RECLAMATION DISTRICT NO. 1614

AGENDA FOR
BOARD OF TRUSTEES MEETING
2:00 P.M. MARCH 6, 2023

Location: 3121 West March Lane, Suite 100
Stockton, CA 95219

AGENDA

1. Call to Order/Roll Call.

2. Public Comment. The public may comment on any matter within the District's jurisdiction that is not on the agenda. Matters on the agenda may be commented on by the public when the matter is taken up. All comments are limited to 5 minutes for general public comment and per agenda item in accordance with Resolution 2014-06.

3. Approval of Minutes of January 9, 2023, January 18, 2023, and February 6, 2023, meetings of the Board.

4. Presentation of Financial Status Report. Discussion and possible action.

5. Resolution 2023-01. Review emergency situation due to flood risk and damage resulting from severe storms to determine the need to continue the action.

6. Resolution 2022-08. Review emergency situation resulting from increased channel velocities and scour in the area between north cellular wall of the partially completed Smith Canal Gate Project and the right-side levee within the District to determine the need to continue the action.

7. Presentation of Engineer's Report. Discussion, direction, and possible action for following items:
    a. SJAFCA Smith Canal Gate – Review correspondence from SJAFCA regarding the status of the Smith Canal Gate Project and follow up investigation associated with the potential of increased velocities and scour in the area between north cellular wall and RD 1614's levee through the remaining channel opening of approximately 65 feet in width.
    b. Data request from Jordan Baldwin. Review data requested and meeting to review information.
    c. Wisconsin Pump Station
        i. Review and discuss progress of Wisconsin Pump Station Project.

8. Letter of Map Revision. Discussion and possible action to authorize performance of tasks necessary for submission of Letter of Map Revision.

9. Levee Certification. Discussion and possible action regarding RD 1614's previous certification efforts.

This agenda shall be made available upon request in alternative formats to persons with a disability, as required by the Americans with Disabilities Act of 1990 (42 U.S.C. § 12132) and the Ralph M. Brown Act (California Government Code §54954.2). Persons requesting a disability related modification or accommodation in order to participate in the meeting should contact Rhonda Olmo at 209/948-8200 during regular business hours, at least forty-eight hours prior to the time of the meeting.

Materials related to an item on this Agenda submitted to the Trustees after distribution of the agenda packet are available for public inspection in the office of the District Secretary at Neumiller & Beardslee, 3121 West March Lane, Suite 100, Stockton, California during normal business hours. The agenda is also available on the Reclamation District website at: http://www.rd1614.com/

10. Presentation of Superintendent's Report; request for direction.

11. District Newsletter. Discussion and direction.

12. Report on Meetings Attended.

13. District Calendar.

    a. Next Meeting is April 3, 2023

14. Items for future meetings.

15. Correspondence. Discussion and direction.

16. Bills. Discussion and Possible Action to approve bills presented.

17. San Joaquin Area Flood Control Agency Levee Construction and Maintenance Assessment. Discussion and possible action regarding the impacts to RD 1614 and that portion of the North Bank of Calaveras River within the District.

18. Report on San Joaquin Area Flood Control Agency's Smith Canal Gate Structure Project

19. Closed Session.

    a. PUBLIC EMPLOYEE PERFORMANCE EVALUATION
    Title: Levee Superintendent

    b. PUBLIC EMPLOYEE PERFORMANCE EVALUATION
    Title: District Secretary

20. Closed Session Report.

21. Employee Contracts. Discussion and possible action regarding changes to Levee Superintendent and Secretary contracts.

22. Adjournment.

This agenda shall be made available upon request in alternative formats to persons with a disability, as required by the Americans with Disabilities Act of 1990 (42 U.S.C. § 12132) and the Ralph M. Brown Act (California Government Code §54954.2). Persons requesting a disability related modification or accommodation in order to participate in the meeting should contact Rhonda Olmo at 209/948-8200 during regular business hours, at least forty-eight hours prior to the time of the meeting.

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AGENDA PACKET
RECLAMATION DISTRICT 1614
MARCH 6, 2023

ITEM	COMMENTARY
1.	Self-explanatory.
2.	Self-explanatory.
3.	Please see attached.
4.	Please see attached.
5.	Please see attached.
6.	Please see attached.
7.	Please see attached.
8.	Self-explanatory.
9.	Please see attached.
10.	Please see attached.
11.	Self-explanatory.
12.	Self-explanatory.
13.	Please see attached.
14.	Self-explanatory.
15.	Self-explanatory.
16.	Please see attached.
17.	Please see attached.
18.	Self-explanatory.
19.	(a) Please see attached.
	(b) Please see attached.
20.	Self-explanatory.
21.	Self-explanatory.
22.	Self-explanatory.

ITEM 3

DRAFT MINUTES OF REGULAR MEETING OF BOARD OF TRUSTEES
FOR RECLAMATION DISTRICT 1614
HELD MONDAY, JANUARY 9, 2023

The January Regular Meeting of the Board of Trustees of Reclamation District 1614 was held on Monday, January 9, 2023, at the hour of 2:00 p.m.

Roll Call of Board Members and Staff:
President Kauffman, Trustee Christian Gaines, Trustee Dominick Gulli, Attorney Andy Pinasco, Superintendent Abel Palacio and District Secretary Rhonda Olmo

The following members of the public were present: Erik E. Almaas (KSN), Chris Elias (SJAFCA), Paul Guerrero (landowner), Sarah Vigil (Port Marketing)

Absent were: District Engineer, Chris Neudeck

Item 1. Call to Order/Roll Call. President Kauffman called the meeting to order at 2:01 p.m.

Item 2. Public Comment. The public may comment on any matter within the District's jurisdiction that is not on the agenda. Matters on the agenda may be commented on by the public when the matter is taken up. All comments are limited to 5 minutes for general public comment and per agenda item in accordance with Resolution 2014-06.

No public comment.

Item 3. Approval of Minutes of December 5, 2022, meeting of the Board. After review,

On a motion by Trustee Gulli, seconded by Trustee Gaines, the Trustees present voted unanimously to approve the December 5, 2022 minutes by the following vote.

Ayes:	Gaines, Kauffman, Gulli
Noes:	None
Abstain:	None
Absent:	None

Item 4. Presentation of Financial Status Report. Discussion and possible action.

Rhonda Olmo provided a written and oral report of the District's revenues and expenditures. She reported the District is at 50% for their fiscal year. She reported on the assessments and interest received to date. The Trustees asked that a new line item be shown on the financial report to track the 2023 Emergency Flood Fight expenses.

On a motion by Trustee Gulli, seconded by Trustee Gaines, the Trustees present voted unanimously to approve the Financial Report by the following vote.

Ayes:	Gaines. Gulli, Kauffman
Noes:	None
Abstain:	None
Absent:	None

Item 5. Resolution 2023-01. Adopt Resolution 2023-01 Declaring a State of Emergency in Response to Flood Risk and Damage Resulting from Severe Storms.

Attorney Andy Pinasco reported that in response to the recent storms, the Governor has proclaimed a State of Emergency for any damages resulting from the weather. In working with Mr. Neudeck, Mr. Pinasco indicated that in the event something does occur in the District that it has this proclamation, and recommends claiming the State of Emergency if needed. What that does is it takes away the competitive bid requirement in the event the District needs to take any action for any damages that may result and will also support any applications in the event something does occur.

After discussion,

On a motion by Trustee Gaines, seconded by Trustee Gulli, the Trustees present voted unanimously to adopt Resolution 2023-01 Declaring a State of Emergency in Response to Flood Risk and Damage Resulting from Severe Storm by the following vote.

Ayes:	Gaines. Gulli, Kauffman
Noes:	None
Abstain:	None
Absent:	None

Item 6. Presentation of Engineer's Report. Discussion, direction, and possible action for following items:

a. **SJAFCA Smith Canal Gate**
b. **Rock Slope Protection Project**
c. **Wisconsin Pump Station No. 7**

Mr. Almaas provided a written and oral report on the following:

FROM ENGINEER'S REPORT:

I. **SJAFCA SMITH CANAL GATE**

A. **Review correspondence from SJAFCA regarding the status of the Smith Canal Gate Project and follow up investigation associated with the potential of increased velocities and scour in the area between north cellular wall and RD 1614's levee thru the remaining channel opening of approximately 65 feet in width.**

EXHIBIT A: SJAFCA correspondence regarding the status of Smith Canal Gate dated 1/06/23.

Mr. Almaas provided an updated summary on the ongoing monitoring of the concern related to the potential of increased velocities and scour in the area between the North Cellular Wall and the RD 1614 levee. He reviewed SJAFCA's January 6, 2023 letter with the Trustees. Mr. Almaas summarized by stating this monitoring was through mid-December and the velocity monitoring and bathymetric surveys performed to date continue to show that no erosion is currently occurring and that measured velocities are below scour-potential velocity thresholds. Ongoing visual inspections of the levee slope continue to occur on a recurring basis.

President Kauffman stated the District has not heard back on the letter that was sent to SJAFCA, Central Valley Flood Protection Board, San Joaquin County Flood Control and Water Conservation District, and United States Army Corps of Engineers. Mr. Elias said that there have been ongoing meetings between the agencies and a request has been made for additional information. Mr. Elias said he will respond within the week and plans a follow up meeting to discuss further.

B. Review photos taken by Supt. Abel Palacio of RD 1614's levee on 12/30/22.

EXHIBIT B: Photo summary by Supt Abel Palacio.

II. ROCK SLOPE PROTECTION PROJECT (2022-2023)

A. Review status of plan development for candidate properties for Rock Slope Protection and Beaver Damage repairs along Smith Canal.

Mr. Almaas stated KSN has a brief list of house projects volunteering for work. KSN is ready to get surveys done (weather permitting). The Trustee's instructed Mr. Almaas (KSN) to maximize the District's funds on this project. They want as much rock work done as possible by June 30, 2023.

III. WISCONSIN PUMP STATION NO. 7

A. Arnaudo was planning on performing the pump testing this past week post the recent storms allowing the system to fill up with surface run-off. KSN will postpone this testing given the extraordinary fluctuations in the watershed runoff and will coordinate the pump testing with Arnaudo, Abel, and Control Point soon when the weather settles out a bit.

After discussion,

On a motion by Trustee Gulli, seconded by Trustee Gaines, the Trustees present voted unanimously to have the pumps tested during a rain storm to achieve more data points in addition to the test required by contract by the following vote.

Ayes:	Gaines. Gulli, Kauffman
Noes:	None
Abstain:	None
Absent:	None

Item 7. Resolution 2022-08. Review emergency action to determine the need to continue the action.

Attorney Pinasco stated one of the requirements when you adopt a resolution declaring an emergency is that you revisit it at each meeting until it is determined that the emergency no longer exists. After discussion, the Trustees stated the emergency conditions still exists for the District and this item will be revisited at the February meeting.

Item 8. SJAFCA Smith Canal Gate Project. Discussion and possible action regarding potential of increased velocities and scour in the area between the north cellular wall and RD 1614's levee through the remaining channel opening.

Discussed under Engineer's Report.

Item 9. Letter of Map Revision. Discussion and possible action regarding Letter of Map Revision.

Trustee Gulli stated he heard back from FEMA. FEMA is asking for more information as to the condition of the levee. The Trustee's directed Trustee Gulli, Mr. Neudeck, and Mr. Almaas to provide any existing information they have to FEMA.

Items Mr. Gulli will work with KSN to gather in response are:

- 1987 inspection to levee – submittal to FEMA.
- Most up to date cross-section data. Mr. Almaas indicated KSN has Lidar data.
- Topographic map data for entire district. KSN has 2007 Lidar data with contours. Mr. Almaas stated he can send Trustee Gulli civil LDD file with topographic lines.

Item 10. Presentation of Superintendent's Report; request for direction.

Superintendent Abel Palacio reported on the following:

- All pump stations are in good condition.
- Weekly inspections were completed as well as preventative and corrective maintenance.
- The trees wreaked havoc on the power lines during the storms causing a power outage at Wisconsin. Mr. Palacio rented three generators to place at the stations as future precaution. Two of the large generators were stationed at Wisconsin and Franklin. The third (smaller) generator is ready to go if needed. The Trustee's gave direction to rent the generators on a monthly basis until at least March.
- Trustee Gulli asked Mr. Palacio to note where all the storm drains are backing up.
- The Trustees want Mr. Palacio and KSN to notify County OES that the station lost power and to fill out a damage report.
- Mr. Palacio and Rhonda Olmo to secure another Generator Contractor.
- Mr. Palacio will be going on vacation and has Mr. Orlando Lobosco lined up to assist while he is gone.

Item 11. District Newsletter. Discussion and direction.

The Trustees reviewed the draft newsletter that Ms. Vigil passed out. The following revisions were suggested for her to make:

- Highlight SJAFCA's upcoming meeting for Smith Canal Project. If SJAFCA does not have their meeting date by the time the newsletter is circulated then Ms. Vigil was asked to state that the reader check SJAFCA's website for more information.
- Remove flood plain section.
- Emphasize the District's rip-rap program.

Ms. Vigil was given direction to send an updated draft to all Trustees, via email, for them to send redlines back. Target print date is in February.

Item 12. Report on Meetings Attended. None

Item 13. District Calendar.

a. **Next Meeting is February 6, 2023** - Trustee Gulli stated he will not be in attendance.

Item 14. Staff Report.

a. District Treasurer – Attorney Pinasco stated he is working with the County to see what the process entails on the District becoming their own Treasurer. President Kauffman asked Attorney Pinasco to find out what the process would be to take some of the District's funds that are available for LAIF investment opportunities.

Item 15. Items for Future Meetings. Newsletter, Form 700

Item 16. Correspondence. Discussion and direction. None

Item 17. Bills. Discussion and Possible Action to approve bills presented.

After review,

Trustee Gulli made a motion to approve the December bills as presented. Trustee Gaines seconded the motion.

Ayes:	Gaines, Gulli, Kauffman
Noes:	None
Abstain:	None
Absent:	None

Item 18. Report on San Joaquin Area Flood Control Agency's Smith Canal Gate Structure Project.

Mr. Elias reported on the following:

- Reported about an available Local Member of Public position available at SJAFCA. The announcement is on SJAFCA's website. Mr. Elias encourages anyone interested to apply.
- Reported that the LSJR Project is $1.4B, with local share at #140M.

Item 19. Adjournment. Trustee Gulli made a motion to adjourn the meeting at 4:04 p.m. Trustee Gaines seconded the motion.

Ayes:	Gulli, Gaines, Kauffman
Noes:	None
Abstain:	None
Absent:	None

Secretary: The agenda for this meeting was posted at 3121 West March Lane, Suite 100, Stockton, California at least 72 hours preceding the meeting.

Respectfully submitted,

Rhonda L. Olmo
District Secretary

Reclamation District 1614
December 2022 Bills

NAME	INVOICE #	AMOUNT	TOTAL $	WARRANT #	CHECK #	SUBVENTION FUND
Kevin Kauffman		$100.00		6149		
			$100.00			
Christian Gaines		$50.00		6150		
			$50.00			
Dominick Gulli		$50.00		6151		
			$50.00			
Rhonda Olmo		$1,622.50		6152		
			$1,622.50			
Neumiller & Beardslee	335707	$2,058.87		6153		
			$2,058.87			
Kjeldsen, Sinnock, & Neudeck	34243	$1,372.50		6154		
	34244	$845.00				
	34245	$492.62				
	34246	$142.50				
	34247	$36,580.20				
	34248	$45.00				
	34249	$150.00				
	34250	$2,250.00				
	34251	$2,120.00				
			$43,997.82			
BPM	48759	$258.41		6155		
	51562	$394.45				
			$652.86			
Port City Marketing Solutions	20067	$357.50		6156		
			$357.50			
Holt of California	G0692201	$2,591.67		6157		
			$2,591.67			

Reclamation District 1614
December 2022 Bills

San Joaquin County Mosquito and Vector Control District	SJ10029	$83.20		6158		
			$83.20			
Delk Pest Control	172419	$220.00		6160		
			$220.00			
Abel Palacio - December Payroll		$2,617.96			Direct Deposit	
Orlando Lobosco - December Payroll		$246.37			2547	
			$2,864.33			
State of California Payroll Taxes - Dec.		$163.82				
			$163.82			
Federal Government Payroll Taxes - Dec.		$836.29				
			$836.29			
Sprint		$74.62			online	
			$74.62			
Comcast		$128.54			online	
			$128.54			
Visa		$137.16			online	
		$3,368.36				
			$3,505.52			
PG&E		$1,577.72			online	
			$1,577.72			
State Compensation Insurance Fund	1001214983	$261.14				
			$261.14			
	WARRANT TOTAL:		**$51,784.42**			
	CHECKING TOTAL:		**$9,411.98**			
	TOTAL BILLS PAID		**$61,196.40**			

DRAFT MINUTES OF SPECIAL MEETING OF BOARD OF TRUSTEES
FOR RECLAMATION DISTRICT 1614
HELD WEDNESDAY, JANUARY 18, 2023

The January Special Meeting of the Board of Trustees of Reclamation District 1614 was held on Wednesday, January 18, 2023, at the hour of 9:00 a.m.

Roll Call of Board Members and Staff:
President Kauffman, Trustee Christian Gaines, Trustee Dominick Gulli, Attorney Andy Pinasco, and District Secretary Rhonda Olmo

The following members of the public were present: None

Absent were: Engineer Chris Neudeck and District Superintendent Abel Palacio

Item 1. Call to Order/Roll Call. President Kauffman called the meeting to order at 9:01 a.m.

Item 2. CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
Significant Exposure to Litigation Pursuant to Paragraph (2) of Subdivision (d) of Section 54956.9: one (1) case.

Item 3. Adjournment. The Board adjourned from Closed Session at 10:00 a.m. regarding Action Item 2. All Trustees were present during the entirety of the Closed Session. There is no reportable action.

Secretary: The agenda for this meeting was posted at 3121 West March Lane, Suite 100, Stockton, California at least 24 hours preceding the meeting.

Respectfully submitted,

Rhonda L. Olmo
District Secretary

DRAFT MINUTES OF REGULAR MEETING OF BOARD OF TRUSTEES
FOR RECLAMATION DISTRICT 1614
HELD MONDAY, FEBRUARY 6, 2023

The February Regular Meeting of the Board of Trustees of Reclamation District 1614 was held on Monday, February 6, 2023, at the hour of 2:00 p.m.

Roll Call of Board Members and Staff:
President Kauffman, Trustee Christian Gaines, Attorney Andy Pinasco, Superintendent Abel Palacio and District Secretary Rhonda Olmo

The following members of the public were present: Erik E. Almaas (KSN), Glenn Prasad (SJAFCA), Paul Guerrero (landowner), Sarah Vigil (Port Marketing)

Absent were: Trustee Dominick Gulli and District Engineer, Chris Neudeck

Item 1. Call to Order/Roll Call. President Kauffman called the meeting to order at 2:04 p.m.

Item 2. Public Comment. The public may comment on any matter within the District's jurisdiction that is not on the agenda. Matters on the agenda may be commented on by the public when the matter is taken up. All comments are limited to 5 minutes for general public comment and per agenda item in accordance with Resolution 2014-06.

Glenn Prasad stated at SJAFCA's January 26, 2023 Board Meeting that a new Chair was appointed (Gary Singh from Manteca) and a new Vice Chair was appointed (Paul Akinjo from Lathrop). Mr. Prasad also provided information regarding SJAFCA 218 Assessments and handed out materials (staff report and PowerPoint presentation).

Item 3. Presentation of Financial Status Report. Discussion and possible action.

Rhonda Olmo provided a written and oral report of the District's revenues and expenditures. She reported the District is at 58.3% for their fiscal year. She reported on the assessments and property tax money received to date. She pointed out that a new line item has been added to the report (R1E) to track storm emergency costs. She commented on the high PG&E bill this month. She reported that this report does not reflect the last two payments made to Visa. Once Mrs. Olmo receives the receipts for the Visa bills, she will update the financial report. Mrs. Olmo reported that the warrant issued for payment to Trustee Gulli in the amount of $100 will be edited to $50 due to his absence at today's meeting and the financial report will be edited as such.

On a motion by President Kauffman, seconded by Trustee Gaines, the Trustees present voted unanimously to approve the Financial Report by the following vote.

Ayes:	Gaines, Kauffman
Noes:	None
Abstain:	None
Absent:	Gulli

Item 4. Presentation of Engineer's Report. Discussion, direction, and possible action for following items:

Mr. Almaas provided a written and oral report on the following:

FROM ENGINEER'S REPORT:

I. SJAFCA SMITH CANAL GATE

A. Review the area between the north cellular wall and RD 1614's levee through the remaining channel opening of approximately 65 feet in width.

Mr. Almaas reported that there were bathymetric surveys done that showed no change. The velocity measurements were taken with a higher river stage and the flood maximum velocities did not change (actually got smaller).

II. ROCK SLOPE PROTECTION PROJECT (2022-2023)

A. Review status of plan development for candidate properties for Rock Slope Protection and Beaver Damage repairs along Smith Canal.

Mr. Almaas reported that KSN has surveyed five sites. KSN is processing the data and will start working on the plans to get these out to bid.

III. WISCONSIN PUMP STATION NO. 7

A. Review likely schedule for Arnaudo Construction Co. to perform the pump testing.

B. Review Power Services Pump Testing that was run during the heavy rainfall event in January. This does not replace the ultimate testing by Arnaudo Construction Co.
EXHIBIT A: Pump Test for Pump No. 1 (old 40 hp)
EXHIBIT B: Pump Test for Pump No. 2 (old 30 hp)
EXHIBIT C: Pump Test(s) for Pump No. 3 (new 75 hp)
EXHIBIT D: Pump Test(s) for Pump No. 4 (new 75 hp)
Included in Engineer's Report

Mr. Almaas reported that per the Board's direction last month KSN went out there and had Power Services do some pump testing on all four pumps. There were some concerns discussed on the readings and KSN will work with Arnaudo Construction regarding them. KSN is working with Arnaudo Construction to get the official testing run and will provide a final report.

IV. 2023 HIGH WATER EVENT

A. Review the Governors Emergency Declaration and the subsequent Presidents declaration for the on-going high-water event.
EXHIBIT E: Governor Newsom's Proclamation of a State of Emergency
Included in Engineer's Report

Mr. Almaas went over Governor Newsom's Proclamation of a State of Emergency. KSN is following closely and will be submitting a damage report(s) on behalf or RD 1614.

Item 5. Resolution 2023-01. Review emergency situation due to flood risk and damage resulting from severe storms to determine the need to continue the action.

The Trustees reviewed the existing conditions and stated the emergency conditions still exists for the District. This item will be revisited at the March meeting.

Item 6. Resolution 2022-08. Review emergency situation resulting from increased channel velocities and scour in the area between north cellular wall of the partially completed Smith Canal Gate Project and the right-side levee within the District to determine the need to continue the action.

The Trustees reviewed the existing conditions and stated the emergency conditions still exists for the District. This item will be revisited at the March meeting.

Item 7. Letter of Map Revision. Discussion and possible action to select consultant to provide engineering services and submit Letter of Map Revision and authorize District Official to execute consultant agreement.

President Kauffman reported he wants to consider options of having someone else consider this item so Trustee Gulli is not in a conflict position for signing the application as he is a Trustee and not acting as the District's Engineer.

After discussion:

On a motion by President Kauffman, seconded by Trustee Gaines, the Trustees present voted unanimously to authorize President Kauffman to sign the application after the Consulting Engineer (Jordan Baldwin) and Trustee Gulli review District records to determine whether the records exist to respond to FEMA and request that a Task Order from Jordan Baldwin be obtained for him to meet with the District for no more than one day of his time to make such determination by the following vote.

Ayes:	Gaines, Kauffman
Noes:	None
Abstain:	None
Absent:	Gulli

Item 8. Presentation of Superintendent's Report; request for direction.

Superintendent Abel Palacio reported on the following:

- With drought affecting our area for the last two to three years, the pumps at the pump station have not had a real test as to their "state or readiness" other than a few large rain events. With the heavy rains, the pumps at all the pump stations logged several hundred hours of run time each. Mr. Palacio had several problems related to the excessive run time. Some pumps had overload and control system failures as a result. All the problems on the pump stations were able to be repaired immediately or deferred for a future time until weather and time permit.
- As rains and wind continued, the area west of I5 experienced excessive power outages when trees and power lines fell across the state. Mr. Palacio rented three emergency generators from Holt of California and United Rentals to provide power to the most critical station.
- Mr. Palacio was able to get the new pumps at Wisconsin Pump Station flow and efficiency test completed.

- Due to heavy rains, all Levee inspections were done by walking the levee and by doing drive by inspections.

Item 9. District Newsletter. Discussion and direction.

Sarah Vigil reported she received Trustee Gulli's language for the CLOMR section. President Kauffman will review the new language, make revisions, and send them to Ms. Vigil. President Kauffman asked Ms. Vigil to add some language in the newsletter addressing the Town Hall Spring Meeting indicating that the residents watch for a post card to be mailed later once the meeting date has been established.

On a motion by President Kauffman, seconded by Trustee Gaines, the Trustees present voted unanimously to authorize President Kauffman and/or Trustee Gulli to make the final edits to the newsletter and mail out once ready by the following vote.

Ayes:	Gaines, Kauffman
Noes:	None
Abstain:	None
Absent:	Gulli

Item 10. Report on Meetings Attended. None

Item 11. District Calendar.

a. **Next Meeting is March 6, 2023**

Item 12. Items for Future Meetings. Form 700 and District Audit

Item 13. Correspondence. Discussion and direction. None

Item 14. Staff Report.

a. AB 1234 and AB 1661 Training provided by Neumiller & Beardslee

Attorney Pinasco stated all reclamation district elected officials have training requirements for The Brown Act and ethics, as well as sexual harassment. He is collaborating with staff to get a training date on calendar. The training will consist of four hours (two hours The Brown Act and two hours sexual harassment). The meeting will be held at Neumiller & Beardslee late in the first quarter or early in the second quarter of 2023.

Item 15. Bills. Discussion and Possible Action to approve bills presented.

After review,

Trustee Gaines made a motion to approve the January bills as presented with the edit to Trustee Gulli's warrant. President Kauffman seconded the motion.

Ayes:	Gaines, Kauffman
Noes:	None
Abstain:	None

Absent: Gulli

Item 16. Report on San Joaquin Area Flood Control Agency's Smith Canal Gate Structure Project.

Mr. Glenn Prasad reported that SJAFCA continues to work with NIMS regarding the in water work permit situation.

Item 17. Adjournment. President Kauffman made a motion to adjourn the meeting at 2:55 p.m. Trustee Gaines seconded the motion.

Ayes:	Gaines, Kauffman
Noes:	None
Abstain:	None
Absent:	Gulli

Secretary: The agenda for this meeting was posted at 3121 West March Lane, Suite 100, Stockton, California at least 72 hours preceding the meeting.

Respectfully submitted,

Rhonda L. Olmo
District Secretary

Reclamation District 1614
January 2023 Bills

NAME	INVOICE #	AMOUNT	TOTAL $	WARRANT #	CHECK #	SUBVENTION FUND
Kevin Kauffman		$100.00		6161		
Special Meeting Fee - Jan 18, 2023		$100.00				
			$200.00			
Christian Gaines		$50.00		6162		
Special Meeting Fee - Jan 18, 2023		$50.00				
			$100.00			
Dominick Gulli - Special Meeting Fee - Jan 18, 2023		$50.00		6163		
			$50.00			
Rhonda Olmo		$1,072.50		6164		
Special Meeting Fee - Jan 18, 2023		$250.00				
			$1,322.50			
Neumiller & Beardslee	337311	$2,981.56		6165		
			$2,981.56			
Kjeldsen, Sinnock, & Neudeck	34431	$1,603.44		6166		
	34432	$386.25				
	34433	$260.00				
	34434	$123.75				
	34435	$528.75				
	34436	$2,116.68				
			$5,018.87			
BPM	53733	$592.40		6167		
			$592.40			
Holt of California	G0692701	$272.51		6168		
			$272.51			

Reclamation District 1614
January 2023 Bills

Delk Pest Control	175772	$220.00		6169		
			$220.00			
Holt Repair & Mfg., Inc.	13108	$780.00		6170		
			$780.00			
Willie Electric Supply Co., Inc.	S2122688.001	$1,318.41		6171		
	S2122716.001	$95.05				
			$1,413.46			
RACO Manufacturing & Engineering Co.	SO-93050	$6,294.76		6172		
			$6,294.76			
Reclamation District 1614 - Checking Account Funds		$25,000.00		6173		
			$25,000.00			
Abel Palacio - January Payroll		$4,134.66			Direct Deposit	
			$4,134.66			
State of California Payroll Taxes - Jan.		$479.84				
			$479.84			
Federal Government Payroll Taxes - Jan.		$2,135.84				
			$2,135.84			
Sprint		$74.62			online	
			$74.62			
Comcast		$134.69			online	
			$134.69			
Visa		$4,646.19			online	
			$4,646.19			

Reclamation District 1614
January 2023 Bills

PG&E		$7,933.18			online	
			$7,933.18			
	WARRANT TOTAL:		**$44,246.06**			
	CHECKING TOTAL:		**$19,539.02**			
	TOTAL BILLS PAID		**$63,785.08**			

ITEM 4

RECLAMATION DISTRICT 1614
FINANCIAL REPORT MEETING MARCH 2023 MEETING
% OF FISCAL YEAR ELAPSED THROUGH END OF FEBRUARY - 66.67%

	Budget Item	Budget Amount	Expended MTD	Expended YTD	% YTD
	GENERAL FUND				
	Administrative				
G1	Annual Audit	$ 7,500.00	$0.00	$0.00	0.00%
G2	Public Communication & Noticing	5,000.00	$0.00	$1,017.50	20.35%
G3	Election Expense	30,000.00	$0.00	$1,072.44	3.57%
G4	Superintendent	50,000.00	$1,925.38	$27,945.93	55.89%
G4a	Secretary	16,000.00	$1,443.75	$10,713.75	66.96%
G5	Workers' Compensation	2,500.00	$0.00	$1,070.64	42.83%
G6	Trustee Fees	4,000.00	$150.00	$1,650.00	41.25%
G7	County Assessment Administration	8,000.00	$0.00	$4,962.26	62.03%
G7A	General Assessment Administration (Engineers)	5,000.00	$0.00	$7,369.99	147.40%
G8	Office Supplies	700.00	$0.00	$868.95	124.14%
G9	Communication (phones, radios, etc.)	4,000.00	$245.74	$1,675.66	41.89%
G12	Education/Memberships	5,000.00	$0.00	$2,203.00	44.06%
G13	Non Management Staff	7,500.00	$0.00	$0.00	0.00%
G13A	LOMR		$0.00	$8,250.00	0.00%
	TOTAL	**$145,200.00**	**$3,764.87**	**$68,800.12**	**47.38%**
	Consultants				
G14	General Engineering	$ 30,000.00	$1,348.98	$16,182.68	53.94%
G15	General Legal	30,000.00	$4,407.38	$23,926.79	79.76%
	TOTAL	**$ 60,000.00**	**$5,756.36**	**$40,109.47**	**66.85%**
	Property & Equipment				
G16	Operation & Maintenance	$ 3,000.00	$0.00	$18.38	0.61%
G16A	District Vehicle Expenses	3,500.00	$137.16	$1,880.66	53.73%
G17	Acquisitions	0.00	$0.00	$0.00	0.00%
G18	Flood Fight Supplies	0.00	$0.00	$0.00	0.00%
	TOTAL	**$ 6,500.00**	**$137.16**	**$1,899.04**	**29.22%**
	Other				
G19	Insurance	$ 15,000.00	$0.00	$15,499.76	103.33%
	TOTAL	**$ 15,000.00**	**$0.00**	**$15,499.76**	**103.33%**
	TOTAL GENERAL FUND	**$ 226,700.00**	**$ 9,658.39**	**$ 126,308.39**	
	RECURRING EXPENSES				
	Levee				
R1	General Maintenance	$ 15,000.00	$1,030.00	$7,623.75	50.83%
R1A	Engineering - General	25,000.00	$1,286.25	$9,401.76	37.61%
R1C	Riprap and Levee Repair	350,000.00	$15,767.50	$49,653.16	14.19%
R1D	DWR 5 Year Plan	0.00	$82.50	$356.25	0.00%
R1E	Storm Emergency	0.00	$13,322.32	$15,264.53	0.00%
	TOTAL	**$ 390,000.00**	**$31,488.57**	**$67,034.92**	**17.19%**
	Drainage				
R2	Electricity	$ 15,000.00	$13,035.78	$26,116.43	174.11%
R3	Sump Clearing	30,000.00	$0.00	$5,409.59	18.03%
R4	Plant O&M	75,000.00	$3,607.79	$18,334.17	24.45%
R4A	Pest Control	3,000.00	$220.00	$1,843.20	61.44%
R5	Wisconsin Pump Station Design	0.00	$0.00	$175.00	0.00%
R6	Wisconsin Pump Station Construction	0.00	$2,158.01	$66,624.72	0.00%
	TOTAL	**$ 123,000.00**	**$19,021.58**	**$118,503.11**	**96.34%**
	TOTAL RECURRING EXPENSES	**$ 513,000.00**	**$ 50,510.15**	**$ 185,538.03**	
	TOTAL EXPENSE BUDGET	**$ 739,700.00**	**$ 60,168.54**	**$ 311,846.42**	

Budget Item	Budget Amount	Expended MTD	Expended YTD	% YTD
INCOME				
Anticipated				
Assessment - Existing	$ 346,725.80	$0.00	$183,334.77	52.88%
Assessment - Wisconsin	97,090.00	$0.00	$64,105.31	66.03%
Interest	5,000.00	$11,913.00	$21,188.00	423.76%
Property Tax	150,000.00	$1,175.67	$98,280.21	65.52%
Subvention Reimbursement	252,644.42	$0.00	$0.00	0.00%
2019-2020 DWR 5-Year Plan	0.00	$0.00	$0.00	0.00%
Delta Grant II - Flood Fight Supplies	0.00	$0.00	$0.00	0.00%
TOTAL	**$ 851,460.22**	**$13,088.67**	**$366,908.29**	**43.09%**
TOTAL NET INCOME (LOSS)	**$ 111,760.22**			
O&M Fund Balance (as of 2/28/2023)		**$2,247,999.11**		
Wisconsin Fund Balance (as of 2/28/23)		**$63,779.34**		
Proposed Expenses		**$60,168.54**		
TOTAL CASH		**$ 2,251,609.91**		
Checking Account Balance (as of 2/28/23)		**$26,902.40**		
TOTAL CASH ON HAND		**$ 2,278,512.31**		

Wisconsin Pump Station Costs: $869,828.86
See attached for details.

TRANSFER NUMBER	TRANSFER DATE	TRANSFER AMOUNT	INTEREST TO DATE	TOTAL AMOUNT DUE WITH INTEREST
1	1/5/2022	$492,918.87	$ 1,267.25	$494,186.12
2	1/5/2022	$231,315.14	$ 594.69	$231,909.83
3	2/3/2022	$66,386.00	$ 143.77	$66,529.77
4	5/3/2022	$7,058.20	$ 4.21	$7,062.41
5	6/7/2022	$47,436.70	$ 13.30	$47,450.00
7	10/4/2022	$22,670.51	$ 20.22	$22,690.73
Subtotals		$867,785.42	$ 2,043.44	**$869,828.86**

ITEM 5

RECLAMATION DISTRICT NO. 1614

RESOLUTION 2023-01

RESOLUTION OF THE BOARD OF TRUSTEES OF RECLAMATION DISTRICT NO. 1614 DECLARING THAT AN EMERGENCY SITUATION EXISTS DUE TO FLOOD RISK AND DAMAGE RESULTING FROM SEVERE STORMS

WHEREAS, the Trustees of Reclamation District No 1614 ("District"), of the County of San Joaquin, State of California, a regular meeting of the Board of Trustees was held at the district offices at 3121 West March Lane, Suite 100, Stockton, California on January 9, 2023, at 2:00 p.m.; and

WHEREAS, commencing on December 27, 2022, it became probable that an atmospheric river would produce high levels of rainfall in the Sacramento San Joaquin Delta region coinciding with high tides and winds; and

WHEREAS, it is forecasted that additional and continuing storms related this series of atmospheric river systems threaten the Sacramento San Joaquin Delta region, bringing heavy rainfall, expected flooding, strong winds and wind gusts, falling debris, downed trees, and widespread power outages; and

WHEREAS, on January 4, 2023, in response to the damage caused by the recent storms, and impending forecasted storms Governor Newsom proclaimed a State of Emergency throughout California in accordance with Government Code section 8625, suspending provisions of the Government Code and Public Contract Code, including but not limited to competitive bidding requirements, to address the effects of these storms; and

WHEREAS, in response to the effects of these storms, the District's Board of Trustees (the "Board") hereby find that such conditions constitute an emergency that will not permit a delay from an advertised competitive solicitation for bids and that immediate restoration of service and repair of drainage and levee systems are necessary to respond to this emergency to protect health and safety.

NOW, THEREFORE, BE IT RESOLVED, AND IT IS HEREBY RESOLVED, by the Board of Trustees of Reclamation District 1614 that:

1. An emergency situation exists within the District and along the District's levees due to emergency conditions resulting from the severe storms and impending forecasted storms, which will require the District to proceed immediately with any work resulting from the storms to prevent the possible flooding of the district, and failure to its levees at the earliest possible time.

2. That any Trustee, the District Secretary, and/or District Engineer be hereby authorized and directed to acquire such materials and equipment and to enter into contracts necessary and appropriate to meet the emergency needs of the District

caused by the severe storms and impending forecasted storms in accordance with the Decision Making Authority described in Resolution 2018-13.

3. This emergency shall be deemed to have commenced on January 9, 2023, and shall continue until further action of this Board.

PASSED AND ADOPTED by the Board of Trustees of Reclamation District No. 1614 at a meeting thereof held on this 9th day of January, 2023, by the following vote, TO WIT:

AYES:

NOES:

ABSTENTION:

ABSENT:

RECLAMATION DISTRICT NO. 1614
A Political Subdivision of the
State of California

By:_____
KEVIN KAUFFMAN, PRESIDENT

ATTEST:

_____
RHONDA OLMO, SECRETARY

CERTIFICATION

I, RHONDA OLMO, Secretary of Reclamation District No. 1614, do hereby certify that the foregoing is a full, true and correct copy of a resolution of Reclamation District No. 1614 duly passed and adopted at a meeting of the Board of Trustees thereof held on the 9th day of January, 2023.

Dated: _____, 2023.

_____
RHONDA OLMO, SECRETARY
Reclamation District No. 1614

ITEM 6

RECLAMATION DISTRICT NO. 1614

RESOLUTION 2022-08

RESOLUTION OF THE BOARD OF TRUSTEES OF RECLAMATION DISTRICT NO. 1641 DECLARING THAT AN EMERGENCY SITUATION EXISTS

WHEREAS, the Smith Canal Gate Project was unable to achieve connection to the right side levee within Reclamation District 1614 – Smith Canal (the "District") within the current in-water work window; and

WHEREAS, the National Marine Fisheries Service ("NMFS") and United States Army Corps of Engineers ("USACE") have not authorized the opening of the gate device for the Smith Canal Gate Project, which would provide an additional outlet for the Smith Canal to drain to the San Joaquin River; and

WHEREAS, commencing on December 5, 2022, the prospect of increased channel velocities and scour in the area between north cellular wall of the partially completed Smith Canal Gate Project and the right-side levee within District is a high level of concern for its integrity; and

WHEREAS, any damage to a District levee constitutes a clear and imminent danger to life and property within the District; and

NOW, THEREFORE, BE IT RESOLVED, AND IT IS HEREBY RESOLVED, by the Board of Trustees of Reclamation District 1614 that:

1. The Recitals are hereby incorporated by this reference.

2. As of Monday, December 5, 2022, an emergency condition exists within the District and along the District's levees due to the prospect of increased channel velocities and scour in the area between north cellular wall of the partially completed Smith Canal Gate Project and the right-side levee within Reclamation District 1614, which requires the District to proceed immediately with all work necessary at the earliest possible time to prevent the possible failure to its levee and flooding of the District.

3. The District President, District Engineer, and/or District Superintendent, acting alone or in concert with others be hereby authorized and directed to acquire such materials and equipment and to enter into contracts necessary and appropriate to meet the emergency needs of the District caused by the increased channel velocities and scour in the area between north cellular wall of the partially completed Smith Canal Gate Project and the right-side of the levee of the District in accordance with District Standards and Policies.

PASSED AND ADOPTED by the Board of Trustees of Reclamation District No. 1614 at a meeting thereof held on this 5th day of December, 2022, by the following vote, TO WIT:

AYES: 3
NOES: 0
ABSTENTION: 0
ABSENT: 0

RECLAMATION DISTRICT NO. 1614
A Political Subdivision of the
State of California

By: _____
KEVIN KAUFFMAN, PRESIDENT

ATTEST:

Rhonda Olmo
_____
RHONDA L. OLMO, SECRETARY

CERTIFICATION

I, RHONDA L. OLMO, Secretary of Reclamation District No. 1614, do hereby certify that the foregoing is a full, true and correct copy of a resolution of Reclamation District No. 1614 duly passed and adopted at a regular meeting of the Board of Trustees thereof held on the 5th day of December, 2022.

Dated: _____, 2022.

_____
RHONDA OLMO, SECRETARY
Reclamation District No. 1614

ITEM 7

RECLAMATION DISTRICT NO. 1614
SMITH TRACT

BOARD OF TRUSTEES MEETING
MONDAY, MARCH 6, 2023
2:00 PM
ENGINEER'S REPORT

I. SJAFCA SMITH CANAL GATE

A. Review correspondence from SJAFCA regarding the status of the Smith Canal Gate Project and follow up investigation associated with the potential of increased velocities and scour in the area between north cellular wall and RD 1614's levee thru the remaining channel opening of approximately 65 feet in width.

EXHIBIT A: SJAFCA correspondence regarding the status of Smith Canal Gate dated 3/2/23.

II. DATA REQUEST FROM JORDAN BALDWIN FEMA RELATED

A. Review data requested and meeting to review information scheduled for 3/8/23.

EXHIBIT B: Email from Jordan Baldwin dated 2/28/23.

III. WISCONSIN PUMP STATION NO. 7

A. Arnaudo is still planning on performing the pump testing after this coming week storms allowing the system to fill up with surface run-off. KSN will coordinate the pump testing with Arnaudo, Abel, and Control Point.

Exhibit A

SAN JOAQUIN AREA
FLOOD CONTROL AGENCY

March 2, 2023

Honorable Kevin Kauffman, President
Reclamation District No. 1614
P.O. Box 4807
Stockton, CA 95204

Monthly follow-up status of Smith Canal Gate Project relative to channelization of water between the unfinished North Cellular Wall and Reclamation District No. 1614's (RD 1614) Smith Tract Levee along the Stockton Golf and Country Club

Dear President Kauffman,

This letter serves as a monthly follow-up to the San Joaquin Area Flood Control Agency's (SJAFCA) letter dated November 2, 2022, which described the concern related to the potential of increased velocities and scour in the area between the North Cellular Wall and the RD 1614 levee. In the November 2, 2022, letter, SJAFCA described the implementation of a proactive plan to monitor the conditions through the channel opening. The results of that monitoring effort through the month of November 2022 were summarized in a SJAFCA letter dated December 1, 2022. This letter summarizes the results of the Agency's monitoring efforts through February 2023.

First, continuous monitoring of velocities within the channel opening has been occurring by CBEC engineers since November 3, 2022. Since that time, CBEC has downloaded data from the measuring device on November 7 and 28, 2022, December 14, 2022, January 6 and 30, 2023, and February 27, 2023. The results of this velocity monitoring continue to indicate that normal tidal inflow and outflow through the channel are generally well below velocity thresholds that indicate the potential for scour. The ebb velocities have returned to November levels after the suppressed ebb velocities measured in December and January, and the distribution of flood tide velocities is similar before and after the precipitation events in late December and January. **EXHIBIT 1** is a Technical Memorandum from CBEC dated March 1, 2023, that summaries the results of velocity monitoring and is hereby enclosed.

Second, bathymetric surveys have been performed in the area by eTrac surveyors over the last three months on October 6 and 27, 2022, November 14, 2022, December 15, 2022, January 12, 2023, and February 28, 2023. The results of these surveys have confirmed that very minimal change to topography has occurred along the channel bottom and levee toe during this time, and there is no evidence to indicate that erosion has occurred because of the narrow channel opening. **EXHIBIT 2** is an exhibit which provides a comparison of the bathymetric survey results performed on January 12, 2023, and February 28, 2023, and is hereby enclosed.

In summary, the velocity monitoring and bathymetric surveys performed to date continue to show that no erosion is currently occurring and that measured velocities are below scour-potential velocity thresholds. Furthermore, ongoing visual inspections of the levee slope continue to occur on a recurring basis.

SJAFCA will continue to observe flow conditions around the project and the RD 1614 levee and plans to react accordingly. We hope that these implemented measures will alleviate and address any concerns regarding the RD 1614 levee. Please contact me if you have any further questions.

Sincerely,

CHRIS ELIAS

cc: Andy Pinasco, General Counsel, RD 1614
Christopher H. Neudeck, KSN
Juan Neira, SJAFCA

Attachment – 2 Exhibits

TECHNICAL MEMORANDUM

Date:	1 March 2023
To:	Dave Carr, KSN, Inc.
From:	Greg Shellenbarger, Scott Wright, and Chris Bowles
Project:	19-1040 – Smith Canal Water Quality Monitoring
Subject:	Velocity Monitoring 3 November 2022 to 27 February 2023

1 INTRODUCTION

In October 2022, KSN expressed a need for velocity monitoring at the mouth of Smith Canal in the channel that extends from the northern extent of the newly constructed flood barrier to the opposite bank adjacent to Stockton Golf and Country Club. The concern is that potentially high tidal velocities in this channel could lead to erosion of the bank at the southern end of the golf course. cbec explored equipment options for this and selected a side-looking Acoustic Doppler Current Profiler (ADCP) to be deployed near the flood barrier and oriented toward the bank in order to profile across the channel. The equipment was obtained, a deployment frame was fabricated, and the ADCP was deployed on 3 November 2022.

1.1 STUDY OBJECTIVE

This study aimed to monitor water velocity across the channel located between the northern extent of the newly constructed flood barrier and the opposite bank adjacent to the Stockton Golf and Country Club at the mouth of Smith Canal.

2 Materials and Methods

2.1 Instrumentation

A Sontek SL-1500 3G was used for the velocity and water level measurements. This is a side-looking, 2D ADCP that measures velocity in horizontal cells along each of two acoustic profiling beams. The geometry of the beams is then used to compute the 2D velocity vector referenced to the orientation of the instrument (parallel and perpendicular to the instrument). The ADCP measures the velocity profile through a slice of the water column at the fixed elevation of the instrument (thus, the depth of the

measurement profile varies with the tides). The cell size was set to 0.67' (20 cm) and up to 115 cells were selected. Data were collected and averaged over 120 seconds every five minutes. Figure 1 shows the orientation of the instrument relative to the channel. This unit is equipped with a pressure transducer to measure water level.

2.2 Location

The instrument is located on a vertical H-pile driven into the riverbed west of the northern extent of the current flood barrier facing the opposite bank of the golf course (Figure 1). It is mounted on a frame that allows the instrument's mounting plate to slide up out of the deployed position to allow for servicing. The instrument is deployed at a depth where it is submerged continuously except during the lowest of the low tides. It has come out of the water only twice briefly during the deployment period (during the lower low tides on 16 and 17 November 2022).

2.3 Deployment period and servicing

The ADCP was first deployed on 3 November 2022. The instrument was serviced on 7 and 28 November, 14 December 2022, 6 and 30 January 2023, and 27 February 2023. Servicing included removing the instrument from the water, cleaning it of any biological growth, downloading data, and redeploying. The battery was changed on 14 December 2022 and 30 January 2023. The data are viewed in the field using Sontek's "SL" software to confirm that the instrument is functional.

2.4 Data processing

The instrument and software provide velocities along each beam and spatial reference frames as a 2D vector referenced to the orientation of the instrument, in each cell of the profile and as an average across the profile (referred to herein as "range-averaged"). The orientation of the instrument was measured in the field with a compass, and this angle was used to rotate the vector into east and north directions (Figure 1). The east-north vector was then rotated into along-channel and across-channel directions (Figure 2). The rotation angle was first estimated from imagery and then refined slightly to produce a vector that minimizes across-channel velocities; thus, the along-channel velocities represent the primary flow path. Across-channel velocities are defined as positive toward the bank of the golf course (roughly north) and along-channel velocities are positive in the ebb (roughly west) direction (Figures 1 and 2). Data post-processing was done in Matlab (version R2021B, MathWorks). These data will require additional QA/QC evaluations that will likely remove a limited number of data points that are presented here.

3 Results

The along- and across-stream ranged-averaged velocity time series for the entire deployment are presented in Figure 3, along with the water level as measured at the instrument location. The highest along-stream velocities in both the flood and ebb directions generally occur within an hour of the lower of the two daily low tides. Peak flood velocities can exceed 2 ft/s, while peak ebb velocities are generally less than 1.5 ft/s. Across-stream velocities are much lower overall than along-stream velocities. The

strongest across-stream velocities are to the north and occur during the earlier portions of the flood tide. The range-averaged flows to the north during flood tide are always less than 1 ft/s and mostly less than 0.5 ft/s.

The range-averaged along and across-stream velocities and water levels collected since 30 January 2023 (the latest period between downloads) are presented in Figure 4. The muted ebb tide velocities seen in January appear to have recovered. A strong spring tidal period in the third week of February shows flood tide velocities that exceed 2 ft/s.

