Meeting of the Central Valley Flood Protection Board
October 25, 2013

Staff Report – Encroachment Permit

Westervelt Ecological Services
Giant Garter Snake Preserve and Wetlands, Colusa County

Note: Item 9A of the October 25, 2013 Agenda refers to Resolution No 2013-24 that was initially required for the Board's consideration due to the applicants request to modify several permit conditions. Staff continued to work with the applicant and an agreement was achieved after the October Agenda was made final. Therefore Resolution No. 2013-24 is not included with this Staff Report.

1.0 – ITEM

Consider approval of Permit No. 18845 (Attachment B)

2.0 – APPLICANT

Westervelt Ecological Services

3.0 – LOCATION

The project is located on the right overflow bank of the Colusa Trough in the Colusa Drain Designated Floodway, in Colusa County.
(Colusa Drain Designated Floodway, Colusa County, see Attachment A)

4.0 – DESCRIPTION

Applicant proposes to develop a wetland and giant garter snake preserve; de-leveling portions of the site to create a managed-marsh complex; create interior berms 3 feet above existing grade; and utilize existing and new water control structures to efficiently direct water.

5.0 – PROJECT ANALYSIS

After review of the submitted application staff has concluded that the proposed Giant Garter Snake Mitigation Bank project is compatible with Title 23 Article 5 Designated Floodways Section 107 (a) and (i) as allowable encroachments. The project site is in agricultural use as rice fields and can be easily converted to the proposed project parameters as submitted. The portion of the project (habitat) that is within the Colusa Drain Designated Floodway is 89 acres, which is approximately 41% of the 215 acre property. The proposed project is designed to be a balanced cut and fill operation so there will be no adverse impacts to the existing Colusa Drain Designated Floodway.

A final version of the Colusa Basin Mitigation Bank, Long Term Maintenance Plan has been submitted. The final plan that governs management of the property will be recorded with the Conservation Easement at the time of Bank Entitlement. This plan will cover the Board's interests at this project site.

5.1 – Hydraulic Analysis

A Hydraulic Analysis was performed using a one dimensional steady state model of the project site and vicinity and was developed using the US Army Corps of Engineers (USACE) HEC-RAS model. Two scenarios were evaluated – existing conditions and full project conditions. The impact of the project on flood conveyance was characterized in terms of potential rise in water surface elevation for the design hydrology (100-year event).

The results of the hydraulic Analysis showed zero rise to a 0.01 foot decrease in water surface elevations under 100- and 50-year flows. Based on the results of the hydraulic analysis, it can be concluded that the project does will not unduly impede the free flow of water in the Colusa Drain Designated Floodway.

5.2 – Geotechnical Analysis

A geotechnical analysis was not required as all earthwork is surficial.

6.0 – AGENCY COMMENTS AND ENDORSEMENTS

The comments and endorsements associated with this project, from all pertinent agencies are shown below:

- The maintaining agency for this project is the Sutter Maintenance Yard which has endorsed this application with no conditions.

- The U.S. Army Corps of Engineers 208.10 comment letter has been received for this application. The USACE District Engineer has no objection to the project, subject to conditions. The letter is incorporated into the permit as Exhibit A.

7.0 – CEQA ANALYSIS

Board staff has prepared the following CEQA findings:

The Board, as a responsible agency under CEQA, has reviewed the Initial Study/Mitigated Negative Declaration (IS/MND) (SCH Number: 2013012062, January 2013) and Mitigation Measures for the Colusa Basin Mitigation Bank Project prepared by the lead agency, the Colusa County. These documents, including project design, may be viewed or downloaded from the Central Valley Flood Protection Board website at http://www.cvfpb.ca.gov/meetings/2013/10-25-13.cfm under a link for this agenda item. These documents are also available for review in hard copy at the Board and the County offices.

The District determined that the project would not have a significant effect on the environment on March 4, 2013 and filed a Notice of Determination on March 7, 2013 with the Colusa County Clerk. Board staff finds that although the proposed project could have a potentially significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. The project proponent has incorporated mandatory mitigation measures into the project plans to avoid identified impacts or to mitigate such impacts to a point where no significant impacts will occur. These mitigation measures are included in the project proponent's IS/MND and address impacts to aesthetics, air quality, biological resources, hydrology and water quality, and land use and planning. The description of the mitigation measures are further described in the adopted IS/MND.

8.0 – SECTION 8610.5 CONSIDERATIONS

1. Evidence that the Board admits into its record from any party, State or local public agency, or nongovernmental organization with expertise in flood or flood plain management:

The Board will make its decision based on the evidence in the permit application and attachments, this staff report, and any other evidence presented by any individual or group.

2. The best available science that related to the scientific issues presented by the executive officer, legal counsel, the Department or other parties that raise credible scientific issues.

   The accepted industry standards for the work proposed under this permit as regulated by Title 23 have been applied to the review of this permit.

3. Effects of the decision on the entire State Plan of Flood Control:

   This project has no adverse effects on facilities of the State Plan of Flood Control and is consistent with the Central Valley Flood Protection Plan.

4. Effects of reasonable projected future events, including, but not limited to, changes in hydrology, climate, and development within the applicable watershed:

   There will be no effects to the proposed project from reasonable projected future events.

9.0 – STAFF RECOMMENDATION

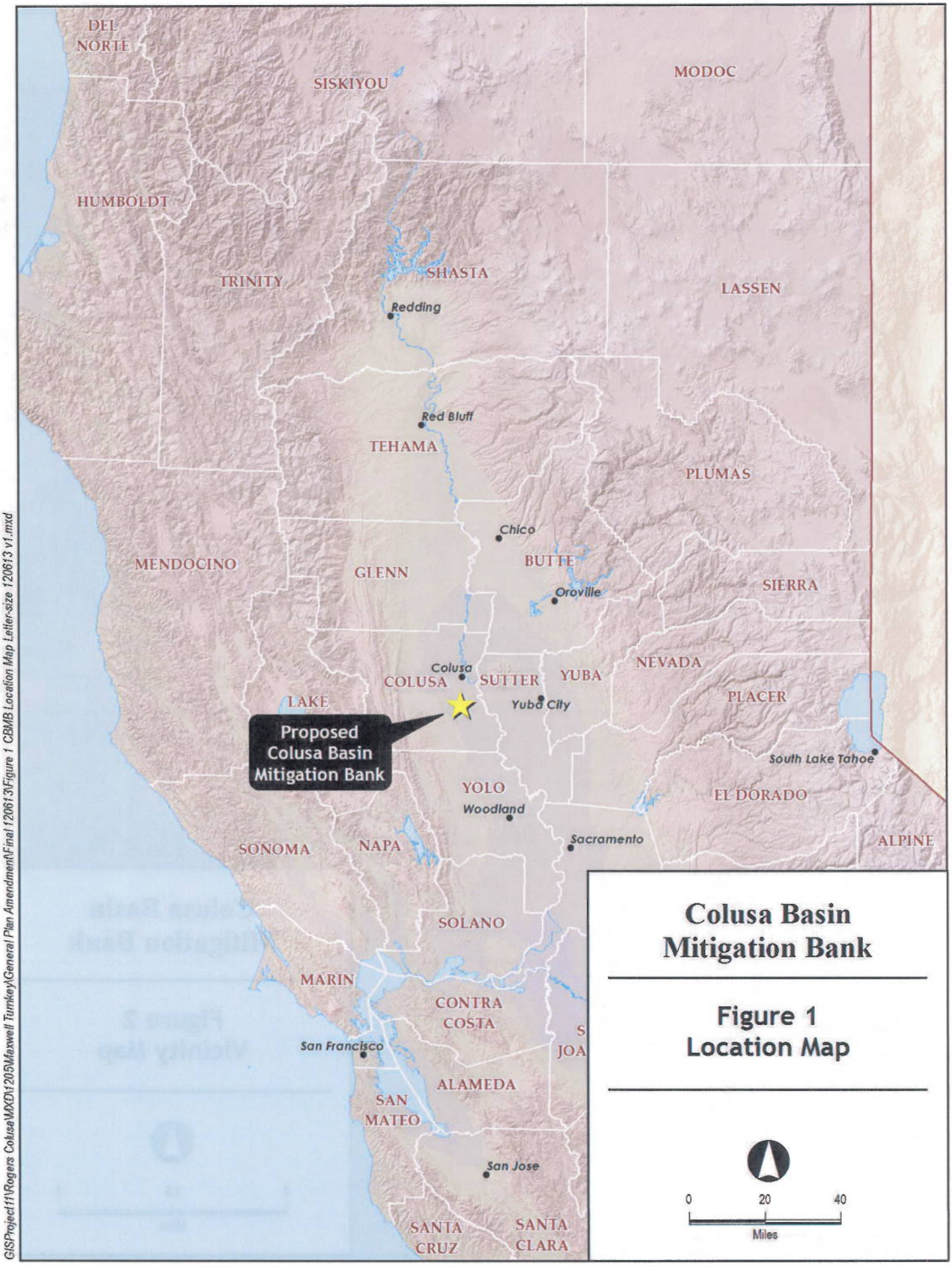
Staff recommends that the Board adopt the CEQA findings, approve the permit, and direct staff to file a Notice of Determination with the State Clearinghouse.

10.0 – LIST OF ATTACHMENTS

A. Location Maps and photos
B. Draft Permit No. 18845
C. Project Drawing
D. Long Term Management Plan
E. Letter from Westervelt Ecological Services

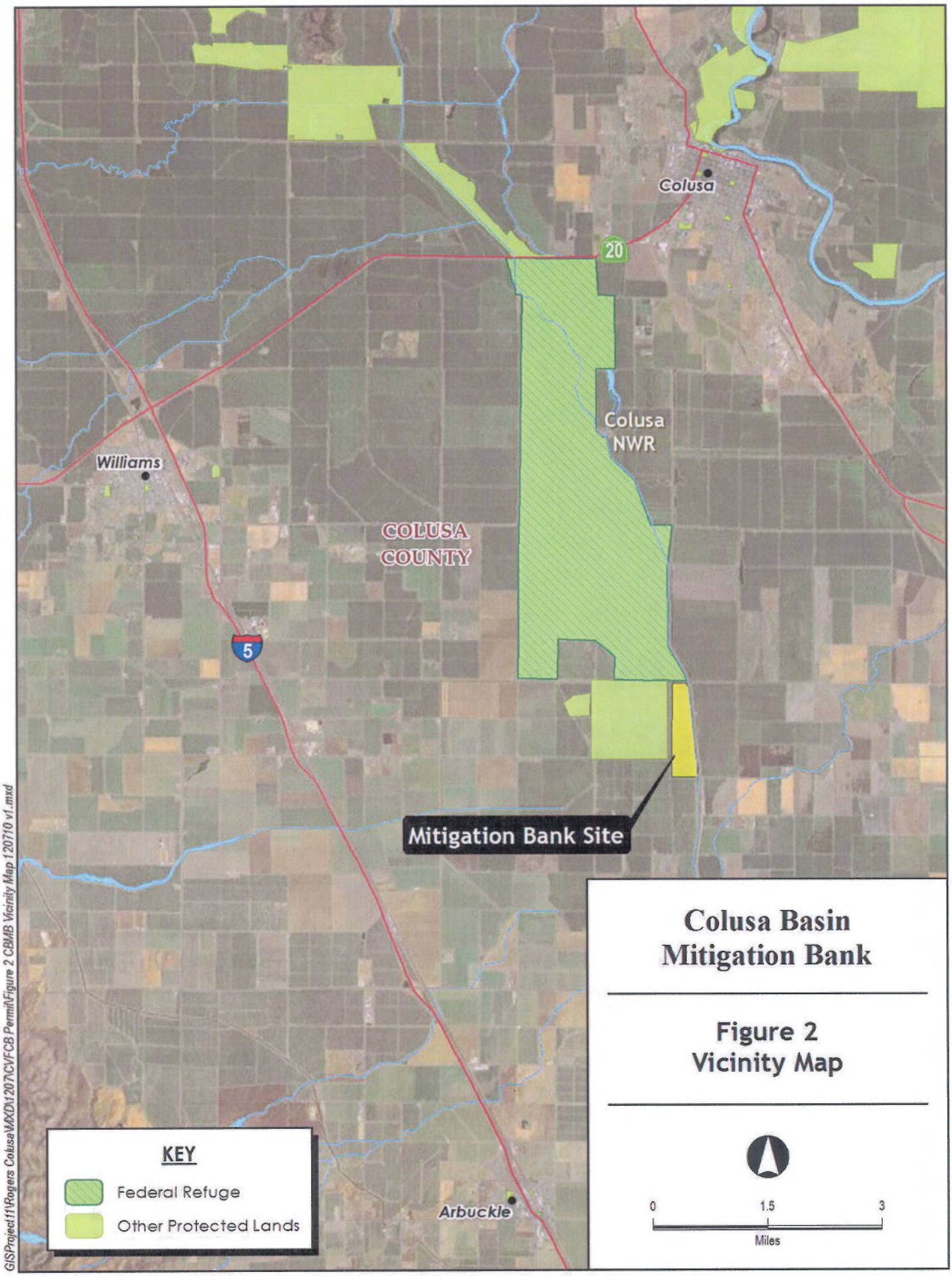
Design Review:	Steve Dawson
Environmental Review:	James Herota / Andrea Mauro
Document Review:	Gary Lemon P.E. / Mitra Emami P.E. / Len Marino P.E.

