Appendix B
Clean Water Act Section 404 Permit

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Clean Water Act Section 404 Permit

This Appendix describes the current Clean Water Act (CWA) Section 404 permit that is in effect for the Folsom Dam Safety and Flood Damage Reduction (DS/FDR) Project, the conditions required by the permit, and the proposed amendments to the permit for implementation of the Mormon Island Auxiliary Dam (MIAD) Modification Project. Copies of the CWA 404 permit and the 2009 amendment can be found at the end of this Appendix.

B.1 Clean Water Act 404 Permit Overview

The current Folsom DS/FDR CWA 404 permit was obtained on December 18, 2007. The permit addresses the discharge of approximately 300,000 cubic yards of material into 80 acres of Waters of the United State, including wetlands, mainly for the construction of haul roads, staging areas, and stockpile areas within the ordinary high water mark of the reservoir and in wetlands near MIAD. The permit also covers the discharge of approximately 600,000 cubic yards of material into 3.001 acres of Waters of the United States, including wetlands, for construction of the Auxiliary Spillway.

As a result of the discharges described above, 70.49 acres of open Waters of the United States, 5.4 acres of seasonal wetlands, and 8.8 acres of riparian wetlands would be affected. The 70.49 acres of open waters that would be affected by the discharge of materials would occur because of placement of material below the ordinary high water mark (elevation 466 feet) of the reservoir. Because the reservoir fluctuates substantially, it was difficult to determine how many acres of open water would be affected. The U.S. Army Corps of Engineers (Corps) Regulatory Division determined that a less than 1:1 ration for mitigation of open waters would be required because of the regular fluctuation of the reservoir. Table B-1 below shows the impacted acres of Waters of the United States as well as the mitigation required by the CWA 404 permit from the Corps.

Table B-1. Clean Water Act Section 404 Permit Impacts and Mitigation

Waters of the United States/ Wetland Types	Impacted Acres	Mitigation Required	Date of Completion for Mitigation
Open Waters	70.49	Creation of 10 acres of riparian habitat within reservoir fluctuation zone	May 2010
Seasonal Wetland	5.4	Creation of 5.4 acres of seasonal wetland	May 2010
Riparian Wetland	8.8	Creation of 48 acres of riparian habitat	June 2009

B.1.1 Permit Amendment – May 6, 2009

Because of concerns regarding safety and security, Reclamation determined that planting 10 acres of riparian habitat within the reservoir fluctuation zone at Folsom Reservoir was not possible. Fencing the area to allow the plants to become established was not possible because the area is continually utilized for recreation and such fencing could become a hazard to boaters and swimmers, especially if the reservoir levels were high. Protecting the area in perpetuity would also be a huge challenge in a State Recreation Area with up to one million visitors each year. Reclamation proposed changes to the CWA 404 permit and received an amendment from the Corps Regulatory Division on May 6, 2009. The amendment changes the requirements of 10 acres of riparian habitat within the fluctuation zone at Folsom Reservoir to 10 acres of riparian habitat at Mississippi Bar. The amendment also extended the date of completion for the mitigation to January 31, 2011. Table B-2 shows the revised impacts and mitigation.

Table B-2. Clean Water Act Section 404 Revised Mitigation

Waters of the United States/ Wetland Types	Impacted Acres	Mitigation Required	Date of Completion for Mitigation
Open Waters	70.49	Creation of 10 acres of riparian habitat at Mississippi Bar	January 31, 2011
Seasonal Wetland	5.4	Creation of 5.4 acres of seasonal wetland	May 2010
Riparian Wetland	8.8	Creation of 48 acres of riparian habitat	June 2009

B.2 Proposed Permit Amendments for the Mormon Island Auxiliary Dam Modification Project

The MIAD Modification Project would potentially require the discharge of material into Waters of the United States, including wetlands. The discharge of material would occur for the temporary relocation of Green Valley Road, excavation and replacement of the foundation, and creation of detention ponds for the dewatering system. Because the project is a component of the overall Folsom DS/FDR Project, an amendment is proposed to the existing Folsom DS/FDR CWA 404 permit.

The proposed amendments to the CWA 404 permit would include:

- Adding a total of 5.6543 acres of impacted wetlands to the permit if Alternative 1 is selected for implementation.
- Adding a total of 2.4923 acres of impacted wetlands if Alternatives 2, 3, or 4 are selected for implementation.

Table B-3. Mormon Island Auxiliary Dam Modification Project Impacts to Waters of the United States

Alternative	Impacted Acres			
	Freshwater Marsh	Seasonal Wetland/ Vernal Pools	Riparian Wetland	Total Impacted Acres
Alternative 1	5.55	0.0893	0.015	5.6543
Alternative 2 Alternative 3 Alternative 4 (Preferred Alternative)	2.41	0.0823	0	2.4923

B.3 Proposed Permit Amendments for the Mississippi Bar Habitat Mitigation

The riparian habitat mitigation proposed at Mississippi Bar would avoid all existing wetlands and/or vernal pools. The seasonal wetland habitat mitigation proposed for the lagoons at Mississippi Bar would require replacement of a culvert and work within the shoreline and water of Lake Natoma. No formal wetland delineation has been completed for this project because the work would need to occur on California Department of Park and Recreation property and no formal agreement is currently in place. If an agreement is secured for this work, Reclamation will complete the necessary surveys to determine if a CWA 404 permit is required.

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DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

December 18, 2007

Regulatory Branch (SPK-2007-01068)

United States Bureau of Reclamation
Central California Area Office
Mr. Michael R. Finnegan
7794 Folsom Dam Road
Folsom, California 95630

Dear Mr. Finnegan

We are enclosing your copy of Department of the Army Permit SPK-2007-01068. Please note you are only authorized to complete the work described in the permit.

The time limit for completing the work is specified in General Condition 1. If the work will not be completed prior to that date, you may request a time extension. Your request for an extension must be received by this office for consideration at least 30 days before the time limit date.

We appreciate your feedback. At your earliest convenience, please complete our customer survey at *http://www.spk.usace.army.mil/customer_survey.html*. Your passcode is "yastrzemski".

Please refer to identification number SPK-2007-01068 in any correspondence concerning this project. If you have any questions, please contact Lisa M. Gibson at our Sacramento Office, 1325 J Street, Room 1480, Sacramento, California 95814-2922, email *lisa.m.gibson@usace.army.mil*, or telephone 916-557-5288. You may also use our website: *www.spk.usace.army.mil/regulatory.html*.

Sincerely,

Kathleen A. Dadey, PhD.
Chief,
California Central Valley South

Enclosure(s)

Copy furnished without enclosure(s)

Paul Jones, U.S. Environmental Protection Agency, Region IX, Wetlands Regulatory Office (WTR-8), 75 Hawthorne Street, San Francisco, California 94105-3901

Kent Smith, California Department of Fish and Game, Region 2, 1701 Nimbus Road, Rancho Cordova, California 95670-4599

William Marshall, Storm Water and Water Quality Certification Unit, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114

U.S. Fish and Wildlife Service, Endangered Species Division, 2800 Cottage Way, Suite 2605, Sacramento, California 95825-3901

DEPARTMENT OF THE ARMY PERMIT

Permittee: United States Bureau of Reclamation

Permit Number: SPK-2007-01068

Issuing Office: U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 "J" Street
Sacramento, California 95814-2922

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below. A notice of appeal options is enclosed.

Project Description:

1. To discharge approximately 300,300 cubic yards of dredge and fill material into 80 acres of waters of the U.S., including wetlands, for dam safety modifications to address seismic concerns related to the Main Concrete Dam, static concerns on the Right Wing Dam (RWD), Left Wing Dam (LWD), Mormon Island Auxiliary Dam (MIAD) and Dikes 4, 5 and 6. These include: strengthening the spillway gates and pier structures on the main concrete dam and constructing new filter zones on the RWD, LWD, MIAD and Dikes 4, 5 and 6.

2. To begin the construction of a new auxiliary spillway consisting of a discharge channel with gated control structures downstream of the toe of the LWD. The work will involve the initiation of construction of the spillway channel, construction of the control structures, lining the channel with concrete, completing construction of the stilling basin and excavating the approach channel. The construction of the auxiliary spillway would involve the discharge of approximately 600,000 cy of material into 3.001 acres of waters of the U.S., including wetlands.

All work is to be completed in accordance with the attached plan(s).

Project Location:

The project is located at the Folsom Dam and Reservoir, at the confluence of the North and South Forks of the American River. This reservoir straddles Placer, Sacramento, and El Dorado Counties, in the State of California. The project is located within Township 10 N, Range 7 and 8 East, MDB&M; Latitude 38.7075°N, Longitude 121.1569°W. USGS Topo Maps Folsom and Clarksville Quadrangle.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on December 18, 2012. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the

Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. In order to mitigate for the loss of 70.49 acres of open waters of the U.S. and 5.4 acres of seasonal wetlands and 8.8 acres of riparian wetlands, you shall:

a Construct 5.4 acres of seasonal wetlands and 48 acres of riparian habitat at a Corps approved mitigation site.

(1) Develop and submit to the Corps a final comprehensive mitigation and monitoring plan regarding this mitigation prior to December 15, 2008. The plan shall include mitigation locations and design drawings, vegetation plans, including target species to be planted, and final success criteria, presented in the format of the Sacramento District's Habitat Mitigation and Monitoring Proposal Guidelines, dated December 30, 2004 for the off-site mitigation. The purpose of this requirement is to ensure replacement of functions and values of the aquatic environment that would be lost through project implementation.

(2) This mitigation shall commence no later than May 15, 2009 and shall be completed by May, 2010.

b. Construct at least 10 acres of riparian wetland habitat on-site, within the fluctuation zone of the Folsom Reservoir, as described in the attached "Waters of the U.S. Mitigation and Monitoring Proposal."

(1) This mitigation planting shall commence no later than June 1, 2008 and shall be completed by June 1, 2009.

2. To ensure that the on-site and off-site mitigation is completed as required, you shall notify the District Engineer of the start date and the completion date of the mitigation construction, in writing and no later than ten (10) calendar days after each date. Notification may be submitted electronically to regulatory-info@usace.army.mil.

3. To provide a permanent record of the competed mitigation work, you shall provide two complete sets of as-builts of the completed work within the on-site and off-site mitigation areas to the Corps of Engineers. The as-builts shall indicate changes made from the original plans in indelible red ink. These as-builts shall be provided to this office no later than 60 days after the completion of construction of the mitigation area wetlands.

4. To protect the integrity of on-site and off-site mitigation areas and avoid unanticipated future impacts, no roads, utility lines, trails, benches, equipment or fuel storage, grading, firebreaks, mowing, grazing, discing, pesticide use, burning, or other structures or activities shall be constructed or occur within the on-site and off-site mitigation areas without specific, advance written approval from the Corps of Engineers.

5. To assure success of the compensatory mitigation areas, you shall monitor the on-site and off-site mitigation areas until success criteria described in the final approved management and monitoring plans are met. This period shall commence upon completion of the on-site and off-site-mitigation. The primary focus of this monitoring shall be to assure that the compensatory mitigation areas are successfully maintained as wetland and wildlife habitat and not adversely affected by surrounding development. You shall submit the monitoring reports for each year of the

monitoring period, by no later than December 1 of each year.