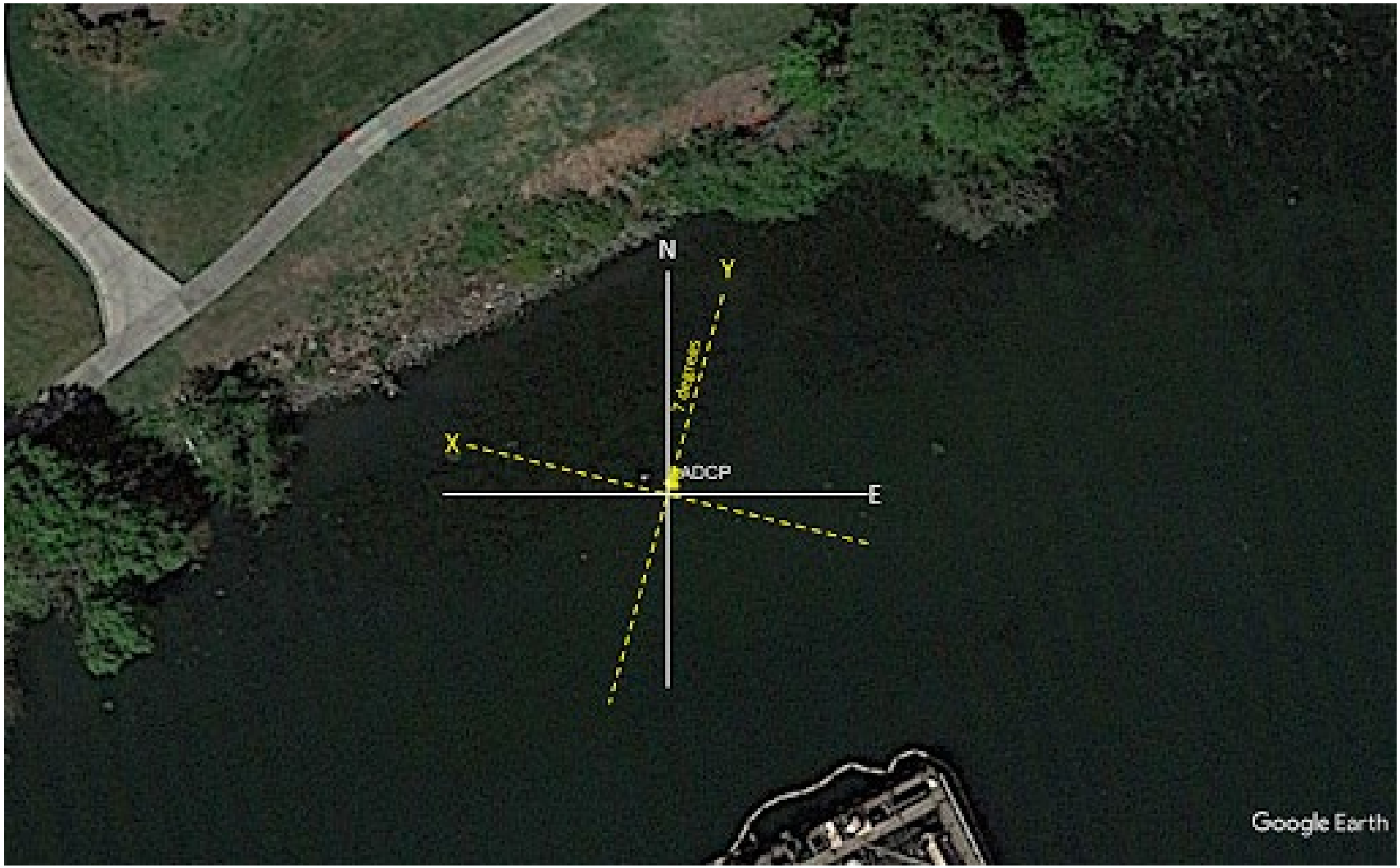
The distributions of range-averaged velocities relative to tidal condition (ebb versus flood) over the entire deployment are shown in Figure 5. The whiskers on the plot represent 1.5 times the interquartile range (25^{th} to 75^{th} percentiles) of the data. Overall, flood velocities exhibit a greater range and higher maximum velocity than ebb velocities. The median ebb velocity is lower than the median flood velocity.

Figure 6 shows the distribution of range-averaged ebb tide velocities by month for the entire deployment period. The range, maximum, and median ebb velocities have recovered after being suppressed by higher water levels from precipitation in late December and January (Figure 3). February peak ebb velocities only slightly exceed January peak ebb velocities, but the median ebb velocity increased by more than 0.2 ft/s in February. The February ebb velocity distribution is very similar to the ebb velocity distribution in November.

The distributions of range-averaged flood tide velocities by month for the entire deployment period are presented in Figure 7. The distribution of flood velocities are very similar from month to month, although the February distribution has the highest median and largest interquartile range. The cause of the higher flood velocities in February requires further analysis, but it is potentially due to asymmetries in the spring-neap tidal cycle.

4 CONCLUSIONS

- The ebb velocities appear to have recovered to November levels after the suppressed ebb velocities measured in December and January.
- The distribution of flood tide velocities is similar before and after the precipitation events in late December and January, although the data from February show a slightly higher median velocity and larger interquartile range.

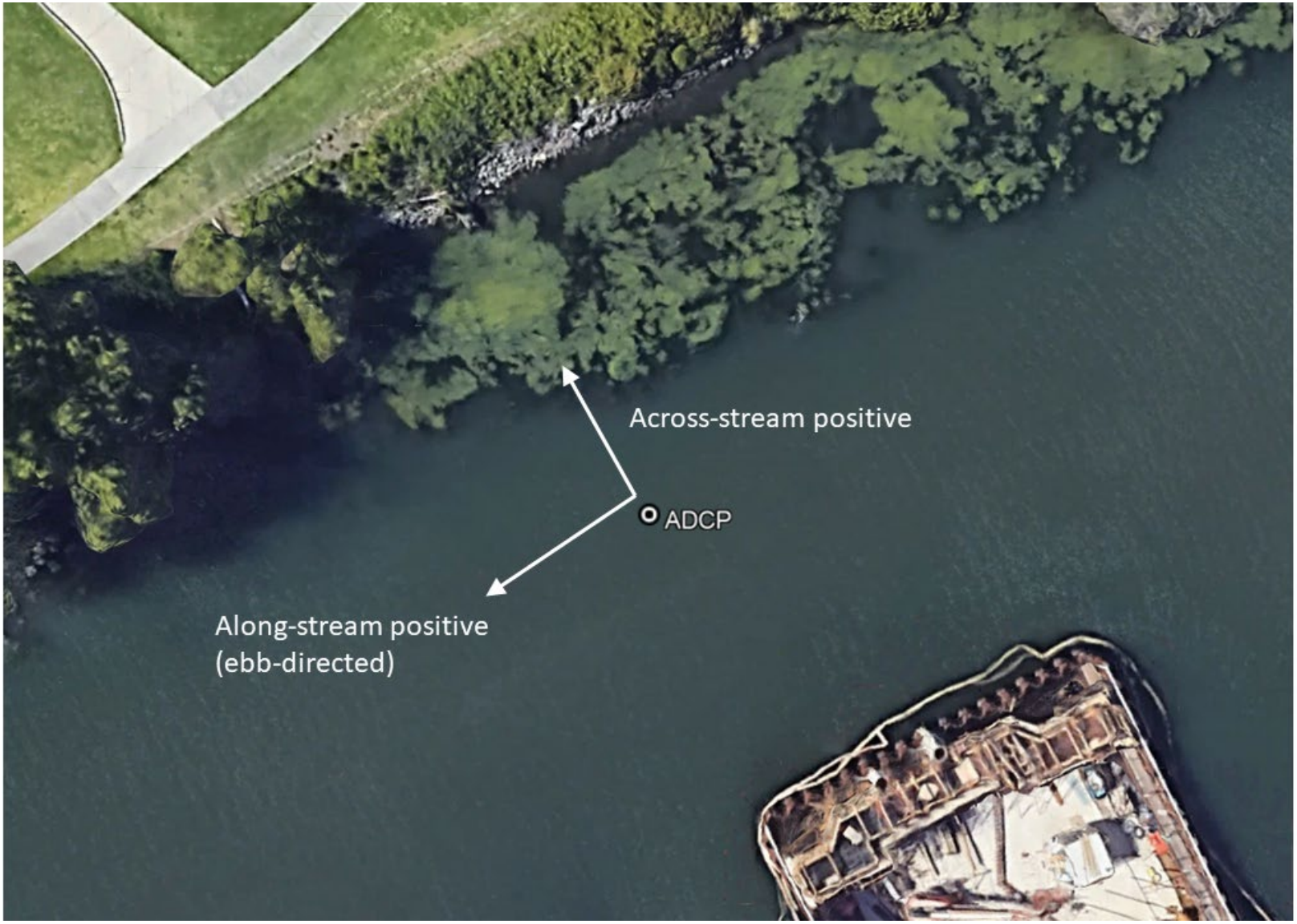


Notes: Orientation of the ADCP, and its approximate location in the mouth of Smith Canal. X is parallel to the instrument face and Y is perpendicular.

19-1040 – Smith Canal Water Quality Monitoring

Instrument location and orientation

Project No. 19-1040 | Created By: GGS/SAW | **Figure 1**



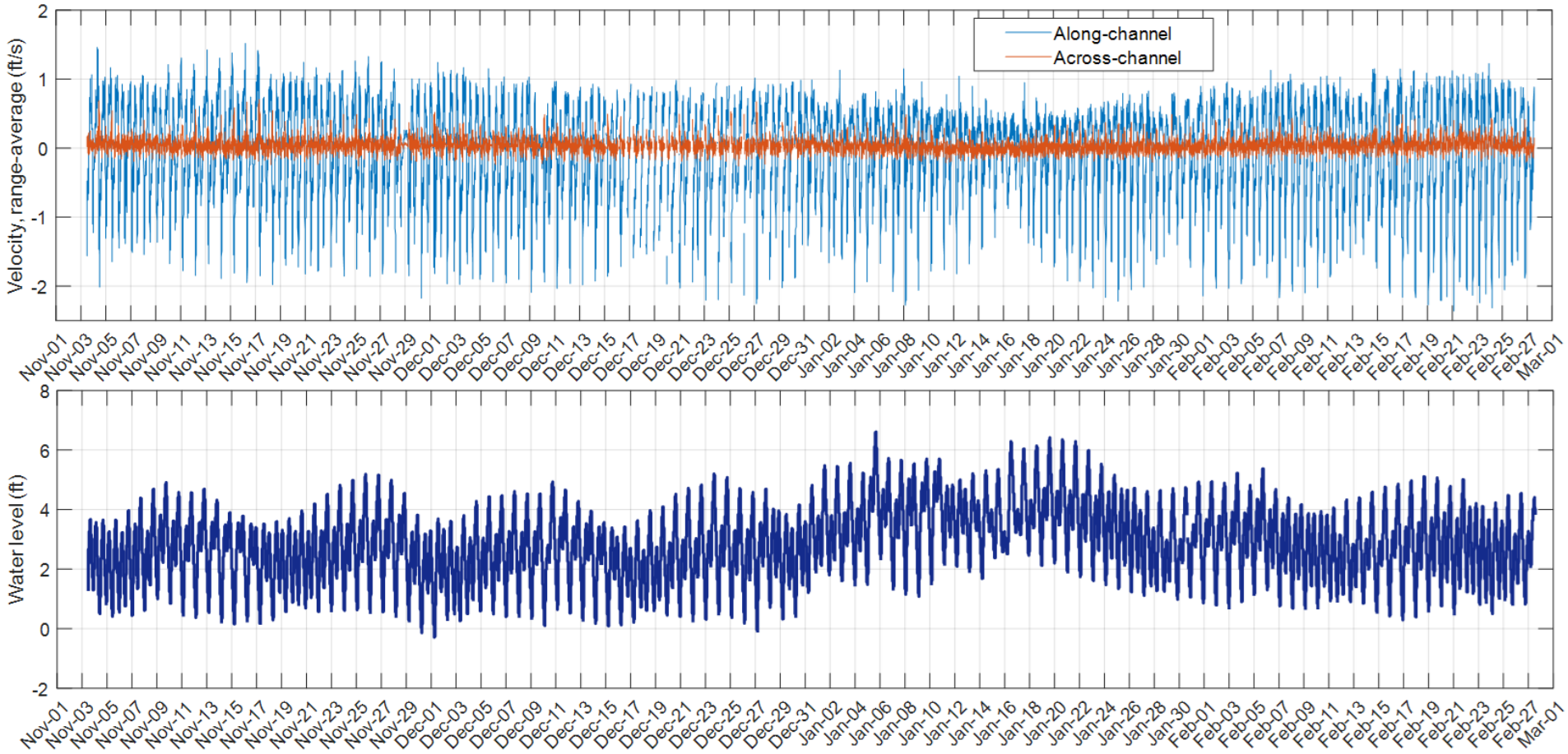
Notes: Orientation of the rotated velocity vectors in the along- and across-stream directions. Across-stream flows are positive toward the earthen bank, and along-stream velocities are defined as ebb-positive (toward the San Joaquin River).

cbec eco engineering

19-1040 – Smith Canal Water Quality Monitoring

Orientation of the defined flow directions

Project No. 19-1040	Created By: GGS/SAW	**Figure 2**



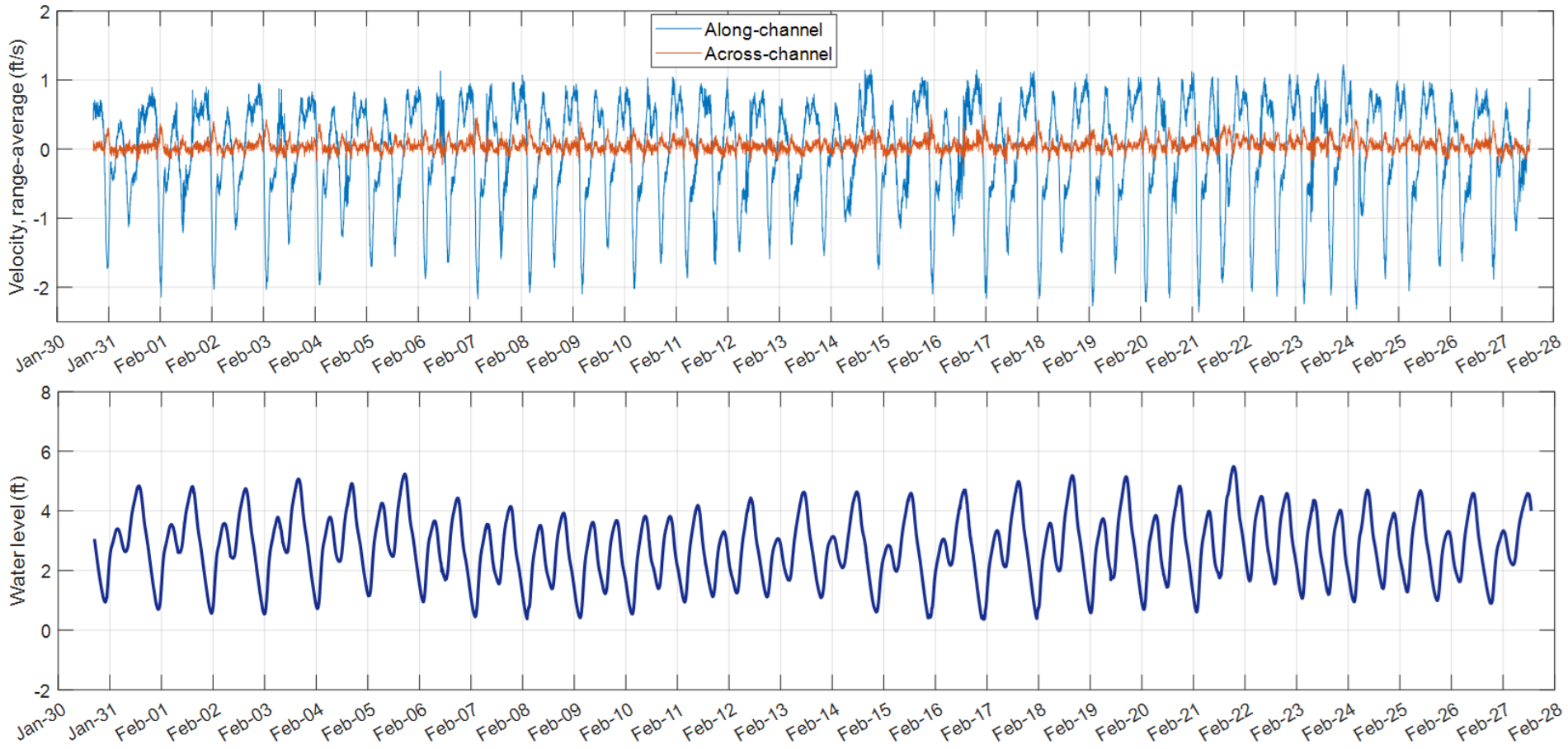
Notes: Range-averaged velocity and water level time series for the period of record. Velocities are positive toward the bank and in the ebb tide direction. The rainfall in late December and early January produced higher water surface elevations at the location of the flood control gate.

cbec eco engineering

19-1040 – Smith Canal Water Quality Monitoring

Time series of velocity and water level

Project No. 19-1040	Created By: GGS/SAW	**Figure 3**

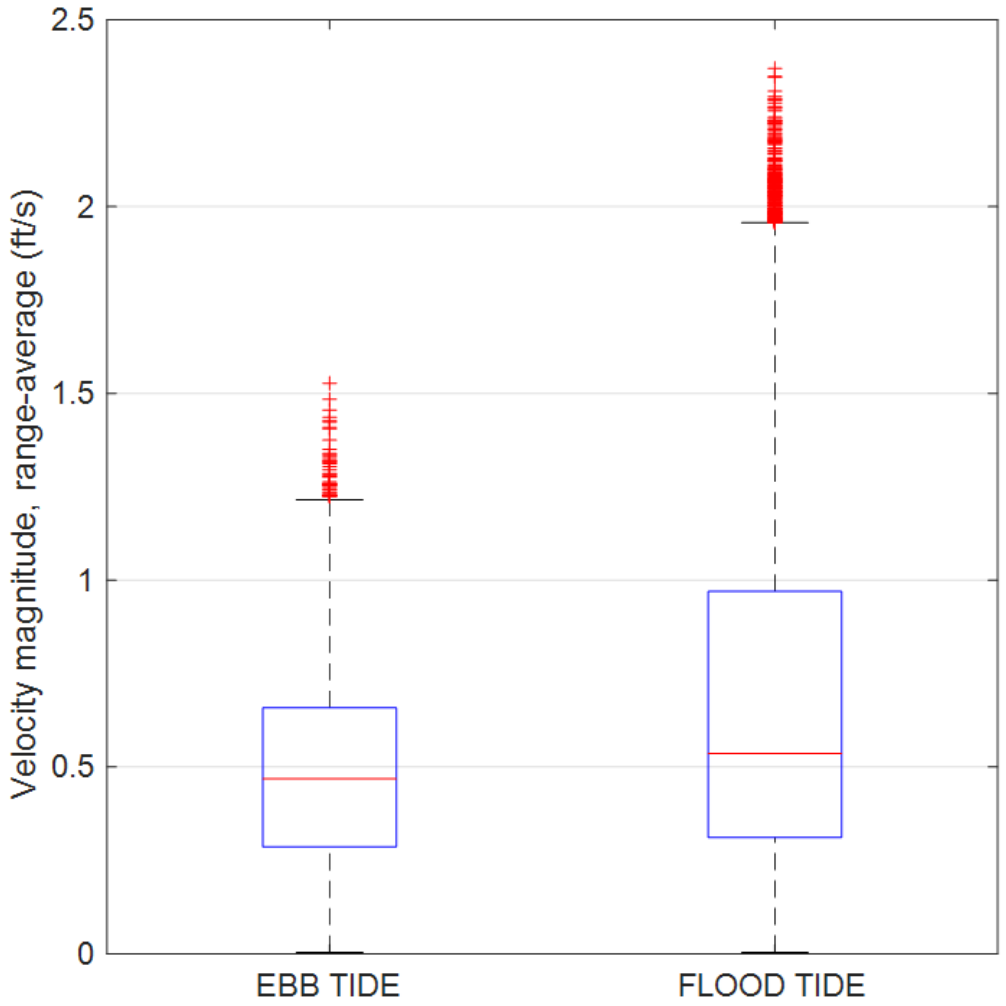


Notes: Times series of range-averaged velocity and water level during the most recent deployment period from 30 January -27 February 2023.

19-1040 – Smith Canal Water Quality Monitoring

Time series of velocity and water level

Project No. 19-1040	Created By: GGS/SAW	**Figure 4**

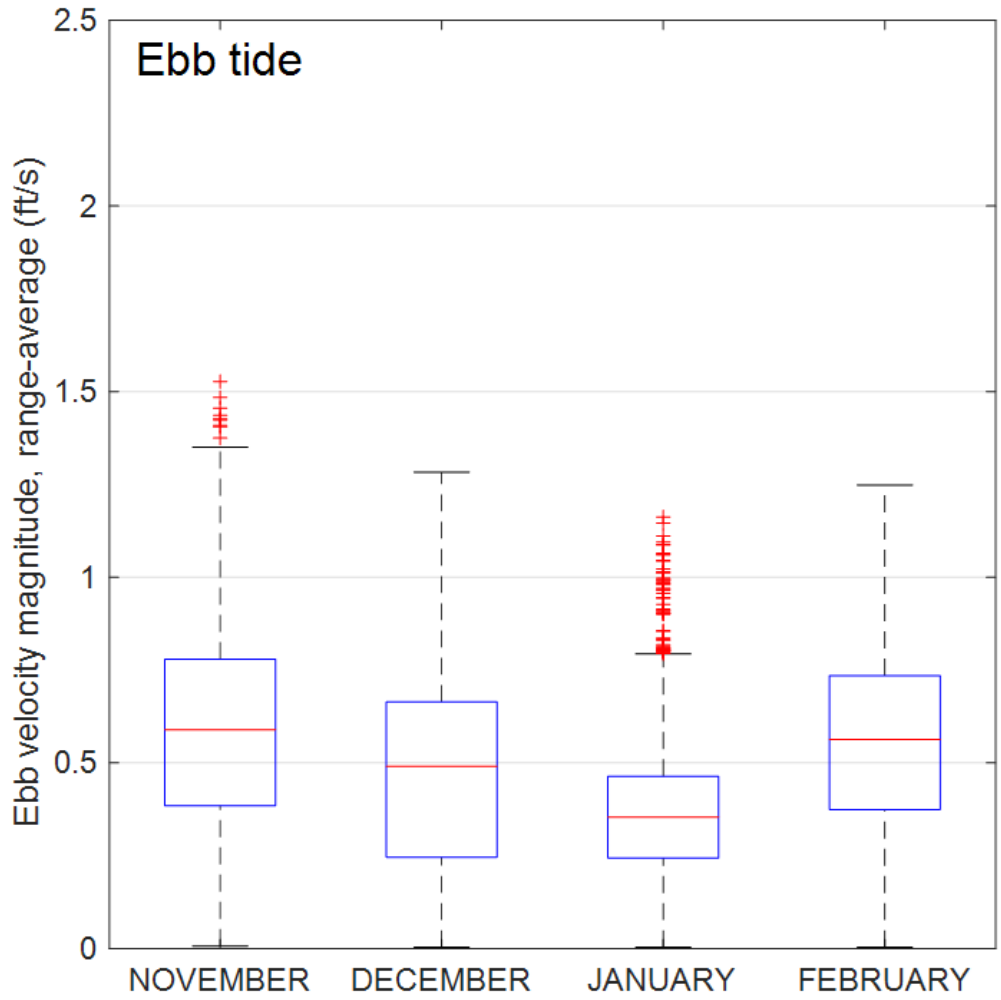


Notes: Distribution of ebb and flood range-averaged velocities over the entire deployment period. Median ebb velocities have remained slight lower than flood velocities, and the range of ebb velocities remains much smaller than the range of flood velocities.

19-1040 – Smith Canal Water Quality Monitoring

Distribution of flood and ebb velocities

Project No. 19-1040	Created By: GGS/SAW	**Figure 5**



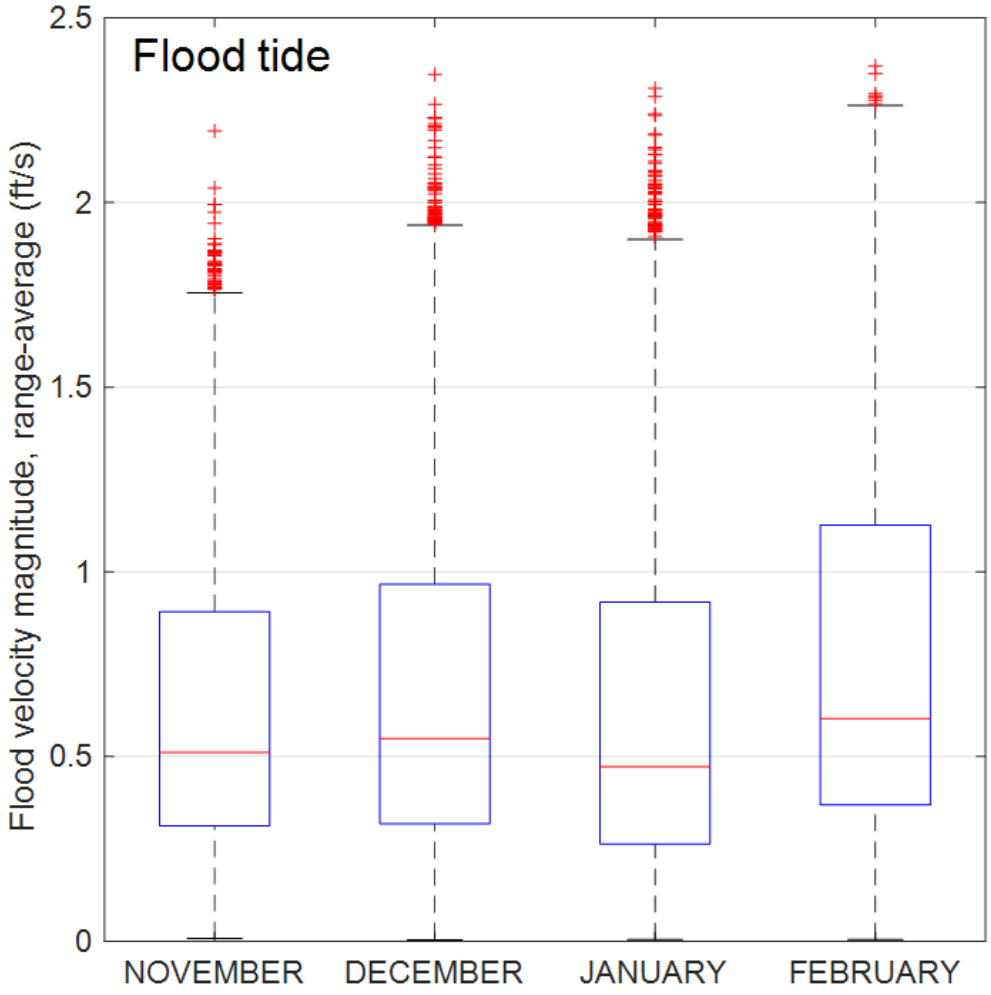
Notes: Distribution of monthly ebb tide velocities for the entire deployment period. Recent ebb tide velocities have rebounded after being suppressed in December and January due to the increased water surface elevations in the San Joaquin River.

cbec eco engineering

19-1040 – Smith Canal Water Quality Monitoring

Distribution of ebb velocities

Project No. 19-1040	Created By: GGS/SAW	**Figure 6**



Notes: Distribution of monthly flood tide velocities for the entire deployment period. Recent flood tide velocities have increased slight compared to previous months.

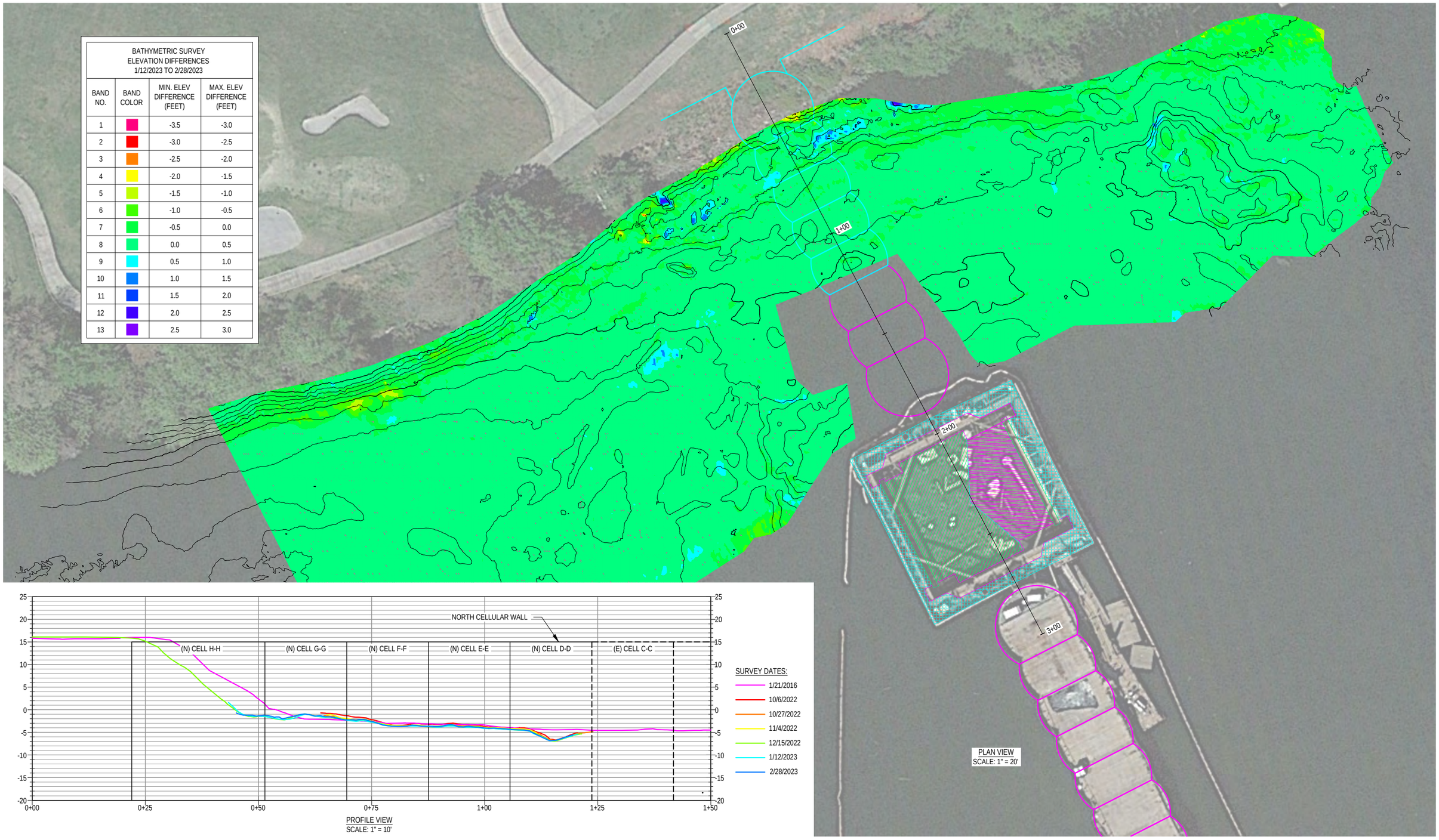
cbec eco engineering

19-1040 – Smith Canal Water Quality Monitoring

Distribution of flood velocities

Project No. 19-1040	Created By: GGS/SAW	**Figure 7**

BATHYMETRIC SURVEY ELEVATION DIFFERENCES 1/12/2023 TO 2/28/2023			
BAND NO.	BAND COLOR	MIN. ELEV DIFFERENCE (FEET)	MAX. ELEV DIFFERENCE (FEET)
1		-3.5	-3.0
2		-3.0	-2.5
3		-2.5	-2.0
4		-2.0	-1.5
5		-1.5	-1.0
6		-1.0	-0.5
7		-0.5	0.0
8		0.0	0.5
9		0.5	1.0
10		1.0	1.5
11		1.5	2.0
12		2.0	2.5
13		2.5	3.0



PROFILE VIEW
SCALE: 1" = 10'

PLAN VIEW
SCALE: 1" = 20'

NORTH ORIENTATION

KJELDSEN SINNOCK NEUDECK
CIVIL ENGINEERS & LAND SURVEYORS
www.ksninc.com
711 N. Pershing Avenue
Stockton, CA 95203
209-946-0268
1550 Harbor Blvd., Suite 212
West Sacramento, CA 95691
916-403-5900

SMITH CANAL GATE

FEBRUARY 28, 2023 SURVEY
BATHYMETRIC SURVEY

DRAWING SCALE
1" = 20'

ORIGINAL DRAWING SCALE
0 ½" 1"

EXHIBIT NO.
1

PAGE NO.
1

FILE SPEC: P:\2091_SJAFCA_IDIQ\0066_Smith_Canal_Gate_Constr_Mgmt\11_Construction\900_Other\221102_RD 1614 Levee Monitoring\020_CAD\230228_Comparison.dwg
PLOT DATE: Mar 02, 2023 - 3:02pm

Exhibit B

Christopher H. Neudeck

From: Jordan Baldwin <jordan@rle.us>
Sent: Tuesday, February 28, 2023 8:20 AM
To: Christopher H. Neudeck
Cc: Erik E. Almaas; Benjamin Williams; Dominick Gulli
Subject: RE: RD 1614 Data Request

Chris/Erik,

Looks like I mistyped Chris's email address below. Please let me know if either of you are available this week to review.

Thanks,
Jordan

Jordan K Baldwin, PhD, PE, PS
Principal Engineer/Surveyor
President & CEO
P: 209.955.0110

From: Jordan Baldwin
Sent: Friday, February 24, 2023 12:37 PM
To: cneudeck@knsinc.com
Cc: ealmaas@ksninc.com; Benjamin Williams <ben@rle.us>; Dominick Gulli <greenmountaindom@hotmail.com>
Subject: RD 1614 Data Request

Hi Chris,

We are working on a letter of map revision review for RD 1614. Please let us know if you have any of the following available:

049

- Topographic maps of the area

- Profile of the RD 1614 levee and cross sections
- Interior drainage analysis and/or information on pump stations
- Permits for the Wisconsin Pump Station Project
- Any available geotechnical engineering reports
- Lidar Data for the entire North levee including Yosemite lake
- Information relative to removal of the district form the 100-year flood plain circa 1990

Would it be possible to stop by next week to review what you have?

Thanks,
Jordan

RLE

Jordan K Baldwin, PhD, PE, PS
Principal Engineer/Surveyor
President & CEO
P: 209.955.0110

050

ITEM 9

#5

KJELDSEN, SINNOCK & NEUDECK, INC.
CONSULTING ENGINEERS & LAND SURVEYORS

KENNETH L. KJELDSEN
STEPHEN K. SINNOCK
CHRISTOPHER H. NEUDECK

711 NORTH PERSHING AVENUE
POST OFFICE BOX 844
STOCKTON, CALIFORNIA 95201-0844

TELEPHONE (209) 946-0268
FAX (209) 946-0296
OFFICE E-MAIL ksn@ksninc.com

0806-0320
99-000

FILE MEMORANDUM

June 2, 2006

To: CHN

Subject: Fee estimate for internal drainage analysis

Project: Reclamation District 1614 (Smith Tract) Internal Drainage Analysis

From: MRC

Following is the proposed scope of services and estimated fee to perform an internal drainage analysis, determine the required and actual capacity of each pump station within the District and provide recommendations to bring any deficiencies up to industry standards:

1. Research existing studies and GIS data on the existing drainage system associated with each District drainage pump station.
2. Perform field surveys to determine the location, rim and invert elevation of key existing storm drain maintenance holes and/or catch basins each existing drainage system.
3. Perform a hydrologic/hydraulic analysis on the existing storm drainage system associated with each District drainage pump station. Specific issues to be considered in the analysis will include:
    a. Verification of tributary areas to the existing drainage systems.
    b. Calculation of storm runoff flows for each existing storm drainage system based on a 10-year return frequency storm.
    c. Review and analysis of existing storm drainage collection system capacity with respect to the calculated storm runoff flows.
    d. Review and analysis of existing drainage pump station capacity with respect to the calculated storm runoff flows.
    e. Comparison of existing pump station to the City of Stockton pump station design standards.
    f. Estimate cost to upgrade pump station to meet current City of Stockton pump station design standards
4. Prepare and submit a written memorandum (with supporting documentation i.e. exhibits and calculations) summarizing the results and findings of the review and analysis outlined above. Deliverables will consist of four hard copies of the memorandum.

The estimated fees for each task above are summarized below. The estimated fee is per drainage pump station for a total of 10 drainage pump stations. Attached is a manhour fee estimate by task.

1. Perform Research	$ 720.00
2. Perform Field Surveys	1,773.00
3. Perform and hydrologic/hydraulic analysis	2,770.00
4. Prepare written memorandum	2,180.00
TOTAL (per drainage pump station)	$ 7,443.00

PETERSON, BRUSTAD, & PIVETTI CONSULTING

MEETING NOTES

Project Name:	San Joaquin Area Flood Control Agency	**Date:**	6/27/06
Meeting Subject:	FEMA Coordination Meeting	**Project No.:**	
Location:	Nolte/SAC	**Page:**	1
Notes by:	Peterson		
Attendees:	Signup sheet (attached)		

Agenda attached

1. Introductions, Re-mapping Process and Protocols (Sakumoto)
   a. Sakumoto noted "sky is not falling", that FEMA's interest is to make the best maps it can, and the locals will have a lot of time to take corrective action.
   b. Preliminary advisory maps expected 10/06 will not be the basis for regulation.
   c. 5-6 years before Phase 2 detailed studies can be completed and maps become effective.
   d. Winkler noted that Attachment 2 to FEMA's 4/17/06 letter does say the preliminary advisory maps should be used by local agencies as the best available information, and failure to do so could transfer liability for flood damages to the local agency. Nomellini echoed this view from a legal perspective.
   e. Eldridge noted that NFIP Guidelines call for locals to make responsible decisions on development, regardless of whether the land in question is in a mapped floodplain. The preliminary advisory maps should be considered as work maps, and it'll be up to local agencies to decide how to use the info.
   f. Sequence of ongoing FEMA studies:
      i. 1st wave are Bay Area counties. Preliminary advisory maps have already been issued, but that was prior to FEMA Procedure Memorandum 34, so those preliminaries are being revised for release in 6/07.
      ii. 2nd wave includes SJC, with preliminary advisory maps expected 10/06. These will actually be the first wave of post-memo 34 maps.
      iii. 3rd wave is Lake and Santa Cruz Counties, due 6/07.
   g. FEMA Org Chart
      i. Sakumoto is Project Officer, and oversees several A/E teams
         1. Nolte/San Diego is doing re-mapping studies, with DHI and William Lettis & Assoc. as subs
         2. Baker is providing Program Management. Schaefer is leading the levee certification validation process.
         3. Dewberry & Davis, HDR, and URS are also providing mapping for other areas.
   h. Certification data.
      i. FEMA will send a letter to local agencies within 1-month requesting certification data (letter has not yet been sent to anyone in SJC). Locals can send data and/or a plan to secure data.
      ii. FEMA has sent a letter to the Corps requesting certification (3/06).
      iii. FEMA will also send a certification data request letter to DWR.
2. SJAFCA Project Briefing (Peterson) (attached)
   a. SJAFCA recently improved upland levees draining eastside streams; Corps certified in 2000, and FEMA finalized FIRMs in 2002.
   b. SJAFCA levees are nearly all Project levees, and are characterized by heavy clay soils, intermittently wetted levees, high degree of maintenance, short and wide cross sections.
   c. Copies of data submitted in support of 2002 FIRMs was provided at the meeting in 2 boxes.
   d. SJAFCA requested that FEMA consider the SJAFCA levees as certified in this re-study.
3. Discussion on FEMA Handling of Levee Certification.
   a. Schaefer has asked internally for all information on levee LOMRs within the last 15 yr.
   b. Neudeck noted that most SJC LOMRs were done in the late 1980s, so this may just pre-date the 15 yr criteria; requested increasing the bandwith to 20 yr.
   c. Schaefer will publish a map online showing levee sections and status of data & certification
   d. Note and Baker will let us know if additional data is needed to validate levee certification.
   e. Neudeck suggested that if FEMA 65.10 regulations have not changed, then the standing certifications should still be valid.

f. Sakumoto said that a high-level, multi-agency work group is currently developing levee standards, which are expected within 2 months. These standards will represent the state of the art. FEMA will likely issue another Procedure Memorandum afterward to implement the standards.

4. Discussion on Phase 2 (Detailed) FEMA Studies.
   a. FEMA Region 9 budget for studies is $14M/yr, and each Phase 2 study for a County costs approx. $1M. So SJC Phase 2 study is approximately 5 yr out due to funding limitations.
   b. Detailed studies will include new hydrology, hydraulics, surveys, but not borings. Borings are a local responsibility.
   c. It was noted that DWR funding for flood insurance studies is much greater ($290M in AB140 and AB142), and they may move out ahead of FEMA.
   d. It was noted that if locals desire to move out ahead of FEMA Phase 2 studies and make levee improvements, there would be risk that FEMA's new hydrology would arrive just as construction was wrapping up. FEMA suggested that any new construction include new hydrology; FEMA might adopt the new hydrology in their Phase 2 studies. [This is what SJAFCA did]
   e. Nomellini noted that the left bank (looking downstream) San Joaquin River adjacent to much of RD 17 is 3' lower than the right bank, so hydrology is somewhat academic. The left bank would fail before freeboard fell below 3', regardless of the flood magnitude. FEMA reinforced that they do not extend levees above their crown elevations in their analyses.

5. **Action Items: None identified.**

MINUTES OF MEETING OF BOARD OF TRUSTEES
FOR RECLAMATION DISTRICT 1614
HELD MONDAY, FEBRUARY 5, 2007

The February 5, 2007, meeting of the Board of Trustees of Reclamation District 1614 was held Monday, February 5, 2007, at the law office of Neumiller & Beardslee, 509 W. Weber Avenue, 5th Floor, Stockton, California, at the hour of 2:00 p.m.

TRUSTEES PRESENT WERE:

RANDELL D. NORMAN
WILLIAM DUNNING
FELIX LOPEZ

OTHERS PRESENT WERE:

JOHN W. STOVALL
CHRIS NEUDECK
JEAN L. KNIGHT
WILLIAM "MAX" GALLEGOS
JUDITH BUETHE
ROBERT BELLIN (homeowner)
SHERRY GARLOUGH (homeowner)

Item 1. Call to Order/Roll Call. President Randell Norman called the meeting to order at 2:00 p.m. All Trustees were present.

Item 2. Public Comment. None.

Item 3. Approval of Minutes of January 8, 2007. The minutes of the January 8, 2007, meeting were approved as read.

Item 4. Presentation of Financial Status Report. Jean Knight presented the financial status report and also distributed the "Financial Report" for Trustees and staff for review. It is enclosed with the original of these minutes. Ms. Knight also distributed a listing of the registered warrants prepared by the County Treasurer's Office and reported that per directive of the Trustees at the January, 2007, District meeting, the registered warrants were redeemed and $152,534.13 ($150,000.00 principal, plus $2,534.13 interest) was paid to the Bank of Stockton. Warrants will now be issued again for payment of District bills (payroll being the exception). Upon completion of the review of the financial report, Ms. Knight also reported she had obtained a voice mail phone number for the District. She distributed an additional sheet with the number and directions for accessing the voice mail. This number will be able to go into the newsletter (see Item 7. below). Discussion about who will access the voice mails was had and Trustee Norman said he would work out a procedure on this for review. It was thought that District Superintendent Max

Gallegos would access the voice mail each day but there should be a back-up or other contingencies should the need arise.

Item 5. Presentation of Engineer's Report, and Request for Direction. Chris Neudeck reported that the work at the MacNear's Lot is now done and that the final progress payment had been presented for payment. Ms. Knight noted it was included in this month's warrants.

Regarding the Levee Evaluation, Mr. Neudeck presented Exhibit B. within the engineer's report and discussed the summary of the estimated engineering costs and estimated completed of tasks required to satisfy a FEMA Letter of Map Revision process (LOMR), as he had been directed to do at the last District meeting. Regarding the Embankment and Foundation Stability, totaling $200,000 between Kleinfelder and KSN Inc., Mr. Neudeck reported that it is his understanding that this cost will be shared between the state (50%) and another local agency (50%) – not necessarily the District. On the other items, it was thought these costs could qualify within the scope of the levee subventions program wherein the State covers 75% and the District 25% of the costs. It was thought that the projected work would take between six and nine months to do. He said that the maps should be out between August and September, 2007 and that will tell us whether we are certified. After that, there would be one year to get certified and if not done, there would be the possibility of flood insurance requirements.

At this point, it was suggested that the District needs to start putting the 2007-2008 budget together. Randy Norman, Chris Neudeck and Max Gallegos will get together to start working on a proforma budget.

Another item brought up at this time was the road base estimate that Max Gallegos had received from Robert Burns Construction. Costs relative to a storage facility to be located at the Franklin Station would tie into getting this work done prior to the other stations. Discussion on using the storage for an office space, whether the District can have electricity in it, and the rules and regulations related to storage units will be done by attorney John Stovall.

Item 6. Superintendent's Report; and request for directions. Max Gallegos presented his report and distributed a written copy. It is included with the original of these minutes. Several additional items to note relate to Mr. Gallegos' request for getting quotes for the road base. See engineer's report for this item. Mr. Gallegos also asked if he could get a commitment on extending pump number three at Plymouth Canal. The Trustees agreed that Ms. Gallegos get a cost estimate. This will also be discussed at the proposed budget meeting.

The table below shows the possible scenarios outlined in PM 43.

Scenario	Criteria	PAL	Federal System	Current Map Shows Protection is Provided	Section 65.10 Documentation Needed	Who Notifies Levee Owner/ Community/ Local Project Sponsor
A	• Levees are not in the USACE Federal System (non-Federal levees), but are shown on the effective FIRM as providing 1-percent-annual-chance flood protection.	Yes	No	Yes	Yes	FEMA Regional Office
B	• The effective FIRM shows the levee as providing1-percent-annual-chance flood protection; • No available information indicates the levee does not provide1-percent-annual-chance flood protection; and • The project inspection rating is within an acceptable range (as defined by USACE).	Yes	Yes	Yes	Yes	FEMA Regional Office
C	• The effective FIRM shows the levee as providing1-percent-annual-chance flood protection; • Levee for which the USACE has determined that the levee's recent inspection ratings are listed as Fair, Poor, or Unacceptable; and • Levee for which the USACE has determined the project status in the Rehabilitation and Inspection Program has been switched from active to inactive.	No	Yes	Yes	Yes	USACE, FEMA Regional Office
D	• Levee in the USACE Federal System that is not shown as providing 1-percent-annual-chance flood protection on the FIRM.	No	Yes	No	No	—
E	• Levee that is shown on the FIRM as providing 1-percent-annual-chance flood protection but does not provide an adequate level of protection as indicated by the USACE levee inventory data and validated through coordination between the USACE district office and FEMA Regional Office; • Levee inspection rating is NOT listed as Fair, Poor, or Unacceptable, but the levee may have failed or experienced overtopping by less than 1-percent-annual-chance flood event; and • Local project sponsor has NOT received a letter from USACE identifying the known maintenance deficiencies with the levee.	No	Yes	Yes	Yes	FEMA Regional Office

RECLAMATION DISTRICT NO. 1614 - SMITH TRACT FEMA SUBMITTAL CFR PART 65.10

FEMA CRITERIA

Embankment and foundation stability:

Engineering analyses that evaluate levee embankment stability must be submitted. The analyses provided must evaluate expected seepage during loading conditions associated with the base flood and demonstrate that seepage into or through the levee foundation and embankment will not jeopardize embankment or foundation stability.

Settlement:

Engineering analyses must be submitted that assess the potential and magnitude of future losses of freeboard as a result of levee settlement and demonstrate that freeboard will be maintained within the minimum standards

Interior drainage:

An analysis must be submitted that identifies the source(s) of such flooding, the extent of the flooded area, and, if the average depth is greater than one foot, the water-surface elevation(s) of the base flood. This analysis must be based on the joint probability of interior and exterior flooding and the capacity of facilities (such as drainage lines and pumps) for evacuating interior floodwaters. (1)

Other design criteria:

In unique situations, such as those where the levee system has relatively high vulnerability, FEMA may require that other design criteria and analyses be submitted to show that the levees provide adequate protection. In such situations, sound engineering practice will be the standard on which FEMA will base its determinations. FEMA will also provide the rationale for requiring this additional information.

KLEINFELDER	ESTIMATED COST	ESTIMATED COMPLETION	KSN INC.	ESTIMATED COST	ESTIMATED COMPLETION
Soil borings, strength and stability analysis	$ 150,000		Levee surveys Preparation of Plans	$ 50,000	
Stability analysis	$ 15,000		Levee surveys	$ 100,000	
Levee Seepage Analysis	$ 7,500		Interior drainage and watershed analysis	$ 100,000	
stability analysis	$ -		Levee surveys	$ 15,000	

	KLEINFELDER	ESTIMATED COST	ESTIMATED COMPLETION	KSN INC.	ESTIMATED COST	ESTIMATED COMPLETION
Operation plans and criteria: The operational criteria must be as described. All closure devices or mechanical systems for internal drainage, whether manual or automatic, must be operated in accordance with an officially adopted operation manual All operations must be under the jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP.	N/A	$ 10,000		Update District's O & M Manual	$ 15,000	
Maintenance plans and criteria: The maintenance criteria must be as described. Levee systems must be maintained in accordance with an officially adopted maintenance plan, and a copy of this plan must be provided to FEMA. This plan must document the formal procedure that ensures that the stability, height, and overall integrity of the levee and its associated structures and systems are maintained.	N/A	$ -		Update District's O & M Manual	$ 5,000	
Coordination and Report Submittal Coordination with FEMA representatives and the reproduction and submittal of reports and ocuments to FEMA..	Coordination, Reproduction & Report submittal	$ 7,500		Coordination, Reproduction & Report submittal	$ 25,000	
TOTALS		$ 190,000			$ 310,000	
GRAND TOTAL					**$ 500,000**	

Footnote (1) Additional interior drainage scope detail:

1. Research existing studies and GIS data on the existing drainage system associated with each District drainage pump station.
2. Perform field surveys to determine the location, rim and invert elevation of key existing storm drain maintenance holes and/or catch basins each existing drainage system.
3. Perform a hydrologic/hydraulic analysis on the existing storm drainage system associated with each District drainage pump station. Specific issues to be considered in the analysis will include:
    a. Verification of tributary areas to the existing drainage systems.
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    c. Review and analysis of existing storm drainage collection system capacity with respect to the calculated storm runoff flows.
    d. Review and analysis of existing drainage pump station capacity with respect to the calculated storm runoff flows.
    e. Comparison of existing pump station to the City of Stockton pump station design standards.
    f. Estimate cost to upgrade pump station to meet current City of Stockton pump station design standards
4. Prepare and submit a written memorandum (with supporting documentation i.e. exhibits and calculations) summarizing the results and findings of the review and analysis outlined above. Deliverables will consist of four hard copies of the memorandum.

