RECLAMATION DISTRICT NO. 2039
235 East Weber Avenue
P.O. Box 1461
Stockton California 95201
(209) 465-5883
FAX (209) 465-3956

Steve Barsoom, President
James Barsoom, Trustee
Jaime DeFremery, IV, Trustee
Kurt Sharp, Trustee
Coleman Foley, Trustee

Dante John Nomellini, Secretary
Dominick Gulli, District Engineer

Department Of Water Resources (DWR)
1416 Ninth Street Room 1601
Sacramento CA 94236-0001
PO Box 942836

08/25/15

Phone: 916-651-0855
Fax: 916-651-9678

Attn: Felipe Garcia

email: afgarcia@water.ca.gov

Re: Reclamation District 2039 Upper Jones Tract
Work Agreement UJ 10-1.0
Scope of Work (SOW) Revision 2

Introduction:
The project defined in this Scope of Work (SOW) consists of upgrading the Upper Jones Tract Levee by: (1) Raising the Trapper Slough levee. The general scope of services is consistent to that outlined in the Proposal Solicitation Package (PSP) submitted to Department of Water Resources (DWR) as amended on April 7, 2010. Levee materials will be imported to the jobsite with trucks.

Personnel:

DWR Project Engineer:	Felipe Garcia
District Engineer:	Dominick Gulli PE, PLS
Project Engineer:	Green Mountain Engineering Dominick Gulli PE, PLS
District Secretary	Dante John Nomellini
CDFW Representative	Mark Philipp
Environmental Biologist	Moore Biological Diane Moore

Work and Services:
The work consists of levee repairs including crown widening and raising. The following are the procedures to be used to construct the works:

- A majority of the existing topography has been completed.
- A field visit with the California Department of Fish and Wildlife (CDFW) representative has been made to evaluate the potential AB360 impacts.
- Environmental consultants have been retained to assist with CEQA compliance and endangered species avoidance measures.
- Cross Section data will be used to calculate quantities.
- Plans and Specifications will be prepared.
- The Notice to Contractors will be published in a public newspaper in accordance with the public contracting code.
- The Notice to Contractors will also be forwarded to prospective contractors.
- A job walk will be held to show the project to prospective contractors.
- Addendums will be issued if clarification on the plans and specifications is required.
- The Bids will be received and opened in public.
- The Bids will be reviewed for completeness by the Project Engineer, District Engineer, and District Secretary.
- A Contract will be awarded to the lowest responsible bidder.
- Upon receipt of the required contract documents, a Notice to Proceed will be issued to the Contractor.
- The improvements will be staked by the Project Engineer.
- All construction material such as import fill, rip rap and aggregate base will be delivered to the work site by truck or marine equipment, and will be paid for by the ton.
- The Construction Manager will ensure that the project is being constructed per the plans and specifications.
- Contractor progress payments will be reviewed on a monthly basis by the Engineers and reported to the District and DWR for payment.
- An as-built report will be prepared at the conclusion of each completed portion of the work.
- The District shall not deviate from this SOW without prior consultation with the DWR, Project Engineer, and Department of Fish and Game staff.
- The work will be performed in accordance with the public contracting code.

Work Areas:
The PSP work areas originally proposed will be the basis of the scope of work. A map is enclosed illustrating the work areas.

The Work Areas are specified as follows:

Crown Raising Work Area 1:
The Trapper slough levee will be raised between Trapper Levee stations 10+00 and 205+00. The crown width will be the Districts Adopted template width of 22 ft with a 1.5 H to 1 V waterside slope and a 2 to 1 landside slope. The crown elevation will be at elevation 8.5 (NGVD 29 Datum).

Ancillary Work:
To accommodate the import fill proposed in these work sites, modifications to landowner's siphons and ramps *may* be required. Siphons will only be replaced if the work fits within the specified budget. For siphons, this would include replacing the sections that conflict with the slope work, raising the pipes through the levee crown such that the invert is above the Base Flood Elevation (BFE)/100 year flood plain elevation and replacing the landside sections of pipe and distribution boxes to conform to the proposed slope work. Ramps will require raising, regrading and resurfacing to conform to the proposed finished grades of the improvements.

The newly constructed levee slope will be seeded with a CDFW approved seed mix applied appropriately to ensure the best opportunity for survival of these plants. If required, erosion control and seed establishment will be ensured by the application of a cover material such as rice straw mulch.

Since the time of the original PSP submittal some additional items of work have been identified that consume some of the original contingency in the budget:

a. The County Road occupies the levee between stations 183 to 185 and will require resurfacing and transitional fill at each end of the levee.
b. The levee slope has been requested to be seeded prior to the winter with a native grass mixture.
c. The Giant garter Snake avoidance measures such as construction windows and restricted speed limits.

Review Process:
Preliminary data will be prepared by the Project Engineer. The SOW and budget will be prepared and submitted with the initial funding advance request to the DWR representative. Subsequent funding advances will be submitted with updated budgets and progress reports.

DWR and CDFW will review the SOW and provide comments to the District. Revisions if required will be incorporated accordingly. CDFW will approve the SOW.

Upon approval of the SOW, the plans and specifications will be prepared and submitted to DWR for review. Revisions if required will be incorporated accordingly.

A site visit was conducted during the week of December 8th 2010, with CDFW and DWR personnel. Upon approval of this SOW, CDFW will provide preliminary estimates of the AB360 mitigation requirements. The AB360 pre-project form will be completed and submitted to DWR.

Permitting Issues:
The CEQA Notice of Exemption has been filed and the DWR Environmental Information form is included herewith.

To avoid any unusual circumstances that may arise during the project the following procedures will be followed:

- No onsite borrow sites will be used. Contractors will be required to provide materials meeting the engineering specifications from commercial sources.

- All impacts to habitat will be mitigated per the Delta levee program (AB 360) requirements.
- CDFW will review the work sites prior to the start of work to ascertain the quantity of AB 360 Habitat that may be required. The District will expend funds from the work agreement to execute the mitigation.
- An independent CEQA determination was made by Kleinfelder
- A Baseline Biological Resources Assessment by Moore Biological is included.
- As outlined in the Moore Biological resources assessment, the District will implement the projects biological avoidance measures.

Mitigation:
The CDFW will determine the required AB360 mitigation requirements. Upon final approval of the SOW, the CDFW will provide an estimate of the quantity and type of mitigation required. Final mitigation requirements will be determined during a post project inspection by CDFW. The mitigation site is subject to CDFW approval. The District plans to enter into agreements for purchase of mitigation credits at a CDFW approved Mitigation Bank. There is an allowance in the budget for mitigation.

Quality Assurance and Quality Control:
Material submittals and approval prior to job delivery.

Onsite inspection to assure the contractor is completing the work per the plans and specifications.

Meetings:
A prebid meeting and job walk will be held for prospective contractors.

A preconstruction meeting will be held at the beginning of the project between the Engineers and the successful contractor.

Meetings will be arranged as needed during construction.

Schedule of Work:
The following is a tentative schedule that reflects the project milestones:

Description	Start	Complete
Receive DWR Project Funding Agreement	Feb 28, 2011	
Field surveys	Jan 15, 2011	Dec 15, 2011
Develop initial Plans and Specifications	Jan 15, 2012	Feb 15, 2012
Site visit with CDFW for preliminary planning of provisional work	Dec 08, 2010	Dec 08, 2010
Prepare Environmental/CEQA Information	Feb 2, 2011	Nov 5, 2011
Prepare SOW	Feb 2, 2011	Feb 24, 2015
Approve SOW/CEQA Exemption	Feb 24, 2015	Sep 01, 2015
Delta Stewardship Council approval	Mar 24, 2015	Sep 01, 2015
Prepare Final Plans and Specifications (P/S)	Mar 24, 2015	May 1, 2016
Advertise and Bid Construction Project	April 1, 2016	April 15, 2016
Award Contract	April 15, 2016	April 30, 2016
Construct Project(s)	May 1, 2016	Oct 31, 2016
As Built Report(s)	Oct 1, 2015	Dec 30, 2015

Budget:
Attached to this SOW is the budget which reflects the estimated costs for the project. In the event that competitive bids are received that are lower than the estimated budget, additional fill will be proposed to be placed within the prescribed template(s). Conversely, if the bids are more than the estimate or if the quantities are understated, modifications will be implemented to reduce the cost.

On behalf of Reclamation District 2039 thank you for assisting with the continued upgrade to the Districts flood control works. If you have any questions regarding this Scope of Work, please contact me at greenmountaindom@hotmail.com or phone (209) 478-6525.
Green Mountain Engineering

Dominick Gulli PE, PLS
District Engineer

Attachments:

Environmental Information Form
SOW Budget
Work Area Drawing
Typical Cross sections
Kleinfelder Inc. Confirmation of CEQA determination (09/21/11)
Moore Biological Baseline Biological Resources assessment (08/13/15)
- Appendix A= USFWS Species list and CNDDB
- Appendix B= Photos
- Appendix C= Giant Garter Snake Habitat Assessment

CC: Dante John Nomellini
Moore Biological

ENVIRONMENTAL INFORMATION FORM

Grantees are responsible for complying with all applicable laws and regulations for their projects, including the California Environmental Quality Act (CEQA). Work that is subject to the California Environmental Quality Act (CEQA) shall not proceed under this Agreement until documents that satisfy the CEQA process are received by the Department of Water Resources and DWR has completed its CEQA compliance. Work that is subject to a CEQA document shall not proceed until and unless approved by the Department. Such approval is fully discretionary and shall constitute a condition precedent to any work for which it is required. Once CEQA documentation has been completed, DWR will consider the environmental documents and decide whether to continue to fund the project or to require changes, alterations or other mitigation.

Project Title: RD 2039 Delta Aqueduct Levee PL 84-99 Work Agreement #: UJ 10-1.0
Grant Recipient: Reclamation District No. 2039
Project Manager: Dominick Gulli
Address: 1314 Paloma Avenue, Stockton CA 95209
Phone Number: (209) 478-6525

1. List the source of any other grants or funds received from the Department of Water Resources to implement a portion of this project.

2. Is this project exempt from CEQA compliance? Yes☒ No☐(if no – skip to #3)

If "yes", provide reasons for exemption. Cite the CEQA Article, Section and Title of the CEQA exemption, if appropriate.

CEQA statutory exemptions: http://ceres.ca.gov/topic/env_law/ceqa/guidelines/art18.html

CEQA categorical exemptions: http://ceres.ca.gov/topic/env_law/ceqa/guidelines/art19.html
Sections 15301 (Class 1) and 15302 (Class 2)

Check appropriate box below:

☒ Lead Agency has already filed a Notice of Exemption (NOE) with the State Clearinghouse and/or County Clerk *for this specific project*.
(Attach copy of NOE, receipt of payment of DFG fees, and, if applicable, a copy of Board Resolution)

☐ Lead Agency will file a NOE with the State Clearinghouse and/or County Clerk.
Provide estimated date:
April 2014

☐ Lead Agency will NOT file a NOE with the State Clearinghouse and/or County Clerk.
If Lead Agency chooses not to file a NOE, sufficient documentation and information must be submitted to the Project Engineer, along with this form, to allow DWR to make its own CEQA findings.

3. If the project will require further CEQA compliance, identify the Lead Agency.
CEQA Lead Agency: _____

4. Please check types of CEQA documents to be prepared:

- ☐ Initial Study
- ☐ Negative Declaration / Mitigated Negative Declaration
- ☐ Environmental Impact Report

5. Please describe the status of the CEQA documents, expected date of completion, and estimated cost, if requesting DWR funds relating to CEQA compliance:

Status: _____
Date of Completion: _____
Estimated Costs: _____

6. If the CEQA document has been completed, please provide the name of the document and the State Clearinghouse number if available. Submit three copies along with a copy of receipt of the DFG CEQA review fees to the Project Engineer.

Name: F&G Environmental Fee SCH#: 39-2014.037

7. Please list all environmental permits you must obtain to complete the project: (attach additional pages as necessary)

Type of Permit Required	Permitting Agency

8. This form was completed by:

Dominick Gulli	(209) 478-6525
Print or Type Name	Phone Number
Dom Gulli	3/10/14.
Signature	Date

☐ DWR received environmental documents.

☐ DWR made findings.

Please send the completed form to the Project Engineer.

State of California—Natural Resources Agency
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
2014 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT# 39-2014- 037

STATE CLEARING HOUSE # *(if applicable)*

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY RECLAMATION DISTRICT NO 2039	DATE 03/07/2014
COUNTY/STATE AGENCY OF FILING San Joaquin	DOCUMENT NUMBER
PROJECT TITLE RECLAMATION DISTRICT 2039 DELTA AQUEDUCT LEVEE PL 84-99 PROJECT UJ 10-1.0	
PROJECT APPLICANT NAME RECLAMATION DISTRICT 2039	PHONE NUMBER (209) 478-6525

PROJECT APPLICANT ADDRESS	CITY	STATE	ZIP CODE
235 E WEBER AVE	STOCKTON	CA	95202

PROJECT APPLICANT *(Check appropriate box):*

☒ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$3,029.75	$	0.00
☐ Mitigated/Negative Declaration (MND)(ND)	$2,181.25	$	0.00
☐ Application Fee Water Diversion *(State Water Resources Control Board only)*	$850.00	$	0.00
☐ Projects Subject to Certified Regulatory Programs (CRP)	$1,030.25	$	0.00
☒ County Administrative Fee	$50.00	$	50.00
☐ Project that is exempt from fees			
☒ Notice of Exemption (attach)			
☐ CDFW No Effect Determination (attach)			
☐ Other _____		$	

PAYMENT METHOD:

☒ Cash ☐ Credit ☐ Check ☐ Other _____ TOTAL RECEIVED $ 50.00

SIGNATURE	PRINTED NAME AND TITLE
X M. Lassiter	MARIA LASSITER DEPUTY COUNTY CLERK

ORIGINAL - PROJECT APPLICANT COPY - CDFW/ASB COPY - LEAD AGENCY COPY - COUNTY CLERK FG 753.5a (Rev. 12/13)

State of California—Natural Resources Agency
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
2014 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT# 39-2014- 037

STATE CLEARING HOUSE # (if applicable)

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY RECLAMATION DISTRICT NO 2039	DATE 03/07/2014
COUNTY/STATE AGENCY OF FILING San Joaquin	DOCUMENT NUMBER

PROJECT TITLE
RECLAMATION DISTRICT 2039 DELTA AQUEDUCT LEVEE PL 84-99 PROJECT UJ 10-1.0

PROJECT APPLICANT NAME RECLAMATION DISTRICT 2039			PHONE NUMBER (209) 478-6525
PROJECT APPLICANT ADDRESS 235 E WEBER AVE	CITY STOCKTON	STATE CA	ZIP CODE 95202

PROJECT APPLICANT *(Check appropriate box):*

☒ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$3,029.75	$	0.00
☐ Mitigated/Negative Declaration (MND)(ND)	$2,181.25	$	0.00
☐ Application Fee Water Diversion *(State Water Resources Control Board only)*	$850.00	$	0.00
☐ Projects Subject to Certified Regulatory Programs (CRP)	$1,030.25	$	0.00
☒ County Administrative Fee	$50.00	$	50.00
☐ Project that is exempt from fees			
☒ Notice of Exemption (attach)			
☐ CDFW No Effect Determination (attach)			
☐ Other _____		$	

PAYMENT METHOD:

☒ Cash ☐ Credit ☐ Check ☐ Other _____ TOTAL RECEIVED $ 50.00

SIGNATURE X M. Lassiter	PRINTED NAME AND TITLE MARIA LASSITER DEPUTY COUNTY CLERK

ORIGINAL - PROJECT APPLICANT COPY - CDFW/ASB COPY - LEAD AGENCY COPY - COUNTY CLERK FG 753.5a (Rev. 12/13)

State of California—Natural Resources Agency
CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
2014 ENVIRONMENTAL FILING FEE CASH RECEIPT

RECEIPT# 39-2014- 037

STATE CLEARING HOUSE # *(if applicable)*

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY

LEAD AGENCY RECLAMATION DISTRICT NO 2039	DATE 03/07/2014
COUNTY/STATE AGENCY OF FILING San Joaquin	DOCUMENT NUMBER
PROJECT TITLE RECLAMATION DISTRICT 2039 DELTA AQUEDUCT LEVEE PL 84-99 PROJECT UJ 10-1.0	
PROJECT APPLICANT NAME RECLAMATION DISTRICT 2039	PHONE NUMBER (209) 478-6525

PROJECT APPLICANT ADDRESS	CITY	STATE	ZIP CODE
235 E WEBER AVE	STOCKTON	CA	95202

PROJECT APPLICANT *(Check appropriate box):*

☒ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$3,029.75	$	0.00
☐ Mitigated/Negative Declaration (MND)(ND)	$2,181.25	$	0.00
☐ Application Fee Water Diversion *(State Water Resources Control Board only)*	$850.00	$	0.00
☐ Projects Subject to Certified Regulatory Programs (CRP)	$1,030.25	$	0.00
☒ County Administrative Fee	$50.00	$	50.00
☐ Project that is exempt from fees			
☒ Notice of Exemption (attach)			
☐ CDFW No Effect Determination (attach)			
☐ Other _____		$	

PAYMENT METHOD:

☒ Cash ☐ Credit ☐ Check ☐ Other _____ TOTAL RECEIVED $ 50.00

SIGNATURE	PRINTED NAME AND TITLE
X M. Lassiter	MARIA LASSITER DEPUTY COUNTY CLERK

ORIGINAL - PROJECT APPLICANT COPY - CDFW/ASB COPY - LEAD AGENCY COPY - COUNTY CLERK FG 753.5a (Rev. 12/13)

Notice of Exemption

Appendix E

To: Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

County Clerk
County of: San Joaquin
44 N. San Joaquin St., Suite 260
Stockton, CA 95202

From: (Public Agency): Reclamation District NO. 2039
235 E Weber Ave
Stockton , CA 95202
(Address)

FILED
ASSESSOR RECORDER
COUNTY CLERK
KENNETH W. BLAKEMORE
2014 MAR -7 PM 10: 21
SAN JOAQUIN COUNTY
BY: DEPUTY

Project Title: Reclamation District 2039: Delta Aqueduct Levee PL 84-99 Project UJ 10-1.0

Project Applicant: Reclamation District 2039

Project Location - Specific:
Upper Jones Tract in San Joaquin County, California.
The levees along Trappers Slough (see attached map).

Project Location - City: N/A Project Location - County: San Joaquin

Description of Nature, Purpose and Beneficiaries of Project:
The project consists of adding fill to the levee crown. Beneficiaries include the landowners within RD 0239 and adjoining areas, EBMUD aqueducts, Kinder Morgan fuel transmission line, BNSF Railroad, State highway 4, PG&E Gas transmission Line, fish and wildlife, recreation and users of water from the Delta.

Name of Public Agency Approving Project: Reclamation District 2039

Name of Person or Agency Carrying Out Project: Reclamation District 2039

Exempt Status: **(check one):**

- ☐ Ministerial (Sec. 21080(b)(1); 15268);
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- ☒ Categorical Exemption. State type and section number: Class 1 & 2. Codes: 15061,15301,15302
- ☐ Statutory Exemptions. State code number: _____

Reasons why project is exempt:
Maintenance of existing facilities. The project is categorically exempt because the work is repair of existing public facilities involving no expansion of use (California Code Regulation 15301); and categorically exempt because the work is reconstruction of existing facilities located on the same site and the facilities will have the same purposes and capacity (California Code Regulation 15302).