6. To prevent unauthorized access and disturbance, you shall install appropriate signage around the perimeter of the mitigation sites. The signage should contain the Corps identification number (SPK-2007-01068), contact information for the mitigation site manager and a statement that the site is a wetland mitigation site.

7. This Corps permit does not authorize you to take an endangered species, in particular the vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), or designated critical habitat. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (e.g., an Endangered Species Act Section 10 permit, or a Biological Opinion under Endangered Species Act Section 7, with "incidental take" provisions with which you must comply). The enclosed Fish and Wildlife Service Biological Opinion (Number 1-1-07-F-0140, dated April 5, 2007), contains mandatory terms and conditions to implement and reasonable and prudent measures that are associated with "incidental take" that is also specified in the Biological Opinion. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached Biological Opinion, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with the incidental take statement in the Biological Opinion, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The Fish and Wildlife Service is the appropriate authority to determine compliance with the terms and conditions of its Biological Opinion, and with the Endangered Species Act. You must comply with all conditions of this Biological Opinion.

8. You shall employ best management practices (BMPs) onsite to prevent degradation to on-site and off-site waters of the U.S. Methods should include: conducting work when the project area is dewatered, to the extent possible, and the use of filter fencing or other barrier methods to intercept and capture sediment prior to entering Folsom Reservoir or other waters of the U.S. You shall submit photodocumentation of your BMPs to our office within 30 days of comencement of construction. Photos may be submitted electronically to regulatory-info@usace.army.mil.

9. You must allow representatives from the Corps of Engineers to inspect the authorized activity and the mitigation areas at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

10. You shall plan construction access and schedule work to avoid or minimize damage to vegetation outside of the project fill area. From below the ordinary high water mark (OHWM) (466') waterward, all equipment traffic shall use the constructed haul roads while mobilizing to and returning from the construction site. These routes shall be clearly identified prior to commencing work.

11. Any unstable fills in wetlands and other waters of the U.S. shall be stabilized and protected against erosion by using appropriate erosion controls such as the use of matting, seeding, or other effective methods. The erosion controls shall remain in place until all exposed areas are permanently stabilized.

12. The project limits shall be clearly identified in the field (e.g. survey markers, fencing, etc.) prior to any construction work, to ensure avoidance of impacts beyond project footprints. The identification shall be maintained until construction is complete. No heavy equipment or work (e.g. filling, clearing, etc.) is permitted in wetland areas outside of the project area.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal projects.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant.

Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Permittee

12/18/07
Date

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

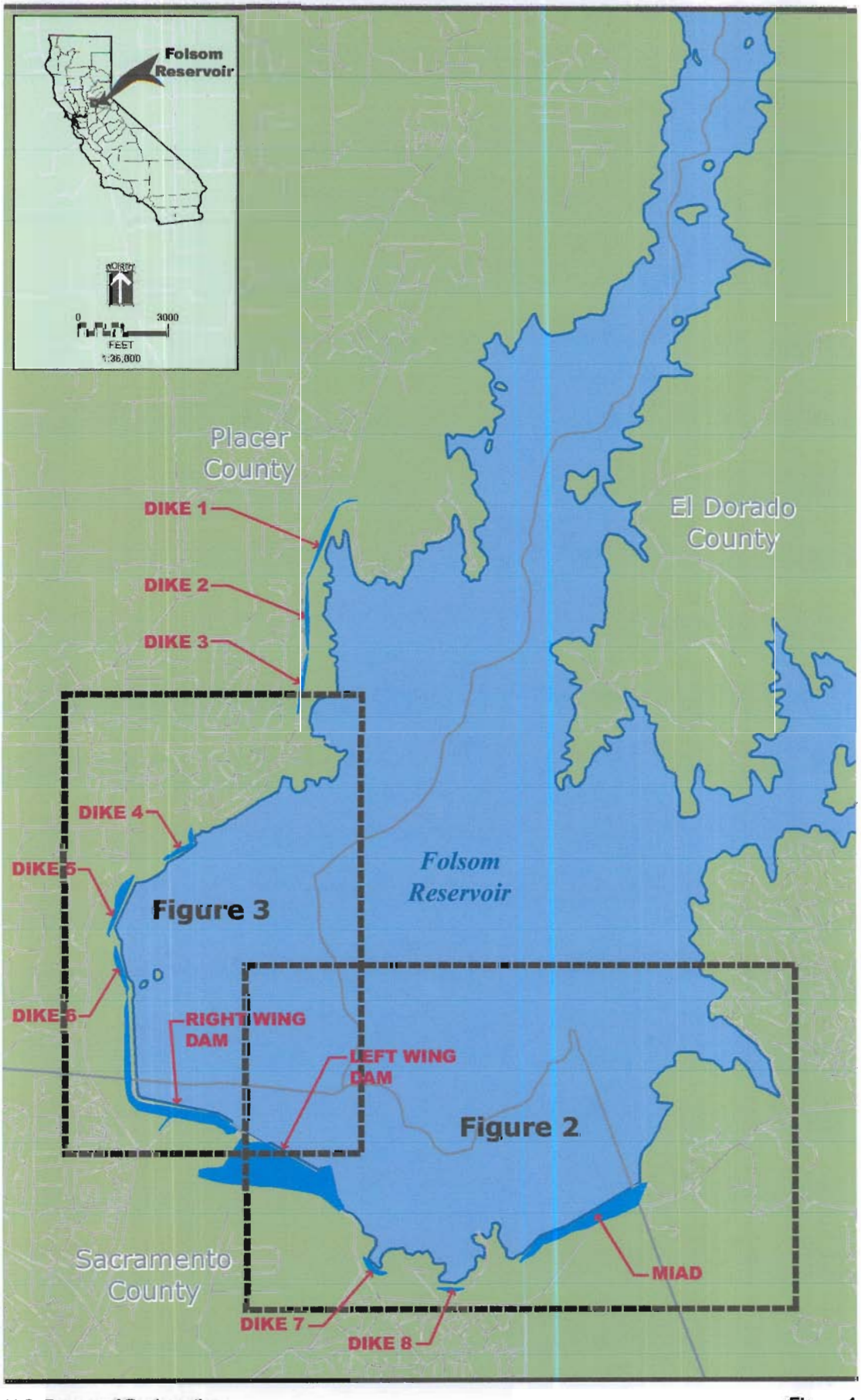
18 Dec 2007
Date

Kathleen A. Dadey, PhD, Chief,
California Central Valley South
Sacramento Office
(For the District Engineer)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