Attachment A



GIS\Project11\Rogers Colusa\MXD\1205\Maxwell Turnkey\General Plan Amendment\Final 120613\Figure 1 CBMB Location Map Letter-size 120613 v1.mxd

Attachment A



Attachment A

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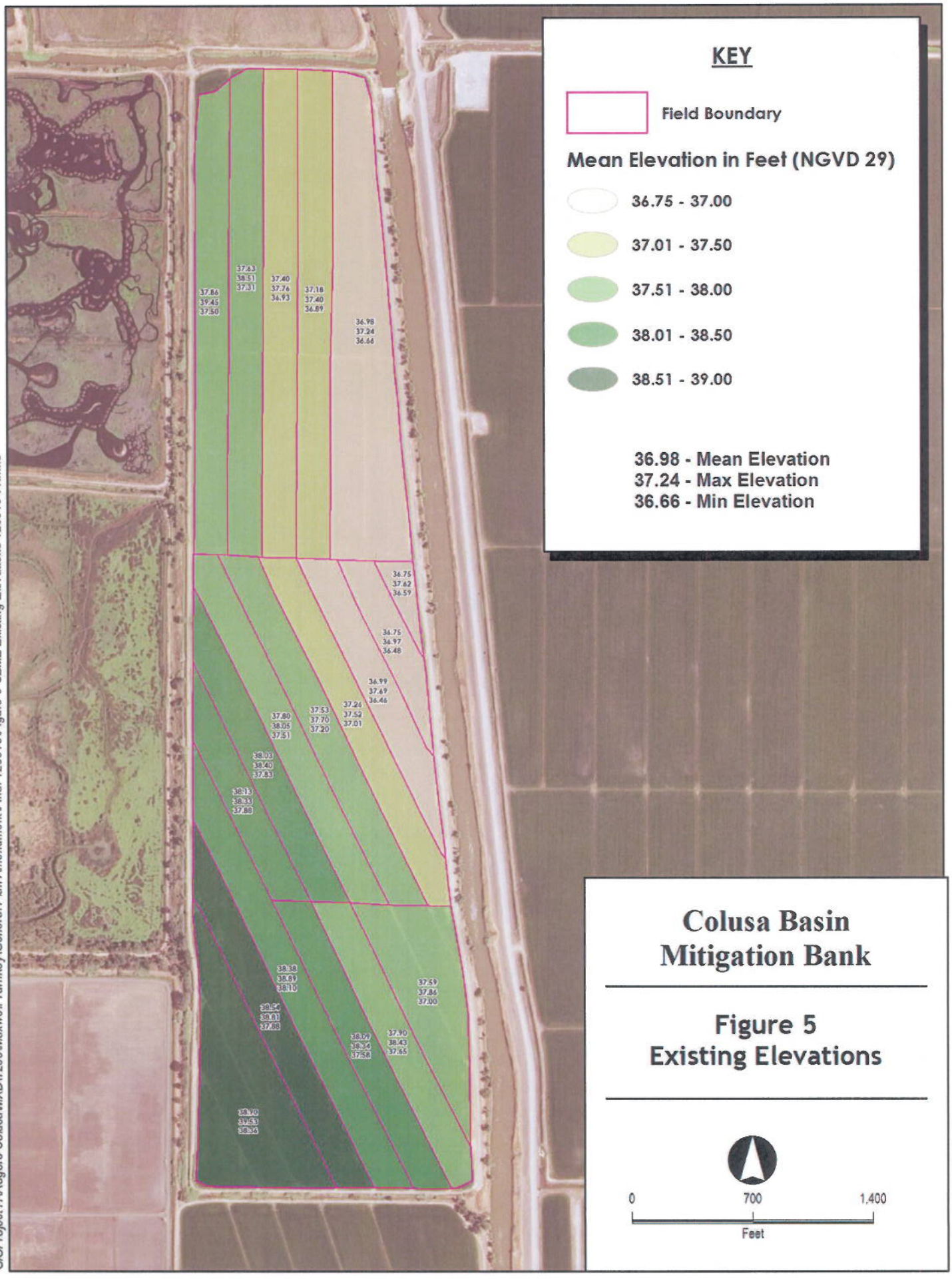

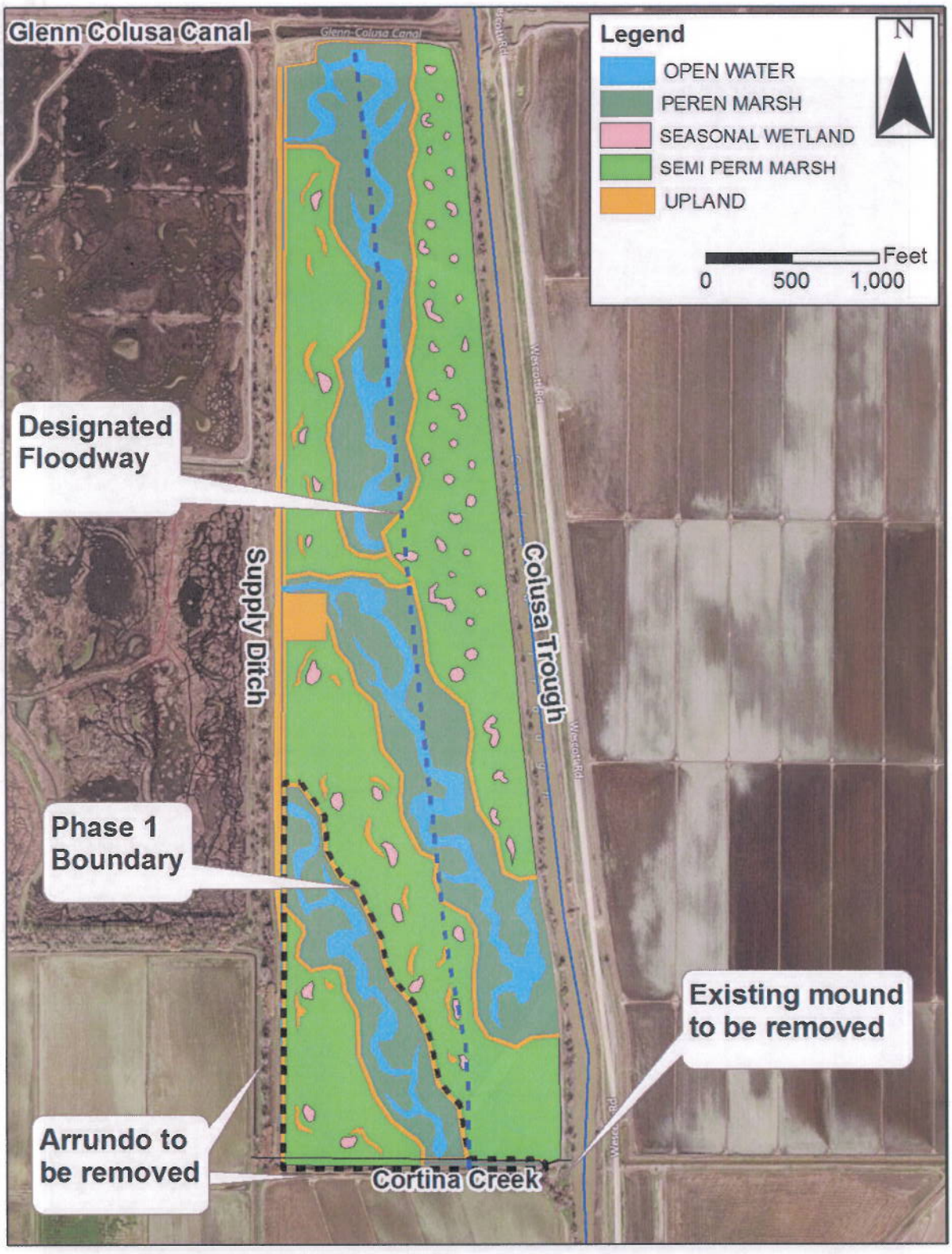

Notes:	cbec eco engineering	*Colusa Basin Mitigation Bank Flood Impact Assessment* **Proposed Project**		
		Project No. 12-1009	Created By: SP	**Figure 3**

7/9/2012

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Photo 1: North Property Line, View from West to East

Photo 2: Northeast Corner, View Looking to SW

Photo 3: SE Corner, View to North

Photo 4: Cortina Creek Riparian Area, View from SE Corner of Property

Photo 5: West Road, View from SW Corner to the North

Photo 6: West Road, View to North

Photo 7: Typical Rice Berm, View from NW Corner

Photo 8: Typical Rice Berms, View from West to East

DRAFT

STATE OF CALIFORNIA
THE RESOURCES AGENCY

THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 18845 BD

This Permit is issued to:

Westervelt Ecological Services
600 N. Market Blvd., Ste. 3
Sacramento, California 95834

To develop a wetland and giant garter snake preserve; de-leveling portions of the site to create a managed-marsh complex; create interior berms 3-feet above existing grade; and utilize existing and new water control structures to efficiently direct water. The project is located on the right overflow bank of the Colusa Trough in the Colusa Drain Designated Floodway, in Colusa County. (Section 6,31, T14,15, R1W, MDB&M, Sutter Maintenance Yard, Colusa Trough, Colusa County).

NOTE: Special Conditions have been incorporated herein which may place limitations on and/or require modification of your proposed project as described above.

(SEAL)

Dated: _____

_____
Executive Officer

GENERAL CONDITIONS:

ONE: This permit is issued under the provisions of Sections 8700 – 8723 of the Water Code.

TWO: Only work described in the subject application is authorized hereby.

THREE: This permit does not grant a right to use or construct works on land owned by the Sacramento and San Joaquin Drainage District or on any other land.

FOUR: The approved work shall be accomplished under the direction and supervision of the State Department of Water Resources, and the permittee shall conform to all requirements of the Department and The Central Valley Flood Protection Board.

FIVE: Unless the work herein contemplated shall have been commenced within one year after issuance of this permit, the Board reserves the right to change any conditions in this permit as may be consistent with current flood control standards and policies of The Central Valley Flood Protection

Board.

SIX: This permit shall remain in effect until revoked. In the event any conditions in this permit are not complied with, it may be revoked on 15 days' notice.

SEVEN: It is understood and agreed to by the permittee that the start of any work under this permit shall constitute an acceptance of the conditions in this permit and an agreement to perform work in accordance therewith.

EIGHT: This permit does not establish any precedent with respect to any other application received by The Central Valley Flood Protection Board.

NINE: The permittee shall, when required by law, secure the written order or consent from all other public agencies having jurisdiction.

TEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the State of California, or any departments thereof, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof, the permittee shall defend and shall hold each of them harmless from each claim.

ELEVEN: The permittee shall exercise reasonable care to operate and maintain any work authorized herein to preclude injury to or damage to any works necessary to any plan of flood control adopted by the Board or the Legislature, or interfere with the successful execution, functioning or operation of any plan of flood control adopted by the Board or the Legislature.

TWELVE: Should any of the work not conform to the conditions of this permit, the permittee, upon order of The Central Valley Flood Protection Board, shall in the manner prescribed by the Board be responsible for the cost and expense to remove, alter, relocate, or reconstruct all or any part of the work herein approved.

SPECIAL CONDITIONS FOR PERMIT NO. 18845 BD

THIRTEEN: A copy of this permit (No. 18845) shall be included as an attachment to the Colusa Basin Mitigation Bank Long-Term Management Plan.

FOURTEEN: The Colusa Basin Mitigation Bank Long-Term Management Plan shall be attached to this permit as Exhibit B and shall be a fully enforceable condition of this permit. Any material changes to the plan after the date of issuance of this permit, shall be submitted to the Central Valley Flood Protection Board for approval.

FIFTEEN: The Central Valley Flood Protection Board shall be added to the list of agencies that shall receive any notices regarding the Colusa Basin Mitigation Bank Long Term Management Plan, per Article 5, Section D of the Long Term Management Plan.

SIXTEEN: Westervelt Ecological Services and/or subsequent Conservation Bank Manager shall restore the project site to the initial as-constructed project conditions if the Central Valley Flood Protection Board determines that the project is having a negative impact on flood conveyance and/or flood capacities in the Colusa Drain Designated Floodway.

SEVENTEEN: Westervelt Ecological Services and/or subsequent Conservation Bank Manager agrees to incur all costs for compliance with local, state and federal permitting and resolve conflicts between any of the terms and conditions that agencies might impose under the laws and regulations it administers and enforces.

EIGHTEEN: Westervelt Ecological Services and/or subsequent Conservation Bank Manager will be responsible for securing any necessary permits incidental to habitat manipulation and restoration work completed in the Colusa Drain Designated Floodway, and will provide any biological surveying, monitoring, and reporting needed to satisfy those permits.

NINETEEN: The Colusa Basin Mitigation Bank Long Term Management Plan Endowment Fund shall be made available to the Central Valley Flood Protection Board and the Department of Water Resources for the purpose of maintaining the project per the Colusa Basin Mitigation Bank Long Term Management Plan if Westervelt Ecological Services and/or subsequent Conservation Bank Manager fails to fulfill maintenance requirements as detailed in the Long Term Management Plan.

TWENTY: The mitigation measures approved by the CEQA lead agency and the permittee are found in its Mitigation and Monitoring Reporting Program (MMRP) adopted by the CEQA lead agency. The permittee shall implement all such mitigation measures.

TWENTY-ONE: All work approved by this permit shall be in accordance with the submitted drawings and specifications except as modified by special permit conditions herein. No further work, other than that approved by this permit, shall be done in the area without prior approval of the Central Valley Flood Protection Board.

TWENTY-TWO: The permittee shall maintain the permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of the Department of Water Resources or any other agency responsible for maintenance.

TWENTY-THREE: Upon receipt of a signed copy of the issued (not approved only) permit the permittee shall contact the Department of Water Resources by telephone, (916) 574-0609, and submit the enclosed postcard to schedule a preconstruction conference. Failure to do so at least 10 working days prior to start of work may result in delay of the project.

TWENTY-FOUR: The Central Valley Flood Protection Board and Department of Water Resources shall not be held liable for any damages to the permitted encroachment(s) resulting from flood fight, operation, maintenance, inspection, or emergency repair.

TWENTY-FIVE: The permittee and/or subsequent Conservation Bank Manager may be required, at permittee's and/or subsequent Conservation Bank Manager's cost and expense, to remove, alter, relocate, or reconstruct all or any part of the permitted encroachment(s) if removal, alteration, relocation, or reconstruction is necessary as part of or in conjunction with any present or future flood control plan or project or if damaged by any cause. If the permittee and/or subsequent Conservation Bank Manager does not comply, the Central Valley Flood Protection Board may remove the encroachment(s) at the permittee's expense.

TWENTY-SIX: The permittee should contact the U.S. Army Corps of Engineers, Sacramento District, Regulatory Branch, 1325 J Street, Sacramento, California 95814, telephone (916) 557-5250, as compliance with Section 10 of the Rivers and Harbors Act and/or Section 404 of the Clean Water Act may be required.

TWENTY-SEVEN: The permittee and/or subsequent Conservation Bank Manager shall be responsible for repair of any damages to the floodway or other flood control facilities due to construction, operation, or maintenance of the proposed project.