CITY OF STOCKTON

PUBLIC WORKS DEPARTMENT
22 East Weber Avenue, Room 301 • Stockton, CA 95202-2317 • 209/937-8411 • Fax 209/937-8277
www.stocktongov.com

March 12, 2007

Reclamation District 1614
P.O. Box 4807
Stockton, CA 95204

FEMA LEVEE REMAPPING INFORMATION REQUEST

On February 20, 2007, the Federal Emergency Management Agency (FEMA) conducted a workshop with the Cities and County Floodplain Administrators of San Joaquin County. The objective of the workshop, sponsored by FEMA, was to inform the Floodplain Administrators of the remapping effort which is now underway by FEMA. At the workshop, FEMA requested that Floodplain Administrators forward the FEMA Levee Information Collection Sheet to the Point Of Contact. The Point Of Contact can include the levee owner, levee operator, and the maintaining agency. The City of Stockton (hereafter known as 'City') has been designated by FEMA as the Floodplain Administrator for areas protected by District 1614 levees. Enclosed is the Levee Information Collection Sheet, which you are to complete and mail to Michael Baker, Jr., Inc. (address is below); in addition, please forward a copy to the City.

FEMA has requested that the Levee Information Collection Sheet be completed within thirty (30) days of the date at the top of the Levee Information Collection Sheet (March 20, 2007), and before the outreach meeting scheduled with levee owners. You should have received notification from FEMA for the meeting, which is presently scheduled for March 21, 2007, in Stockton. Once the Levee Information Collection Sheet is completed, please make a copy for your records, forward a copy to the City, and mail the original form to:

Michael Baker, Jr., Inc.
Attention: Jack Eldridge
505 - 14th Street, Suite 810
Oakland, California 95613

If you have any questions, please contact me at (209) 937-8113.

JAMES B. GIOTTONINI
PUBLIC WORKS DIRECTOR

Juan Neira

JUAN NEIRA
ASSOCIATE CIVIL ENGINEER

JBG:JN:jtt

Enclosure

cc: Kjeldsen, Sinnock & Neudeck, Inc., P.O. Box 844, Stockton, CA 95201

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All-America City
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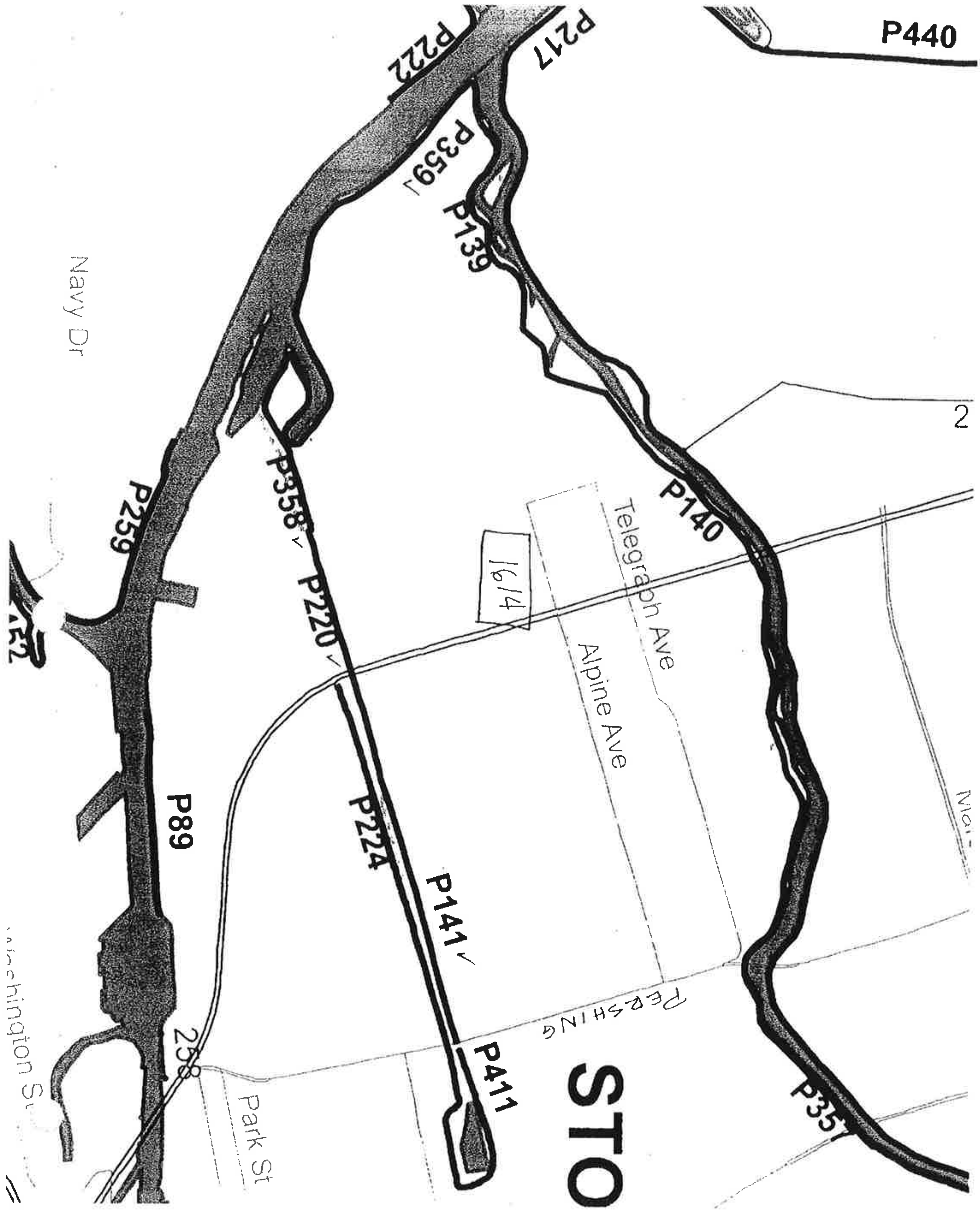
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Alpine Ave
Park St
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KJELDSEN, SINNOCK & NEUDECK, INC.
CIVIL ENGINEERS AND LAND SURVEYORS

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KENNETH L. KJELDSEN
RETIRED

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TELEPHONE (209) 946-0268
FAX (209) 946-0296
E-MAIL ksn@ksninc.com

0806-034-01-001

March 21, 2007

Mr. Jack Eldridge
Michael Baker Jr. Inc.
505 14th Street, Suite 810
Oakland, CA 95613

Re: Reclamation District No. 1614 – Smith Tract (RD 1614)
Smith Canal Non – Project Levee Reach
San Joaquin County, California

Dear Mr. Eldridge,

RD 1614 does not have information associated with a Letter of Map Revision for its non-project levee along Smith Canal.

The Reclamation and levee construction process for Smith Tract began prior to February 1894 for what is today known as Reclamation District 1614. James C. Smith petitioned the Honorable Board of Supervisors of the County of San Joaquin to form Reclamation District 561. In this petition it is stated "That said land is susceptible of one mode of reclamation and has been partly reclaimed by petitioner..." This petition was approved on February 5, 1894.

Reclamation District 1614, Smith Tract, was formed in November 4, 1914 and additional lands were annexed on October 15, 1915.

RD1614 is responsible for the operation & maintenance of the non project levees along Smith Canal and the Stockton Golf & Country Club reaches. As for the balance of the District's levees which are federal flood control project levees along the Calaveras River, those levees are operated and maintained by San Joaquin County Flood Control and Water Conservation District who is under the direction of Roger Churchwell of the County.

RD 1614 considers their levee to be in good condition with no failures or instances of instability. RD 1614 is confident their levees have been adequately maintained since the time of construction and to the best of their knowledge believe their levee meet the Code of Federal Regulations Title 44, Section 65.10 (44 CFR 65.10). RD 1614 therefore believes they should not be delineated into a special flood hazard area and requests an opportunity for consideration as a Provisionally Accredited Levee (PAL).

Based on the attached excerpt of FEMA's San Joaquin County – Levee Status (Draft) Map prepared by Michael Baker Jr. Inc. RD 1614's non-project levee system includes segments

P359, P358, P220, P224, & P141. I have corrected the alignment of the District's levee system on the attached map.

Contact Information for RD 1614 is as follows:

- Reclamation District No. 1614 – Smith Tract
  c/o Christopher H. Neudeck, District's Engineer
  Kjeldsen, Sinnock & Neudeck, Inc.
  Post Office Box 844
  711 North Pershing Avenue
  Stockton, CA 95201
  209.946.0268 (office)
  209.946.0296 (fax)
  cneudeck@ksninc.com

- Reclamation District No. 1614 – Smith Tract
  c/o John Stovall, District's Attorney
  Attorney at Law
  Post Office Box 20
  Stockton, CA 95202
  209.948.8200 (office)
  209.948.4910 (fax)
  jstovall@neumiller.com

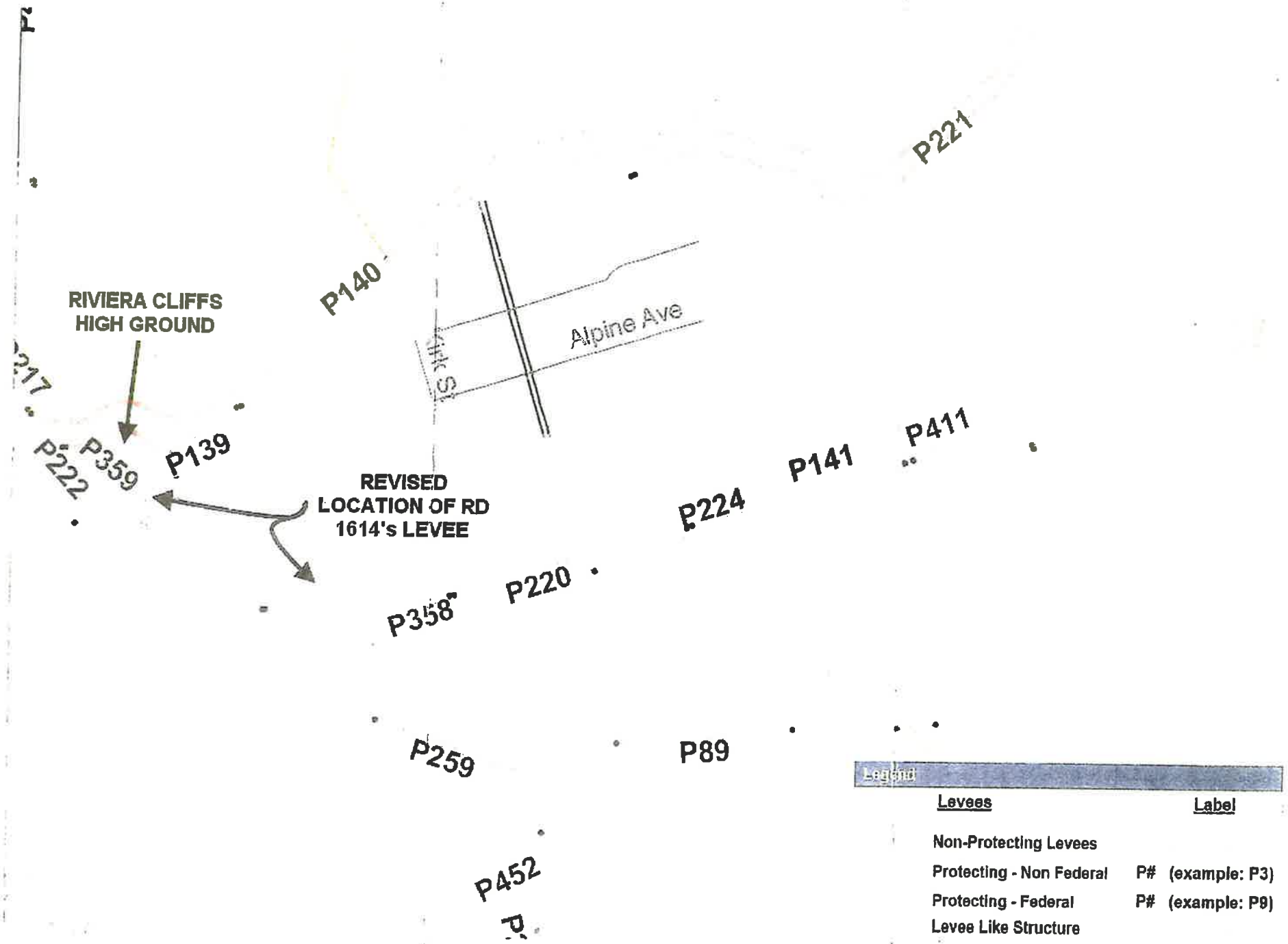
If you have any questions or need additional information please call me. Otherwise I look forward to hearing from you once you have had a chance to review this material

Sincerely,
KJELDSEN, SINNOCK & NEUDECK, INC.

Christopher H. Neudeck
District Engineer for RD 1614 – Smith Tract

w/enclosures

cc: Trustees (w/encl)
John Stovall, Attorney (w/encl)
Tom Flinn, Director, San Joaquin County Public Works (w/encl)
Roger Churchwell, SJ County Flood Control and Water Conservation District (w/encl)
Jim Giottonini, Director, City of Stockton Public Works (w/encl)


RIVIERA CLIFFS
HIGH GROUND
REVISED
LOCATION OF RD
1614's LEVEE
Alpine Ave
P140
P221
P217
P222
P359
P139
P141
P411
P224
P220
P358
P259
P89
P452
Legend
Levees
Label
Non-Protecting Levees
Protecting - Non Federal
P# (example: P3)
Protecting - Federal
P# (example: P9)
Levee Like Structure

Stovall, John

From: Chris Neudeck [cneudeck@ksninc.com]
Sent: Thursday, March 22, 2007 8:01 AM
To: Stovall, John
Cc: randyn@wellsfargo.com
Subject: FW: Emailing: _0320060826_001

Attachments: 070321l_FEMA_SUBMITTAL__MICHAEL_BAKER.doc

070321l_FEMA_SUB
MITTAL__MICHAE...

John and Randy,

I have included an updated version of the letter I sent to you on Tuesday. Please review and let me know if you have any comments. I have included a request for PAL status in this letter. PAL stands for "Provisionally Accredited Levee" and provided we reached an agreement with FEMA for this status, it would provide us with 2 years from the date of a signed agreement to put our house in order and conduct the studies and perform any work as necessary. I fully understand that two years is probably not enough time to correct our certification issue but if we qualify for the PAL it postpones the re-mapping an additional 2 years while we try to comply. If we are unsuccessful in providing the full documentation for 44 CFR Section 65.10 at the end of the two year period then FEMA will re-map our District. Please call me and/or comment accordingly and respond to my e-mail.

Thanx
Christopher H. Neudeck

--Original Message-----
F : Chris Neudeck
Sent: Tuesday, March 20, 2007 7:13 AM
To: 'Stovall, John'
Cc: Randell Norman (randyn@wellsfargo.com)
Subject: Emailing: _0320060826_001

John,

Here is a draft of the letter I plan on sending to FEMA responding to their request for levee data. As you will note I have not included much from the standpoint of data since we do not have any. The original of the attached map is in color. I am leaving to meetings for this morning and will return to the office after 1:30. Please review and comment accordingly.

Thank you
CHN

U.S. Department of Homeland Security
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

FEMA

May 24, 2007

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Edward J. Chavez, Mayor
City of Stockton
222 East Weber Avenue
Stockton, CA 95202

Dear Mayor Chavez:

This letter is in regard to the levees that are accredited on the effective Flood Insurance Rate Map (FIRM) and in the effective Flood Insurance Study (FIS) report for the City of Stockton. These levees are identified on an enclosure to this letter. The U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA), is in the process of producing a countywide FIS report and Digital Flood Insurance Rate Map (DFIRM) for San Joaquin County, CA. This effort is being undertaken as part of FEMA's Flood Map Modernization Program.

Flood hazard information presented on the effective FIRM and in the FIS report is based, in some areas, on flood protection provided by the levees identified on the enclosure. Based on the information available and on the mapping standards of the National Flood Insurance Program (NFIP) at the time that the FIS was performed, FEMA accredited the levees with providing protection from the flood that has a 1-percent-chance of being equaled or exceeded in any given year. The 1-percent-annual-chance flood also is referred to as the base flood.

For FEMA to continue to accredit the identified levees with providing protection from the base flood, the levees must meet the criteria of the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10), titled "Mapping of Areas Protected by Levee Systems" (copy enclosed). In accordance with 44 CFR 65.10(a), it is the responsibility of the community or other party seeking recognition of a levee system, to provide the data defined and outlined within the regulation. Specifically, the design and construction data provided must be certified by a registered professional engineer or by a Federal agency with responsibility for levee design.

FEMA understands that it may take time to acquire and/or assemble the documentation necessary to fully comply with 44 CFR 65.10. Therefore, FEMA has incorporated a process into the schedule of Flood Map Modernization that, if needed, will provide the City of Stockton with additional time to submit all the necessary documentation. Initiation of this process can take place only if the levee owner and a representative of each impacted community sign and return the enclosed agreement to the FEMA Region IX office within 90 days of the date of this letter (before August 23, 2007). This offer is being made only for the levees that are identified as "May be PAL A Eligible" or "May be PAL B Eligible" in the Levee Status column of the attached Levee Status Table.

Completion and submittal of the agreement, will serve as an official request that FEMA label the levee as a Provisionally Accredited Levee (PAL) on the DFIRM and will serve as agreement that, to the best of your knowledge, the levee meets the criteria of 44 CFR 65.10. It is the responsibility of the levee owner to submit the data required by 44 CFR 65.10 before FEMA can accredit the levee as providing protection from the base flood. The completed package must be submitted to the FEMA Region IX office before August 23, 2007 for the levee to receive the PAL designation. Please note that a levee that has maintenance deficiencies is not eligible for PAL consideration.

By endorsing the enclosed agreement, you state that all the necessary documentation will be provided within 2-years to comply with 44 CFR 65.10; that is before August 23, 2009. If you are unable to submit all the documentation necessary to meet the criteria of 44 CFR 65.10 before this date, FEMA will initiate a map revision to redesignate certain areas on the landward side of the levee as floodprone.

Levees will be labeled as PALs during the 24-month period to convey to map users that levee certification verification is underway. FEMA recommends that the levee owner and the impacted communities implement outreach efforts to inform affected property owners that an assessment of the levee is underway. FEMA also encourages the purchase of flood insurance, even though coverage is not federally required for the areas landward of the accredited levee.

If the documentation necessary to fully comply with 44 CFR 65.10, including an existing operation and maintenance plan and record of on-site inspection, is readily available, please submit the data to this office. Upon receipt of your submittal, FEMA will review the data and determine whether the levee will continue to be accredited with providing protection from the base flood.

The levees identified as "May be PAL B Eligible" in the Levee Status column of the attached Levee Status Table have received an acceptable maintenance level rating from the U. S. Army Corps of Engineers (USACE) in a recent inspection review. The levees identified as "May be PAL A Eligible" in the Levee Status column of the attached Levee Status Table are not in the USACE program and, therefore, do not have an approved maintenance review for FEMA purposes. If the only grounds for a "May be PAL A Eligible" levee not currently meeting the 44 CFR 65.10 criteria or PAL requirements are **maintenance issues**, then the FEMA Region IX office must be contacted by letter to bring attention to the matter before the end of this 90-day period to submit the enclosed PAL agreement. If you notify FEMA that the levee has known maintenance deficiencies, then a 1-year correction period can be provided to remedy these deficiencies. This 1-year correction period would begin on August 23, 2007, if you notify FEMA within 90 days of the date of this letter. During the 1-year correction period, FEMA will move forward with the current flood hazard mapping project as if the areas landward of the levee is to be located in a Special Flood Hazard Area (SFHA); the mapped area subject to inundation by the base flood. However, FEMA will delay issuance of the Letter of Final Determination (LFD) and effective DFIRM until the 1-year correction period has elapsed.

For FEMA to remove the proposed SFHA landward of the levee, the following requirements must be met within the 1-year correction period:

- All the criteria contained in 44 CFR 65.10 submitted to FEMA, **or**
- Submittal of the entire PAL application, including the following documentation:
  - An agreement signed by the community and/or levee owner stating that the PAL designation is warranted because the levee meets the requirements of 44 CFR 65.10;
  - A copy of the adopted operation and maintenance plan for the levee; and

- Records of levee maintenance and operation, as well as tests of the mechanized interior drainage systems, if applicable.

Once the 1-year correction period has expired, FEMA will assess any submitted data and determine whether any mapping revisions are necessary. If no data have been submitted within the 1-year correction period, or if the submitted data are determined inadequate, FEMA will issue the LFD and effective DFIRM to show the areas landward of a maintenance deficient levee as located in a SFHA. However, if all of the criteria of 44 CFR 65.10 or the entire PAL application is submitted before the 1-year correction period has elapsed, then FEMA will show the levee on the newly effective DFIRM as accredited or provisionally accredited, as applicable.

The levees that are identified as "May be PAL C-2 Eligible" in the Levee Status column of the attached Levee Status Table have **not** received an acceptable maintenance level rating from the U. S. Army Corps of Engineers (USACE) in a recent inspection review. These "May be PAL C-2 Eligible" levees cannot be considered for a PAL agreement unless the maintenance deficiencies are corrected within a one year time frame established by USACE. A separate letter will be sent to the owners of these levees regarding this issue.

If you have additional questions regarding the specific submittal requirements, please contact Kathy Schaefer, Map Modernization Regional Engineer, of my staff, either by telephone at (510) 627-7129 or by facsimile at (510) 627-7147. We look forward to working with you and community officials to address this important matter. If there is anything we can do to facilitate the submittal process, please let us know.

Sincerely,

Sally Ziolkowski, Director
Mitigation Division
FEMA Region IX

Enclosures:

- Title 44 of the Code of Federal Regulations (CFR), Section 65.10 (44 CFR 65.10)
- Requirements of 44 CFR Section 65.10: Mapping of Areas Protected by Levee Systems
- Letter of Agreement and Request for Provisionally Accredited Levee (PAL) Designation and Agreement to Provide Adequate Compliance With the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10)
- Levee Status Map
- Levee Status Table

cc: Gordon Palmer, Jr., City of Stockton, City Manager
James Giottonini, City of Stockton, Floodplain Administrator; and San Joaquin Area Flood Control Agency, Executive Director
Charles Davis, NRCS, State Conservation Engineer
Roger Churchwell, San Joaquin County Flood Control and Water Conservation District, Senior Civil Engineer
Charles Kelly, San Joaquin County, Floodplain Administrator
Gordon Palmer, Reclamation District 403
Richard Johnson, Reclamation District 828
Randell D. Norman, Reclamation District 1614
Gerry Sperry, Reclamation District 2042
Cristopher Neudeck, Reclamation District 17, RD 17 Engineer
Dante John Nomellini, Reclamation District 17 and Reclamation District 404, Attorney
Jay Punia, California Reclamation Board, General Manager
Ricardo Pineda, CA DWR, NFIP State Coordinator
Judy Soutiere, USACE, Sacramento District
Senator Feinstein State Office
Senator Boxer State Office
Representative McNerney District Office
Representative Cardoza District Office

Letter of Agreement and Request for Provisionally Accredited Levee (PAL) Designation and Agreement to Provide Adequate Compliance with the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10)

PAL Agreement Form

We, the undersigned, have received a letter from FEMA dated May 24, 2007 with an enclosed *"Levee Status Map"* and *"Levee Status Table"* and two enclosed documents titled *"Title 44 of the Code of Federal Regulations (CFR), Section 65.10 (44 CFR 65.10)"* and *"Requirements of 44 CFR Section 65.10: Mapping of Areas Protected by Levee Systems."* We understand that FEMA is in the process of providing an updated Flood Insurance Rate Map for San Joaquin County, CA and that the flood hazards around levee(s) identified on the *Levee Status Map* and *Levee Status Table* with ID numbers P____, P____, P____, P____, P____ will be remapped to reflect that these levees have been designated a PAL. This/these levee(s) or levee system(s) is/are also known as _____ _____.

To the best of our knowledge, the levee(s) identified above meet the criteria of 44 CFR 65.10 and has/have been maintained in accordance with an adopted operation and maintenance plan. For Scenario A (non-USACE Program) levees, this must be evidenced by an attached Operation and Maintenance Plan and records of levee maintenance and operation, as well as Test Records of Mechanized Interior Drainage System. We hereby submit to FEMA within 90 days (before August 23, 2007) our agreement to provide FEMA with all the necessary information to show that the levee(s) identified above comply with 44 CFR 65.10. We understand that this documentation will be provided before August 23, 2009. Providing the information described in 44 CFR 65.10 will allow FEMA to move forward with the flood mapping for San Joaquin County. We fully understand that if complete documentation of compliance with 44 CFR 65.10 is not provided within the designated timeframe of 24 months, FEMA will initiate a revision to the Flood Insurance Rate Map for San Joaquin County to redesignate the area as floodprone.

Levee Owner Representative (signature): _____ Date: _____

Levee Owner Representative (print name): _____

Community CEO (signature): _____ Date: _____

Community CEO (print name): _____

Other, if applicable (signature): _____ Date: _____

Other, if applicable (print name): _____

Required Attachments for Scenario A (non-USACE Program) Levees only:

- Operation and Maintenance Plan and Records
- Test Records of Mechanized Interior Drainage System

Instructions for Completing this Form:

- On this PAL Agreement Form, fill-in the levee ID numbers and levee(s) name/description for which the Provisionally Accredited Levee (PAL) designation is requested. A separate PAL Agreement Form is recommended for each unique levee owner/levee system. Make copies of this blank form to request PAL designation for multiple levee systems, as necessary.
- This document is available on-line (in a PDF format that can be filled-in electronically) via the link named "Generic PAL Agreement Form for Region IX" at http://rmc.mapmodteam.com/rmc9/Fact_Sheets.htm

FACT SHEET

LEVEES
IDENTIFYING THE RISK

Requirements of 44 CFR Section 65.10:

Mapping of Areas Protected by Levee Systems

As part of a mapping project, it is the levee owner's or community's responsibility to provide data and documentation to show that a levee meets the requirements of Section 65.10 of the National Flood Insurance Program (NFIP) regulations. Links to Section 65.10 and many other documents are available on FEMA's Web site at www.fema.gov/plan/prevent/fhm/lv_fpm.shtm.

The FEMA requirements in Section 65.10 are separated into five categories:

1. General criteria;
2. Design criteria;
3. Operations plans and criteria;
4. Maintenance plans and criteria; and
5. Certification requirements.

The requirements for each of these areas are summarized below.

(A) GENERAL CRITERIA

For purposes of the NFIP, FEMA will only recognize in its flood hazard and risk mapping effort those levee systems that meet, and continue to meet, minimum design, operation, and maintenance standards that are consistent with the level of protection sought through the comprehensive floodplain management criteria established by Section 60.3 of the NFIP regulations. Section 65.10 of the NFIP regulations describes the types of information FEMA needs to recognize, on NFIP maps, that a levee system provides protection from the flood that has a 1-percent chance of being equaled or exceeded in any give year (base flood). This information must be supplied to FEMA by the community or other party seeking recognition of a levee system at the time a study or restudy is conducted, when a map revision under the provisions of Part 65 of the NFIP regulations is sought based on a levee system, and upon request by the Administrator during the review of previously recognized structures. The FEMA review is for the sole purpose of establishing appropriate risk zone determinations for NFIP maps and does not constitute a determination by FEMA as to how a structure or system will perform in a flood event.

(B) DESIGN CRITERIA

For the purposes of the NFIP, FEMA has established levee design criteria for freeboard, closures, embankment protection, embankment and foundation stability, settlement, interior drainage, and other design criteria. These criteria are summarized in subsections below.

(B)(1) FREEBOARD

For riverine levees:

- A minimum freeboard of 3 feet above the water-surface level of the base flood must be provided.
- An additional 1 foot above the minimum is required within 100 feet on either side of structures (e.g., bridges) riverward of the levee or wherever the flow is constricted.

- An additional 0.5 foot above the minimum at the upstream end of the levee, tapering to not less than the minimum at the downstream end of the levee, is also required.

Exceptions to the minimum riverine freeboard requirements above may be approved if the following criteria are met:

- Appropriate engineering analyses demonstrating adequate protection with a lesser freeboard must be submitted.
- The material presented must evaluate the uncertainty in the estimated base flood elevation profile and include, but not necessarily be limited to:
    - An assessment of statistical confidence limits of the 1-percent-annual-chance discharge;
    - Changes in stage-discharge relationships; and
    - Sources, potential, and magnitude of debris, sediment, and ice accumulation.
- It must be also shown that the levee will remain structurally stable during the base flood when such additional loading considerations are imposed.

Under no circumstances will freeboard of less than 2 feet be accepted.

For coastal levees, the freeboard must be established at 1 foot above the height of the 1-percent-annual-chance wave or the maximum wave runup (whichever is greater) associated with the 1-percent-annual-chance stillwater surge elevation at the site.

Exceptions to the minimum coastal freeboard requirements above may be approved if the following criteria are met:

- Appropriate engineering analyses demonstrating adequate protection with a lesser freeboard must be submitted.
- The material presented must evaluate the uncertainty in the estimated base flood loading conditions. Particular emphasis must be placed on the effects of wave attack and overtopping on the stability of the levee.

Under no circumstances will a freeboard of less than 2 feet above the 1-percent-annual-chance stillwater surge elevation be accepted.

(B)(2) CLOSURES

The levee closure requirement is that all openings must be provided with closure devices that are structural parts of the system during operation and design according to sound engineering practice.

(B)(3) EMBANKMENT PROTECTION

Engineering analyses must be submitted to demonstrate that no appreciable erosion of the levee embankment can be expected during the base flood, as a result of either currents or waves, and that anticipated erosion will not result in failure of the levee embankment or foundation directly or indirectly through reduction of the seepage path and subsequent instability.

The factors to be addressed in such analyses include, but are not limited to:

- Expected flow velocities (especially in constricted areas);
- Expected wind and wave action;

- Ice loading;
- Impact of debris;
- Slope protection techniques;
- Duration of flooding at various stages and velocities;
- Embankment and foundation materials;
- Levee alignment, bends, and transitions; and
- Levee side slopes.

(B)(4) EMBANKMENT AND FOUNDATION STABILITY

Engineering analyses that evaluate levee embankment stability must be submitted.

The analyses provided shall evaluate expected seepage during loading conditions associated with the base flood and shall demonstrate that seepage into or through the levee foundation and embankment will not jeopardize embankment or foundation stability.

An alternative analysis demonstrating that the levee is designed and constructed for stability against loading conditions for Case IV as defined in U.S. Army Corps of Engineers (USACE) Engineering Manual 1110-2-1913, Chapter 6, Section II, may be used.

The factors that shall be addressed in the analyses include:

- Depth of flooding;
- Duration of flooding;
- Embankment geometry and length of seepage path at critical locations;
- Embankment and foundation materials;
- Embankment compaction;
- Penetrations;
- Other design factors affecting seepage (e.g., drainage layers); and
- Other design factors affecting embankment and foundation stability (e.g., berms).

(B)(5) SETTLEMENT

Engineering analyses must be submitted that assess the potential and magnitude of future losses of freeboard as a result of levee settlement and demonstrate that freeboard will be maintained within the minimum freeboard standards set forth in B(1).

This analysis must address:

- Embankment loads,
- Compressibility of embankment soils,
- Compressibility of foundation soils,

- Age of the levee system, and
- Construction compaction methods.

A detailed settlement analysis using procedures such as those described in USACE Engineering Manual EM 1100-2-1904 must be submitted.

(B)(6) INTERIOR DRAINAGE

An analysis must be submitted that identifies the source(s) of such flooding; the extent of the flooded area; and, if the average depth is greater than 1 foot, the water-surface elevation(s) of the base flood. This analysis must be based on the joint probability of interior and exterior flooding and the capacity of facilities (such as drainage lines and pumps) for evacuating interior floodwaters. Interior drainage systems usually include storage areas, gravity outlets, pumping stations, or a combination thereof.

For areas of interior drainage that have average depths greater than 1 foot, mapping must be provided depicting the extents of the interior flooding, along with supporting documentation.

(B)(7) OTHER DESIGN CRITERIA

In unique situations, such as those where the levee system has relatively high vulnerability, FEMA may require that other design criteria and analyses be submitted to show that the levees provide adequate protection. In such situations, sound engineering practice will be the standard on which FEMA will base its determinations. FEMA also will provide the rationale for requiring this additional information.

(C) OPERATIONS PLANS AND CRITERIA

For a levee system to be recognized, the operational criteria must be as described below. All closure devices or mechanical systems for internal drainage, whether manual or automatic, must be operated in accordance with an officially adopted operation manual, a copy of which must be provided to FEMA by the operator when levee or drainage system recognition is being sought or when the manual for a previously recognized system is revised in any manner. All operations must be under the jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP.

(C)(1) CLOSURES

Operation plans for closures must include the following:

- Documentation of the flood warning system, under the jurisdiction of Federal, State, or community officials, that will be used to trigger emergency operation activities and demonstration that sufficient flood warning time exists for the completed operation of all closure structures, including necessary sealing, before floodwaters reach the base of the closure;
- A formal plan of operation, including specific actions and assignments of responsibility by individual name or title; and
- Provisions for periodic operation, at not less than 1-year intervals, of the closure structure(s) for testing and training purposes.

(C)(2) INTERIOR DRAINAGE SYSTEMS

Interior drainage systems associated with levee systems usually include storage areas, gravity outlets, pumping stations, or a combination thereof. FEMA will recognize these drainage systems on NFIP maps for flood protection purposes only if the following minimum criteria are included in the operation plan:

- Documentation of the flood warning system, under the jurisdiction of Federal, State, or community officials, that will be used to trigger emergency operation activities and demonstration that sufficient flood warning time exists to permit activation of mechanized portions of the drainage system;
- A formal plan of operation, including specific actions and assignments of responsibility by individual name or title;
- Provision for manual backup for the activation of automatic systems; and
- Provisions for periodic inspection of interior drainage systems and periodic operation of any mechanized portions for testing and training purposes; no more than 1 year shall elapse between either the inspections or the operations.

(C)(3) OTHER OPERATION PLANS AND CRITERIA

FEMA may require other operating plans and criteria to ensure that adequate protection is provided in specific situations. In such cases, sound emergency management practice will be the standard upon which FEMA determinations will be based.

(D) MAINTENANCE PLANS AND CRITERIA

For levee systems to be recognized as providing protection from the base flood, the following maintenance criteria must be met:

- Levee systems must be maintained in accordance with an officially adopted maintenance plan, and a copy of this plan must be provided to FEMA by the owner of the levee system when recognition is being sought or when the plan for a previously recognized system is revised in any manner.
- All maintenance activities must be under the jurisdiction of a(n):
    - Federal or State agency;
    - Agency created by Federal or State law; or
    - Agency of a community participating in the NFIP that must assume ultimate responsibility for maintenance.
- The maintenance plan must document the formal procedure that ensures that the stability, height, and overall integrity of the levee and its associated structures and systems are maintained.
- At a minimum, the maintenance plan shall specify:
    - Maintenance activities to be performed;
    - Frequency of their performance; and
    - Person by name or title responsible for their performance.

(E) CERTIFICATION REQUIREMENTS

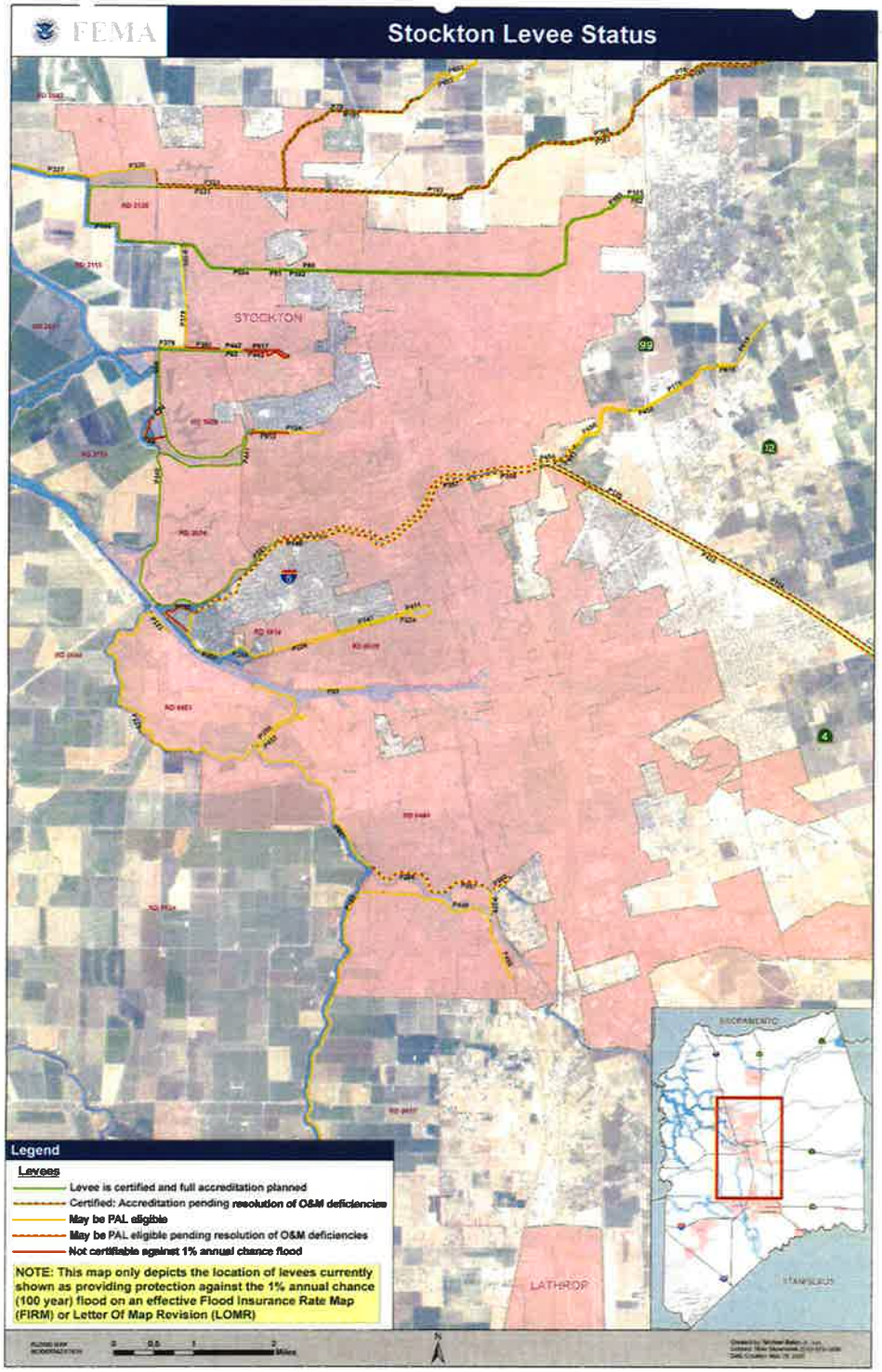
Data submitted to support that a given levee system complies with the structural requirements set forth in B(1) through B(7) above must be certified by a Registered Professional Engineer. Also, certified as-built plans of the levee must be submitted. Certifications are subject to the definition given in Section 65.2 of the NFIP regulations. In lieu of these structural requirements, a Federal agency with responsibility for levee design may certify that the levee has been adequately designed and constructed to provide protection against the base flood.

Stockton City Levee Status

May 22, 2007

Levee ID	Type	USACE Program Levee	Community	Levee Status *	Flooding Source	Levee Name	Organization	Maintenance Agency	Comment
P331	Levee	Yes	Stockton	USACE Certified Levee (PAL C-2 Scenario)	Bear Creek	Bear Creek Levee	CA DWR	SJCFCWCD	Accreditation pending resolution of O&M deficiencies
P332	Levee	Yes	Stockton	USACE Certified Levee (PAL C-2 Scenario)	Bear Creek	Bear Creek Levee	CA DWR	SJCFCWCD	Accreditation pending resolution of O&M deficiencies
P333	Levee	Yes	Stockton	USACE Certified Levee (PAL C-2 Scenario)	Bear Creek	Bear Creek Levee	CA DWR	SJCFCWCD	Accreditation pending resolution of O&M deficiencies
P223	Levee	No	Stockton	May be PAL A Eligible	Burns Cutoff-San Joaquin River	Rough & ready Island Levee	RD 403	RD 403	May be eligible for PAL agreement
P140	Levee	Yes	Stockton & San Joaquin County	May be PAL C-2 Eligible	Calaveras River	Calaveras Levee	CA DWR	SJCFCWCD	May be eligible for PAL agreement
P356	Levee	Yes	Stockton	May be PAL C-2 Eligible	Calaveras River	Calaveras River Levee	CA DWR	SJCFCWCD	May be eligible for PAL agreement
P357	Levee	Yes	Stockton	May be PAL C-2 Eligible	Calaveras River	Calaveras River Levee	CA DWR	SJCFCWCD	May be eligible for PAL agreement
P454	Levee	Yes	Stockton	May be PAL C-2 Eligible	Calaveras River	Mormon Slough Levee	CA DWR	SJCFCWCD/ CA DWR	May be eligible for PAL agreement
P221	Levee	Yes	Stockton	Levee is certified and full accreditation planned	Calaveras River	Calaveras River Levee	RD 2074	RD 2074	Levee is certified and full accreditation planned
P330	Levee	No	Stockton	May be PAL A Eligible	Disappointment Slough		RD 2042	RD 2042	May be eligible for PAL agreement
P379	Levee	No	Stockton	May be PAL A Eligible	Fivemile Slough		City of Stockton	City of Stockton	May be eligible for PAL agreement
P83	Levee	No	Stockton	Levee is certified and full accreditation planned	Fivemile Slough	Five Mile Slough Levee	RD 1608	RD 1608	Levee is certified and full accreditation planned
P442	Levee	No	Stockton	May be PAL A Eligible	Fivemile Slough		SJCFCWCD; City of Stockton	SJCFCWCD	May be eligible for PAL agreement
P85	Levee	No	Stockton	Levee is certified and full accreditation planned	Fourteenmile Slough		RD 1608	RD 1608	Levee is certified and full accreditation planned
P441	Levee	No	Stockton	Levee is certified and full accreditation planned	Fourteenmile Slough	Fourteenmile Slough Levee	RD 2074	RD 2074	Levee is certified and full accreditation planned
P124	Levee	No	Stockton	May be PAL A Eligible	Fourteenmile Slough	Fourteenmile Slough Levee	SJCFCWCD	SJCFCWCD	May be eligible for PAL agreement
P375	Levee	No	Stockton	May be PAL A Eligible	Fourteenmile Slough	North Fourteenmile Levee	Stockton City	Stockton City	May be eligible for PAL agreement
P449	Levee	Yes	Stockton	May be PAL B Eligible	French Camp Slough	Weston Ranch North Levee	RD 17	RD 17	May be eligible for PAL agreement
P450	Levee	No	Stockton	May be PAL A Eligible	French Camp Slough	Weston Ranch North East Levee	RD 17	RD 17	May be eligible for PAL agreement
P270	Levee	No	Stockton	May be PAL A Eligible	French Camp Slough		Stockton City	Unknown	May be eligible for PAL agreement
P81	Levee	No	Stockton	Levee is certified and full accreditation planned	Mosher Creek	Mosher Slough Levee	NRCS, SJAFCA	SJCFCWCD	Levee is certified and full accreditation planned
P82	Levee	No	Stockton	Levee is certified and full accreditation planned	Mosher Creek	Mosher Slough Levee	NRCS, SJAFCA	SJCFCWCD	Levee is certified and full accreditation planned
P192	Levee	No	Stockton	Levee is certified and full accreditation planned	Mosher Creek	Mosher Slough Levee	NRCS, SJAFCA	SJCFCWCD	Levee is certified and full accreditation planned
P80	Levee	No	Stockton	Levee is certified and full accreditation planned	Mosher Creek	Mosher Slough Levee	NRCS/SJAFCA	SJCFCWCD	Levee is certified and full accreditation planned
P460	Levee	No	Stockton	Levee is certified and full accreditation planned	Mosher Creek	Mosher Slough Levee	NRCS/SJAFCA	SJCFCWCD	Levee is certified and full accreditation planned
P804	Levee	No	Stockton	Levee is certified and full accreditation planned	Mosher Creek	Mosher Slough Levee	NRCS/SJAFCA	SJCFCWCD	Levee is certified and full accreditation planned
P444	Levee	No	Stockton	Levee is certified and full accreditation planned	Mosher Slough	Mosher Slough Levee	RD2126	SJCFCWCD	Levee is certified and full accreditation planned
P268	Levee	Yes	Stockton	May be PAL C-2 Eligible	San Joaquin River	RD 44-Boggs	CA DWR	RD 404	May be eligible for PAL agreement
P267	Levee	Yes	Stockton	May be PAL C-2 Eligible	San Joaquin River	RD 44-Boggs	CA DWR	RD 404	May be eligible for PAL agreement
P451	Levee	Yes	Stockton	May be PAL B Eligible	San Joaquin River	RD 44-Boggs	CA DWR	RD 404	May be eligible for PAL agreement
P153	Levee	Yes	Stockton	May be PAL B Eligible	San Joaquin River	Weston Ranch North West Levee	RD 17	RD 17	May be eligible for PAL agreement
P222	Levee	No	Stockton	May be PAL A Eligible	San Joaquin River	Rough & ready Island Levee	RD 403	RD 403	May be eligible for PAL agreement
P452	Levee	No	Stockton	May be PAL A Eligible	San Joaquin River		RD 404	RD 404	May be eligible for PAL agreement
P89	Levee	No	Stockton	May be PAL A Eligible	San Joaquin River	Main Ship Channel Levee	RD 828	RD 828	May be eligible for PAL agreement
P359	Levee	No	Stockton	May be PAL A Eligible	San Joaquin River-Stockton Deep Water Channel		RD 403	RD 403	May be eligible for PAL agreement
P220	Levee	No	Stockton	May be PAL A Eligible	Smith Canal		RD 1614	RD 1614	May be eligible for PAL agreement
P411	Levee	No	Stockton	May be PAL A Eligible	Smith Canal		RD 1614	RD 1614	May be eligible for PAL agreement
P224	Levee	No	Stockton	May be PAL A Eligible	Smith Canal	South bank of Smith Canal	RD 828	RD 828	May be eligible for PAL agreement
P440	Levee	No	Stockton	Levee is certified and full accreditation planned	Tennile Slough	Ten Mile Slough Levee	RD 2074	RD 2074	Levee is certified and full accreditation planned
P268	Levee	Yes	Stockton	May be PAL C-2 Eligible	Walker Slough	Duck Creek Project Levee	SJCFCWCD	Unknown	May be eligible for PAL agreement
P358	Levee	No	Stockton & San Joaquin County	May be PAL A Eligible	San Joaquin River		RD 1614	RD 1614	May be eligible for PAL agreement
P443	Ground/Fill	No	Stockton	Not Certifiable	Fivemile Slough		City of Stockton	N/A	No levee. High gorunds
P617	Ground/Fill	No	Stockton	Not Certifiable	Fivemile Slough		City of Stockton	N/A	No levee. High gorunds
P380	Ground/Fill	No	Stockton	Not Certifiable	Fivemile Slough		Private	N/A	No levee. High gorunds
P378	Ground/Fill	No	Stockton	Not Certifiable	Fivemile Slough	Landings	City of Stockton	N/A	No levee. High gorunds
P613	Ground/Fill	No	Stockton	Not Certifiable	San Joaquin River		City of Stockton	Private	No levee. High gorunds
P84	Wharf	No	Stockton	Not Certifiable	Tennile Slough		RD 1608	RD 1608	Not a levee.