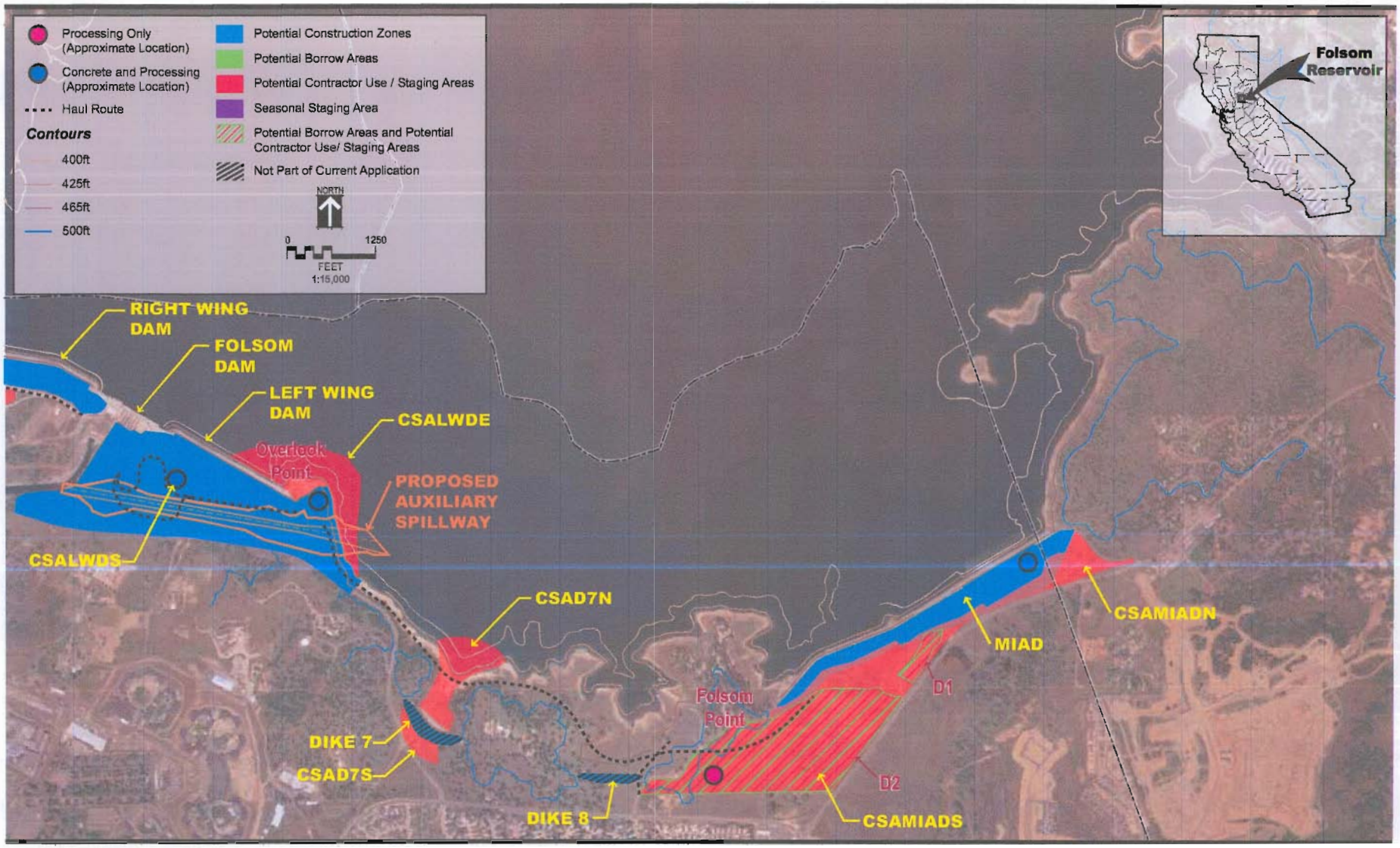
Transferee

Date



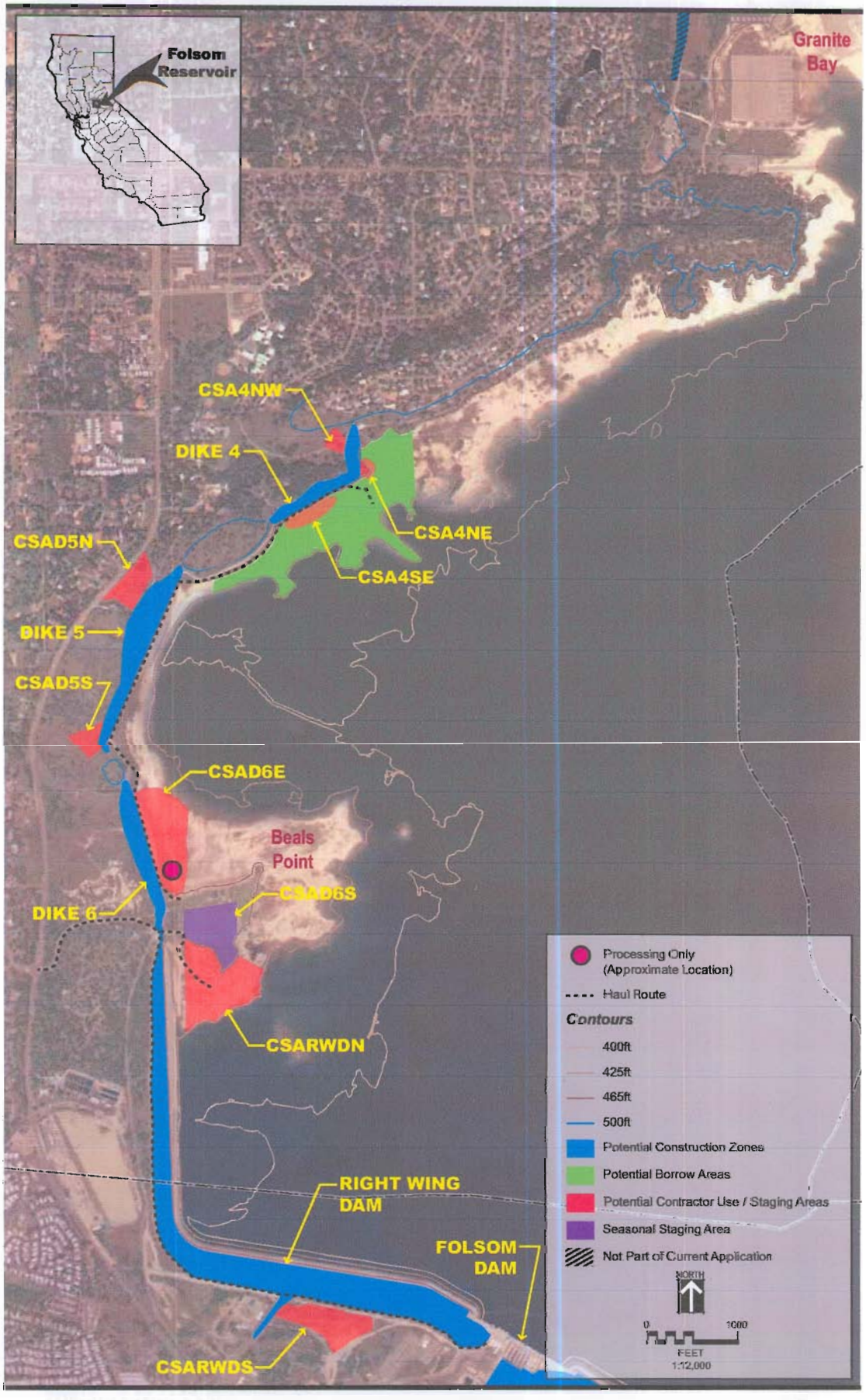
U.S. Bureau of Reclamation
Folsom Dam Safety & Flood Damage Reduction Project

Figure 1
Vicinity Map



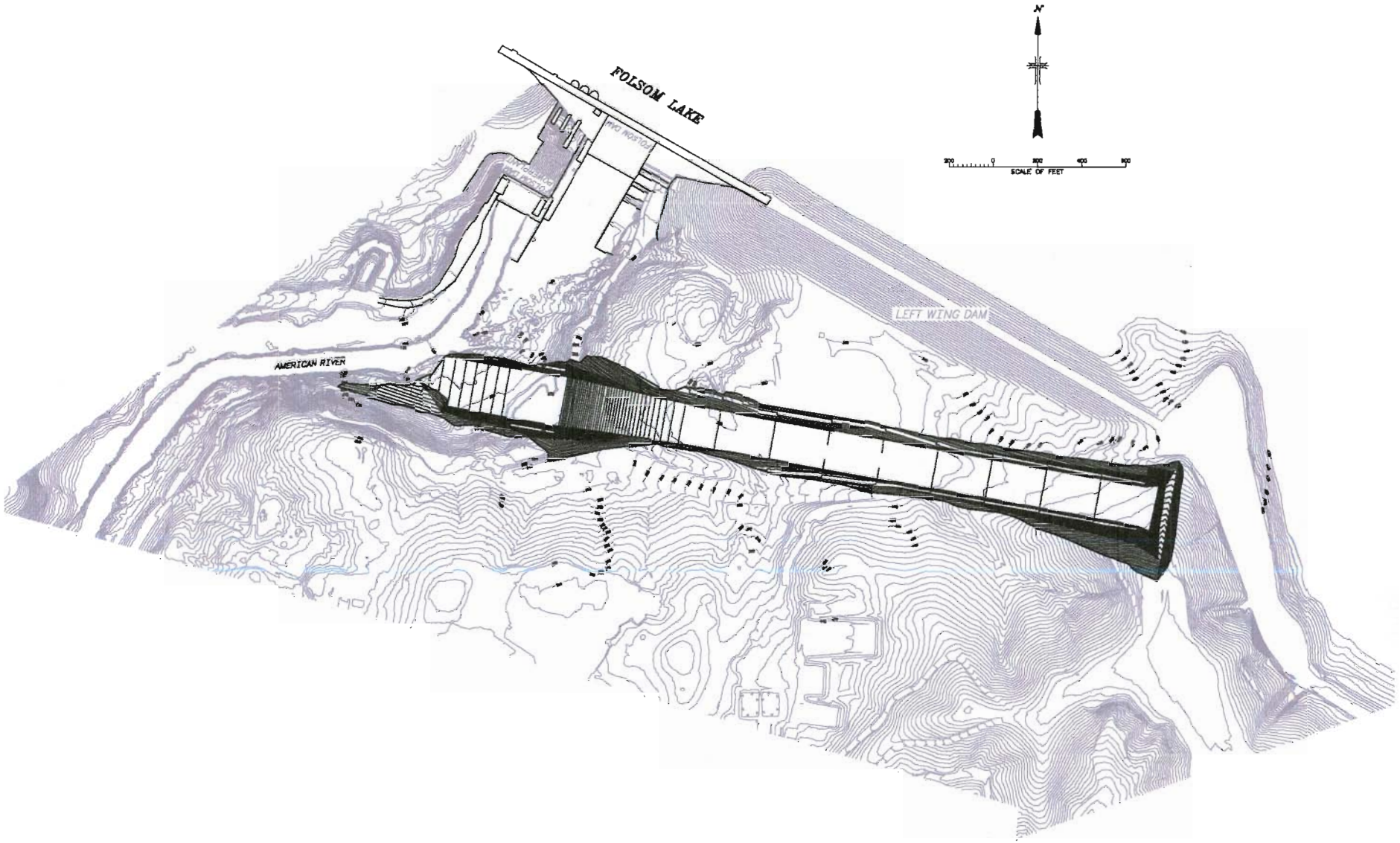
U.S. Bureau of Reclamation
Folsom Dam Safety & Flood Damage Reduction Project

Figure 2
LWD to MIAD Vicinity Map



U.S. Bureau of Reclamation
Folsom Dam Safety & Flood Damage Reduction Project

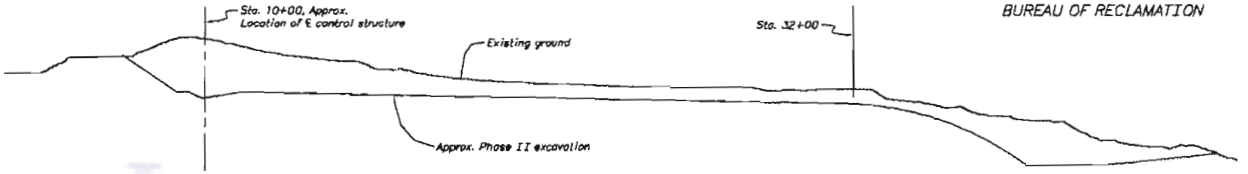
Figure 3
RWD to Dike 4 Vicinity Map

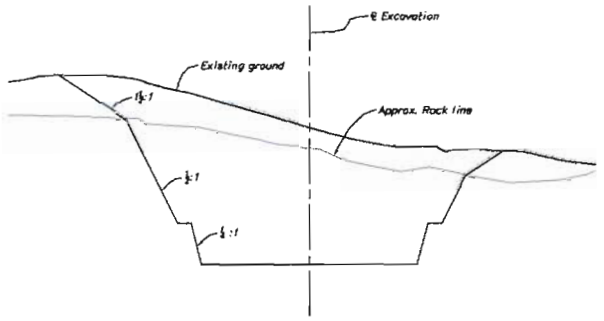


U.S. Bureau of Reclamation
Folsom Dam Safety & Flood Damage Reduction Project

Figure 4
JFP Spillway Plan

FOLSOM DAM PHASE II AUXILIARY SPILLWAY EXCAVATION
FIGURE #1B
PRELIMINARY – PROFILE AND TYPICAL SECTIONS
BUREAU OF RECLAMATION





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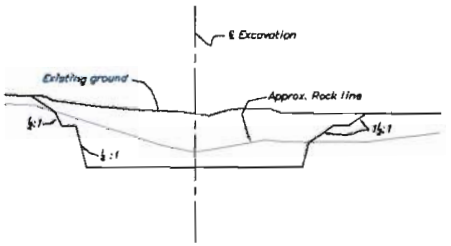

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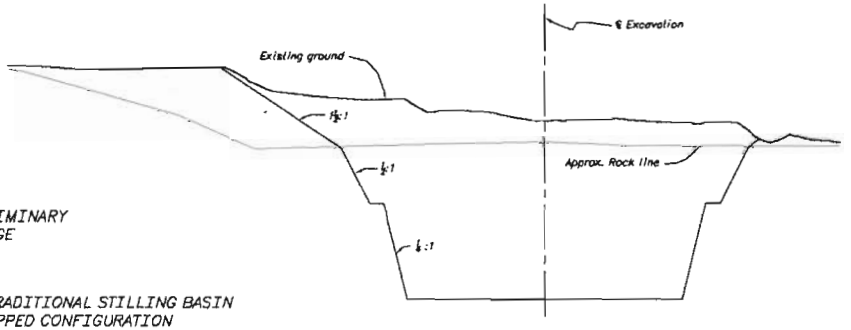
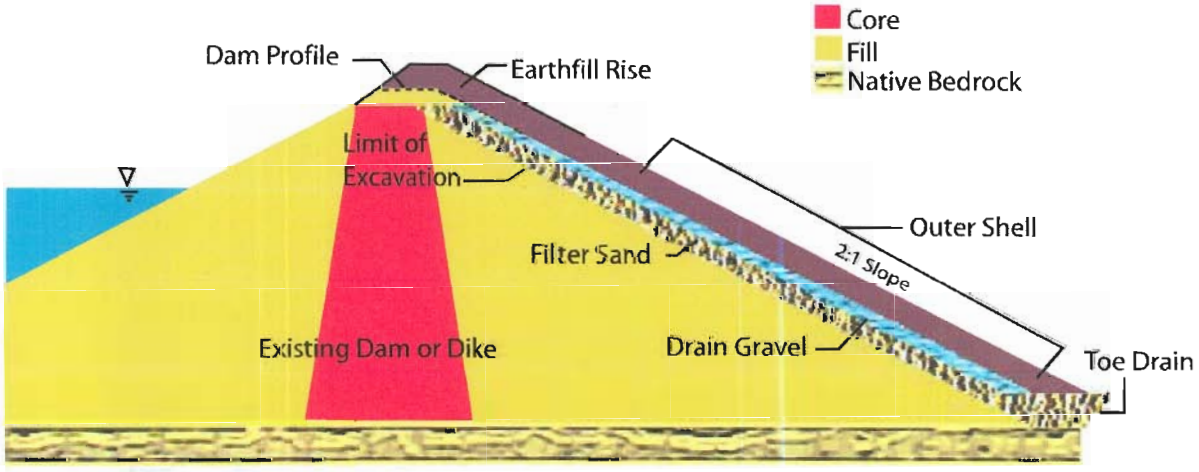