TWENTY-EIGHT: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend, indemnify, and hold the Central Valley

Flood Protection Board and the State of California; including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages arising from the project undertaken pursuant to this permit, all to the extent allowed by law. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

TWENTY-NINE: The permittee shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California, including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages related to the Central Valley Flood Protection Board's approval of this permit, including but not limited to claims filed pursuant to the California Environmental Quality Act. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

THIRTY: If the project, or any portion thereof, is to be abandoned in the future, the permittee or successor shall abandon the project under direction of the Central Valley Flood Protection Board and Department of Water Resources, at the permittee's or successor's cost and expense.

THIRTY-ONE: No construction work of any kind shall be done during the flood season from November 1st to April 15th without prior approval of the Central Valley Flood Protection Board.

THIRTY-TWO: No material stockpiles, temporary buildings, or equipment shall remain in the floodway during the flood season from November 1st to April 15th.

THIRTY-THREE: The ground surface shall be kept clear of fallen trees, branches, and debris. After each period of high water and after each flood season, debris that accumulates at the site shall be completly removed the Colusa Drain Designated Floodway. Any debris accumulations must be removed from the Colusa Drain Designated Floodway or must be disposed of in such a manner as to leave no floatable debris in the Colusa Drain Designated Floodway.

THIRTY-FOUR: All excavated material shall be placed only within the area indicated on the approved plans.

THIRTY-FIVE: Any excess cut material not used for this project shall be removed from the Colusa Drain Designated Floodway.

THIRTY-SIX: If the approved project result(s) in an adverse hydraulic impact, the permittee and/or subsequent Conservation Bank Manager shall provide appropriate mitigation measures, to be approved by the Central Valley Flood Protection Board, prior to implementation of mitigation measures.

THIRTY-SEVEN: The permittee and/or subsequent Conservation Bank Manager shall be responsible to ensure that the project can be properly maintained in accordance with this permit and in accordance with the Central Valley Flood Protection Board's responsibilty to maintain hydraulic capacity of the Colusa Drain Designated Floodway at this location and in areas affected by this project for present and future flood control needs.

THIRTY-EIGHT: The permitted encroachment(s) shall not interfere with operation and maintenance

of the flood control project. If the permitted encroachment(s) are determined by any agency responsible for operation or maintenance of the flood control project to interfere, the permittee and/or subsequent Conservation Bank Manager shall be required, at permittee's and/or subsequent Conservation Bank Manager's cost and expense, to modify or remove the permitted encroachment(s) under direction of the Central Valley Flood Protection Board or Department of Water Resources. If the permittee and/or subsequent Conservation Bank Manager does not comply, the Central Valley Flood Protection Board may modify or remove the encroachment(s) at the permittee's expense.

THIRTY-NINE: The permittee and/or susequent Conservation Bank Manager shall not import any State or federally listed, threatened, or endangered species to the project site without written approval of the Central Valley Flood Protection Board.

FORTY: The U.S. Army Corps of Engineers (Sacramento District), the Department of Water Resources and the Central Valley Flood Protection Board shall have access at all times to Colusa Basin Mitigation Bank site.

FORTY-ONE: The permittee shall provide a copy of the annual report, defined in Article 1, Section G, Element G.1 of the Colusa Basin Mitigation Bank Long Term Managemenr Plan, to the Central Valley Flood Protection Board. Proposed adaptive management shanges ahall be approved by the Central Valley Flood Protection Board prior to implementation.

FORTY-TWO: The permittee and/or subsequent Conservation Bank Manager shall submit any propsed material amendment to the Conservation Easement(CE), Conservation Bank Agreement (CBA), Interim Management Plan (IMP), Long Term Management Plan Plan (LTMP), and Habitat Developement Plan(HDP), including any "adaptive management" employed by the permittee and/or subsequent Conservation Bank Manager, to the Central Valley Flood Protection Board for approval prior to making any such amendment.

FORTY-THREE: All debris generated by this project shall be disposed of outside the Colusa Drain Designated Floodway.

FORTY-FOUR: The permittee and/or subsequent Conservation Bank Manager shall comply with all conditions set forth in the letter from the Department of the Army (U.S. Army Corps of Engineers, Sacramento District) dated October 1, 2013 which is attached to this permit as Exhibit A and is incorporated by reference.

FORTY-FIVE: Upon completion of the project, the permittee shall submit as-built drawings to: Department of Water Resources, Flood Project Inspection Section, 3310 El Camino Avenue, Suite 256, Sacramento, California 95821.

FORTY-SIX: Any additional encroachment(s) in the floodway, require an approved permit from the Central Valley Flood Protection Board and shall be in compliance with the Central Valley Flood Protection Board's regulations (Title 23 California Code of Regulations).

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Exhibit A

DEPARTMENT OF THE ARMY
U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

REPLY TO
ATTENTION OF

OCT 0 1 2013

Flood Protection and Navigation Section (18845)

Mr. Jay Punia, Executive Officer
Central Valley Flood Protection Board
3310 El Camino Avenue, Room 151
Sacramento, CA 95821

Dear Mr. Punia:

We have reviewed a permit application by Westervelt Ecological Services (application number 18845). This project includes developing a wetland and giant garter snake preserve; de-leveling portions of the site to create a managed-marsh complex; creating interior berms 3 feet above existing grade; and utilizing existing and new water control structures to efficiently direct water. The project is located on the right overflow bank of the Colusa Trough in the Colusa Drain Designated Floodway, at 39.105°N 122.02°W NAD83, Colusa County, California.

The District Engineer has no objection to approval of this application by your Board from a flood control standpoint, subject to the following conditions:

a. That no excavation shall be performed within the floodway during the flood season of November 1 to April 15, unless otherwise approved in writing by your Board.

b. That in the event trees and brush are cleared, they shall be properly disposed of either by complete burning or complete removal outside the limits of the project right-of-way.

c. That no material shall be stockpiled within the floodway during the flood season November 1 to April 15, unless otherwise approved in writing by your Board.

d. That the proposed work shall not interfere with the integrity or hydraulic capacity of the flood risk reduction project; easement access; or maintenance, inspection, and flood fighting procedures.

A Section 404 permit application (SPK-2012-00871) is in process for this work.

A copy of this letter is being furnished to Mr. Don Rasmussen, Chief Flood Project Integrity and Inspection Branch, 3310 El Camino Avenue, Suite LL30, Sacramento, CA, 95821.

Sincerely,

Rick L. Poeppelman

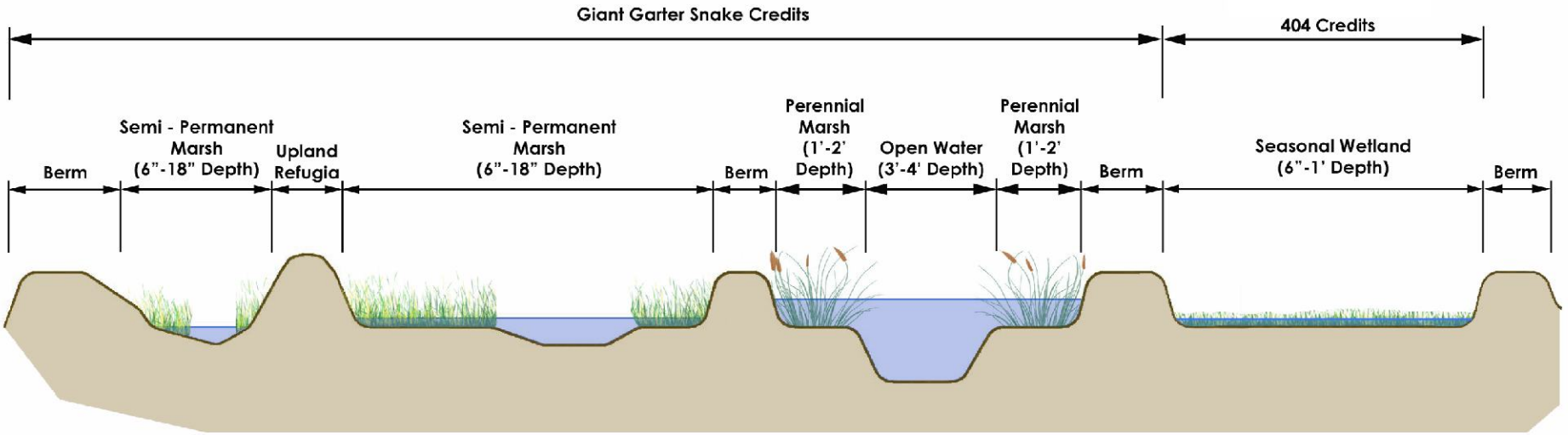
Rick L. Poeppelman, P.E.
Chief, Engineering Division

Berms and Refugia

Semi-Permanent Marsh

Perennial Marsh and Open Water

Seasonal Wetland



Colusa Basin Mitigation Bank

FIGURE 7
JULY 2013
Typical Habitat Cross-section

Not To Scale

G:\GIS\GIS\Project11\Rogers Colusa\MXD\1209\Prospectus Sept2012\Draft v1\Figure 14 CBMB Typical Habitat CrossSection 120918 v2.mxd

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Exhibit D-5 LONG TERM MANAGEMENT PLAN

FIGURES

Appendices

I Introduction

A Purpose of Establishment

The Colusa Basin Mitigation Bank ("Bank" or "Bank Property") is being established to provide compensation for impacts to Waters of the United States and habitats of the giant garter snake (*Thamnophis gigas*) located in the Central Valley of California. It will be managed in perpetuity as a preserve for wetlands and for the giant garter snake ("GGS").

B Purpose of this Long Term Management Plan

The purpose of this long-term management plan ("Management Plan") is to ensure the Bank Property is managed, monitored, and maintained in perpetuity. This Management Plan establishes objectives, priorities, and tasks to monitor, manage, maintain, and report on the restored habitat on the Bank Property and is a binding and enforceable instrument, incorporated by reference into the conservation easement covering the Bank Property.

Specifically:

1. The Management Plan serves as a guide for appropriate public and private uses of the Bank Property.

2. The Management Plan serves as a descriptive inventory of fish, wildlife, and plants which occur on or use the Bank Property.

3. The Management Plan provides an overview of the Bank Property operation and maintenance, requirements including all actions required of the Bank Manager to achieve the Bank's management goals. It also serves as a budget planning aid for the long-term management endowment ("Endowment Fund").

4. The Management Plan provides guidance for the Bank Property stewardship in perpetuity.

C Bank Manager and Responsibilities

The property owner, Westervelt Ecological Services ("WES"), will be the long term land manager ("Bank Manager"). WES, and any subsequent Bank Manager if transferred, shall implement this Management Plan, managing, and monitoring the Bank Property in perpetuity to preserve its habitat and conservation values in accordance with the Bank Property's Bank Enabling Instrument and the Conservation Easement. Long term management tasks shall be funded through the Endowment Fund. The Bank Manager shall be responsible for providing an annual report to the U.S. Army Corps of Engineers ("USACE"), the U.S. Environmental Protection Agency ("USEPA"), the U.S. Fish and Wildlife Service ("USFWS") and the California Department of Fish and Wildlife ("CDFW") (collectively the "Signatory Agencies" or the "IRT") detailing the time period covered, and a description of the management tasks accomplished.

The Bank Manager's responsibilities will include but are not be limited to:

- Maintaining gates and signage.
- Coordinating trash removal.
- Managing water levels.
- Conducting exotic plant management when necessary with qualified personnel.
- Coordinating grazing of the Bank Property.
- Reviewing monitoring data, and recommending to/coordinating with the Signatory Agencies for any adaptive management actions.
- Performing general inspections of the Bank Property
- Coordinating an annual biological inspection by a qualified biologist. ("Monitoring Biologist")
- Arranging for any corrective action necessary to ensure the sustainability of the habitat at the Bank Property, as required by this Management Plan.
-

The Monitoring Biologist will be a professional botanist, biologist, or restoration ecologist familiar with California flora and fauna, and will have a working knowledge of jurisdictional wetland hydrology and vegetation, as well as management of marsh and upland habitats for GGS. The functions of the Monitoring Biologist will be performed by WES staff.

Overall, duties of the Monitoring Biologist may include but are not limited to:

- Monitoring wetland functions and water delivery system.
- Evaluating the presence and extent of introduced non-native (exotic) plant and animal species and recommending management, if needed.
- Conducting the monthly and annual inspections, collecting data on the Bank Property and preparing reports required by this Management Plan.
- Evaluating site conditions and recommending remedial action to the Bank Manager.
- Assisting in the review of or planning of restoration activities, use of the Bank Property for education, or other tasks.

A change of either Bank Manager or Monitoring Biologist will be made in consultation with the Signatory Agencies at the time of the change. If the Bank Manager or the Monitoring Biologist is changed, the outgoing and incoming personnel will tour the Bank Property together, and the former will advise the latter of trends, problem areas, and any administrative difficulties.

II Property Description

A Setting and Location

The Bank Property is located approximately 5 miles south of City of Colusa in an unincorporated portion of Colusa County California. The property on which the Bank Property occurs is owned in fee title by WES and is identified by the following assessor parcel numbers: 017-110-045 and

019-010-016 ("Property") (**Figure 1**). The Bank Property is a 162.78-acre subset of the 215-acre Property (**Figure 2**). The Bank Property location corresponds to portions of Sections 6, of Township 14N, Range 1W, of the Arbuckle, California 7.5-minute quadrangle.

The Bank Property is located adjacent to Colusa National Wildlife Refuge ("NWR") where GGS have been recently documented. In addition, the Bank Property is near or adjacent to other wetland conservation projects including Wetland Reserve Program and Wildlife Conservation Board Easements and contributes to a much larger conservation area (**Figure 2**).

B History and Land Use

The Bank Property has been farmed for rice production since 1964 (**Figure 3).** Seasonal hunting for waterfowl and pheasants is an ongoing use, but there are no structures or improvements such as residential or agricultural buildings on the Property. There are unimproved perimeter farm roads unlined irrigation canals to the north and south, and corrugated metal and plastic culverts serving water management needs for rice cultivation. A lift pump owned and operated by the Sycamore Mutual Water Company provides water to the Bank Property and is located near the northwest corner of the Bank Property.