*** May be PAL A Eligible:** Levees not in USACE program that are shown as providing base flood protection on an effective FIRM or LOMR, and may be eligible for PAL
*** May be PAL B Eligible:** Levees in USACE program that are shown as providing base flood protection on an effective FIRM or LOMR, and may be eligible for PAL
*** May be PAL C-2 Eligible:** Levees in USACE program that are shown as providing base flood protection on an effective FIRM or LOMR, and that have known deficiencies where USACE offered a 1-year "maintenance deficiency correction period"


FEMA
Stockton Levee Status
STOCKTON
LATHROP
SACRAMENTO
STANISLAUS
Legend
Levees
Levee is certified and full accreditation planned
Certified: Accreditation pending resolution of O&M deficiencies
May be PAL eligible
May be PAL eligible pending resolution of O&M deficiencies
Not certifiable against 1% annual chance flood
NOTE: This map only depicts the location of levees currently shown as providing protection against the 1% annual chance (100 year) flood on an effective Flood Insurance Rate Map (FIRM) or Letter Of Map Revision (LOMR)

Chris Neudeck

From: Randy Norman [randydnorman@msn.com]
Sent: Wednesday, May 30, 2007 9:38 PM
To: Chris Neudeck; John Stovall
Subject: Notes form FEMA Meeting

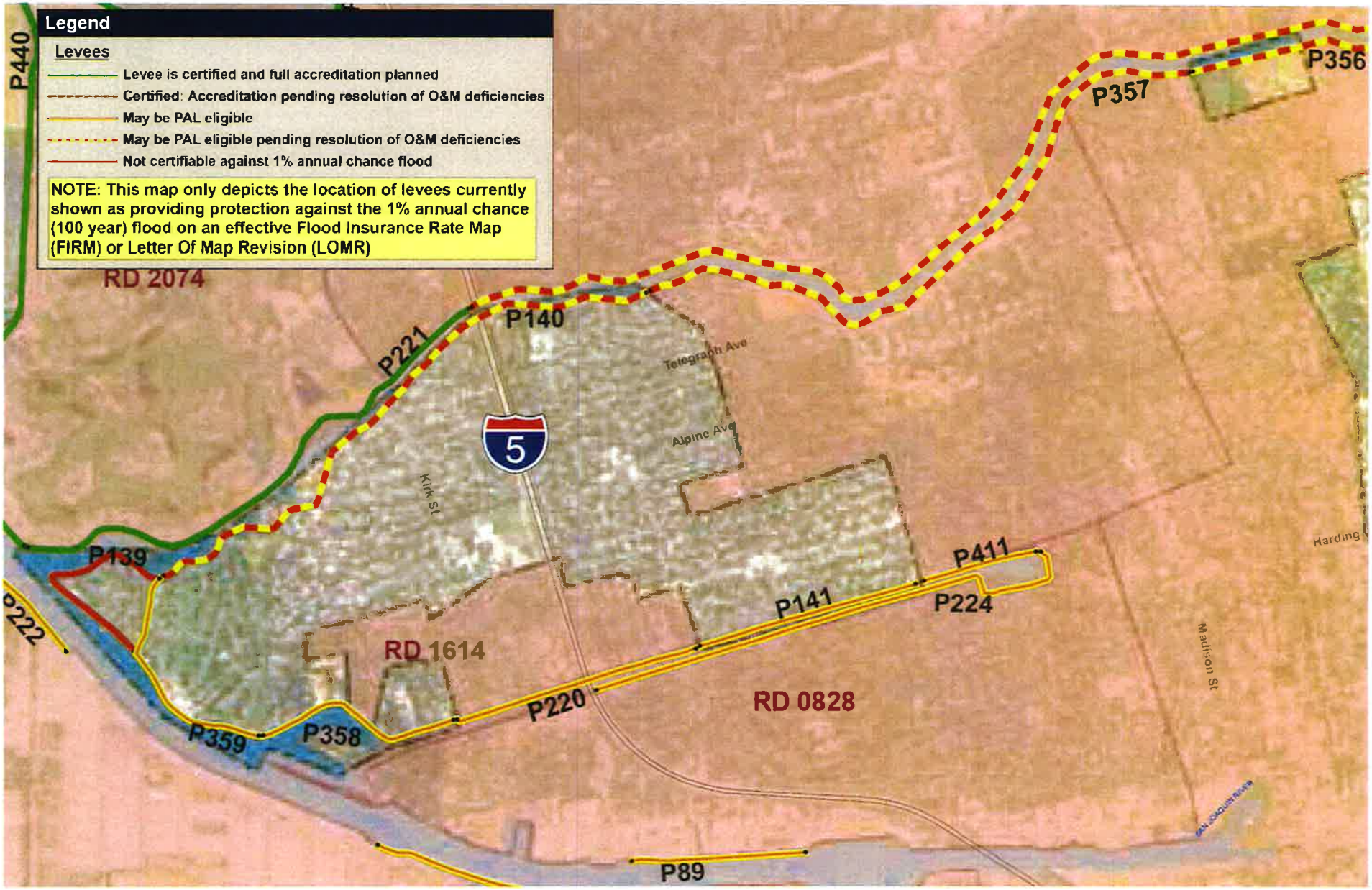
A few issues that I left the FEMA meeting with -

1. Do we need to notify FEMA that the levee ID P139 is "high ground". I believe that is Riviera Cliffs.
2. What is the county doing to "cure" levee P139
3. The boundaries showing for RD 1614 on the FEMA map don not appear to be correct.
4. Will project levees be requesting PAL?

We can discuss at Monday's meeting.

Thanks

Randy


Legend
Levees
Levee is certified and full accreditation planned
Certified: Accreditation pending resolution of O&M deficiencies
May be PAL eligible
May be PAL eligible pending resolution of O&M deficiencies
Not certifiable against 1% annual chance flood
NOTE: This map only depicts the location of levees currently shown as providing protection against the 1% annual chance (100 year) flood on an effective Flood Insurance Rate Map (FIRM) or Letter Of Map Revision (LOMR)
P440
RD 2074
P221
P140
P357
P356
Telegraph Ave
Alpine Ave
Kirk St
5
P139
P222
P411
P141
P224
RD 1614
RD 0828
P220
P359
P358
P89
Harding
Madison St

MINUTES OF MEETING OF BOARD OF TRUSTEES
FOR RECLAMATION DISTRICT 1614
HELD MONDAY, APRIL 16, 2007[1]

The April meeting of the Board of Trustees of Reclamation District 1614 was held Monday, April 16, 2007, at the law office of Neumiller & Beardslee, 509 W. Weber Avenue, 5th Floor, Stockton, California, at the hour of 2:00 p.m.

TRUSTEES PRESENT WERE:

RANDELL D. NORMAN
WILLIAM DUNNING
FELIX LOPEZ

OTHERS PRESENT WERE:

JOHN W. STOVALL
CHRIS NEUDECK
JEAN L. KNIGHT
WILLIAM "MAX" GALLEGOS
SHERRY GARLOUGH (homeowner)

Item 1. Call to Order/Roll Call. President Randell Norman called the meeting to order at 2:00 p.m. All trustees were present.

Item 2. Public Comment. None.

Item 3. Approval of Minutes of March 5, 2007. The minutes of the March 5, 2007, meeting were approved as read.

Item 4. Presentation of Financial Status Report. Jean Knight presented the financial status report and also distributed the "Financial Report" for Trustees and staff to review. It is enclosed with the original of these minutes. She noted that the bill for the voice message system needed to be added to the report ($41.90). All other bills submitted for the regularly scheduled meeting of April 2nd, were presented for payment. Additional discussion was had and the report was approved as presented. More discussion about the budget and categories appear below in Item 5. (Item 7. included with Item 5.) and relate to the financial status report.

Item 5. Presentation of Engineer's Report, and request for direction. Discussion and direction on FEMA issues. Chris Neudeck presented the engineer's report. A written outline is included within the original of these minutes. The first item discussed is the Fiscal Year 2006-2008 Budget Worksheet and review of this document. It is also

[1] The regularly scheduled meeting, set for Monday, April 2, 2007, was postponed to Monday, April 16, 2007, due to lack of quorum.

included within the original of these minutes. The current budget, as presented, was discussed and the proposed 2007-2008 budget was reviewed. In reviewing the actual year to date 2006-2007 budget, it was suggested that under Consultants, General Engineering, that this category G14 be broken down into general engineering and FEMA engineering because of the additional work and expenses that are arising out of levee certification issues. Under Property & Equipment, G17, Acquisitions, the actual budget for 2007-2008 was zeroed out in the proposed budget for 2007-2008, and under Other, G19, Reserve Contingency, the actual budget for 2007-2008 of $92,964.00 was reduced to $80,464.00 in the proposed budget 2007-2008. Under Allotments, for the 2007-2008 year, there are proposed changes – most specifically under A6 – FEMA Levee Evaluation from $0 in the actual budget for 2007-2008 to $200,072.91 for the proposed budget 2007-2008. This too, is a result of levee certification issues.

There was also discussion regarding the storage facility being proposed for the Franklin Pump station area. For the Franklin Station, permits would need to be obtained from the City of Stockton wherein if the storage facility was put on land by the Kirk Pump Station, San Joaquin County permitting would be required. Attorney Stovall reported that research by attorney Jennifer Alves in his office concluded that the County's permitting procedure was much less complicated than that of the City of Stockton. However, it was also thought that security was much better at the Franklin station and that there was much more of a chance of graffiti at Kirk. It was suggested that Jim Giottonini with the City of Stockton be called out to view the site and see what could be done as far as easing the permitting requirements.

Next discussed by Chris Neudeck was the Levee Evaluation and Mr. Neudeck reported they are trying to work on a non-project levee grant proposal, wherein there may be the possibility of 50% of the monies coming from the City-County and another 50% from Bond money. Under B., Mr. Neudeck reported that RD 1614 doesn't have any LOMR but that a request for a Provisionally Accredit Levee (PAL) is being requested (see documentation in agenda packet). He stated that there never been anything that indicated instability in Smith Canal. If a PAL were granted, the District would have 2 years to provide information. The District may know something in May. Under III., B., there was a review of the TAC's proposed MOU and whether the District is interested in unifying with San Joaquin County. (See Agenda Item 9 for further discussion regarding the MOU). Mr. Neudeck also discussed San Joaquin Flood Management's TAC non-project grant proposal covering Geotechnical Investigation of the Smith Canal Levees.

It was also discussed that a meeting was held on April 4, 2007, between Chris Neudeck, John Stovall, Randell Normal, and Jim Giottonini regarding damning up Smith Canal. This was just for discussion purposes and no action came out of the meeting.

Item 6. Presentation of Superintendent's Report; and request for directions. Max Gallegos presented the superintendent's report in written form and it is included with the original of these minutes. Mr. Gallegos reported on his conversations with both the City

MINUTES OF MEETING OF BOARD OF TRUSTEES OF RECLAMATION DISTRICT 1614, IN THE COUNTY OF SAN JOAQUIN, STATE OF CALIFORNIA JUNE 13, 1990

A meeting of the Board of Trustees of Reclamation District 1614, in the County of San Joaquin, State of California, was held in the office of the District, 6 El Dorado South, Suite 304, Stockton, California, June 13, 1990, at the hour of 4:00 P.M. Present at the meeting were President Twila McFadden, Trustee Herbert H. Morgan and Trustee June B. Yager. Also present were Harold J. Willis, Secretary-Attorney and Hugo H. Lichtenberg, Superintendent of the District.

Upon motion of Trustee Morgan, seconded by Trustee Yager, it was:

RESOLUTION NO. 1030 RESOLVED AND ORDERED that the minutes of the meeting of May 2, 1990, as the same appear on pages 870 and 871 of this Minute Book L-3, are hereby ratified, approved and adopted.

There was then presented to the Trustees the Financial Statement of the District as follows:

RECLAMATION DISTRICT 1614
FINANCIAL STATEMENT
April 30, 1990

I.	Assets	Balance in County Auditor's Fund as of April 30, 1990	$153,922.83
		Balance in institution account	$ 3,475.03
II.	Liabilities	Unpaid Warrants - None	-0-
III.	Conclusion	Balance in County Auditor's Fund	$153,922.83
		Balance in institution account	$ 3,475.03

RESOLUTION NO. 1031 RESOLVED AND ORDERED that the following payments as of June 13, 1990, are hereby adopted and ratified and made the payments of this District.

CHECK NO. 446 Pacific Gas & Electric Company, power charges:

FXT	71	15801-0	42.12
MXT	91	54101-6	8.86
KXT	06	52401-9	158.14
KXT	29	64451-3	10.37
JXT	04	70701-5	18.94
JXT	06	06311-6	9.71
JXT	06	62101-3	31.17
JXT	06	63401-8	11.00
JXT	08	49861-6	13.82
JXT	22	01191-7	10.36
			314.49

CHECK NO. 447	Kjeldsen-Sinnock & Associates, Inc., engineering services re: levee subventions program, plan review and 100 Year Flood Plane		680.19
CHECK NO. 448	Harold J. Willis, retainer for May, 1990		630.00
CHECK NO. 449	Hugo H. Lichtenberg, services for May, 1990	$675.00	
	Less S.D.I.	6.08	
	Less State Withholding	.29	
	Less Fed. Withholding	31.00	
		37.37	
	Plus Mileage	125.00	
			762.63
CHECK NO. 450	Herbert E. Morgan, attendance at Trustees' Meeting on June 13, 1990		50.00
CHECK NO. 451	June B. Yager, attendance at Trustees' Meeting on June 13, 1990		50.00
CHECK NO. 452	Twila McFadden, attendance at Trustees' Meeting on June 13, 1990		100.00

Christopher H. Neudeck, representing the District's engineers was present at the meeting. Mr. Neudeck reviewed recent efforts on behalf of the District in meetings with City and County representatives to remove the District from the 100 year flood plane. The Trustees discussed the status of the problem. Mr. Neudeck reviewed the application of the District for fiscal year 1990-91 under the Delta Flood Protection Act of 1988 (S.B. 34). The Trustees and Mr. Neudeck took up the question of a proposed embankment protection project along Smith Canal.

The meeting adjourned thereafter on motion.

Harold J. Willis
Secretary

ITEM 10

RD 1614 Superintendent's Report

3/01/2023

February 2023

February was a relatively cold but dry weather month with the exception of the last few days leading into March .The few weeks of dry weather gave me an opportunity to perform maintenance on the pumps and make inspections of the levees system in our area of responsibility. I was also able to make contact with a few neighbors to arrange rock for slope protection (rip rap) on their property.

Pump Stations : I incorporated the help of some contractors to make repairs to the fence at Frankly pump station , which has been damaged by intruders. I also called Moorman pump company to remove and inspect a pumped that failed during the heavy rains in January. We still have more work to do at Plymouth and River drive pump station, one of the pumps there has bearing noises indicating that there is a problem but not urgent. I will schedule this work after the rainy season is over. All generators that were placed at the stations were disconnected and removed. Other light maintenance was performed on pump station grounds and district vehicles.

Levee inspection: We were able to inspect the Levee from the water side of the levee with the District boat, please see the attached levee inspection report.

This concludes my report
Abel Palacio - Reclamation District 1614 Superintendent:

Reclamation District 1614 Monthly Waterside Inspection Report

Personnel present: Abel Palacio (RD 1614 Superintendent), Aaron Lickingteller (KSN)

Inspection conducted: Wednesday, January 9, 2023 at 11:00am –3:30pm. Low tide occurred between 2:00am – 3:00am (0.2 feet) and high tide occurred between 8:00am – 9am (3.5 feet). The following points of interest were observed during the inspection:

Pump Station No. 5 at Plymouth and I-5 has its outlet partially plugged by rock during operations.

2286 Canal Drive: A good candidate for 18” minus riprap.

2001 Carlton Avenue: A good candidate for 18” minus riprap.

2000 Carlton Avenue: A good candidate for 18” minus riprap.

2060 Canal Drive: The homeowner here expressed interest in 18” minus riprap during the boat inspection.

2038 Canal Drive: A good candidate for 18” minus riprap.

Mission Avenue terminus: San Joaquin County is still in the process of cleaning up fallen trees on their easement from January’s storm event.

1848 W S Tuxedo Avenue: This home is on the City of Stockton's demolition list for this year. During January's storm event, a large tree fell on the house, rendering it more qualified for demolition.

1842 W S Tuxedo Avenue: Dense brush and recently felled tree from January's storm event.

1534 W S Tuxedo Avenue: Dense waterside vegetation renders inspection of the slope impossible.

ITEM 13

RD 1614: MASTER CALENDAR

JANUARY

FEBRUARY

- Send out Form 700s, remind Trustees of April 1 filing date
- Update Document Retention Policy

MARCH

- Evaluation Review of Employees

APRIL

- April 1: Form 700s due
- Biannual Town Hall Meeting

MAY

- Draft Budget

JUNE

- June 15: Provide notice/make available to the public, documentation/materials regarding determination of Appropriations (15 days prior to meeting at which Appropriations will be adopted) (*Government Code* §7910).
- Approve Audit Contract for expiring fiscal year
- Adopted Annual Budget.
- Reminder that Liability Insurance Expires Annually the end of July.
- Adopt Annual CEQA Exemption for levee maintenance

JULY

- Adopt Resolution for setting Appropriations and submit to County Assessor's Office.
- Adopt Resolution Establishing Annual Assessments.

AUGUST

- August 1: Deadline to certify assessments for tax-roll and deliver to County (duration of current assessment: no expiration).
- Send handbills for collection of assessments for public entity-owned properties
- In election years, opening of period for secretary to receive petitions for nomination of Trustees (75 days from date of election.) (*Cal. Wat. Code* §50731.5)
- Employee Embezzlement Policy Expires this Month.
- Renewal of Insurance
  (Crime policy does not come up for renewal until 8/26/2020)

SEPTEMBER

- In election years, last legal deadline to post notice that petitions for nomination of Trustees may be received (7 days prior to close of closure.) (*Cal. Wat. Code* §50731.5).
- In election years, closing of acceptance of petitions for nomination of Trustees (54 days from date of election.) (*Cal. Wat. Code* §50731.5).
- Review Status of Encroachment Permit request from Randy Pierson for fence at corner of Del Rio Ave and Kirk Ave.

OCTOBER

- Publish Notice of Election, even numbered years (once per week, 4 times, commencing at least 1 month prior to election).
- Newsletter
- Biannual Town Hall Meeting.

NOVEMBER

- Election: to be held date selected by Board each even-numbered year.

DECEMBER

- New Trustee(s) take office, outgoing Trustee(s) term(s) end on first Friday of each even-numbered year.
- Follow up on Smith Canal Proposition 218 Reimbursement for costs advanced to SJAFCA.
- Election of Board officers (Election years)

Term of Current Board Members:

Name	Term Commenced	Term Ends
Christian Gaines	First Friday 12/2018	First Friday of 12/2022
Kevin Kauffman	First Friday 12/2020	First Friday of 12/2024
Dominick Gulli	First Friday 12/2020	First Friday of 12/2024

No Expiration on Assessment

Emergency Operations Plan Review – September 2022.

Reclamation District Meetings

- **First Monday of each month, at 2:00 P.M.**
  at the offices of
  Neumiller &Beardslee
  3121 W. March Lane, Suite 100
  Stockton, California 95219

ITEM 16

Reclamation District 1614
February 2023 Bills

NAME	INVOICE #	AMOUNT	TOTAL $	WARRANT #	CHECK #	SUBVENTION FUND
Kevin Kauffman		$100.00		6174		
			$100.00			
Christian Gaines		$50.00		6175		
			$50.00			
Dominick Gulli		$50.00		6176		
			$50.00			
Rhonda Olmo		$1,443.75		6177		
			$1,443.75			
Neumiller & Beardslee	338390	$4,407.38		6178		
			$4,407.38			
Kjeldsen, Sinnock, & Neudeck	34680	$1,348.98		6179		
	34681	$1,286.25				
	34682	$175.00				
	34683	$82.50				
	34684	$1,458.45				
	34685	$15,767.50				
	34686	$1,030.00				
			$21,148.68			
Holt of California	G0694701	$4,455.65		6180		
	G0694702	$1,127.32				
	G0692901	$4,269.53				
	G0692902	$2,011.37				
			$11,863.87			
Delk Pest Control	178817	$220.00		6181		
			$220.00			

Reclamation District 1614
February 2023 Bills

Arnaudo Construction Progress Payment No. 8	115	$1,983.01		6182		
			$1,983.01			
Willie Electric Supply Co., Inc.	S2123110.001	$2,307.79		6183		
			$2,307.79			
Power Services, Inc.	7137	$1,300.00		6184		
			$1,300.00			
Abel Palacio - February Payroll		$1,211.09			Direct Deposit	
			$1,211.09			
Orlando Lobosco - February Payroll		$205.76			2548	
			$205.76			
State of California Payroll Taxes - Feb.		$35.43				
			$35.43			
Federal Government Payroll Taxes - Feb.		$473.10				
			$473.10			
Sprint		$111.05			online	
			$111.05			
Comcast		$134.69			online	
			$134.69			
PG&E		$13,035.78			online	
			$13,035.78			

WARRANT TOTAL:	**$44,874.48**
CHECKING TOTAL:	**$15,206.90**
TOTAL BILLS PAID	**$60,081.38**

ITEM 17

Public Review Draft

San Joaquin Area Flood Control Agency

Levee Construction and Maintenance Assessment (LCMA)

PRELIMINARY ENGINEER'S REPORT

SAN JOAQUIN COUNTY

Greatness grows here.

SAN JOAQUIN AREA FLOOD CONTROL AGENCY

San Joaquin Area Flood Control Agency

Date: February 16, 2023

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Appendices

1. INTRODUCTION

Background

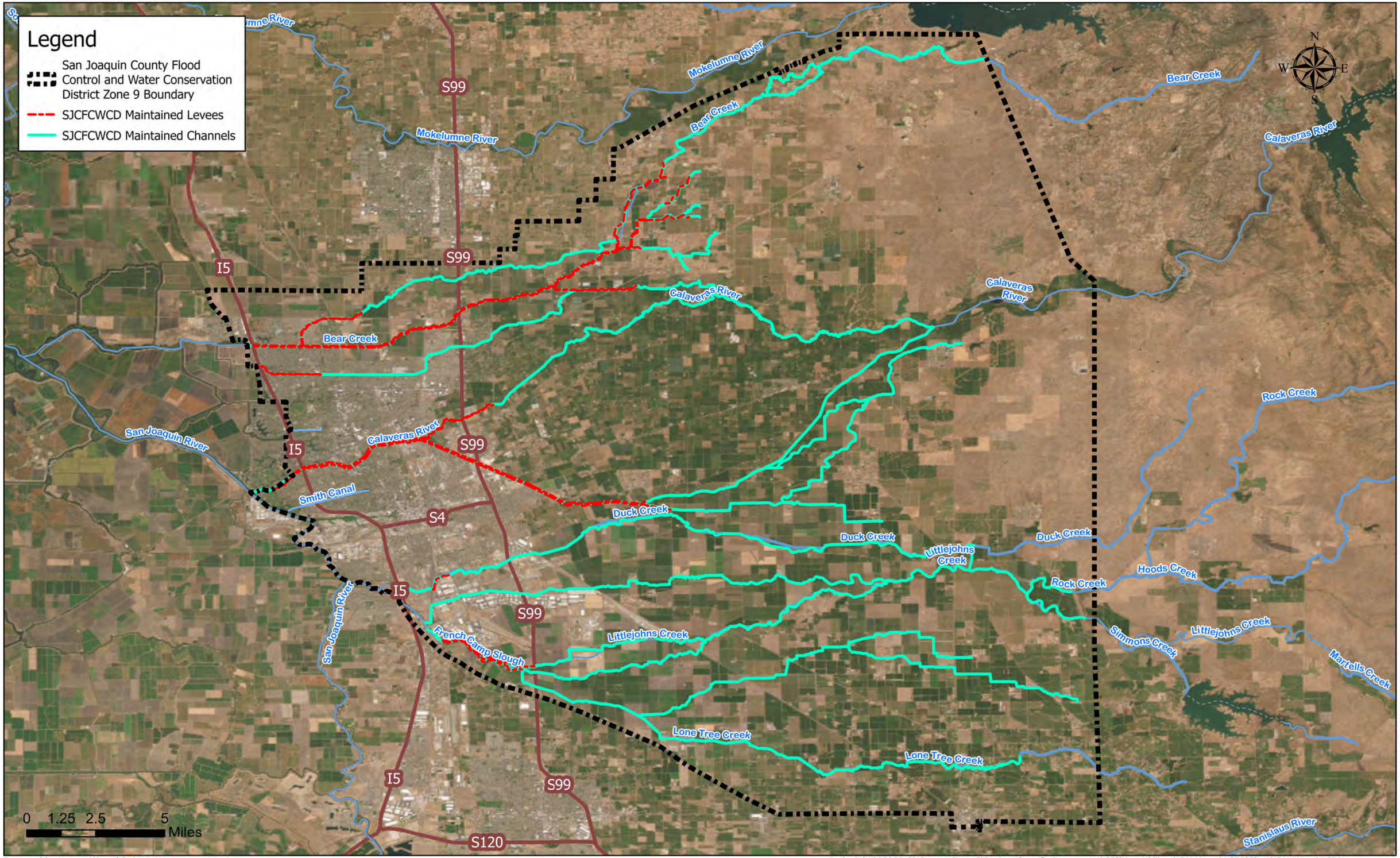
The San Joaquin County Flood Control and Water Conservation District (SJCFCWCD) was formed in 1956 to plan, construct, operate, and maintain flood control, water supply, drainage, and groundwater recharge projects. On December 19, 1961, the San Joaquin County Board of Supervisors created Flood Control Zone No. 9 (Zone 9) to provide maintenance of existing channels, levees, and associated structures (**Figure 1**). SJCFCWCD Zone 9 currently maintains 119 miles of Project Channels and 112 miles of Project Levees[1] in accordance with agreements with the U.S. Army Corps of Engineers (USACE) and the California Department of Water Resources (DWR). Zone 9 also contains approximately 152 miles of non-project channels and 3 miles of Non-Project Levees maintained by SJCFCWCD as resources allow. Zone 9 is currently funded by a combination of property assessments and a small allocation of property taxes. The current property assessments include the Zone 9 Flood Control Benefit Assessment established in 1988 and an assessment levied by the San Joaquin Area Flood Control Agency (SJAFCA) established in 1996.

SJAFCA is a Joint Powers Authority (JPA) formed in 1995 between the City of Stockton, San Joaquin County, and SJCFCWCD with the initial goal of restoring a 100-year level of flood protection to the greater Stockton metropolitan area. In February 1995 the Federal Emergency Management Agency (FEMA) issued preliminary Flood Insurance Rate Maps (FIRMs) that placed a majority of the greater Stockton metropolitan area within a Special Flood Hazard Area (SFHA). To prevent the SFHA designation from becoming effective, the JPA parties recognized that a coordinated regional effort was needed. SJAFCA was formed to plan, design, and construct a suite of projects that became known collectively as the Flood Protection Restoration Project (FPRP). The FPRP consists of flood wall and levee improvements along 40 miles of existing levees, 12 miles of new levees, modifications to 24 bridges, and the construction of two major detention basins and pump stations. To fund construction and provide for the long-term operation and maintenance (O&M) of the FPRP, SJAFCA formed an Assessment District No. 96-1 (AD 96-1) in 1996. The completed FPRP is operated and maintained by SJCFCWCD on behalf of SJAFCA using funds generated by AD 96-1. In November 2017, SJAFCA expanded to include the Cities of Lathrop and Manteca to address the requirements of Senate Bill 5.

After significant flood damage from hurricanes Katrina and Sandy, as well as other major storms, State and Federal policies were adjusted effectively creating more stringent levee maintenance requirements. The new requirements have increased necessary levee maintenance efforts resulting in increased O&M costs. The current funding sources described above have not been sufficient to provide for the increased maintenance efforts causing both SJAFCA and Zone 9 to rely on reserve funds to maintain Project Levees. In addition, support from SJAFCA is needed by SJCFCWCD to ensure that obligations associated with the FPRP are complied with and flood protection levels are maintained consistent with the increasingly stringent regulatory requirements.

[1] Project levees are those facilities that are part of the State Plan of Flood Control as defined by the 2010 State Plan of Flood Control Descriptive Document, Central Valley Flood Management Planning Program, November 2010.

Figure 1: Zone 9 Levees and Channels



Additionally, in response to the aforementioned policy changes, in 2009, SJAFCA partnered with the Central Valley Flood Protection Board (CVFPB) and the USACE to study and evaluate ways to improve the region's flood risk. This resulted in the San Joaquin River Basin, Lower San Joaquin River, CA Final Integrated interim Feasibility Report/Environmental Impact Statement/Environmental Impact Report (Feasibility Study), completed by the USACE in January 2018[2]. The recommended plan contained within the Feasibility Study was subsequently authorized by Congress and signed into law under the Water Infrastructure Improvements for the Nation Act (Public Law 115-270) Title 1, Subtitle D, Section 1401(2), dated October 23, 2018.

Implementing the plan defined in the Feasibility Study is expected to reduce flood risk to 122,000 people, over 80,000 structures, and $28.7 billion in property. USACE uses benefit-to-cost ratios for feasibility study implementation plan recommendations. In this case, the study resulted in a benefit-to-cost ratio of 7.0, meaning that for every dollar invested in the flood risk reduction project, the region receives seven times that in economic benefit. Additionally, implementation of the Feasibility Study's recommendations is expected to reduce expected annual damages within north and central Stockton by 83 percent.

The Congressionally authorized recommended plan found in the Feasibility Study, referred to as the Lower San Joaquin River Project (LSJRP) consists of 23 miles of levee improvements and two closure structures (**Figure 2**). Construction at one of those closure structures, the Smith Canal Gate, was advanced early by SJAFCA and is a critical component of the implementation and funding approach as defined in this Engineer's Report.

After the Feasibility Study authorization, the USACE, CVFPB and SJAFCA entered into a Project Partnership Agreement (PPA) on September 30, 2020, which defines the requirements, obligations, and responsibilities of the Federal government and the Non-Federal Sponsor (NFS), which is defined as both CVFPB and SJAFCA. The CVFPB and SJAFCA entered into a Local Project Partnership Agreement (LPPA) on September 30, 2020, that specifies the obligations of each party; this includes CVFPB's and SJAFCA's commitment to contribute 24.5% and 10.5%, respectively, of the total project cost.

However, the LSJRP improvements do not improve all FEMA Accredited Levees providing protection to North and Central Stockton. **Figure 3** shows the area designated by FEMA as Shaded Zone X (FEMA Shaded Zone X). The FEMA Shaded Zone X area is the area of the accredited levee system currently designated by FEMA as protected by levees from a 100-year flood. To ensure long-term accreditation and keep up with increasing regulatory requirements and engineering standards, SJAFCA will need to complete additional capital project planning, engineering, design, and implementation of projects to FEMA Accredited Levees. Ensuring continued long-term accreditation becomes more important as the impacts of flood frequency and severity worsen over time, as the system reaches its useful life, and as regulatory compliance standards become more stringent.

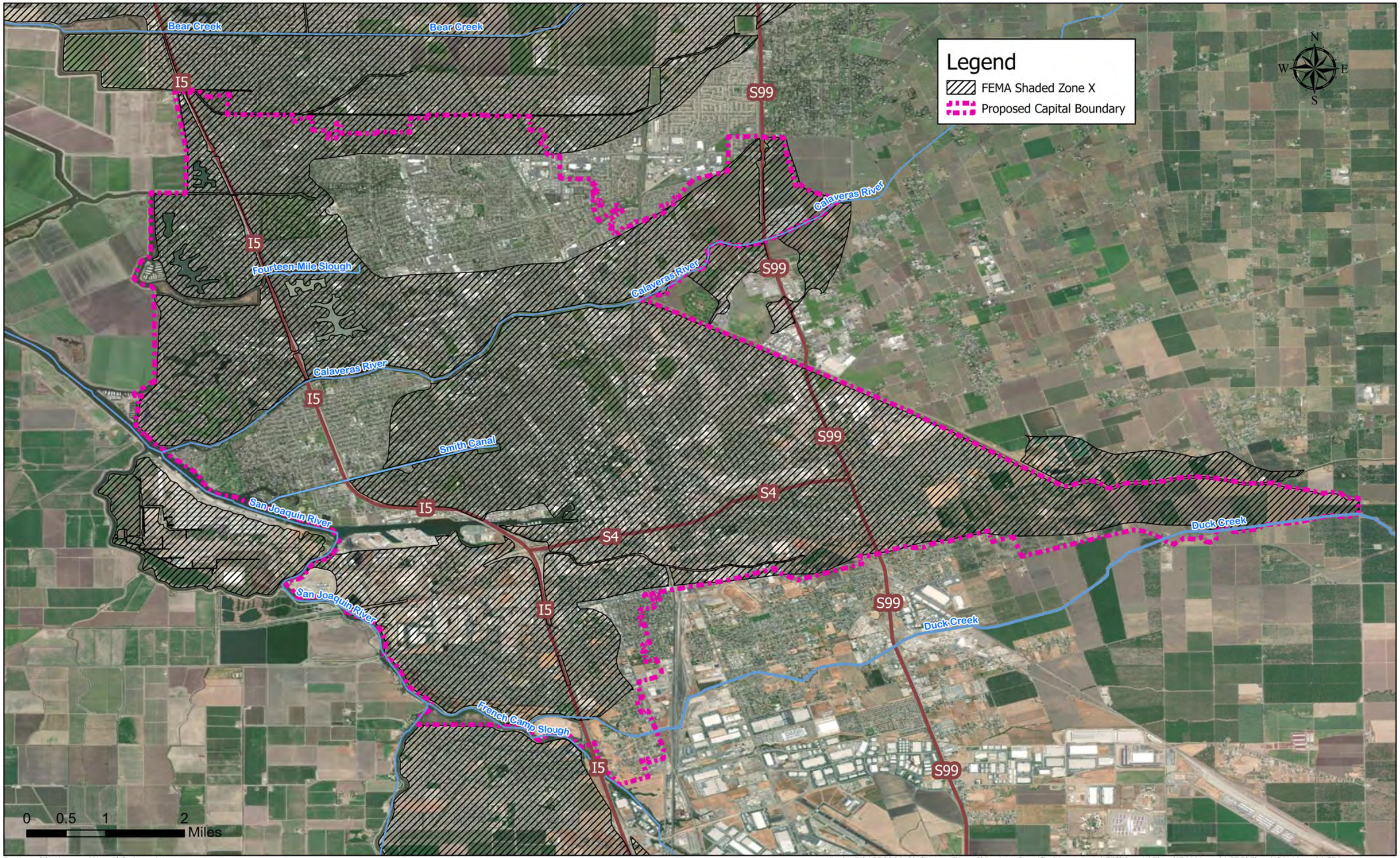
[2] https://www.spk.usace.army.mil/Portals/12/documents/civil_works/lower_sj_river/final_eis-eir/01_San%20Joaquin%20River%20Basin%20Lower%20San%20Joaquin%20River_CA%20FINAL%20IIFR_EIS_EIR.pdf?ver=2018-02-01-184425-453

Figure 2: Lower San Joaquin River Project

Prepared by Larsen Wurzel & Associates 4 Path: P:\1808000 SJ County Zone 9\Project Specific Documents\GIS\Arcgis\Flood CALM and LSRP\Flood CALM and LSRP.mxd

Source: U.S. Army Corps of Engineers, San Joaquin River Basin, Lower San Joaquin River, CA, Integrated Interim Feasibility Report/Environmental Impact Statement/Environmental Impact Report, Figure 8-1, January 2018

Figure 3: FEMA Shaded Zone X



To address the funding for the activities described above, SJAFCA and SJCFCWCD jointly investigated a strategy for generating additional revenue to provide funding for levee capital improvements and O&M services. A formal arrangement for the joint investigation and implementation of a new special benefit assessment was memorialized in an MOU between the two agencies in July 2022. The result of the coordinated effort is the Levee Construction and Maintenance Assessment (LCMA or Proposed Assessment) described further within this Engineer's Report.

Purpose of this Engineer's Report

This Engineer's Report describes, in detail, the methodology for levying an assessment upon parcels that receive special benefit from the LCMA Services as defined within this Engineer's Report. In combination with the Zone 9 Flood Control Benefit Assessment, property tax revenues allocated to SJCFCWCD Zone 9, and SJAFCA's AD 96-1 Assessment, this assessment is intended to provide sufficient funding for:

1. Annual O&M services necessary to maintain SJCFCWCD Zone 9 Project levees, establish a reserve fund to support routine repairs, rehabilitation, and replacement of the infrastructure, and O&M services associated with the LSJRP capital improvements.
2. Capital improvements within the greater Stockton area as defined in the LSJRP and other system improvements to ensure long-term compliance and accreditation of the FEMA accredited levees.

Report Organization

This report is divided into seven sections with tables and a section for figures as well as five appendices, all described further below.

Section1 provides the background, purpose of this Engineer's Report, and describes the report's organization.

Section 2 outlines the authorization and process for imposing the Proposed Assessment.

Section 3 details the services to be funded by the Proposed Assessment.

Section 4 describes the financing and funding plan for LCMA Services.

Section 5 details the methodology for levying an assessment that is proportional to the special benefits received by each parcel assessed.

Section 6 describes how the annual assessment administered process.

Section 7 Provides the special benefit findings and certification by the Assessment Engineer as required by Article XIIID Section 4 (b) of California Constitution.

Appendix A provides a technical memorandum prepared by Kjeldsen, Sinnock & Neudeck, Inc. (KSN) that describes the incremental cost to operate and maintain the LSJRP levees.

Appendix B provides the financial plan cash flow model for the Capital Services funded by the Proposed Assessment.

Appendix C provides a technical memorandum prepared by R&F Engineering (R&F) that describes the supporting floodplain analyses utilized as part of special benefit analysis.

Appendix D provides the Assessment District Boundary Diagram

Appendix E provides the list of the County Assessor's use codes and identifies the assignment of Land Use Categories for use as part of the assessment methodology described herein.

Appendix F provides the list of parcels by reference to assessor parcel number (APN) subject to the Proposed Assessment as well as a schedule of the proposed assessment amounts for FY 2023/2024 (the initial maximum annual assessment roll for assessment balloting purposes).[3]

[3] The proposed Assessment Roll included with **Appendix F** is reflective of the Record Owners of parcels as defined by Government Code 53753 (j) which is based upon the last equalized secured property tax assessment roll. The last equalized secured property tax assessment roll of San Joaquin County prior to the mailing of the notice is the 2022 roll (as of lien date July 1, 2022). The 1st year of the assessments collection will be fiscal year 2023/24 and thus reflective of July 1, 2023 equalized secured property tax assessment roll. SJAFCA will be responsible for applying the assessment methodology described in this Engineer's Report to the 2023 roll and updating the roll presented in **Appendix F** should the assessment be levied in fiscal year 2023/24.

2. AUTHORITY AND PROCESS

The Levee Construction & Maintenance Assessment (LCMA) would be imposed by SJAFCA pursuant to the authority of Government Code §54703 – 54719, the Benefit Assessment Act of 1982 (1982 Act), and consistent with the requirements of Article XIIID of the California Constitution[4] (Proposition 218), Government Code §53750 et. seq. (Proposition 218 Omnibus Implementation Act). Specifically, Government Code §54710(a) of the 1982 Act authorizes SJAFCA to levy an assessment to fund the Operations & Maintenance (O&M) costs for levees. Furthermore, under Government Code §54710.5, the assessment may include the cost of installation and improvement of the levees. As further detailed herein, the Proposed Assessment will fund levee construction, a portion of the annual cost of levee O&M, as well as create a reserve for routine repairs, rehabilitation, and replacement of the levees.

Government Code §54711, requires that:

1. The amount of the assessment imposed on any parcel be related to the benefit received by the parcel;
2. The aggregate amount of the assessment not exceed the estimated annual cost of providing the service; and
3. The revenue derived from the assessment be used only for the services identified as the basis for assessment.

In addition, all special benefit assessments must also comply with Proposition 218 and the Proposition 218 Omnibus Implementation Act. These requirements outline the process for imposing the Assessment, including the requirement that this Engineer's Report document the special benefits conferred by the service provided, the process for imposing the Assessment, and property owner approval through a balloting process.

This Engineer's Report has been prepared to:

1. Contain the information required pursuant to Government Code §54716(a), including;
    a. a description of the services proposed to be financed through the revenue derived from the Assessment;
    b. a description of each lot or parcel of property to be subject to the Assessment;
    c. the amount of the Proposed Assessment for each lot or parcel;
    d. the basis of the Assessment; and,
    e. the schedule of the Assessment;
2. Determine the special benefits from the services received by benefiting properties; and,
3. Assign a method of apportioning the Proposed Assessment to benefiting parcels.

Following submittal of this report to the SJAFCA Board of Directors (Board) for preliminary approval, the Board may, by resolution, call for an assessment ballot proceeding and public hearing on the establishment of the Proposed Assessment.

[4] Article XIIID of the California Constitution is a portion of the California constitution added by Proposition 218 that addresses the requirements of benefit assessments and is applicable here.

If the Board approves such a resolution, the SJAFCA staff will initiate the notice, protest, and hearing procedure required by Government Code §54716 and Article XIIID. A notice and assessment ballot will be mailed to property owners within the Proposed Assessment boundary. Such notice will include a description of the services to be funded, the total Proposed Assessment amount, the Proposed Assessment amount for each parcel owned, the duration of the Proposed Assessment, an explanation of the method of voting, and the name and telephone number of the person designated by the Board to answer inquiries regarding the Proposed Assessment and ballot proceeding process. Each notice will specify the date, time, and place of the public hearing and a summary of the ballot return procedures. Each notice will include a ballot upon which the property owner can vote for approval or disapproval of the Proposed Assessment and affix his or her signature. Finally, each notice will include an official postage prepaid security envelope in which the ballot must be returned.

The balloting and notice period will extend for a minimum of 45 days. Government Code 53750 (i) deems that notice is given and the 45-day period commences upon the deposit of the notice and ballot with the United States Postal Service. On the last day of the balloting period, the public hearing will be held for the purpose of receiving public testimony from property owners regarding the Proposed Assessment. Property owners will have the opportunity to provide testimony to the Board and submit their ballots at the public hearing, however, in order to be included within the tabulation, all ballots must be submitted prior to the close of the public hearing. At the public hearing, and at any time prior to the close of the public hearing, property owners may also revise previously submitted ballots.

If the votes received in favor of the Assessment, weighted by the proportional financial obligation of the properties for which the ballots are submitted, outweigh the votes received opposing the Assessment, then the Board may continue with the formation of the Proposed Assessment district, the process of imposing the Proposed Assessment and its future levy. If the assessments are so confirmed and approved by the Board, the Assessment roll will be submitted to the San Joaquin County Auditor Controller for inclusion on the secured property tax rolls or may be directly billed by SJAFCA to the property owner for the Assessment pursuant to Government Code §54718. As outlined in Government Code §53739, the Board may levy the Assessment in future years without conducting a new ballot proceeding so long as the Assessment is within the stated inflation-adjusted Assessment Rate authorized by the original balloting proceeding.

3. PROPOSED SERVICES

Services Funded by the Proposed Assessment

The services to be funded by the Proposed Assessment include:

1. Levee O&M Services: O&M services are required to ensure that the design level of flood protection is maintained over time for Zone 9 Project Levees maintained by SJCFCWCD, LSJRP levees, and other levees improved in the future by SJAFCA. As footnoted in the **Introduction**, Project Levees are those facilities that are part of the State Plan of Flood Control. LSJRP levees are those built as part of the Federally authorized LSJRP as further defined under the **Levee Capital Services** section below.
2. Levee Capital Services: All work associated with the planning, design, implementation and construction of the LSJRP and other future capital improvements completed within the benefit area that ensure continued FEMA accreditation of levees providing 100-year protection into the future.

Levee O&M Services

Levee O&M Service activities may include, but are not limited to, levee inspections and evaluations, debris removal that restricts flow or damages the system, vegetation removal and control, rodent control, levee patrols, levee road resurfacing, erosion protection material replacement, flood fighting, and embankment repair. In addition, Levee O&M Services also includes all activities associated with maintaining the current level of flood protection received by benefiting properties. These activities include compliance with any existing permits, obtaining new permits, permit enforcement, removal of encroachments, coordination with State and Federal floodplain regulators and policy makers, and coordination and reporting activities that ensure compliance with FEMA, DWR, and USACE standards. These services will be performed by SJAFCA and/or local maintaining agencies, including SJCFCWCD. These agencies may utilize SJAFCA resources or other contractors to support Levee O&M Services with funding from the Proposed Assessment.

In addition to the regular on-going O&M services, the proposed assessment will also provide adequate reserves to support routine repair, rehabilitation, and replacement of levees and appurtenant facilities.

Levee Capital Services

Levee Capital Services activities include the local contribution to the Federally authorized LSJRP and other capital improvement planning, design, and construction efforts along the flood protection system to support long-term FEMA accreditation of levees providing 100-year protection to North and Central Stockton.

The LSJRP consists of 23 miles of levee improvements and two closure structures. Construction at one of those closure structures, the Smith Canal Gate (SCG), was advanced early by SJAFCA and is a critical component of the implementation and funding approach defined in this Engineer's Report. The 23 miles of levee improvement as described in the Feasibility Study currently include:

Delta Front:

- 2.05 miles of fix-in-place improvements with soil-bentonite cutoff walls of various depths with 2.5 miles of geometry improvements.

- 1.1 miles of seismic fixes through deep soil mixing along two segments of Tenmile Slough.
- 1.33 miles of new setback levee along the Delta Front to eliminate the eastern portions of the Fourteenmile Slough levee.
- 0.59 miles of height improvements between 1.8 and 2.7 feet on the Delta Front.
- 5 miles of erosion protection.
- Control structure on Fourteenmile Slough.

North Stockton:

- 9.4 miles of fix-in-place improvements with soil-bentonite cutoff walls of various depths.
- 2.03 miles of height improvements between 1.4 and 1.6 feet in North Stockton.

Central Stockton:

- 9.2 miles of fix- in-place improvements with soil-bentonite cutoff walls of various depths.
- 2 miles of levee geometry improvements along one segment of the Calaveras River and one segment of the San Joaquin River.
- 0.53 miles of height improvements of 1.8 feet.
- 0.75 miles of new levee with soil-bentonite cutoff wall on Duck Creek to address flanking of flood waters from South of Central Stockton.
- 0.28 miles of height improvements of 4 feet on the RD 404 levee.
- Control structure at Smith Canal with 0.2 miles of floodwall.

As the USACE, the CVFPB, and SJAFCA advance implementation of the LSJRP, the final configuration of the improvements may be refined consistent with the intent of the original authorization or any future changed authorization by Congress. The Levee Capital Services are intended to provide the flood protection benefits of the authorized project in its final configuration. In addition, any required project mitigation or permitting requirements of the project are included within the Levee Capital Services.

Capital improvements along other portions of the system for the purposes of ensuring the long-term FEMA accreditation may include feasibility studies, analyses, field investigations, engineering, design, and construction. Efforts have not yet been defined in detail for this work. Should the Proposed Assessment be approved, these efforts will be further investigated and defined over the coming years.

4. FINANCING AND FUNDING PLAN

The financing and funding plan is based on an estimated annual budget for the Levee O&M Services as well as an estimated budget and financing plan for the LSJRP and other necessary capital improvements. Levee O&M Services include both the SJCFCWCD Zone 9 Project Levee O&M as well as the incremental additional Levee O&M associated with LSJRP and related improvements; however, the budget for the incremental O&M associated with the LSJRP are accounted for within the financing plan analysis for Levee Capital Services as further described below.

Annual Budget for Levee O&M Services

The annual budget for Levee O&M Services has been estimated in two parts. First, the County's Public Works Department, in coordination with SJAFCA, prepared an updated budget for the SJCFCWCD, Zone 9 Project levees. Second, Kjeldsen, Sinnock & Neudeck, Inc (KSN) prepared an incremental O&M budget estimate for the levees improved by the LSJRP (**Appendix A**). The intent is that the incremental O&M budget for the LSJRP would supplement funds from local maintaining agencies who currently operate and maintain the existing levee system to ensure that the benefits received by the Levee Capital Services can be maintained into the future.

The budget for Levee O&M Services represents the current expectation of Fiscal Year (FY) 2023/24 costs based on both historical expenses and anticipated changes over the life of the assessment. It should be noted that the budget was developed for the purpose of determining the annual revenue required for the Proposed Assessment based on the increased costs SJCFCWCD has experienced associated with performing O&M of Zone 9 Project Levees and based on KSN's experience operating and maintaining levees in the region. Future annual budgets approved by the Board may vary from year to year according to actual anticipated expenses and revenues.

Budget for Zone 9 Project Levee O&M

Table 1 provides a summary of the estimated FY 2023/24 budget. This budget takes into consideration the required level of currently unfunded O&M services associated with Project levees in conjunction with the available revenues described further below.

SJCFCWCD estimates that the required total cost of O&M is $5,954,000. This estimate includes the following services: O&M, ongoing engineering support, State & Federal coordination, administration, auditing & compliance, and the legal and insurance burden associated with all services SJCFCWCD provides for Zone 9 facilities. The existing revenues available to support O&M services total $4,470,000 and are provided by the current Zone 9 Flood Control Benefit Assessment, ad valorem property taxes received by the SJCFCWCD for Zone 9, and the SJAFCA AD 96-1 Assessment. The net difference, or shortfall is $1,484,000. This shortfall is associated with the additional costs of providing the required level of Levee O&M Services for Zone 9 Project levees.

Table 1
Levee Capital and Maintenance Assessment (LCMA)
Levee O&M Services Budget for Zone 9 - FY 2023/24

Budget Item / Category	FY 2023/24 Budget
Operations & Maintenance [1]	$5,426,000
Ongoing Engineering Support	$70,000
State & Federal Coordination (Certifications, Policy & Funding)	$305,000
Administration, Auditing & Compliance	$65,000
Legal & Insurance Burden on Services	$88,000
Subtotal Annual Services Budget	**$5,954,000**
Current Zone 9 Assessment (Government Code 56901)	($2,716,000)
Zone 9 Ad Valorem Tax Apportionment	($850,000)
SJAFCA AD 96-1 (Government Code 57594)	($904,000)
Total Current Funding Sources	**($4,470,000)**
Net equals Budget for Levee O&M Services	**$1,484,000**

[1] Includes Labor, Equipment, Supplies, Materials, Repair & Replacement for Equipment and Mitigation.

Source: San Joaquin County Public Works Dept. and SJAFCA

The current Zone 9 Flood Control Benefit Assessment is utilized by the SJCFCWCD to fund Project Levees within Zone 9. Ad valorem property taxes, which come from a portion of the County's base 1% of net assessed value property taxes apportioned to Zone 9 of SJCFCWCD, are also used to fund Project Levee services. Finally, the SJAFCA AD 96-1 is an existing assessment for parcels with the SJAFCA service area to fund O&M of the FPRP. Revenue from AD 96-1, collected by SJAFCA, is utilized to contract for services provided by SJCFCWCD on behalf of SJAFCA for the O&M of those Project Levees improved as part of the FPRP.

The Proposed Assessment will be utilized to fund the increase in cost associated with Levee O&M Services. The budget presented in **Table 1** reflects the budget for the O&M of Zone 9 Project related Levees and Channels. As costs have increased over the years, SJCFCWCD has been required to prioritize the limited resources to those areas with the greatest risk in terms of life safety and flood damages. The assessment revenues and property taxes described above have generally been fully expended on Project Channels and Levees. Even with full expenditure of revenues on Project facilities, including depletion of reserve funding, essential maintenance for Project facilities is currently being deferred until additional funding is available. The Proposed Assessment will provide the SJCFCWCD with additional resources needed to address the increased cost of Levee O&M Services.