Lead Agency Contact Person: Dominick Gulli Area Code/Telephone/Extension: (209) 478-6525

If filed by applicant:

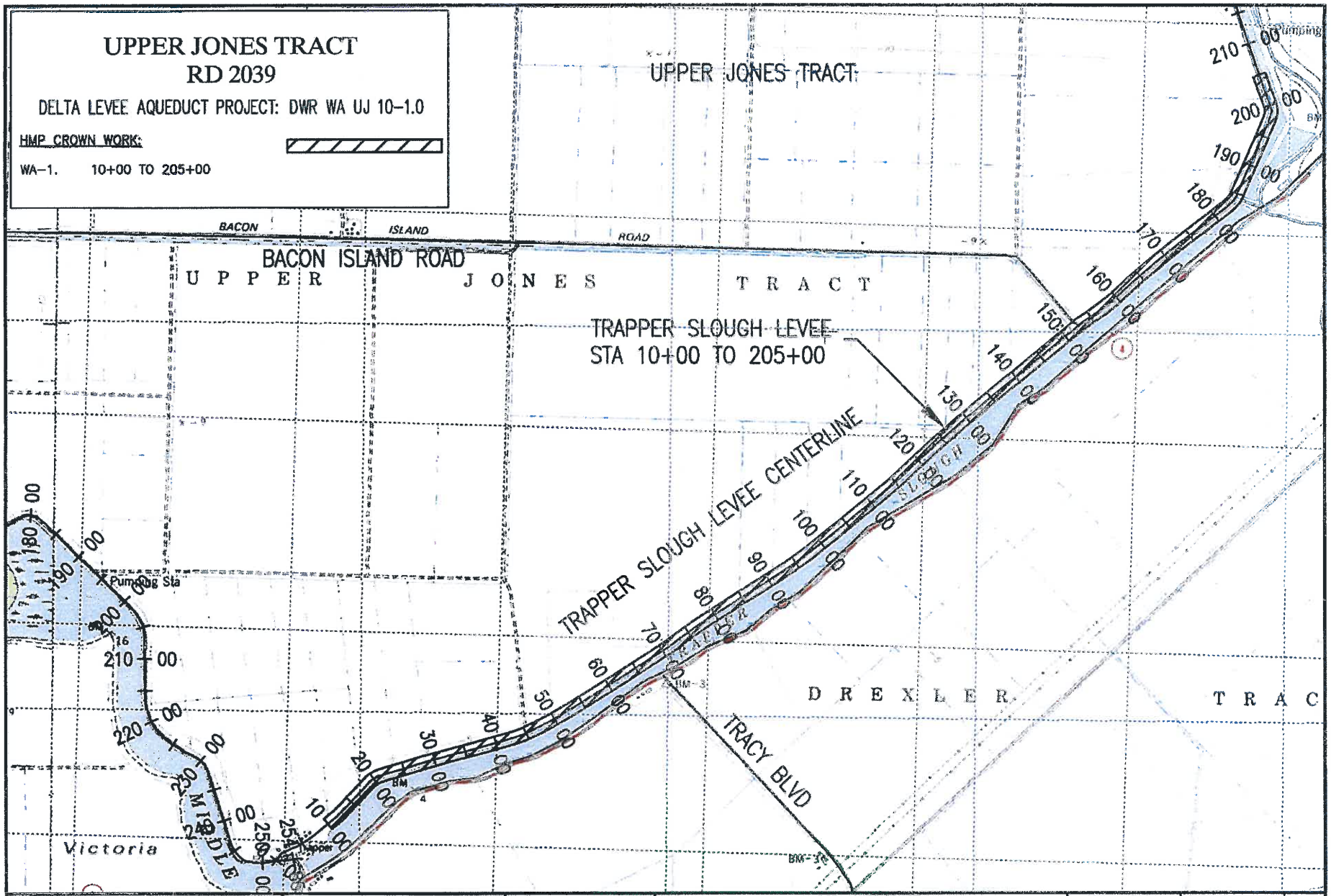
1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? ☐ Yes ☐ No

Signature: [signature] Date: 3/7/14 Title: District Engineer

☐ Signed by Lead Agency ☒ Signed by Applicant

Authority cited: Sections 21083 and 21110, Public Resources Code.
Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.

Date Received for filing at OPR: _____



SCALE: 1"=2000'

REVISIONS

BY	DATE	DESCRIPTION

GREEN MOUNTAIN ENGINEERING

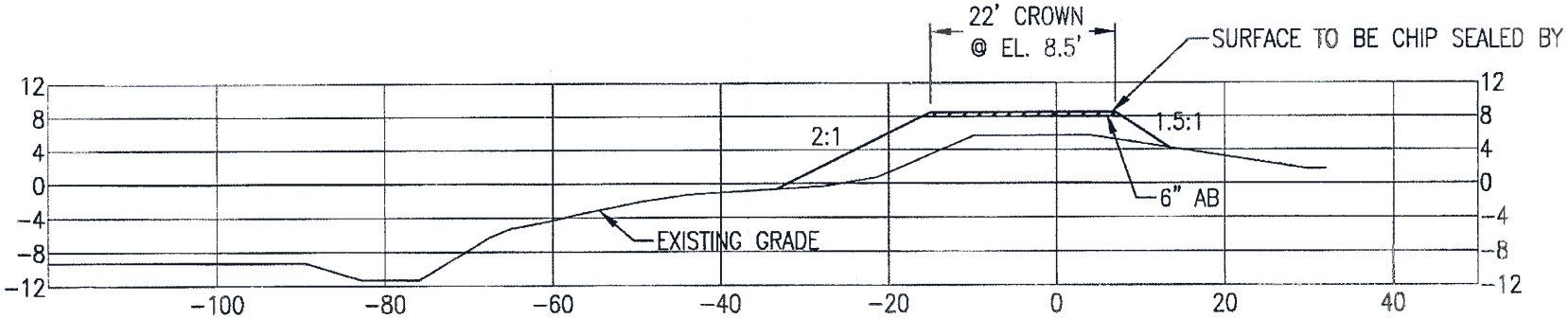
UPPER JONES TRACT
DWR WA UJ-10-1.0
AREAS OF WORK
RECLAMATION DISTRICT NO 2039
SAN JOAQUIN COUNTY, CALIFORNIA

PROJECT NO:	2039-21
DRAWN BY:	GME
DESIGN BY:	DJL
CHECK BY:	DG
SCALE:	AS SHOWN
DATE:	2019-02-20
CAD FILE:	121212_TRAPPER_SLOUGH_MAILING

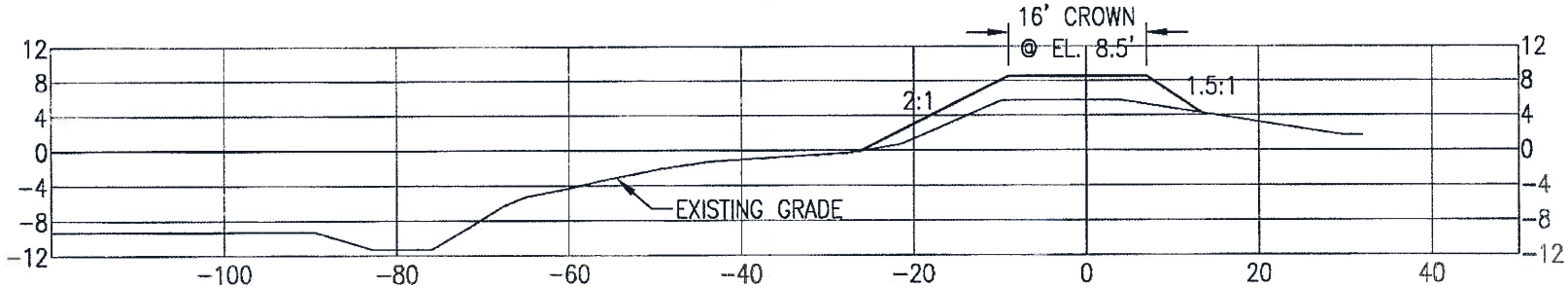
APPROVED BY:

DATE

SHEET NO.
WA-1
OF
1



BACON ISLAND ROAD 22' WIDE CROWN HMP TYPICAL
X-SECTION
STA 153+00 TO 184+75



16' WIDE HMP TYPICAL X-SECTION
STA 10+00 TO 153+00 & STA 184+75 TO 205+00

SCALE: 1"=20'

REVISIONS		
REV.	DATE	DESCRIPTION

GREEN MOUNTAIN ENGINEERING

UPPER JONES TRACT
DWR WA UJ-10-1.0
TYPICAL CROSS SECTIONS
RECLAMATION DISTRICT NO 2039
SAN JOAQUIN COUNTY, CALIFORNIA

PROJECT NO:	2039-21
DRAWN BY:	GME
DESIGN BY:	DJL
CHECK BY:	DG
SCALE:	AS SHOWN
DATE:	2015-02-20
CAD FILE:	121212_TWAPPER_SLOUGH_FLAILING

APPROVED BY:
DATE

SHEET NO. TYP-1
OF 1 SHEETS

Agenda Item 11
Attachment 7

Job: Upper Jones Tract
Reclamation District 2039
Special Project 09-10 Application

Expected Project Costs
Green Mountain Engineering

25-Mar-10

DWR Special Project UJ-10-1.0
Trapper Slough Levee Station 10+00 to 205+00

ITEM	DESCRIPTION	QUANT	UNIT	UNIT COST	TOTAL
	Construction				
No.					
1	Trapper Slough Levee Station 10+00 to 205+00	19500	lf		
	Construction costs				
	Mobilization/demob	1	lump sum	$10,000	$10,000
	Clearing and grubbing	1	lump sum	$25,000	$25,000
	Import fill	85000	tons	$10	$850,000
	Class 2 Agregate Base	16000	tons	$25	$400,000
	Encroachments, Utillties,ramps etc	1.0	lump sum	$45,000	$45,000
	Subtotal Construction				**$1,330,000**
	Contingency	9.9%			$132,000
	Engineering/Surveying				
	Surveying, Design and preparartion of plans and specifications	1.0	lump sum		$60,000
	Permitting	1.0	allow		$25,000
	Environmental Compliance	1.0	allow		$45,000
	Biological resources Assessment	1.0	allow		$40,000
	Worker training and habitat monitoring.	1.0	allow		$15,000
	Bid and administer contracts	1.0	lump sum		$14,000
	Bid and administer contracts	1.0	lump sum		$14,000
	Construction staking and inspection	1.0	lump sum		$175,000
	As Built reports	1.0	lump sum		$10,000
	AB 360 requirments	1.0	lump sum		$6,000
	Mitigation allowance	1.0	lump sum		$35,500
	Labor Compliance	1.0	lump sum		$6,000
	Meetings and DWR coordination	1.0	lump sum		$5,000
	Subtotal Engineering,permitting and mitigation				**$450,500**
	Contingency	8.7%			$39,382
	Total Base project				**$1,951,882**
	Net Base Project Cost				$1,951,882
	DWR cost Share	85%		$1,659,100	
	District share	15%		$292,782	

UJ 10-1.0

CEQA DETERMINATION ANALYSIS

The subject project is the repair, maintenance and rehabilitation of the levees surrounding Upper Jones Tract. The levees have been at the same location and in the same general configuration since at least the early 1900s. The elevation of the swamp and overflowed lands which were to be protected from flooding was relatively close to the height of the early levees. Due to compaction, oxidation, burring, and wind erosion, the earth comprising the landside support and projected slope of the levee has subsided. There is also ongoing settlement and erosion which affects levee height and the waterside slopes of the levees.

Appreciable categorical exemptions are listed in Article 19 "Categorical Exemptions" of the CEQA Guidelines. As described in Section 15301, a Class 1 Categorical Exemption is applicable to operation, repair, maintenance, permitting, leasing, licensing or minor alteration of existing public or private structures, facilities, mechanical equipment or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination. Types of facilities to which this exemption applies are listed in several subsections, including the following: "(d) Restoration or rehabilitation of deteriorated or damaged structures, facilities, or mechanical equipment to meet current standards of public health and safety, unless it is determined that the damage was substantial and resulted from an environmental hazard such as earthquake, landslide, or flood." Section 15302, "Replacement or Reconstruction" defines a Class 2 of exempt projects, which consists of replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replace and will have substantially the same purpose and capacity as the structure replaced.

An agency is entitled to find a project exempt from CEQA (CEQA Guidelines 15061) if the project is exempt pursuant to a categorical exemption and the application of the exemption is not barred by one of the exceptions set forth in Section 15300.2. No exceptions to the Categorical Exemptions appear to be applicable.

Biological Resources

A baseline biological resource assessment was performed by Moore Biological Consultants, a copy of which is attached to this submittal.

Although no significant effects due to unusual circumstances have been identified, the following Avoidance and Minimization Measures are incorporated into the project description.

The following avoidance and minimization measures will be incorporated into the project to reduce the potential for impacts to jurisdictional Water of the U.S. and wetlands, special-status species, and potential or actual habitats of special-status species:

- Avoid impacts to potential jurisdictional Waters of the U.S. and wetlands by restricting all work to the levee crown and landside levee slope, as proposed.

- In order to avoid take of protected raptors and migratory birds between February 1 and August 31, an initial pre-construction nest survey shall be conducted by a CDFW approved biologist. The survey shall be conducted within fifteen (15) days prior to the beginning of construction activities in order to identify active nests within five hundred (500) feet of the project work areas and as to raptors' active nests within a quarter mile (1320 feet) of the project work areas. The survey shall incorporate methodologies from CDFW's 1994 Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo Swainsoni) in the Central Valley of California (CDFW, 1994) and the Swainson's Hawk Technical Advisory Committee (SHTAC) survey guidelines (SHTAC, 2000). If active raptor nests are found within 1320 feet of the work area or other active nests within 500 feet of the work area, a temporary buffer of 1320 feet and 500 feet respectively shall be established and an on-site biologist/monitor experienced with raptor behavior shall be retained by the District. The biologist shall monitor the nest(s) and consult with the CDFW to determine the buffers to be applied and best course of action to avoid nest abandonment or take of individuals. The necessity and extent for temporal construction restrictions shall be determined by CDFW. CDFW may determine if is necessary for a designated biologist/monitor to be on-site daily while construction related activities are within or near buffer areas. The on-site biologist/monitor shall have authority to stop work if raptors are exhibiting agitated behavior such as defensive flights and intruders, unusual getting up from a brooding position or unusual flying off the nest. If during the nesting season there is a lapse in project-related work of fifteen (15() days or longer, another focused survey shall be performed and the results sent to CDFW prior to resuming work.

- Preconstruction surveys for burrowing owls shall be undertaken prior to construction activities between February 1 and August 31 by a CDFW approved Biologist. The District will follow the 2012 Staff Report on Burrowing Owl Mitigation in order to reduce the chance of adversely impacting Burrowing Owls. Prior to construction, CDFW will be contacted with the survey results. If owls are observed at any point during the duration of the project, the District will stop work, consult with CDFW immediately to determine the appropriate avoidance, minimization, and mitigation measures prior to continuing construction activities. If a lapse in construction of more than 15 days occurs, then the project area will be resurveyed within 24 hours prior to the commencement of construction. A copy of the guidelines can be found at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843.

- Trees and shrubs within the work areas could be used by other birds protected by the Migratory Bird Treaty Act of 1918. The grasslands may be used by ground-nesting species. Any vegetation removal during the avian nesting season (February 1 through August 31) shall be immediately preceded by a survey. If

active nests are found, adequate marking of the nest site shall be provided and vegetation removal in the vicinity of the nest shall be delayed until the young fledge.

- For construction in the non-nesting season (i.e., from construction between September 1 to January 31), the District shall consult with CDFW regarding the appropriate preconstruction surveys, and avoidance and minimization measures.

- Preconstruction surveys for western pond turtle and their nests will be conducted *by a CDFW approved Biologist.* This will involve a search for nests in uplands on the land side of the levees. If nest sites are located, the District will notify CDFW and a 50-foot buffer area around the nest shall be staked and work will be delayed until hatching is complete and the young have left the nest site.

- The District will implement the following biological avoidance and minimization measures for Giant Garter Snake (Thamnophis Gigas), a State and Federally listed species in the State and Feral Endangered Species Acts:
    1. All construction activities along Trapper Slough will be conducted between May 1 and October 1, during the snake's active period.
    2. A CDFW and/or USFWS approved biologist (approved biologist) will conduct a preconstruction survey o the construction and staging areas of the project within 24 hours of the commencement of construction. Prior to construction CDFW will be contacted with the survey results. Surveys of the project area will be repeated if a lapse in construction activity of 7 days or greater has occurred.
    3. All construction personnel will participate in a worker environmental awareness program prior to commencement of work y the District's approved biologist. The awareness program will include discussion of the biology and general behavior of the species, information about the distribution and habitat needs of the species, sensitivity of the species to human activities, potential impacts associated with levee projects, its status pursuant to CESA including legal protection, penalties for violations, and the Project specific protective measures. The same instruction shall be given to any new workers to the project area throughout the duration of the project. The District shall provide interpretation of the instructions for non-English speaking workers.
    4. If a snake is encountered during construction, activities will cease until appropriate corrective measures have been completed or it has been determined that the snake will not be harmed. Any snakes encountered will be unharmed and allowed to move away from the construction activities of their own. Any sighting of snakes will be reported to CDFW.
    5. The District's approved biologist has the authority to stop construction if there is reason to believe that a snake may be negatively impacted by the construction work. In this even, the biologist will consult with CDFW and it may be necessary for an on-site monitor to be present through the

duration of the project. Work may resume one the District has consulted with the CDFW, and it has been determine that snakes will not be harmed.

6. A maximum speed limit of 15 mph along Trapper Slough will be posted and implemented during all phases of construction to allow drives/equipment operators to be able to stop and avoid any encounters with snakes.
7. If erosion control is needed only tightly woven fiber netter or similar material shall be used for erosion control to ensure that snakes do not get rapped and become entangled. Materials such as mono-filament netting (erosion control matting) or similar material will not be used.
8. No material will be placed along the waterside levee (from the hinge point down the waterside slope, to the bed of the slough).
9. No tow ditches will be filled, relocated, or modified.
10. Movement of heavy equipment to and from the project site shall be restricted to established roadways to minimize habitat disturbance. No heavy equipment of vehicle traffic will occur along the toe of the landside levee.
11. The district will ensure all project-related parking, storage areas, equipment storage, and any other surface-disturbing activities, are restricted to areas that to the extent possible have been previously disturbed and are a minimum of 200 feet from potential aquatic GGS habitat.

- A biological worker awareness training program shall be implemented to educate the construction crews of the biological diversity within the project area, The worker awareness program shall include a presentation on the life story and legal status of potential occurring special-status species and distribution of informational packages to each worker, While all of the species in Table 2 will be least briefly addresses, the focal species of the worker awareness training program will be Swainson's hawk, burrowing owl, western pond turtle, and GGS.

- A copy of the District's Biological Avoidance and Minimization Measures will be kept on site for reference during the duration of the project.

In addition to the above Avoidance and Minimization Measures, the project will offset impacts to habitat per CDFW requirements under AB360. The collective implementation of these measures as a part of the project will assure the protection of sensitive habitat and species and the maintenance of biological functions and values.

KLEINFELDER
Bright People. Right Solutions.

September 21, 2011

Mr. Dante Nomellini, Secretary and Counsel
Reclamation District No. 2039
P.O. Box 1461
Stockton, CA 95201

Subject: Confirmation of CEQA Determination for Reclamation District 2039 – Upper Jones Tract (UJ 10-1.0) Delta Aqueduct Levee Improvements

Dear Mr. Nomellini,

Kleinfelder / InSite Environmental (Kleinfelder) has been retained to evaluate and make an independent determination regarding the California Environmental Quality Act (CEQA) finding that was completed for the subject project.

Summary of Proposed Improvements

The project involves raising the crown of the levee to HMP standards along 19,500 feet of levee on the southeast side of the Upper Jones Tract. The new levee crown will be a minimum width of 22 feet and at an elevation of 8.5 feet. All work will be on the top of the existing levee and upper part of the land side levee slope; there will be no work in Trapper Slough or the water side levee slope. The project will include the raising and replacement of approximately 3,000 lineal feet of asphalt along Bacon Island Road, which is currently located along the top of the levee (between stations 150+00 and 185+00). From stations 185+00 to 205+00, Bacon Island Road is gravel and access is controlled by a gate.

Environmental Review

Kleinfelder reviewed the project plans, conducted a site visit on July 1, 2011 and reviewed all issue areas identified by CEQA.

A detailed "Baseline Biological Resource Assessment," dated July 19, 2011 was prepared by Moore Biological Consultants for the proposed work areas. The project, with incorporation of avoidance and minimization measures listed in the Baseline Biological Resource Assessment, is not anticipated to significantly impact any biological resources within or near the project site.

Bacon Island Road provides access to Woodward Island ferry, the Bullfrog Landing Marina located on Lower Jones Tract, and access to the agricultural fields throughout Upper Jones Tract. Disturbance to the paved portion of Bacon Island Road (between stations 150+00 and 185+00) will be temporary in nature and will not result in any short-term circulation impacts as two other alternate routes exists to maintain access to all uses. At the southern-most tip of Upper Jones Tract, a second connection point between Bacon Island Road and Highway 4 exists. Also, in the area of Holt, Lower Jones Road and West Lower Jones Road can be used to access Bullfrog Landing Marina as well as the Woodward Island ferry and agricultural fields. Implementation of traffic control measures (i.e., signage and/or flag persons) as part of the project plans will ensure the minimization of temporary impacts to circulation on Bacon Island Road.

Based on review of the project plans and existing conditions, no structures with potential historical value will be razed.

No other environmental areas will be impacted due to the remote nature of the site and all work consists of repairs to the existing levee system, thus enhancing its current function of flood protection.

Concurrence with CEQA Finding

Reclamation District 2039 filed a Notice of Exemption for the proposed project. Kleinfelder reviewed the applicability of available CEQA exemptions, including categorical and statutory exemptions. Statutory exemptions that may be available are set forth in Article 18, "Statutory Exemptions" of the CEQA Guidelines. Statutory exemptions are applicable regardless of the physical circumstances or potential environmental impacts of the project. Categorical exemptions are described in Article 19 "Categorical Exemptions" of the CEQA Guidelines.

As described in Section 15301, a Class 1 Categorical Exemption is applicable to operation, repair, maintenance, permitting, leasing, licensing or minor alteration of existing public or private structures, facilities, mechanical equipment or topographical features, involve negligible or no expansion of use. Types of facilities to which this exemption applies are listed in several subsections, including the following: "(d) Restoration or rehabilitation of deteriorated or damaged structures, facilities, or mechanical equipment to meet current standards of public health and safety, unless it is determined that the damage was substantial and resulted from an environmental hazard such as earthquake, landslide or flood." Section 15302, "Replacement or Reconstruction" defines a Class 2 of exempt projects, which consists of replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced.

