measures discussed in this Plan. With the implementation of conservation measures discussed in this Plan, the Proposed Action/Project is expected to have a less than significant impact on BANS.

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