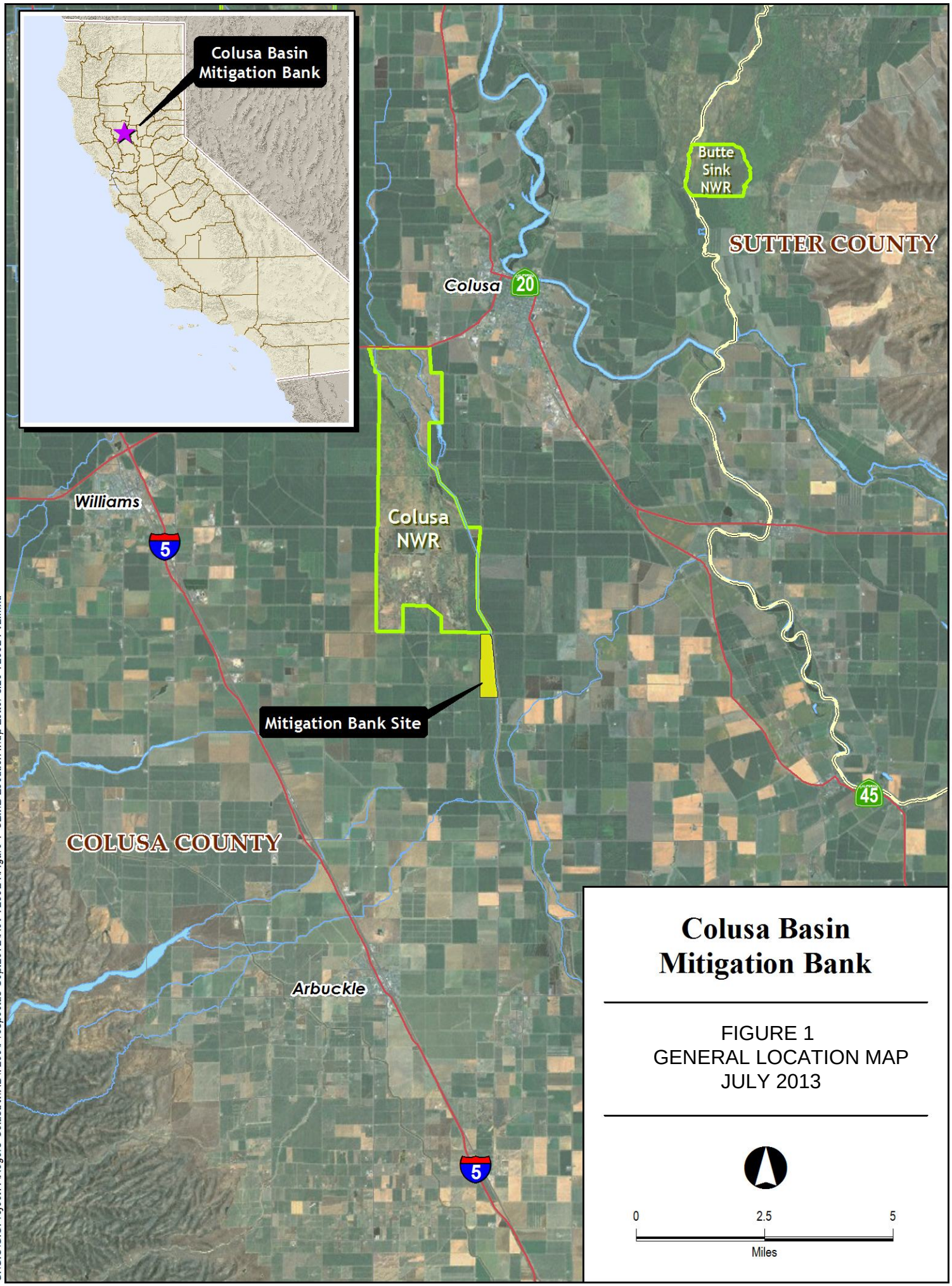
C Cultural Resources

The Cultural Resources Survey and Report (BEI Exhibit J) indicates that there are no significant cultural resources on the Bank Property, and that the area was most likely only used by Native Americans for transit and temporary resource use.

D Hydrology and Topography

The Bank Property is located within the Colusa Basin, an historic floodplain that drains the western portion of the northern Sacramento Valley. The Reclamation District 2047 drain ("RD 2047 Drain") borders the Bank Property on its eastern edge and was designed to provide drainage and conveyance for summer agricultural drain water. The RD 2047 Drain does not provide flood protection for the surrounding landscape, and the Property may be temporarily flooded during periodically heavy winter and spring rainfall events. Once floodwaters recede, waters within the Property currently flow into the RD 2047 Drain via corrugated metal and plastic culverts. Drain ditches that serve adjoining lands border the Property on its north, western, and southern boundaries.

The topography is gently sloping (0 to 2% slopes) from west to east, and the entire Bank Property is currently divided into "checks" for rice cultivation **(Figure 4).** The land within the checks is either level or gently sloping (1%) and there are only 3 or 4 inches difference between the elevations of the checks.



Colusa Basin Mitigation Bank

FIGURE 1
GENERAL LOCATION MAP
JULY 2013

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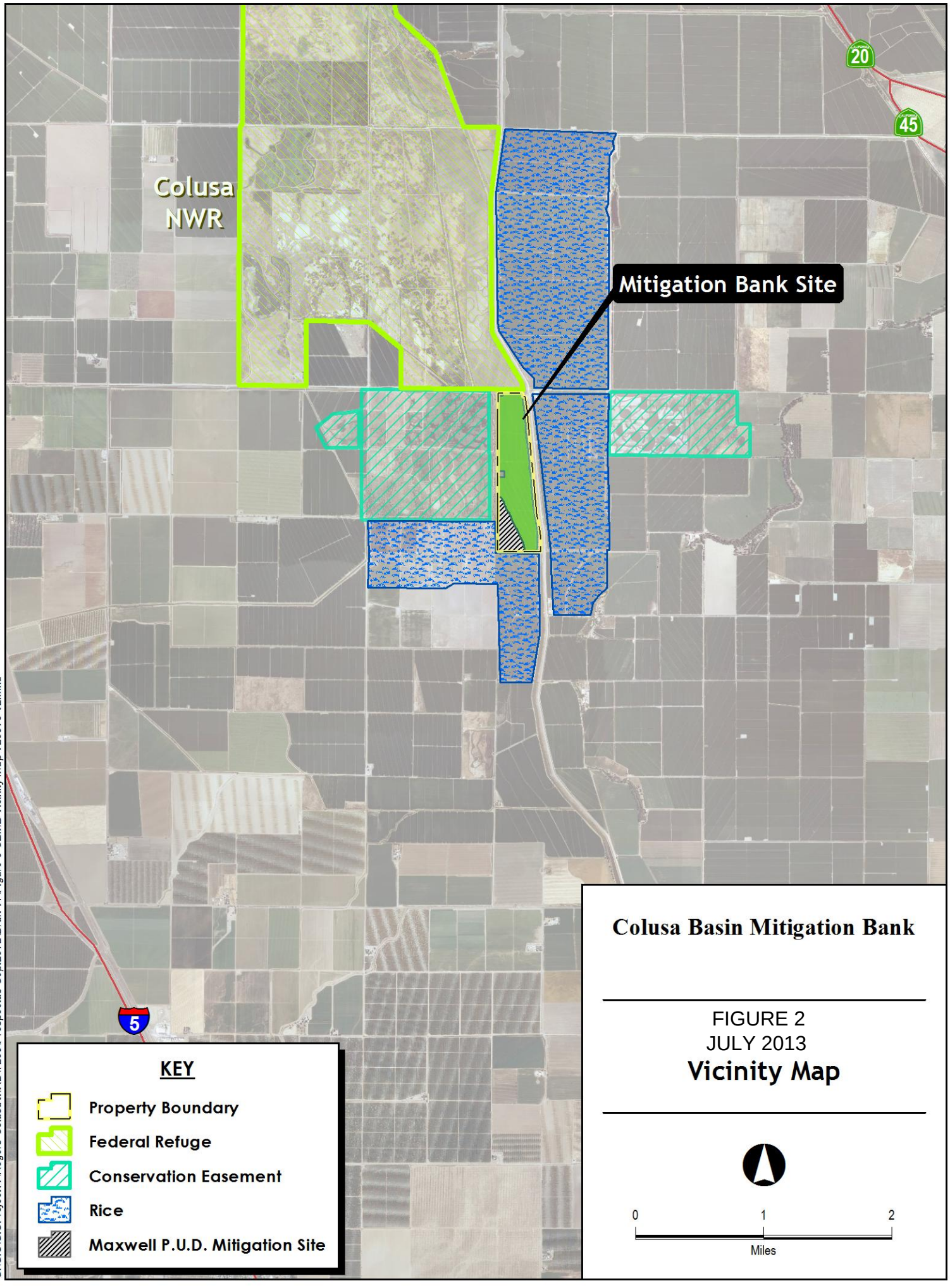
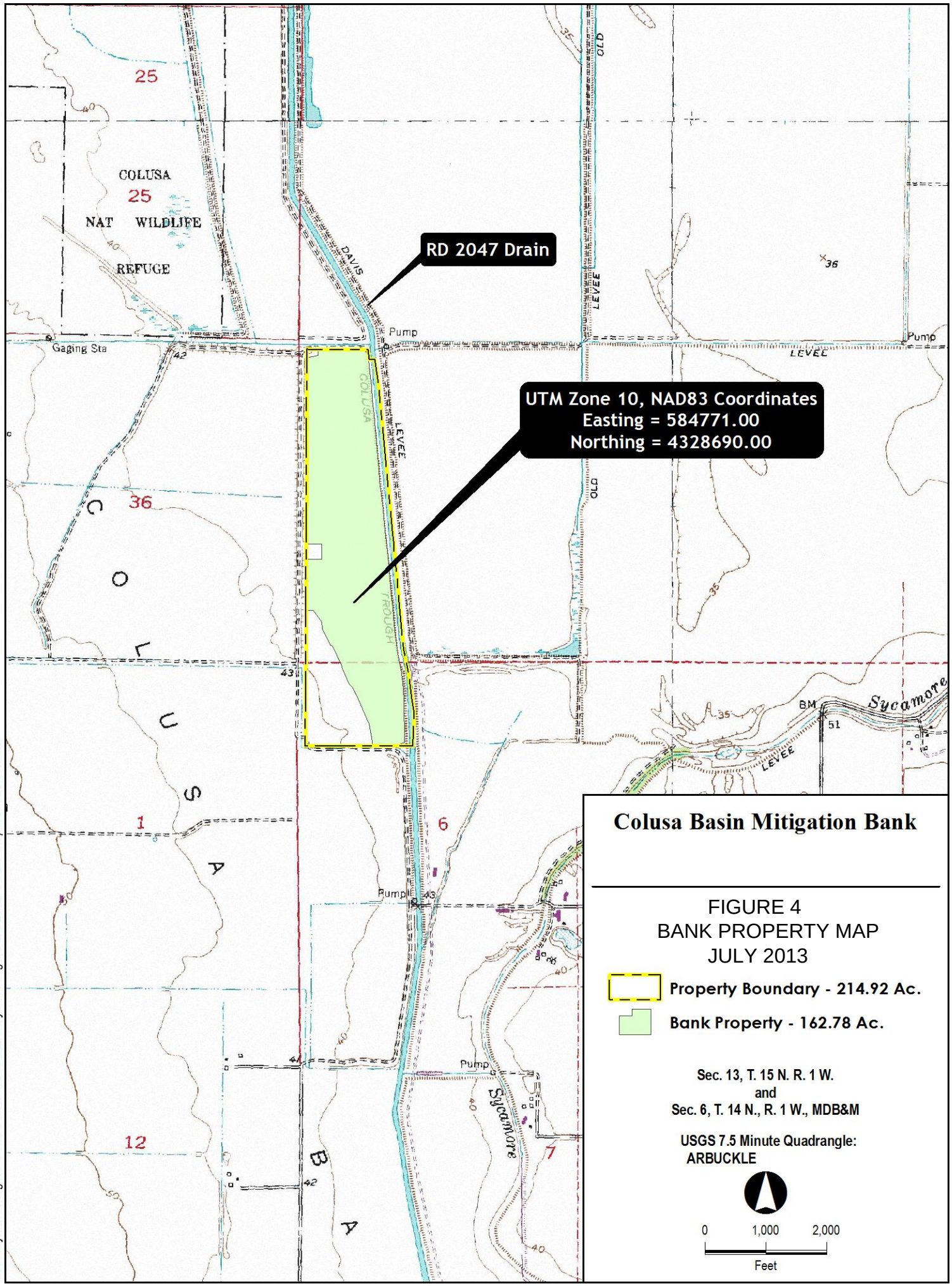

Colusa
NWR
Mitigation Bank Site
20
45
5
KEY
Property Boundary
Federal Refuge
Conservation Easement
Rice
Maxwell P.U.D. Mitigation Site
Colusa Basin Mitigation Bank
FIGURE 2
JULY 2013
Vicinity Map
0
1
2
Miles
G:\GIS\GISProject11\Rogers Colusa\MXD\1209\Prospectus Sept2012\Draft v1\Figure 3 CBMB Vicinity Map 120918 v2.mxd

G:\GIS\GIS\Project11\Rogers Colusa\MXD\1207\Prospectus\Figure 9 CBMB Current Aerial Photo 120724 v1.mxd



Colusa Basin Mitigation Bank

FIGURE 4
BANK PROPERTY MAP
JULY 2013

Property Boundary - 214.92 Ac.

Bank Property - 162.78 Ac.