Budget for LSJRP Levee O&M

Table 2 provides a summary of the estimated budget for incremental O&M of the LSJRP levees. This is the increase in the estimated costs to O&M the levees to the standards required by USACE once the LSJRP is turned over to the NFS. A portion of this estimate was prepared by KSN through an evaluation of current local maintaining agency resources and estimated cost of levee O&M upon the completion of improvements (**Appendix A**). The total budget for the components of the LSJRP evaluated by KSN is $425,340 escalated to January 2023. SJAFCA has also worked as part of the implementation of the Smith Canal Gate Project to estimate the cost of ongoing O&M of the gate facility. This amount is expected to be similar to the O&M of a second gate structure at 14-Mile Slough. The cost to O&M both gates is expected to be $700,000 (in January 2023 $'s) therefore the total incremental O&M is expected to be $1,125,341. Because these costs are incurred as the LSJRP capital improvements are completed over time, the incremental O&M costs for each completed element has been incorporated into the financing plan for levee capital services, described below.

Table 2
Levee Capital and Maintenance Assessment (LCMA)
Levee Capital Services Incremental O&M Budget for LSJRP Features

Budget Item / Category	Estimated Budget [1]
Mosher Slough	$20,840
Shima Tract	$17,475
Fivemile Slough	$4,291
Fourteenmile Slough	$138,403
Tenmile Slough	$31,973
Calaveras River - Right	$42,783
Calaveras River - Left	$43,072
San Joaquin River	$40,717
French Camp Slough	$18,317
Duck Creek	$67,470
Smith Canal Gate [2]	$350,000
Fourteenmile Slough Structure [2]	$350,000
Capital Project	**$1,125,341**

[1] Budget as of January 2023 and utilized as part of cash flow and financing plan analysis found in Appendix B.

[2] Estimated based on SCAAD budget for O&M of the SCG

Source: KSN Memo and SCAAD Engineer's Report

Financing Plan for Levee Capital Services

To determine the annual funding requirements necessary to fund the SJAFCA share of new facility capital costs and the associated incremental O&M, LWA prepared a financing plan including a cash flow analysis. The financing plan incorporates several assumptions, such as initial cost estimates, cost sharing, SJAFCA project delivery responsibilities, implementation timeline, cost escalation, SJAFCA and State advancement of the Smith Canal Gate, and bonding. These costs are described further below. Importantly, this model incorporates the incremental O&M cost of the LSJRP levee system as the O&M responsibility and funding requirements are layered in over time as project features are completed and turned over the NFS for O&M.

Initial LSJRP Cost Estimate

Project cost estimates, including contingency values, are derived from the Feasibility Study "first cost" estimate of $1,070,309,000 (2017 price levels). These values serve as the basis for the escalated costs utilized in the financing plan. Because this cost estimate was based on feasibility level information with limited information on or consideration for prior analyses of the levee system, several assumptions associated with the estimate were modified, as described herein, to prepare a realistic, reasonable, and fiscally prudent base cost.

The Feasibility Study was performed under USACE's 3x3x3 paradigm: defined as a study requiring no more than three years, with no more than three million dollars, and undergoing three levels of concurrent review. USACE contrived this concept to streamline and accelerate feasibility analyses, but it has resulted in some unintended consequences.

Detailed and informative analyses were often left for the design phase of a project, resulting in fairly conservative project cost estimates, in order to ensure positive benefit cost ratios (ones that don't substantially reduce upon entering design/construction authorization). This is all to say, that during the feasibility study phase, existing information about the levee system performed by the State of California's Urban Levee Evaluation (ULE) went partially unused, and conservative assumptions were used.

During the feasibility study phase, several reaches were identified as requiring a higher level of improvement than those identified from the ULE work. This resulted in higher estimated costs and higher contingencies. Although individual features were not analyzed in detail to determine specific reductions in program costs, several elements were identified as requiring much less robust re-build. These include the improvements near Brookside and Mosher Slough.

Further, recent cost projections of Ten Mile Slough, which is currently designed and awaiting environmental clearances, are projected below those prepared in the 2017 feasibility estimates. In most cases, a conservative cost estimate is beneficial; however, several principles of SJAFCA's program are to be financially frugal with local funding. As such, SJAFCA has decided to program funding on the lower side of the "first cost" range (i.e., lower contingency). Given the program's multi-year implementation, likely to extend more than 15 years, several program changes and cost adjustments are expected, allowing the Agency to adjust as more detailed design information is obtained.

SJAFCA has prepared several contingency plans to mitigate for future cost increases. These include leveraging other funding sources or locally leading future phases of design and construction.

There are other funding sources that may come to fruition over the next decade. These may be used to offset upfront bond financing and/or mitigate for future increased costs. SJAFCA is currently coordinating with other flood agencies to leverage their existing, excess in-kind credit. These inter-basin credit transfers require close coordination with USACE for approval as they would be applied to the NFS's cost share, and they require negotiation on the amount and discount. Secondly, SJAFCA is seeking credit for its prior work on Mosher Slough that would directly offset cost sharing obligation to USACE. These efforts could result in $5-$10 Million of local funding applicable toward the local cost share of the LSJRP.

It is also feasible that SJAFCA could receive a higher state-local cost share for work on this project. Although the current cost share (70%-30%) is generous, other areas within California have seen a higher than 70% state share. An additional 10% State cost share would result in a 33% reduction in the local funding match.

Additionally, in close coordination with USACE, SJAFCA could lead design and construction of one or more project features. Throughout the valley, locally led projects have been completed on Federal levees, resulting in cost savings from the initial USACE estimate. However, the precise features, extents, and expected saving remain uncertain and can't be quantified at this time.

The feasibility study estimates a "first cost" of $1.070 Billion (2017 price levels, not escalated) or estimated at $1,385 Billion in the PPA (fully escalated over time). This estimate includes a 38% contingency. For the reasons described above, SJAFCA is preparing this program estimate with 23% contingency (a 15% reduction), resulting in an initial cost of approximately $910 Million (**Table 3**), for use in the financing plan which escalates cost over the project implementation timeline.

Cost Sharing

As previously discussed, the LSJRP is Federally authorized and led. The USACE, DWR, and SJAFCA entered into a PPA defining the cost share obligations of USACE and the NFS. DWR and SJAFCA then entered into an LPPA, defining the cost sharing obligations between the NFSs. The Federal cost share is 65%, DWR cost share is 24.5%, and SJAFCA's cost share is 10.5%.

SJAFCA's cost share funding will come in the form of 1) cash contributions, 2) In-kind contributions (IKC) for work at Smith Canal and any other approved credit for work performed by the NFS, and 3) lands, easements, rights-of-way, relocations, and disposal areas (LERRDs) purchases. NFS cash contributions are estimated in the financing plan after accounting for LERRDs and IKC estimates.

Smith Canal Gate

SJAFCA and DWR are delivering the Smith Canal Gate (SCG) project as advanced work that directly supports the overall LSJRP. USACE recognizes this as IKC, and it is assumed all costs will be recognized and attributed toward the NFS cost sharing requirements. For the purposes of the cash flow financing plan for the LSJRP, the assumed creditable cost of the SCG project is $96.8 Million. It is assumed that upon review of project expenditures, USACE would approve credit in this full estimated amount. The $96.8 Million estimate is

Table 3
Levee Capital and Maintenance Assessment (LCMA)
Lower San Joaquin River Project Base Budget

Budget Item / Category	Cost Share	$2017 Costs [1]
Land and Damage		$68,555,900
Relocation		$72,250,000
Fish and Wildlife		$60,268,400
Levees and Floodwalls		$481,609,150
Floodway Control and Diversion Structure		$45,205,550
Planning, Engineering, Design		$123,165,850
Construction mangement		$58,708,650
Capital Project		**$909,763,500**
Federal	65.0%	$591,346,275
State	24.5%	$222,892,058
Local Share [2]	**10.5%**	**$95,525,168**

[1] Cost estimate used from 2018 Feasibility Study, based on Oct 1, 2017 price levels, USACE "First Cost", with adjusted contingency to 23%; Utilized as part of financing plan found in Appendix B.

[2] Local share simply based on "first cost" percent obligations, not accouting for credit from local work completed (e.g. Smith Canal Gate)

Source: San Joaquin Area Flood Control Agency and U.S. Army Corps of Engineers

reflected in the total project cost for the purposes of calculating cost share percentages. It is also used as IKC to offset immediate NFS cash contribution requirements.

The costs of the SCG project have been funded from a combination of grant funding provided to SJAFCA by DWR and local funding from SJAFCA generated by the Smith Canal Area Assessment District (SCAAD). If the LCMA is approved by property owners and the assessment district if formed by the SJAFCA Board, the following actions would take place:

- Assessments authorized to be levied by the SCAAD would cease to be levied. In other words, the LCMA would supplant the SCAAD.
- The current outstanding bonds issued by SJAFCA to finance the local share of the project, which are secured by SCAAD assessment revenues would be redeemed by SJAFCA. See **Bond Plan** discussion below.

To account for and recognize the Levee Capital Services benefits provided to date by the SCAAD assessments, an adjustment factor has been applied to the properties located within the SCAAD. See **SCAAD Factor** discussion below.

LERRDs

LERRDs are a line-item estimate in the Feasibility Study and the timing and amounts of LERRDs purchases are incorporated into the financing plan. LERRDs have been escalated based on current project implementation assumptions as defined here and estimated at approximately $210 Million.

Project Implementation Timing

Project implementation timing has been revised from the initial estimates prepared for the Feasibility Study by USACE. The sequence of reach implementation and start timing has been updated to reflect recent project developments (including status of design efforts as of mid-2022, Federal funding commitments, and available personnel and project team resources).

Given the status of this program and timelines of similar programs in the Central Valley, the estimated time to project completion used for this engineer's report is twenty years. Therefore, the LSJRP expenditures associated with construction continue into 2043 and may extend for several years to complete financial and project close-out with USACE and DWR.

Cost estimates are escalated in alignment with the estimated reach delivery timelines. LWA utilized construction cost escalation of 2.4%, based on the average annual growth rate from 2010 to 2020 from the Department of General Services (DGS) California Construction Cost Index (CCCI). This analysis excludes 2020-present, which reflects the effects from aftermath of COVID-19 years and the current inflationary environment in favor of reflecting a longer-term average construction escalation over the entire period of the project.

Assessment Timing

The first year of assessment collection would occur in FY 2023/24. The duration of the capital component of the assessment is assumed and is to be authorized for 30 years from a final bond issuance, which is expected to take place in 2038.

Bond Plan

Based on the project implementation timeline, cash contributions to USACE, and the redemption of the outstanding SCAAD Assessment Revenue bonds, SJAFCA plans to issue bonds secured by LCMA assessment revenues as soon as feasible after the formation of the Assessment District. The timing of the project implementation dictates the timing and amount of bond financing versus pay-go revenues to cover expected costs. The next bond issuance is expected to occur in 2033. The financing plan currently assumes that annual assessment district revenues and IKC would cover much of the cost outlays and funding match to USACE. A third and final bond issuance would occur in 2038. The financing plan assumes that each bond issuance would be structured as a conventional 30-year financing and to be paid from annual assessment collections.

Cash Flow Analysis

A cash flow analysis was developed in quarterly periods for years 2022 through 2049, however, is presented in annual periods here. The cost projections were spread over time as described above. The financing plan assumes an initial assessment need of $6.2 Million beginning in FY 2023/24 for Capital Services. The initial Capital Services budget includes the LSJRP costs, District operational soft costs to deliver LSJRP, defeasance of the existing SCAAD bonds, as well as the incremental O&M required to support this project long-term. The initial O&M assessment need is $1.125 Million (2022) and is assumed to continue in perpetuity. The assessment is assumed to be escalated annually based on the Consumer Price Index (CPI-W) for San Francisco-Oakland-Hayward, CA. For purposes of the cash flow analysis, escalation of the assessment was assumed to be 2.4% annually. Upon final payment of bonds and completion of the LSJRP, the capital portion of the annual assessment is assumed to end.

The financing and funding plan is detailed in the cash flow shown in **Appendix B**.

Total Estimated LCMA Budget

The total LCMA budget combines the FY2023/24 O&M budget for Zone 9 Project levees and the resultant capital FY2023/24 budget developed in the cash flow and financing plan analysis. These budgets are summarized in **Table 4** and result in a total estimated LCMA FY 2023/24 budget of **$7,684,000**.

Table 4
Levee Capital and Maintenance Assessment (LCMA)
Assessment District Budget - FY 2023/24

Budget Item / Category	FY 2023/24 Budget
Levee O&M Services Budget [1]	$1,484,000
Levee Capital Services Budget	$6,200,000
Total Budget [2]	**$7,684,000**

[1] Includes Labor, Equipment, Supplies, Materials, Repair & Replacement for Equipment and Mitigation.

[2] Assessment can be escalated annually, according to CPI-W San Franciso-Oakland-Hayward, not to exceed 4% (Reference Section 6, Annual Escalation of the Assessments)

Source: San Joaquin County Public Works Dept. and SJAFCA

5. ASSESSMENT METHODOLOGY

General Discussion

Requirements of Proposition 218

To levy an assessment for a property related service such as flood control, Proposition 218 has certain substantive requirements that the local agency must comply with. The local agency must:

- Separate the general benefits provided by service(s) from the special benefits conferred on a parcel;
- Identify the parcels that have special benefits conferred on them by the facility and/or service;
- Calculate the proportionate special benefit for each parcel in relation to the entirety of the benefits provided by capital and O&M services being funded;
- Apportion the costs of services to each parcel that receives special benefit in relation to that proportion; and
- Ensure that the total assessment levied does not exceed the reasonable cost of the proportionate special benefit conferred on each parcel.

Special Benefits vs. General Benefits

Proposition 218 requires any local agency proposing to increase or impose a special assessment to "separate the general benefits from the special benefits conferred on a parcel." (Cal. Const. art. XIIID §4). The rationale for separating special and general benefits is to ensure that property owners are not charged a special benefit assessment in order to pay for general benefits provided to the properties or general public at large. Thus, a local agency carrying out a project that provides both special and general benefits may levy an assessment to pay for the special benefits but must acquire separate funding to pay for the general benefits.[5]

A special benefit is a particular and distinct benefit over and above the general benefits conferred on real property located within the agency's boundary or to the public at large. The total cost of the services must be apportioned among the properties being assessed based on the proportionate special benefit the properties will receive. Moreover, the governmental agency must demonstrate through a balloting process that the ballots submitted in opposition to the assessment do not exceed the ballots submitted in favor of the assessment, weighted according to the proportional special benefit and financial obligation of the affected properties.

Because flood control work has an obvious indirect relationship to the provision of general benefits and may, upon first blush, appear to be general benefits, the issue of general benefits merits further discussion. For example, the facilities to be funded by the assessment will protect parks that are used by people regardless of whether they own property within the floodplain or not (the general public). But this indirect relationship does not mean that these facilities or services will themselves provide any general benefits. Rather, they will provide special benefits to all parcels within the floodplain, including special benefits to public parcels (such as parks) that are themselves used in the provision of general benefits.

[5] *Silicon Valley Taxpayers' Assn., Inc. v. Santa Clara County Open Space Authority*, (2008) 44 Cal. 4th 431, 450.

More to the point, the public at large will be paying for the special benefits provided to public property, and specially benefited property owners' assessments will not be used to subsidize general benefits provided to the public at large or to property outside the district. All property that is specially benefited will be assessed, including schools, parks and other parcels used in the provision of general benefits. Assessing agencies are required to assess and levy the assessment on all specially benefited property, including publicly owned property, within the assessment district.[6] Thus, the general public will pay for the provision of flood control services because the assessed public agencies within the assessment district will use general taxes or other revenues to pay their assessments.

In this instance, the Levee Capital and O&M Services provide both a general benefit to the public at large and a special benefit to those properties located within the boundaries of the Proposed Assessment by virtue of preventing flood waters due to uncontrolled flood from collecting on or flowing over a parcel and causing damages as a result of inundation. The special benefits provided by the services have been calculated for all parcels within the boundaries of the Proposed Assessment. The boundaries of the proposed district consists of only those parcels within the levee protected area.

The special benefit provided to each parcel varies based on the relative avoided damage from flooding. The relative avoided flood damages are based on an uncontrolled flood resulting from a breach along the levee system. The avoided flood damages are a function of parcel size, land use and the depth of flooding from each breach scenario, and, for Levee O&M services, the length of levee represented by each breach.

As noted above, special benefits are those "particular and distinct over and above general benefits conferred on real property located in the district or to the public at large." Cal. Const. art. XIIID §2(i). By contrast, general benefits provided to the public at large could be discussed in terms of general enhanced property values, provision of general public services such as police and fire protection and recreational opportunities that are available to people regardless of the location of their property. *See e.g.*, Cal. Const. art. XIIID §§2(i), 6(2)(b)(5); *Silicon Valley Taxpayers*, 44 Cal. 4th 431. 450–56. In this case, general benefits can be identified as the ability to move through and across the benefited area. The following considerations were evaluated to distinguish the general benefits by the Levee Capital and O&M Services.

Public Property

The Levee Capital and O&M Services will protect certain public properties (e.g., government buildings, schools, and parks). While the use of these public properties is a general benefit, the public properties themselves are protected by the flood protection system and receive a special benefit from the Levee Capital and O&M Services in the same manner as private property. All public properties have been included in the determination of special benefit, as described in more detail under the Assessment Apportionment Methodology below. With the exception of Federal Properties, there is no general benefit for Non-Federal public properties to be funded by the Proposed Assessment because the public properties will be assessed based on the special benefit received. As discussed further below, Federal properties are exempt from paying

[6] Reference Cal. Const. art. XIIID §4(a) with respect to the requirement to assess and *Manteca Unified School District v. Reclamation District No. 17 (2017) 10 Cal.App.5th 730* with respect to the requirement to levy.

an assessment levied by a local agency. While the special benefit and associated assessment is calculated without consideration of the Federal property exemption, the lost revenue cannot be reapportioned to assessed property owners. Therefore, the Levee Capital and O&M Services provide a general benefit by protecting federally owned property against flood damages, and the lost assessment revenue must be funded by other revenue sources.

Local Streets and Collectors

The Levee Capital and O&M Services will protect certain local streets and collectors. These roads are primarily used to access properties, as opposed to thoroughfares discussed separately below. The boundary of the Proposed Assessment has been narrowly drawn to include only those properties receiving special benefit from Levee Capital and O&M Services. Therefore, the benefit from Levee Capital and O&M Services to local streets and collectors is captured by assessing the properties they serve – as these roads have no value but in providing access to the specially benefitted parcels, and protecting these roads is a means to provide special benefit to these parcels.

Thoroughfares

The Levee Capital and O&M Services will also protect certain thoroughfares within the boundary of the Proposed Assessment. These roads are distinct from local streets and collectors in that these roads serve as primary transit routes within, through and across the community. These roads are used by the public at large regardless of residency, destination, or purpose. Therefore, the protection of these thoroughfares provides a general benefit that must be separated from the special benefit conferred on parcels by the Proposed Assessment and cannot be funded by the Proposed Assessment. Further discussion supporting the quantification and separation of this general benefit from the special benefit is provided below.

Assessment Boundary

The Proposed Assessment Boundary encompasses all properties that receive a special benefit from Levee Capital and O&M Services. Properties receiving special benefit from the Levee O&M Services were identified through the flood breach analyses prepared by R&F Engineering (R&F). Properties receiving special benefit from the Levee Capital Services were identified from a combination of floodplain mapping sources. The analyses completed by R&F have been documented and incorporated into this Engineer's Report by reference and attached as **Appendix C**.

Hydraulic Analyses Performed to Support the Assessment Methodology

Levee Breach Analysis for Levee O&M Services on Zone 9 Project levees

In order to determine the avoided flood damages as a result of the Levee O&M Services on the Zone 9 Project levees, R&F utilized an existing levee breach analysis that evaluated 89 different breach scenarios along the SJCFCWD Zone 9 Project levees.[7] The resulting floodplain from each breach was overlaid on the San Joaquin County Geographic Information System (GIS) parcel shapefile to determine the average flood depth and area of flooding for each individual parcel for each breach scenario. The resulting average flood depth was used

[7] Reference **Appendix C**: LCMA Assessment District Floodplain Analysis, R&F, February 5, 2023.

as one of the inputs to the USACE Depth-Damage functions to calculate avoided flood damage. R&F also identified the length of levee represented by each breach to apportion avoided flood damages across the project levee reaches maintained by Zone 9. The representative levee lengths can be found in **Table 5**. To account for the situation where a Project levee was maintained by an agency other than SJCFCWCD, the portion of that reach of levee maintained by others was subtracted from the representative levee length. As a result, a 1.4-mile portion of levee along the Calaveras River maintained by Reclamation District 2074 was removed from the representative levee length associated with the CSR R1 breach analysis. R&F's hydraulic analysis included a channel overtopping scenario to determine flood depths with no levee breaches when the channels and levees overtop when their capacity is reached. As the channel overtopping is not prevented by Levee O&M services, this additional scenario presented in R&F's analyses was not utilized in the analysis of special benefits.

Levee Breach Scenarios for Levee Capital Services on LSJRP and 100-year Accreditation Assurance

Properties receiving special benefit from the Levee Capital Services (and associated incremental levee O&M for the LSJRP) were identified using a combination of floodplain mapping that included:

- The 100-year composite without project floodplain based on breaches of levees to be improved by the LSJRP[8];
- The FEMA Shaded Zone X area within north and central Stockton; and,
- Additional hydraulic modeling showing the extent of the inundation from breaches of upstream FEMA Accredited Levees prepared by R&F.

To determine the avoided flood damages as a result of the Levee Capital Services from the improvements to the levee system associated with the LSJRP and FEMA Accredited levees, the Assessment Engineer utilized the without project floodplain mapping from the Feasibility Study as well as the floodplain mapping for breaches of FEMA accredited levees. The Feasibility Study does not define one single protection level but looks at levee assurances at a suite of flood scenarios, including the 100-year event. For the purpose of this Engineer's Report, the Assessment Engineer determined that the USACE's 100-year mapping best represents the level of service provided by the improved project and provides an appropriate comparison to the FEMA Shaded Zone X area. A composite without-project floodplain map, utilizing USACE floodplain mapping data, was prepared to identify the specific area benefiting from the improvements of LSRJP Project levees. To determine the extent of the floodplain for properties benefiting from FEMA Accredited levees, next, the Assessment Engineer overlaid the composite floodplain from breaches along FEMA Accredited levees prepared by R&F Engineering. This designated the extent of the area benefiting from Levee Capital Services for FEMA Accredited Levee. Because different sources of floodplain mapping were combined, the floodplain mapping associated with the FEMA Accredited levee breaches was only utilized to inform the extent of the benefit area from Levee Capital Services, not the depth of flooding for the purpose of calculating avoided flood damages.

[8] As noted above, floodplain mapping for these breaches is based on hydraulic modeling completed by the USACE. Reference USACE Feasibility Study.

Table 5
Levee Capital and Maintenance Assessment (LCMA)
Representative Levee Lengths

Breach name	Levee Length (Miles)	Breach name	Levee Length (Miles)
Brc L10	2.3563	**Lmh R1**	1.9343
Brc L11	0.4907	**Mhc L1**	0.4615
Brc L13	0.5117	**Mhc L2**	1.3213
Brc L14	1.2882	**Mhc R1**	2.4343
Brc L2	2.7578	**Mhd L1**	0.7099
Brc L3	0.9300	**Mns L1**	0.8855
Brc L4	1.2738	**Mns L2**	1.3696
Brc L5	0.6320	**Mns R1**	0.8117
Brc L6	0.8283	**Mns R2**	1.5242
Brc L7	0.4238	**Mpc L1**	0.4808
Brc L8	0.9540	**Mpc L2**	0.9664
Brc L9	1.6391	**Pca L1**	0.8861
Brc R1	1.4009	**Pdc L1**	0.4747
Brc R10	0.8685	**Pdc L2**	0.7654
Brc R11	1.5526	**Pdc R1**	0.4658
Brc R12	0.5926	**Pdc R3**	0.8128
Brc R13	1.1358	**Pdc R6**	1.3186
Brc R14	1.1888	**Pxs L1**	1.5965
Brc R3	2.0168	**Pxs L2**	0.8936
Brc R4	1.1972	**Pxs R1**	0.3875
Brc R5	0.6819	**Pxs R2**	1.2298
Brc R6	1.1045	**Pxs R3**	0.9059
Brc R7	1.0703	**Sdc L1**	0.7090
Brc R8	0.3499	**Sdc L2**	0.8142
Brc R9	1.4818	**Sdc L3**	0.4382
Csr L1	3.1824	**Sdc L4**	0.9177
Csr L2	1.7846	**Sdc L5**	0.6785
Csr L3	2.6353	**Sdc L6**	0.6670
Csr R1	2.4215	**Sdc L7**	0.5747
Csr R2	1.0034	**Sdc R3**	2.8152
Csr R3	0.9816	**Sdc R4**	0.8204
Csr R4	1.4676	**Sdc R5**	1.1742
Csr R5	1.0943	**Spc L1**	0.8003
Fcs L1	2.8398	**Spc R1**	0.3657
Fcs R1	3.1873	**Wrs L1**	0.8674
Lmh L1	1.9767	**Wrs R1**	0.2602

Source: Appendix C - Assessment District Floodplain Analysis, DATE, prepared by R&F.

The Assessment Engineer considered all of this floodplain mapping to develop and designate the area receiving benefit from Levee Capital Services. **Figure 4** superimposes these three floodplain mapping sources and identifies the boundary of the area receiving benefit from Levee Capital Services.

Assessment District Boundary Diagram

All of the mapping sources have been combined to identify the overall area of benefit from Levee Capital and O&M Services. **Figure 5** identifies the designated boundaries of the Levee Capital and O&M Services as well as the overall Proposed Assessment Boundary. The official Assessment District Boundary Diagram is included within **Appendix D**.

Because the Proposed Assessment Boundary does not align with parcel boundaries and parcel boundaries can change over time, a process for regularly determining those parcels within the boundary subject to the assessment is warranted. (Reference **Application of the Assessment Boundary to Parcels** below, for further discussion.)

Accounting for Uncertainty in the Breach Analysis Results

To account for the uncertainty associated with the hydraulic modeling assumptions, the difference in modelling tools leveraged (i.e., R&F analysis vs. USACE analysis vs. FEMA maps), and the accuracy of underlying LiDAR data used to generate the floodplains from each breach scenario (for R&F analysis), all flood depths were rounded down to the nearest foot. This rounding down of flood depths also accounts for the affects that any elevation variation within an individual parcel would have on shallow flooding. Further, given the uncertainty of flood depths and assumptions, for any parcel that is flooded based the analyses conducted or the review of the three flood mapping sources, the Assessment Engineering assigned a minimum flood depth of one foot.

The R&F hydraulic model used a standardized approach of calculating the floodwaters from the levee breach on a 250-foot square (1.4 acre) grid pattern and reporting the average depth for each grid block. Based on this grid block size, multiple parcels may reside within a single grid block, or a single parcel may span multiple grid blocks. Therefore, for parcels that are partially flooded along the boundary of the floodplain from a levee breach, the level of accuracy for the area of flooding for these parcels is uncertain. To account for this uncertainty, flood damages were excluded for parcels along the fringe of the boundary with less than 95% of their boundary within Levee Capital and O&M Service Boundary.

Assessment Apportionment Methodology

The methodology for apportioning the Proposed Assessment to each parcel in the Proposed Assessment District is based first on quantifying the total benefits received, in terms of benefit units, by each parcel from the Levee Capital and O&M Services and then second, separating the General Benefits from the Special Benefits, then third, determining each parcel's proportionate share of total benefits received, again in terms of benefits units, and finally allocating the Proposed Assessment, in terms of dollars to each parcel based upon its proportionate share of total benefit units. Through this approach, each parcel's share of the total Proposed Assessment would be equivalent to its proportionate share of benefit received from the Services. Because the General Benefits have been separated from the Special Benefits and only the Special Benefits are assessed to parcels the requirement of Proposition 218 have been met.

Figure 4: Floodplain Mapping supporting Capital Services Benefit Area

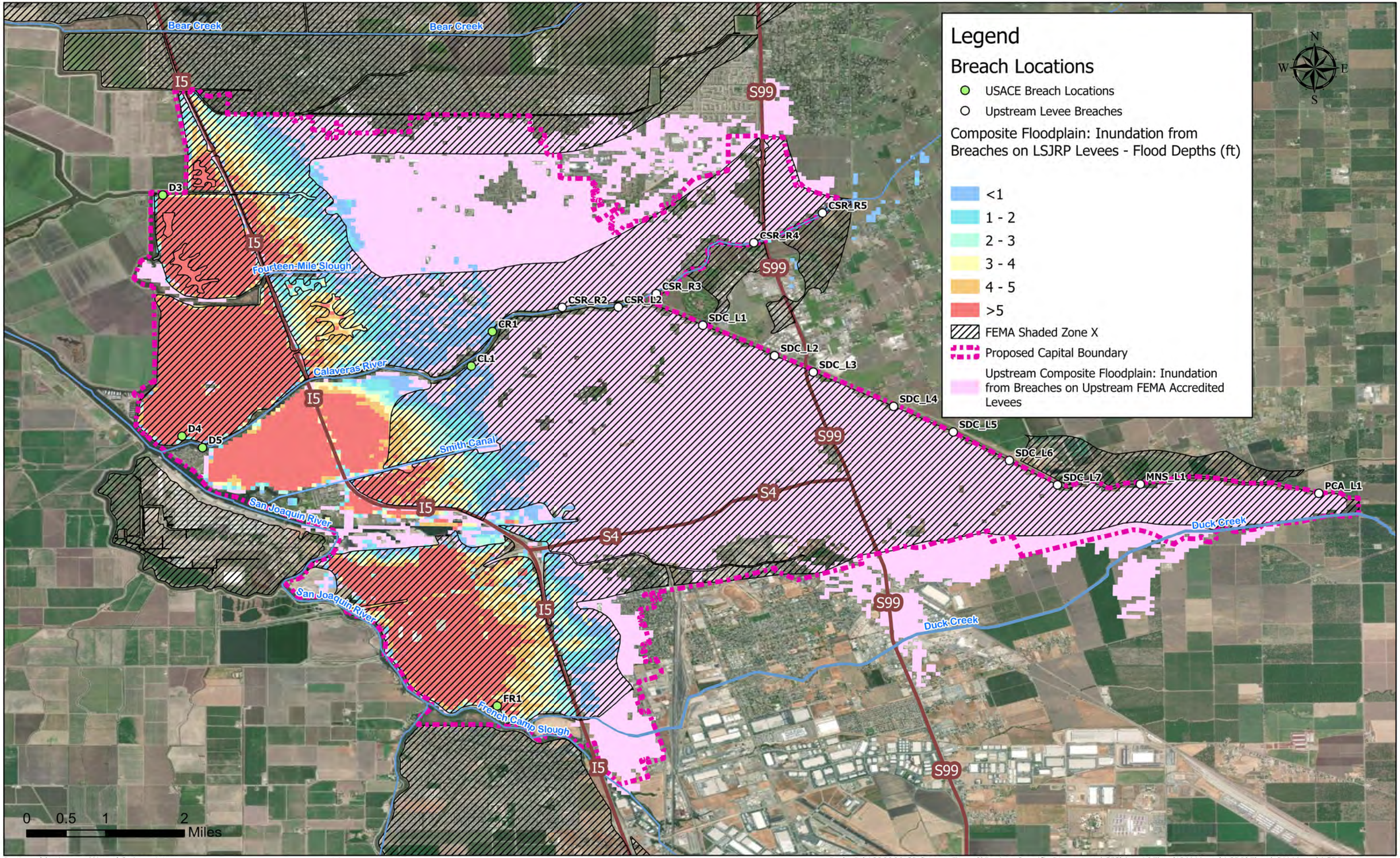
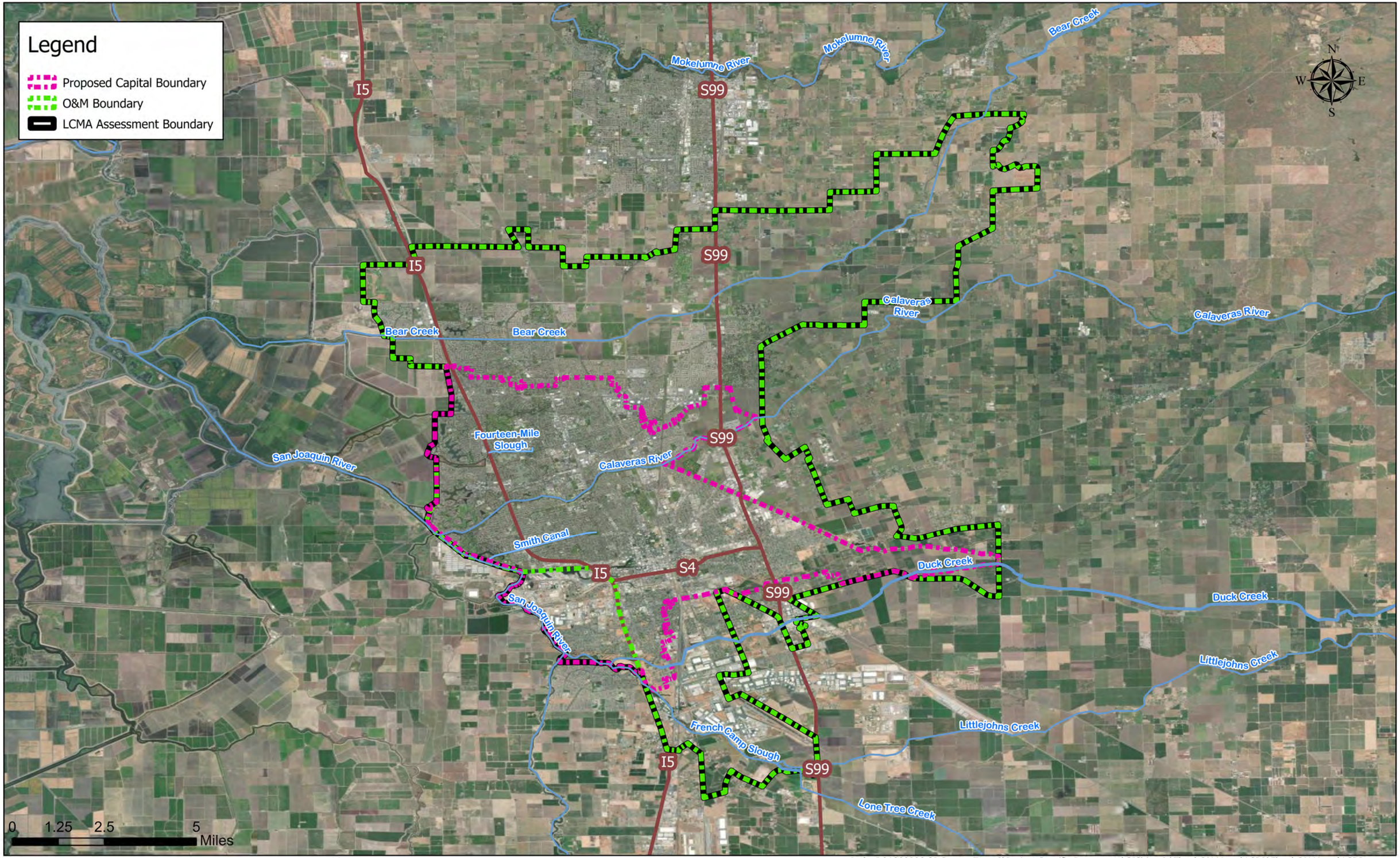


Figure 5: LCMA Area of Benefit - Levee Capital & O&M Services



The special benefit conveyed to a parcel from Levee Capital and O&M Services (in terms of Levee Benefit Units) is based on the flood damage reduction received by the parcel due to the decreased likelihood of flooding caused by a levee failure.

The methodology for calculating Levee Capital and O&M Benefit Units for each parcel utilizes the following property characteristics:

1. The size (acreage) of each parcel;
2. The Land Use Category assigned to each parcel;
3. The average structure size (square footage) per acre for each Land Use Category;
4. The depth of flooding from each breach scenario affecting the parcel;
5. The Relative Land Damage Rate per acre;
6. The Structure Damage Rate per square foot;
7. Whether the parcel was located within the prior SCAAD Assessment; and
8. Length of levee represented by each breach scenario (for Levee O&M Services for Zone 9 Project levees only).

A minimum flood damage reduction benefit was determined for all parcels with more than 95% of their area included within the Boundary. The minimum benefit was applied in the event a parcel's calculated flood damages was less than the minimum calculated benefit. This approach accounts for uncertainty in the model as a result of utilizing a finite number of flood breach analyses where a parcel's resulting inundation was nominal. This minimum benefit calculation is further described on Page 34.

Property Characteristics

The following property characteristics were developed for apportioning benefit. A summary of the property characteristics data is provided in **Table 6.**

Land Use Categories

Multiple land use codes are used by the San Joaquin County Assessor to categorize the properties within the boundaries. Each land use code was evaluated and assigned to a generalized Land Use Category (e.g.: Agricultural, Single-Family Residential, Commercial, etc.) for the purpose of identifying characteristics of each category for use in apportioning special benefit (**Appendix E**). A random sample of parcels for each County land use code was analyzed by reviewing aerial photographs to ensure that it had been assigned to the appropriate Land Use Category. The Land Use Categories are generally described as follows:

Agricultural land was characterized as large productive or unproductive land outside the urban area. No differentiation was made to differentiate between the crop types or use for livestock grazing.

Blended parcels are large parcels with multiple land uses present. The characteristics of these parcels are typically unique and require dedicated apportionment factors that are weighted by the portion (percent) of the parcel associated with each land use. An example would be a single large lot zoned as commercial that is half developed for a commercial use and the other half is vacant.

Table 6
Levee Capital and Maintenance Assessment (LCMA)
Summary of Assessed Property Characteristics

Land Use Category	Parcel Count	Total Acres
Agricultural	770	26,237
Blend	37	1,712
Commercial	3,447	3,304
Industrial	945	3,060
Mobile Home	143	304
Multi-Family Residential	5,224	1,370
Open Space	3,127	7,980
Open Space - Developed	3,022	3,124
Rural Residential	1,070	3,280
School	167	1,351
Single-Family Residential	76,412	14,132
Total	**94,364**	**65,853**

Source: Parcel Quest, San Joaquin County GIS and R&F Engineering

Commercial is characterized by properties with office, retail or public service buildings. This Land Use Category includes hotels, shopping centers, restaurants, offices, hospitals, etc.

Industrial is characterized by manufacturing, storage and processing facilities. This Land Use Category includes warehouses, manufacturing, processing, distribution, and public utilities.

Mobile Home Park is exclusively properties designed specifically for multiple mobile home structures. This category also includes individual parcels with Mobile Home Residential structures.

Multi-Family Residential is characterized as four or more dwelling units on a parcel. This Land Use Category includes apartments, condominiums, and townhouses.

Open Space is characterized by properties with limited hardscape, without structures, that have been developed for their ultimate use. This Land Use Category includes parks, sports fields, bike paths, common areas, etc.

Open Space Developed is characterized by properties that do not have a structure, however, are generally ready to be built on. This Land Use Category includes parcels in developed areas that have been prepared for construction, parcels that are generically described as "vacant", and parcels that are entirely used as a parking lot.

Rural Residential are large lots with a Single-Family Residential structure outside the urban areas with limited amount of hardscape.

School properties are characterized as educational campuses, but do not include conversion of other land use categories for education activities (i.e. a commercial parcel utilized by a trade school). School properties can be public or private.

Single-Family Residential properties are characterized by three or fewer single-family dwelling structures on a parcel. This Land Use Category includes land with duplex and triplex buildings as they generally have the same physical characteristics as other single-family residences.

Parcel Size

The size of the parcel is used to appropriately apportion the special benefit from Levee Capital and O&M Services. Parcel data was obtained from San Joaquin County Assessor's data acquired through ParcelQuest. Parcel data was also obtained from the San Joaquin County Community Development Department GIS group shapefiles. Where any significant discrepancy existed between the two sources, satellite imagery was used to measure and identify the more reliable source.

Average Structure Size per Land Use Type

Structure sizes were obtained from San Joaquin County Assessor's data acquired through ParcelQuest. The average structure size was calculated by summing the total square footage from all parcels for each land use and dividing by the total acres of all parcels with structures for each land use. **Table 7** summarizes the number

Table 7
Levee Capital and Maintenance Assessment (LCMA)
Average Structure Size per Acre

Land Use Category	Parcel Count [1]	Acres	Structure Sq. Ft.	Average Structure Sq. Ft/Acre
Agricultural	N/A	N/A	N/A	N/A
Blend	N/A	N/A	N/A	N/A
Commercial	1,816	1,880	18,760,588	9,900
Industrial	609	2,169	25,360,040	11,600
Mobile Home	108	153	156,072	1,000
Multi-Family Residential	2,107	1,077	17,649,269	16,300
Open Space	N/A	N/A	N/A	N/A
Open Space - Developed	N/A	N/A	N/A	N/A
Rural Residential	1,026	3,084	2,043,836	600
School	29	225	408,032	1,800
Single-Family Residential	76,164	14,019	127,492,283	9,000

[1] Includes only parcels with structure building sq. ft for the purpose of calculating average structure sq. ft. per parcel.

Source: Parcel Quest, San Joaquin County GIS and R&F Engineering

of parcels, total parcel acreage and total structure square-footage of the parcels used to determine the average structure size associated with each Land Use Category.

Levee Capital and O&M Benefit Units

In general, flood damages were quantified for land and structures based on the depth of flooding. Levee O&M Benefit Units are calculated based on the levee breach modeling performed by R&F, as discussed above. Levee Capital Benefit Units were calculated utilizing the Feasibility Study floodplain modeling and floodplain modeling utilized to determine the extent of the Capital Boundary, as discussed above. Benefit unit calculations for each of these components are presented below, and then these two components are normalized to determine the total benefit units from both services.

Levee O&M Benefit Units

Levee O&M Benefit Units (OBU) are equal to the avoided flood damage to a parcel as a result of the Levee O&M Services associated with the Zone 9 Project levees. For the purpose of this assessment, flood damages were quantified for land and structures based on the depth of flooding from each of the breach scenarios.

The OBU for each property is calculated using the following formula:

OBU = Total [Weighted Flood Damage] for all Breach Scenarios

Where, for each Breach Scenario:

Weighted Flood Damage = [Avoided Flood Damage] x [Representative Levee Length]

Avoided Flood Damage = [Levee Breach Damage]

Levee Breach Damage = [Land Damage] + [Structure Damage]

Land Damage = [Parcel Size] x [Relative Land Damage Rate per Acre$_{\text{by land use}}$]

Structure Damage = [Average Structure SQFT] x [Parcel Size] x [Structure Damage Rate$_{\text{by structure type}}$]

Minimum OBU within Zone 9

For parcels within the Boundary shown in **Figure 5** (Page 29) that have been determined to benefit from Zone 9 levee maintenance but not inundated by any of the individual levee breach analysis scenarios, a minimum LBU is calculated as follows:

OBU = [1,000 ft of Levee] x [Parcel Size] x [Relative Land Damage Rate]

Relative Land Damage Rate per Acre

The Relative Land Damage Rate per Acre represents the relative damage to site improvements (e.g. landscaping, utilities, etc.) that occurs as a result of inundation and deposition of sediment carried in floodwaters. The Relative Land Damage Rate per Acre was determined by assigning a Relative Land Value per Acre to each land use category and applying a 10% damage factor to the Relative Land Value per Acre. **Table 8** summarizes the Relative Land Damage Rate for each Land Use Category.

Table 8
Levee Capital and Maintenance Assessment (LCMA)
Relative Land Damage Rate

Land Use Category	Relative Land Value per Acre A [1]	Relative Land Damage Per Acre B = A X 10%
Agricultural [2]	$25,000	$2,500
Commercial	$70,000	$7,000
Industrial	$70,000	$7,000
Mobile Home	$50,000	$5,000
Multi-Family Residential	$70,000	$7,000
Open Space	$10,000	$1,000
Open Space - Developed	$40,000	$4,000
Rural Residential	$25,000	$2,500
Single-Family Residential	$50,000	$5,000
School	$41,000	$4,100

[1] Relative land value based on previous Engineer's Reports prepared in the region.
[2] Includes Crop Damage.

Structure Damage Rate

The Structure Damage Rate is calculated based on the methodology used in the UASCE Flood Damage Analysis (FDA) program. The FDA program assigns a relative Structure Replacement Value according to type of structure and estimates the percent structure damage based on the depth of flooding. Similarly, the FDA program assigns a relative Contents Replacement Value according to type of structure and estimates the percent of contents damage based on the depth of flooding (**Table 9** & **Table 10**). **Table 11** summarizes the OBU's by Land Use Category. Because an average structure size rate per acre was utilized for calculating structure damages, for the O&M Benefit unit calculations, the structure sizes calculated were capped at 5,000 square feet per parcel for single family residential.

Levee Capital Benefit Units

Levee Capital Benefit Units (CBU) are equal to the avoided flood damage to a parcel as a result of the Levee Capital Services. For the purpose of this assessment, flood damages were quantified for land and structures based on the depth from the without LSJRP hydraulic modeling and also through preventing flooding within this same leveed area due to the failure of a FEMA 100-year accredited levee.

The CBU for each property is calculated using the following formula:

CBU = Total Avoided Flood Damage

Avoided Flood Damage = [Levee Breach Damage] x SCAAD Factor

SCAAD Factor = 0.852

Levee Breach Damage = [Land Damage] + [Structure Damage]

Land Damage = [Parcel Size] x [Relative Land Damage Rate per Acre$_{\text{by land use}}$]

Structure Damage = [Average Structure SQFT] x [Parcel Size] x [Structure Damage Rate$_{\text{by structure type}}$]

Minimum flood depth

All parcels, which reside in the Capital Boundary floodplain receive flood protection benefits from FEMA accredited levees. As such, all parcels within the Capital Boundary of the Proposed Assessment are assumed to have a minimum flood depth of 1' for the purpose of calculating avoided flood damage to approximate the special benefit associated with regulatory accreditation.

Relative Land Damage Rate per Acre

As defined under OBU methodology, the Relative Land Damage Rate per Acre represents the relative damage to site improvements (e.g. landscaping, utilities, etc.) that occurs as a result of inundation and deposition of sediment carried in floodwaters. The Relative Land Damage Rate per Acre was determined by assigning a Relative Land Value per Acre to each land use category and applying a 10% damage factor to the Relative Land Value per Acre. **Table 8** (Page 35) summarizes the Relative Land Damage Rate for each Land Use Category.

Table 9
Levee Capital and Maintenance Assessment (LCMA)
Structure Replacement Value and Depth Damage

Land Use		Structure Replacement Value	Percent of Structure Damaged															
Depth			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Agricultural	[1]	$111.67	11.4%	19.3%	26.5%	33.2%	39.3%	44.7%	49.7%	54.1%	58.0%	61.5%	64.5%	67.1%	69.3%	71.2%	72.7%	74.0%
Commercial	[2]	$85.56	7.0%	21.7%	30.2%	31.2%	32.4%	32.4%	39.8%	42.8%	51.7%	53.1%	54.1%	61.8%	64.8%	64.8%	65.5%	86.1%
Industrial	[4]	$54.51	7.0%	21.7%	30.2%	31.2%	32.4%	32.4%	39.8%	42.8%	51.7%	53.1%	54.1%	61.8%	64.8%	64.8%	65.5%	86.1%
Mobile Home	[5]	$45.85	9.9%	44.7%	45.7%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%
Multi-Family Residential	[6]	$84.40	11.4%	19.3%	26.5%	33.2%	39.3%	44.7%	49.7%	54.1%	58.0%	61.5%	64.5%	67.1%	69.3%	71.2%	72.7%	74.0%
Open Space		$0.00	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Open Space - Developed		$0.00	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rural Residential	[7]	$111.67	11.4%	19.3%	26.5%	33.2%	39.3%	44.7%	49.7%	54.1%	58.0%	61.5%	64.5%	67.1%	69.3%	71.2%	72.7%	74.0%
Single-Family Residential	[8]	$111.67	11.4%	19.3%	26.5%	33.2%	39.3%	44.7%	49.7%	54.1%	58.0%	61.5%	64.5%	67.1%	69.3%	71.2%	72.7%	74.0%
School	[3]	$144.46	7.0%	21.7%	30.2%	31.2%	32.4%	32.4%	39.8%	42.8%	51.7%	53.1%	54.1%	61.8%	64.8%	64.8%	65.5%	86.1%

[1] Source: Table B-33 - Good Status for Single Family Residential
[2] Source: Table B-9 - Good Status for Commercial Retail
[3] Source: Table B-29 Good Status for Public and Private Schools
[4] Source: Table B-21 - Good Status for Industrial Light
[5] Source: Table B-25 - Good Status for Mobile Home
[6] Source: Table B-26 - Good Status Construction Class and Quality for Multi-Family Residential
[7] Source: Table B-33 - Good Status for Single Family Residential
[8] Source: Table B-33 - Good Status for Single Family Residential

Source: Table C-1 2012 CVFPP HEC-FDA Structure and Damage Functions - CVFPP Attachment 8F Flood Damage Analysis

Table 10
Levee Capital and Maintenance Assessment (LCMA)
Contents Replacement Value and Depth Damage

Land Use		Structure to Contents Ratio	Percent of Contents Damaged															
Depth			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Agricultural	[1]	50%	6.6%	11.0%	15.1%	18.8%	22.1%	25.1%	27.7%	30.1%	32.1%	33.8%	35.2%	36.3%	37.2%	37.8%	38.2%	38.5%
Commercial	[2]	51%	0.0%	79.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Industrial	[4]	31%	0.2%	87.6%	96.4%	99.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Mobile Home	[5]	50%	0.0%	85.0%	95.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%
Multi-Family Residential	[6]	50%	6.6%	11.0%	15.1%	18.8%	22.1%	25.1%	27.7%	30.1%	32.1%	33.8%	35.2%	36.3%	37.2%	37.8%	38.2%	38.5%
Open Space		0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Open Space - Developed		0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rural Residential	[7]	50%	6.6%	11.0%	15.1%	18.8%	22.1%	25.1%	27.7%	30.1%	32.1%	33.8%	35.2%	36.3%	37.2%	37.8%	38.2%	38.5%
Single-Family Residential	[8]	50%	6.6%	11.0%	15.1%	18.8%	22.1%	25.1%	27.7%	30.1%	32.1%	33.8%	35.2%	36.3%	37.2%	37.8%	38.2%	38.5%
School	[3]	38%	0.0%	87.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

[1] Source: Table B-33 - Good Status for Single Family Residential
[2] Source: Table B-9 - Good Status for Commercial Retail
[3] Source: Table B-29 Good Status for Public and Private Schools
[4] Source: Table B-21 - Good Status for Industrial Light
[5] Source: Table B-25 - Good Status for Mobile Home
[6] Source: Table B-26 - Good Status Construction Class and Quality for Multi-Family Residential
[7] Source: Table B-33 - Good Status for Single Family Residential
[8] Source: Table B-33 - Good Status for Single Family Residential

Source: Table C-1 2012 CVFPP HEC-FDA Structure and Damage Functions - CVFPP Attachment 8F Flood Damage Analysis

Table 11
Levee Capital and Maintenance Assessment (LCMA)
Summary of Resulting Levee Benefit Units

Land Use Category	O&M Benefit Units (OBU) A	Capital Benefit Units (CBU) B	Total Levee Benefit Units (LBU) C = A/30 + B
Agricultural	77,930,139	4,385,980	6,983,651
Blended	219,882,192	70,544,596	77,874,003
Commercial	4,460,674,667	370,674,741	519,363,896
Industrial	3,678,569,817	167,179,104	289,798,098
Mobile Home	21,631,949	3,059,986	3,781,051
Multi-Family Residential	2,831,420,739	324,007,755	418,388,447
Open Space	23,295,115	5,436,731	6,213,235
Open Space - Developed	47,104,271	6,812,646	8,382,788
Rural Residential	78,366,267	1,647,153	4,259,362
School	491,098,765	50,754,493	67,124,452
Single-Family Residential	22,691,861,567	2,501,964,676	3,258,360,062
Total	**34,621,835,488**	**3,506,467,862**	**4,660,529,045**

Source: As calculated by Larsen Wurzel & Associates, inc.