Reclamation District 2039 is entitled to find a project exempt from CEQA (CEQA Guidelines 15061) if the project is exempt pursuant to a categorical exemption and the application of the exemption is not barred by one of the exceptions set forth in Section 15300.2. This is the case for the proposed project because the scope and nature of the improvements are located within the footprint of the existing facility and will not alter its purpose or function. In addition, based on review of engineered drawings, record searches and comprehensive site visits by Kleinfelder and Moore Biological, it has been determined that the proposed project and will not result in any significant environmental impacts and is encompassed by both Class 1 and Class 2 Categorical exemptions.

If you have any questions or concerns, please feel free to give me a call.

Sincerely,

Trevor Smith
Senior Professional
Kleinfelder

MOORE BIOLOGICAL CONSULTANTS

August 13, 2015

Dante Nomellini, Sr.
Nomellini, Grilli & McDaniel
235 East Weber Avenue
Stockton, CA 95202

Subject: UPDATED BASELINE BIOLOGICAL RESOURCES ASSESSMENT FOR THE UPPER JONES TRACT 10-1.0 LEVEE IMPROVEMENTS PROJECT, SAN JOAQUIN COUNTY, CALIFORNIA

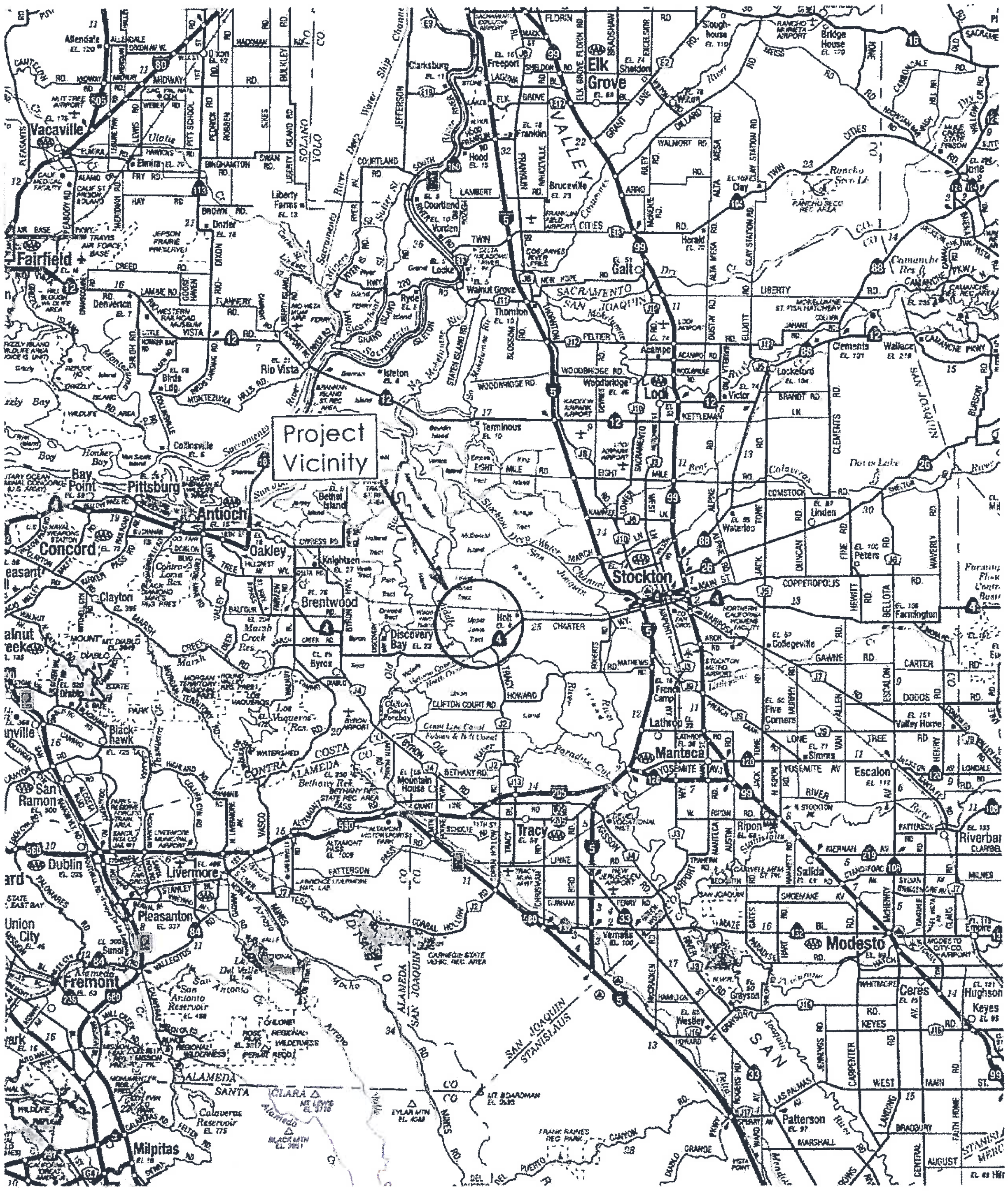
Dear Dante:

Thank you for asking Moore Biological Consultants to conduct a baseline biological resources assessment for the Upper Jones Tract 10-1.0 levee improvements project (Figures 1 and 2). The focus of our work was to document existing biological resources at the site, conduct a survey to determine presence or absence of potentially jurisdictional waters or wetlands, and search for suitable habitat for or presence of special-status species within the project site. This letter report details the methodology and results of our investigation.

Project Overview

The project involves raising the crown of the levee to HMP standards along 19,500 feet of levee on the southeast side of Upper Jones Tract (HMP Crown Work Area WA-1) (Figure 3). The new levee crown will be a minimum width of 22 feet and at an elevation of 8.5 feet. All work will be on the top of the existing levee and upper part of the land side levee slope; there will be no work in Trapper Slough or the water side levee slope.

10330 Twin Cities Rd., Ste. 30 • Galt, CA 95632
(209) 745-1159 • Fax (209) 745-7513
e-mail: mooreblo@softcom.net

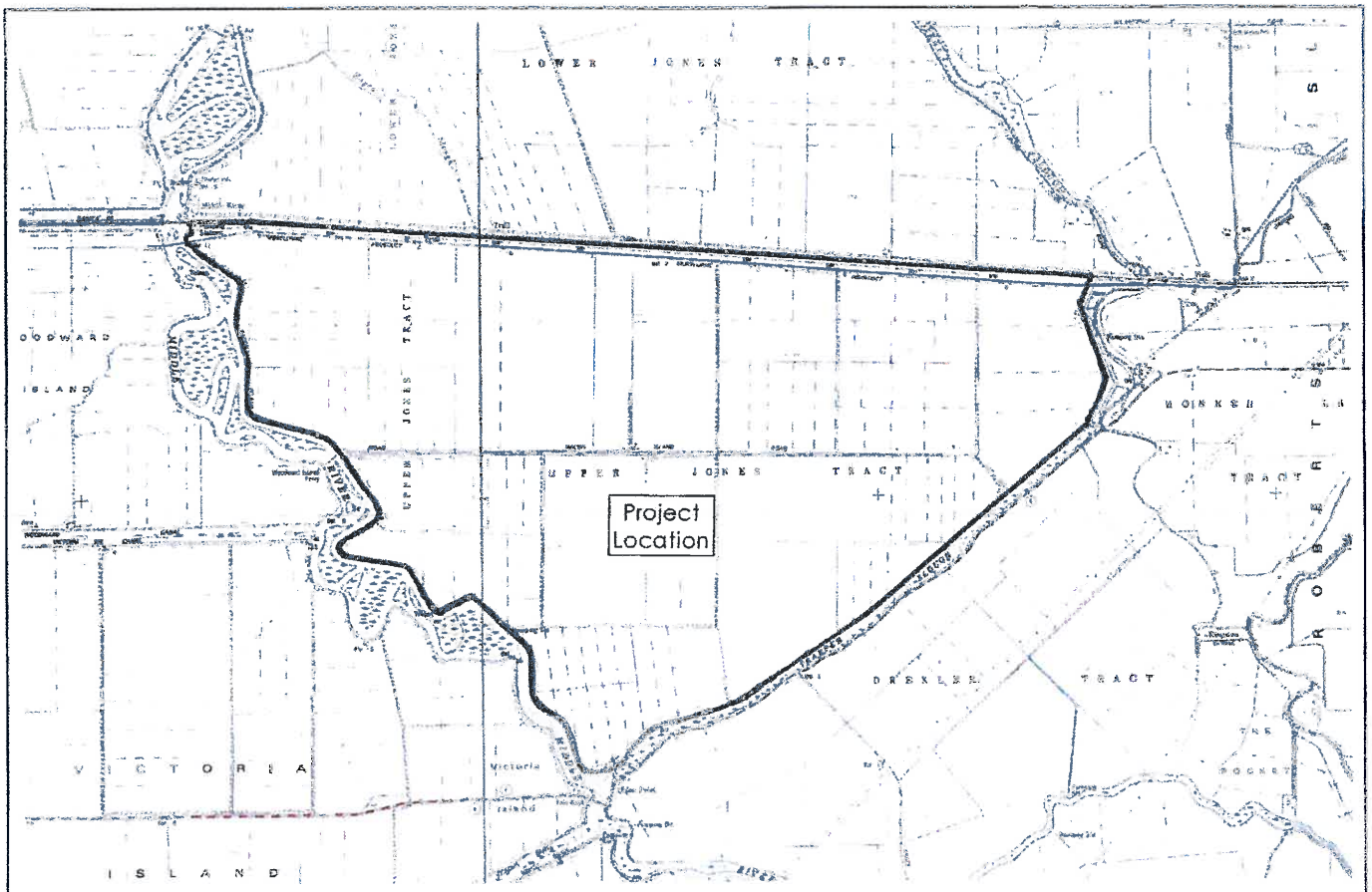


Scale: 1 inch = 9 miles
Source: Calif. State Automobile Association

N

MOORE BIOLOGICAL

**FIGURE 1
PROJECT VICINITY**



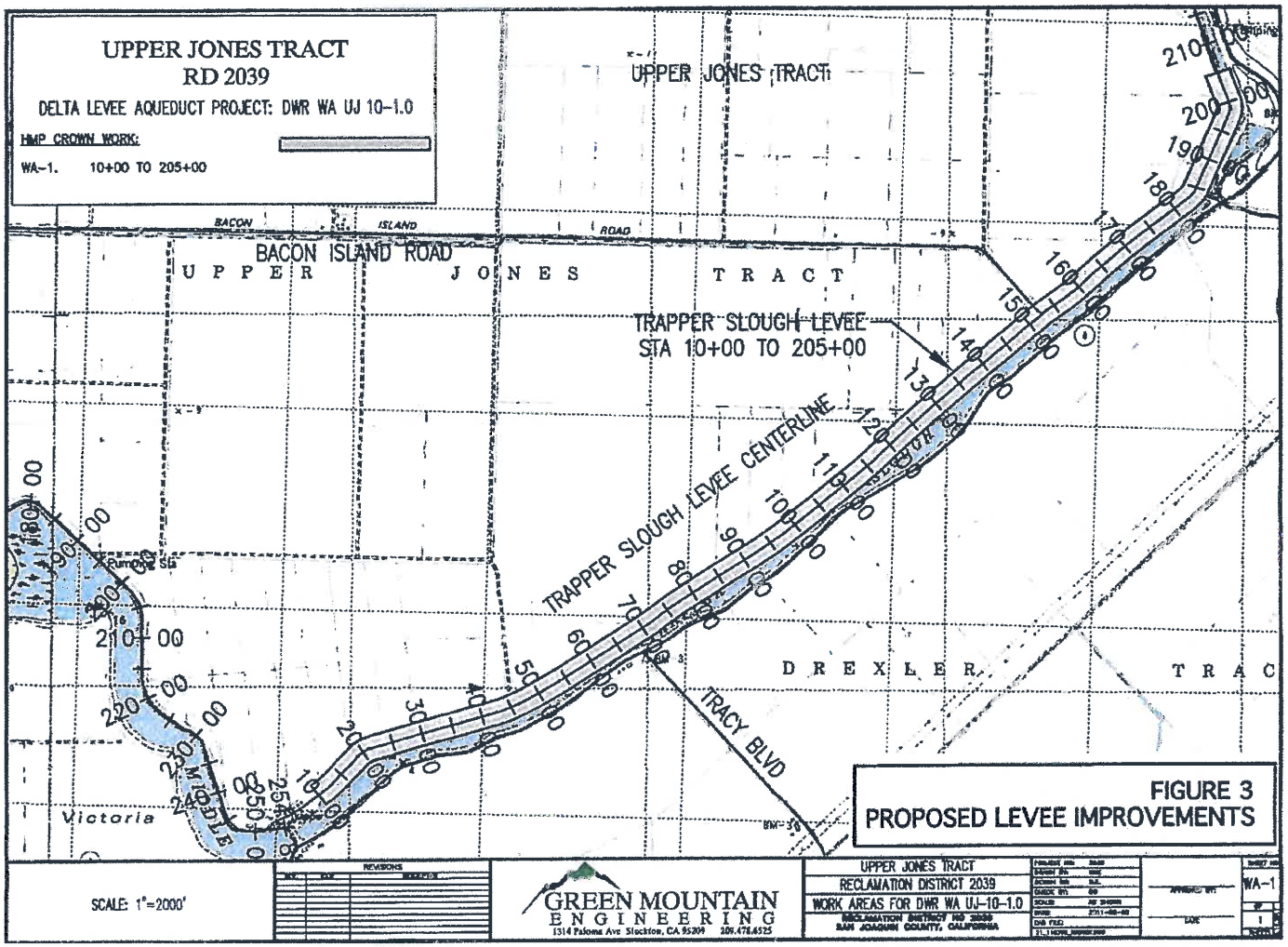
Scale: 1 inch = 4,000 feet

Source: USGS 7.5-minute Woodward Island and Holt topographic quadrangles

MOORE BIOLOGICAL

N

FIGURE 2
PROJECT LOCATION


UPPER JONES TRACT
RD 2039
DELTA LEVEE AQUEDUCT PROJECT: DWR WA UJ 10-1.0
HMP CROWN WORK:
WA-1. 10+00 TO 205+00
UPPER JONES TRACT
BACON ISLAND ROAD
UPPER JONES TRACT
TRAPPER SLOUGH LEVEE
STA 10+00 TO 205+00
TRAPPER SLOUGH LEVEE CENTERLINE
TRACY BLVD
DREXLER TRAC
MIDDLE
Victoria
FIGURE 3
PROPOSED LEVEE IMPROVEMENTS
SCALE: 1"=2000'
REVISIONS
GREEN MOUNTAIN
ENGINEERING
1314 Paloma Ave Stockton, CA 95209 209.478.6525
UPPER JONES TRACT
RECLAMATION DISTRICT 2039
WORK AREAS FOR DWR WA UJ-10-1.0
RECLAMATION DISTRICT NO 2039
SAN JOAQUIN COUNTY, CALIFORNIA
WA-1

Methods

Prior to the field surveys, we conducted a search of California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB, 2011); an updated search was completed in 2014. The project levee is located in the southwest portion of the USGS 7.5-minute Holt topographic quadrangle. Therefore, the CNDDB search encompassed the Holt and also included the Woodward Island, Clifton Court Forebay, and Union Island topographic quadrangles, which are situated to the west and south. This CNDDB search area encompasses approximately 240 square miles surrounding the tract. The United States Fish and Wildlife Service (USFWS) list of Federally Threatened and Endangered species that may occur in or be affected by projects in the Holt, Woodward Island, Clifton Court Forebay, and Union Island topographic quadrangles (Appendix A) was also reviewed. Notes from the CDFW December 8, 2010 field visit to Upper Jones Tract and the 1991 Habitat Assessment for Upper Jones Tract (Kjeldsen & Arnold, 1991) were also reviewed. This information was used to identify special-status wildlife and plant species that have been previously documented in the project vicinity or have the potential to occur based on suitable habitat and geographical distribution. Additionally, the CNDDB and Habitat Assessment also depict locations of sensitive habitats.

Field surveys were conducted on June 23 and July 1, 2011. The surveys consisted of driving and walking along the levee making observations of current habitat conditions and noting surrounding land use, general habitat types, and plant and wildlife species. The surveys included an assessment of the work areas for presence or absence of potentially jurisdictional Waters of the U.S. (a term that includes wetlands) as defined by the U.S. Army Corps of Engineers (ACOE, 1987; 2008), special-status species, and suitable habitat for special-status species (e.g., elderberry shrubs, vernal pools). Additionally, trees within and near the work areas were assessed for the potential use by nesting raptors, especially Swainson's hawk (*Buteo swainsoni*) and burrows in the area were inspected for burrowing owls (*Athene cunicularia*) or evidence of past occupancy.

Scrub-shrub vegetation within the work area was mapped and measured. The beginning and ending of the vegetation patch along the land side of the levee was recorded using a Trimble GeoXH Global Positioning System (GPS) unit; the mean width of the patch was estimated. The acreage of the vegetation patch was calculated by multiplying length by mean width. The locations of trees within the work area with a diameter-at-breast height (DHB) in excess of 4 inches were mapped using the GPS unit.

Results

GENERAL SETTING: The section of levee proposed for improvements is on Upper Jones Tract in San Joaquin County, California (Figure 1). The levee is in unnumbered Sections in Township 1 North, Range 4 East and Township 1 North, Range 5 East of the USGS 7.5-minute Holt topographic quadrangle (Figure 2). The crown of most of the levee is at elevations of approximately 4 to 6 feet above mean sea level; interior parts of the tract are about 10 feet below sea level.

Surrounding land uses in this portion of San Joaquin County are almost entirely agricultural, with very widely scattered residences, barns, and shops (Figure 4). The portion of Upper Jones Tract adjacent to the proposed levee improvements consists of leveled irrigated cropland that is primarily farmed in tomatoes, alfalfa, corn, and hay crops. Surrounding islands are farmed in similar annual crops.

HABITAT CONDITIONS: There is no vegetation along the dirt or paved road on top of the levee and very little vegetation along the upper part of the landside levee slope where the crown improvements are proposed (see photographs in Appendix B). There is rock slope protection along much of the upper slope of the land side levee that was installed when Jones Tract flooded in 2004.

VEGETATION: California annual grassland series (Sawyer and Keeler-Wolf, 1995) best describes the vegetation along the landside levee slope. Grasses including

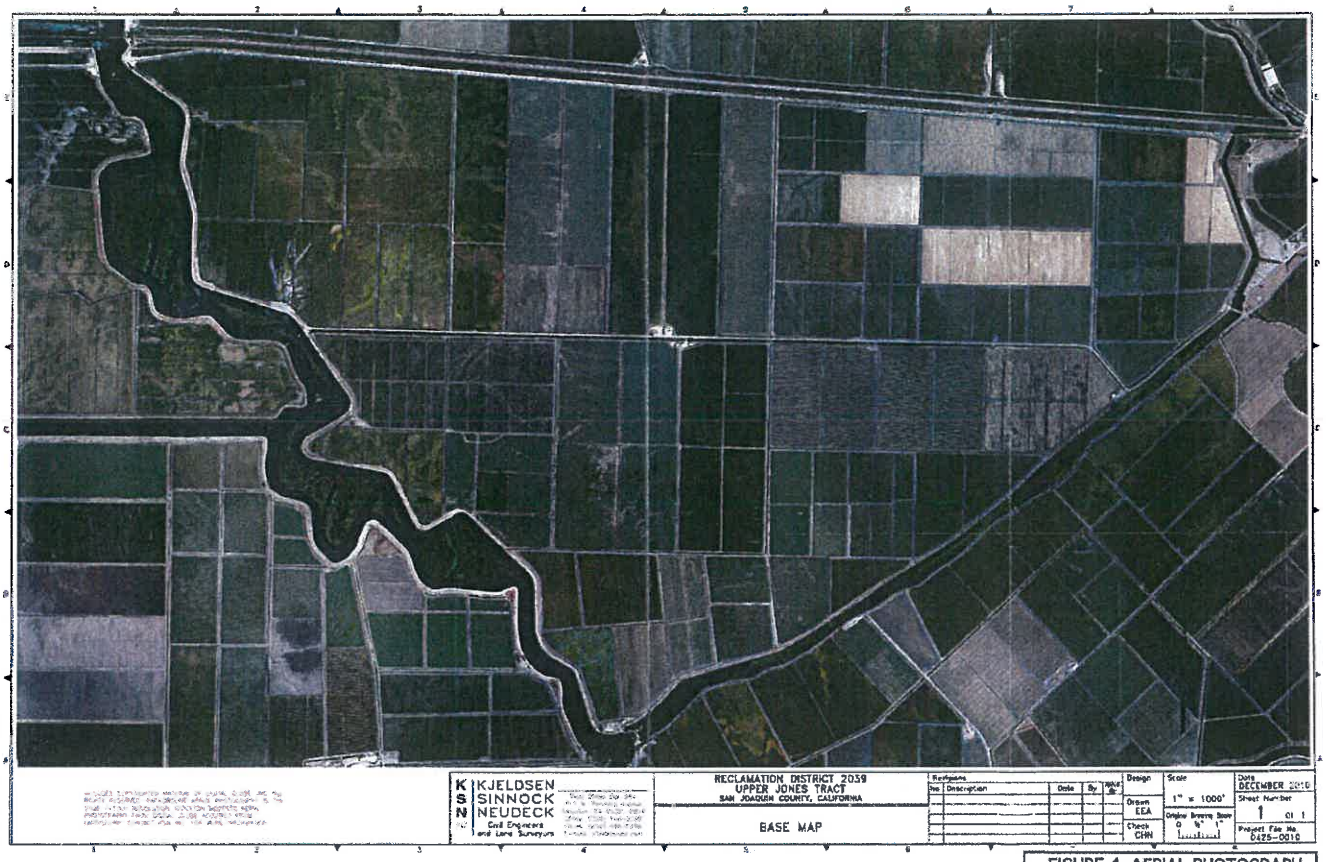


FIGURE 4. AERIAL PHOTOGRAPH

Bermuda grass (*Cynodon dactylon*), ripgut brome (*Bromus diandrus*), perennial ryegrass (*Lolium perenne*), and foxtail barley (*Hordeum murinum*) are dominant grass species. Other grassland species such as black mustard (*Brassica nigra*), wild radish (*Raphanus sativa*), prickly lettuce (*Lactuca serriola*), poison hemlock (*Conium maculatum*), common mallow (*Malva neglecta*), and filaree (*Erodium botrys*) are intermixed with the grasses.