Sec. 13, T. 15 N. R. 1 W.
and
Sec. 6, T. 14 N., R. 1 W., MDB&M

USGS 7.5 Minute Quadrangle:
ARBUCKLE

0 1,000 2,000
Feet

GISProject11\Rogers Colusa\MXD\1307\BEI July2013\Figure 2 CBMB USGS Map 130723 v1.mxd

E Soils

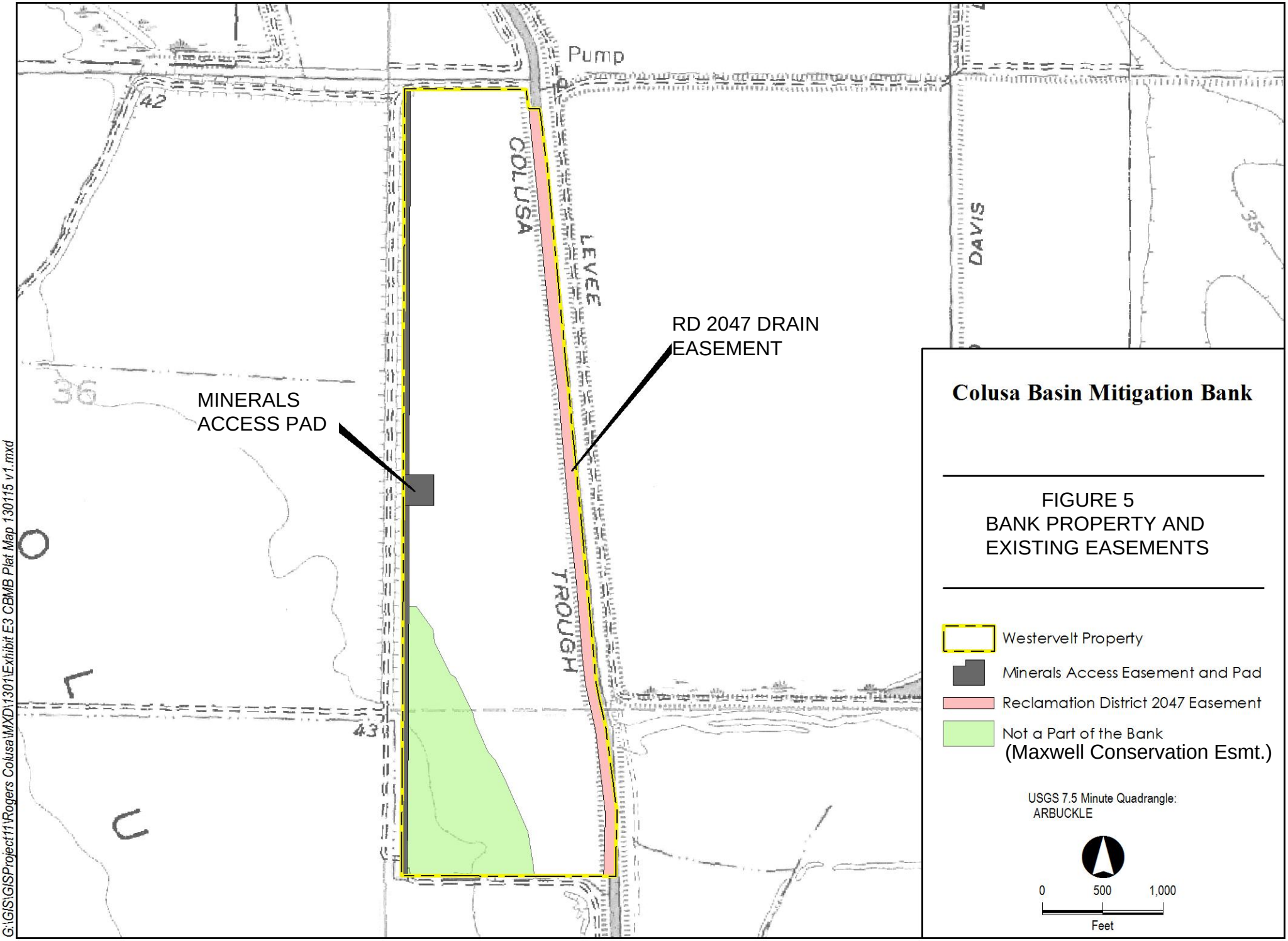
The Colusa County USDA Soil Survey lists Willows silty clay, frequently flooded (map unit 104) as the dominant soil type of the Bank Property. The soils report for the Bank Property is found in **Appendix C** to Exhibit C-1 Development Plan.

F Existing Easements and Mineral Rights

Reclamation District 2047 retains an easement for maintenance of the RD 2047 Drain that encompasses the eastern edge of the property (the west bank of the Drain). The boundary of the Reclamation District 2047 easement within the Property lies within the farm road bordering the easternmost edges of the existing farm fields. This entire area is excluded from the Bank and Bank credit calculations. When WES purchased the Property, mineral rights had been severed from fee-title ownership of the parcels. One of the previous owners of the Property, Sycamore Minerals Management, retains the mineral rights and has reserved a pad and access way on the western edge of the Bank Property that would allow for a drill site if future deposits of oil or natural gas are discovered. This easement area is excluded from the Bank and Bank credit calculations. WES has researched the minerals history of the Property and has found that three individual gas/oil wells were drilled below the surface of the Property from beyond the Property boundary. These drilling locations are all located behind the DWR levee across the RD 2047 Drain and the wells were drilled diagonally to locations below the Bank Property to depths of between 7,000 and 8,000 feet. None of the three wells ever produced any oil or gas and all three wells have been filled and capped. Further development of oil and gas resources below the Bank Property is highly unlikely in light of this drilling history. Although the mineral rights holders retain the access reservation to build a road and pad within the Property, it is likely any further attempts to access oil and gas will once again be made from behind the protection of the DWR levee (**Figure 5**).

G Adjacent Land Uses

The Property is surrounded on all sides by dirt roads and drainage and irrigation canals. Adjacent land use to the south is rice production, and managed wetlands can be found on the west and north borders of the Property. The surrounding managed wetlands and rice fields are seasonally flooded habitats in the winter for waterfowl hunting. The RD 2047 Drain is immediately to the east of the Property.


Pump
COLUSA
LEVEE
DAVIS
RD 2047 DRAIN
EASEMENT
MINERALS
ACCESS PAD
TROUGH
42
36
43
35
Colusa Basin Mitigation Bank
FIGURE 5
BANK PROPERTY AND
EXISTING EASEMENTS
Westervelt Property
Minerals Access Easement and Pad
Reclamation District 2047 Easement
Not a Part of the Bank
(Maxwell Conservation Esmt.)
USGS 7.5 Minute Quadrangle:
ARBUCKLE
0
500
1,000
Feet
G:\GIS\GISProject11\Rogers Colusa\MXD\1301\Exhibit E3 CBMB Plat Map 130115 v1.mxd

III Habitat and Species Descriptions

A Biological Resources Survey of Bank Property

The Bank Property is located within the Colusa Basin Population area of the Northern Sacramento Valley GGS Recovery Unit and is adjacent to the Colusa National Wildlife Refuge, which supports a well-documented population center for GGS (Wylie, et al 2010). In 1997 alone, Wylie captured 53 individuals within Colusa National Wildlife Refuge as part of the above-referenced study. Within Tract 27 one and a half miles northwest of the Bank Property, a total of 718 snakes (464 females and 234 males) were captured (included 425 recaptures or sighted between May of 1996 and September of 2004. GGS were observed and documented on the Bank Property in 2011 by Eric Hansen (see Exhibit H-2, GGS Survey Results). Other documented GGS occurrences are located within waterways both upstream and downstream of the Bank Property along the RD 2047 Drain (see Exhibit H-4 CNDDB Search Results).Protection of habitat in the Colusa Basin where numerous GGS have been documented is a priority one recovery task within the GGS Draft Recovery Plan (USFWS 1999, unpublished).

The Bank Property is immediately to the west of, and adjacent to, the RD 2047 Drain. The drain provides GGS habitat connectivity between the Bank Property and GGS occurrences to the north as well as to conserved habitats with GGS occurrences along the drain to the south of the Bank Property. The RD 2047 Drain itself may also provide suitable GGS habitat. The east side of the RD 2047 Drain contains a high levee that remains above flood level during high rainfall events. Over-wintering GGS from interior bypasses appear to rely on the levees as refuge during periods of inundation. Accordingly, GGS occupying the west side of the RD 2047 Drain or dispersing along the 2047 levee may colonize the adjacent habitat within the Bank Property. The RD 2047 Drain and associated habitats provide a suitable aquatic movement corridor between the conserved habitat areas around the Colusa Refuge population of GGS, the Bank Property, and existing GGS populations downstream.

The surrounding lands provide functional GGS habitat values and connectivity between the Bank Property, nearby conserved lands, and rice foraging habitat (**Figure 2**). Lands bordering the Bank Property to the west are protected from development by Wetlands Reserve Program Federal perpetual conservation easements, and are managed to provide habitat for a variety of wetland-dependent species, including GGS. Protected lands to the east of the Bank Property include Conservation Easements held by the State of California Wildlife Conservation Board under the Inland Wetland Conservation Program. Protected lands to the north of the Bank Property are within the fee-title boundary of the Colusa National Wildlife Refuge, held and managed for wetland-dependent species by the US Fish and Wildlife Service. Colusa National Wildlife Refuge currently manages several wetland units specifically for GGS and is developing a new GGS mitigation project north of the Bank Property.

The other adjacent land use is rice production. The adjacent rice fields provide suitable habitat features for foraging GGS and expand the potential migration corridor between the Bank

Property and habitats beyond the constraints of the channelized waterways.

There are numerous species associated with the upland and wetland habitat features on the Bank Property. Bird species include white-faced ibis (*Plegadis chihi*), great egret (*Casmerodius albus*), great blue heron (*Ardea herodias*), marsh wren (*Cistothorus palustris*), red-winged blackbird (*Agelaius phoeniceus*), tricolored blackbird (*Agelaius tricolor*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), ring-necked pheasant (*Phasianus colchicus*), mallard (*Anas platyrhynchos*), cinnamon teal (*Anas cyanoptera*), ruddy duck (*Oxyura jamaicensis*), Canada goose (*Branta canadensis*), snow goose (*Chen caerulescens*), Ross's goose (*Chen rossii*), and other waterfowl, wading birds, and migratory shorebirds. Mammal species include ground squirrels, coyote (*Canis latrans*), raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), muskrat (*Ondatra zibethicus*), beaver (*Castor canadensis*), black-tail deer (*Odocoileus hemionus*), and various small rodent species.

B Summary of Bank Property Development Plan

The goal of the habitat development activities is to restore a complex of wetlands and uplands in place of the existing rice fields. In addition to creating wetlands with natural hydrology, ("Seasonal Wetlands") this plan provides all of the necessary habitat requirements for GGS including: (1) adequate water during the GGS's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails *(Typha* spp.) and bulrushes, (*Schoenoplectus acutus*) for escape cover and foraging habitat during the active season; (3) grassy banks and openings in waterside vegetation for basking sites to thermo-regulate; and (4) higher elevation uplands for cover and refuge from flood waters during the GGS's dormant season in the winter.

Habitat types that will be developed on the Bank Property were defined in the Development Plan and include Open Water, Perennial Marsh, Semi-Permanent Marsh, Uplands, and Seasonal Wetlands. To create the proposed habitat features, portions of the existing rice field will be de-leveled to create the habitat complex. Channels in the managed-marsh will be cut and the fill will be used to create berms and mounds. Berms are planned to be no greater than 3-feet above existing field elevations. Upland refugia mounds will be up to 6 feet high and are all located outside of the designated floodway. Existing and new water control structures will be used to adjust the water level in the managed marsh GGS habitat. Approximately 121 acres of GGS Habitat will be developed in a matrix consisting of approximately 17 acres of Open Water, 41 acres of Perennial Marsh, 51 acres of Semi-permanent Marsh, and 12 acres of Uplands.

Approximately 42 acres of Seasonal Wetlands Palustrine Emergent Marsh Persistent Seasonally Flooded– PEM1C) that rely on precipitation and temporary inundation from floodwaters for their hydrology will be restored in the lowest-lying areas of the Bank Property closest to the RD 2047 Drain. The drains for the GGS wetlands will be dug below the ground level of the Seasonal Wetlands, and the hydrology of the Seasonal wetlands will be derived from precipitation and temporary inundation from floodwaters. These wetlands will contain an array of grass-like plants such as cattails, bulrushes, sedges (*Carex* spp.), true grasses such as swamp timothy (*Crypsis schoenoides*), rabbitsfoot grass (*Polypogon monspeliensis*), creeping wild rye (*Elymus triticoides*), and broadleaf emergent such as dock (*Rumex* spp.), smartweed (*Polygonum* spp.), fat hen (*Atriplex triangularis*), and saltmarsh aster (*Symphotrichum subulatum*). **Figures**

6 and **7** illustrate the location of restored habitat features.

C Endangered and Threatened Species

Several endangered, threatened, and rare species are known to occur in the vicinity of the Bank Property (CNDDB 2007see Exhibit H-4 CNDDB, CNPS and USFWS search results) but only GGS have been documented as occurring on or near the Bank Property. Protocol-level surveys have detected GGS in irrigation ditches and canals adjacent to the site (Exhibit H-2 GGS Survey Results). Other special-status wildlife species that may occur on the Bank Property and be reported by the CNDDB include the Aleutian cackling Canada goose (*Branta hutchinsii leucoparia*), white-faced ibis (*Plegadis chihi*), tri-colored blackbird (*Agelaius tricolor*), hoary bat (*Lasiurus cinereus*), Swainson's hawk (*Buteo swainsoni*), western red bat (*Lasiurus blossovillii*), and the Yuma myotis (*Myotis yumanensis*). All of these species may utilize the Bank Property for foraging but none have been determined to breed in habitat present on the site.

The Bank Property does not support suitable habitat for any of the special-status plants reported from the region by the CNDDB., USFWS, or CNPS (BEI **Exhibit H-4**).

IV Management and Monitoring

The overall goal of long-term management is to maintain the long term viability of the Bank Property for providing natural wetland functions and GGS habitat functions, which will often coincide and complement each other. The routine monitoring and maintenance tasks included within this Management Plan are intended to assure the viability of the Bank Property in perpetuity.

The approach to the long-term management of the Bank Property's biological resources is to conduct annual site examinations and periodic monitoring of selected elements to determine stability and ongoing trends of the preserved and restored wetlands and habitats provided for GGS. Annual monitoring will assess the Bank Property's condition, invasion of exotic or non-native species, vegetation densities, infrastructure condition, and/or other aspects that may warrant management actions. While it is not anticipated that major remedial actions will be needed, an objective of this Management Plan is to conduct monitoring to identify any issues that arise, and using adaptive management to determine what actions might be appropriate.

Adaptive management means an approach to natural resource management which incorporates changes to management practices, including corrective actions as determined to be appropriate by the Signatory Agencies in discussion with the Bank Manager. Adaptive management includes those activities necessary to address the effects of climate change, fire, flood, other natural events, or unforeseen future changes to the landscape. Before considering any adaptive management changes to the Management Plan, the Signatory Agencies will consider whether such actions will help ensure the continued viability of Bank Property's biological resources.