STATION 38+00

CUT SLOPES ARE PRELIMINARY
AND SUBJECT TO CHANGE

EXCAVATION IS FOR TRADITIONAL STILLING BASIN
NOT FOR CURRENT STEPPED CONFIGURATION


Core
Fill
Native Bedrock
Dam Profile
Earthfill Rise
Limit of
Excavation
Outer Shell
Filter Sand
2:1 Slope
Existing Dam or Dike
Drain Gravel
Toe Drain

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

May 6, 2009

Regulatory Division (SPK-2007-01068)

Mr. Michael R. Finnegan
United States Bureau of Reclamation
7794 Folsom Dam Road
Folsom, California 95630-1799

Dear Mr. Finnegan:

We are responding to your May 13, 2008 request to modify your Department of the Army permit number SPK-2007-01068. The permit was issued on December 18, 2007 for the Folsom Dam Safety and Flood Damage Reduction Project. The site is located within and near Folsom Lake, at the confluence of the North and South Forks of the American River, within Township 10 North and Ranges 7 and 8 East. The modification request involves an extension of time for the on-site mitigation requirement described in Special Condition 1(b)(1).

Permit number SPK-2007-01068 is hereby modified as follows:

Special Condition 1(b) is hereby modified to read:

b. Construct at least 10 acres of riparian wetland habitat on Mississippi Bar, within Lake Natoma, as described in the attached approved "Waters of the U.S. Revised Mitigation and Monitoring Proposal," dated January 2009.

(1) This mitigation planting shall be completed no later than January 31, 2011.

All other terms and conditions of the permit remain in full force and effect. Failure to comply with the terms and conditions of this authorization may result in the suspension or revocation of your permit.

Please refer to identification number SPK-2007-01068 in any correspondence concerning this project. If you have any questions, please contact Lisa M. Gibson at our Sacramento Office,

1325 J Street, Room 1480, Sacramento, California 95814-2922, email *lisa.m.gibson2@usace.army.mil*, or telephone 916-557-5288. You may also use our website: *www.spk.usace.army.mil/regulatory.html*.

Sincerely,

Kathleen A. Dadey, PhD.
Chief, California Delta Branch

Enclosure(s)

Copy furnished without enclosure(s):

Maria Rea, Regional Administrator, National Marine Fisheries Service, 650 Capitol Mall, Suite 8-300, Sacramento, California 95814-4706
Paul Jones, U.S. Environmental Protection Agency, Region IX, Wetlands Regulatory Office (WTR-8), 75 Hawthorne Street, San Fancisco, California 94105-3901
William Marshall, Storm Water and Water Quality Certification Unit, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6614
U.S. Fish and Wildlife Service, Endangered Species Division, 2800 Cottage Way, Suite 2605, Sacramento, California 95825-3901

RECLAMATION

Managing Water in the West

Waters of the U.S. Revised Mitigation and Monitoring Proposal – Joint Federal Project and Safety of Dams

U.S. Bureau of Reclamation, Mid-Pacific Region
Central California Area Office, CCAO

January 2009
Review Number 3

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region

TABLE OF CONTENTS

RESPONSIBLE PARTIES

Applicant/Permittee

Michael R. Finnegan,
Area Office Manager
U.S. Bureau of Reclamation
Central California Area Office
7794 Folsom Dam Road
Folsom, CA 95630

Applicant's Designated Agent

Laura Caballero,
U.S. Bureau of Reclamation
Central California Area Office
7794 Folsom Dam Road
Folsom, CA 95630
Phone: (916) 989-7256

Preparer(s) of the Proposal/Plan

Laura Caballero

Elizabeth Vasquez
U.S. Bureau of Reclamation
Central California Area Office
7794 Folsom Dam Road
Folsom, CA 95630

And

John Wondolleck
CDM
2295 Gateway Oaks Dr., Suite 240
Sacramento, CA 95833
Phone: 916-567-9900

PROJECT REQUIRING MITIGATION

Location

The Folsom Dam Safety and Flood Damage Reduction Project will take place at the Folsom Facility, in Placer, Sacramento, and El Dorado Counties in the state of California. Figure 1 shows the regional location of the project and Figure 2 shows the structures that make up the Folsom Facility. Figure 3 shows a road map to Folsom Reservoir and Figure 4 shows the USGS map for the area.