Fennel (*Foeniculum vulgare*), Bermuda grass, poison hemlock, black mustard, perennial pepper weed (*Lepidium latifolium*), and radish are dominant species along the waterside levee slope. Below the ordinary high water mark (OHWM), there is a discontinuous fringe of tules that is relatively sparse along most sections of the levee. Much of Trapper Slough is choked with water hyacinth (*Eichhornia crassipes*), forming a complete blanket across the slough in some sections.

No blue elderberry shrubs (*Sambucus mexicana*) were observed in or near the work area.

There is a single patch of willows (*Salix* spp.) along the land side of the levee between stations 142+85 to 143+60 (Table 1 and photograph in Appendix B). Within the work area, up to an estimated 1,500 ft^2 (0.03 acres) of scrub-shrub vegetation may be impacted by the proposed improvements. The only trees in the land side work areas are a small black walnut [6" in diameter-at-breast height (DBH)] at station 142+15 and a multi-stem cottonwood at station 146+52 (Table 1 and photograph in Appendix B). The patch of willows and these trees will likely need to be removed to accommodate the project and the district will offset impacts to habitat per CDFW requirements under Assembly Bill No. 360 (AB360).

WILDLIFE: A variety of bird species were observed during the recent surveys. Some of the more common birds observed include Canada goose (*Branta canadensis*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo*

TABLE 1

VEGETATION INVENTORY

Vegetation Patch	Work Area	Levee Side	Vegetation Type	Start[1]	End[1]	Trunk[1]	Length (ft)	Width (ft)	Area (ft2)	DBH[2] (in)
1	WA-1	land	black walnut			142+15				6"
2	WA-1	land	shrubby willows (shrub/scrub)	142+85	143+60		75	20	1,500	
3	WA-1	land	cottonwood			146+52				5 stems: 6-14"

[1] location along levee (station)
[2] trunk diameter at breast height.

lineatus), northern harrier (*Circus cyaneus*), great egret (*Casmerodias albus*), great blue heron (*Ardea herodias*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), Brewer's blackbird (*Euphagus cyanocephalus*), and red-winged blackbird (*Agelaius phoeniceus*).

There are a few potential nest trees in or near the work area that may be suitable for nesting raptors and other protected migratory birds, including Swainson's hawk. A few stick nests were observed within some of the trees near the work area and future use of these trees by nesting raptors is possible. Further, it is considered likely that a few songbirds nest within trees, shrubs, and grassland habitats in or adjacent to the work area each year.

A variety of mammals common to agricultural areas likely occur in the project site. However, ground squirrel (*Spermophilus beecheyi*) was the only mammal observed during the recent surveys. Based on habitat types present, a limited number of amphibians and reptiles may use habitats on the tract. However, no reptiles or amphibians were observed along the levee during the recent surveys.

WATERS OF THE U.S. AND WETLANDS: Waters of the U.S., including wetlands, are broadly defined under 33 Code of Federal Regulations (CFR) 328 to include navigable waterways, their tributaries, and adjacent wetlands. State and federal agencies regulate these habitats and Section 404 of the Clean Water Act requires that a permit be secured prior to the discharge of dredged or fill materials into any waters of the U.S., including wetlands. Both CDFW and ACOE have jurisdiction over modifications to riverbanks, lakes, stream channels and other wetland features.

"Waters of the U.S.", as defined in 33 CFR 328.4, encompasses Territorial Seas, Tidal Waters, and Non-Tidal Waters; Non-Tidal Waters includes interstate and intrastate rivers and streams, as well as their tributaries. The limit of federal jurisdiction of Non-Tidal Waters of the U.S. extends to the "ordinary high water mark". The ordinary high water mark is established by physical characteristics

such as a natural water line impressed on the bank, presence of shelves, destruction of terrestrial vegetation, or the presence of litter and debris. Jurisdictional wetlands and Waters of the U.S. include, but are not limited to, perennial and intermittent creeks and drainages, lakes, seeps, and springs; emergent marshes; riparian wetlands; and seasonal wetlands. Wetlands and Waters of the U.S. provide critical habitat components, such as nest sites and a reliable source of water, for a wide variety of wildlife species.

Trapper Slough is a navigable water of the U.S. subject to Section 10 of the River and Harbor Act as well as Section 404 of the Clean Water Act. The limit of federal jurisdiction is the ordinary high water line, which is about 3 feet above mean sea level. This waterway also falls under the jurisdiction of CDFW and the California Regional Water Quality Control Board (RWQCB). There will be no work of any type within Trapper Slough or on the water side levee slope.

Along portions of the levee proposed for improvement, there are so-called "toe ditches" that are not located at the toe of the levee but are offset landward from the base of the landside levee slope, well outside the work area on the upper levee slope and crown. The toe ditches are periodically maintained by the farmers (i.e., sprayed and cleaned), but at some locations support patches of hydrophytic vegetation including cattail (*Typha* sp.) and umbrella sedge (*Cyperus eragrotis*). The toe ditches meet the technical criteria of wetlands to the extent that they have wetland hydrology, hydrophytic vegetation, and hydric soils and are potentially jurisdictional Waters of the U.S. due to their adjacency with the navigable waterways.

The toe ditches are farm ditches used for both irrigation and drainage. Siphons are used to direct water from the surrounding waterways into said ditches for distribution to the farm fields. During much of the year the toe ditches are used for sub-irrigation and for the flooding of the farmlands to replenish soil water and facilitate leaching of salts. The drainage use is to drain the applied irrigation water including field flooding, drain storm water and intercept seepage through

the levee. The seepage through the levee varies greatly with location. There are a few seepage interceptor ditches around the island that originate at the toe of the levee and connect to the toe ditches.

There are similar agricultural ditches throughout the interior part of Upper Jones Tract that are also potentially jurisdictional Waters of the U.S. None of the interior ditches fall within or are near the proposed work area.

Beyond Trapper Slough, the toe ditches, seepage interceptor ditches, and other agricultural ditches in the interior part Upper Jones Tract, no other potentially jurisdictional wetlands or Waters of the U.S. were observed in or near the work areas. Specifically, there are no vernal pools, seasonal wetlands, marshes, ponds, or lakes of any type within or immediately adjacent to the work area.

SPECIAL-STATUS SPECIES: Special-status species are plants and animals that are legally protected under the state and/or federal Endangered Species Act or other regulations. The Federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species.

Special-status species also include other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. The presence of species with legal protection under the Endangered Species Act often represents a major constraint to development, particularly when the species are wide-ranging or highly sensitive to habitat disturbance and where proposed development would result in a take of these species.

Special-status plants are those which are designated rare, threatened, or endangered and candidate species for listing by the U.S. Fish and Wildlife Service (USFWS). Special-status plants also include species considered rare or endangered under the conditions of Section 15380 of the California Environmental Quality Act Guidelines, such as those plant species identified on Lists 1A, 1B and 2 in the Inventory of Rare and Endangered Vascular Plants of California by the California Native Plant Society (CNPS, 2010). Finally, special-status plants may include other species that are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on List 3 in the CNPS Inventory.

Based on the ongoing levels of disturbance from levee maintenance and farming, the likelihood of occurrence of listed, candidate, and other special-status species in the work areas is considered to be generally low. Table 2 provides a summary of the listing status and habitat requirements of special-status species that have been documented in the greater project vicinity or for which there is potentially suitable habitat in the greater project vicinity. This table also includes an assessment of the likelihood of occurrence of each of these species within the work area.

SPECIAL-STATUS PLANTS: Fifteen (15) species of special-status plants were identified in the CNDDB (2014) search: alkali milk-vetch (*Astragalus tener var. tener*), San Joaquin spearscale (*Atriplex joaquiniana*), big tarplant (*Blepharizonia plumosa ssp. plumosa*), round-leaved filaree (*California macrophyllum*), bristly sedge (*Carex comosa*), recurved larkspur (*Delphinium recurvatum*), delta button celery (*Eryngium racemosum*), diamond-petaled California poppy (*Eschscholzia rhombipetala*), wooly rose mallow (*Hibiscus lasiocarpus*), Delta tule pea (*Lathyrus jepsonii var. jepsonii*), Mason's lilaeopsis (*Lilaeopsis masonii*), Delta mudwort (*Limosella subulata*), marsh skullcap (*Scutellaria galericulata*), Suisun marsh aster (*Symphotrichum lentum*), and caper-fruited tropidocarpum (*Tropidocarpum capparideum*) (Table 2 and CNDDB search results in Appendix

TABLE 2

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Work Areas
PLANTS						
Alkali milk-vetch	*Astragalus tener var. tener*	None	None	1B	Alkali vernal pools.	Unlikely: the levee crown and slopes are highly disturbed and do not provide suitable habitat for this species; there are no vernal pools on the tract. The nearest occurrence of alkali milk-vetch in the CNDDB (2014) search area is approximately 8 miles southwest of the tract.
San Joaquin spearscale	*Atriplex joaquiniana*	None	None	1B	Chenopod scrub, alkali meadow, valley and foothill grassland.	Unlikely: the levee crown and slopes are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of San Joaquin spearscale in the CNDDB (2014) search area is approximately 4.5 miles west of the tract.
Big tarplant	*Blepharizonia plumosa ssp. plumosa*	None	None	1B	Valley and foothill grassland.	Unlikely: the levee crown and slopes are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of big tarplant in the CNDDB (2014) search area is approximately 9 miles south of the tract.
Round-leaved filaree	*California macrophyllum*	None	None	2	Cismontane woodland and valley and foothill grassland.	Unlikely: the levee crown and slopes are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of round-leaved filaree in the CNDDB (2014) search area is approximately 7.5 miles southwest of the tract.
Bristly sedge	*Carex comosa*	None	None	2	Marshes and swamps, lake margins, wet places.	Unlikely: while it may occur in regional delta waterways, the levee crown and slopes do not contain suitable habitat for this species. Due to high levels of maintenance, the toe ditches and other interior tract agricultural ditches are unlikely to support bristly sedge. This species is recorded in the CNDDB (2014) near the northeast tip of the tract, near the community of Holt. The CNDDB describes this 1928 population as "possibly extirpated".

TABLE 2

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Work Areas
Recurved larkspur	*Delphinium recurvatum*	None	None	1B	Chenopod scrub, valley and foothill grassland, and cismontane woodland; alkaline soil.	Unlikely: the levee crown and slopes are highly disturbed and do not provide suitable habitat for this species; no alkaline soils were observed in the work areas. The nearest occurrence of recurved larkspur in the CNDDB (2014) search area is approximately 7.5 miles southwest of the tract.
Delta button celery	*Eryngium racemosum*	None	E	1B	Seasonally inundated (usually floodplain) riparian scrub with a clay substrate.	Unlikely: while it may occur in regional delta waterways, the levee crown and slopes are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of delta button celery in the CNDDB (2014) search area is approximately 5 miles west of the tract.
Diamond-petaled California poppy	*Eschscholzia rhombipetala*	None	None	1B	Valley and foothill grasslands, alkaline, clay slopes and flats.	Unlikely: the levee crown and slopes are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of diamond-petaled California poppy in the CNDDB (2014) search area is approximately 7 miles west of the tract.
Wooly rose mallow	*Hibiscus lasiocarpus*	None	None	2	Freshwater marshes and swamps.	Unlikely: while it occurs in regional delta waterways, the levee crown and slopes do not contain suitable habitat for this species. Due to high levels of maintenance, the toe ditches and other interior agricultural ditches on the tract are unlikely to support wooly rose mallow. This species is recorded in the CNDDB (2014) in the waterways on all sides of Upper Jones Tract.
Contra Costa goldfields	*Lasthenia conjugens*	E	None	1B	Valley and foothill grassland within vernal pools and swales.	Unlikely: the levee crown and slopes are highly disturbed and do not provide suitable habitat for Contra Costa goldfields; there are no vernal pools on the tract. There are no recorded occurrences of this species in the CNDDB (2014) search area. The site is not within designated critical habitat for Contra Costa goldfields (USFWS 2005a).

TABLE 2

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Work Areas
Delta tule pea	*Lathyrus jepsonii var. jepsonii*	None	None	1B	Marshes and swamps.	Unlikely: while it occurs in regional delta waterways, the levee crown and slopes do not contain suitable habitat for this species. Due to high levels of maintenance, the toe ditches and other interior tract agricultural ditches are unlikely to support Delta tule pea. This species is recorded in the CNDDB (2014) in Middle River along the west side of Upper Jones Tract.
Mason's lilaeopsis	*Lilaeopsis masonii*	None	R	1B	Marshes, swamps and riparian scrub.	Unlikely: while it occurs in regional delta waterways, the levee crown and slopes do not contain suitable habitat for this species. Due to high levels of maintenance, the toe ditches and other interior tract agricultural ditches are unlikely to support Mason's lilaeopsis. This species is recorded in the CNDDB (2014) in Middle River along the west side of Upper Jones Tract.
Delta mudwort	*Limosella subulata*	None	None	2	Marshes and swamps.	Unlikely: while it occurs in regional delta waterways, the levee crown and slopes do not contain suitable habitat for this species. Due to high levels of maintenance, the toe ditches and other interior tract agricultural ditches are unlikely to support Delta mudwort. This species is recorded in the CNDDB (2014) along the west side of the tract.
Marsh skullcap	*Scutellaria galericulata*	None	None	2	Marshes and swamps.	Unlikely: while it may occur in regional delta waterways, the levee crown and slopes are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of marsh skullcap in the CNDDB (2014) search area is in Middle River along the west side of the tract.
Suisun marsh aster	*Symphotrichum lentum*	None	None	1B	Marshes and swamps.	Unlikely: while it may occur in regional delta waterways, the levee crown and slopes are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of Suisun marsh aster in the CNDDB (2014) search area is approximately 2.5 miles northwest of the

TABLE 2

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Work Areas
						tract.
Caper-fruited tropidocarpum	*Tropidocarpum capparideum*	None	None	1B	Valley and foothill grassland, alkaline soils.	Unlikely: the levee crown and slopes are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of caper-fruited tropidocarpum in the CNDDB (2014) search area is approximately 4 miles west of the tract.
WILDLIFE						
Birds						
Swainson's hawk	*Buteo swainsoni*	None	T	N/A	Breeds in stands of tall trees in open areas. Requires adjacent suitable foraging habitats such as grasslands or alfalfa fields supporting rodents.	High: the alfalfa and corn fields on Upper Jones Tract and nearby islands provide very high quality foraging habitat for Swainson's hawk, and this species was observed foraging on Upper Jones Tract during the recent surveys. There are a limited number of potential nest trees on the tract; some of these trees are along the levees and some are along the north edge of the railroad tracks. There are many records of nesting Swainson's hawks in the project vicinity; nesting Swainson's hawk are recorded in the CNDDB (2014) nesting in the northwest tip of Upper Jones Tract.
Burrowing owl	*Athene cunicularia*	None	SC	N/A	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	Low: there are not too many ground squirrels or ground squirrel burrows along the levees; most of the work areas are highly disturbed by levee maintenance and farming. No burrowing owls or evidence of occupancy were found during the 2011 surveys. The nearest occurrence of nesting burrowing owls in the CNDDB (2014) search area is on Roberts Island, approximately 1.5 miles north of the tract.
Northern harrier	*Circus cyaneus*	None	SC	N/A	Coastal salt and fresh water marsh, nests and forage in grasslands.	High: northern harriers were observed soaring over Upper Jones Tract. It is possible that this species nests in marshes in the area during some years. The nearest occurrence of this species in the CNDDB (2014) search area is approximately 6 miles southwest of the tract.

TABLE 2

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Work Areas
California black rail	*Laterallus jamaicensis coturniculus*	None	T	N/A	Mainly inhabits salt marshes bordering larger bays	Moderate: while they may nest in regional delta waterways, the levee crown and slopes do not provide suitable habitat for California black rail. This species is recorded in the CNDDB (2014) in Middle River along the west side of Upper Jones Tract.
Tricolored blackbird	*Agelaius tricolor*	None	SC	N/A	Requires open water and protected nesting substrate, usually cattails and riparian scrub with surrounding foraging habitat.	Moderate: the tules, cattails, and scrub-shrub vegetation along the levees provides suitable tricolored nesting habitat. The nearest occurrence of this species in the CNDDB (2014) search area is approximately 8 miles southeast of the tract.
Loggerhead shrike	*Lanius ludovicianus*	None	SC	N/A	Annual grasslands and agricultural areas throughout the Central Valley; nests in trees and shrubs.	Moderate: the ruderal grassland along the levee slopes are highly disturbed, but still provide potentially suitable foraging habitat for loggerhead shrike. There are only a few trees and shrubs in the work areas for nesting. The nearest occurrence of loggerhead shrike in the CNDDB (2014) search area is approximately 8 miles southwest of the tract.
Mammals						
Riparian brush rabbit	*Sylvilagus bachmani riparius*	E	E	N/A	Riparian thickets in Stanislaus and southern San Joaquin Counties.	Unlikely: there is no suitable habitat in the work areas for riparian brush rabbit. The majority of the levee slopes have open rock and dirt faces with sparse ruderal grasses and weeds; the limited patches of scrub-shrub vegetation along the levee are too small and sparse to support this species. There are no recorded occurrences of this species in the CNDDB (2014) search area.
San Joaquin kit fox	*Vulpes macrotis mutica*	E	T	N/A	Inhabits open, dry grasslands and scrublands with loose textured soils.	Unlikely: there is no suitable habitat on the tract. for San Joaquin kit fox. The nearest occurrence of this species in the CNDDB (2014) search area is approximately 7 miles southwest of the tract.

TABLE 2

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Work Areas
American badger	*Taxidea taxus*	None	SC	N/A	Drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Unlikely: the grasslands along the levee slopes are highly disturbed and do not provide suitable habitat for American badger. The nearest occurrence of this species in the CNDDB (2014) search area is approximately 9.5 miles southwest of the tract.
Reptiles & Amphibians						
Giant garter snake	*Thamnophis gigas*	T	T	N/A	Freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches, primarily for dispersal or migration.	Unlikely: the levee crown and slopes are highly disturbed and do not provide suitable habitat for giant garter snake (ECORP, 2013). Due to high levels of maintenance, the toe ditches and other interior tract agricultural ditches are unlikely to support this species. Giant garter snake is not known from this part of the delta and there are no recorded occurrences of this species in the CNDDB (2014) search area.
California red-legged frog	*Rana aurora draytonii*	T	SC	N/A	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Unlikely: there is no suitable aquatic habitat for California red-legged frog in or near the project site. California red-legged frog is also presumed extinct on the floor of the Central Valley of California. The nearest occurrence of this species in the CNDDB (2014) search area is approximately 7 miles southwest of the tract. Upper Jones Tract is not within designated critical habitat for California red-legged frog (USFWS, 2006).
Western pond turtle	*Emys marmorata*	None	SC	N/A	Ponds, marshes, streams, and ditches with emergent aquatic vegetation and basking areas.	Moderate: although it may occur in Delta waterways and relatively larger and perennial agricultural ditches, the levee crown and slopes do not provide suitable habitat for western pond turtle. The nearest documented occurrence of this species in the CNDDB (2014) search area is in Trapper Slough, along the southeast edge of the tract.

TABLE 2

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Work Areas
California tiger salamander	*Ambystoma californiense*	T	T	N/A	Seasonal water bodies without fish (i.e., vernal pools and stock ponds) and grassland/ woodland habitats with summer refugia (i.e., burrows).	Unlikely: There is no suitable habitat within or near the work areas for California tiger salamander. This species occurs in the transitional bands between the valley floor and foothills and is not known to occur on interior delta islands. The nearest occurrence of California tiger salamander in the CNDDB (2014) search area is approximately 7 miles southwest of the tract. The tract is not within designated critical habitat for California tiger salamander (USFWS, 2005b).
Alameda whipsnake	*Masticophis lateralis euryxanthus*	T	T	N/A	Scrub, chaparral, grassland, and woodland habitat mosaics. South-facing slopes and ravines.	Unlikely: the grasslands along the levee slopes are highly disturbed and do not provide suitable habitat for this species. There are no occurrences of Alameda whipsnake recorded in the CNDDB (2014) within the search area.
Fish						
Central Valley steelhead	*Oncorhynchus mykiss*	T	None	N/A	Riffle and pool complexes with adequate spawning substrates within Central Valley drainages.	Unlikely: this species may occur in waterways surrounding Upper Jones Tract on a seasonal basis. There are no occurrences of Central Valley steelhead recorded in the CNDDB (2014) within the search area. The waterways surrounding the tract are designated critical habitat for Central Valley steelhead (NOAA, 2005).
Winter-run Chinook salmon	*Oncorhynchus tshawytscha*	E	E	N/A	Deep flowing pools and riffle complexes with adequate spawning substrates; currently known only from the Sacramento River system.	Unlikely: although historically present, viable populations of winter-run Chinook salmon are currently restricted to the Sacramento River and some of its major tributaries. There are no occurrences of this species recorded in the CNDDB (2014) within the search area.