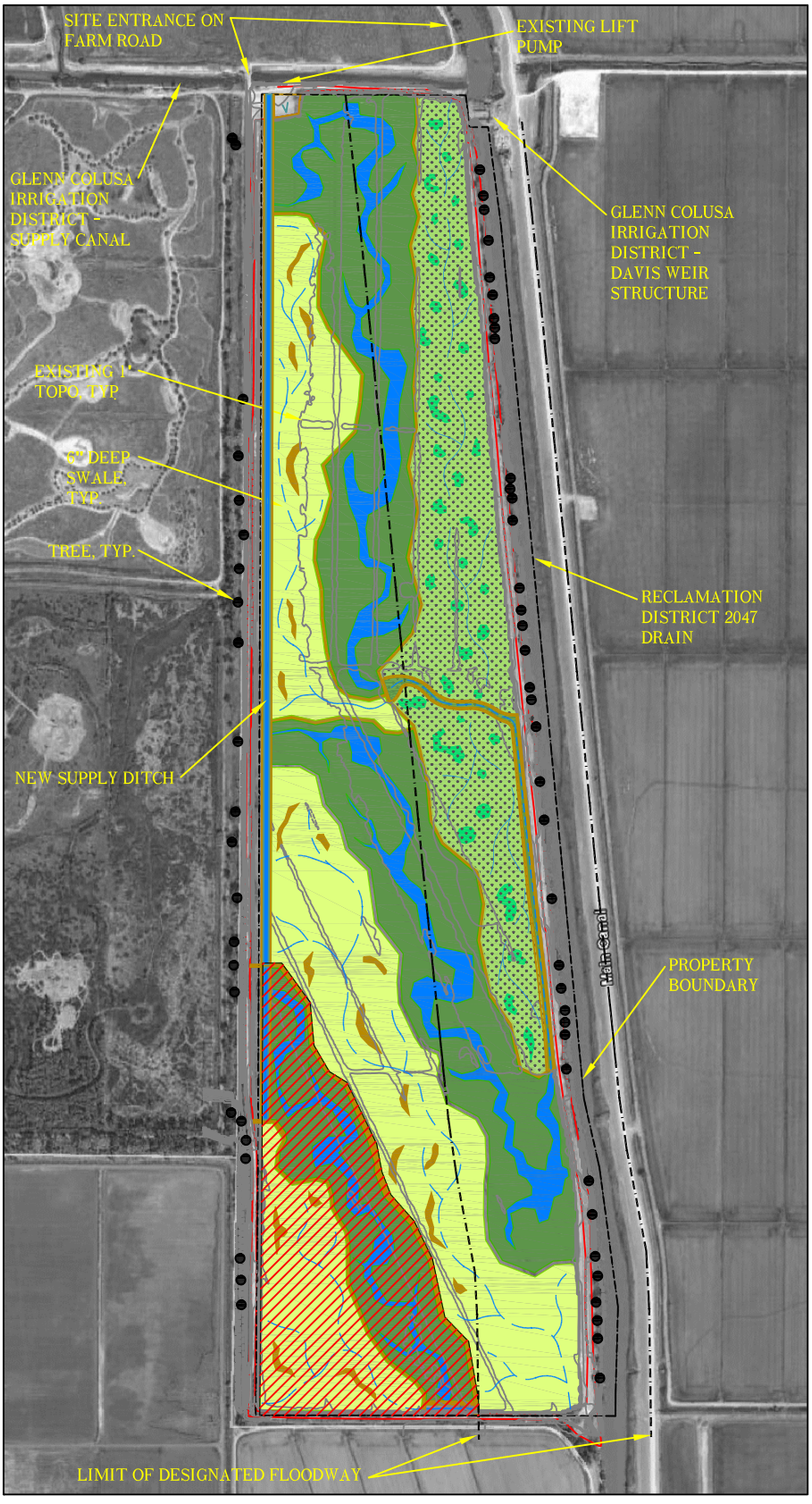
Colusa Basin Mitigation Bank

GIANT GARTER SNAKE HABITAT / WETLAND RESTORATION

COLUSA COUNTY, CALIFORNIA

NORTH

0 350 700



HABITAT RESTORATION LEGEND	
Item	**Description**
	Perennial Marsh
	Semi-Permanent Marsh
	Open Water Within Perennial Marsh
	Seasonal Wetlands - (404/GGS Wetlands)
	Uplands
	1' Deep Pothole Within Seasonal Wetland

MAXWELL P.U.D MITIGATION SITE

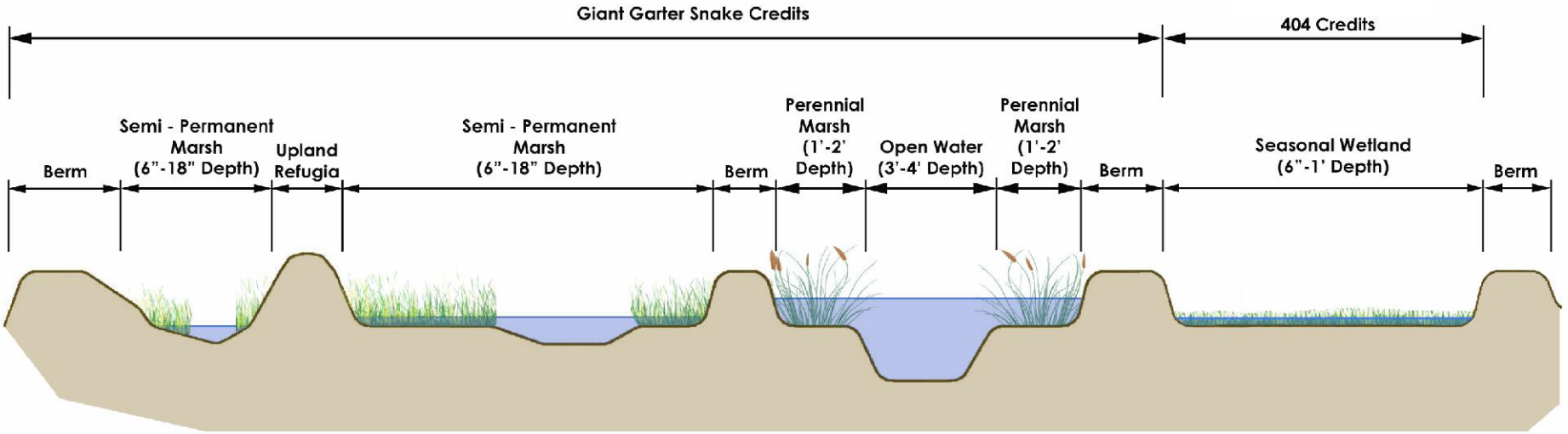
FIGURE 6 BANK CONCEPTUAL PLAN
JULY 2013

Berms and Refugia

Semi-Permanent Marsh

Perennial Marsh and Open Water

Seasonal Wetland



Colusa Basin Mitigation Bank

FIGURE 7
JULY 2013

Typical Habitat Cross-section

Not To Scale

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A. Habitat Management and Species Elements

The restored habitat types at Bank Property include 1) Seasonal Wetlands, 2) Open Water, 3) Perennial Marsh, 4) Semi-Permanent Marsh, and 5) Uplands. Restoration activities for the Bank Property habitat types are described in detail in the Habitat Development Plan and in the notes section and detail sections of the restoration plans. Management objectives and tasks are described below for each habitat type and species.

The Bank Manager shall implement the following:

Element A.1 Seasonal Wetlands (Waters of the US including Wetlands)

Objective: Monitor, conserve, and maintain the Bank's Waters of the U.S., including wetlands. Limit any impacts to Waters of the U.S. from vehicular travel or other adverse impacts.

Task1: Conduct Monthly and Annual Inspections

Monthly site visits will occur to monitor the conditions of the Bank during the wet season (normally considered November through May). During at least one of the surveys (defined as the Annual Walk-through Survey) qualitative monitoring of the general condition of these habitats will be conducted. General topographic conditions, hydrology, general vegetation cover and composition, invasive species, erosion, will be noted, evaluated and mapped during a site examination in the spring. Notes to be made will include observations of species encountered, water quality, general extent of wetlands, and any occurrences of erosion, and weed invasion.

Task 2: High-Resolution Aerial Photograph

Acquire an aerial photograph of the Bank Property every ten years. A baseline of low-level aerial photographs will be taken during the Interim Management Period to track habitat development, and monitor hydrology of the Bank. Timing of the aerial photos will be targeted in late spring, following drawdown of Seasonal Wetlands.

Task 3: Annual Walk-Through Survey

One annual walk-through survey will be conducted to qualitatively monitor the general condition of these habitat features. Visually observe for changes to occupied habitat, such as changed hydrology or vegetation composition. Record any observed changes.

Element A.2 Giant Garter Snake Habitat

Objective 1: Monitor, conserve, and maintain the Bank Property's wetlands, uplands, and their associated habitat features for GGS. Limit any impacts to GGS and GGS habitats from vehicular travel or other adverse activities.

Task 1: Annual Walk-Through Survey

One annual walk-through survey will be conducted to qualitatively monitor the general condition of these habitat features. Visually observe for changes to occupied habitat, such as changed hydrology or vegetation composition. Record any observed changes.

A portion of the Bank Property is being established to compensate for impacts to GGS and its habitat, as well as contribute to the recovery of the species. GGS surveys are scheduled to begin following habitat restoration and will continue through habitat establishment, and every five years after final habitat performance standards are met.

Management activities based on the most current GGS and habitat management practices will be reviewed to maximize the Bank Property value for GGS. Any new techniques that can be reasonably implemented within constraints of the Bank Property (i.e, the restoration design, annual endowment funding, etc...) will be implemented.

Maintenance Precautions

Management and maintenance activities described in this Management Plan are covered by approval of the BEI and its attachments by the Signatory Agencies. To avoid impacts to GGS and minimize habitat disturbance, precautions will be implemented for all maintenance activities. These precautions are described below.

The following precautions will be implemented on all maintenance activities to avoid impacts to GGS and its habitat:

(1) channels/open water (channel) cleaning will not be conducted unless absolutely necessary;

(2) when channel cleaning is necessary, vegetation will be maintained on both sides of the greatest extent practicable, or if not possible to maintain vegetation on both sides of the channel, vegetation must always be maintained on one bank;

(3) movement of heavy equipment will be restricted to the perimeter berm with the dirt road to the greatest extent possible to minimize habitat disturbance;

(4) excavation activities will be conducted between May 1 and October 1 during the snake's active period, if excavation is needed outside of this window, the

Signatory Agencies must be consulted;

(5) before channels are excavated, the channel will be dried out for a minimum of two weeks before cleaning begins;

(6) annual maintenance activities along channels, such as mowing and disking, will maintain buffer strips of standing vegetation along the ditch;

(7) mowing herbaceous vegetation growing along berms from the top of the bank down to the water line will be avoided to greatest extent practicable except when management of noxious weeds is called for (note: additional precautions for ground-nesting birds are included under the maintenance elements of this Management Plan);

(8) if mowing is used beyond the top of the channel banks, the height of the vegetation after mowing will be at least 4 inches (note: additional precautions for ground-nesting birds are included under the maintenance elements of this Management Plan);

(9) use of aquatic herbicides to control aquatic vegetation will be minimized to the greatest extent practicable, and use shall be consistent with manufacturer's recommendations and all applicable laws and regulations;

(10) driving over or in close proximity to snakes that are observed on site will be avoided at all times.

At least once per year, the Monitoring Biologist will coordinate with the USFWS, CDFW and/or other species experts to discuss the current GGS research, management and regulations. The Monitoring Biologist will discuss the applicability of any new information to the Bank Property and if adaptive management needs to be considered. This coordination may occur through phone conversation, meeting, email, or other written correspondence.

Objective: Manage all habitat types represented within the GGS credited portions of the Bank Property to benefit all life stages of GGS including foraging, breeding, thermo-regulation, and aestivation.

Task: 2 Water Management

The Bank Manager will visit the Bank Property at least once a month (twice a month in summer) to maintain proper water depth. Proper water management should minimize the amount of active vegetation management required at the Bank Property. **Table 1** provides a general guideline for water level management for all wetland features. The depths are the basis for the design of the marsh habitat, while the dates are the basis for promoting development of target wetland

vegetation. Because water in the marsh habitats is lost to seepage, evapotranspiration (evaporation plus plant transpiration), and outflow, frequent water input may be needed to maintain water at design depths.

Table 1 Water Management Schedule

Wetland Habitat Type	Water Present	Water Depths (approx.)	Drawdown
Open Water	12 months	36 to 48 inches	Once in 5 years
Perennial Marsh	12 months	12 to 24 inches	Once in 5 years
Semi-Permanent Marsh	May 1 to Sept. 30, Intermittently	4 to 12 inches	April 1 to July 15

Complete draw-downs of selective open water and perennial marsh habitats will occur on a rotating basis every five to seven years to dry these areas out, manage vegetation, and recycle nutrients. These draw-downs should also decrease the opportunity for carp and predatory fish (such as largemouth bass) populations to establish at the Bank Property. During these draw-downs, sediment removal, or vegetation mowing or disking to eliminate vegetation encroachment on open water, may occur if necessary. The habitat complex will be drawn down in phases (i.e., only one management unit at a time) to ensure availability of flooded habitat during the maintenance period. The periodic draw-down task for GGS aquatic habitats at the Bank Property is conducted in order to germinate herbaceous growth and to eliminate predators from shallow flooded wetlands. Drawdowns in the Semi-Permanent Marsh occur during late March or April, and again after summer irrigations.

Task 3: Sediment Control.

Water supplied to the GGS aquatic habitats will have some suspended sediment; the natural accumulation of sediment plus the contribution of vegetative detritus will gradually diminish water depth throughout the open water and marsh habitat areas over time. It is expected that more than 10 or 15 growing seasons would occur before sediment accumulation is significant enough to have an observable effect on open water or marsh plain water depth (i.e., causing the encroachment of perennial marsh vegetation (cattails and tules) into open water or succession of perennial marsh vegetation into semi-permanent wetland habitat). Because the rate of sediment accretion in this habitat is expected to be very slow, sediment control will only be necessary every 15 or 20 years. Sediment will be removed with an excavator or scraper after complete de-watering. No temporary pads or fill areas are required for this action. When sediment control is needed the Bank Manager will make every reasonable effort to excavate only from the channel bottom, lifting spoils straight up, and placing them away from the marsh and banks. and onto the berms and upland areas. This maintenance activity will not result in the filling of any Waters of the US. Sediment removal will follow the GGS Maintenance Precautions listed above (beginning on page 18) to minimize the risk of GGS take.

Task 4: Vegetation Management.