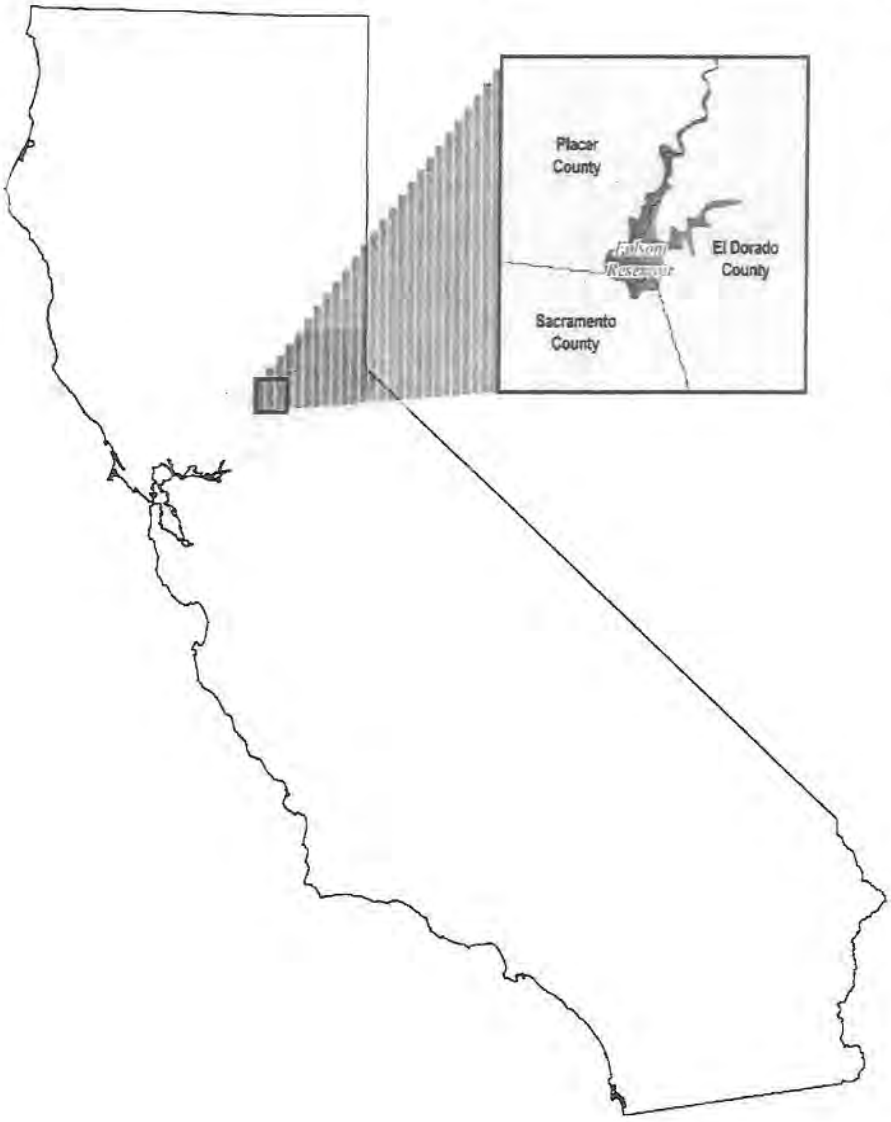


Figure 1
Folsom Reservoir

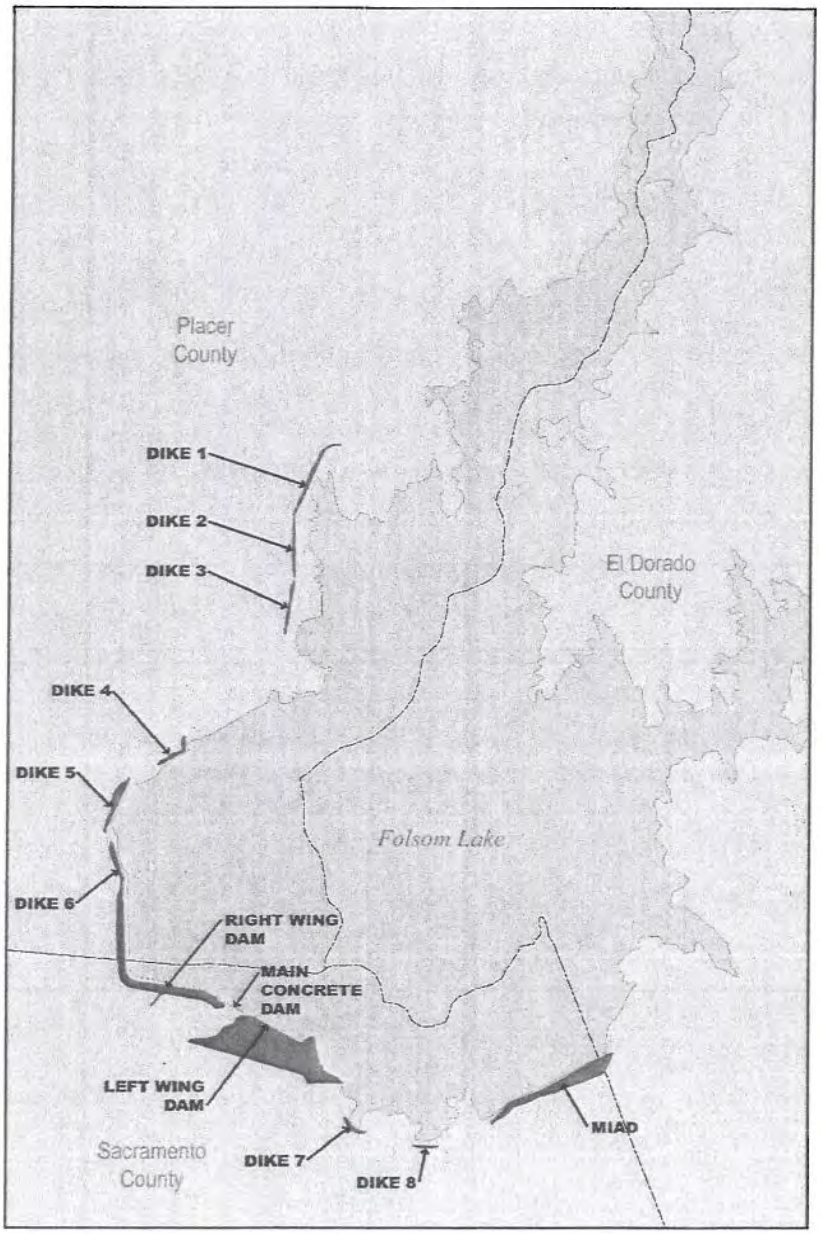
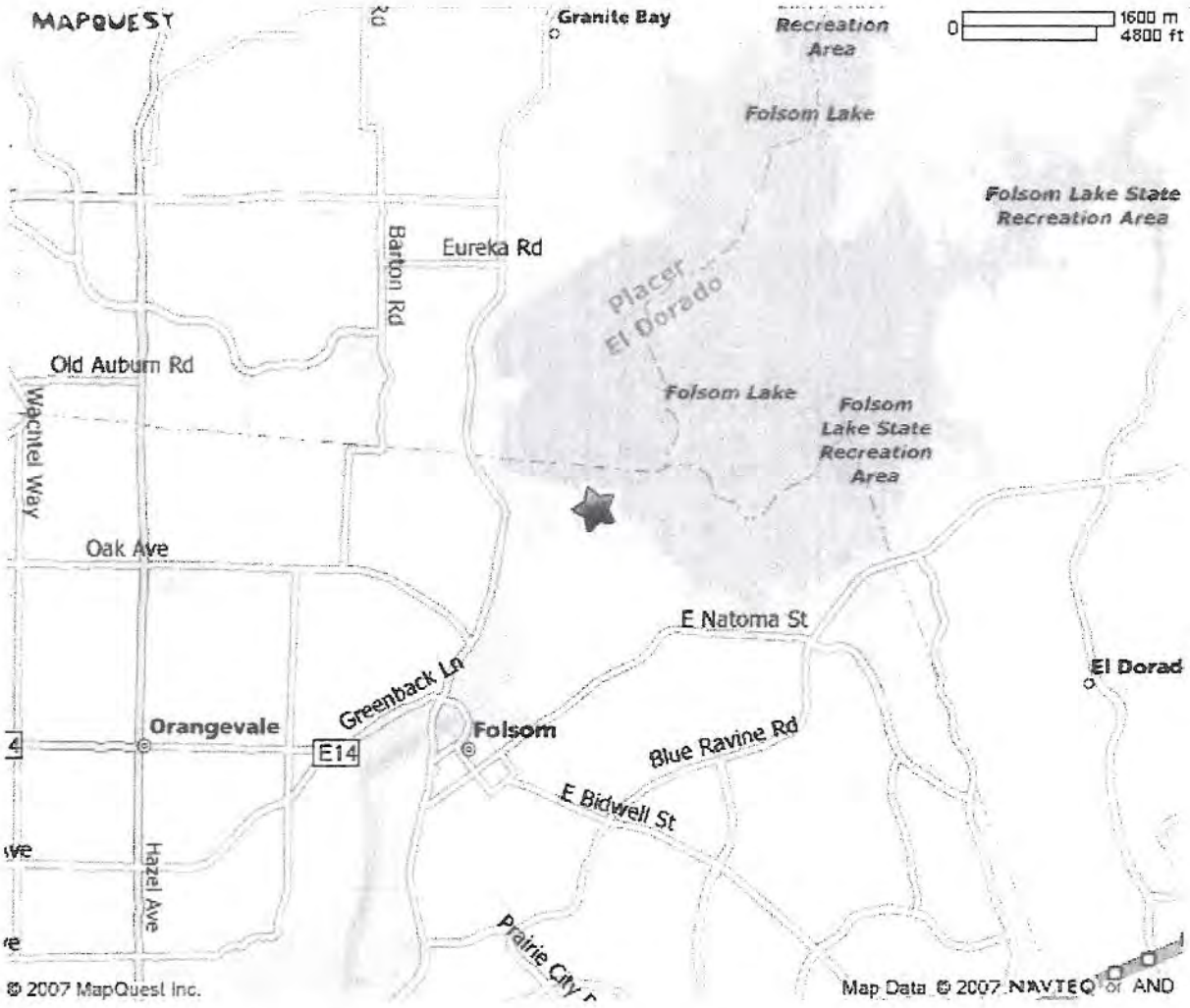


Figure 1-2
The Folsom Facility



Source: Map Quest Inc. 2007

Figure 3
Road Map of Folsom Dam and Reservoir

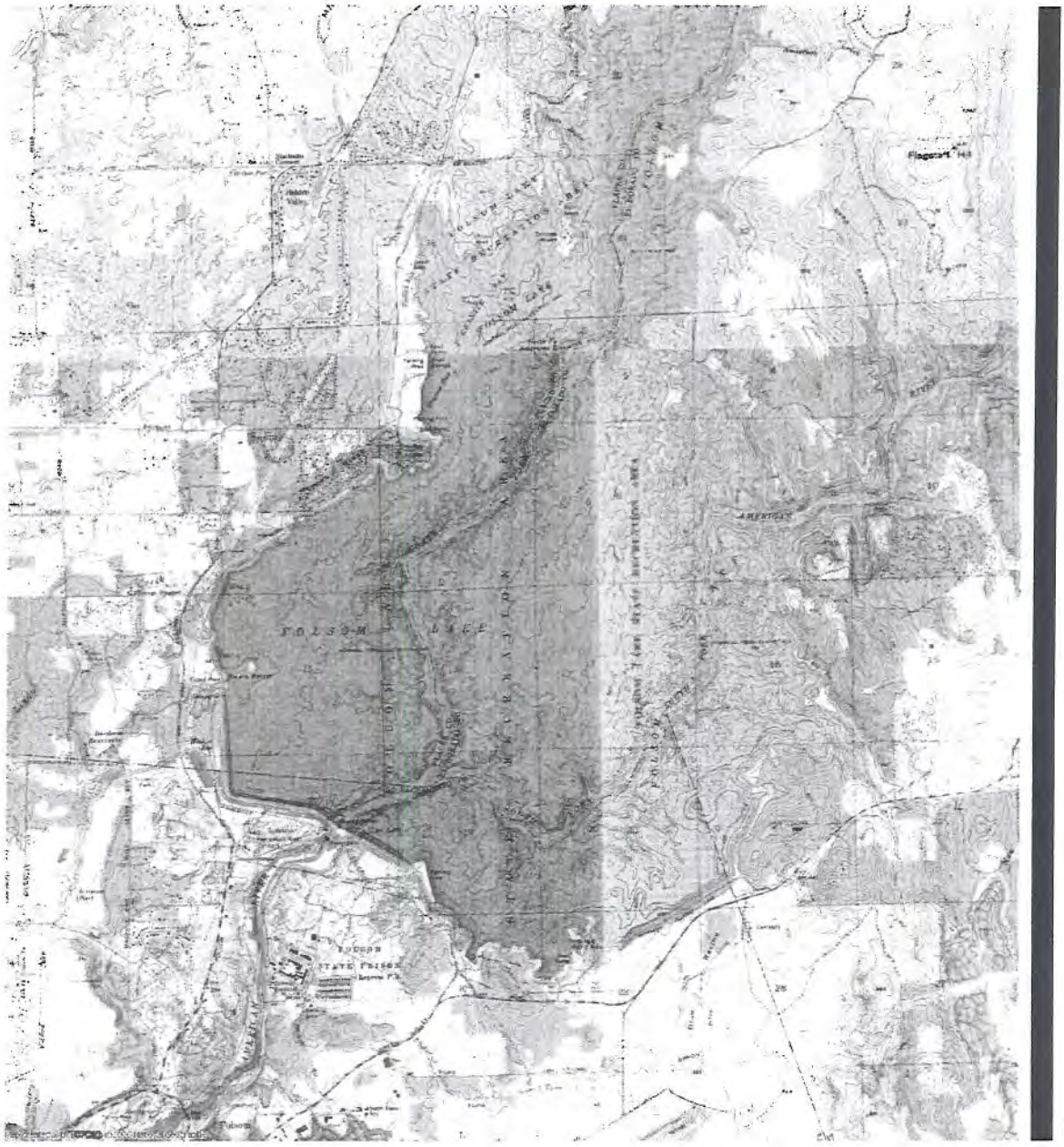


Figure 4
USGS Map

Brief Summary of Overall Project

This project includes four specific actions described in the Final Folsom Dam Safety and Flood Damage Reduction (Folsom DS/FDR) Environmental Impact Statement/Environmental Impact Report (EIS/EIR), dated March 2007:

The first action is the Joint Federal Project (JFP) being implemented by the Bureau of Reclamation (Reclamation) and the Army Corps of Engineers, Sacramento District (Corps). The JFP addresses improved hydrologic control of reservoir releases and the Corps' flood damage reduction objectives for the lower American River. The main feature of the JFP is the construction of a new auxiliary spillway adjacent to the Left Wing Dam of the Folsom Facility. Construction of the JFP would impact wetlands and waters of the U.S.

The second action is in support of Reclamation's Safety of Dam's mission. It involves improvements to the stability and seepage control of several of the structures comprising the Folsom Facility. Improvements to the Folsom Facilities would impact wetlands and waters of the U.S.

In the third action, Reclamation will install security features at the main dam and several of the earthen structures. These features will be installed in areas that do not include jurisdictional wetlands or other waters of the United States. Therefore, the Security Project is not part of this permit application.

The fourth action is related to flood damage reduction and will be completed separately by the Corps. For more information, see the Folsom Dam Safety and Flood Damage Reduction EIS/EIR.

Site Characteristics

Jurisdictional Areas

A wetland delineation was conducted by Entrix in November 2006 (See Folsom DS/FDR EIS/EIR, dated December 2006). A second wetland delineation was completed by CDM and Reclamation in September of 2007. A previous wetland delineation completed by the U.S. Fish and Wildlife Service (USFWS) in May 2005 for the Corps' Folsom Dam Bridge and Folsom Dam Outlet Modification Project was also used for information on jurisdictional features within the Project site. In 2008, updated engineering drawings were obtained and impacts to other waters of the U.S. were reduced. Table 1 presents the jurisdictional features that were identified within the Project area:

Table 1. Jurisdictional Features Present within the Project Site.		
Feature	**Acres**	**Impacted (Acres)**
Jurisdictional		
Freshwater Marsh	2.42	0.00
Swale/Drainage	1.65	0.282
Other Waters	293.24	Reduced from 70.49 acres to 50.3 acres[1]
Seasonal Wetland	5.68	5.4
Forested Wetlands (Riparian)	11.52	8.8

[1] Although the impacted acres for Other Waters has recently been reduced to 50.33 acres due to new drawings of the MIAD haul road and a reduction in staging at Dike 7, mitigation for this impact will remain the same as that proposed for the 70.49 acres of impacts and therefore no change is proposed.

Freshwater Marsh Freshwater marsh is located on the downstream slope of MIAD. This wetland would be impacted only if MIAD construction occurs. At this point in time, Reclamation is uncertain when MIAD construction will occur. Reclamation will not provide a mitigation plan for this area until the determination of a MIAD action is made.