Structure Damage Rate

As defined under OBU methodology, the Structure Damage Rate is calculated based on the methodology used in the USACE Flood Damage Analysis (FDA) program. The FDA program assigns a relative Structure Replacement Value according to type of structure and estimates the percent structure damage based on the depth of flooding above the finish floor. Similarly, the FDA program assigns a relative Contents Replacement Value according to type of structure and estimates the percent of contents damage based on the depth of flooding (**Table 9** & **Table 10**). **Table 11** summarizes the CBU's by Land Use Category.

Because an average structure size rate per acre was utilized for calculating structure damages, for the Capital Benefit unit calculations, structure sizes were capped at 5,000 square feet per parcel for single family residential. When calculating the flood depth to a finished floor, a finish floor height elevation was assumed at 1' for all structures and 2' for mobile homes.

SCAAD Factor

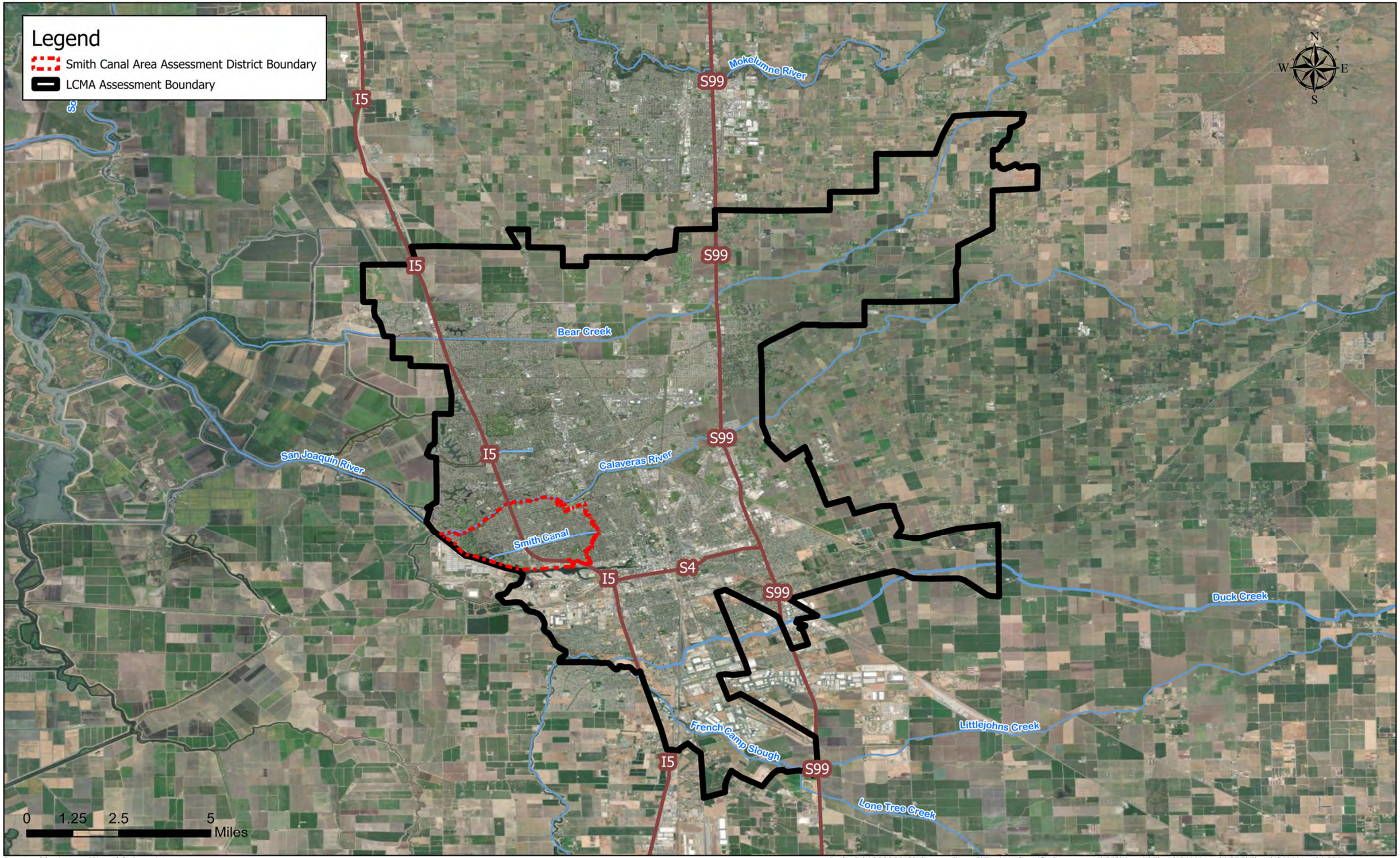
This factor is used to recognize the prior contribution of the SCAAD toward the implementation of the SCG Project. Those properties within the current SCAAD are given a SCAAD factor of 0.852 and those properties outside of the SCAAD assessment boundary are given a SCAAD factor of 1. The SCAAD factor of 0.852 was determined based on the ratio of the prior investments into the SCG Project by properties in the SCAAD, based on total annual assessment revenues provided to date, versus the investment required for the Levee Capital Services of this Proposed Assessment for the same benefitting parcels. When applied at 0.852, this factor reduces the special benefits received to account for the share of special benefits already delivered by properties in the SCAAD boundary to date and are now credited to the investment of funding for Levee Capital Services. For those properties within the SCAAD boundary (See **Figure 6**), the SCAAD factor is calculated as follows:

- SCAAD investment to date: approximately $17 Million
- SJAFCA 10.5% portion of LSJRP "first cost", adjusted for updated SCG cost, escalated to 2022 cost basis: approximately $115 Million
- Discount factor = 17/115 = 14.78%
- SCAAD Factor = 1 – 0.148
- **SCAAD Factor = 0.852**

Equivalent Levee Benefit Unit (LBU)

Benefit units have been calculated based on individual levee breaches for O&M Services and weighted by representative levee lengths. However, a composite floodplain boundary was utilized to determine the benefits from Capital Services because the capital project is considered a whole system of improvements. As a result of this approach, the total number of calculated OBU's is significantly larger than the calculated CBU's. As such an equivalency factor is needed to allow for a comparable equivalent levee benefit unit for which to serve as a basis for assessing the total special benefits and determining parcel-level assessment rates. Because O&M Services represent an ongoing service that will continue into the future and can considered on a single annual basis, and the Capital Services represent a shorter term but larger financed investment over time, the Assessment Engineer has considered the application of a factor related to the term of financing to equivocate the benefit units of the two services. The Assessment Engineer has utilized an equalization factor of 30:1,

Figure 6: Smith Canal Area Assessment District (SCAAD) Boundary



which is indicative of the capital financing term that is expected to be utilized for the Capital Services. To simply the application of the factor, and reduce the total number of calculated benefit units, the equalization factor is applied by dividing the OBU's by 30 as follows:

Total Equivalent Levee Benefit Units = Total OBU / 30 + Total CBU

Table 11 summarizes the OBU's, CBU's and Total Levee Benefit Units (LBU's) by Land Use Category.

General Benefits

Thoroughfare Damages Calculation

As described above, the Levee Capital and O&M Services provide a general benefit to the public at large by protecting thoroughfares within the boundary of the Proposed Assessment from flood damages. The amount of general benefit associated with each thoroughfare was quantified by identifying the cost to repair the road because of the flood damages. San Joaquin County indicated that the average cost to repair flood damages for an entire reach of thoroughfare is approximately $5.00 per square-foot.

Table 12 lists the reaches of thoroughfares protected against flood damages by the Levee Capital and O&M Services; identifies the cross-street limits, reach length, and typical road width.

Table 13 calculates the general benefit from protecting thoroughfares by multiplying the area of thoroughfare pavement by the estimated cost to repair flood damages. The general benefit from protecting all thoroughfares was calculated to be 24,470,000 equivalent Levee Benefit Units.

Federal Properties

Federally owned properties, such as the United States Post Office in Stockton, receive a special benefit from the Levee Capital and O&M Services and are included in the apportionment of special benefit. The benefit for all federally owned properties is calculated as 469,386 equivalent Levee Benefit Units. However, federal law prohibits local agencies from collecting assessments due from the federal government. The lost revenue cannot be reapportioned to assessed property owners. Therefore, the benefits of Levee Capital and O&M Services provided by protecting these federally owned properties against flood damages are treated similar to general benefits, and the lost assessment revenue must be funded by other revenue sources.

Evaluation of Funding Sources for General Benefit

Together, the federal properties and thoroughfares amount to 24,939,386 units in general benefit. The total revenue required to fund the total general benefit is $40,904, using the special benefit assessment calculation found in the next section.

- Protecting thoroughfares: $40,134
- Special benefit to federally owned property: $770

Because other funding sources are provided for Levee Capital and O&M Services including from USACE and DWR, as well as San Joaquin County property tax apportionment revenues, this funding can be applied to the

Table 12
Levee Capital and Maintenance Assessment (LCMA)
Protected Throughfares

Throughfare	Reach Description	Reach Length (ft) A	Width (ft) B	Total SQFT C = A X B
HWY 99	Diverting Canal to Carpenter Road	22,800	120	2,736,000
HWY 4	SJR River to I-5	9,000	50	450,000
HWY 4	Main Street to HWY 99	8,200	120	984,000
Charter Way	I-5 to HWY 99	18,100	40	724,000
Total				**4,894,000**

Source: GIS Imagery

Table 13
Levee Capital and Maintenance Assessment (LCMA)
Thoroughfare General Benefit Calculation

Thoroughfare SQFT	Repair Rate per SQFT	Total General Benefit from Thoroughfares
A	B	C = A X B
Reference Table 11	[1]	
4,894,000	$5.00	24,470,000

[1] Based on input from San Joaquin County Public Works

general benefits provided by the Services. In short, these funding sources are sufficient to fund the general benefit occurring within the area.

Proposed Special Benefit Assessment Calculation

To determine the proposed assessment for an individual parcel, the amount of Levee Benefit Units (LBU) for the parcel is calculated and multiplied by the assessment rate per LBU. The proposed assessment rate per LBU is equal to the required annual budget divided by the total quantity of LBU's (**Table 14**)**.** All factors required to calculate each Parcel's LBU have been described above and can found in the provided tables and appendices. The proposed assessment rate per LBU is **$0.001640** / LBU.

Example Parcel Assessment

Using the proposed parcel assessment equation and supporting LBU equations as well as parcel attributes including parcel size, average structure size, relative land damage rate per acre, structure damage rate per square foot, and finally the proposed assessment rate, an individual parcel's assessment can be calculated.

Assessments are rounded down to the closest multiple of $0.02 as required by the San Joaquin County Assessor's office for submission of the special assessment roll for collection on County Property Tax Bills.

The following list of steps are taken to calculate a parcel's assessment:

Step 1 – Determine the Parcel Size, Land Use, Breach Name, Representative Levee Length.

Step 2 – Using **Table 7**, determine the Average Structure Size.

Step 3 – Using **Table 8**, determine the Relative Land Damage Rate per Acre.

Step 4 – Using **Table 9**, determine the Structure Damage Rate per Square Foot.

Step 5 – Using **Table 10**, determine the Contents Damage Rate per Square Foot.

Step 6 – Calculate the Parcel **OBU** using **Equation 1.**

Step 7 – Calculate the Parcel **CBU** using **Equation 2.**

Step 8 – Determine if the parcel is within the previous SCAAD boundaries and add SCAAD Factor.

Step 9 – Calculate the Parcel **LBU** using **Equation 3**

Step 9 – Calculate the parcel assessment using **Equation 3.**

Step 10 – Round down to the closest multiple of $0.02. Raise up to $ 2.00 if it is less than the minimum[9]

A detailed example parcel assessment calculation is included in **Table 16** (Page 54)**.**

[9] Reference Minimum Assessment Amount described further on Page 46.

Table 14
Levee Capital and Maintenance Assessment (LCMA)
Initial Proposed Assessment Rate Calculation - FY 2023/24

FY 2023/24 Budget	Total Benefit Units	Proposed FY 2023/24 Assessment Rate
A	**B**	**C = A /B**
Reference Table 4	Reference Table 10 & 12 [1]	
$7,684,000	4,684,999,045	$0.001640

[1] Includes benefit from thoroughfares and federal properties.

Summary of Assessments

A detailed listing by Assessor's parcel number of the assessments is included in **Appendix F.** The proposed assessments are summarized by Land Use Category in **Table 15**.

Special Considerations

Public Parcels

Consistent with the requirements of Proposition 218, all publicly owned parcels are assessed proportionately based upon the special benefits they receive from services provided by the proposed assessment. That is, public parcels are treated the same as privately owned parcels for assessment calculation purposes. To calculate assessments for these parcels, a land use category was assigned to each public parcel based on its current use.

As noted previously, the benefits received by Federally owned parcels are treated the same a general benefits. Because the assessments will not be collected from Federally owned parcels, the lost revenues from must be funded from an alternate sources similar to other general benefits.

Multiple Use Parcels

A property that is determined to have multiple uses but is classified under a single use code by the San Joaquin County Assessor that is not consistent with the multiple uses may be eligible to have its assessment calculated as if it were two or more parcels ("sub-parcels") with varying structure and land uses types for the purpose of apportioning benefit. The assessments of the sub-parcels would then be combined to represent a single assessment for the purpose of assessment balloting, direct billing and/or submission of the roll to the San Joaquin County Auditor for collection on the secured property tax roll.

Minimum Assessment Amount

The minimum annual assessment will be $2.00 per parcel to reflect the cost to administer the Assessment Roll. All annual assessments calculated to be less than $2.00 will be raised to the $2.00 minimum. If the additional revenue collected by the SJAFCA due to the minimum assessment exceeds the cost to administer the O&M Assessment Roll, the funds will be added to the reserve fund for the LCMA's Services.

Application of the Assessment Boundary to Parcels

The Assessment Boundary described above represents a boundary driven by the hydraulics associated with flooding. The hydraulic floodplain does not align with the parcel boundaries as they are configured, assessed, and taxed by the County. The Assessment Engineer has determined that those parcels with 95% of their land area located within the Assessment Boundary will be subject to the Assessment. While the hydraulics are not expected to change significantly over time, parcel boundaries can and do change regularly. As a result, the area subject to the collection of the assessment will not align with the boundary of the assessment. The application of the Assessment Boundary to the then current set of parcels will take place annually as part of the assessment administration process.

Updating the Annual Assessment Roll

Recalculating individual property assessments will accommodate changes within LCMA over time. These changes can result from the development activity such as recordation of subdivision maps, zoning changes, conditional use permits, and lot splits or mergers. Placement of a structure on an undeveloped parcel or other changes to improvements on a parcel may trigger a recalculation of the assessment if there is a change in the land use category.

It is recognized that when compiling data for the tens of thousands of parcels within the assessment boundary, the data[10] used to derive individual parcel characteristics may not be accurate and may not precisely fit the intent of the Assessment Engineer thus leading to errors and/or circumstances that result in inaccurate assessment calculations on annual basis. Where such circumstances are discovered, either by the persons administering the assessment district or by the owners of the properties affected, SJAFCA staff shall review such circumstances and determine if corrections or adjustments are appropriate. Any such corrections or adjustments are to be consistent with the concept, intent, and parameters of the methodology for the assessment as set forth within this Engineer's Report without formal approval by the SJAFCA Executive Director. Unless such proposed changes are appealed to the SJAFCA Executive Director and determined not to be acceptable, they will be incorporated into the Assessment Roll.

[10] The Assessment Engineer has utilized data compiled from the San Joaquin County Assessor to determine the individual property characteristics used as the basis for assessing and apportioning special benefit. While the data from the San Joaquin County Assessor is assumed to be accurate, its primary purpose is for use by the San Joaquin County Assessor and is subject to the Assessor's standards for accuracy and update. As a result, the information may be inaccurate and not reflect the actual property characteristics of every parcel.

Table 15
Levee Capital and Maintenance Assessment (LCMA)
Summary of Proposed FY 2023/24 Assessments by Land Use Category

Land Use Category	Parcel Count	Average Assessment	Proposed FY 2023/24 Assessment [1]	Share of Total Assessment
Agricultural	770	$16	$12,273	0.2%
Blended	37	$3,452	$127,739	1.7%
Commercial	3,447	$248	$854,767	11.1%
Industrial	945	$504	$475,914	6.2%
Mobile Home	143	$45	$6,364	0.1%
Multi-Family Residential	5,224	$132	$690,374	8.9%
Open Space	3,127	$6	$17,580	0.2%
Open Space - Developed	3,022	$7	$19,964	0.3%
Rural Residential	1,070	$8	$8,362	0.1%
School	167	$660	$110,230	1.4%
Single-Family Residential	76,412	$71	$5,399,566	69.9%
Total	**94,364**	**$82**	**$7,723,132**	**100.0%**

[1] Includes $2 minimum assessment.

6. ASSESSMENT ADMINISTRATION

Schedule for Collection

If property owners approve the proposed assessment, SJAFCA intends to commence collection of the assessments in FY 2023/24. The assessment would be collected annually on the secured property tax rolls of San Joaquin County as described further below under "Duration of the Assessment" (Page 51).

The annual administrative expenses of LCMA would also be funded through the annual levy of assessments. Ongoing administrative expenses would include the annual calculation and preparation of the assessment roll, the actual costs of collecting the annual assessments and the costs of responding to inquiries including the review and processing of any appeals.

Assessment Revenue Distribution

Assessment revenues are collected for O&M Services and Capital Services. Since SJAFCA is not a maintaining organization, SJAFCA will transfer revenues to local maintaining agencies or fund others (i.e. contract for services) for levee O&M Services.

SJAFCA will transfer funding for the O&M of the SJCFCWCD levees to SJCFCWCD, except for a small administration fee. SJAFCA and SJCFCWCD will arrange an agreement for funding transfers if the Proposed Assessment is approved.

SJAFCA will transfer funding for the additional O&M services associated with the LSJRP to the appropriate maintaining agency or contract with others for these services. Transfer of funds for additional O&M associated with the LSJRP will occur as particular capital improvement features are finished and turned over by USACE to the NFS for long-term maintenance. If the Proposed Assessment is approved, SJAFCA will setup agreements with applicable maintainers that detail out the responsibilities and funding transfer amounts.

Appeals of Assessments Levied to Property

Any property owner who believes his or her property should be reclassified and the assessment adjusted may file a written appeal with the SJAFCA Executive Director. Any such appeal is limited to correction of an assessment during the then-current fiscal year and future years.

All appeals must include a statement of reasons why the property should be reclassified and may include supporting evidence. On the filing of any such appeal, the Executive Director will direct staff to promptly review the appeal and any information provided by the property owner and may investigate and assemble additional evidence necessary to evaluate the appeal. If the Executive Director finds that the assessment should be modified, the appropriate changes will be made to the assessment roll for the following fiscal year. Any such changes approved after the assessment roll has been filed with the County for collection, will not result in a refund of the current or any prior year's assessments paid before the appeal was filed unless so directed by the Executive Director.

Impact of Appeals

The majority of the data being used to generate the assessment rates for specific parcels comes from the San Joaquin County Assessor. Because the main purpose of the Assessor in compiling this data is not to support this and other Special Benefit Assessment efforts but rather to determine Assessed Value for the purpose of administering the County's Secured Tax Roll, the Assessment Engineer has worked to refine the Assessor's data so it properly reflects the conditions present in the physical benefit area. However, throughout the formation period (and indeed even after the formation of the assessment), data errors and discrepancies with the San Joaquin County Assessor data may surface and require modification of the assessment calculation for various parcels. Changes in the data without a corresponding change in the Assessment Rate established by this report will, by definition, change the total amount of assessments levied and collected in any one year. For example, if the data assumes the existence of a house that has since been destroyed and not been reconstructed, once the database is corrected the rates will generate a smaller total assessment. On the other hand, if the data assumes an empty lot where a house has since been constructed, once the database is corrected the rates will generate a larger total assessment. Due to the database being constantly refined (either through internal review or an external appeal process), it is infeasible to fine-tune the rates between the Preliminary Engineer's Report and the Final Engineer's Report. In addition, because changes to the database will either increase or decrease the total amount assessed, it is presumed that these amounts will roughly offset each other. Therefore, although minor changes to the database will continue to be made during the formation period, the rates proposed in this Report are not being fine-tuned, even though that will result in a total assessment which may be slightly less than or slightly more than the amount determined for the development of this report.

Duration of the Assessment

If approved by property owners in an assessment ballot proceeding conducted pursuant to Article XIIID Section 4 of the State Constitution and Government Code § 53750, *et. seq*., and subsequently approved by the SJAFCA Board of Directors, the assessment can be levied annually commencing FY 2023/24. The Executive Director will establish the assessment rate each year and while the assessment is only effective for that year, the assessment may be continued each year without another ballot proceeding with approval of the SJAFCA Board of Directors. The annual budget for Levee Capital Services will be collected by SJAFCA for 30 years following a final bond issuance which is expected in 2038. The budget for Levee O&M services will be collected each year that Levee O&M Services are provided, which is expected to be in perpetuity. On-going annual assessments cannot be increased without property owner approval, except for the annual escalation as described below.

Annual Escalation of the Assessments

To ensure that SJAFCA can provide the needed services over time, it is important to allow for an increase of the assessment over time to address the rising costs of labor, supplies, and materials. The Assessment Engineer has determined that an appropriate escalation factor is a factor that is reflective of rising labor costs and goods over time. Therefore, beginning in FY 2024/25, the maximum authorized assessment may be increased subject to an annual inflationary escalator pursuant to Government Code § 53739 (b), based on the annual change in the Consumer Price Index February to February CPI-W for San Francisco-Oakland-Hayward all Items, with Base Period 1982-84 = 100, published by the U.S. Department of Labor, Bureau of Labor

Statistics, subject to a minimum of zero percent and a maximum of 4% in any given year. The adjustment to the maximum authorized assessment would be applied to the prior year's annual assessment rate.

7. CONCLUSIONS

It is concluded that the proposed assessments do not exceed the reasonable cost of the proportional special benefit conferred on each property assessed.

_____

Scott L. Brown, P.E.

Table 16
Assessment Parcel Equations and Example Calculations

Equation 1: Levee O&M Benefit Units

$$Total\ OBU\ = OBU\ per\ breach\ for\ all\ breaches\ that\ affect\ the\ parcel$$

$$\textbf{OBU}\ per\ breach = \ Representative\ Levee\ Length\ [1]\ \times \{(Parcel\ Size\ [2] \times Relative\ Land\ Damage\ Per\ Acre\ [3]) + (Average\ Structure\ Size\ per\ acre\ [4] \times Parcel\ Size\ [2] \times Structure\ Replacement\ Value\ [5] \times (Structure\ Depth\ Damage\ [5] + Structure\ to\ Contents\ Ratio\ [6] \times Contents\ Depth\ Damage\ [6]))\}$$

[1] Table 5; Parcels within the LCMA O&M Boundary without flood depths utilized a levee length of 1,000 and only received land damage benefit.
[2] Assessor's Data
[3] Table 8
[4] Table 7
[5] Table 9
[6] Table 10

Equation 2: Capital Benefit Units

$$\textbf{CBU}\ = \{(Parcel\ Size\ [2] \times Relative\ Land\ Damage\ Per\ Acre\ [3]) + (Average\ Structure\ Size\ per\ acre\ [4] \times Parcel\ Size\ [2] \times StructureReplacement\ Value\ [5] \times (\ Structure\ Depth\ Damage\ [5] + \ Structure\ to\ Contents\ Ratio\ [6] \times Contents\ Depth\ Damage\ \ [6]))\}$$

X SCAAD Factor

[2] Assessor's Data
[3] Table 8
[4] Table 7
[5] Table 9
[6] Table 10

Equation 3: Proposed Parcel Assessment

$$Parcel\ LBU\ = \frac{OBU}{30} + CBU$$

$$\textbf{Calculated Parcel Assessment} = \boldsymbol{Parcel\ LBU \times Assessment\ Rate\ per\ LBU}\ [6]$$

[6] **Assessment Rate per LBU** = $0.0016434

Example Assessment Calculations

The following examples illustrate the application of the assessment equation to determine the annual assessment for several hypothetical properties.

Example 1

Consider a 0.16-acre single-family residential property the following property characteristics.

O&M Breach	Depth (ft)

Csr L3	8
Csr R1	1

Capital	Depth (ft)
100-Year	6

OBU Calculation

Land Use Category – Single-Family

From **Table 5**, Representative Levee Length: Csr L3- 2.6353 miles and Csr R1- 2.4215 miles

From **Table 7**, Average Structure Size – 9,000 sqft per acre

From **Table 8**, the Relative Damage per Acre - $5,000 per acre

From **Table 9** and **Table 10**, the Structure Replacement Value - $111.67 per square foot; Structure Depth Damage 58.00% for 8 ft and 19.25% for 1 ft; Structure to Contents Ratio of 50.00%; Contents Depth Damage of 32.05% for 8ft and 11.00% for 1 ft

$$\boldsymbol{OBU}\ (\boldsymbol{Csr\ L3}) = 2.6353\ miles\ x\ \{(0.16\ acres\ x\ \$5{,}000\ per\ acre) + (9{,}000\ sqft\ per\ acre\ x\ 0.16\ acres\ x\ \$111.67\ x\ (58.00\% + 50\%\ X\ 32.05\%)\} = 315{,}817$$

$$\boldsymbol{OBU}\ (\boldsymbol{Csr\ R1}) = 2.4215\ miles\ x\ \{(0.16\ acres\ x\ \$5{,}000\ per\ acre) + 9{,}000\ sqft\ per\ acre\ x\ 0.16\ acres\ x\ \$111.67\ x\ (19.25\% + 50\%\ X\ 11.00\%)\ \} = 98{,}309$$

$$\textbf{Total OBU} = 315{,}817 + 98{,}309 = 414{,}126$$

CBU Calculation

From **Table 7**, Average Structure Size – 9,000 sqft per acre

From **Table 8**, the Relative Damage per Acre - $5,000 per acre

From **Table 9** and **Table 10**, the Structure Replacement Value - $111.67 per square foot; Structure Depth Damage for 6 ft (5ft with finished floor) – 44.70%; Structure to Contents Ratio of 50.00%; Contents Depth Damage of 25.05% for 6 ft (5ft with finished floor)

SCAAD Factor of 1

$$\boldsymbol{CBU} = \{(0.16\ acres\ x\ \$5{,}000\ per\ acre) + (9{,}000\ sqft\ per\ acre\ x\ 0.16\ acres\ x\ \$111.67\ x\ (44.7\% + 50\%\ x\ 25.05\%)\}\ x\ 1 = 92{,}820$$

$$\textbf{Total LBU} = 414{,}126/30 + 92{,}820 = 106{,}624$$

Assessment Calculation

$$\boldsymbol{Calculated\ Parcel\ Assessment} = (106{,}624\ x\ 0.00164) = 174.88$$

$$[\boldsymbol{Proposed\ Assessment}] = \$\mathbf{174.88}$$

Example 2

Assume a 1.5-acre commercial property the following property characteristics:

O&M Breach	Depth (ft)
Brc L2	3
Brc L3	4

Capital	Depth (ft)
100-Year	6

OBU Calculation

Land Use Category - Commercial

From Table 14, Representative Levee Length: Brc L2 – 2.7578 miles and Brc L3 – 0.9300 miles

From **Table 7**, Average Structure Size - 9,900 sqft per acre

From **Table 8**, the Relative Damage per Acre - $7,000 per acre

From **Table 9** and **Table 10**, the Structure Replacement Value - $85.56 per square foot; Structure Depth Damage 31.20% for 3 ft and 32.40% for 4 ft; Structure to Contents Ratio of 51.00%; Contents Depth Damage of 82.20% for 3ft and 83.40% for 4 ft

$$\boldsymbol{OBU}\ (\boldsymbol{Brc\ L2}) = 2.7578\ miles\ \ x\ \{(1.50\ acres\ x\ \$7{,}000\ per\ acre) + (9{,}900\ sqft\ per\ acre\ x\ 1.5\ acres\ x\ \$85.56\ x\ (31.20\% + 51\%\ x\ 82.20\%)\} = 2.909.181$$

$$\boldsymbol{OBU}\ (\boldsymbol{Brc\ L3}) = 0.9300\ miles\ x\ \{(1.50\ acres\ x\ \$7{,}000\ per\ acre) + (9{,}900\ sqft\ per\ acre\ x\ 1.50\ acres\ x\ \$85.56\ x\ (32.40\% + 51\%\ x\ 83.40\%)\} = 995{,}160$$

$$\textbf{Total OBU} = 2{,}909{,}181 + 995{,}160 = 3{,}904{,}341$$

CBU Calculation

From **Table 7**, Average Structure Size - 9,900 sqft per acre

From **Table 8**, the Relative Damage per Acre - $7,000 per acre

From **Table 9** and **Table 10**, the Structure Replacement Value - $85.56 per square foot; Structure Depth Damage for 6 ft (5ft with finished floor) – 32.40%; Structure to Contents Ratio of 51.00%; Contents Depth Damage of 83.40% for 6 ft (5ft with finished floor)

SCAAD Factor of 1

$$\boldsymbol{CBU} = \{(1.5\ acres\ x\ \$7{,}000\ per\ acre) + (9{,}900\ sqft\ per\ acre\ x\ 1.50\ acres\ x\ \$85.56\ x\ (32.40\% + 51\%\ x\ 83.40\%))\}\ x\ 1 = 1{,}070{,}152$$

$$\textbf{Total LBU} = 3{,}904{,}341/30 + 1{,}070{,}152 = 1{,}200{,}297$$

Assessment Calculation

$$\boldsymbol{Calculated\ Proposed\ Assessment} = (1{,}200{,}297\ x\ 0.00164) = 1{,}968.64$$

$$[\boldsymbol{Proposed\ Assessment}] = \$\mathbf{1{,}968.64}$$

Appendix A

KSN Memo on Incremental O&M of LSJRP Levees (Prepared by KSN)

KJELDSEN SINNOCK NEUDECK
CIVIL ENGINEERS & LAND SURVEYORS

Stephen K. Sinnock, P.E.
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2494-0010
08-300

TECHNICAL MEMORANDUM - DRAFT

January 31, 2023

Project: Levee Construction and Maintenance Assessment District

Subject: Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

Prepared by: Erik E. Almaas, PE

Reviewed by: Christopher H. Neudeck, PE

1. Introduction

The San Joaquin County Flood Control and Water Conservation District (SJCFCWCD) and the San Joaquin Flood Control Agency (SJAFCA) are currently planning the Levee Construction and Maintenance Assessment (LCMA) District. The proposed assessment would provide funding for the following:

- Current budget deficiencies for operations and maintenance (O&M) of the existing Federal levee and channel facilities under the jurisdiction of SJCFCWCD within Zone 9.
- Local cost share for the capital costs for the Lower San Joaquin River Project (LSJRP).
- Incremental O&M costs resulting from the implementation of the LSJRP.

The evaluation of funding requirements for the first two components listed above is currently underway by Larsen Wurzel & Associates, Inc. (LWA). Kjeldsen, Sinnock & Neudeck, Inc. (KSN) has been requested to evaluate the third component listed above. This technical memorandum summarizes this evaluation and provides a summary of the results of the incremental O&M costs resulting from the implementation of the LSJRP.

2. Data Sources

The existing data sources that were utilized in this evaluation are as follows:

- U.S. Army Corps of Engineers (USACE). *San Joaquin River Basin, Lower San Joaquin River, CA, Final Integrated Interim Feasibility Report*. January 2018. (USACE Report)
- State of California, Department of Water Resources (DWR). *Flood System Long-Term Operations, Maintenance, Repair, Rehabilitation, and Replacement Cost Evaluation*, Central Valley Flood Protection Plan, 2017 Update. January 2017. (DWR Report)

3. Project Understanding and Assumptions

The basic understanding of the LSJRP for the basis of evaluation is in accordance with the Recommended Plan (i.e., Alternative 7A) within the USACE Report. The LSJRP consists of 20.4 miles of existing levees to be rehabilitated and 2.0 miles of new levees. A map of the LSJRP and proposed remediation measures is shown below in Figure 1, and the levee reach names used in this evaluation are shown below in Figure 2.

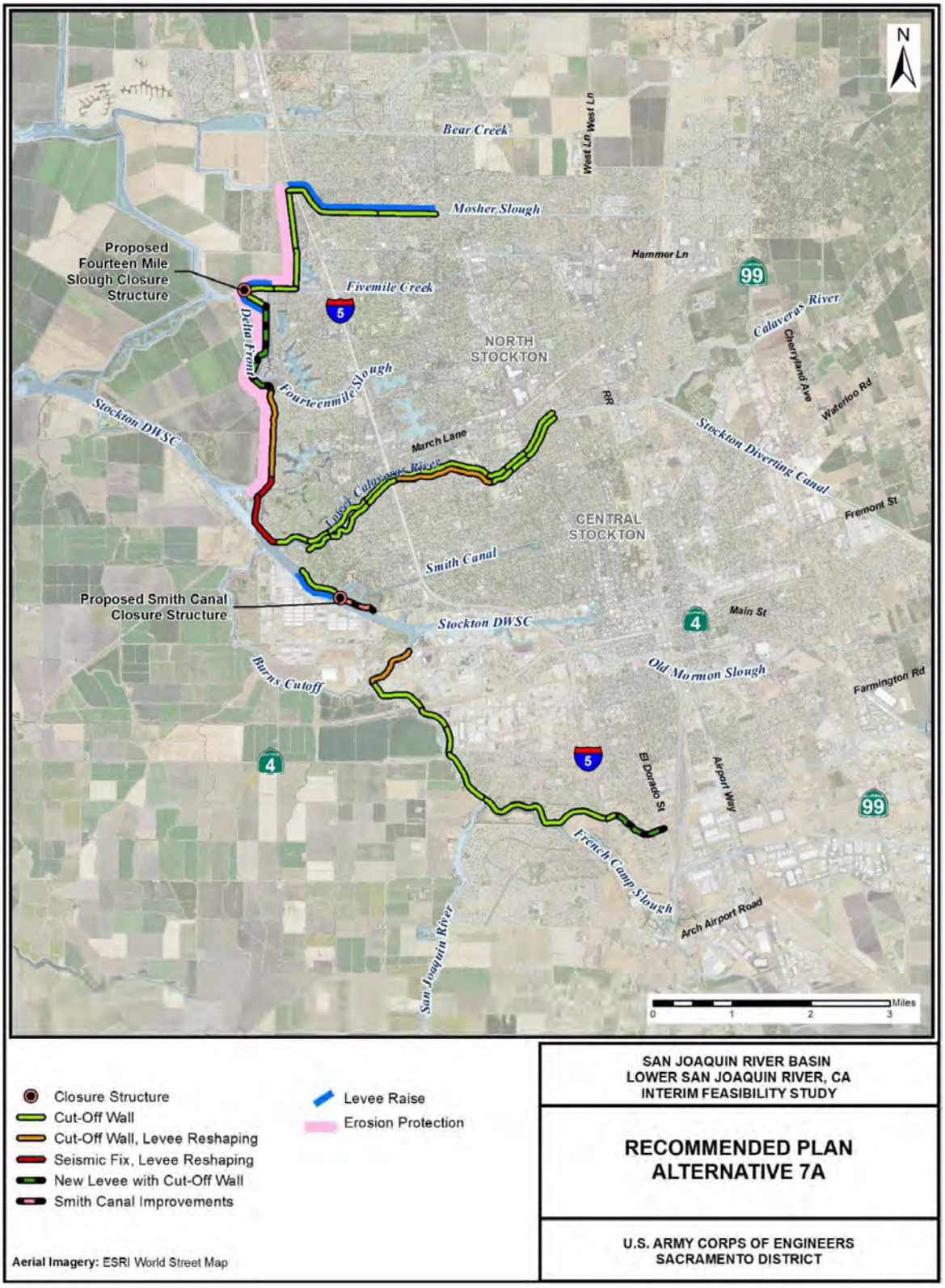


Figure 1 - Proposed Remediation Measures (Source: U.S. Army Corps of Engineers)

Figure 2 - Levee Reach Names (Source: U.S. Army Corps of Engineers)

The proposed new flood control measures within the LSJRP include the following:

- New levee
- New closure structure

The proposed remediation measures for the existing levees within the LSJRP include the following:

- Seepage cutoff wall
- Levee reshaping
- Seismic fix
- Levee raising
- Erosion protection

Long-term levee subsidence mitigation was also considered in evaluating the O&M costs. For the purposes of this Technical Memorandum, the evaluation of O&M costs attributed to the new closure structures at Smith Canal and Fourteenmile Slough was **not** performed. A breakdown of the proposed remediation measures on a levee reach-by-reach basis is summarized below in Table 1. A more detailed breakdown in included in Exhibit 1.

Table 1 - Summary of Proposed Remediation Measures

Levee Reach	Proposed Remediation Measure (1)							Levee Length (miles)
	New Levee	Seepage Cutoff Wall	Levee Reshaping	Seismic Fix	Levee Raising	Erosion Protection	Subsidence Mitigation	
Mosher Slough (left bank)								**1.96**
MC_10_L		x			x		x	1.22
MC_20_L		x			x		x	0.74
Shima Tract (right bank)								**1.25**
ST_10_R		x				x	x	0.47
ST_20_R		x				x	x	0.78
Fivemile Slough (right bank)								**0.31**
FS_10_R		x				x	x	0.31
Fourteenmile Slough (left bank)								**1.89**
FM_60_L		x			x	x	x	0.31
FM_40_L		x			x	x	x	0.27
FM_30_L	x	x				x	x	1.31
Tenmile Slough (left bank)								**2.08**
TS_30_L		x	x			x	x	1.14
TS_20_L			x	x		x	x	0.27
TS_10_L			x	x			x	0.68
Calaveras River (right bank)								**4.29**
CR_10_R		x					x	0.42
CR_20_R		x					x	0.26
CR_30_R		x					x	0.71
CR_40_R		x					x	0.54
CR_50_R		x					x	1.22
CR_60_R		x					x	0.25
CR_70_R		x					x	0.30
CR_80_R		x					x	0.59

Levee Reach	Proposed Remediation Measure (1)							Levee Length (miles)
	New Levee	Seepage Cutoff Wall	Levee Reshaping	Seismic Fix	Levee Raising	Erosion Protection	Subsidence Mitigation	
Calaveras River (left bank)								**4.09**
CR_10_L		x					x	0.33
CR_20_L		x					x	0.90
CR_30_L		x					x	0.49
CR_40_L		x	x				x	1.20
CR_50_L		x					x	0.32
CR_60_L		x					x	0.27
CR_70_L		x					x	0.58
San Joaquin River (right bank)								**3.90**
SJR_10_R		x			x		x	0.53
SJR_20_R		x			x		x	0.42
SJR_30_R		x	x				x	0.65
SJR_40_R		x					x	0.79
SJR_50_R		x					x	0.33
SJR_60_R		x					x	0.43
SJR_70_R		x					x	0.75
French Camp Slough (right bank)								**1.84**
FCS_10_R		x					x	1.84
Duck Creek (right bank)								**0.84**
DC_10_R		x					x	0.15
DC_20_R	x	x					x	0.43
DC_30_R	x	x					x	0.27
Totals:	**2.01**	**21.51**	**3.94**	**0.94**	**3.48**	**4.86**	**22.45**	**22.45**

Notes:

*(1) The evaluation of O&M costs attributed to the new closure structures at Smith Canal and Fourteenmile Slough is **not** included in this summary.*

A list of the major assumptions utilized in this evaluation are summarized below in Table 2.

Table 2 - Major Assumptions

Proposed Measure	Reference	Assumption
New levee	DWR Report (Table 5.1)	• For an urban levee on the Lower San Joaquin River / Delta South, the operations and maintenance costs are $50,000 per levee mile, and the repair, replace, and rehabilitate costs are $18,000 per levee mile in 2017$.
Seepage cutoff wall	USACE Report (Section 8.1.3)	• "*Cutoff wall(s) will not change long-term maintenance or replacement costs*."
Levee reshaping	USACE Report (Section 8.1.3)	• "*Right-of-way will be increased; so maintenance costs will increase to cover a larger vegetation management footprint*." • Modifying the existing levee geometry, such as widening the levee crown and flattening the levee slopes to increase stability, will increase the vegetation management footprint.
Seismic fix	USACE Report (Section 8.1.3)	• "*Right-of-way will be increased; so maintenance costs will increase to cover a larger vegetation management footprint*." • Degrading a portion of the existing levee, constructing a grid of deep soil mixing columns, and constructing a stability berm at the landside levee toe will increase the vegetation management footprint.
Levee raising	USACE Report (Section 8.1.3)	• "*Right-of-way will be increased; so maintenance costs will increase to cover a larger vegetation management footprint*." • Extending the landside levee toe landward to support raising the levee crown will increase the vegetation management footprint.
Erosion protection	n/a	• Furnish and place 25 tons of supplemental RSP per levee mile per year.
Subsidence mitigation	n/a	• Furnish and place engineered levee fill and aggregate base on the levee crown periodically to maintain the minimum top of levee elevation over time.

Where necessary, costs have been escalated to 2023 dollars based on the Construction Cost Index (CCI) published monthly by Engineering News-Record (ENR). The CCI is an indicator of general construction costs and includes labor and materials components. ENR uses the CCI to measure how much it costs to purchase a hypothetical package of goods and services and compare it to what it was in a prior year.

A breakdown of the present-day unit costs used in this evaluation is included in Exhibit 2.

4. Approach

The approach for each of the proposed measures is described below in further detail.

4.1 New Levees

Pursuant to Table 5.1 of the DWR Report for an urban levee on the Lower San Joaquin River / Delta South, the operations and maintenance costs are $50,000 per levee mile, and the repair, replace, and rehabilitate costs are $18,000 per levee mile. The combined amount of $68,000 was escalated to 2023 dollars based on ENR CCIs. The CCIs that were used in this assessment are summarized below in Table 3.

Table 3 - ENR CCIs and Escalation Factor for New Levee O&M Costs

Comparison Data		Current Data		Escalation
Date	ENR CCI	Date	ENR CCI	Factor
January 2017	10,531.68	January 2023	13,175.03	1.2510

Therefore, the O&M cost attributed to a new levee in 2023 dollars was determined to be $85,067 per levee mile per year.

4.2 Seepage Cutoff Wall

Pursuant to Section 8.1.3 of the USACE Report, "*Cutoff wall(s) will not change long-term maintenance or replacement costs*." Therefore, the incremental O&M cost attributed to seepage cutoff walls was determined to be zero.

4.3 Levee Reshaping, Seismic Fix, and Levee Raising

Levee reshaping, seismic fix, and levee raising remediation measures all include an element of widening the levee footprint in order to improve levee stability and/or the minimum top of levee. Pursuant to Section 8.1.3 of the USACE Report, "*Right-of-way will be increased; so maintenance costs will increase to cover a larger vegetation management footprint*." As a result, all three proposed remediation measures incorporate an increase in the levee vegetation management footprint. Therefore, the following approach was developed to evaluate the incremental O&M costs associated with the increase to vegetation management for levee reshaping, seismic fix, and levee raising remediation measures:

- Establish a baseline annual cost attributed to only vegetation management.
- Calculate a project footprint modifier that represents the percent increase in project footprint associated with the increased vegetation management.
- Calculate the incremental O&M costs associated with the increased vegetation management.

In order to establish a baseline annual cost attributed to only vegetation management, ten years of claims from the DWR Delta Levees Subventions Maintenance Program for the 28 reclamation districts in which KSN is the District Engineer were analyzed. The annual costs for "Levee Vegetation Control and Management" from Fiscal Year 2011-12 to Fiscal Year 2020-21 for each reclamation district was tallied and adjusted to 2023 dollars using ENR CCI values as per Table 4 below.

Table 4 - ENR CCIs and Escalation Factors for Baseline Vegetation O&M Costs

Comparison Values		Current Values		Escalation
Date	ENR CCI	Date	ENR CCI	Factor
June 2011	9,290.00	January 2023	13,175.03	1.4182
June 2012	9,542.33	January 2023	13,175.03	1.3807
June 2013	9,800.38	January 2023	13,175.03	1.3443
June 2014	10,036.38	January 2023	13,175.03	1.3127
June 2015	10,337.05	January 2023	13,175.03	1.2745
June 2016	10,702.81	January 2023	13,175.03	1.2310
June 2017	11,068.35	January 2023	13,175.03	1.1903
June 2018	11,268.48	January 2023	13,175.03	1.1692
June 2019	11,436.23	January 2023	13,175.03	1.1520
June 2020	12,112.05	January 2023	13,175.03	1.0878

An average annual baseline cost attributed to only vegetation management was calculated to be $3,635 per levee mile. A breakdown of the annual costs per reclamation district for said ten-year period is included in Exhibit 3.

Assumptions were made regarding the increased levee footprint width associated with levee reshaping, seismic fix, and levee raise measures. Levee widths for both pre- and post-project conditions and project footprint modifiers are summarized below in Table 5, and the basis of footprint calculations is described in Exhibit 4.

Table 5 - Increase in Project Footprint Associated with Increased Vegetation Management

Remediation Measure	Pre-Project Width (feet)	Post-Project Width (feet)	Project Footprint Modifier
Levee reshaping	108	164	+51.9%
Seismic fix	148	221	+49.3%
Levee raising	130	154	+18.5%

The incremental O&M costs associated with increased vegetation management were calculated by multiplying the baseline vegetation management costs (i.e., $3,655 per levee mile per year) and the project footprint multipliers shown in Table 5. Therefore, the incremental O&M costs attributed to levee reshaping, seismic fix, and levee raising in 2023 dollars were calculated and are summarized below in Table 6.

Table 6 - Incremental O&M Costs Associated with Levee Reshaping, Seismic Fix, and Levee Raising Measures

Remediation Measure	Incremental O&M Cost (per levee mile per year)
Levee reshaping	$1,885
Seismic fix	$1,793
Levee raising	$671

4.4 Erosion Protection

Erosion protection measures were assumed to include the placement of Rock Slope Protection (RSP) consisting of 18-inch minus quarry stone riprap on the levee slope. The incremental O&M costs associated with erosion protection were calculated based on furnishing and placing a standard truck load (i.e., 25 tons) of supplemental RSP per levee mile per year. Based on a unit cost of $159 per ton of RSP, the incremental O&M cost attributed to erosion protection in 2023 dollars was determined to be $3,985 per levee mile per year.

4.5 Subsidence Mitigation

Pursuant to Section 8.1.3 of the USACE Report, "*Localized ground subsidence may require periodic placement of levee fill to maintain the levee crest elevation*." The approach for evaluating the incremental O&M costs associated with subsidence mitigation was developed assuming that new engineered levee fill and aggregate base will need to be furnished and placed on the levee crown periodically to maintain the minimum top of levee elevation over time. The assumptions used in the calculations of new materials are summarized below in Table 7.

Table 7 - New Materials Associated with Subsidence Mitigation

Material	Width (feet)	Thickness (inches)	Quantity (cubic yards per mile)	Frequency (years)	Quantity (tons per mile per year)
Engineered levee fill	20	6	1,956	50	70.4
Aggregate base	20	4	1,304	50	52.1

Based on a unit cost of $75 per ton of engineered levee fill and a unit cost of $90 per ton of aggregate base, the incremental O&M cost attributed to subsidence mitigation in 2023 dollars was determined to be $9,974 per levee mile per year.

5. Results

The incremental O&M unit costs associated with each of the proposed measures is summarized below in Table 8.

Table 8 - Summary of Incremental O&M Unit Costs

Remediation Measure	Incremental O&M Cost (per levee mile per year)
New levee	$85,067
Seepage cutoff wall	$0
Levee reshaping	$1,885
Seismic fix	$1,793
Levee raising	$671
Erosion protection	$3,985
Subsidence mitigation	$9,974

The overall incremental O&M annual cost was then calculated by multiplying the incremental O&M unit costs for each proposed measure by the levee miles for each levee reach. A breakdown of the overall incremental O&M annual cost on a levee reach-by-reach basis is summarized below in Table 9. A more detailed breakdown is included in Exhibit 5.