Based upon the best professional judgment of the Bank Manager, portions of the Bank Property will be grazed, disked, or mowed to maintain basking areas for GGS and prevent excessive perennial marsh plant encroachment into Open Water and Semi-Permanent Marsh habitat areas. It is expected that portions of the Bank Property will be treated each year resulting in a mosaic of habitat that is optimal for GGS.

Several options are available to manage vegetation height, density, and arrangement within the GGS Habitats including grazing mowing and disking. Each year the Bank Manager (using best professional judgment) will select the option that has the least amount of impact to GGS and the highest probability of success. The Bank Manager will follow the GGS Maintenance Precautions listed above (page 16). It is expected mowing will occur once or twice a year on the perimeter berms depending on growing conditions and will typically occur prior to February 1 or after August 15, thus avoiding the primary nesting season for ground-nesting birds. If mowing or disking are necessary during the nesting season, then nest surveys will be conducted prior to commencing vegetation management activities.

No trees or woody vegetation will be planted in the uplands or wetlands, but woody vegetation may naturally establish itself along portions of the upland-wetland habitat edge. Within the upland portions of the designated floodway woody vegetation canopy cover will be limited to no greater than 50% of the area. The areas where trees will be allowed to naturally establish are defined in **Figure 8**. These are the only areas within the designated floodway portion of the Bank that woody vegetation will be allowed to establish. Techniques for managing vegetation height and woody vegetation include mowing, hand removal, grazing, and/or herbicide application.

Element A.3 "Non-listed" Wildlife Species

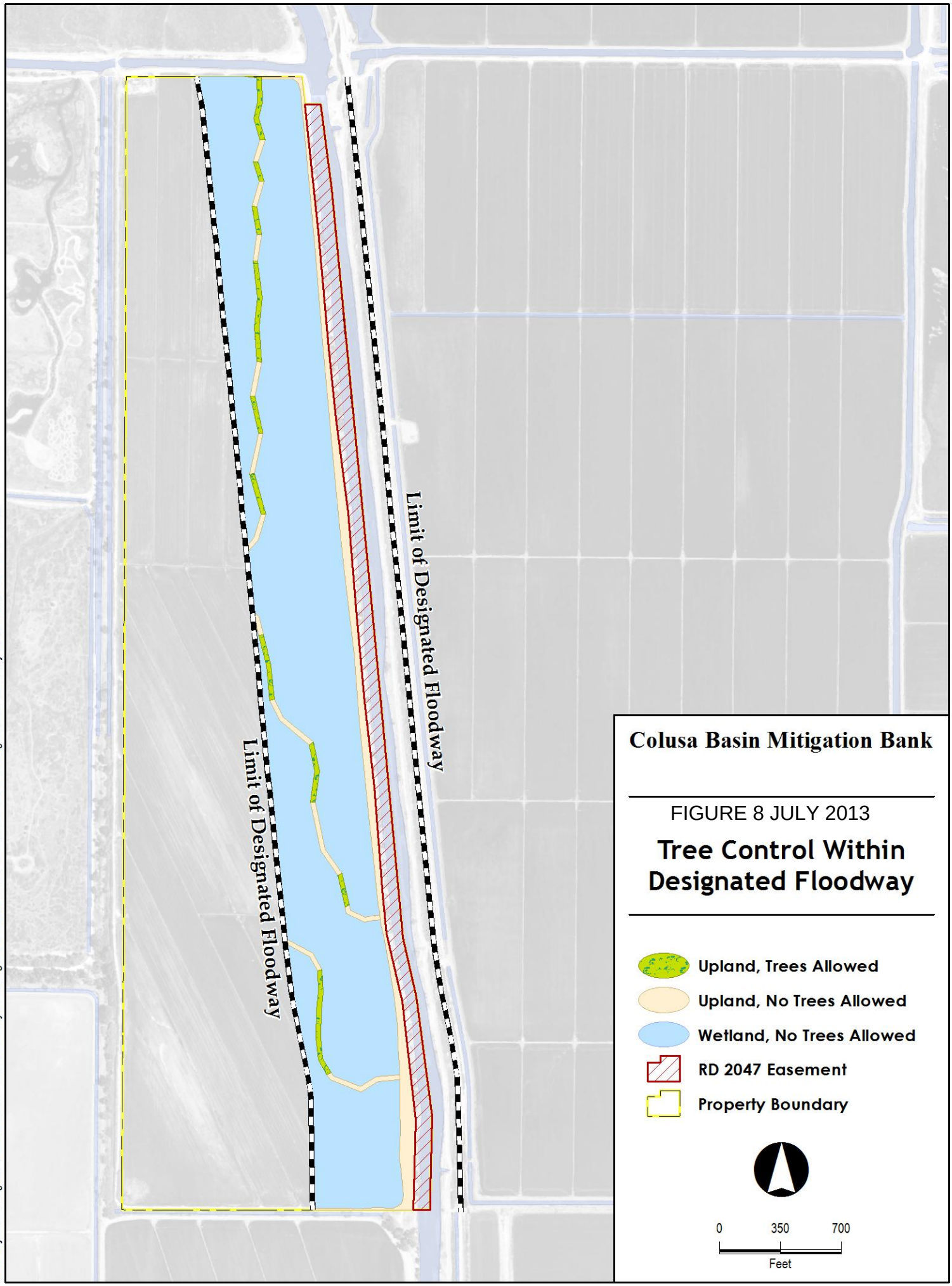
Objective: Monitor occurrence of wildlife species utilizing the Bank Property.

Task 1: Wildlife Surveys

During Monthly Inspections, walk-through surveys will be conducted to qualitatively monitor the wildlife species present. New or unusual occurrences will be noted and recorded for presentation in the annual report.

Element A.4 Non-native Invasive Species

Invasive species threaten the diversity or abundance of native species through



GISProject11\Rogers ColusaMXD\1307\BEI July2013\Figure 8 CBMB Tree Maintenaince in Designated Floodway Letter-size130717 v1.mxd

competition for resources, predation, parasitism, interbreeding with native populations, transmitting diseases, or causing physical or chemical changes to the invaded habitat. For the purposes of this Management Plan, plants and animals native to the Bank Property will be defined as those believed by the scientific community to have been present in northern Sacramento Valley prior to the settlement of Europeans.

Objective: Monitor and maintain control of non-native invasive plant species, including but not limited to noxious weeds that diminish site quality.

The following sources may be used for guidance on management of those species: The California Department of Food and Agriculture list of "noxious weeds" that are subject to regulation or quarantine by county agricultural departments the Jepson Manual (Baldwin,et.al., 2012) the University of California State Integrated Pest Management Program list of “Exotic and invasive pests and diseases that threaten California's agricultural, urban, or natural areas,” and the California Invasive Plant Council (CAL-IPC) List A and Red Alert Lists.

Task 1: Annual Survey of Invasive Plants.

Each year’s annual walk-through surveys (or a supplemental survey) will include a qualitative assessment (e.g. visual estimate of cover) of potential or observed noxious weeds or other non-native species invasions, occurring in either wetlands or uplands of the Bank Property. Actions to control invasive species will be evaluated and prioritized.

Task 2: Removal of Invasive Plants.

If necessary, exotic pest plants will be controlled by hand removal, mechanical equipment, biological controls, or herbicides. Upland areas may require control of invasive non-native plant species such as Himalaya blackberry (*Rubus armeniacus*), giant reed (*Arundo donax*), milk thistle (*Silybum marianum*), bull thistle (*Cirsium vulgare*), and yellow starthistle (*Centaurea solstitialis*). Invasive wetland plants may include water primrose (*Ludwigia hexapetala)* water hiacynth (*Eichhornia crassipes)* or Brazilian waterweed *(Egeria densa*) among others. Several options are available to manage invasive vegetation. The specific option each year will be selected by the Bank Manager using best professional judgment and accepted integrated pest management approaches to select the option that has the least amount of impact to GGS and the highest probability of success. This activity will be implemented as needed, and is not expected to be a significant issue once vegetative cover is established. For budgeting purposes, this activity is expected to occur every five years, but in actuality may occur only sporadically as nascent populations of invasive plant species are detected during routine management. Herbicide application will follow the recommendations of a California licensed pest control advisor familiar with managed marsh settings. Herbicides must be applied according to the label directions, and in accordance

with applicable federal, state, and local laws. Any use of herbicides will be described in detail in the Annual Report. The Bank Manager will follow the GGS maintenance precautions listed above.

Objective: Minimize predation on GGS by non-native predators.

Predation by native wildlife species is natural and acceptable at low levels, but predation by feral and domestic animals to any significant extent is unacceptable. The Bank Manager will coordinate with the local animal control agency for removal of any problem animal. If action to control feral or domestic animals is needed, funds will be provided from the Endowment Fund contingency to develop and pay for those actions.

Element A.5 Mosquito Abatement

Objective: Prevent conflicts between Bank Property management and mosquito abatement efforts

The Colusa Mosquito Abatement District ("District") currently operates a mosquito control program in the vicinity of the Bank Property. The Bank Manager will coordinate with the District to coordinate mosquito control efforts and minimize disturbance to GGS. Some methods, such as the addition of mosquitofish (*Gambusia affinis*) into the aquatic habitat, may even enhance the GGS prey base.

In addition, a number of the Bank Property design features, such as water level control, and interspersion of channels through the perennial marsh, should minimize mosquito breeding conditions or facilitate water level manipulation to disrupt the mosquito life-cycle. As part of habitat management for the Bank Property, the Bank Manager may net mosquito fish to relocate them from one habitat area to another.

Task 1: Coordination with the District.

Once per year, the Bank Manager will coordinate the District to discuss the Bank Property management practices.

Task 2: Water Management

Whenever feasible, the Bank Manager will manage water depth, in-flow, and out-flow, to create the maximum disruption for the mosquito life-cycle. This management activity should not increase disturbance to GGS or its habitat.

Task 3: Relocation of mosquitofish.

If it is determined to be necessary, mosquitofish may be moved to the Bank Property at the request of the District. In addition, unless determined to have a negative impact to GGS, the Bank Property is available to serve as a mosquitofish

fishery for other sites.

B Site Security and Public Access

The Bank Property is in a remote location, at least two miles from the nearest public road. Deep, steep-banked irrigation canals surround the Bank Property and their width and depth are not easily passable. The Bank Property is not directly adjoined by public roads, and is accessible by passing on farm roads and field borders linking this property to the public roads. These field access routes are gated to prevent easy access to the Bank.

Element B.1 Trash and Trespass

The intent of this mitigation bank is to maintain the habitats of the area in perpetuity. Pedestrian access to the Bank Property will be minimal due to its location remote from any public road. Trespass will be discouraged through signage, outreach activities, and education of adjacent landowners. To prevent management disruptions, and harm or harassment of GGS, Bank Manager will maintain perimeter drains and gates that prevent easy access to the site. The Bank Property should remain free of trash and other debris that harms the aesthetic value and ecological function of the site. Proper control of access and the remote location of the site will limit the amount of trash on Bank Property.

Objective: Monitor sources of trash and trespass.

Objective: Collect and remove trash, repair vandalized structures, and rectify trespass impacts.

Task1: Monthly Inspections

During each site visit, record occurrences of trash and/or trespass. Record type, location, and management mitigation recommendations to avoid, minimize, or rectify a trash and/or trespass impact.

Task2: Trash Removal

Collect and remove trash and repair and rectify vandalism and trespass impacts on site visits.

C Infrastructure and Facilities

Element C.1 Gates, and Signage

Objective: Monitor and maintain gates and signage.

The Bank Manager will monitor and maintain gates, and signage to prevent casual

trespass, allow necessary access, and facilitate grazing regime and management. Due to the Bank Property's remote location, surrounding ditches, and compatible adjacent land uses, fencing the perimeter of the Bank Property is not necessary. Temporary electric fencing will be used to control livestock within treated sections of the Bank Property if and when grazing is used for vegetation management.

In addition to providing gates at the access point, signs will be posted around the perimeter of the Bank Property notifying people of the site's status as a conservation property and warning them not to trespass.

Task1: Inspection of Gates and Signage

During each Monthly Inspection, record condition of gates and signage. Record location, type, and recommendations to implement repair or replacement, if applicable.

Task 2: Replacement of Gates

Replace gates as necessary to maintain security at the Bank Property.

Task 3: Replacement of Signage

Replace signs and posts as necessary to maintain security at the Bank Property.

Element C.2 Water Control System

The Bank Property lies within the boundaries of and is served by the Sycamore Mutual Water Company (the "District"). Water is delivered to the Bank Property by the District from their lift pump on the northern edge of the Bank Property. The District has the responsibility to maintain the ditches and pumps required to lift the water from the canal on the northern edge of the Bank Property into the distribution (header) ditch along the Bank Property's western border. The District is responsible for all costs associated with maintaining the canal and pump, including electrical fees.

Once the water enters the header ditch within the western edge of the Bank Property, it is the responsibility of the Bank Manager to distribute to the various habitat cells. The water control system for distribution of this water to the GGS aquatic habitats consists of the ditches, berms, and water control structures including flashboard risers, weirs, canal gates. Flashboard risers and canal gates and other water control facilities must be properly functioning for habitat management to be successful. All maintenance activities conducted on water control system will follow the previously detailed GGS avoidance measures.

Objective: Maintain functioning water control system for dependable water

supply to the restored habitat.

Task 1: Inspection of Water Control Structures

Each month, and incidentally during water management activities, the Bank Manager will inspect the water control structures and gates for signs of wear and tear, or vandalism. Berms will be inspected for excessive erosion or beaver and muskrat burrows. These inspections may happen concurrently with site visits conducted for other purposes (i.e., water depth maintenance, etc.).

Task 2: Maintenance of Water Control Structures

If the Bank Manager determines that a water control structure needs preventive maintenance or repair, the Bank Manager will complete the work within 60 days of the determination. It is expected that this task will require one day per year of the Bank Manager's time.

Task 3: Replacement of Water Control Structures.

Expected wear and tear, or the occasional act of vandalism, will require that water control structures and delivery appurtenances (screw gates, culverts etc.) are periodically replaced. If the Bank Manager determines a water control structure or appurtenance needs to be replaced or upgraded, the Bank Manager will complete the work within 60 days. It is expected that the boards of the flashboard risers will need to be replaced every five years. The concrete portion of the flashboard riser and canal gates will be replaced once every 40 years.

Task: 4 Berm repair.