Swale/Drainage The swale/drainage below the LWD would be impacted by the JFP Auxiliary Spillway excavation. A large percentage of this area has already been mitigated for by the Corps for the New Folsom Bridge Project. All swale/drainage areas below the RWD could be impacted by the SOD Project actions. Swale/drainage below Dike 7 and MIAD could be impacted by the project but would likely be restored after construction as it is an important drainage feature and contains a culvert.

Other Waters Of the total acres of other waters originally delineated for the Project, 29.37 acres would be impacted at Observation Point, 17.12 acres at Dike 7, and approximately 24 acres for the haul roads. These acres were worst-case estimates as no drawings were available. With the help of updated engineering drawings, these numbers have been reduced to 15.6 for the haul roads, 29.37 acres for Observation Point, and 5.3 acres for Dike 7 stockpiling, for a total of 50.3 acres of impacts to other waters. Although this is a reduction in impacts, from 70.49, no changes to mitigation are proposed in this Mitigation and Monitoring Proposal. Reclamation proposes to mitigate for impacts to other waters by creating 10 acres of riparian wetlands at Mississippi Bar near Lake Natoma.

Seasonal Wetland Seasonal wetland will be impacted by the Project. Based on USFWS recommendations in the Fish and Wildlife Coordination Act Report (FWCAR) for the Project, Reclamation will mitigate for impacts to seasonal wetland by developing 5.4 acres of seasonal wetland at a USFWS approved mitigation site.

Forested Wetland (Riparian) Forested wetlands will be impacted by the project. Based on USFWS recommendations in the Fish and Wildlife Coordination Act Report

(FWCAR) for the Project, Reclamation will mitigate for impacted riparian woodland by developing 48 acres of riparian woodland at a USFWS approved mitigation site.

Because habitat mitigation for riparian woodland and seasonal wetland is being implemented per USFWS recommendations in the FWCAR, this Mitigation and Monitoring Proposal is prepared to mitigate for impacts to other waters lost as a result of Project implementation. This revised Mitigation and Monitoring Proposal requests a change in the location of the mitigation site to Mississippi Bar at Lake Natoma.

Aquatic Functions

Habitat within Folsom Reservoir allows for a diverse assemblage of native and introduced fish species to coexist. Folsom Reservoir is managed as a 'two-story' fishery, with cold-water fishes such as trout inhabiting the hypolimnion and warm-water fishes such as bass and sunfish inhabiting the epilimnion and shoreline areas. Two cold water fisheries for rainbow trout and Chinook salmon are actively maintained through a stocking program. None of the project actions will have a significant impact to the existing fishery.

Seasonally wet areas outside the reservoir receive water from seeps, drainages and from direct precipitation. Dominant species include pointed rush, Baltic rush, and often scattered willow and cottonwood. During the dry season, these areas support annual upland vegetation such as non-native brome grasses and other forbs. These seasonally wet areas may provide habitat for aquatic invertebrate species.

Project actions may result in the following losses and gains in aquatic function:

- Biological functions associated with sediment will be temporarily lost during stockpiling of material in the reservoir resulting in a loss of foraging habitat to some benthic organisms and other aquatic species that would have foraged in stockpiled areas.

- The stockpiled material at the Observation Point, Dike 7 and areas adjacent to the haul roads may provide minor, beneficial aquatic function gains for some species. because stockpiled angular rock may provide habitat or refugia for species that have historically utilize this type of habitat.

Hydrology

The American River Basin covers an area of approximately 2,100 square miles, and has an average annual unregulated runoff of 2.7 million acre-feet; however, annual runoff has varied in the past from 900,000 acre-feet to 5,000,000 acre-feet. The major tributaries in the American River system include the North Fork American River, Middle Fork American River, and South Fork American River. These tributaries drain the upper watershed carrying runoff from precipitation and snowmelt into Folsom Reservoir.

Folsom Dam and Reservoir is a multipurpose water project constructed by the Corps and operated by Reclamation as part of the Central Valley Project (CVP). At an elevation of

466 feet above mean sea level (msl), Folsom Reservoir is the principal reservoir on the American River impounding runoff from a drainage area of approximately 1,875 square miles. Folsom Reservoir has a normal full-pool storage capacity of approximately 975,000 acre-feet, with a seasonally designated flood management storage space of 400,000 acre-feet. An interim agreement between the SAFCA and Reclamation provides variable flood storage ranging from 400,000 to 670,000 acre-feet.

Flood-producing runoff occurs primarily during the months of October through April and is usually most extreme between November and March. From April to July, runoff is primarily generated from snowmelt from the upper portions of the American River watershed. Runoff from snowmelt usually does not result in flood-producing flows; however, it is normally adequate to fill Folsom Reservoir's available storage. Approximately 40 percent of the runoff from the watershed results from snowmelt.

Soils/Substrate

Soils in higher elevations of the study area are generally thin and have numerous outcroppings of igneous and metamorphic rock. Loose soils of decomposed granite are found on the north and west portions of Folsom Reservoir. These soils are highly erodible and excessive erosion has been observed along the north shore. Clayey and denser soils are concentrated on the south end. Generally, all soils within the study area are of low shrink-swell potential. Serpentine soil and rock are located on the Peninsula between the North and South Forks and south of the South Fork of the American River at Iron Mountain. These soils are high in nickel, chromium, and manganese which limit the variety of plant species that can grow. This soil is also corrosive.

Vegetation

Riparian and Wetland Plant Communities

- Riparian and wetland plant communities in the project construction area are found both outside of Folsom Reservoir and within the fluctuation zone of the reservoir between its ordinary high water line and the minimum pool elevation of the reservoir. Outside of the fluctuation zone of Folsom Reservoir, these communities may be found adjacent to the American River, tributary streams, drainage canals from reservoir dikes, or as isolated communities. Approximately 41 acres of woody riparian vegetation are present in the maximum extent of the project construction area. No woody riparian vegetation is present in the future inundation zone portion of the CAR evaluation area.

- *Cottonwood-Willow Riparian (Sensitive).* Vegetation communities dominated by Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) and various species of willow (*Salix* spp.) are typically found on floodplains, riparian areas, and low-gradient depositions along the banks of rivers, seeps, and streams where soils are intermittently flooded. Cottonwood communities in the project area contain elements of both great valley cottonwood riparian forests and willow scrub described by Holland (1986) and the Fremont cottonwood series and mixed willow series described by Sawyer and Keeler-Wolf (1995).

- *Freshwater Marsh (Sensitive).* Freshwater marsh communities within the project area are wetland communities fed by seeps or springs and are permanently to semi-permanently flooded. The dominant species is cattail (*Typha latifolia*). The most applicable vegetation community described in the literature is coastal and valley freshwater marsh, a community dominated by perennial, emergent monocots including bulrush (*Scirpus* spp.) and cattail (*Typha* spp.) (Holland 1986). Approximately one acre of freshwater marsh is present in the maximum extent of the project construction area.

- *Riparian Vegetation Associated with the Reservoir Fluctuation Zone.* Scattered stands of willow and other woody vegetation are present within the reservoir fluctuation zone in the project area. Several categories have been mapped within this general vegetation type.

  The Gooding's willow community is created by mature Gooding's willow (*Salix goodingii*) trees that reached an average height of 30 feet. These communities are generally present within 100-200 feet below the OHWM within the heavily vegetated portion of the reservoir shoreline. Understory species are common herbaceous species including Bermuda grass (*Cynodon dactylon*), spiny cocklebur (*Xanthium strumarium*) and rushes (*Juncus* sp.).

  Mixed Riparian Areas within the Reservoir Fluctuation Zone are generally associated with depressions, or riparian areas within the reservoir fluctuation zone. These areas appeared to be frequently inundated and also likely received overland flow from upland areas. Species present include rushes, buttonwillow (*Cephalanthus occidentalis*), seep monkey flower (*Mimulus guttatus*) and other common species.

  Shrub Willow vegetation within the Reservoir Fluctuation Zone is dominated by willow shrubs (*Salix* sp.) that occur at certain areas at the very lowest elevations of the reservoir shoreline. These areas are frequently inundated and had saturated soil conditions.

Seasonal Wetland Communities

Seasonal wetland communities were mapped both inside and outside of the reservoir-influenced zone. The majority of wetland areas within the project area are seasonal. These communities are exposed to wetland hydrology for a limited period of time, though it may be for long enough duration to show indicators of wetland soil and hydrology and to seasonally host hydric vegetation. Much of this area, however, does not meet all three wetland criteria. Approximately 5 acres of seasonal wetlands are present in the maximum extent of the project construction area. Descriptions of the various types of seasonal wetland communities observed in the project construction area are provided below. No seasonal wetland vegetation has been mapped in the future inundation zone portion of the CAR evaluation area.

Seasonal Depression Vegetation within the Reservoir Fluctuation Zone is generally associated with depressions, or riparian areas within the area influenced by the

reservoir. These areas appear to be frequently inundated and also likely receive overland flow from upland areas. Species present include rushes, seep monkey flower and other common species.

Seasonal Wetland Slope Community within the Reservoir Fluctuation Zone is by far the most common vegetation community below the OHWM of the reservoir. Dominant species include Bermuda grass, sand spurrey (*Spergularia* spp.), rough cocklebur, and rushes, with each species alternating in dominance, depending on the site conditions. Rushes and rough cocklebur appear to dominate the more mesic sites and depressions while Bermuda grass and sand spurrey are more common in the drier areas.

- *Seasonal Depressions and Riparian Areas Outside the Reservoir Fluctuation Zone.* Seasonally wet areas in the project area outside the reservoir fluctuation zone were also mapped. These communities receive water from seeps, drainages and from direct precipitation. Some areas are confined to a distinct channel, but one area with uneven terrain and a partly-exposed bedrock outcrop has what appears to be seasonal ponding. Dominant species include pointed rush (*Juncus oxymeris*), Baltic rush (*Juncus balticus*), and often scattered willow and cottonwood. During the dry season, these areas support annual upland vegetation such as non-native brome grasses (*Bromus* spp.) and other forbs.

Disturbed Areas

- *Reservoir Shoreline Fluctuation Zone: Barren Areas.* The reservoir shoreline fluctuation zone occurs between the 425-foot and 466-foot elevations, which corresponds with the minimum and maximum pool volumes for the reservoir. Barren areas within this zone are generally devoid of vegetation or supported less than 10 percent cover. Areas of deep sand and rock are prevalent in this zone.

- *Developed Areas.* Developed land is intensively used with much of the land paved or covered by structures. The urban community includes residential, commercial, and industrial development. Vegetation in urban areas generally consists of non-native landscape species (lawns, flowerbeds, shrubs, or ornamental trees) or cleared areas that are generally devoid of vegetation.

Developed communities within the project area include rip-rap slopes of dams and dikes, roads, trails, or parking lots. These communities are generally outside of the OHWM except in the case of a dam or dike in which the toe of the structure would be within the OHWM. Dikes and dams are generally devoid of vegetation but sometimes hosted ruderal species such as Mediterranean grasses, short-pod mustard, telegraph weed, yellow star thistle and tree tobacco (*Nicotiana glauca*). Parks and other developed areas are outside of the reservoir influence and are dominated by horticultural or ruderal species. Approximately 35 acres of developed land are present in the project construction area.