TABLE 2

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Work Areas
Spring-run Chinook salmon	*Oncorhynchus tshawytscha*	T	T	N/A	Deep flowing pools and riffle complexes with adequate spawning substrates; currently known only from the Sacramento River system.	Unlikely: although historically present, viable populations of spring-run Chinook salmon are currently restricted to the Sacramento River and some of its major tributaries. There are no occurrences of this species recorded in the CNDDB (2014) within the search area.
Green sturgeon	*Acipenser medirostris*	T	SC	N/A	Freshwater and saltwater habitats; spawn in freshwater rivers.	Unlikely: this species may occur in waterways surrounding Upper Jones Tract on a seasonal basis. There are no occurrences of green sturgeon recorded in the CNDDB (2014) within the search area.
Delta smelt	*Hypomesus transpacificus*	T	T	N/A	Shallow lower delta waterways with submersed aquatic plants and other suitable refugia.	Unlikely: this species may occur in waterways surrounding Upper Jones Tract on a seasonal basis, although it is more common in the lower delta. There is an occurrence of delta smelt in the CNDDB (2014) in Old River, approximately 1.5 miles west of Upper Jones Tract. The waterways surrounding the tract are designated critical habitat for delta smelt (USFWS, 1994).
Invertebrates						
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	None	N/A	Elderberry shrubs, usually in Central Valley riparian habitats.	Unlikely: no blue elderberry shrubs were observed within or adjacent to the work areas. The closest occurrence of valley elderberry longhorn beetle in the CNDDB (2014) search area is approximately 5 miles southeast of the tract.
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	None	N/A	Vernal pools	Unlikely: there are no vernal pools on the tract. The closest occurrence of vernal pool fairy shrimp in the CNDDB (2014) search area is approximately 8 miles southwest of the tract. Upper Jones Tract is not within designated critical habitat for vernal pool fairy shrimp or other listed branchiopods (USFWS 2005a).

TABLE 2

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[2]	CNPS List[3]	Habitat	Potential for Occurrence in the Work Areas
Longhorn fairy shrimp	*Branchinecta longiantennae*	E	None	N/A	Vernal pools	Unlikely: there are no vernal pools on the tract. There are no occurrences of longhorn fairy shrimp recorded in the CNDDB (2014) within the search area.
Conservancy fairy shrimp	*Branchinecta conservatio*	T	None	N/A	Vernal pools	Unlikely: there are no vernal pools on the tract. There are no occurrences of Conservancy fairy shrimp recorded in the CNDDB (2014) within the search area.
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	None	N/A	Vernal pools	Unlikely: there are no vernal pools on the tract. There are no occurrences of vernal pool tadpole shrimp recorded in the CNDDB (2014) within the search area.

1 T= Threatened; E = Endangered.

2 T = Threatened; E = Endangered; R = Rare; SC=State of California Species of Special Concern

3 CNPS List 1B includes species that are rare, threatened, or endangered in California and elsewhere; List 2 includes plants that are rare, threatened or endangered in California but are more common elsewhere.

A). Although not included in the CNDDB within the search area, Contra Costa goldfields (*Lasthenia conjugens*) was added to Table 2 because designated critical habitat for this species is identified in the USFWS Species List.

Special-status plants generally occur in relatively undisturbed areas and are largely found within unique vegetation communities such as vernal pools, marshes and swamps, and areas with unique soils. Most of the species listed in Table 2 occur in marshes and swamps or riparian woodlands. Bristly sedge, wooly rose mallow, Delta tule pea, Mason's lilaeopsis, delta mudwort, and marsh skullcap are recorded in the CNDDB (2014) growing in the waterways near Upper Jones Tract, especially in Middle River. These species, along with the other species in Table 2 that occur in wetland habitats may occur in Trapper Slough below the OHWM, but would not occur on the levee crown or landside levee slope. Due to high levels of maintenance, the toe ditches and other interior island agricultural ditches are unlikely to support rare plants.

San Joaquin spearscale, big tarplant, round-leaved filaree, recurved larkspur, diamond-petaled California poppy, and caper-fruited tropidocarpum occur in grassland, cismontane woodland, or chenopod scrub habitats. However, the disturbed upland grassland on the landside levee slope is routinely disked, mowed, and sprayed. This highly disturbed upland grassland habitat does not provide suitable habitat for special-status plants. Delta button celery occurs in seasonally inundated riparian scrub with a clay substrate; this habitat type is not present in the proposed levee improvement work areas. Finally, alkali milk-vetch, Contra Costa goldfields, and succulent owl's clover are vernal pool species; there are no vernal pools on Upper Jones Tract.

SPECIAL-STATUS WILDLIFE: The potential for intensive use of habitats within the work areas by special-status wildlife species is also generally considered low. Special-status wildlife species recorded in greater project vicinity in the CNDDB (2014) include Swainson's hawk, burrowing owl, northern harrier (*Circus cyaneus*), California black rail (*Laterallus jamaicensis coturniculus*), tricolored

blackbird (*Agelaius tricolor*), loggerhead shrike (*Lanius ludovicianus*), San Joaquin kit fox (*Vulpes macrotis mutica*), American badger (*Taxidea taxus*), giant garter snake (*Thamnophis gigas*), California red-legged frog (*Rana aurora draytonii*), western pond turtle (*Emys marmorata*), California tiger salamander (*Ambystoma californiense*), delta smelt (*Hypomesus transpacificus*), vernal pool fairy shrimp (*Branchinecta lynchi*), and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). The remaining species in Table 2 are not recorded in the CNDDB within the 240+/- square mile search area (i.e., the Holt, Woodward Island, Clifton Court Forebay, and Union Island topographic quadrangles) but are either on the USFWS Species List for the area (Appendix A) or were observed on Upper Jones Tract during the recent surveys.

Swainson's hawk, burrowing owl, tricolored blackbird, northern harrier, California black rail, and other bird species protected by the Migratory Bird Treaty Act have potential to occur in or near the work areas and could be adversely affected by site construction if they nested in or near the work areas during construction.

Western pond turtle, delta smelt, green sturgeon (*Acipenser medirostris*), Chinook salmon (*Oncorhynchus tshawytscha*), and Central Valley steelhead (*Oncorhynchus mykiss*) are aquatic species that could potentially occur in nearby waterways, but have essentially no potential to occur in the work areas.

Giant garter snake is not known from this part of the delta and there are no recorded occurrences of this species in the CNDDB (2014) search area. In a habitat assessment for giant garter snake, ECORP herpetologists concluded there is a very low likelihood that the giant garter snake occurs in the project area (ECORP, 2013). They found that habitats present on-site are unsuitable for this species and noted that despite numerous trapping an survey efforts west of Stockton in the past two decades, the only documented population is at White Slough, 13+-/ miles north of the project site. Please see ECORP's habitat assessment for further information on this species (Appendix C).

Avoidance and Minimization Measures

The following avoidance and minimization measures will be incorporated into the project to reduce the potential for impacts to jurisdictional Waters of the U.S. and wetlands, special-status species, and potential or actual habitats of special-status species:

- Avoid impacts to potentially jurisdictional Waters of the U.S. and wetlands by restricting all work to the levee crown and landside levee slope, as proposed.

- In order to avoid take of protected raptors and migratory birds between February 1 and August 31, an initial pre-construction nest survey shall be conducted by a CDFW approved biologist. The survey shall be conducted within fifteen (15) days prior to the beginning of construction activities in order to identify active nests within five hundred feet (500 ft.) of the project work areas and as to raptors' active nests within a quarter mile (1320 ft.) of the project work areas. The surveys shall incorporate methodologies from CDFW's 1994 Staff Report regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California (CDFW, 1994) and the Swainson's Hawk Technical Advisory Committee (SHTAC) survey guidelines (SHTAC, 2000). If active raptor nests are found within 1320 feet of the work area or other active nests within 500 feet of the work area, a temporary buffer of 1320 feet and 500 feet respectively shall be established and an on-site biologist/monitor experienced with raptor behavior shall be retained by the District. The biologist shall monitor the nest(s) and consult with the CDFW to determine the buffers to be applied and best course of action to avoid nest abandonment or take of individuals. The necessity and extent for temporal construction restrictions shall be determined by CDFW. CDFW may determine it is necessary for a designated biologist/monitor to be on-site daily while construction-related activities are within or near buffer areas.

The on-site biologist/monitor shall have authority to stop work if raptors are exhibiting agitated behavior such as defensive flights at intruders, unusual getting up from a brooding position or unusual flying off the nest. If during the nesting season there is a lapse in project-related work of fifteen (15) days or longer, another focused survey shall be performed and the results sent to CDFW prior to resuming work.

- Preconstruction surveys for burrowing owls shall be undertaken prior to construction activities between February 1 and August 31 by a CDFW approved Biologist. The District will follow the 2012 Staff Report on Burrowing Owl Mitigation in order to reduce the chance of adversely impacting Burrowing Owls. A copy of the guidelines can be found at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843. Prior to construction, CDFW will be contacted with the survey results. If owls are observed at any point during the duration of the project, the District will stop work, consult with CDFW immediately to determine the appropriate avoidance, minimization, and mitigation measures prior to continuing construction activities. If a lapse in construction of more than 15 day occurs then the project area will be resurveyed within 24 hours prior to the commencement of construction.

- Trees and shrubs within the work areas could be used by other birds protected by the Migratory Bird Treaty Act of 1918. The grasslands may be used by ground-nesting species. Any vegetation removal during the avian nesting season (February 1 through August 31) shall be immediately preceded by a survey. If active nests are found, adequate marking of the nest site shall be provided and vegetation removal in the vicinity of the nest shall be delayed until the young fledge.

- For construction in the non-nesting season (i.e., for construction between September 1 to January 31), the District shall consult with CDFW regarding the appropriate pre-construction surveys, and avoidance and

minimization measures.

- Pre-construction surveys for western pond turtle and their nests will be conducted. This will involve a search for nests in uplands on the land side of the levees. If nest sites are located, the District will notify CDFW and a 50-foot buffer area around the nest shall be staked and work will be delayed until hatching is complete and the young have left the nest site.

- The District will implement the following biological avoidance and minimization measures for Giant garter snake (*Thamnophis gigas*) (GGS), a State and Federally listed species under the State and Federal Endangered Species Acts:

    1. All construction activities along Trapper Slough will be conducted between May 1 and October 1, during the snake's active period.
    2. A CDFW and/or USFWS approved biologist (approved biologist) will conduct a pre-construction survey of the construction and staging areas of the project within 24 hours of the commencement of construction. Prior to construction CDFW will be contacted with the survey results. Surveys of the project area will be repeated if a lapse in construction activity of 7 days or greater has occurred.
    3. All construction personnel will participate in a worker environmental awareness program prior to commencement of work by the District's approved biologist. The awareness program will include discussion of the biology and general behavior of the species, information about the distribution and habitat needs of the species, sensitivity of the species to human activities, potential impacts associated with levee projects, its status pursuant to CESA including legal protection, penalties for violations, and the Project-specific protective measures. The same instruction shall be given to any new workers to the project area throughout the duration of the project. The District shall

provide interpretation of the instructions for non-English speaking workers.

4. If a snake is encountered during construction, activities will cease until appropriate corrective measures have been completed or it has been determined that the snake will not be harmed. Any snakes encountered will be unharmed and allowed to move away from the construction activities on their own. Any sighting of snakes will be reported to CDFW.
5. The District's approved biologist has the authority to stop construction if there is reason to believe that a snake may be negatively impacted by the construction work. In this event, the biologist will consult with CDFW and it may be necessary for an on-site monitor to be present through the duration of the project. Work may resume once the District has consulted with the CDFW, and it has been determined that snakes will not be harmed.
6. A maximum speed limit of 15 mph along Trapper Slough will be posted and implemented during all phases of construction to allow drivers/equipment operators to be able to spot and avoid any encounters with snakes.
7. If erosion control is needed only tightly woven fiber netting or similar material shall be used for erosion control to ensure that snakes do not get trapped and become entangled. Materials such as mono-filament netting (erosion control matting) or similar material will not be used.
8. No material will be placed along the waterside levee (from the hinge point down the waterside slope, to the bed of the slough).
9. No toe ditches will be filled, relocated, or modified.
10. Movement of heavy equipment to and from the project site shall be restricted to established roadways to minimize habitat disturbance. No heavy equipment or vehicle traffic will occur along the toe of the landside levee.

11. The District will ensure all project-related parking, storage areas, equipment storage, and any other surface-disturbing activities, are restricted to areas that to the extent possible have been previously disturbed and are a minimum of 200 feet from potential aquatic GGS habitat.

- A biological worker awareness training program shall be implemented to educate the construction crews of the biological diversity within the project area. The worker awareness program shall include a presentation on the life history and legal status of potentially occurring special-status species and distribution of informational packages to each worker. While all of the species in Table 2 will be at least briefly addressed, the focal species of the worker awareness training program will be Swainson's hawk, burrowing owl, and western pond turtle.

- A copy of the District's Biological Avoidance and Minimization Measures will be kept on site for reference during the duration of the project.

In addition to the above Avoidance and Minimization Measures, the project will offset impacts to habitat per CDFW requirements under AB360. The collective implementation of these measures as a part of the project will assure the protection of sensitive habitat and species and the maintenance of biological functions and values.

Thank you, again, for asking Moore Biological Consultants to assist with the project. Please feel free to call me at (209) 745-1159 with any questions.

Sincerely,

Diane S. Moore, M.S.
Principal Biologist

References and Literature Consulted

ACOE (U.S. Army Corps of Engineers). 1987. Technical Report Y87-1. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MI.

ACOE. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. U.S. Army Engineer Research and Development Center, Vicksburg, MS. September.

ACOE and EPA (Environmental Protection Agency). 2007. U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook. May 30.

CBOC (California Burrowing Owl Consortium) 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. April.

CDFG (California Department of Fish and Game). 1994. Staff Report regarding Mitigation for Impacts to Swainson's Hawks (*Buteo Swainsoni*) in the Central Valley of California. November.

CDFG (California Department of Fish and Game). 2012. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Wildlife, Sacramento, California. March 7.

CNDDB (California Natural Diversity Database). 2011. California Department of Fish and Wildlife's Natural Heritage Program, Sacramento, California.

CNDDB 2014. California Department of Fish and Wildlife's Natural Heritage Program, Sacramento, California.

CNPS (California Native Plant Society). 2010. On-line Inventory of Rare and Endangered Vascular Plants of California, 8th Edition. California Native Plant Society, Sacramento, California. www.rareplants.cnps.org

ECORP. 2013. Giant Garter Snake (*Thamnophis gigas*) Habitat Assessment for Upper Jones Tract, San Joaquin County, California. Prepared for Moore Biological Consultants. July 29.

Jennings, M.R. and M.P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. Prepared for California Department of Fish and Wildlife, Rancho Cordova, California. November.

Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society, Sacramento. California.

Kjeldsen, C.K. and J.R. Arnold. 1991. Reclamation District No. 2039 Upper Jones Tract Habitat Assessment. March.

National Oceanic and Atmospheric Administration (NOAA). 2005. Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule. Federal Register 70 (170): 52488-52585. September 2, 2005.

SHTAC (Swainson's Hawk Technical Advisory Committee). 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. May 31.

USFWS (United States Fish and Wildlife Service). 1994. Final Critical Habitat for the Delta Smelt (*Hypomesus transpacificus*). Federal Register Vol. 59, No. 242, December 19, 1994, pp. 65256 – 65279.

USFWS. 2005a. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Tiger Salamander, Central Population; Final Rule. Federal Register Vol. 70, No. 162, August 23, 2005, pp. 49390 – 49458.

USFWS. 2005b. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Evaluation and Economic Exclusions from August 2003 Final Designation, Final Rule. Federal Register Vol. 70, No. 154, August 11.

USFWS. 2006. Part II, Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17: Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for California Red-Legged Frog, and Special Rule Exemption Associated with Final Listing for Existing Routine Ranching Activities, Final Rule. Federal Register Vol. 71, No. 71, April 13.

Appendix A

USFWS Species List &

CNDDB Summary Report

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 140204034642

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

Branchinecta conservatio
- Conservancy fairy shrimp (E)

Branchinecta longiantenna
- longhorn fairy shrimp (E)

Branchinecta lynchi
- Critical habitat, vernal pool fairy shrimp (X)
- vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
- valley elderberry longhorn beetle (T)

Lepidurus packardi
- vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
- green sturgeon (T) (NMFS)

Hypomesus transpacificus
- Critical habitat, delta smelt (X)
- delta smelt (T)

Oncorhynchus mykiss
- Central Valley steelhead (T) (NMFS)
- Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
- Central Valley spring-run chinook salmon (T) (NMFS)
- winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
- California tiger salamander, central population (T)

Rana draytonii
- California red-legged frog (T)
- Critical habitat, California red-legged frog (X)

Reptiles

Masticophis lateralis euryxanthus
- Alameda whipsnake [=striped racer] (T)

Thamnophis gigas
giant garter snake (T)

Mammals

Sylvilagus bachmani riparius
riparian brush rabbit (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Lasthenia conjugens
Critical habitat, Contra Costa goldfields (X)

Quads Containing Listed, Proposed or Candidate Species:

HOLT (462B)
UNION ISLAND (462C)
WOODWARD ISLAND (463A)
CLIFTON COURT FOREBAY (463D)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 05, 2014.

California Department of Fish and Game
Natural Diversity Database
CNDDB Wide Tabular Report
Upper Jones Tract 10-3.0 (4-quadrangle search)

Name (Scientific/Common)	CNDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks A	B	C	D	X	U	Population Status Historic >20 yr	Recent <=20 yr	Presence Pres. Extant	Poss. Extirp.	Extirp.
Agelaius tricolor tricolored blackbird	G2G3 S2	CDFG: SC	Fed: None Cal: None	429 S:2	1	0	0	0	1	0	1	1	1	1	0
Alkali Meadow	G3 S2.1		Fed: None Cal: None	8 S:1	0	0	0	0	0	1	1	0	1	0	0
Ambystoma californiense California tiger salamander	G2G3 S2S3	CDFG: SC	Fed: Threatened Cal: Threatened	1086 S:10	1	1	1	0	2	5	4	6	8	2	0
Ardea herodias great blue heron	G5 S4	CDFG:	Fed: None Cal: None	132 S:1	0	1	0	0	0	0	0	1	1	0	0
Astragalus tener var. tener alkali milk-vetch	G2T2 S2	CNPS: 1B.2	Fed: None Cal: None	65 S:3	0	1	0	1	1	0	1	2	2	1	0
Athene cunicularia burrowing owl	G4 S2	CDFG: SC	Fed: None Cal: None	1846 S:26	2	7	4	6	0	7	8	18	26	0	0
Atriplex cordulata var. cordulata heartscale	G3T2 S2	CNPS: 1B.2	Fed: None Cal: None	68 S:1	0	0	1	0	0	0	0	1	1	0	0
Atriplex joaquinana San Joaquin spearscale	G2 S2	CNPS: 1B.2	Fed: None Cal: None	109 S:10	0	3	5	0	1	1	3	7	9	0	1
Blepharizonia plumosa big tarplant	G2 S2	CNPS: 1B.1	Fed: None Cal: None	48 S:1	0	0	0	0	0	1	1	0	1	0	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S2S3	CDFG:	Fed: Threatened Cal: None	611 S:5	3	2	0	0	0	0	0	5	5	0	0
Branchinecta mesovallensis midvalley fairy shrimp	G2 S2	CDFG:	Fed: None Cal: None	101 S:2	1	0	0	0	0	1	0	2	2	0	0
Buteo regalis ferruginous hawk	G4 S3S4	CDFG:	Fed: None Cal: None	96 S:1	0	0	1	0	0	0	1	0	1	0	0
Buteo swainsoni Swainson's hawk	G5 S2	CDFG:	Fed: None Cal: Threatened	2395 S:110	29	17	2	1	0	61	8	102	110	0	0
California macrophylla round-leaved filaree	G2 S2	CNPS: 1B.1	Fed: None Cal: None	155 S:1	0	0	0	0	0	1	1	0	1	0	0
Carex comosa bristly sedge	G5 S2	CNPS: 2B.1	Fed: None Cal: None	29 S:1	0	0	0	0	1	0	1	0	0	1	0

California Department of Fish and Game
Natural Diversity Database
CNDDB Wide Tabular Report
Upper Jones Tract 10-3.0 (4-quadrangle search)