Although the berms are designed to be permanent structures there may be some occasions in the future when repairs are necessary. Repair may be necessary when berm integrity has been compromised by erosion or excessive burrowing by fossorial mammals. When berm repair is necessary the adjacent aquatic habitat will be drawn down and all GGS maintenance precautions will be followed. To the extent feasible other marsh management activities requiring drawdown (e.g., mowing, disking, or grazing) will also be conducted at this time so that additional drawdowns are not required in the near future. As mentioned previously berm repair is expected to occur infrequently, however; for the purposes of budgeting this Management Plan assumes a total of 100 feet of berm repair is necessary every ten years.

Task 5: Muskrat and Beaver Control.

Muskrats and beavers may live in the adjacent canals, ditches close to the Bank Property. Like GGS, these species will likely colonize the Bank Property, but have the potential to damage water control structures, especially berms and

flashboard risers. These species burrow into berms, which eventually undermines these structures. Beavers also construct dams, and plug water control structures. Muskrats also burrow in levees and eat tule and cattail roots. If the Bank Manager determines that beavers or muskrats are negatively impacting the Bank Property habitat structure or water management regime, the Bank Manager may start a control program.

If necessary, the following tasks will be developed: (1) Obtain a depredation permit from CDFW; and (2) body-trapping or shooting beaver and muskrat, focused during the early portion of the breeding season, between February and the end of April. Trapping or shooting may occur other times of year, if necessary under appropriate depredation permits issued by CDFW. For budgeting purposes, this task is expected to occur once every ten years and funds for these activities will be provided from the Endowment Fund contingency.

D. Agricultural Use Element

Objective: Maintain grazing as a compatible use of the property and as a valuable cover management tool with in the Bank Property.

Wetlands and uplands in restored landscapes within the Central Valley of California are extremely productive, generating annual herbaceous growth that, unless managed, rapidly becomes dense with old and dead growth. Periodic grazing can reduce this tendency, and creates soil conditions that contribute to proper plant germination and a proper mix of open water areas and emergent vegetation. Income from a grazing lease can also offset some of the management costs of the Bank Property such as water supply, and weed control.

Task 1: Contract with Grazing Lessee.

The Bank Manager will contract with a grazing lessee for spring and summer grazing within the Bank Property at appropriate stocking rates and intervals adjusted for economic viability for the lessee and ecological benefit to the Bank Property.

E. Outreach and Recreational Use Elements

Element E.1 Hunting

Objective: Ensure hunting practices at the Bank Property are compatible with the land stewardship goals of maintaining and enhancing habitat for GGS and wetlands.

The hunting season for upland birds and waterfowl occurs during the winter dormancy period for GGS while GGS are estivating and below ground level. Waterfowl hunting

season typically begins the third weekend in October of each year extending through January of the same winter migratory season. Occasional conservation hunts are allowed to extend through February. Pheasant season typically runs from mid-November through December each year. The hunting program for the Bank Property will not be open to the general public. All hunters are guests of WES staff and will be informed of the presence of GGS and the necessary precautions to avoid disturbing or harming the species. All hunting at the Bank Property will follow CDFW and USFWS regulations including open seasons and species to be taken, daily limits, shooting hours, use of non-toxic shot, shell and gauge restrictions, and collection of spent shotgun hulls after each hunt.

Use of trained bird hunting dogs is encouraged as a conservation measure. Hunting dogs reduce the avoidable crippling and loss of birds and will be under the control of their owners at all times.

Up to two waterfowl hunting blinds may be located within the Bank Property. Blinds will accommodate up to 3 hunters each (approximately 3 feet wide by 9 feet long) and may be constructed of wood or metal frames covered with native materials. The blinds will be temporary in nature (may be relocated, if necessary) and will likely be located on the edges of low islands within the Semi-Permanent Marsh units. These blinds may have ancillary value as GGS basking sites for thermal regulation in marsh areas.

WES staff will make sure all hunters have a valid hunting license, and are aware of the purpose of the Bank Property and the necessary precautions while on the site. Hunting activities are funded by each individual hunter, and are not funded out of the long-term management endowment.

Element E.2 Educational and Scientific Use

Due to the remote location of the Bank Property, currently, no education or interpretive program is planned at the Bank Property. However, at the discretion of the Bank Manager and with permission of the Signatory Agencies, access can be provided for educational and scientific opportunities. These opportunities include public or private school classes, boy scout, girl scout, Y.M.C.A., or other youth group educational visits and research. Educational visits by school age children will be limited to 30 visitors per tour. These opportunities will not be funded out of the long-term management endowment. Property Individuals or groups using the Bank Property for educational purposes will coordinate their use with the Bank Manager. If the educational activities will be passive in nature, such as an occasional walk through the Bank Property to discuss plants and animals of the Bank Property habitats, then the consent of the Bank Manager is sufficient. If active use of the Bank Property is proposed, or regular, but passive use of the Bank Property is proposed, review and approval by the Signatory Agencies is required. To avoid repeated inquiries with the Signatory Agencies, a use plan could be developed by the interested organization for a one-time approval. Interpretive trails and benches are not proposed on the Bank Property.

Objective: Support educational and scientific use of the Bank Property to

increase understanding of the value of habitat and management for GGS.

Task1: Coordination of Educational Site Visits

The Bank Manager will coordinate and lead educational or interpretive site visits, as necessary.

F Biological Monitoring Elements

Element F.1 Giant Garter Snake

Objective: Determine GGS occupancy at the Bank Property.

To assist with adaptive management, the Monitoring Biologist or qualified contractors will regularly monitor the occurrence of GGS at the Bank Property. Monitoring efforts can provide information about the efficacy of the Bank Property design or a particular management action.

The Monitoring Biologist will review results of the GGS surveys with the Signatory Agencies. An increase or decrease of GGS occurring at the Bank Property may not be related to the Bank Property design or management. Changes in regional land use, disease, or climate conditions, or other stochastic events may also cause overall fluctuations in population size or distribution. Review the Bank Property monitoring data with data from other GGS monitoring efforts will help determine if the results are site-specific or indicative of a range-wide change.

Task1: Quantitative GGS Monitoring

The Bank Manager will monitor GGS at the Bank Property every five years in perpetuity. GGS monitoring will utilize sampling methods tailored towards gathering information on GGS abundance, demographics, habitat selection and spatial distribution within the site. Data gathered will be compatible with ongoing population and habitat utilization modeling efforts currently being developed throughout the range of the species by Eric Hansen, as well as, the US Geological Survey. In general, this monitoring approach will involve establishing up to ten 5-trap lines randomly distributed within each habitat type on the site (i.e., open water, permanent marsh, semi-permanent marsh, and perimeter drains). Traps will be deployed three times each season for a total of 10 days for each trapping event. The actual number of traps and their placement will be determined prior to the onset of monitoring through evaluation of site characteristics and previous results of other sampling efforts utilized to develop the species modeling efforts.

Element F.2 Vegetation (Seasonal Wetlands and GGS Habitats)

Objective: Monitor vegetation structure and composition at the Bank Property.

Vegetation structure is a key component of each habitat type. Vegetation monitoring is intended to be of a general nature to determine if the desired plant species and associated habitat features are persisting under the current management practices.

Task 1: Quantitative Vegetation Survey

The Bank Manager will monitor vegetation and map the extent of Seasonal Wetlands and GGS habitats within the Bank Property every five years. As part of vegetation monitoring a low-level aerial photograph will be taken of the Bank Property in late-spring or summer to document vegetation growth within the Bank Property habitats. For each field, the Monitoring Biologist will conduct a relevé plot (Mueller-Dombois and Ellenberg 1974) within each plant community identifying all plant species, and estimating percent cover of each plant species present. Monitoring will occur in the late-spring or summer of each year in which GGS monitoring occurs (i.e., every five years). Vegetation communities and seasonal wetland extent will also be mapped and quantified thorough aerial photograph interpretation.

Task 2: Annual Photo Documentation

The Bank Manager will establish permanent photopoints and prepare a site map showing the locations and direction of view. A total of not less than 5 sites within the restored Seasonal Wetlands and not less than 5 sites within the GGS Habitats, will be identified and permanently marked in the field during Interim Management Period. Photos will be taken in late spring after Seasonal Wetlands have dried. Photos will be taken at least every five years from the beginning of the long-term management period.

G. Reporting and Administration

Element G.1 Annual Report

Objective: Provide annual report that addresses all management and monitoring tasks conducted and general site conditions to the Signatory Agencies, and any other appropriate parties.

The reporting period will be from September 1 of each year through August 30th of the following year. The annual report will be due October 30th each year. This reporting period and due date will allow for inclusion of hydrological monitoring of the Seasonal Wetlands, which takes place in late winter and spring, vegetative surveys, which take place in early summer, as well as any GGS surveys that may take place during June, July, and August.

Task1: Annual Report

The Bank Manager will prepare an annual report including a summary, and circulate the report to the Signatory Agencies, and other parties by October 31 of each year.

The Annual Report will include, at a minimum, the following components:

- A description of funds received and expended for management of the Bank Property during the previous year
- Status of biological resources on the Bank Property
- Results of biological monitoring or studies conducted on the Bank Property
- Description of all management actions taken on the Bank Property
- Descriptions of any problems encountered in managing the Bank Property
- Description of anticipated management actions for the coming year including any habitat enhancement measures deemed to be warranted
- Description of any changes in the monitoring or management program that appear to be warranted based on monitoring results to date

V Transfer, Replacement, Amendments, and Notices

A Transfer

Any subsequent transfer of responsibilities under this Management Plan to a different Bank Manager shall be requested by the Bank Manager in writing to the Signatory Agencies, shall require written approval by the Signatory Agencies, and shall be incorporated into this Management Plan by amendment. Any subsequent Property Owner assumes the Bank Manager responsibilities described in this Management Plan and as required in the Conservation Easement, unless otherwise amended in writing by the Signatory Agencies.

B Replacement

If the Bank Manager fails to implement the tasks described in this Management Plan and is notified of such failure in writing by the Signatory Agencies, the Bank Manager shall have 90 days to cure such failure. If failure is not cured within 90 days, the Bank Manager shall meet with the Signatory Agencies to resolve the failure. Such meeting shall occur within 30 days or a longer period if approved by the Signatory Agencies. Based on the outcome of the meeting, the Signatory Agencies may request, in writing, a replacement Bank Manager by amendment of this Management Plan. If Bank Manager fails to designate a replacement Bank Manager, then such public or private land or resource management organization acceptable to the Signatory Agencies and Property Owner may enter onto the Bank Property in order to fulfill the purposes of this Management Plan.

C Amendments

The Bank Manager along with the Signatory Agencies may meet and confer from time to time,

upon the request of any one of them, to discuss how the Management Plan could be revised to better meet the management objectives and preserve the habitat and conservation values of the Bank Property. Any proposed changes to the Management Plan shall be discussed with the Signatory Agencies, and the Bank Manager. Any proposed changes will be designed with input from all parties. Amendments to the Management Plan shall be approved by the Signatory Agencies in writing and shall be implemented by the Bank Manager.

If the Signatory Agencies determine, in writing, that continued implementation of the Management Plan would jeopardize the continued existence of a state or federally listed species, any written amendment to this Management Plan, determined by Signatory Agencies as necessary to avoid jeopardy, shall be a required management component and shall be implemented by the Bank Manager.

D Notices

Any notices regarding this Management Plan shall be directed as follows:

Bank Manager and Property Owner

Westervelt Ecological Services
600 North Market Blvd. Suite 3
Sacramento, CA 95834
Telephone: (916) 646-3644
Fax: (916) 646-3675

IRT, BEI Signatory Agencies:

US Army Corps of Engineers, Sacramento District
1325 J Street, Room 1480
Sacramento, CA 95814
Attn: Chief, Regulatory Section
Telephone: (916) 557-2520
Fax: (916) 557-6877

U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105
Attn: Director, Water Division
Telephone: 415-947-8707
Fax: 415-947-3549

United States Fish and Wildlife Service
Sacramento Field Office
2800 Cottage Way Room 2605
Sacramento, CA 95825

Attn: Field Supervisor
Telephone: (916) 414-6600
Fax: (916) 414-6712

California Department of Fish and Wildlife
Region 2 Office
1701 Nimbus Road
Rancho Cordova, CA 95670
Attn: Regional Manager Department of Fish and Wildlife

VI Funding and Task Prioritization

A Funding

The attached Long-Term Management Endowment Analysis summarizes the anticipated costs of long-term management for the Bank Property. The total Endowment required for management of the Bank Property with a 5% contingency and current annual estimated capitalization rate of 3.5% is $**685,777.** The National Fish And Wildlife Foundation will hold the Endowment Fund endowment principal and interest monies in a dedicated account, which consists of monies that are paid into it in trust pursuant to law, and with interest earned dispersed to fulfill the purposes for which payments into it are made. These interest monies will fund the long-term management, and monitoring activities on the Bank Property in a manner consistent with this Management Plan.

B Task Prioritization

The Bank Manager is only responsible for completing management tasks detailed in this plan and commensurate with funding available from the Endowment. If insufficient funding appears likely to affect the Bank Manager's ability to implement the management tasks as described, the Bank Manager along with the Signatory Agencies shall discuss task priorities and funding availability to determine which tasks will be implemented. In general, tasks are prioritized in this order: 1) required by a local, state, or federal agency; 2) tasks necessary to maintain or remediate habitat function; and 3) tasks that monitor resources, particularly if past monitoring has not shown downward trends. Equipment and materials necessary to implement priority tasks will also be considered priorities. Final determination of task priorities in any given year of insufficient funding will be determined in consultation with the Signatory Agencies, and as authorized by the Signatory Agencies in writing.

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California Department of Fish and Game (CDFG). 2013 California Natural Diversity Database. Computer file.

Mueller-Dombois D.R., Ellenberg, H. 1974. Aims and methods of vegetation ecology. Wiley, New York..

Reed, P. B. Jr. 1988. National list of plant species that occur in wetlands: California (Region 0). (Biological Report 88 [26.10].) U.S. Fish and Wildlife Service. Fort Collins, CO.

U.S. Fish and Wildlife Service. 1999. (unpublished) Draft Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*). Portland, Oregon. ix + 192 pp.

Wylie, Glenn D, Michael L, Cassaza, Christopher J Gregory, and Brian J. Halstead 2010 U.S. Geological Survey, Western Ecological Research Center. Abundance and Sexual Size Dimorphism of the Giant Gartersnake (*Thamnophis gigas*) in the Sacramento Valley of California. Journal of Herpetology, Vol. 44, No. 1, pp. 94–103, 2010