Threatened/Endangered Species

Several listed species may occur within the project area. These species are listed in Table 2. In addition, several Federal listed species would be affected by the project.

Reclamation has had continuous consultation with USFWS, who have issued a Biological Opinion (BO) for the project. The following sections describe the species and potential impacts and mitigation identified in the BO. All recommendations in the BO will be implemented by Reclamation.

Table 2
Special-status Terrestrial Wildlife Species Potentially Occurring in the Project Area

Species	Status
Invertebrates	
Valley elderberry longhorn beetle	FT
Amphibians	
California red-legged frog	FT, CSC
Foothill yellow-legged frog	CSC
Western spadefoot toad	CSC
Reptiles	
Northwestern pond turtle	CSC
California horned lizard	CSC
Giant garter snake	FT, CT
Birds	
Cooper's hawk	CSC
Tricolored blackbird	CSC
Western burrowing owl	CSC
Aleutian Canada goose	FD
Ferruginous hawk	CSC
Swainson's hawk	CT
Vaux's swift	CSC
Mountain plover	CSC
White-tailed (=black shouldered) kite	CSC, CFP
American peregrine falcon	FD, CE
Bald eagle	FT, CE, CFP
Loggerhead shrike	CSC
Long-billed curlew	CSC
Osprey	CSC
White-faced ibis	CSC
Bank swallow	CT
Mammals	
Pallid bat	CSC
Pacific western big-eared bat	CSC
Spotted bat	CSC
Greater western mastiff-bat	CSC
Aquatic Invertebrates	
California Vernal Pool Tadpole Shrimp	FT
Vernal Pool Fairy Shrimp	FE

FT – Federally Threatened, FE – Federally Endangered, FD – Federally Delisted, CT – California Threatened, CE – California Endangered, CSC – California Species of Concern, CFP – California Fully Protected

Valley Elderberry Longhorn Beetle
The Folsom DS/FDR BO and subsequent amendments required the transplanting of 258 elderberry shrubs and the planting of 2,263 elderberry seedlings and 2,991 associated native seedlings on 21.86 acres. This compensatory mitigation was completed through a contract with Wildlands Inc., a mitigation bank in the American River watershed, with the purchase of 529 mitigation credits. 339 of these credits were for dam safety-related project impacts, and 190 of these credits were for JFP-related project impacts. This mitigation was completed in January 2008.

Reclamation recently requested and received an additional amendment to the biological opinion to include analysis of direct impacts to and compensatory mitigation for one shrub located near Folsom-Auburn Road. The shrub would be directly affected by dam safety work at Dike 5 scheduled to begin August 2008. Reclamation's request for an amendment proposed transplanting the shrub and planting 20 elderberry seedlings and 20 associated native seedlings on 0.07 additional acres through Wildlands Inc. with the purchase of 4 mitigation credits. This transplanting and compensatory mitigation was completed in August 2008.

Vernal Pool Crustaceans
The Folsom DS/FDR BO required implementation of 0.03 acres of vernal pool habitat creation and 0.06 acres of vernal pool habitat preservation for impacts related to dam safety elements of the preferred alternative. There are no JFP related elements of this mitigation requirement. Reclamation has implemented this compensatory mitigation through the purchase of credits from the North Suisun Mitigation Bank. This mitigation was completed in August 2008.

Habitat Type	Effects (Acres)	Direct Effects Ratio	Compensation Amount (Acres)
Vernal Pool Habitat	0.03	2:1 Preservation 1:1 Creation	0.06 0.03

Other Wildlife
Wildlife effects associated with the construction are expected to be temporary. Generally, wildlife species that use the areas around project area are mobile species that would leave the area during construction and return when construction is completed and habitat restored. Therefore, the proposed project would not have any significant adverse effects to wildlife beyond what was described in the Draft and Final Folsom Dam Safety and Flood Damage Reduction EIS/EIR

MITIGATION DESIGN

Location

The 404 permit issued to Reclamation in December 2007 requires that Reclamation construct at least 10 acres of riparian (forested) wetland habitat on-site to mitigate for impacts to other waters of the U.S. Reclamation originally proposed to construct 10 acres of forested wetlands within the fluctuation zone of Folsom reservoir between Beal's Point and Folsom Point. Upon further consideration and careful analysis, Reclamation has now concluded that on-site mitigation (anywhere within Folsom Reservoir) is impracticable for the following reasons:

- Lack of suitable conditions for plant establishment, including water level fluctuations, soil conditions, and erosion; and
- Potential conflicts with ongoing construction activities, water and land based recreation, and security needs.

Reclamation requests that the mitigation site for the 10 acres of riparian wetland habitat be moved from Folsom Reservoir between Beal's Point and Folsom Point to Folsom Reservoir's afterbay re-regulating reservoir, Lake Natoma. Lake Natoma is a re-regulating reservoir system which means its main function is to reduce the impact of changes in flow on the lower American River. Lake Natoma does experience daily fluctuation of lake level, but it does not have the sustained 200 to 300 feet of drawdown experienced in Folsom Reservoir. Conditions on Lake Natoma are more favorable for successful mitigation because the reservoir elevations are more stable, there are fewer security concerns, and the lake is zoned for no-wake recreation.

Basis for Design

Disturbance to other waters is limited to Folsom Reservoir. Since it is difficult to create new other waters, Reclamation will instead create new riparian habitat by increasing the acreage of riparian vegetation within the upper fluctuation zone at selected sites along Lake Natoma.

Characteristics of Design Reference Site

The Design Reference Site will be the impact sites since the impact sites have been fully surveyed and pre-Project conditions accurately documented.

Proposed Mitigation Site

Location

The proposed mitigation plantings will occur in areas as shown on Figure 5.

Ownership Status

All areas are owned either by the U.S. Bureau of Reclamation or Reclamation's managing partner California Department of Parks and Recreation (DPR).

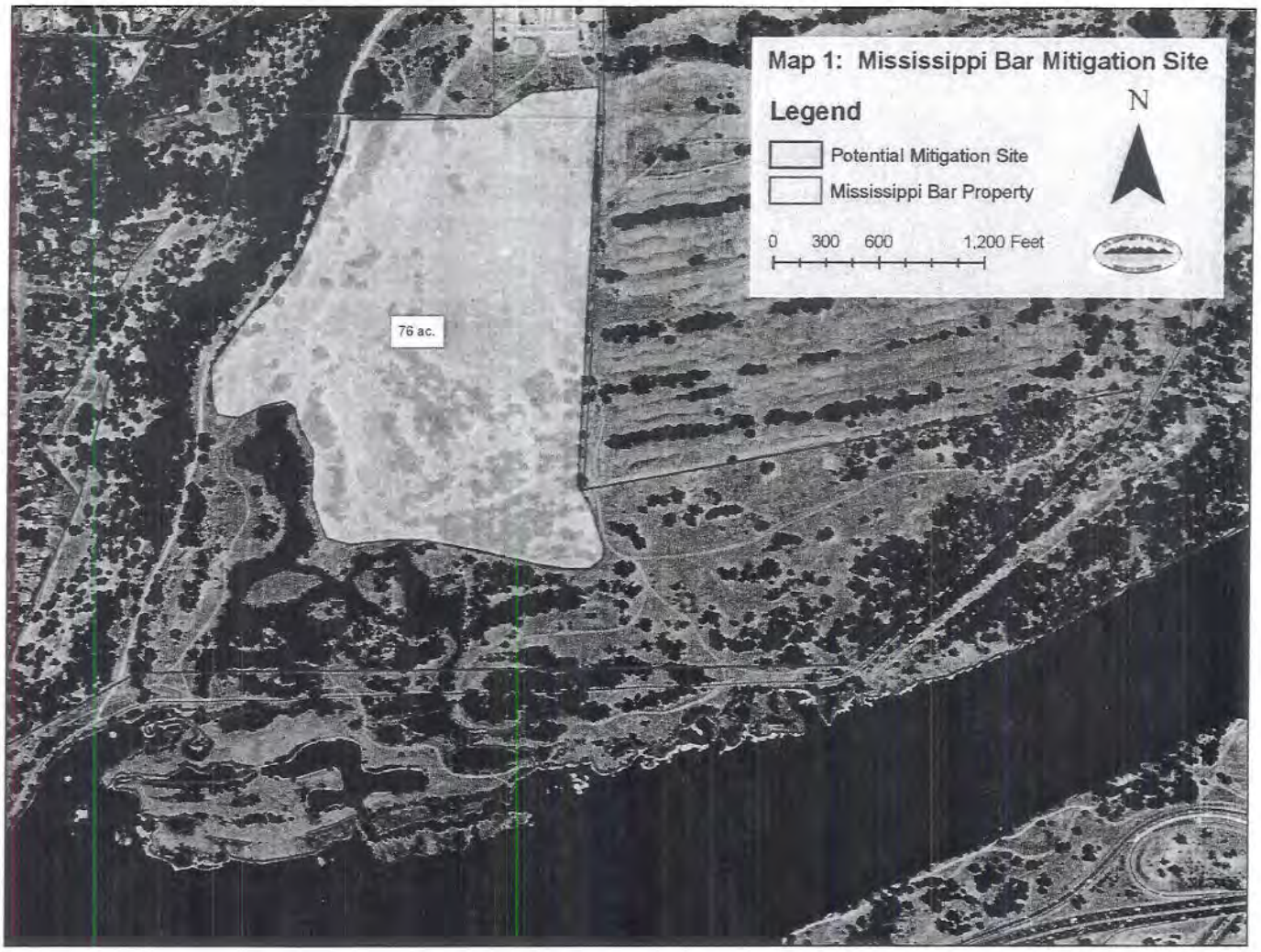


Figure 5
Mississippi Bar Mitigation Site

Jurisdictional Areas
No wetland delineation has been completed for the Mississippi Bar Area at this time. A wetland delineation of the site will be completed in 2009 and the mitigation site design will be developed to avoid all identified wetlands if possible.

Aquatic Functions
Mississippi Bar currently consists of undeveloped lands including dredge tailings and various ponds. It provides recreational trails for bicycles and horses. It supports some riparian and marsh vegetation. Therefore, its aquatic function is minimal and would be improved by wetland mitigation actions.

Hydrology/Topography
Mississippi Bar occurs on the right bank of the American River within Lake Natoma. Portions of the Bar are designated X500 by FEMA (within the 500-year floodplain; has 100-year flooding averaging <1-foot or <1 square mile; or protected by levees). Water sources at Mississippi Bar include groundwater, several ponds and lagoons, and the adjacent Lake Natoma.

The topography of Mississippi Bar is based on piles of dredge tailings. The site occurs at the base of bluffs (approximately 200-foot contour) along the American River corridor and the approximately 120 to 130-foot contour that delineates this portion of Lake Natoma's waterline.

Soils/Substrate
Soil surveys show soils at Mississippi Bar consist mostly of xerorthents, dredge tailings, 2 to 50 percent slopes. These tailings typically contain small to large cobble and occasionally small boulders. Because of the porous nature of the tailings, most fines have been washed away by rains.