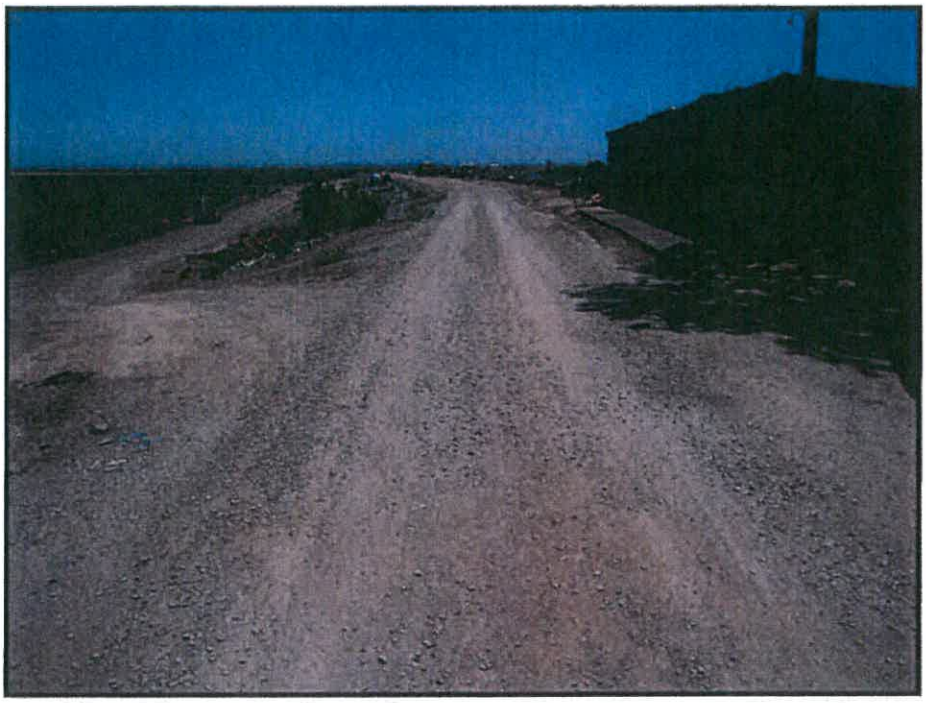
Name (Scientific/Common)	CNDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks A	B	C	D	X	U	Population Status Historic >20 yr	Recent <=20 yr	Presence Pres. Extant	Poss. Extirp.	Extirp.
Circus cyaneus northern harrier	G5 S3	CDFG: SC	Fed: None Cal: None	43 S:1	0	0	1	0	0	0	1	0	1	0	0
Coastal and Valley Freshwater Marsh	G3 S2.1		Fed: None Cal: None	60 S:3	0	1	0	0	0	2	3	0	3	0	0
Delphinium recurvatum recurved larkspur	G3 S3	CNPS: 1B.2	Fed: None Cal: None	96 S:4	1	1	0	0	0	2	4	0	4	0	0
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S2	CDFG:	Fed: Threatened Cal: None	201 S:1	0	0	0	0	0	1	1	0	1	0	0
Elanus leucurus white-tailed kite	G5 S3	CDFG:	Fed: None Cal: None	158 S:1	0	0	0	0	0	1	1	0	1	0	0
Emys marmorata western pond turtle	G3G4 S3	CDFG: SC	Fed: None Cal: None	1137 S:16	1	9	0	2	0	4	2	14	16	0	0
Eremophila alpestris actia California horned lark	G5T3Q S3	CDFG:	Fed: None Cal: None	77 S:3	0	0	2	1	0	0	2	1	3	0	0
Eryngium racemosum Delta button-celery	G1Q S1	CNPS: 1B.1	Fed: None Cal: Endangered	26 S:1	0	0	0	0	1	0	0	1	0	1	0
Eschscholzia rhombipetala diamond-petaled California poppy	G1 S1	CNPS: 1B.1	Fed: None Cal: None	10 S:1	0	0	0	0	1	0	1	0	0	1	0
Great Valley Valley Oak Riparian Forest	G1 S1.1		Fed: None Cal: None	33 S:2	0	0	0	0	0	2	2	0	2	0	0
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	G5T2 S2	CNPS: 1B.2	Fed: None Cal: None	179 S:42	0	23	9	6	0	4	13	29	42	0	0
Hygrotus curvipes curved-foot hygrotus diving beetle	G1 S1	CDFG:	Fed: None Cal: None	21 S:4	0	0	0	0	0	4	4	0	4	0	0
Hypomesus transpacificus Delta smelt	G1 S1	CDFG:	Fed: Threatened Cal: Endangered	27 S:4	0	0	0	0	0	4	0	4	4	0	0
Lanius ludovicianus loggerhead shrike	G4 S4	CDFG: SC	Fed: None Cal: None	94 S:1	0	1	0	0	0	0	0	1	1	0	0
Laterallus jamaicensis coturniculus California black rail	G4T1 S1	CDFG:	Fed: None Cal: Threatened	241 S:7	1	4	0	0	0	2	7	0	7	0	0

California Department of Fish and Game
Natural Diversity Database
CNDDB Wide Tabular Report
Upper Jones Tract 10-3.0 (4-quadrangle search)

Name (Scientific/Common)	CNDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks A	B	C	D	X	U	Population Status Historic >20 yr	Recent <=20 yr	Presence Pres. Extant	Poss. Extirp.	Extirp.
Lathyrus jepsonii var. jepsonii Delta tule pea	G5T2 S2.2	CNPS: 1B.2	Fed: None Cal: None	130 S:7	1	3	2	0	1	0	3	4	6	1	0
Lilaeopsis masonii Mason's lilaeopsis	G2 S2	CNPS: 1B.1	Fed: None Cal: Rare	196 S:38	0	24	10	1	0	3	10	28	38	0	0
Limosella australis Delta mudwort	G4G5 S2	CNPS: 2B.1	Fed: None Cal: None	58 S:9	0	8	0	0	0	1	1	8	9	0	0
Melospiza melodia song sparrow ("Modesto" population)	G5 S3?	CDFG: SC	Fed: None Cal: None	92 S:19	0	0	0	2	0	17	1	18	19	0	0
Northern Claypan Vernal Pool	G1 S1.1		Fed: None Cal: None	21 S:1	0	0	0	0	0	1	1	0	1	0	0
Perognathus inornatus inornatus San Joaquin pocket mouse	G4T2T3 S2S3	CDFG:	Fed: None Cal: None	109 S:2	0	0	1	0	0	1	1	1	2	0	0
Rana draytonii California red-legged frog	G2G3 S2S3	CDFG: SC	Fed: Threatened Cal: None	1335 S:20	2	7	4	2	0	5	5	15	20	0	0
Scutellaria galericulata marsh skullcap	G5 S2	CNPS: 2B.2	Fed: None Cal: None	31 S:1	0	0	0	0	0	1	1	0	1	0	0
Spirinchus thaleichthys longfin smelt	G5 S1	CDFG: SC	Fed: Candidate Cal: Threatened	45 S:6	0	0	0	0	0	6	1	5	6	0	0
Symphyotrichum lentum Suisun Marsh aster	G2 S2	CNPS: 1B.2	Fed: None Cal: None	172 S:6	0	0	4	1	0	1	1	5	6	0	0
Taxidea taxus American badger	G5 S4	CDFG: SC	Fed: None Cal: None	471 S:4	0	0	1	0	0	3	2	2	4	0	0
Thaleichthys pacificus eulachon	G5 S3	CDFG: SC	Fed: Threatened Cal: None	10 S:1	0	0	0	0	0	1	1	0	1	0	0
Tropidocarpum capparideum caper-fruited tropidocarpum	G1 S1	CNPS: 1B.1	Fed: None Cal: None	18 S:6	0	0	0	0	5	1	6	0	1	2	3
Valley Sink Scrub	G1 S1.1		Fed: None Cal: None	29 S:4	0	1	0	0	0	3	4	0	4	0	0
Vulpes macrotis mutica San Joaquin kit fox	G4T2T3 S2S3	CDFG:	Fed: Endangered Cal: Threatened	961 S:12	1	1	1	0	0	9	10	2	12	0	0

Appendix B

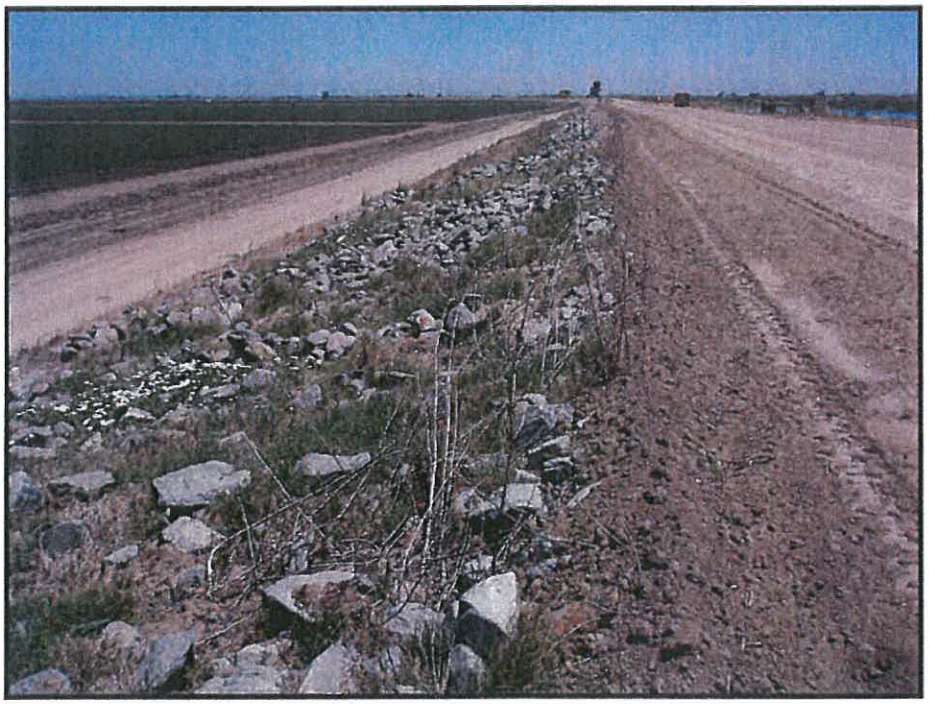
Photographs



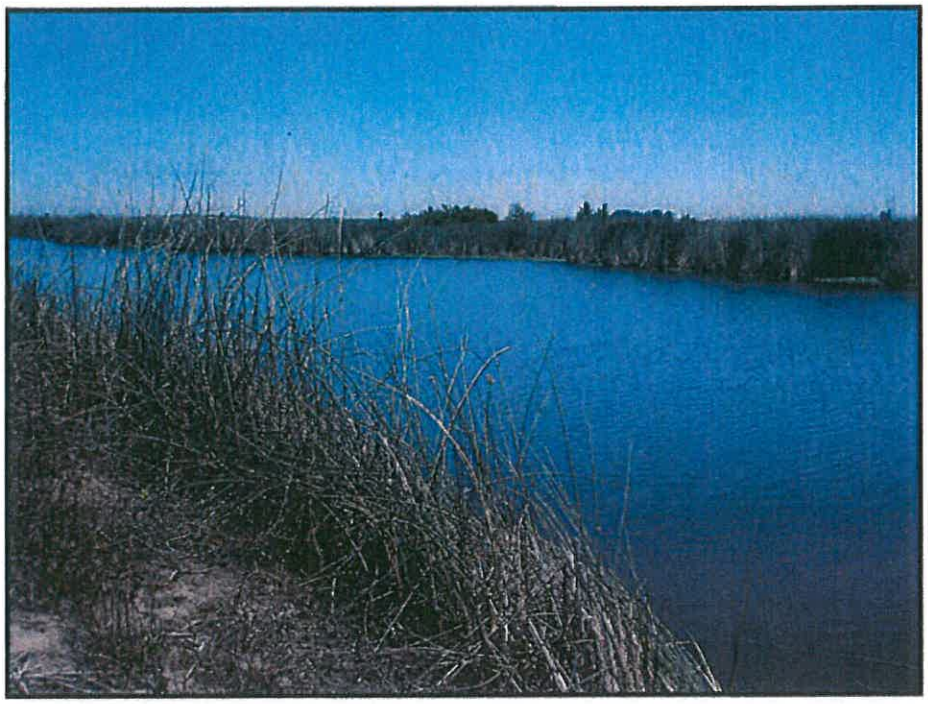
Crown Work Area WA-1 (Sta. 10+00 - 205+00), looking northeast from Sta. 9+00; 06/23/11.

Raptor stick nest in a cottonwood tree near Station 9+00; 06/23/11.

Crown Work Area WA-1 (Sta. 10+00 - 205+00), looking northeast from Sta. 28+00; 06/23/11.



Rock slope protection on the landside levee slope, looking northeast from Sta. 28+00; 06/23/11.



Trapper Slough adjacent to Crown Work Area WA-1, looking east from Sta. 28+00; 06/23/11.

Tomato fields adjacent to Crown Work Area WA-1, looking north from Sta. 28+00; 06/23/11.

Crown Work Area WA-1 (Sta. 10+00 - 205+00), looking northeast from Sta. 45+00; 06/23/11.

Crown Work Area WA-1 (Sta. 10+00 - 205+00), looking southwest from Sta. 60+00; 06/23/11.

Rock slope protection on the landside levee slope, looking southwest from Sta. 60+00; 06/23/11.

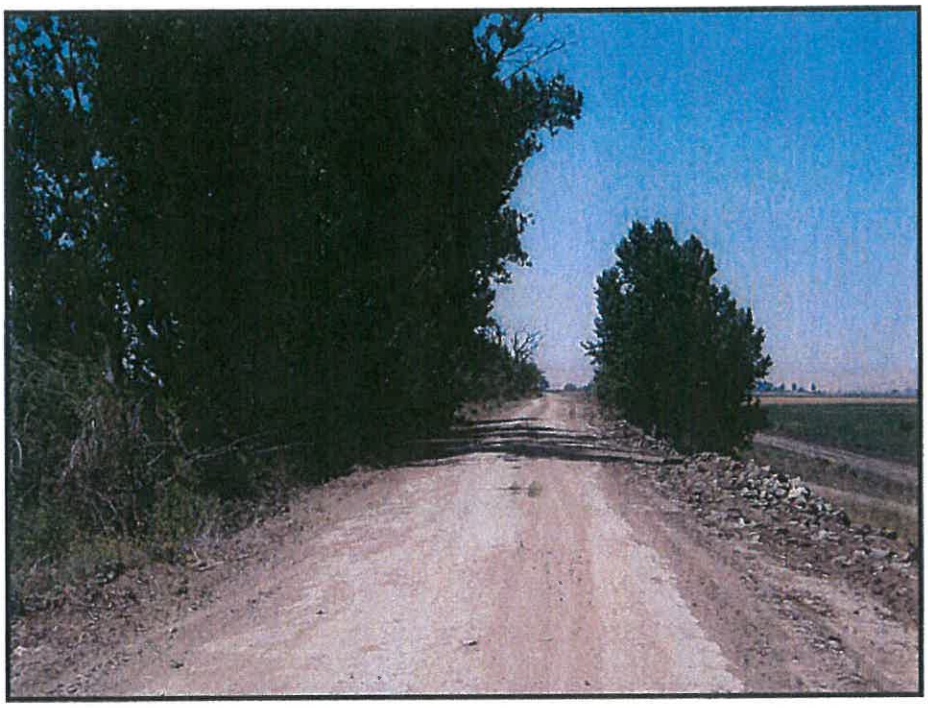
Crown Work Area WA-1 (Sta. 10+00 - 205+00), looking northeast from Sta. 100+00; 06/23/11.

Crown Work Area WA-1 (Sta. 10+00 - 205+00), looking northeast from Sta. 125+00; 06/23/11.

Black walnut at Station 142+15, looking northeast from Sta. 142+00; 07/01/11.

Willow thickets between Station 142+85 to 143+60, looking southwest from Sta. 145+00; 07/01/11.

Cottonwood at Station 146+52, looking northeast from Sta. 145+00; 07/01/11.



Crown Work Area WA-1 (Sta. 10+00 to 205+00), looking southwest from Sta. 148+00; 06/23/11.

Crown Work Area WA-1 (Sta. 10+00 to 205+00), looking northeast from Sta. 152+00; 06/23/11.

Crown Work Area WA-1 (Sta. 10+00 to 205+00), looking southwest from Sta. 165+00; 07/01/11.

Crown Work Area WA-1 (Sta. 10+00 to 205+00), looking northeast from Sta. 185+00; 07/01/11.

Crown Work Area WA-1 (Sta. 10+00 to 205+00), looking southwest from Sta. 190+00; 07/01/11.

Crown Work Area WA-1 (Sta. 10+00 to 205+00), looking north from Sta. 200+00; 07/01/11.

Water hyacinth choking Trapper Slough, looking east from Sta. 191+00; 07/01/11.

Appendix C

Giant Garter Snake Habitat Assessment

Giant Garter Snake (*Thamnophis gigas*)

Habitat Assessment

For

Upper Jones Tract

San Joaquin County, California

29 July 2013

Prepared for:
Moore Biological Consultants

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Giant Garter Snake (*Thamnophis gigas*)
Habitat Assessment for
Upper Jones Tract

CONTENTS

1.0 INTRODUCTION 1
1.1 Giant Garter Snake 1
1.2 Environmental Setting 3
1.3 Species Biology 3
1.4 Habitat Requirements 6
2.0 METHODS 7
3.0 RESULTS 9
3.1 Nearby Occurrences 9
3.2 Site Description 10
4.0 CONCLUSION 11
5.0 REFERENCES 12

LIST OF FIGURES

Figure 1. Project Location and Vicinity 2
Figure 2. California Natural Diversity Database Occurrences of Giant Garter Snake (*Thamnophis gigas*) 8

LIST OF ATTACHMENTS

Attachment A. California Natural Diversity Database Search Results
Attachment B. Representative Site Photographs

1.0 INTRODUCTION

At the request of Moore Biological Consultants, ECORP Consulting, Inc. (ECORP) conducted a habitat assessment for the state and federally listed threatened giant garter snake (*Thamnophis gigas*) within the Upper Jones Tract 10-1.0 Levee Improvements Project Area. The Upper Jones Tract site is located southwest of the town of Holt in San Joaquin County, California (Figure 1. *Project Location and Vicinity*). The site corresponds to an unsectioned portion of the "Holt, California" 7.5-minute quadrangle (U.S. Department of the Interior, Geological Survey 1991). The approximate center of the site is located at 37° 54′ 35″ North and 121° 27′ 22″ West within the San Joaquin Delta Watershed (Hydrologic Unit Code [HUC] #18040003, U.S. Department of the Interior, Geological Survey 1978).

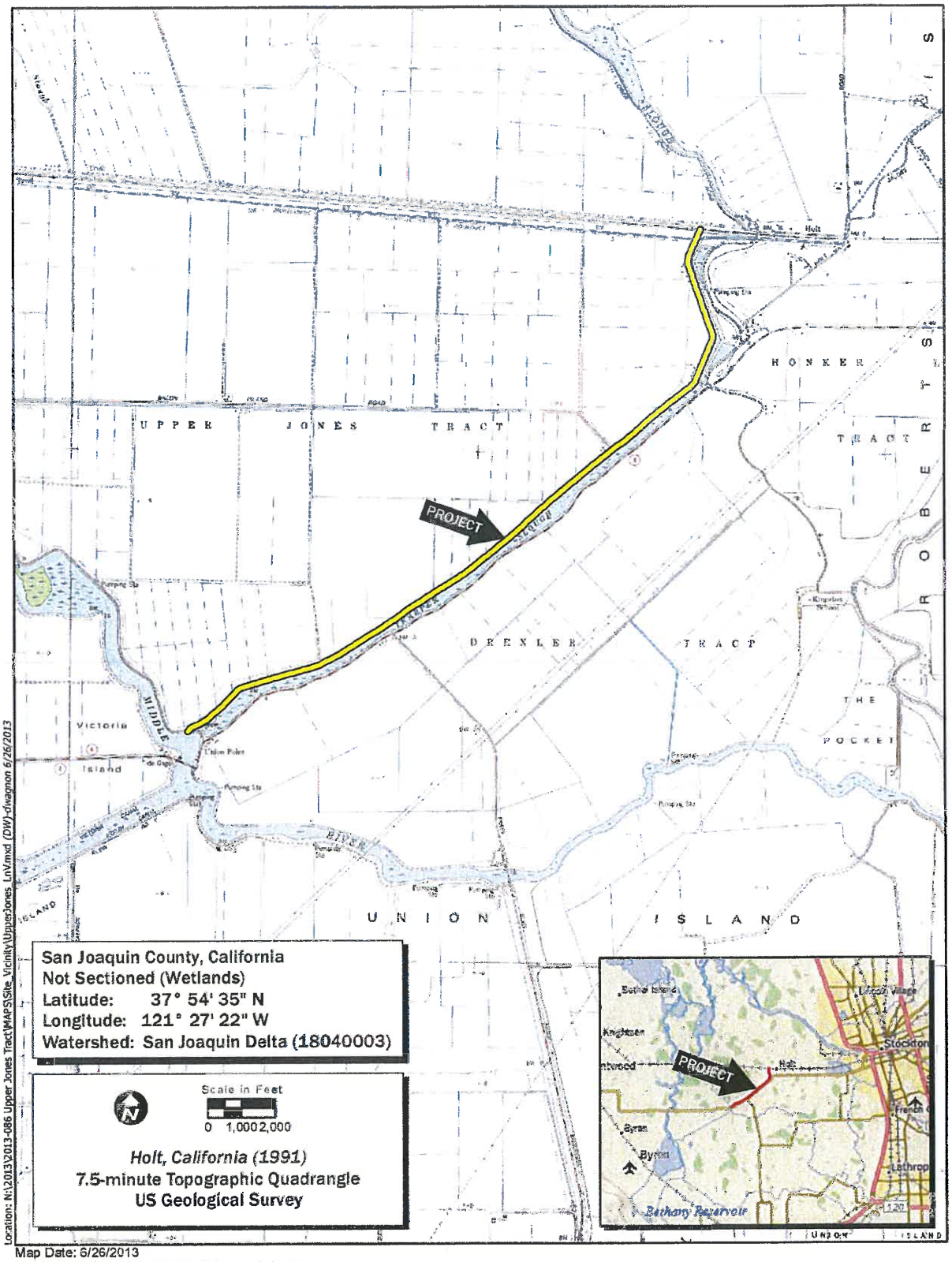
The focus of the Levee Improvements Project is to raise the crown of the Trapper Slough Levee along 19,500 linear feet of levee along the southeast side of Upper Jones Tract. The crown of the levee is currently four to six feet above mean sea level (MSL). The proposed project will increase the crown elevation to 8.5 feet above MSL and widen the crown to a consistent 22 feet. All work will be performed on top of and on the upper part of the inland slope of the levee. No work will be performed on the water side of the levee slope.