Table 9 - Summary of Overall Incremental O&M Annual Costs

Levee Reach	Levee Length (miles)	Incremental O&M Annual Cost
Mosher Slough (left bank)		**$20,840**
MC_10_L	1.22	$12,979
MC_20_L	0.74	$7,861
Shima Tract (right bank)		**$17,475**
ST_10_R	0.47	$6,577
ST_20_R	0.78	$10,897
Fivemile Slough (right bank)		**$4,291**
FS_10_R	0.31	$4,291
Fourteenmile Slough (left bank)		**$138,403**
FM_60_L	0.31	$4,527
FM_40_L	0.27	$3,979
FM_30_L	1.31	$129,896

Levee Reach	Levee Length (miles)	Incremental O&M Annual Cost
Tenmile Slough (left bank)		**$31,973**
TS_30_L	1.14	$18,016
TS_20_L	0.27	$4,737
TS_10_L	0.68	$9,220
Calaveras River (right bank)		**$42,783**
CR_10_R	0.42	$4,175
CR_20_R	0.26	$2,618
CR_30_R	0.71	$7,038
CR_40_R	0.54	$5,434
CR_50_R	1.22	$12,135
CR_60_R	0.25	$2,539
CR_70_R	0.30	$3,000
CR_80_R	0.59	$5,844
Calaveras River (left bank)		**$43,072**
CR_10_L	0.33	$3,279
CR_20_L	0.90	$8,993
CR_30_L	0.49	$4,870
CR_40_L	1.20	$14,289
CR_50_L	0.32	$3,149
CR_60_L	0.27	$2,731
CR_70_L	0.58	$5,761
San Joaquin River (right bank)		**$40,717**
SJR_10_R	0.53	$5,595
SJR_20_R	0.42	$4,460
SJR_30_R	0.65	$7,699
SJR_40_R	0.79	$7,884
SJR_50_R	0.33	$3,332
SJR_60_R	0.43	$4,301
SJR_70_R	0.75	$7,446
French Camp Slough (right bank)		**$18,317**
FCS_10_R	1.84	$18,317
Duck Creek (right bank)		**$67,470**
DC_10_R	0.15	$1,500
DC_20_R	0.43	$40,680
DC_30_R	0.27	$25,290
Totals:	**22.45**	**$425,340**

Notes:

*(1) The evaluation of O&M costs attributed to the new closure structures at Smith Canal and Fourteenmile Slough is **not** included in this summary.*

6. Conclusions

The overall incremental O&M annual cost attributed to the LSJRP amounts to $425,402 per year, with one exception. For the purposes of this Technical Memorandum, the evaluation of O&M costs attributed to the new closure structures at Smith Canal and Fourteenmile Slough was **not** performed.

Levee Construction and Maintenance Assessment District

Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

EXHIBIT 1

Proposed Remediation Measures

LCMA District
Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

PROPOSED REMEDIATION MEASURES

Levee Reach	Waterway	Bank	Reach Description	Current LMA[1]	Levee Type			Proposed Remediation Measure								Length (miles)
					Federal Levee	Non-Fed to Become Fed	New Levee to Become Fed Levee	New Levee	Seepage Cutoff Wall	Levee Reshaping	Seismic Fix	Levee Raising	Erosion Protection	New Closure Structure	Subsidence Mitigation	
MC_10_L	Mosher Slough	Left	Southern levee along Mosher Slough with heavy amounts of vegatation, neighboring residential area.	SJCFCWCD[2]		X			X			X			X	1.22
MC_20_L	Mosher Slough	Left	Southern levee along Mosher Slough with heavy amounts of vegatation, neighboring residential area.	SJCFCWCD		X			X			X			X	0.74
ST_10_R	Shima Tract	Right	Dry land levee along east end of Shima Tract between agricultural land (west) and a residential area (east).	SJCFCWCD		X			X				X		X	0.47
ST_20_R	Shima Tract	Right	Dry land levee along east end of Shima Tract between agricultural land (west) and a residential area (east).	SJCFCWCD		X			X				X		X	0.78
FS_10_R	Fivemile Slough	Right	Northern levee along Fivemile Slough along south end of Shima Tract with minimal amounts of vegatation, neighboring agricultural area.	RD 2115 Shima Tract		X			X				X		X	0.31
FM_60_L	Fourteenmile Slough	Right	North levee along Fourteenmile Slough along south end of Shima Tract.	RD 2115 Shima Tract		X			X			X	X		X	0.31
FM_50_L	Fourteenmile Slough	Left	Fourteen Mile Slough Closure Structure	n/a										X[3]		0.00
FM_40_L	Fourteenmile Slough	Left	Levee with future plan of implementing Fourteen Mile Slough Closure Structure. Levee will be implemented inland on Wright-Elmwood Tract.	n/a		X			X			X	X		X	0.27
FM_30_L	Fourteenmile Slough	Left	Western levee along Fourteenmile Slough along the east end of Wright-Elmwood Tract. Village West Marina Resort East of Fourteenmile Slough.	n/a			X	X	X				X		X	1.31
TS_30_L	Tenmile Slough	Left	Eastern levee along Tenmile Slough along the boundary between Wright-Elmwood Tract and Sargen-Barnhart Tract. Residential area east of levee.	RD 2074 Sargent-Barnhart Tract		X			X	X			X		X	1.14
TS_20_L	Tenmile Slough	Left	Levee transitioning from Tenmile Slough.	RD 2074 Sargent-Barnhart Tract		X				X	X		X		X	0.27
TS_10_L	Tenmile Slough	Left	Eastern levee along San Joaquin River along the west end Sargent-Barnhart Tract. Residential area east of levee.	RD 2074 Sargent-Barnhart Tract		X				X	X				X	0.68
CR_10_R	Calaveras River	Right	Northern levee along Calaveras River along the south end of Sargent-Barnhart Tract. Residential area north of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.42
CR_20_R	Calaveras River	Right	Northern levee along Calaveras River along the south end of Sargent-Barnhart Tract. Residential area north of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.26
CR_30_R	Calaveras River	Right	Northern levee along Calaveras River along the south end of Sargent-Barnhart Tract. Residential area north of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.71
CR_40_R	Calaveras River	Right	Northern levee along Calaveras River. Residential area north of levee.	SJCFCWCD	X				X						X	0.54
CR_50_R	Calaveras River	Right	Northern levee along Calaveras River. Residential area north of levee.	SJCFCWCD	X				X						X	1.22
CR_60_R	Calaveras River	Right	Northern levee along Calaveras River . Residential area north of levee with school facilities close to levee.	SJCFCWCD	X				X						X	0.25
CR_70_R	Calaveras River	Right	Northern levee along Calaveras River . Residential area north of levee with church facilities close to levee.	SJCFCWCD	X				X						X	0.30

LCMA District
Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

PROPOSED REMEDIATION MEASURES

Levee Reach	Waterway	Bank	Reach Description	Current LMA[1]	Levee Type			Proposed Remediation Measure								Length (miles)
					Federal Levee	Non-Fed to Become Fed	New Levee to Become Fed Levee	New Levee	Seepage Cutoff Wall	Levee Reshaping	Seismic Fix	Levee Raising	Erosion Protection	New Closure Structure	Subsidence Mitigation	
CR_80_R	Calaveras River	Right	Northern levee along Calaveras River. Residential area north of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.59
CR_10_L	Calaveras River	Left	Southern levee along Calaveras River along the north end of Smith Tract. Residential area south of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.33
CR_20_L	Calaveras River	Left	Southern levee along Calaveras River along the north end of Smith Tract. Residential area south of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.90
CR_30_L	Calaveras River	Left	Southern levee along Calaveras River along the north end of Smith Tract. Residential area south of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.49
CR_40_L	Calaveras River	Left	Southern levee along Calaveras River along the north end of Smith Tract. Residential area south of levee with residential homes close to levee.	SJCFCWCD	X				X	X					X	1.20
CR_50_L	Calaveras River	Left	Southern levee along Calaveras River. Residential area south of levee with school facilities close to levee.	SJCFCWCD	X				X						X	0.32
CR_60_L	Calaveras River	Left	Southern levee along Calaveras River. Residential area south of levee with school facilities close to levee.	SJCFCWCD	X				X						X	0.27
CR_70_L	Calaveras River	Left	Southern levee along Calaveras River. Residential area south of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.58
SC_30	Smith Canal		Smith Canal Closure Structure	n/a										X[4]		0.00
SJR_10_R	San Joaquin River	Right	Area west of Smith Canal Gate adjacent to Stockton Golf & Country Club.	RD 1614 Smith Tract		X			X			X			X	0.53
SJR_20_R	San Joaquin River	Right	Area east of Smith Canal Gate along Dad's Point connecting to Louis Park.	n/a		X			X			X			X	0.42
SJR_30_R	San Joaquin River	Right	Eastern levee along San Joaquin River along the west end of Boggs Tract. Port of Stockton facilities east of levee.	RD 404 Boggs Tract		X			X	X					X	0.65
SJR_40_R	San Joaquin River	Right	Eastern levee along San Joaquin River along the west end of Boggs Tract. Port of Stockton facilities east of levee.	RD 404 Boggs Tract	X				X						X	0.79
SJR_50_R	San Joaquin River	Right	Eastern levee along San Joaquin River along the west end of Boggs Tract. Port of Stockton facilities east of levee.	RD 404 Boggs Tract	X				X						X	0.33
SJR_60_R	San Joaquin River	Right	Eastern levee along San Joaquin River along the west end of Boggs Tract. Port of Stockton facilities east of levee.	RD 404 Boggs Tract	X				X						X	0.43
SJR_70_R	San Joaquin River	Right	Eastern levee along San Joaquin River along the west end of Boggs Tract. Residential area east of levee with former Van Buskirk Park close to levee.	RD 404 Boggs Tract	X				X						X	0.75
FCS_10_R	French Camp Slough	Right	Northern levee along French Camp Slough along the south end of Boggs Tract. Residential area north of levee with former Van Buskirk Park close to levee.	RD 404 Boggs Tract	X				X						X	1.84

LCMA District
Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

PROPOSED REMEDIATION MEASURES

Levee Reach	Waterway	Bank	Reach Description	Current LMA[1]	Levee Type			Proposed Remediation Measure								Length (miles)
					Federal Levee	Non-Fed to Become Fed	New Levee to Become Fed Levee	New Levee	Seepage Cutoff Wall	Levee Reshaping	Seismic Fix	Levee Raising	Erosion Protection	New Closure Structure	Subsidence Mitigation	
DC_10_R	Duck Creek	Right	Northern levee along Duck Creek east of I-5. Commercial and residential areas north of levee.	SJCFCWCD	X				X						X	0.15
DC_20_R	Duck Creek	Right	Northern levee along Duck Creek. Commercial and residential areas north of levee.	n/a			X	X	X						X	0.43
DC_30_R	Duck Creek	Right	Northern levee along Duck Creek. Commercial and residential areas north of levee.	n/a			X	X	X						X	0.27
				Levee Mile Totals:	**12.67**	**7.77**	**2.01**	**2.01**	**21.51**	**3.94**	**0.94**	**3.48**	**4.86**	**0.00**	**22.45**	**22.45**

Notes:

(1) LMA = Local Maintaining Agency
(2) SJCFCWCD = San Joaquin County Flood Control and Water Conservation District
*(3) For the purposes of this Technical Memorandum, the evaluation of O&M costs attributed to the new closure structure at Fourteenmile Slough was **not** performed*
*(4) For the purposes of this Technical Memorandum, the evaluation of O&M costs attributed to the new closure structure at Smith Canal was **not** performed*

Levee Construction and Maintenance Assessment District

Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

EXHIBIT 2

Unit Cost Calculations

LCMA District
Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

UNIT COST CALCULATIONS

ROCK SLOPE PROTECTION
OPINION OF PROBABLE COSTS

Item	Description	Qty	Unit	Unit Price	Total
Construction					**$94,300**
1.	Mobilization			3%	$2,700
2.	Erosion Control			3%	$2,700
3.	Clearing and Grubbing	0.22	AC	$5,000	$1,100
4.	Quarry Stone Riprap	1,000	TN	$70	$70,000
5.	Miscellaneous			25%	$17,800
Soft Costs				30%	**$28,300**
Contingency				30%	**$36,800**
				Total Cost:	**$159,400**
				Unit Cost:	**$159**

LEVEE FILL
OPINION OF PROBABLE COSTS

Item	Description	Qty	Unit	Unit Price	Total
Construction					**$44,500**
1.	Mobilization			3%	$1,300
2.	Erosion Control			3%	$1,300
3.	Clearing and Grubbing	0.69	AC	$5,000	$3,500
4.	Levee Fill	1,000	TN	$30	$30,000
5.	Miscellaneous			25%	$8,400
Soft Costs				30%	**$13,400**
Contingency				30%	**$17,400**
				Total Cost:	**$75,300**
				Unit Cost:	**$75**

AGGREGATE BASE
OPINION OF PROBABLE COSTS

Item	Description	Qty	Unit	Unit Price	Total
Construction					**$53,000**
1.	Mobilization			3%	$1,500
2.	Erosion Control			3%	$1,500
3.	Aggregate Base	1,000	TN	$40	$40,000
4.	Miscellaneous			25%	$10,000
Soft Costs				30%	**$15,900**
Contingency				30%	**$20,700**
				Total Cost:	**$89,600**
				Unit Cost:	**$90**

Levee Construction and Maintenance Assessment District

Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

EXHIBIT 3

Summary of Vegetation Management Costs
Delta Levees Subventions Maintenance Program
FY 2011-12 to FY 2020-21

LCMA District
Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

SUMMARY OF VEGETATION MANAGEMENT COSTS
DWR DELTA LEVEES SUBVENTIONS MAINTENANCE PROGRAM
FY 2011-12 TO FY 2020-21

RD No.	RD Name	Vegetation Management Costs per Fiscal Year[1]										Levee Miles
		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	
1	Union - East	$74,116	$118,742	$108,702	$108,063	$84,222	$104,544	$45,335	$65,573	$61,268	$81,357	14.0
2	Union - West	$12,224	$7,399	$38,411	$36,221	$16,123	$0	$49,939	$12,195	$27,855	$13,313	16.2
307	Lisbon	$49,800	$32,010	$16,320	$18,000	$20,840	$29,107	$24,999	$25,585	$25,217	$26,803	6.6
403	Rough & Ready	$0	$0	$0	$0	$0	$0	$0	$93	$0	$1,713	6.8
404	Boggs	$499	$1,401	$1,746	$1,565	$1,379	$6,284	$1,733	$1,269	$1,814	$8,225	0.7
501	Ryer	$25,633	$61,642	$31,432	$31,377	$32,540	$7,379	$27,212	$38,469	$31,230	$48,406	20.6
524	Middle Roberts	$18,800	$17,725	$54,262	$33,905	$34	$19,033	$20,860	$37,574	$22,611	$86,512	9.7
544	Upper Roberts	$119,393	$7,069	$0	$44,499	n.r. [2]	$0	$211,413	$52,812	$46,646	$81,895	15.0
563	Tyler	$66,117	$46,868	$40,013	$40,372	$63,964	$87,344	$68,675	$68,182	$49,581	$41,744	22.9
773	Fabian	$21,145	$22,829	$13,770	$38,572	$121,726	$16,092	$59,719	$97,485	$100,003	$83,732	18.8
800	Byron	$39,401	$40,919	$35,991	$37,180	$32,522	$28,932	$52,156	$52,625	$54,139	$47,568	9.7
828	Weber	n.r.	n.r.	$0	$0	$31,022	$32,903	$14,462	$34,581	$3,711	$2,540	1.7
1601	Twitchell	$36,910	$28,303	$35,388	$27,723	$22,720	$29,925	$12,806	$32,291	$38,439	$11,536	11.9
1608	Lincoln Village West	n.r.	n.r.	n.r.	$46,662	$15,342	$17,657	$23,424	$18,554	$71,668	$56,577	3.6
1614	Smith	$15,713	$13,909	$0	$73	$324	$0	$0	$0	$1,894	$1,844	2.8
2023	Venice	$20,975	$42,138	$52,695	$7,577	$1,674	$24,653	$23,577	$21,132	$57,944	$39,065	12.3
2027	Mandeville	$30,290	$24,262	$18,990	$34,370	n.r.	$32,836	$46,170	$38,847	$30,548	$32,854	14.3
2030	McDonald	$13,132	$27,269	$18,468	$35,712	$59,194	$51,898	$34,906	$45,349	$28,870	$74,148	13.7
2040	Victoria	$20,204	$52,456	$129,191	$61,294	$19,596	$20,002	$9,781	$46,446	$21,470	$13,412	15.1
2042	Bishop	$18,770	$25,335	$16,404	$0	$12,823	$29,175	$17,632	$55,709	$56,888	$82,489	7.8
2089	Stark	$11,275	$18,250	$6,850	$7,450	$31,925	$503	$8,167	$320	$41	$1,073	3.5
2090	Quimby	$35,232	$30,419	$8,020	$19,821	n.r.	$438	n.r.	n.r.	n.r.	n.r.	7.0
2111	Dead Horse	$0	$0	n.r.	n.r.	$0	$0	$0	$0	$0	$0	2.6
2113	Fay	$32,478	$32,725	$10,982	$8,712	$7,988	$8,245	$7,740	$12,426	$18,633	$48,533	1.6
2115	Shima	$0	n.r.	n.r.	n.r.	$0	$381	$0	$0	$0	$0	6.6
2117	Coney	n.r.	n.r.	n.r.	n.r.	n.r.	$0	$8,164	$20,558	$37,892	$14,259	5.4
2119	Wright-Elmwood	$8,350	$16,642	$23,401	$20,886	$15,501	$21,982	$22,130	$10,243	$26,970	$16,938	7.1
2126	Atlas	$7,170	$300	$16,769	$34	$9,344	$6,497	$11,086	$8,687	$30,504	$14,132	3.0
Subtotal Cost (cost year varies)[3]:		**$677,629**	**$668,611**	**$677,804**	**$660,068**	**$600,802**	**$575,811**	**$802,085**	**$797,005**	**$845,834**	**$930,667**	**261.0**
ENR CCI (cost year varies):		9,290.00	9,542.33	9,800.38	10,036.38	10,337.05	10,702.81	11,068.35	11,268.48	11,436.23	12,112.05	
ENR CCI (Jan 2023):		13,175.03	13,175.03	13,175.03	13,175.03	13,175.03	13,175.03	13,175.03	13,175.03	13,175.03	13,175.03	
Escalation Factor:		1.4182	1.3807	1.3443	1.3127	1.2745	1.2310	1.1903	1.1692	1.1520	1.0878	
Total Cost (2023$)[4]:		**$961,009**	**$923,147**	**$911,198**	**$866,490**	**$765,749**	**$708,817**	**$954,748**	**$931,853**	**$974,437**	**$1,012,344**	**261.0**
Cost per Levee Mile (2023$):		***$3,839***	***$3,788***	***$3,753***	***$3,517***	***$3,492***	***$2,716***	***$3,759***	***$3,669***	***$3,836***	***$3,986***	
Average (2023$):		***$3,635 per levee mile per year***										

Notes:

(1) Annual costs were derived from the "Levee Vegetation Control and Management" costs as shown in the final claims from 28 reclamation districts within the Delta through the DWR Delta Levees Subventions Maintenance Program.

(2) n.r. = not recorded. Not all records were available for all reclamation districts and all years.

(3) Subtotal costs are based on dollars specific to each fiscal year shown and have not been escalated.

(4) Total costs have been escalated to 2023 dollars using ENR-published Construction Cost Indecies (CCIs).

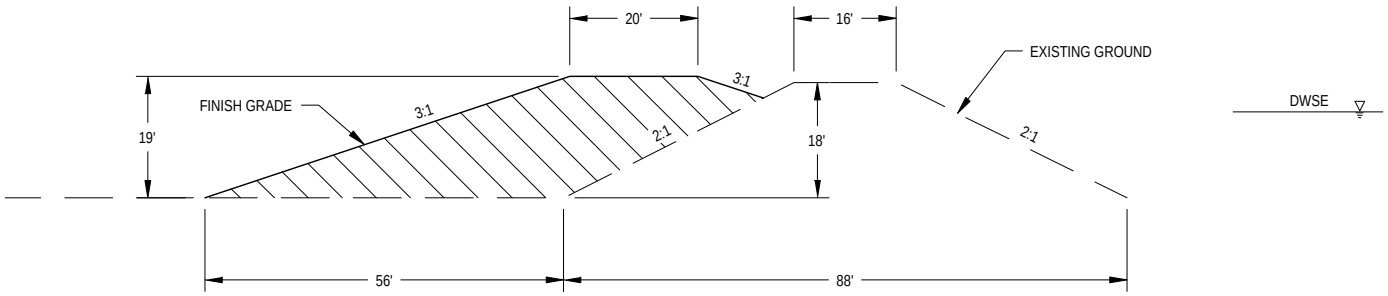
Levee Construction and Maintenance Assessment District

Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

EXHIBIT 4

Basis of Levee Footprint Calculations

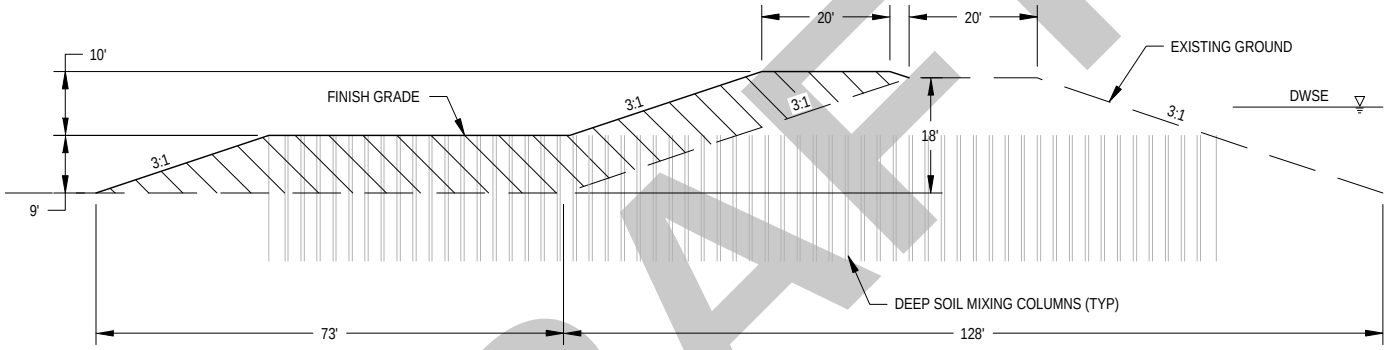
LEVEE RESHAPING



FOOTPRINT CALCULATIONS:

PRE-CONSTRUCTION WIDTH:	88 FEET + 20 FEET LANDSIDE RIGHT-OF-WAY =	108 FEET
POST-CONSTRUCTION WIDTH:	88 FEET + 56 FEET + 20 FEET LANDSIDE RIGHT-OF WAY =	164 FEET
DIFFERENCE:	+51.9%	

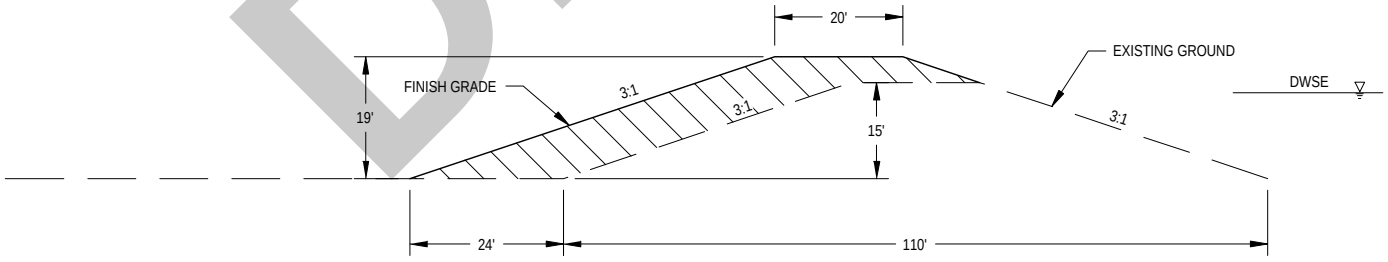
SEISMIC FIX



FOOTPRINT CALCULATIONS:

PRE-CONSTRUCTION WIDTH:	128 FEET + 20 FEET LANDSIDE RIGHT-OF-WAY =	148 FEET
POST-CONSTRUCTION WIDTH:	128 FEET + 73 FEET + 20 FEET LANDSIDE RIGHT-OF WAY =	221 FEET
DIFFERENCE:	+49.3%	

LEVEE RAISE



FOOTPRINT CALCULATIONS:

PRE-CONSTRUCTION WIDTH:	110 FEET + 20 FEET LANDSIDE RIGHT-OF-WAY =	130 FEET
POST-CONSTRUCTION WIDTH:	110 FEET + 24 FEET + 20 FEET LANDSIDE RIGHT-OF WAY =	154 FEET
DIFFERENCE:	+18.5%	

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SJAFCA / SJCFCWCD
ZONE 9 OVERLAY ASSESSMENT
LOWER SAN JOAQUIN RIVER PROJECT O&M
BASIS OF FOOTPRINT CALCULATIONS

DRAWING SCALE	EXHIBIT NO.
N.T.S.	1
ORIG. DRAWING SCALE: 0 ¼" ½"	PAGE NO. 1

Levee Construction and Maintenance Assessment District

Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

EXHIBIT 5

Overall Incremental O&M Annual Costs

LCMA District
Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

OVERALL INCREMENTAL O&M ANNUAL COSTS

				Incremental O&M Annual Cost per Proposed Remediation Measure									
Levee Reach	Waterway	Bank	Length (miles)	New Levee	Seepage Cutoff Wall	Levee Reshaping	Seismic Fix	Levee Raising	Erosion Protection	New Closure Structure	Subsidence Mitigation	Total Incremental O&M Annual Cost
MC_10_L	Mosher Slough	Left	1.22	$0	$0	$0	$0	$818	$0	$0	$12,161	$12,979
MC_20_L	Mosher Slough	Left	0.74	$0	$0	$0	$0	$496	$0	$0	$7,365	$7,861
ST_10_R	Shima Tract	Right	0.47	$0	$0	$0	$0	$0	$1,878	$0	$4,700	$6,577
ST_20_R	Shima Tract	Right	0.78	$0	$0	$0	$0	$0	$3,111	$0	$7,786	$10,897
FS_10_R	Fivemile Slough	Right	0.31	$0	$0	$0	$0	$0	$1,225	$0	$3,066	$4,291
FM_60_L	Fourteenmile Slough	Right	0.31	$0	$0	$0	$0	$208	$1,233	$0	$3,087	$4,527
FM_50_L	Fourteenmile Slough	Left	0.00	$0	$0	$0	$0	$0	$0	$0[(1)]	$0	$0[(1)]
FM_40_L	Fourteenmile Slough	Left	0.27	$0	$0	$0	$0	$183	$1,084	$0	$2,713	$3,979
FM_30_L	Fourteenmile Slough	Left	1.31	$111,586	$0	$0	$0	$0	$5,227	$0	$13,083	$129,896
TS_30_L	Tenmile Slough	Left	1.14	$0	$0	$2,144	$0	$0	$4,531	$0	$11,341	$18,016
TS_20_L	Tenmile Slough	Left	0.27	$0	$0	$506	$482	$0	$1,070	$0	$2,679	$4,737
TS_10_L	Tenmile Slough	Left	0.68	$0	$0	$1,273	$1,211	$0	$0	$0	$6,736	$9,220
CR_10_R	Calaveras River	Right	0.42	$0	$0	$0	$0	$0	$0	$0	$4,175	$4,175
CR_20_R	Calaveras River	Right	0.26	$0	$0	$0	$0	$0	$0	$0	$2,618	$2,618
CR_30_R	Calaveras River	Right	0.71	$0	$0	$0	$0	$0	$0	$0	$7,038	$7,038
CR_40_R	Calaveras River	Right	0.54	$0	$0	$0	$0	$0	$0	$0	$5,434	$5,434
CR_50_R	Calaveras River	Right	1.22	$0	$0	$0	$0	$0	$0	$0	$12,135	$12,135
CR_60_R	Calaveras River	Right	0.25	$0	$0	$0	$0	$0	$0	$0	$2,539	$2,539
CR_70_R	Calaveras River	Right	0.30	$0	$0	$0	$0	$0	$0	$0	$3,000	$3,000
CR_80_R	Calaveras River	Right	0.59	$0	$0	$0	$0	$0	$0	$0	$5,844	$5,844
CR_10_L	Calaveras River	Left	0.33	$0	$0	$0	$0	$0	$0	$0	$3,279	$3,279
CR_20_L	Calaveras River	Left	0.90	$0	$0	$0	$0	$0	$0	$0	$8,993	$8,993
CR_30_L	Calaveras River	Left	0.49	$0	$0	$0	$0	$0	$0	$0	$4,870	$4,870
CR_40_L	Calaveras River	Left	1.20	$0	$0	$2,271	$0	$0	$0	$0	$12,017	$14,289
CR_50_L	Calaveras River	Left	0.32	$0	$0	$0	$0	$0	$0	$0	$3,149	$3,149
CR_60_L	Calaveras River	Left	0.27	$0	$0	$0	$0	$0	$0	$0	$2,731	$2,731
CR_70_L	Calaveras River	Left	0.58	$0	$0	$0	$0	$0	$0	$0	$5,761	$5,761
SC_30	Smith Canal		0.00	$0	$0	$0	$0	$0	$0	$0[(2)]	$0	$0[(2)]
SJR_10_R	San Joaquin River	Right	0.53	$0	$0	$0	$0	$353	$0	$0	$5,242	$5,595
SJR_20_R	San Joaquin River	Right	0.42	$0	$0	$0	$0	$281	$0	$0	$4,178	$4,460
SJR_30_R	San Joaquin River	Right	0.65	$0	$0	$1,224	$0	$0	$0	$0	$6,475	$7,699
SJR_40_R	San Joaquin River	Right	0.79	$0	$0	$0	$0	$0	$0	$0	$7,884	$7,884
SJR_50_R	San Joaquin River	Right	0.33	$0	$0	$0	$0	$0	$0	$0	$3,332	$3,332
SJR_60_R	San Joaquin River	Right	0.43	$0	$0	$0	$0	$0	$0	$0	$4,301	$4,301
SJR_70_R	San Joaquin River	Right	0.75	$0	$0	$0	$0	$0	$0	$0	$7,446	$7,446
FCS_10_R	French Camp Slough	Right	1.84	$0	$0	$0	$0	$0	$0	$0	$18,317	$18,317
DC_10_R	Duck Creek	Right	0.15	$0	$0	$0	$0	$0	$0	$0	$1,500	$1,500
DC_20_R	Duck Creek	Right	0.43	$36,411	$0	$0	$0	$0	$0	$0	$4,269	$40,680
DC_30_R	Duck Creek	Right	0.27	$22,636	$0	$0	$0	$0	$0	$0	$2,654	$25,290
	Totals:		**22.45**	**$170,634**	**$0**	**$7,418**	**$1,693**	**$2,338**	**$19,360**	**$0**	**$223,898**	**$425,340**

Notes:

*(1) For the purposes of this Technical Memorandum, the evaluation of O&M costs attributed to the new closure structure at Fourteenmile Slough was **not** performed*

*(2) For the purposes of this Technical Memorandum, the evaluation of O&M costs attributed to the new closure structure at Smith Canal was **not** performed*

Appendix B

Capital Cash Flow and Financing Analysis

Appendix B
Levee Capital and Maintenance Assessment (LCMA)
Cash Flow and Financing Plan Analysis ($1,000's)

	Total	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
N/C Stockton Flood Program - Beginning Balance [1]		2,218	1,904	5,359	7,468	9,285	7,581	5,905	5,643	4,101	3,447	5,499	4,967	13,968	7,521	8,975	6,949	5,878	62,927	38,095	20,763	19,259	12,595	5,871	-594	-337	519	1,578	3,245
LSJRP - USACE Authorized Program Expenditures																													
Funding Implementation Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SJAFCA Net Contribution Required [2]	119,750	134	1,507	452	1,038	4,680	4,696	3,417	4,730	3,610	960	3,692	4,175	9,025	1,278	4,913	4,120	6,164	23,991	16,663	1,012	6,352	6,597	6,528	0	0	0	0	0
Operational Soft Costs [3]	24,270	180	450	800	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	600	600	200	200
Operations and Maintenance																													
Incremental O&M for LSJRP	36,165	0	90	374	383	415	526	552	682	1,081	1,196	1,225	1,388	1,467	1,502	1,539	1,576	1,614	1,653	1,693	1,734	1,776	1,819	1,863	1,909	1,955	2,002	2,051	2,100
Smith Canal Gate [4]																													
SCAAD Assessment Revenue Bond Redemption	24,498	0	24,498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Expenditures	204,683	314	26,544	1,626	2,421	6,094	6,221	4,969	6,412	5,691	3,157	5,917	6,563	11,492	3,780	7,452	6,696	8,778	26,644	19,357	3,746	9,129	9,417	9,392	2,909	2,555	2,602	2,251	2,300
State Sources																													
State TBD for N-C Stockton Additional Flood Program	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Sources																													
Proposed LCMA Assessment Net Revenues for Capital Services [4]	220,274	0	0	6,200	6,349	6,501	6,657	6,817	6,981	7,148	7,320	7,495	7,675	7,859	8,048	8,241	8,439	8,642	8,849	9,061	9,279	9,501	9,730	9,963	10,202	10,447	10,698	10,954	11,217
Total LSJR Revenues	220,274	0	0	6,200	6,349	6,501	6,657	6,817	6,981	7,148	7,320	7,495	7,675	7,859	8,048	8,241	8,439	8,642	8,849	9,061	9,279	9,501	9,730	9,963	10,202	10,447	10,698	10,954	11,217
Program Financing: Assessment District Borrowing																													
Proceeds from Bond Issuance [5]	100,000	0	30,000	0	0	0	0	0	0	0	0	0	10,000	0	0	0	0	60,000	0	0	0	0	0	0	0	0	0	0	0
Debt Service Costs [6]	-112,939	0	0	-2,466	-2,111	-2,111	-2,111	-2,111	-2,111	-2,111	-2,111	-2,111	-2,111	-2,814	-2,814	-2,814	-2,814	-2,814	-7,037	-7,037	-7,037	-7,037	-7,037	-7,037	-7,037	-7,037	-7,037	-7,037	-7,037
N/C Stockton Program - Preliminary Ending Balance		1,904	5,359	7,468	9,285	7,581	5,905	5,643	4,101	3,447	5,499	4,967	13,968	7,521	8,975	6,949	5,878	62,927	38,095	20,763	19,259	12,595	5,871	-594	-337	519	1,578	3,245	5,125

[1] Benginning balance in 2022 is based on annual FY 2022/23 budget adopted by SJAFCA

[2] Combination of cash, LERRDs contribution net of funding provided (cash to USACE under DA totals $666,192.46 thru 4/30/2021), and expected credit (e.g. Smith Canal Gate); LERRDs split at NFS cost share amounts; Internal SJAFCA cost, G&A, and consultant costs are credit not accounted for as part of this line item but the upfront cash requirement is captured under "Operational Soft Costs"

[3] Soft costs include SJAFCA staff and consultants (e.g. CEQA, project management, technical review and assistance) for costs not likely to be creditable to the Federal Project; Assume 4 FTEs at peak and tapers following project completion; Assume no assessment administration which would be captured in the LCMA budget; Assumes no long-term G&A costs.

[4] Annual escalation assumed at 2.4% (consistent with the authorized escalation described in the Engineer's Report.)

[5] Assumes SJAFCA will issue new debt secured by LCMA revenues to redeem outstanding SCAAD series 2019 bonds.

[6] Assumes three Bond Issues in 2023, 2033, 2038, that generate net proceeds of $30M, $10M, and $60M, respectively.

[7] Assumes level debt service for all bond issuances.

Source Model: 1820000_2023 0123_N-C_Stockton_LSJRP_Financing_Model

Appendix C

LCMA Floodplain Analysis
(Prepared by R&F)

Levee Construction and Maintenance Assessment (LCMA) Floodplain Analysis

Prepared for: San Joaquin Area Flood Control Agency

Date: February 5, 2023

Prepared by: Brittney O'Connell, PE and Baron Creager, PE

Reviewed by: Mike Rossiter, PE

Introduction

The San Joaquin Area Flood Control Agency (SJAFCA) is advancing a combined assessment district, known as the Levee Construction and Maintenance Assessment (LCMA) District, to fund the (1) additional Operations & Maintenance (O&M) needs of the San Joaquin County Flood Control and Water Conservation District Zone 9 (Zone 9) maintained project levees and (2) the local cost share component associated with the flood risk reduction measures being implemented as part of the U.S. Army Corps of Engineers (USACE) Lower San Joaquin River Project (LSJRP).

As part of the assessment district formation process, R&F Engineering Inc. (R&F) was retained by Larsen Wurzel & Associates (LWA) to assist with floodplain analyses to inform the proportionate level of special benefit that each parcel within the proposed assessment will receive from the activities being funded by LCMA.

The floodplain analysis will be used to identify: which parcels would potentially be flooded from a breach on a LSJRP levee or a Zone 9-maintained project levee, to what extent would the parcel be flooded, what flood depths would the parcel experience, and how many levee miles is each parcel relying on to protect it from flooding.

This Technical Memorandum (TM) outlines the data sources and methodology of R&F's floodplain analyses. Throughout the TM, the O&M of Zone 9 project levees will be referred to as the "O&M services" and the work being completed as part of the USACE LSJRP will be referred to as "capital improvements".

Baseline Data

To the extent available, existing analyses were used to estimate the floodplain depths and extents for this effort. The following subsections summarize the data sources that were used for the floodplain analyses as part of defining the benefit areas for the O&M services and the capital improvements.

O&M Services

The floodplains for the O&M analysis originated from two sources: the California Department of Water Resources (DWR) Central Valley Floodplain Evaluation and Delineation (CVFED) Task Order (TO) 306 analysis[1] and the Peterson Brustad Inc. (PBI) floodplain analysis[2].

As part of DWR's TO306 work, a hydraulic model was developed and various levee breach scenarios were analyzed. The model and levee breach scenarios covers a large portion of the SJAFCA LCMA study area. The primary resources used for this DWR analyses include:

- DWR Central Valley Floodplain evaluation and Delineation (CVFED) TO306 FLO2D model
- DWR's CVFED TO24 and HEC-RAS v4.1 model[3]
- United States Army Corps of Engineers (USACE) Lower San Joaquin River Feasibility Study (LSJRFS)[4] hydrologic analysis

For the portion of the LCMA study area that was not covered by the CVFED analyses, PBI developed a 1D/2D HEC-RAS 5.0 model from the DWR CVFED HEC-RAS 4.1 model to perform additional levee breach scenarios.

PBI breach parameters were set to match the parameters used in the CVFED analyses. Breach formation time was set to be instant, breach width set to be equal to 50 times the levee height, and breaches were set to erode to the elevation of the landside toe of the levee. The 1D reaches from the DWR HEC-RAS 4.1 model were not altered when updating to the 1D/2D HEC-RAS 5.0 model. The modifications to the model included converting overbank areas to a 2D mesh using the following steps:

- Importing DWR's 1-meter resolution CVFED LiDAR ground elevation data[5] into the model
- Converting 1D storage areas to 2D gridded flow areas at 250ft x 250ft resolution

[1] DWR. CVFED TO 306: Technical Memorandum- Hydraulic Analysis for 200-Year Floodplain Inundation Data in Technical Support of Local Communities, prepared by HDR, Inc., December 2014.
[2] PBI. FloodCALM Assessment District Floodplain Analysis. August 2019.
[3] DWR. CVFED Program for the Lower San Joaquin River: Task Orders 24 and 25, Technical Memorandum Lower San Joaquin River System HEC-RAS Model Development, Prepared by HDR, Inc., February 2010.
[4] USACE Lower San Joaquin River Feasibility Study F3 Hydrology Appendix, prepared by PBI, July 2012.
[5] HDR Engineering, Inc. CVFED LiDAR Data, Task Order 20, "Secondary LiDAR Post Processing in Support of Hydraulic Model Development", June 2010.

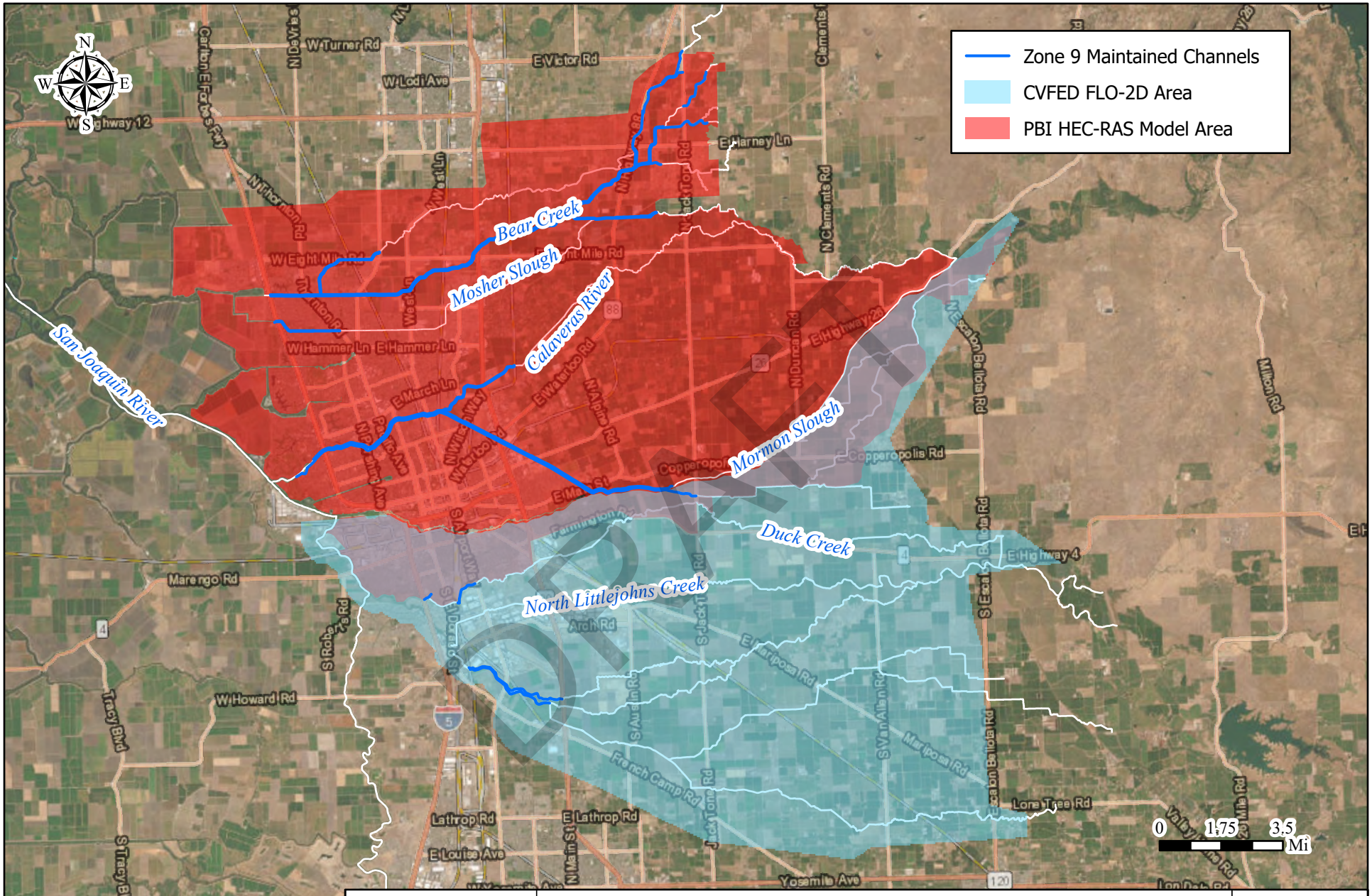
- Assigning Manning's n values for the overland 2D areas based on land use type. San Joaquin County zoning GIS data[6] was used to identify land use types in the floodplain. Guidance from the DWR CVFED FLO2D analysis was used in assigning n-values to the various land use types.

Figure 1 shows the extents of the CVFED and PBI modeling that was used to support the O&M floodplain analysis.

Capital Improvements

The floodplains for the USACE LSJRP capital improvement area originated from the USACE Risk and Uncertainty (R&U) composite floodplains developed as part of the USACE Lower San Joaquin River Feasibility Study (LSJRFS)[7]. The USACE composite floodplains were developed to compare the extents of flooding with- and without the LSJRP (Phase 1) improvements in place.

[6] San Joaquin County. "Zoning.shp". GIS Shapefile Acquired July 2015.
[7] USACE. Integrated Interim Feasibility Report/ Environmental Impact Statement/ Environmental Impact Report. San Joaquin River Basin, Lower San Joaquin River.



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O&M Services
Models Supporting Evaluation of Benefit from O&M

Figure 1

Date: 2/3/2023

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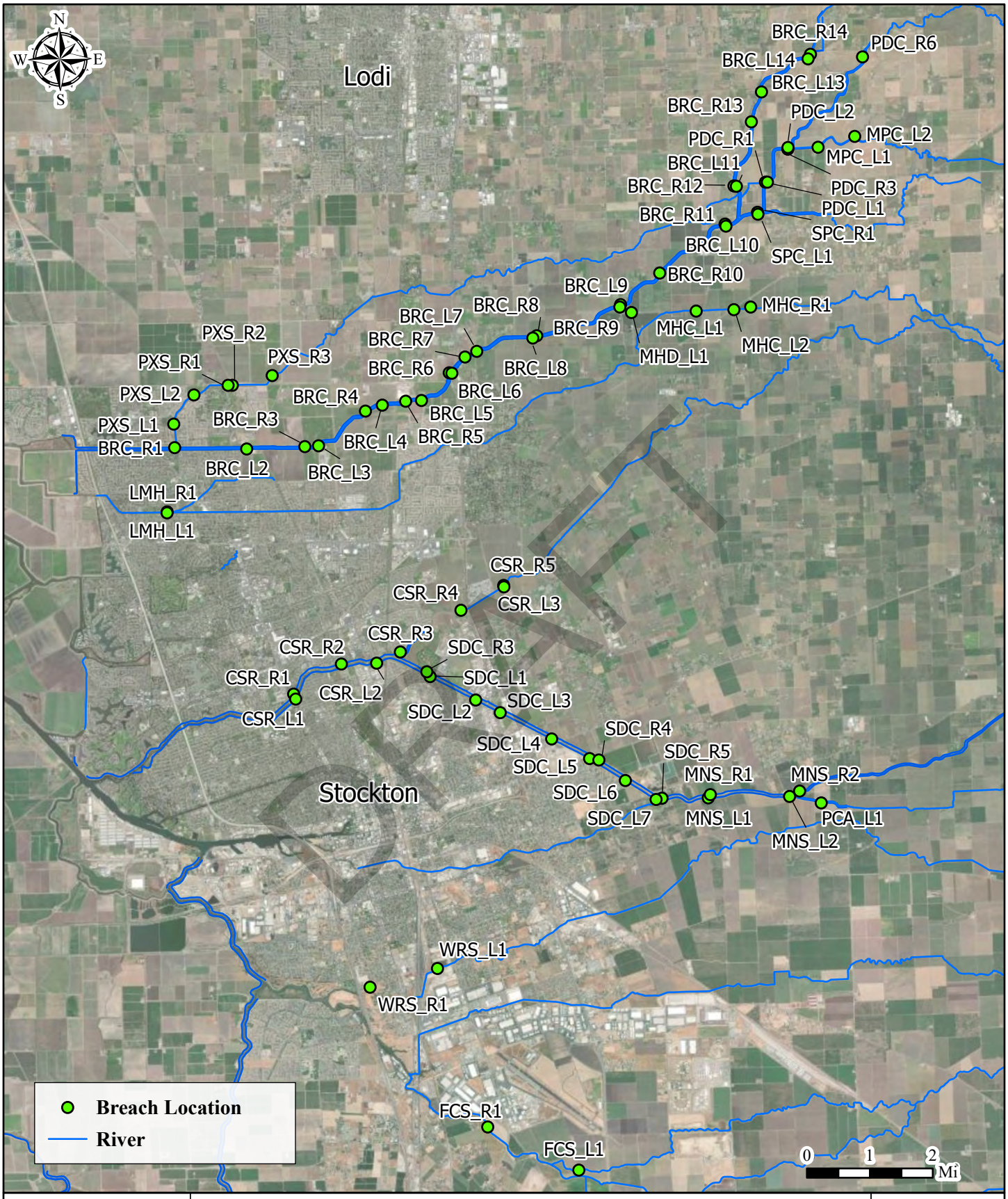
Methodology

The following subsections summarize the methodology used to help identify proportionate benefit provided to each parcel from the O&M services and from the USACE LSJRP capital improvements.

O&M Services

To identify the areas protected by Zone 9-maintained project levees, a levee breach modeling analysis was conducted to identify flood extents and depths that would result in a levee failure scenario on these levees. A total of 72 breach scenarios were completed to represent flooding that could occur if a Zone 9-maintained levee were to fail at a specific location within the system. A 200-year flow event was used as the basis of the breach analysis to show the potential floodplains in a scenario where the system was flowing full. Figure 2 provides an overview of the breach locations included in this analysis

The DWR CVFED modeling covered 54 breach scenarios throughout the study area. A portion of the levee on the Calaveras River downstream of Brookside Road is maintained by others and that portion was excluded from the breach analysis. The PBI model covered the 18 additional breach locations (for a total of 72 breach scenarios) . A channel overtopping scenario was also included in this analysis to determine flood depths that result without levee breaches when the channels exceed their capacity. As the channel overtopping is not prevented by Levee O&M services, this additional scenario was ultimately not utilized in LWA's analysis of special benefits.



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Breach Location Overview for Zone 9 O&M Project Levees

Figure 2

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During the analysis, it was observed that some of the floodplains from the DWR CVFED FLO2D model needed to be refined due to the coarse resolution of the model grid cells (250ft x 250ft). Parcels adjacent to levees and waterways were not captured as being within the floodplain due to the model's grid cell size. Refinements were made within GIS to assign flood depths to these areas by interpolating adjacent flooded cells. An example of this correction is shown below in Figures 3 & 4.