Vegetation
Vegetation at Mississippi Bar consists of:

- Willow stands and cattail marshes around permanent pond areas;
- Other riparian vegetation occurring around the bar including some mature cottonwood and alder;
- Aquatic vegetation such as water hyacinth and parrot feather in isolated locations;
- Other non-native and invasive species such as Himalayan blackberry and pampas grass scattered through the site; and,
- Ruderal and exotic vegetation on the tailings piles.

Present and Historical Uses of Mitigation Area
Since construction of Folsom Dam in the 1950s, the proposed mitigation areas have been part of Federal property owned by Reclamation. As described above, Lake Natoma is the afterbay re-regulating reservoir for Folsom Reservoir and reduces the impacts of changes in flow on the Lower American River during releases from Folsom Reservoir. Prior to construction of the dam, the area was the confluence of the North and South Forks of the American River.

Present and Proposed Uses of All Adjacent Areas

The mitigation planting areas are on Federally owned land, for which the use into the foreseeable future for water storage and flood control purposes will remain unchanged.

Created/Restored Habitats

Compensation Ratios
All areas will be planted with plant communities similar to existing native vegetation found near the reservoir. Reclamation is proposing to plant 10 acres of new riparian vegetation within the upper fluctuation zone of the reservoir.

Reclamation is proposing less than a 1:1 mitigation ratio for impacts to other waters. The areas that would be filled in the reservoir that would create impacts to other waters are below the average high water elevation of 466'. The reservoir elevation fluctuates annually based on a number of factors including precipitation, downstream temperature requirements of the Lower American River, and operations of the CVP. Reclamation has reviewed historical reservoir elevation data for Folsom Reservoir from April of 1955 through May of 2005. The reservoir has been above an elevation of 465' approximately 1.0925 % of the 50 year period of record. Therefore, although material would be placed in other waters of the U.S. up to 466' and the impacts assume a constant water elevation of 466', the reservoir is unlikely reach this elevation frequently enough to have to have a quantifiable impact on Water of the U. S. The majority of the time, the areas that will be impacted are dewatered due to normal reservoir fluctuations, therefore Reclamation is proposing a mitigation ratio of less than 1:1.

Long-Term Goals
A. Goals:

- To compensate for the loss of Waters of the U. S. by improving riparian habitat along the upper shoreline of Lake Natoma.
- To mitigate for project impacts on Reclamation property by planting willows and other reparation vegetation and by applying the appropriate seed mixture to areas with existing habitat.
    - The seed mixture will be approved by both the USFWS and the Corps Regulatory personnel (Regulatory).
- Enhance existing habitat within the upper fluctuation zone of Lake Natoma.
- Mitigation will focus on improving marginal habitat in semi-sheltered coves between points within Lake Natoma.

- Mitigation will be located at Mississippi Bar on the shore of Lake Natoma.

B. Objectives:

- The first objective will be to double the existing cover in selected areas.
- The second objective will be to improve the diversity of plant species within the selected areas.
- The third objective will be to maintain and protect the mitigations sites long enough for the new plants to become established enough so that long-term maintenance of the site is not necessary.

Aquatic Functions

An increase in cover and plant species diversity within the mitigation sites will have the potential to:

- Maintain soil integrity and decrease erosion,
- Retain soil moisture longer during periods when the water elevation is down,
- Increase species diversity and abundance
- Provide refugia for aquatic species when the water level inundates the site,
- Provide improved foraging and cover for aquatic and terrestrial species,
- Provide improved habitat for terrestrial species when the water elevation is down,
- Provide a source of native seed for areas that are impacted by reservoir operations.

Hydrology/Topography

The hydrology and topography will be unchanged from pre-Project conditions.

Soils/Substrate

Soils and substrate will be unchanged from pre-Project conditions.

Vegetation and Planting Plan

The target plant community will be riparian vegetation associated with the water fluctuation zone with similar species composition compared to pre-Project conditions. All areas will be planted based on the target species provided in Table 3. Some minor grading and excavation will be necessary in areas to create the depressions often associated with riparian vegetation in the reservoir fluctuation zone. See Implementation Plan section for additional details.

Table 3 – Proposed Mitigation Plant Species

Species	Location	Total Number of Plants	Plant Stock Type
Goodings willow (*Salix goodingii*)	TBD	50	D-pots
Arroyo willow (*Salix lasiolepsis*)	TBD	50	Cuttings/Containers
Fremont cottonwood	TBD	25	D-pots

(*Populus fremontii*)			
Buttonwillow (*Cephalanthus occidentalis*)	TBD	50	Cuttings
Rushes (*Juncus spp.*)	TBD	50	D-pots
Spiny cocklebur (*Xanthium strumarium*)	TBD	1000	Seed
Knotweed (*Polygonum lapathifolium*)	TBD	1000	Seed
Salt grass (*Distichlis spicata*)	TBD	1000	Seed

TBD – To be determined at a later date.

SUCCESS CRITERIA AND MONITORING

Success Criteria

Determination of success criteria will be developed cooperatively between Reclamation and USACE. Reclamation's proposed success criteria is:

- After the maintenance period, the plantings must be self-sustaining for at lease three years with an 80% survival rate. This includes the woody species only.

Monitoring

Methods

Since the mitigation areas will be within the reservoir, monitoring methods will involve direct counts/observations of riparian plantings. Each year, the numbers of all planted trees and shrub individuals in all areas will be counted, identified to species and compared with the numbers and species of the original plantings. Replanted stock will be included in the documentation and analysis of species composition. A qualitative assessment of overall plant vigor and health will be made in addition to monitoring signs of herbivory, drought stress, and fungal/insect infestation. The fungal/insect factors shall only be determined in general, and recorded as either absent or present. Overall health shall be rated as high, medium, or low based on observations by a qualified biologist.

Monitoring Schedule

Monitoring will begin one year after plantings occur. Plantings will be monitored once a year for five years. If success criteria are achieved during the last three years, monitoring will end. If success criteria are not achieved, remedial measures will be implemented and monitoring will occur annually for three additional years for a total of eight years.

Photo-Documentation
At least one standard photo-documentation location will be established for each of the riparian revegetation areas. At each of the Areas, photo-documentation points shall be selected that will provide through visual coverage of the Area. These points will be mapped and staked on the ground, and a series of baseline photos will be taken prior to plantings.

IMPLEMENTATION PLAN

Site Preparation

Grading Implementation
Minor excavation and grading may be necessary in areas to create the depressions and to encourage sediment accumulation often associated with riparian vegetation in the reservoir fluctuation zone.

Avoidance Measures
No biologically sensitive areas will be disturbed. Species and habitat protected under the Endangered Species Act will be avoided.

Soil Disposal
Any excavated material will be minimal and will be spread throughout the adjacent reservoir fluctuation zone.

Soil Treatment
Soil treatment will consist of applying a mulch and tackifier to help vegetation establish or other best management practices as agreed to be Reclamation and the Corps.

Pest Plant Removal
Removal of pest/invasive plants will occur as needed if their presence is determined to have a negative effect on the success of plantings. Any removal would be accomplished by hand.

Construction Monitor
A qualified job inspector/construction monitor will be onsite during plantings. The monitor will have in-depth knowledge of the planting contract specifications, will have the authority to direct equipment operators, and will document any problems that arise.

Planting/Reseeding

Planting Plan
Table 3 contains a list of example species and planting type stock that may be used to vegetate new riparian sites within the reservoir. A more precise planting plan will be developed once specific sites have been selected.

Nature and Source of Propagules
Container stock plants will likely be 4 inch x 14 inch "D-pots", liners, and/or one gallon stock sizes. Plants will be planted deep enough to be in contact with permanently moist soil. Plants will be randomly placed within each mitigation area. The container stock will be from a local native plant nursery.

Pole cuttings for species will be collected within 2 miles of the Project area. Cuttings will be harvested in the vicinity of the Project site or in the watershed of American River at the same elevation as the Project site. If required, a plant collection permit will be the responsibility of the installation contractor. Cuttings shall be from healthy material, roughly six (6) feet in length, approximately ½-2 inches in diameter, and true to specified species. All cuttings shall be protected and kept moist at all times before planting including during transport and storage. Cuttings shall be stored in a cool/dark location soaking in water. Cuttings shall be planted within a 24 hours of harvesting.

Some seeding is anticipated. The exact seed mix, rate, and methodology will be determined based on site conditions and best management practices.

Delivery of Propagules
All container plant material shall be delivered to the project site in a covered vehicle. All additional plant material required due to vandalism or loss during delivery will be the responsibility of Reclamation.

Irrigation
Given the operations of the reservoir which result in annual inundation and drying of the shoreline, irrigation of plantings will occur the first three to five years to facilitate plant and root establishment and connection with underlying water sources. The design and type of irrigation will be determined based on site conditions and best management practices.

Implementation Schedule
Because the Folsom Dam Safety and Flood Damage Reduction Project is potentially 10 to 12 years long, mitigation will occur within the first 5 years of the project. Plantings will be done during the winter after the winter water table has stabilized

MAINTENANCE DURING MONITORING PERIOD

Maintenance Activities

Overall
Revegetated areas will be inspected per the Corps guidelines. Inspections will focus on erosion, status of weeds, health of plants and general site conditions.

Pest Species Control
To avoid and minimize damage by animals, cuttings will be protected with industry standard, commercially available, plastic tree protectors and an appropriate planting

width will be utilized. Weeding will occur if the presence of undesirable species is determined to have a significant negative impact on the ability to meet the success criteria.

Maintenance Schedule
Plant maintenance will occur from April through October, as required.

PROPOSED MONITORING REPORT

Due Dates
Monitoring reports will be submitted no later than October 1 for each year monitoring occurs.

As-Builts
An "as-built" plan delineating the mitigation planting areas will be submitted to the Corps no later than 2 months after completion of mitigation installation.

Annual Reports
The overall annual Environmental Commitment and Monitoring Report for the project will include a discussion on the other waters of the U.S. mitigation. This plan will be submitted to the Corps on an annual basis and other entities as appropriate.

POTENTIAL CONTINGENCY MEASURES

Initiating Procedures
If the final success criteria are not met, additional plantings will occur such that the success criteria are achieved. In addition, the reasons and causes for not meeting the criteria will be determined and remedial actions initiated as required.

Contingency Funding Mechanism
Safety of Dams funds or other Reclamation funds will be available for contingency actions.

COMPLETION OF MITIGATION RESPONSIBILITIES

Notification
Mitigation and Monitoring Proposal Guidelines, December 30, 2004, will be followed.

Corps Confirmation
Mitigation and Monitoring Proposal Guidelines, December 30, 2004, will be followed.

LONG-TERM MANAGEMENT

Property Ownership
Property owner will be notified upon completion of mitigation monitoring.

Management Plan

Resource Manager
Reclamation will provide resource management following mitigation monitoring completion.

Management Approach
An adaptive management approach shall be used to address changes and issues as needed.

Site Protection
Site is currently Federally owned and State owned. The property is protected with no plans to change ownership. Reclamation will post signage attached to existing shrubs with language that states the mitigation area is protected and is not to be disturbed. No permanent signs or fences are possible because of the fluctuation of the water level and the potential public safety issues. Permanent signs will be posted above the high water elevation to state the area is protected.