1.1 Giant Garter Snake

The giant garter snake was listed as threatened by the State of California in 1971 and by U. S. Fish and Wildlife Service in 1993. A detailed account of the taxonomy, ecology, and biology of the snake is presented in the *Draft Recovery Plan for the Giant Garter Snake (Thamnophis gigas)* (USFWS 1999) and in the final rule (58 **FR** 54053). Five-year reviews of its listing status were conducted in 2006 and 2012 (USFWS 2006, USFWS 2012). To date, there is no designated critical habitat for the giant garter snake.

1.2 Environmental Setting

The project site and survey area consists of the levee along Trapper Slough, adjacent agricultural lands northwest of the levee, and irrigation ditches generally running perpendicular to the slough providing water to agricultural lands. Trapper Slough runs generally northeast to



Map Date: 6/26/2013
Service Layer Credits: Copyright:© 2012 DeLorme

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 1. Project Location and Vicinity

2013-086 Upper Jones Tract

southwest, with the northeastern portion trending due north in the direction of the unincorporated town of Holt. Land uses in the area are almost exclusively agricultural. Lands north of Trapper Slough were found to be cultivated in barley (*Hordeum vulgare*), corn (*Zea mays*), and alfalfa (*Medicago sativa*) (in ascending order of dominance). Numerous small (1-4 meters in width) canals and ditches line the agricultural fields and trend south to north, many of which were wetted during the site visit (described below). Water in the ditches originated from pumps and siphons into subsurface flow at the southern terminus of the ditches. While the agricultural fields were a well-tended monoculture of crops, ditches tended to be inhabited by weedy plant species such as wild oat (*Avena fatua*), curley dock (*Rumex crispus*), Russian thistle (*Salsola* sp.), turkey mullein (*Croton setigerus*), bindweed (*Convulvulus arvense*), mallow (*Malva parviflora*), wild radish (*Raphanus sativa*), cocklebur (*Xanthium strumarium*), mustard (*Brassica* sp.), and others. Trapper Slough is a dominant landscape feature in the area. There are few buildings in the vicinity, consisting of a few residences and farm buildings, particularly at the southwestern end of the project site. A paved road (Bacon Island Road) runs alongside part of the slough. Otherwise, the road on the levee crown is unpaved.

1.3 Species Biology

The giant garter snake (*Thamnophis gigas*) is the largest species of garter snake, sometimes attaining a length of 165 cm (65 inches) (Stebbins and McGinnis 2012). They are sexually dimorphic with females being both longer and heavier than males (Wylie et al. 2010), and the species occurs in two pattern "morphs." In the Sacramento Valley the giant garter snake has a dark brown/blackish dorsal coloration with lighter yellow vertebral and lateral stripes reminiscent of many garter snake species (*Thamnophis*). A pattern morph found in southern parts of its range features a darkish background color of brown, green, or gray with two rows of alternating dark spots between indistinct vertebral and lateral stripes, more reminiscent of eastern watersnakes (*Nerodia* sp.) (Rossman et al. 1996). Until 1987, the taxonomy for this species was in flux (Rossman et al. 1996). It was originally described as a subspecies of the then wide-ranging *Thamnophis ordinoides* group (Northwestern garter snake) (Fitch 1940). The group as it then existed was considered an *artekreis*, a closely related and ill-defined species group, in which three subgroups were recognized based on ecology and morphology (Fitch 1940). Various workers recognized the distinctness of taxa within the group, however,

with varying attempts at sorting the taxonomy (Johnson 1947, Fitch 1948, Fox 1948, Lawson and Dessauer 1979). It was not until 1987 that the giant garter snake was determined to be a full species (Rossman and Stewart 1987). Paquin et al. (2006) subsequently confirmed this arrangement and found farther subdivision within the range of the giant garter snake, which they attribute to partial isolation within watersheds.

The giant garter snake is a California endemic species, only occurring at low elevations through the Sacramento and San Joaquin Valleys from Butte County to Kern County (Rossman et al. 1996). There is an approximately 62-mile (100 km) north-south gap in distribution in the northern San Joaquin Valley, possibly the result of the narrow floodplain of the San Joaquin River (Hansen and Brode 1980).

The giant garter snake is semi-aquatic and occurs in sloughs, ponds, low gradient streams, and irrigation/drainage canals (USFWS 1999). Rice agriculture now provides habitat and supports populations when the seasonally flooded fields and associated water conveyance systems are managed for the species (USFWS 1999). Privately owned duck clubs and advocacy groups (e.g., Ducks Unlimited) have preserved and managed wetland habitats throughout the range of the giant garter snakes which has benefited the species (USFWS 1999).

The giant garter snake is an active, generally diurnal predator, which hunts by sight or olfaction (Ernst and Ernst 2003), and its diet is almost entirely aquatic. Historically, they depended on native prey such as California red-legged frog (*Rana draytonii*), Sacramento blackfish (*Orthodon microlepotus*), and thick-tailed chub (*Gila crassicauda*), species that have undergone recent major declines or extirpations (Rossman et al. 1996). Diet is now dominated by introduced species such as mosquitofish (*Gambusia affinis*), American bullfrogs (*Lithobates catesbeianus*), and common carp (*Cyprinus carpio*) (Fitch 1941, Brode 1988, Rossman et al. 1996).

Seasonally, the giant garter snake becomes active in early spring (March-April), emerging from overwintering sites to bask on emergent willows, tules, saltbush, and riprap (Hansen and Tremper in Rossman et al. 1996). Generally by May, all giant garter snakes have emerged from hibernacula and are actively foraging for food. Males immediately start searching for mates (USFWS 1999). Live young are born in late July through early September (Hansen and Hansen

1990) and by October, most snakes begin searching for overwintering sites. Most are in hibernacula by November (Hansen and Hansen 1990). As with most ectothermic vertebrates, the exact timing of activities is highly dependent on current climatic conditions. Males are sexually mature in approximately three years. Females, which achieve sexual maturity at larger size, mature in five years (G. Hansen pers. comm. in USFWS 1999).

Giant garter snakes are known for their wariness. When disturbed, they quickly dive underwater and swim away, then hiding motionless for several minutes before surfacing (Ernst and Ernst 2003). As befits their mid-trophic level position, numerous animals are predators of this snake. Introduced American bullfrogs and warm-water fish probably prey upon neonate and juvenile giant garter snakes (Rossman et al. 1996, Wylie et al. 2003), while mesopredators such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), opossums (*Didephis virginiana*), and great blue herons (*Ardea herodias*) likely take juveniles and adults (USFWS 2012).

Both the distribution and abundance of the giant garter snake has been reduced from historic levels. Flood control activities and the drainage of marshes and other wetlands for agriculture have led to extirpation in the Buena Vista, Tulare, and Kern lakebeds in the southern one-third of its range (Hansen and Brode 1980). Most of the San Joaquin Valley has undergone similar wetland modification together with upstream watershed projects, urban development, and the proliferation of introduced and subsidized aquatic predators (USFWS 2012). As a result, the giant garter snake in the central and southern San Joaquin Valley is extremely rare and population trends appear to be declining (Hansen 2008). At locations in the Sacramento Valley, the garter snake is generally more numerous and habitat quality appears to be better, although trends in abundance are unclear (USFWS 2012).

1.4 Habitat Requirements

The giant garter snake is one of the most aquatic garter snakes (USFWS 1999). It is rarely found far from water and can be considered ecologically analogous to watersnakes (Rossman et al 1996). This species historically inhabited the marshes and sloughs of California's Central Valley at low elevations (<400 ft. [122 m]) (Stebbins 2003). Essential habitat components

required are permanent water to support a prey base, emergent vegetation for escape cover and foraging habitat, near-bank upland habitat for basking, and higher-elevation habitats for winter refugia (USFWS 1999 and references therein).

Current occupied habitat includes preserved marshes and sloughs, irrigation and drainage canals, small lakes and ponds, rice agricultural fields, and low gradient streams (USFWS 1999). Waters inhabited by this species typically feature substrates of soil, mud, or other fines. Giant garter snakes tend to be absent from larger rivers and wetlands with sand, gravel or rock substrates. Small mammal burrows, crayfish burrows, and soil cracks on south- or west-facing slopes are used as retreats during the active season, as is riprap along drainage ditches and canals (USFWS 1999). Tules (*Shoenoplectus* spp.) and cattails (*Typha* spp.) are usually present and used for cover and as basking sites (Stebbins 2003). Although highly aquatic and not often found far from water, they do use grassy bank-side habitats for basking and higher elevation uplands for cover and retreat from floodwaters during the inactive winter season (USFWS 1999). Giant garter snakes may occur as far as 164 feet (50 m) from water in the active period and as far as 820 feet (250 m) from water during the winter (Wylie et al. 1997 in USFWS 1999). Networks of canals near rice agriculture (aquatic agriculture) are positively associated with giant garter snake presence, to the point that some authors believe that without this aquatic agriculture option, few populations would remain (Halstead et al. 2010). However, population density and body condition were lower in rice agriculture than in natural landscapes (Halstead et al 2010). The same authors found streams and other agriculture methods to be negatively associated with giant garter snake presence (Halstead et al. 2010).

The giant garter snake is an aquatic prey specialist, and it feeds primarily on small fish, frogs, and tadpoles (USFWS 1999). It is thought that historically, native fish and California red-legged frogs (*Rana draytonii*) were important prey items. However, non-native American bullfrogs, carp, mosquitofish, and catfish now make up most of its diet (Rossman et al. 1996). Shallow water is a necessary habitat component because the giant garter snake is an active forager that traps prey in shallow water and pooled areas (Hansen 1980, Hansen and Brode 1993).

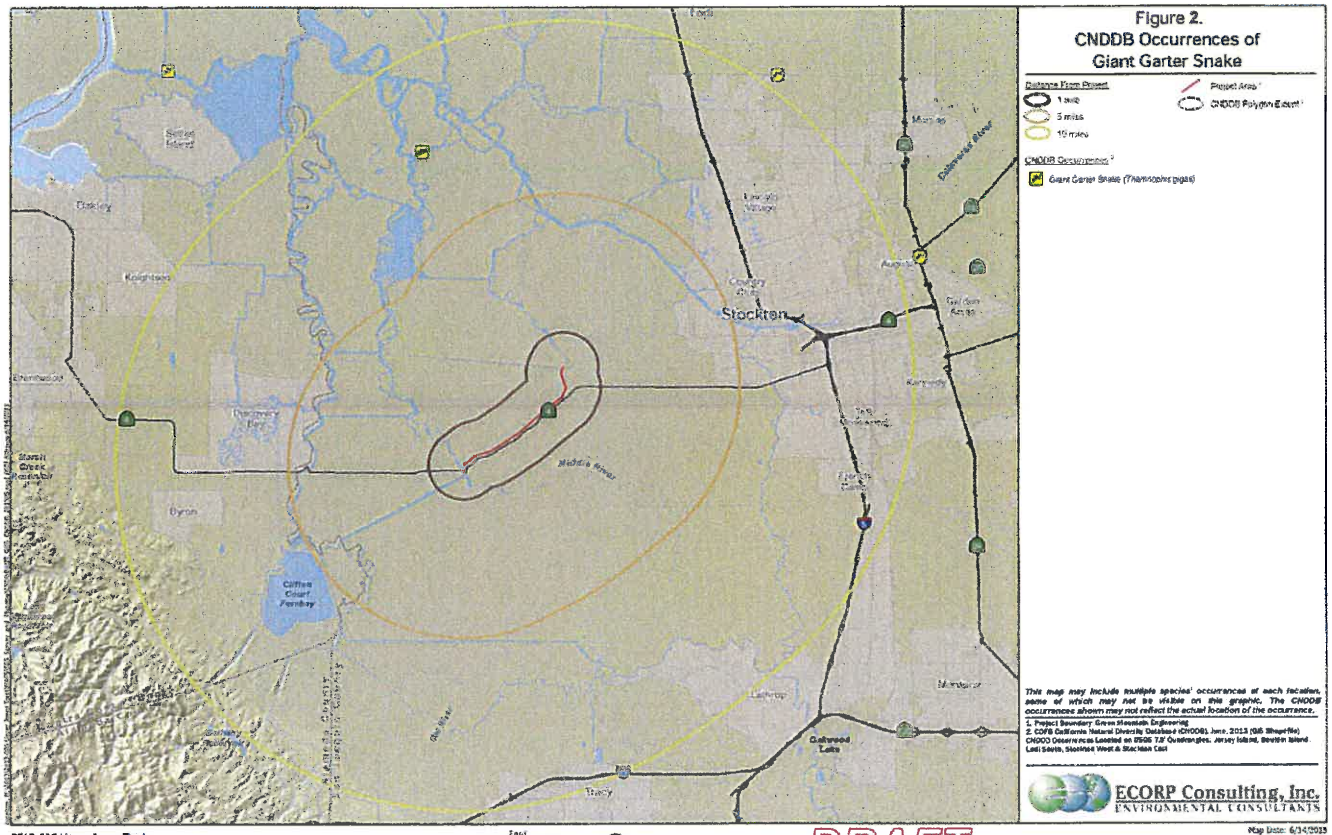
Numerous factors have led to the decline of giant garter snakes across their range, with perhaps the largest contributor being habitat destruction, modification, and conversion (USFWS

1999). The Sacramento-San Joaquin Delta has the largest watershed in the western United States (Orme 2002a). However, California now has more than 1,200 large reservoirs which move nearly one-fourth of the country's water supply through the world's largest aqueduct system (Cohen 1994). Massive wetlands such as the Buena Vista, Tulare, and Kern lakebeds (an area once called The Valley of Lakes) in the southern third of the snake's range, which once featured large expanses of habitat, have been drained and converted to agriculture (Hansen and Brode 1980, Brode and Hansen 1992, Dasmann 1994). The historic landscape condition for the Sacramento Valley consisted of broad and shallow basins that filled seasonally (Hinds 1952). Upstream water storage and diversions, and the filling of wetlands by sedimentation from hydraulic mining (Orme 2002b) and to accommodate urban growth and agriculture, have led to a loss of 97 percent of the Sacramento-San Joaquin Delta's waters (Cohen 1994).

2.0 METHODS

ECORP biologist Eric Stitt conducted a field-based habitat assessment for the giant garter snake on 13 June 2013. In conducting the assessment, Mr. Stitt walked the length of the Project Area while noting current environmental conditions, evidence of current and historic land use, presence of favorable or unfavorable habitat conditions relevant to giant garter snake occupancy, wildlife species present, and other factors.

Habitat assessments were based primarily on habitat requirements as described by the United States Fish and Wildlife Service (1999) as well as personal knowledge of the species. Aquatic features and adjacent uplands were evaluated as to their potential to support breeding, foraging activities, refugia, and as dispersal corridors. Prior to site visits, the California Natural Diversity Database (CNDDB), maintained by the California Department of Fish and Wildlife (CDFW), was queried for giant garter snake occurrences within the "Bouldin Island," "Terminous," "Lodi South," "Woodward Island," "Holt," "Stockton West," "Clifton Court" (Figure 2. *California Natural Diversity Database Occurrences for Giant Garter Snake (Thamnophis gigas)*) Forebay," "Union Island," and "Lathrop, California" USGS quadrangles.



2013-086 Upper Jones Tract

DRAFT

3.0 RESULTS

3.1 Nearby Occurrences

There are no documented sightings of giant garter snake within five miles of the project site, and none recorded from the "Holt, California" USGS quad (CDFW 2013). The closest recorded sighting occurs approximately 7.4 miles north-northwest from the Project Area boundaries (Occurrence #151) (Figure 2 and Attachment A). In that 1996 record, a shed snake skin found near Columbia Cut and Zuckerman Road (Bouldin Island) was identified by a former California Department of Fish and Wildlife herpetologist as coming from a giant garter snake, although a live specimen was not documented. The next closest-proximity record (Occurrence #53), at Eight Mile Road approximately 2.5 miles east of Highway 5 is of a purported giant garter snake found along railroad tracks in 1976. That record is approximately 11 miles northeast of the northeastern extent of the project site. Very little information is reported in that record, including the information source. Occurrence #55 is approximately equidistant, being located approximately 11 miles east-northeast of the project site east of metropolitan Stockton. This 1976 record is from Stockton Diverting Canal, approximately 0.5 mile east of Highway 88 at Highway 99. Other records occur from northwest, north, and northeast; however, all are at least 13 miles from the project location. The nearest point at which a population can be thought to occur is at the White Slough Wildlife Area, at Coldani Marsh alongside Highway 12. This location is approximately 13 miles due north of Trapper Slough. As evidence of the population, one record (occurrence record #49) describes 19 giant garter snakes captured during the summer of 2009. This is the only documentation of an established population of giant garter snake within 15 miles of the Trapper Slough Project Area. It is also the only nearby record for which trapping repeatedly captured giant garter snakes.

3.2 Site Description

Trapper Slough and adjacent irrigation ditches were evaluated as part of this giant garter snake habitat assessment. Site and habitat characteristics are discussed below.

The project portion of Trapper Slough is approximately 19,500 linear feet in length, trending in a northeast to southwest direction. It is a large, slow-moving slough with water depth to approximately six feet. The water's edge was generally steep, often between 45° and 90° and was sloughing into water in places. Bank substrate varied between bare and vegetated soil and riprap comprised of small to medium particle sizes. The distance across the open levee ranged from approximately 100 feet in northeastern locations along the slough to greater than 500 feet across near the midpoint of the survey area.

Floating vegetation was abundant in the slough throughout the survey area. A massive infestation of non-native water hyacinth (*Eichhornia crassipes*) covers much of the open water in the slough, estimated to comprise approximately 70% absolute coverage at the time of the survey. Other floating/matting vegetation in places (especially at water edges southwest of the Bacon Island Road overcrossing) consisted of water primrose (*Ludwigia* sp.) and duckweed (Lemnoideae). Emergent vegetation, primarily tules (*Shoenoplectus* sp.), commonly lined the bankside of the slough. Tules were especially dense and abundant on the opposing bank (northwesterly facing bank) across from the survey area in the southwestern half of the site. Aquatic wildlife observed during the survey included mosquitofish (*Gambusia affinis*), common carp, American bullfrog (*Lithobates catesbieanus*), red-eared slider (*Trachemys scripta*), and Western pond turtle (*Actinemys marmorata*). After field observation, ECORP determined that the slough provides potential habitat for giant garter snakes.

Numerous irrigation ditches occur in the project vicinity, either running parallel to the slough and levee or running perpendicular from near the berm. All seemingly originate from wells and siphons: there is no above-ground connectivity between the ditches and Trapper Slough. Ditches varied in the amount of vegetation, inundation, and width. Most were narrow (3 to 4 feet wide) and dry. Vegetation in those ditches, when present, tended to consist of horseweed (*Erigeron canadensis*), bindweed, cocklebur, Bermuda grass (*Cynodon dactylon*) and other weedy species. Other ditches were wider, to 20 feet across, and some had emergent vegetation including tules and cattails (*Typha latifolia*). Several ditches featured ponded water and floating vegetation. In all cases, upland vegetation was either non-existent along access roads for agricultural fields or a dry-farmed crop monoculture. Their physical separation from

Trapper Slough, combined with the inhospitable upland habitat directly adjacent to the ditches, make the ditches unfavorable habitat for giant garter snakes.

Likewise, agriculture adjacent to the Upper Jones Tract/Trapper Slough Project Area is inconsistent with giant garter snake habitat needs. At the time this habitat assessment was prepared, the northeastern 1/3 of the Project Area was farmed in alfalfa and was being actively harvested. Corn and barley were the crops planted on alternating plots in the southern 2/3 of the site. These crops, unlike rice agriculture, are dry-farmed and use only irrigation water, not constant inundation as required by rice. As such, they do not provide suitable cover or foraging habitat for giant garter snakes.

4.0 CONCLUSION

There is a very low likelihood that the giant garter snake occurs in the Project Area. Despite numerous trapping and survey efforts west of the City of Stockton over the past 20 years, the only documented population of this snake is from the White Slough Wildlife Area near Highway 12, which is 13 miles north of the Project Area. Other records, including the nearest record from Bouldin Island, document individual snakes captured or otherwise observed opportunistically. No evidence points to the presence of a population or cluster. Rather, the spotty and apparently haphazard distribution of records north of the project site are indicative of waif snakes, possibly washed downstream by high volume water flows. While Trapper Slough appears to provide potential habitat for giant garter snakes, the complete lack of nearby records provides evidence for the lack of a population.

Habitats present on-site at Upper Jones Tract are unsuitable for giant garter snakes; refer to site photographs (Attachment A). The levee crown and inland side slopes are either bare soil or covered in weedy upland species. Maintenance (weed abatement) of the crown and inland slopes apparently occurs regularly. Inland from the toe-of-slope to inland plots, all lands are planted in agriculture incompatible with giant garter snake presence. There is no above ground connectivity with Trapper Slough and potential foraging areas within ditches are extremely limited, if nonexistent.

5.0 REFERENCES

Brode, J. 1988. Natural history of the giant garter snake (*Thamnophis couchii gigas*). Pages 25 – 28 in Proceedings of the conference on California herpetology, H. F. DeListle, P. R. Brown, B. Haufman, and B. M. McGurty, editors. Southwestern Herpetologists Society, Special Publication No. 4.

Brode, J., and G. Hansen. 1992. Status and future management of the giant gartersnake (*Thamnophis gigas*) within the southern American Basin, Sacramento and Sutter counties, California. California Department of Fish and Game, Inland Fisheries Division.

California Department of Fish and Game (CDFW). 2013. Rarefind Natural Diversity Database Program. Version 3.1.1, commercial version dated: March 1, 2013. California Natural Diversity Database. The Resources Agency, Sacramento. Accessed 5/14/2013.

Cohen, A. N. 1994. The hidden costs of California's water. Pages 288 – 291 and 294 – 301 in C. G. Thelander and M. Crabtree, editors. Life on the Edge: a Guide to California's Endangered Natural Resources. BioSystems Books. 550 pp.

Dasmann, R. 1994. California's biodiversity: the impact of development. Pages 18 – 23 in A. R. Orme, editor. The Physical Geography of North America. Oxford University Press.

Ernst, C. H and E. M. Ernst. 2003. Snakes of the United States and Canada. Smithsonian Institution Press, Washington. 668 pp.

Fitch, H. S. 1940. A biogeographical study of the *ordinoides* artenkreis of garter snakes (genus *Thamnophis*). Univ. California Publications Zoology 44: 1 – 150.

Fitch, H. S. 1941. The feeding habits of California garter snakes. California Fish and Game 27: 2 – 32.

Fitch, H. S. 1948. Further remarks concerning *Thamnophis ordinoides* and its relatives. Copeia 1948: 121 – 126.

Fox, W. 1948. The relationships of the garter snake *Thamnophis ordinoides*. Copeia 1948: 113-120.

Halstead, B. J., G. D. Wylie, and M. L. Casazza. 2010. Habitat Suitability and Conservation of the Giant Gartersnake (*Thamnophis gigas*) in the Sacramento Valley of California. Copeia 2010: 591-599.

Hansen, E. C. 2008. Implementation of priority 1, priority 2, and priority 3 recovery tasks for giant garter snake (*Thamnophis gigas*) – continuing surveys in Merced County, California, with and expansion to northern Fresno County. Report to U. S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, April 15.

Hansen, G. E. and J. M. Brode. 1980. Status of the giant garter snake *Thamnophis couchii gigas* Fitch. Inland Fisheries Endangered Species Program Special Publication 80-5: 1-14.

Hansen, G. E. and J. M. Brode. 1993. Results of relocating canal habitat of the giant garter snake (*Thamnophis gigas*) during widening of State Route 99/70 in Sacramento and Sutter counties, California. Final report for Caltrans Interagency Agreement 03E325 (FG7550) (FY 87/88-91-92). Unpublished. 36 pp.

Hansen, R. W. 1980. Western aquatic garter snakes in central California: an ecological and evolutionary perspective. Master's thesis, Department of Biology, California State University, Sacramento. 78 pp.

Hansen, R. W. and G. E. Hansen. 1990. *Thamnophis gigas*. Reproduction. Herpetological Review 21: 93 – 94.

Hinds, N. E. A. 1952. Evolution of the California landscape. California Division of Mines Bulletin No. 158. 240 pp.

Johnson. J. L. 1947. The status of the *elegans* subspecies of *Thamnophis*, with description of a new subspecies from Washington State. Herpetologica 3: 159 – 165.

Lawson, R. and H. C. Dessauer. 1979. Biochemical genetics and systematics of garter snakes of the *Thamnophis elegans-couchii-ordinoides* complex. Occasional Papers of the Museum of Zoology; Louisiana State University 56: 1 – 24.

Orme, A. J. 2002a. The Mediterranean environment of greater California. Pages 402 – 424 in A. R. Orme, editor. The Physical Geography of North America. Oxford University Press.

Orme, A. R. 2002b. Human imprints on the primeval landscape. Pages 459 – 481 in A. R. Orme, editor. The Physical Geography of North America. Oxford University Press.

Paquin, M. M., G. D. Wylie, and E. J. Routman. 2006. Population structure of the giant garter snake *Thamnophis gigas*. Conservation Genetics 7: 25 – 36.

Rossman, D. A. and G. R. Stewart. 1987. Taxonomic reevaluation of *Thamnophis couchii* (Serpentes: Colubridae). Occasional Papers of the Museum of Zoology; Louisiana State University 63: 1 – 25.

Rossman, D. A., N. B. Ford, and R. A Seigel. 1996. The Garter Snakes: Evolution and Ecology. University of Oklahoma Press. 332 pp.

Stebbins, R. C. 2003. Western Reptiles and Amphibians. Houghton-Mifflin Co., Boston, New York. 533 pp.

Stebbins, R. C. and S. M. McGinnis. 2012. Field Guide to Amphibians and Reptiles of California (revised edition). University of California Press, Berkeley.

U.S. Department of the Interior, Geological Survey (USGS). 1991. "Holt, California" 7.5-minute Quadrangle. Geological Survey. Denver, Colorado.

U.S. Fish and Wildlife Service (USFWS). 1999. Draft recovery plan for the giant garter snake (*Thamnophis gigas*). Sacramento Fish and Wildlife Office.

U.S. Fish and Wildlife Service (USFWS). 2006. Giant garter snake (*Thamnophis gigas*) 5-year review: Summary and Evaluation. September.

U.S. Fish and Wildlife Service (USFWS). 2012. Giant garter snake (*Thamnophis gigas*) 5-year review: Summary and Evaluation. Sacramento Fish and Wildlife Office. June.

United States Department of the Interior, Geological Survey (USGS). 1978. Hydrologic Unit Map.

Wylie, G. D., M. Casazza, and M. Carpenter. 2003. Diet of bullfrogs in relation to predation on giant garter snakes at Colusa National Wildlife Refuge. California Fish and Game 89: 139 – 145.

Wylie, M. L. Casazza, C. J. Gregory, and B. J. Halstead. 2010. Abundance and Sexual size dimorphism of the giant garter snake (*Thamnophis gigas*) in the Sacramento Valley of California. Journal of herpetology 44: 94 – 103.

LIST OF ATTACHMENTS

Attachment A – California Natural Diversity Database Search Results

Attachment B – Representative Site Photographs

ATTACHMENT A

California Natural Diversity Database Search Results

California Department of Fish and Game
Natural Diversity Database
Full Report for Selected Elements-Giant Garter Snake
"Bouldin Island," "Terminous," "Lodi South," "Woodward Island," "Holt," "Stockton West," "Clifton Court Forebay," "Union Island," and "Lathrop, California" USGS quadrangles

Thamnophis gigas
giant garter snake

Element Code: ARADB36150

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G2G3	**CDFG Status:**
State: Threatened	**State:** S2S3	

Habitat Associations

General: PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS & IRRIGATION DITCHES.

Micro: THIS IS THE MOST AQUATIC OF THE GARTER SNAKES IN CALIFORNIA.

Occurrence No. 49 **Map Index:** 77096 **EO Index:** 630

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 2009-09-16
Site: 2009-09-16

Record Last Updated: 2009-10-29

Quad Summary: Terminous (3812114/479C)
County Summary: San Joaquin

Lat/Long: 38.11146° / -121.41020°
UTM: Zone-10 N4219375 E639372
Mapping Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area:

Township: 03N
Range: 05E
Section: 15 **Qtr:** XX
Meridian: M
Elevation: 3 ft

Location: COLDANI MARSH, 0.8 MI WEST OF THORNTON ROAD AT HWY 12, WHITE SLOUGH WILDLIFE AREA.

Location Detail: UPLAND CANAL TO THE EAST - PRIMARILY SOUTH TO SOUTHEAST OF BM 6.

Ecological: SLOW FLOWING WATER W/SILT SUBSTRATE (SUMMER); SUNNY EXPANSES OF LOW GROWING EMERGENT & STREAMSIDE VEG FOR BASKING; UPLAND RETREATS & SHELTER PRESENT TO SUMMER HABITAT FOR OVERWINTERING. CANAL 5-25M WIDE; INTERMITTANTLY CHOKED W/HYACINTH.

Threat: FLOOD CONTROL/WETLAND RECLAMATION; URBANIZATION; FLOODING; INTRODUCED PREDATORS; PEST CONTROL; POLLUTION.

General: A. SARTAIN COLLECTED A SNAKE FROM THIS SITE IN 1974 (FG756 #13). 1 SNAKE COLLECTED 21 MAY 1977 (LSU #35176). SNAKE OBSERVED HERE DURING 1986-87 STUDY. 19 SNAKES (8 MALES, 5 FEMALES & 1 UNKNOWN) CAPTURED (5 RECAP - 1 CAP 2X) JUL- SEP 2009.

Owner/Manager: DFG, DWR

California Department of Fish and Game
Natural Diversity Database
Full Report for Selected Elements-Giant Garter Snake
"Bouldin Island," "Terminous," "Lodi South," "Woodward Island," "Holt," "Stockton West," "Clifton Court Forebay," "Union Island," and "Lathrop, California" USGS quadrangles

Thamnophis gigas

giant garter snake — **Element Code:** ARADB36150

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G2G3	**CDFG Status:**
State: Threatened	**State:** S2S3	

Habitat Associations

General: PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS & IRRIGATION DITCHES.

Micro: THIS IS THE MOST AQUATIC OF THE GARTER SNAKES IN CALIFORNIA.

Occurrence No. 50 **Map Index:** 11442 **EO Index:** 628

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1974-05-06
Site: 1974-05-06
Record Last Updated: 1989-08-10

Quad Summary: Terminous (3812114/479C)
County Summary: San Joaquin

Lat/Long: 38.09769° / -121.39606°
UTM: Zone-10 N4217869 E640639
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 03N
Range: 05E
Section: 23 **Qtr:** NW
Meridian: M
Elevation: 4 ft

Location: 1.5 MI S OF INTERSECTION OF STATE HWY 12 & THORNTON ROAD.
Location Detail:
Ecological:
Threat:
General: SARTAIN, A. 1974 FG756 #4 (MUS).
Owner/Manager: UNKNOWN

California Department of Fish and Game
Natural Diversity Database
Full Report for Selected Elements-Giant Garter Snake
"Bouldin Island," "Terminous," "Lodi South," "Woodward Island," "Holt," "Stockton West," "Clifton Court Forebay," "Union Island," and "Lathrop, California" USGS quadrangles

Thamnophis gigas
giant garter snake

Element Code: ARADB36150

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G2G3	**CDFG Status:**
State: Threatened	**State:** S2S3	

Habitat Associations

General: PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS & IRRIGATION DITCHES.

Micro: THIS IS THE MOST AQUATIC OF THE GARTER SNAKES IN CALIFORNIA.

Occurrence No. 51 **Map Index:** 11407 **EO Index:** 27574

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1976-XX-XX
Site: 1976-XX-XX

Record Last Updated: 1989-08-10

Quad Summary: Terminous (3812114/479C)
County Summary: San Joaquin

Lat/Long: 38.09797° / -121.41440°
UTM: Zone-10 N4217872 E639030
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 03N
Range: 04E
Section: 22 **Qtr:** XX
Meridian: M
Elevation: 1 ft

Location: WHITE SLOUGH, 1 MI W OF THORNTON RD, 1.5 MI S OF HWY 12 (LOCATED ON SHIN KEE TRACT).
Location Detail:
Ecological:
Threat:
General:
Owner/Manager: UNKNOWN

California Department of Fish and Game
Natural Diversity Database
Full Report for Selected Elements-Giant Garter Snake
"Bouldin Island," "Terminous," "Lodi South," "Woodward Island," "Holt," "Stockton West," "Clifton Court Forebay," "Union Island," and "Lathrop, California" USGS quadrangles

Thamnophis gigas

giant garter snake — **Element Code:** ARADB36150

Status		NDDB Element Ranks		Other Lists	
Federal:	Threatened	**Global:**	G2G3	**CDFG Status:**	
State:	Threatened	**State:**	S2S3		

Habitat Associations

General: PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS & IRRIGATION DITCHES.

Micro: THIS IS THE MOST AQUATIC OF THE GARTER SNAKES IN CALIFORNIA.

Occurrence No. 53 **Map Index:** 11589 **EO Index:** 27576

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1976-XX-XX
Site: 1976-XX-XX
Record Last Updated: 1995-08-03

Quad Summary: Lodi South (3812113/479D)
County Summary: San Joaquin

Lat/Long: 38.05769° / -121.32550°
UTM: Zone-10 N4213539 E646906
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 02N
Range: 06E
Section: 04 **Qtr:** NW
Meridian: M
Elevation: 18 ft

Location: EIGHT MILE ROAD AT WESTERN PACIFIC RR TRACKS; 3.5 MI W OF HWY 99. (APPROX0.4 MI W OF DAVIS RD).
Location Detail:
Ecological:
Threat:
General:
Owner/Manager: UNKNOWN

California Department of Fish and Game
Natural Diversity Database
Full Report for Selected Elements-Giant Garter Snake
"Bouldin Island," "Terminous," "Lodi South," "Woodward Island," "Holt," "Stockton West," "Clifton Court Forebay," "Union Island," and "Lathrop, California" USGS quadrangles

Thamnophis gigas
giant garter snake

Element Code: ARADB36150

Status		NDDB Element Ranks		Other Lists	
Federal:	Threatened	**Global:**	G2G3	**CDFG Status:**	
State:	Threatened	**State:**	S2S3		

Habitat Associations

General: PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS & IRRIGATION DITCHES.

Micro: THIS IS THE MOST AQUATIC OF THE GARTER SNAKES IN CALIFORNIA.

Occurrence No. 55 **Map Index:** 11716 **EO Index:** 27577

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1976-XX-XX
Site: 1976-XX-XX

Record Last Updated: 1989-08-10

Quad Summary: Stockton West (3712183/462A), Stockton East (3712182/461B)
County Summary: San Joaquin

Lat/Long: 37.98186° / -121.24994°
UTM: Zone-10 N4205247 E653694
Mapping Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 02N
Range: 08E
Section: 54 **Qtr:** NW
Meridian: M
Elevation: 23 ft

Location: STOCKTON DIVERTING CANAL, 0.5 MI E OF HWY 88 AT HWY 99.
Location Detail:
Ecological:
Threat:
General:
Owner/Manager: UNKNOWN

California Department of Fish and Game
Natural Diversity Database
Full Report for Selected Elements-Giant Garter Snake
"Bouldin Island," "Terminous," "Lodi South," "Woodward Island," "Holt," "Stockton West," "Clifton Court Forebay," "Union Island," and "Lathrop, California" USGS quadrangles

Thamnophis gigas
giant garter snake

Element Code: ARADB36150

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G2G3	**CDFG Status:**
State: Threatened	**State:** S2S3	

Habitat Associations

General: PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS & IRRIGATION DITCHES.

Micro: THIS IS THE MOST AQUATIC OF THE GARTER SNAKES IN CALIFORNIA.

Occurrence No. 151 **Map Index:** 41320 **EO Index:** 41320

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown

Dates Last Seen
Element: 1996-XX-XX
Site: 1996-XX-XX
Record Last Updated: 1999-06-30

Quad Summary: Bouldin Island (3812115/480D)
County Summary: San Joaquin

Lat/Long: 38.02464° / -121.51239°
UTM: Zone-10 N4209593 E630568
Mapping Precision: SPECIFIC
Symbol Type: POLYGON
Area: 17.4 acres

Township: 02N
Range: 04E
Section: 14 **Qtr:** XX
Meridian: M
Elevation: 5 ft

Location: NORTH SIDE OF COLUMBIA CUT, AT THE WEST END, NEAR THE CONFLENCE WITH MIDDLE RIVER, AT THE SW END OF MEDFORD ISLAND

Location Detail: ISLAND INTERIOR IS MUCH LOWER THAN SURROUNDING TIDAL WATER, PERHAPS 10 FEET LOWER THAN SEA LEVEL.

Ecological: VEGETATED BY WEEDS AND ANNUAL GRASSES ON THE LANDSIDE SLOPE OF THE LEVEE. TOE DRAIN IS OFTEN CHOKED WITH CATTAILS, BUT IS CLEANED WITH A BACKHOW ON A REGULAR, BUT NOT ANNUAL, BASIS. LEVEE SOIL IS MOSTLY CLAY; ISLAND SOIL IS MOSTLY PEAT.

Threat: THREATENED BY TOE DRAIN MAINTENANCE.

General: SNAKE SKIN FOUND BY EARL COOLEY (MEDFORD ISLAND MANAGER) AND IDENTIFIED BY JOHN BRODE (DFG HERPETOLOGIST).

Owner/Manager: PVT

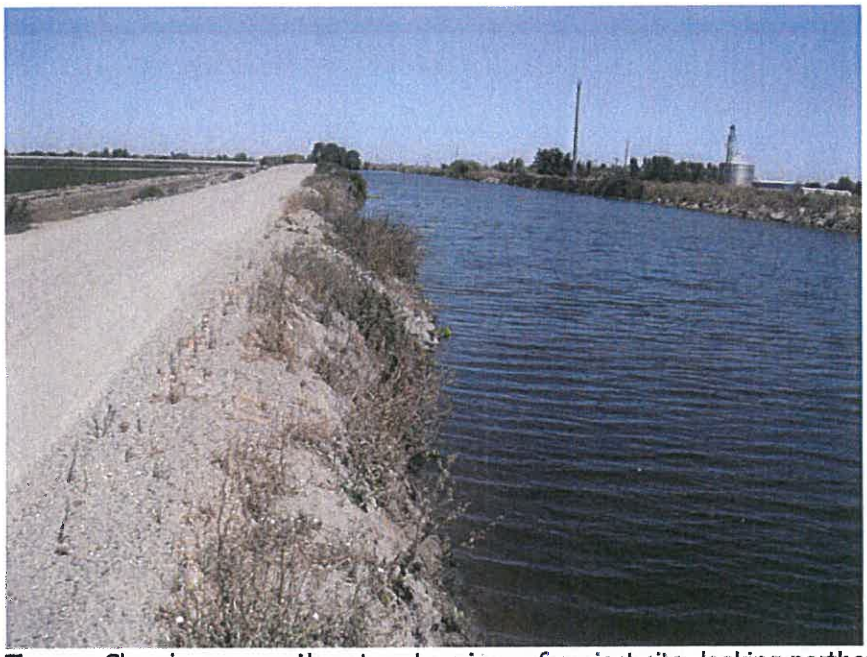
ATTACHMENT B

Representative Site Photographs

Northeastern portion of the project site, looking southwest from crown of levee. Trapper Slough is to the left. Notice maintained road on crown, weedy but depauperate inland side of levee, and alfalfa monoculture to right.

Western view from same position as first photo. Newly harvested alfalfa on ground, vegetation-free zone between levee and field, and dry ditch in middle foreground.

Looking northeast along inland berm of levee.



Trapper Slough, near northeastern terminus of project site, looking northeast. Notice steep bank, lack of dense vegetation and emergent plant species.

Typical irrigation ditch within crop fields near project site. Many were maintained frequently and lacked vegetation. Water is sourced from a pump/siphon.

View of extensive water hyacinth infestation covering most of Trapper Slough. Vegetation was extremely dense and little open water could be seen in these areas.

A vegetated ditch perpendicular to Trapper Slough. Some ditches had ponded water. However, water was obtained by siphon and no above-ground connection was made with the slough. Notice the abrupt transition from ditch/aquatic habitat to upland crop fields.

Detail of cobble/rip-rap. Particle size was small-medium sized angular cobble. With the high proportion of smaller cobble, interstitial spaces among rocks were small and not particularly conducive to thermoregulatory use by giant garter snakes.

Project site near the southwestern end of the slough. Emergent vegetation, primarily *Schoenoplectus* sp., became more abundant in the southwestern parts of the project area. Work area is the top of the crown and to the left (northwest). No project activities will occur on the water side of the levee.