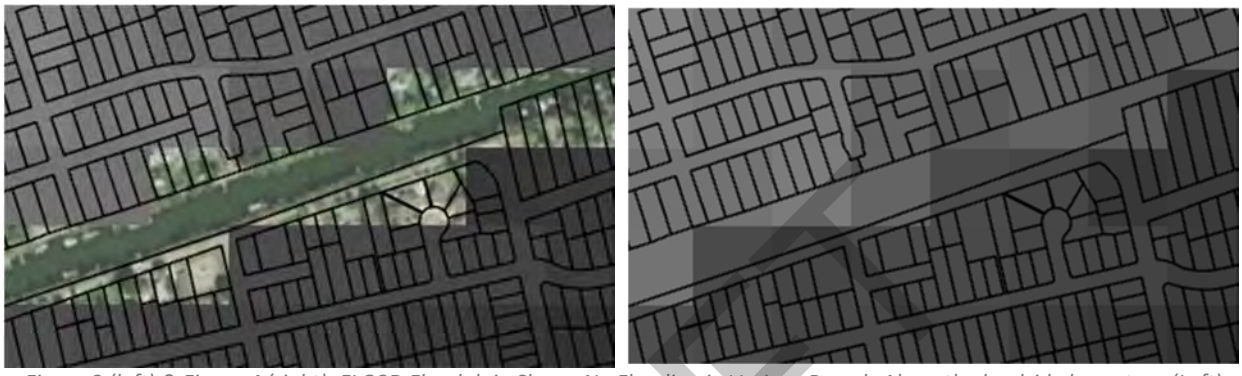


Figure 3 (left) & Figure 4 (right): FLO2D Floodplain Shows No Flooding in Various Parcels Along the landside levee toes (Left). And Modified Floodplain to More Accurately Estimate Flooding in Parcels Along the Levee toes (Right).

To generate flooding statistics for each parcel in the study area, GIS shapefiles with parcel-level data were generated for the 72 levee breach scenarios. The parcel-level data include the average floodplain depth (feet) and total wetted area (acres) for each parcel and each scenario, as described in Attachment A.

Additionally, levee reaches (and the corresponding breach scenarios) were categorized by whether they were FEMA accredited, cost-shared with other public entities, and/or if they are USACE Project Levees.

Capital Improvements

To assist in the determination of the proportionate benefit provided to each parcel by the USACE LSJRP capital improvements, floodplain modeling from the USACE LSJRFS for the 100-year flow scenario was used.

A "composite" floodplain was created from the individual levee breach scenarios that were modeled by USACE on levees that are part of the USACE LSJRP. The composite floodplain captures the anticipated worst-case scenario of flooding of all the breach scenarios for each parcel.

Similar to the O&M analysis, GIS shapefiles with parcel-level flooding data were generated and to identify the average floodplain depth (feet) and total wetted area (acres) for each parcel, as presented in Attachment B.

Floodplain Analyses Results

The following subsections and figures summarize the results of the floodplain analyses.

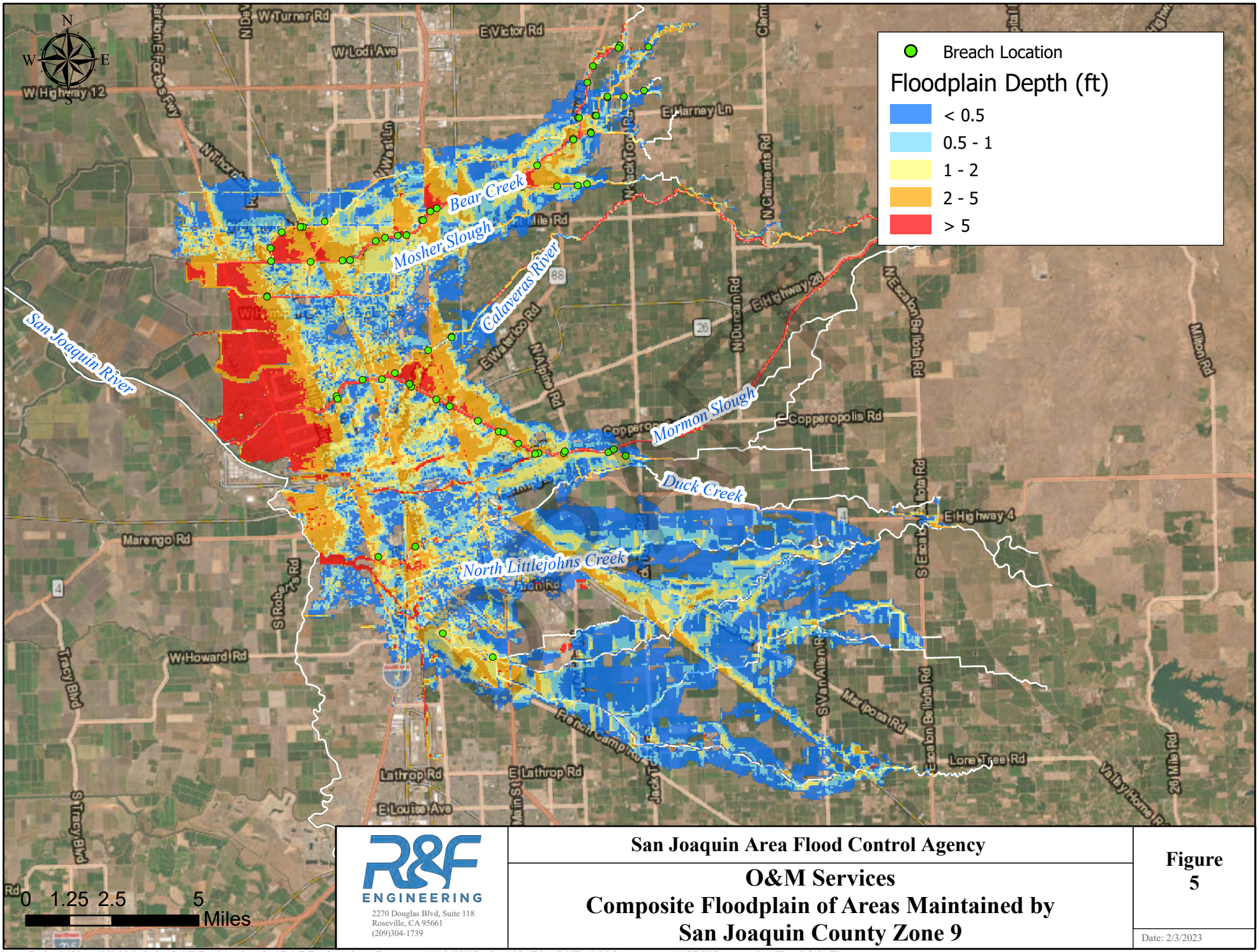
O&M Services

The results of the O&M floodplain analysis are shown in Figure 5 which includes a composite of the 72 individual levee breach scenarios located on Zone 9 maintained Project levees. The map also includes flooding in areas where channels exceed capacity and are overtopped, however this "overtopping" flooding was backed out of LWAs assessment analysis as channel overtopping is not prevented by Levee O&M services.

Capital Improvements

The results of the capital improvement levee breach analysis are shown in Figure 6, which are areas that could be inundated if a levee breach were to occur on a USACE LSJRP levee.

Summaries of parcel-level flooding data for the O&M Services and the USACE LSJRP capital improvements were generated in GIS and are included in Attachments A and B, respectively.



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O&M Services
Composite Floodplain of Areas Maintained by San Joaquin County Zone 9

Figure 5

Date: 2/3/2023

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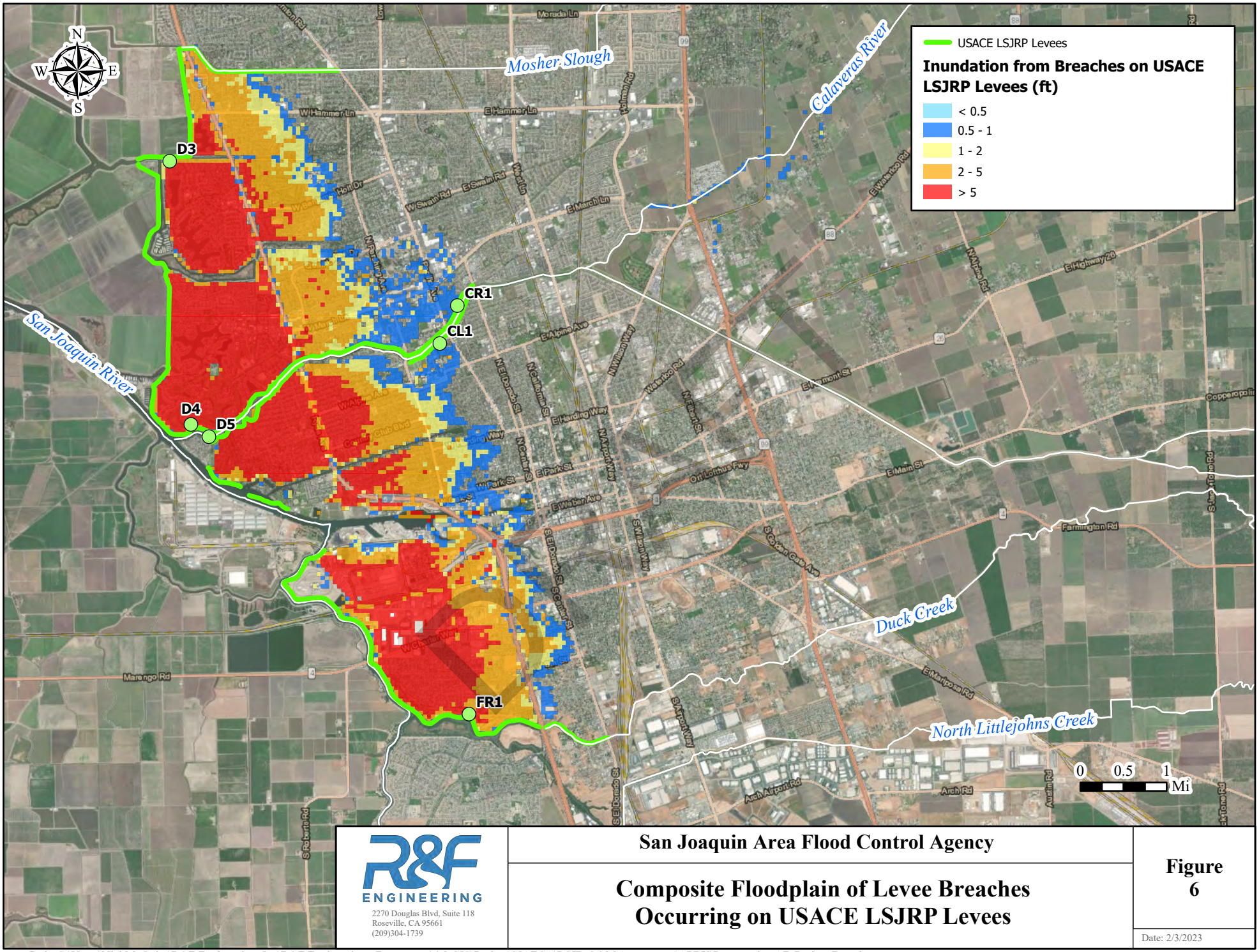

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Composite Floodplain of Levee Breaches Occurring on USACE LSJRP Levees

Figure 6

Date: 2/3/2023

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Assessment Boundary Delineations

The Proposed Assessment Boundary encompasses all properties that receive a special benefit from Zone 9 O&M Services and from the USACE LSJRP. The floodplain analyses discussed above were used as a starting point in developing a proposed benefit area for the LCMA District. The following subsections summarize the process that was used to delineate the final area of benefit.

O&M Assessment Boundary

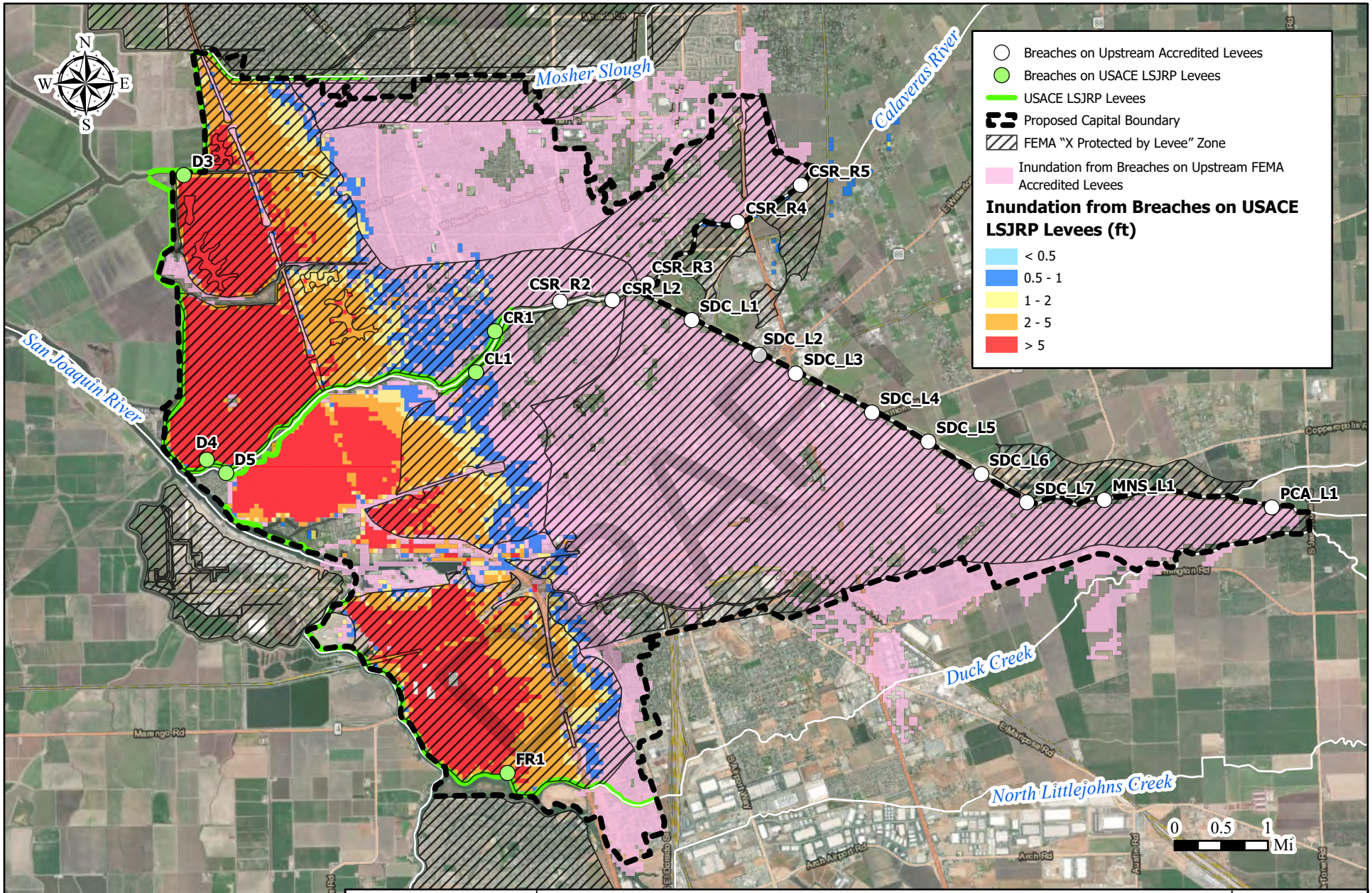
As described in the previous sections, to determine areas that benefit from the Levee O&M Services on the Zone 9 Project levees, modeling of various levee breach scenarios was performed to identify properties that would be inundated if those levees were to break. From these analyses, a composite floodplain was developed (previously shown in Figure 5). The resulting floodplain from each breach was overlaid in GIS onto the San Joaquin County parcel database to identify the average flood depth, total area of flooding, and length of levee that is providing protection for each parcel. The final assessment boundary for Levee O&M Services was delineated based on the boundaries of the parcels that are flooded from levee breaches on Zone 9 maintained Project levees.

Capital Assessment Boundary

Properties receiving special benefit from the USACE LSJRP (and associated incremental levee O&M for the LSJRP) were identified using a combination of floodplain mapping that included:

a) The 100-year composite without project floodplain based on breaches of levees to be improved by the USACE LSJRP (previously shown in Figure 6);
b) The FEMA Shaded Zone X mapping for north and central Stockton; and,
c) Additional hydraulic modeling showing the extent of the inundation from breaches of upstream FEMA Accredited Levees.

Benefits to properties can be due to avoidance of actual flood damage and/or avoidance of regulatory impacts. The composite without-project floodplain map, utilizing USACE floodplain mapping data, was prepared to identify the specific area benefiting from the improvements on the LSRJP levees. To further acknowledge the risk of regulatory impacts and the need to continue FEMA accreditation of this area, the extent of the floodplain for properties benefiting from FEMA Accredited levees in the same levee system was overlaid onto the composite breach floodplain (see Figure 7). To further confirm the extents of flooding that would result from a break on the upstream FEMA-accredited levees, modeling of breaches on these levees is also included on Figure 7.



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Overlay of Capital Improvement Floodplain Boundaries

Figure 7

Date: 2/3/2023

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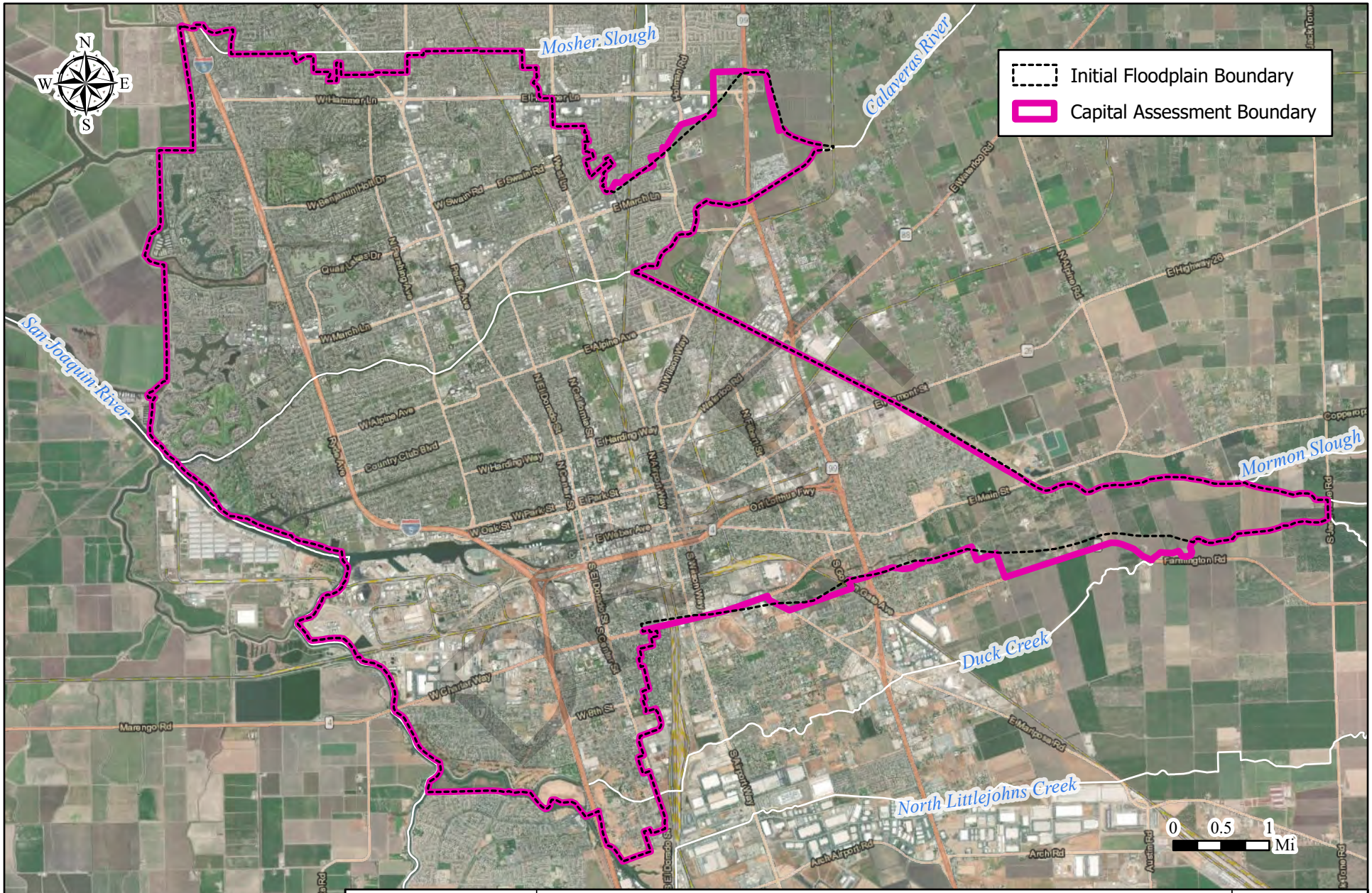
The three described components designate the full extent of the area benefiting from Levee Capital Services for FEMA Accredited Levees. Because different sources of floodplain mapping were combined, the floodplain mapping associated with the FEMA Accredited levee breaches was only utilized to inform the extent of the benefit area from Levee Capital Services, not floodplain depths. The final capital assessment boundary (Figure 8) follows the impacted parcel boundaries.



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Capital Assessment Boundary

Figure 8

Date: 2/3/2023

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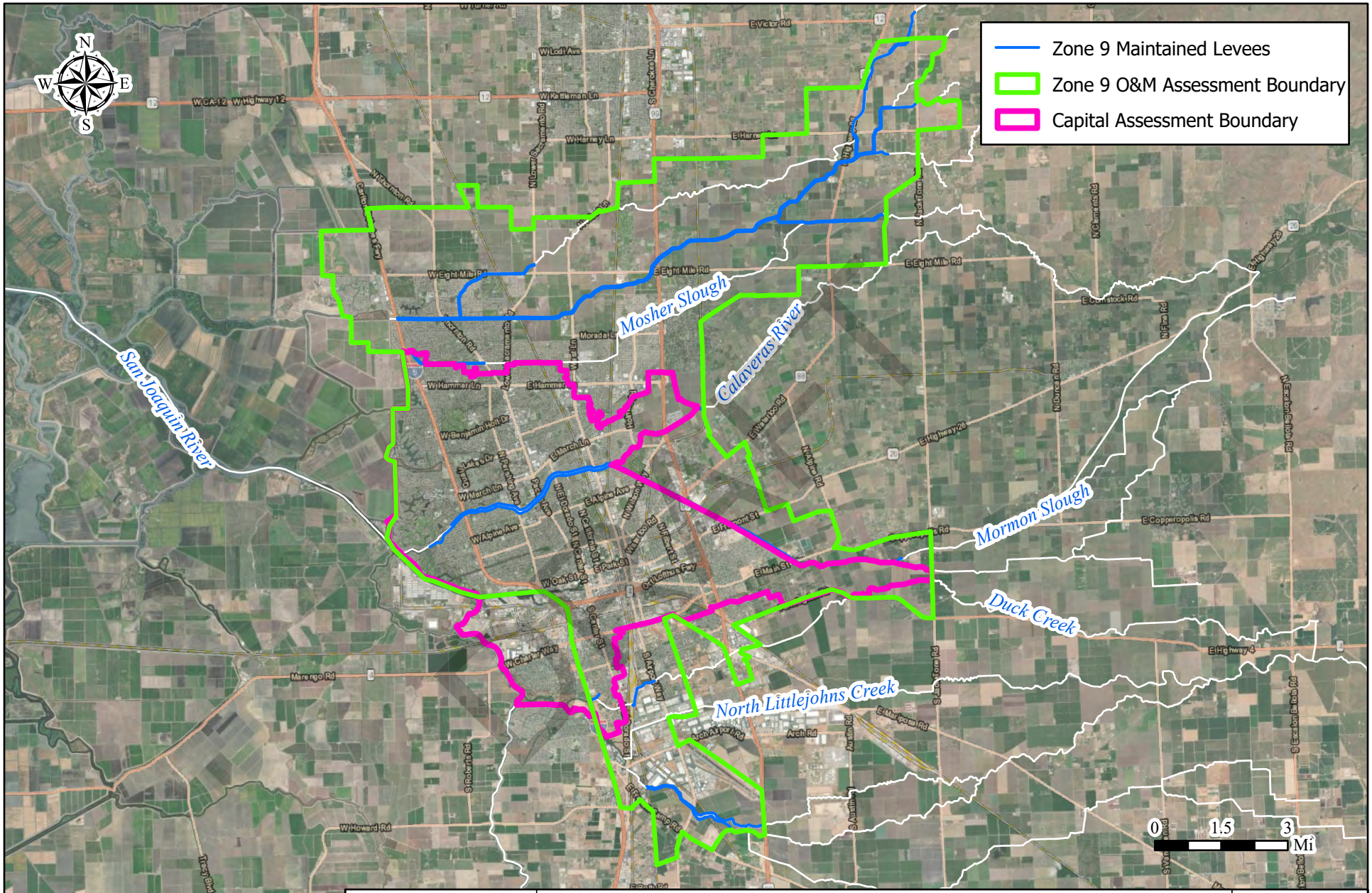
LCMA District Boundary

The area of special benefit from O&M Services and from the USACE LSJRP capital improvements were combined (Figure 9). The final LCMA Boundary is presented in Figure 10.



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Combined Boundaries
O&M Services & Capital Improvements

Figure 9

Date: 2/3/2023

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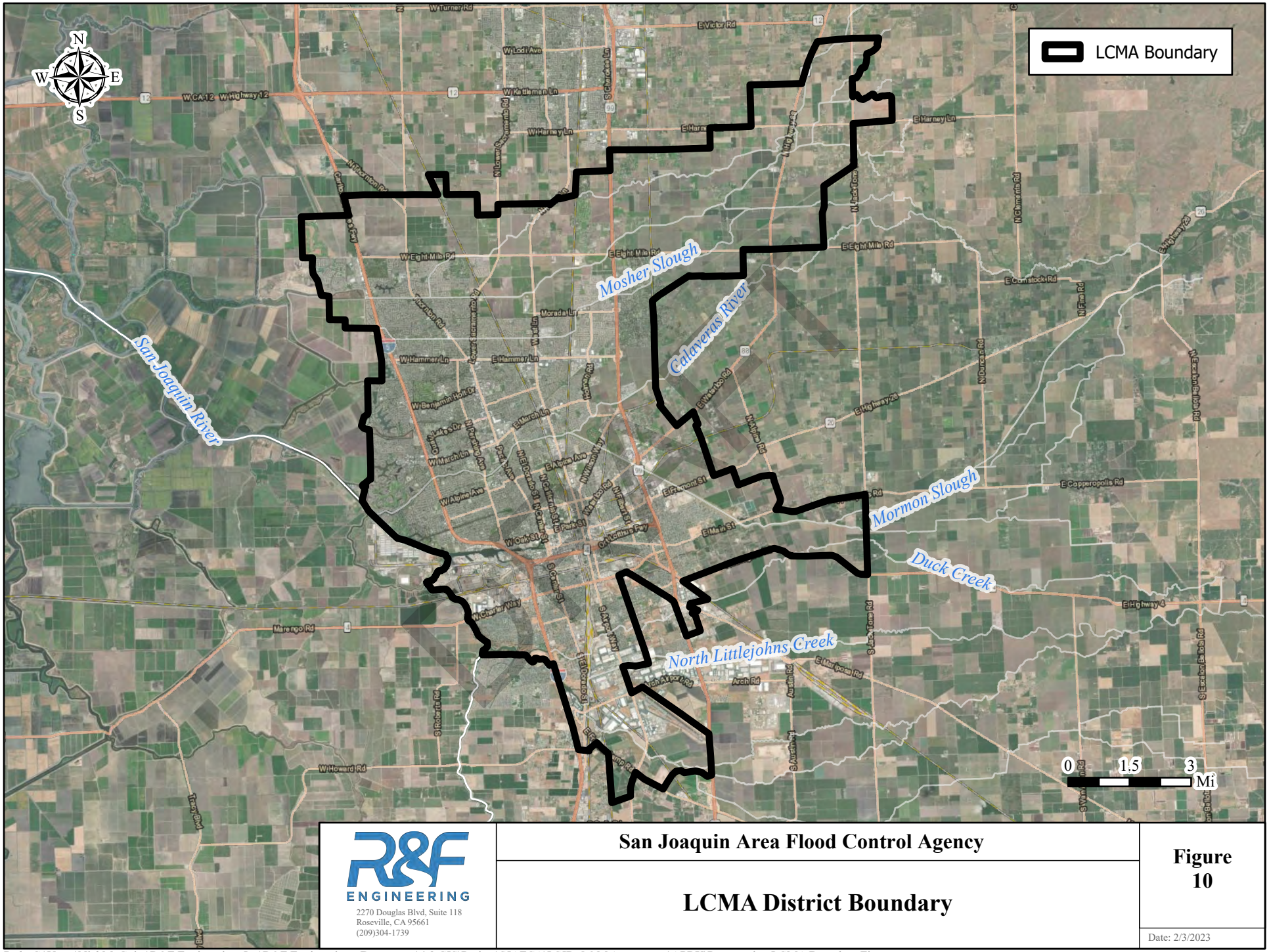

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LCMA District Boundary

Figure 10

Date: 2/3/2023

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ATTACHMENT A

Metadata for GIS Deliverables

for the O&M Assessment Analyses

Assessment Reaches.shp:

Description: All of the levees in the study area were broken down into segments. Each levee segment is associated with a modeled levee breach (see Breach Location Final.shp).

Brch_Rch: Name of reach

Breach Location Final.shp:

Description: 72 levee breaches were modeled for this study. This shapefile shows location and name/ID of each breach. It also indicates whether or not the breach location is on a Project levee, a SJAFCA levee, or a FEMA-accredited levee.

River: River the breach is located on
Code Name: Name of the breach. Note: some breaches are grouped together from original source.
Project: Is the breach on a Project or non-Project levee?
SJAFCA: Is the breach on a levee cost shared with SJAFCA?
FEMA: Is the breach on a FEMA accredited levee?

Parcel Ave Depth.shp:

Description: This shapefile shows the average depth of flooding on each parcel for each of the 72 levee breach scenarios that were run for this study. Levee breach locations were named according to the river that they are on and whether they're on the left bank or right bank levee. This shapefile also shows the average depth of flooding on each parcel for the no breach/overtopping only scenario in the PBI (HEC-RAS) model.

The average flood depth recorded is for the wetted area of the parcel only (zero depth/dry areas were not included in calculating the average depth of flooding).

The shapefile also has columns that show the total area of the parcel (acres) and the worst-case flood depth (feet) on each parcel.

Note: See the shapefile "Parcel Wetted Area.shp" which indicates how many acres of the parcel got wet for each breach scenario.

APN: APN

Area_acre: Total area of the parcel (in acres)

BRC_L2 through WRS_L1: The column headers are the name given to each breach location. Average depth of flooding (in feet) associated with each breach per the name of the field
NoBreach: Average depth of flooding (in feet) associated with the no breach/overtopping only scenario in the PBI (HEC-RAS) model

Parcel Wetted Area.shp:

Description: See description for the "Parcel Ave Depth.shp" shapefile. Everything is set up the same, except the values in this shapefile indicate how many acres of the parcel got wet for each breach scenario.

ATTACHMENT B

Metadata for GIS Deliverables

for the Capital Assessment Analyses

Parcel Average Depth.shp:

Description: This shapefile shows the average depth of flooding of each parcel for each of the 12 flood scenarios that were analyzed for this study. Scenarios are labeled according to "with project" and "without project" conditions and each return period event. The average flood depth recorded is for the wetted area of the parcel only (zero depth/dry areas were not included in calculating the average depth of flooding).

The shapefile also has columns that show: What is the total area of the parcel in acres? What is the worst-case flood depth on each parcel?

Notes:

1. There are no parcels with flooding for the 2-, 10-, and 25-year with-project events.
2. See the shapefile "Parcel Wetted Area.shp" which indicates how many acres of the parcel got wet for each flood scenario.

APN: APN
Area: Total area of the parcel (in acres)
Max: The worst-case average depth of flooding (in feet) across all scenarios
WP_2YR through WOP_200YR: The column headers are the name given to each flood scenario. Average depth of flooding (in feet) is associated with each scenario per the name of the field

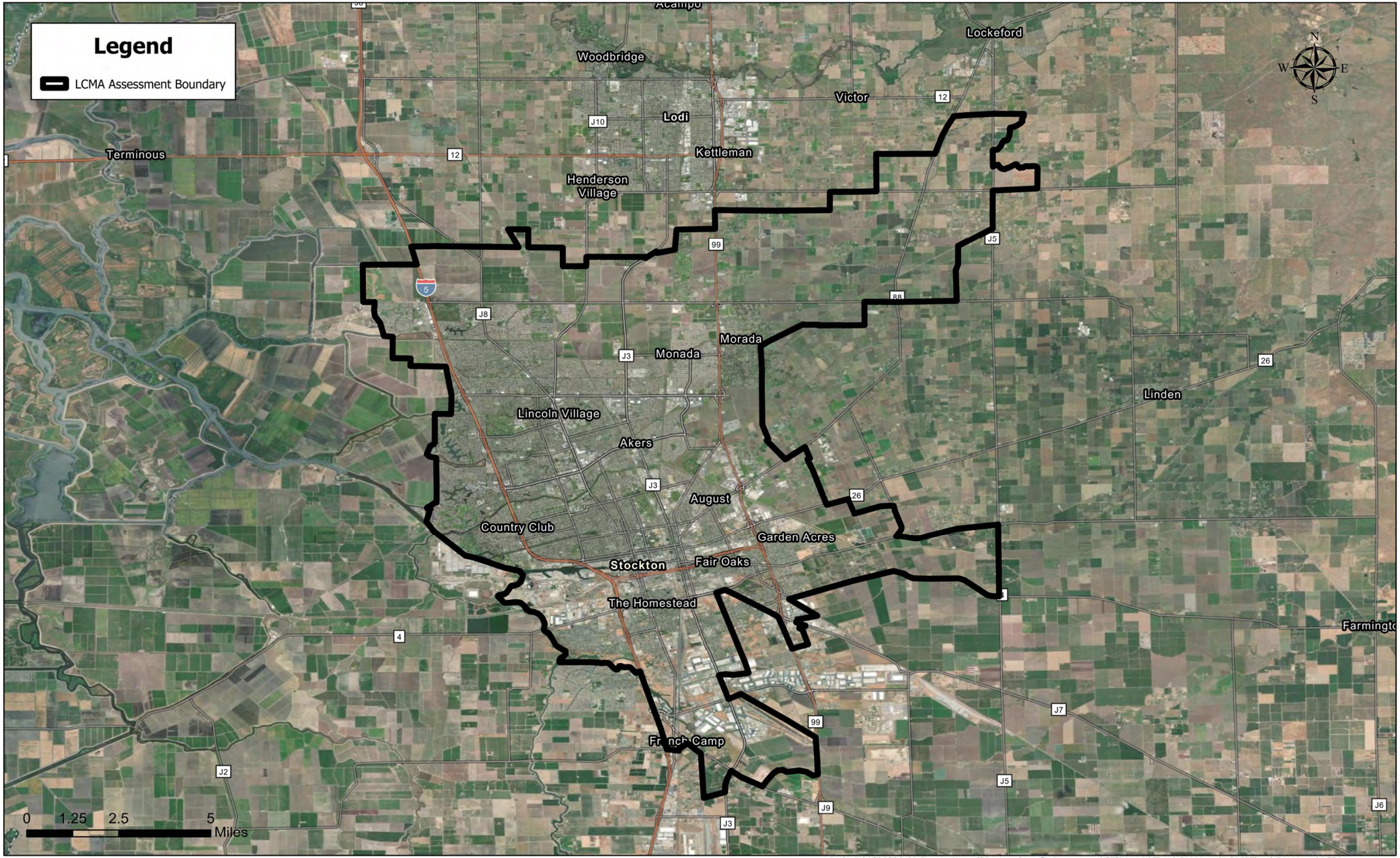
Parcel Wetted Area.shp:

Description: See description for the "Parcel Ave Depth.shp" shapefile. Everything is set up the same, except the values in this shapefile indicate how many acres of the parcel got wet for each breach scenario

Appendix D

Assessment District Boundary Diagram

Assessment District Boundary Diagram



Path: P:\1808000 SJ County Zone 9\Project Specific Documents\GIS\Arcgis\Flood CALM and LSRP\Flood CALM and LSRP.aprx

Appendix E

San Joaquin County Use Codes

Appendix E
Levee Capital and Maintenance Assessment (LCMA)
San Joaquin County Use Codes & Assessment Land Uses

Use Code	County Description	Assessment Land Use
1	Vacant Residential Lot – Development with Utilities	Open Space - Developed
2	Vacant Lot with PROB. W/C Precludes Building A RE	Open Space
3	Vacant Lot – Totally Unusable (incurable)	Open Space
4	Vacant Residential Lot with miscellaneous Residential IMPRS (garage)	Open Space - Developed
5	Vacant Residential Subdivision Site	Open Space
6	Vacant Residential Lot- Undeveloped	Open Space
7	Potential Residential Subdivision	Open Space
10	Single-Family Dwelling (SFD)	Single-Family Residential
11	Condominium Unit	Multi-Family Residential
12	Planned Unit Residential Development (PURD)	Single-Family Residential
13	Single-Family Residence with Secondary Residential Square Footage	Single-Family Residential
14	SFD with Secondary Use (i.e., barber shop)	Single-Family Residential
15	Zero Lot Line Residential	Single-Family Residential
16	Residential Lot with Mobile Home	Mobile Home
17	Single-Family with Common Wall (duet, halfplex, etc.)	Single-Family Residential
20	Vacant Lot (zoned for two units)	Open Space
21	One Duplex – One Building	Single-Family Residential
22	Two SFDs On Single Parcel	Multi-Family Residential
30	Vacant Lot Zoned for 3 or 4 Units	Open Space
31	Single Triplex – (3 units, 1 structure)	Single-Family Residential
32	Three Units - 2 or More Structures	Multi-Family Residential
34	Single Fourplex	Multi-Family Residential
35	Four Units, 2 or More Structures	Multi-Family Residential
40	Vacant Lots Zoned for Apartments	Open Space
41	5-10 Residential Units – Single Building	Multi-Family Residential
42	5-10 Residential Units – 2 or more Buildings	Multi-Family Residential
43	11-20 Residential Units – One Structure	Multi-Family Residential
44	11-20 Residential Units – 2 or more Buildings	Multi-Family Residential
45	21-40 Units	Multi-Family Residential
46	41-100 Units	Multi-Family Residential
47	Over 100 Units	Multi-Family Residential
48	High-Rise Apartments	Multi-Family Residential
50	Rural Residential – Vacant Homesite	Agricultural
51	Rural Residence – 1 Residence	Rural Residential
52	Rural Residential – 2 or more residences	Rural Residential
53	Rural Residential – Vacant – Development with Rural Residences. - with Miscellaneous Residences. IMPS;	Open Space - Developed
54	Only	Open Space

Use Code	County Description	Assessment Land Use
55	Labor Camp	Rural Residential
56	Rural Residential with Mobil Home	Mobile Home
59	Residential Care Home (6 units or less)	Multi-Family Residential
60	Motels Less Than 50 Units	Commercial
61	Motels Over 50 Units	Commercial
62	Motels less than 50 units with some kitchens	Commercial
63	Motels over 50 Units with some Kitchens	Commercial
64	Motels Less Than 50 Units with Shops	Commercial
65	Motels Over 50 Units with Shops	Commercial
68	Resort Motels – Cabins, Etc.	Commercial
70	Hotel without Restaurant	Commercial
71	Hotel with Restaurant	Commercial
78	Rooming House – Convent – Rectory, Etc.	Commercial
80	Common Areas – No Structures	Open Space
81	Common Areas – with Structures	Open Space - Developed
82	Common Areas – Roads and Streets	Open Space
90	Mobile Home Park	Mobile Home
91	Overnight Type Trailer Park	Open Space
92	Mobile Home Park with Overnight Facilities	Mobile Home
93	Resort Type Trailer Park	Mobile Home
94	Mobile Home Condominium Lot	Mobile Home
95	Mobile Home Appurtenances	Mobile Home
96	Mobile Home	Mobile Home
100	Vacant Commercial Land – Undeveloped	Open Space
101	Vacant Commercial Land with Utilities	Open Space - Developed
102	Vacant Commercial Land with Miscellaneous IMPS	Open Space - Developed
107	Potential Commercial Subdivision	Open Space
110	Single-Story	Commercial
111	Multiple-Story Stories	Commercial
112	Multiple Stores in one Building	Commercial
113	Store with Residential Unit or Units	Commercial
114	Store Condo	Commercial
120	1 store and 1 office	Commercial
121	Multiple Combination of Offices, Shops	Commercial
130	1-Story Department Store	Commercial
131	2-Story Department Store	Commercial
140	Grocery Store	Commercial
141	Supermarkets	Commercial
142	Convenience Store	Commercial
143	Convenience Store with Gas Sales	Commercial
144	Fruit Stand	Commercial
150	Regional Shopping Center	Commercial
151	Community Shopping Center	Commercial
152	Neighborhood Shopping Center	Commercial

Use Code	County Description	Assessment Land Use
153	Individual Parcel Within Regional Shopping	Commercial
154	Individual Parcel Within Community Center	Commercial
155	Individual Parcel within neighborhood Shopping	Commercial
156	Shopping Center Common Area	Commercial
170	1-Story Office Building	Commercial
171	2-Story Office Building	Commercial
172	3 or More Story Office Building	Commercial
173	Office Building with Residential Unit or Units	Commercial
180	Assisted Living Residence	Multi-Family Residential
181	Congregate Seniors Housing	Multi-Family Residential
182	Continuing Care Retirement Community	Multi-Family Residential
183	Skilled Nursing Facility	Multi-Family Residential
184	Specialty Home (Developmentally Disable)	Multi-Family Residential
190	Medical Offices	Commercial
191	Dental Offices	Commercial
192	Medical Dental Complex	Commercial
193	Veterinary Hospitals	Commercial
194	One-Story Office Condo	Commercial
195	Two-Story Office Condo	Commercial
196	Medical Office Condo	Commercial
197	Dental Office Condo	Commercial
200	Commercial Common Area – Non Shopping C	Commercial
201	Miscellaneous Multiple Uses – None Fully Dominant	Commercial
202	Commercial Use	Commercial
203	Animal Training Facility	Commercial
204	Day Care Center	Commercial
210	Restaurants	Commercial
211	Fast Food Restaurants	Commercial
212	Food Preparation – Take Out Only	Commercial
213	Cocktail Lounge – Bars	Commercial
214	Restaurant with Residential Unit or Units	Commercial
230	Walk-In Theaters	Commercial
231	Multiple Screen Theaters	Commercial
240	Banks	Commercial
250	Full Service Stations	Commercial
251	Self Service. Station (has no facilities)	Commercial
252	Service Station with Car Wash	Commercial
253	Truck Terminals	Commercial
254	Bulk Plants	Commercial
255	Self Service Station with Mini Mart	Commercial
256	Convenience Store (mini-mart) with gas station	Commercial
260	Auto Sales with Service Center	Commercial
261	Auto Sales without Service Center	Commercial
262	Used Car Lot	Commercial

Use Code	County Description	Assessment Land Use
263	Other Sales Centers (Trailers, mobile home	Commercial
270	Farm or CONTS. Machine Sales and Service	Commercial
271	Farm or CONTS. Machine Sales Only	Commercial
272	Farm or CONST. Machine Sales Only	Commercial
280	Auto and Truck Repairs and Accessories	Commercial
281	Specialty Shops (Tires, Brakes, Etc.)	Commercial
282	Car Wash	Commercial
283	Self Service Car Wash	Commercial
284	Laundry	Commercial
285	Auto Body Shop	Commercial
290	Retail Nursery	Commercial
291	Commercial/Wholesale Nursery	Commercial
296	Commercial	Commercial
300	Vacant Industrial Land Undeveloped	Open Space
301	Vacant Industrial Land – Developed With	Open Space - Developed
302	Vacant Industrial Land with Miscellaneous IMPS	Open Space - Developed
307	Potential Industrial Subdivision	Open Space
310	Light Manufacturing and Light Industrial	Industrial
311	Light Industrial and Warehousing	Industrial
312	Light Industrial Warehouse Multiple Tenants	Industrial
313	Industrial Condo	Industrial
314	Shop-Work Area with Small Office	Commercial
320	Warehousing – Active	Industrial
321	Warehousing – Inactive	Industrial
323	Warehousing – Yard	Industrial
324	Mini Storage Warehousing	Industrial
330	Lumber Mills	Industrial
331	Retail Lumber Yards	Industrial
332	Specialty Lumber Products (Mouldings, SA	Industrial
340	Packing Plants	Industrial
341	Cold Storage or Refrigerated Warehouse	Industrial
350	Fruit and Vegetable	Industrial
351	Meat Products	Industrial
352	Large Winery	Industrial
353	Small/Boutique Winery	Commercial
355	Other Food Processing	Industrial
360	Feed and Grain Mills	Industrial
361	Retail Feed and Grain Sales	Industrial
362	Stockyards	Industrial
363	AG Chemical Sales and/or Application	Industrial
370	Heavy Industry	Industrial
371	Shipyard	Industrial
380	Mineral Processing	Industrial
381	Sand and Gravel – Shale	Industrial

Use Code	County Description	Assessment Land Use
390	Industrial Common Area	Industrial
391	Miscellaneous Industrial Multiple Uses – None Full	Industrial
392	Industrial Use (doesn't reasonably fit any	Industrial
393	Airport (private	Commercial
400	Irrigated Orchard	Agricultural
401	Irrigated Orchard with Residence	Agricultural
410	Irrigated	Agricultural
411	Irrigated	Agricultural
420	Irrigated Vineyard	Agricultural
421	Irrigated Vineyard with Residence	Agricultural
450	Irrigated Row Crops	Agricultural
451	Irrigated Row Crops with Residence	Agricultural
460	Irrigated Pasture	Agricultural
461	Irrigated Pasture with Residence	Agricultural
462	Horse Ranch	Agricultural
463	Horse Ranch with Residence	Agricultural
470	Dairy	Agricultural
471	Dairy with Residence	Agricultural
480	Poultry Ranch	Agricultural
481	Poultry Ranch with Residence	Agricultural
490	Feed Lots	Agricultural
500	Dry Farm	Agricultural
501	Dry Farm with Residence	Agricultural
510	Dry Graze	Agricultural
511	Dry Graze with Residence	Agricultural
520	Non-Irrigated Vineyards	Agricultural
521	Non-Irrigated Vineyards with Residence	Agricultural
530	Specialty Farms	Agricultural
540	Agricultural	Agricultural
550	Tree Farm	Agricultural
551	Tree Farm (with or without residence)	Agricultural
570	Agricultural	Agricultural
590	Waste Lands	Open Space
591	Berms	Open Space
610	Swim Centers	Commercial
611	Recreational Centers	Commercial
612	Marina or Yachting Club	Commercial
613	Racquetball Club	Commercial
614	Tennis Club	Commercial
615	Private Campground or Resort	Commercial
620	Privately Owned Dance Halls	Commercial
630	Bowling Alleys	Commercial
631	Arcades and Amusement Centers	Commercial
632	Skating Rink	Commercial

Use Code	County Description	Assessment Land Use
640	Clubs, Lodge Halls	Commercial
650	Privately Owned Auditoriums and Stadiums	Commercial
660	18-Hole Public Golf Course	Open Space
661	9-Hole Public Golf Course	Open Space
662	Country Club	Open Space
664	Driving Range	Open Space
670	Privately Owned Race Tracks	Commercial
680	Non-Profit Organizations Camps (Boy Scouts, Etc.)	Commercial
690	Privately Owned Parks	Open Space
710	Church, Synagogue or Temple	Commercial
711	Other Church Property	Commercial
720	Private School	School
721	Parochial School	School
722	Special School	School
730	Private Colleges	School
740	Full Service Hospital	Commercial
742	Clinic	Commercial
760	Orphanages	Commercial
770	Cemeteries (non-profit)	Open Space
771	Mortuaries and Funeral Homes	Commercial
772	Cemetery Taxable (profit)	Open Space
810	SBE valued	Open Space - Developed
811	Utility Water Company	Open Space
812	Mutual Water Company	Open Space
813	Cable TV	Open Space
814	Radio and TV Broadcast Site	Open Space
815	Pipeline Right-Of-Way	Open Space
816	Open Space	Open Space
850	Right-Of-Way	Open Space
851	Private Road	Open Space - Developed
860	Well Site	Open Space
861	Tank Site	Open Space
862	Springs and Other Water Sources	Open Space
870	Rivers and Lakes	Open Space
890	Parking Lots – Fee	Open Space - Developed
891	Parking Lots – No Fee	Open Space - Developed
892	Parking Garages	Commercial
900	Vacant Federal Lands	Open Space
901	Federal Buildings	Commercial
902	Military Installation	Commercial
903	Miscellaneous Federal Property	Commercial
910	Vacant State Lands	Open Space
911	State Buildings	Commercial
912	State Shops & Yards	Commercial

Use Code	County Description	Assessment Land Use
913	State Parks and Other Recreational Facilities	Open Space - Developed
914	State Schools, Colleges	School
916	Miscellaneous State Property	Commercial
920	Vacant County Land	Open Space
921	County Buildings	Commercial
923	County Parks and Other Recreational Facilities	Open Space
924	County Hospitals	Commercial
925	Miscellaneous County Property	Commercial
930	Vacant City Lands	Open Space
931	City Buildings	Commercial
932	City Shops and Yard	Commercial
933	City Parks and Other Recreational Facilities	Open Space
934	Municipal Utility Prop. (reservoirs, sewer pipeline)	Open Space - Developed
935	Parking Lots – Garages	Open Space - Developed
936	Municipal Airports	Commercial
937	Miscellaneous City Property	Commercial
940	School District Properties	Commercial
941	Fire Districts	Commercial
942	Flood Control District Property	Open Space
943	Water District Property	Open Space
944	Miscellaneous District property	Open Space
950	Public Owned Land – Non- Taxable	Open Space
951	Public Owned Land – Taxable [Section 11]	Open Space
1000	Calaveras AG	Agricultural
1001	Stanislaus AG	Agricultural
1002	Blended	Blended

Source: 2012 CVFPP Attachment 8F Flood Damage Analysis

Appendix F

List of Parcels &
FY 2023/24 Assessment Roll

(TO BE PROVIDED UNDER SEPARATE COVER)

Proposed Levee Construction & Maintenance Assessment

On March 16, 2023, the SJAFCA Board of Directors will decide whether to issue ballots for a proposed property assessment to fund levee construction and maintenance. If the Board approves balloting, SJAFCA will mail ballots on April 21, 2023, to affected property owners. Read on to learn more.

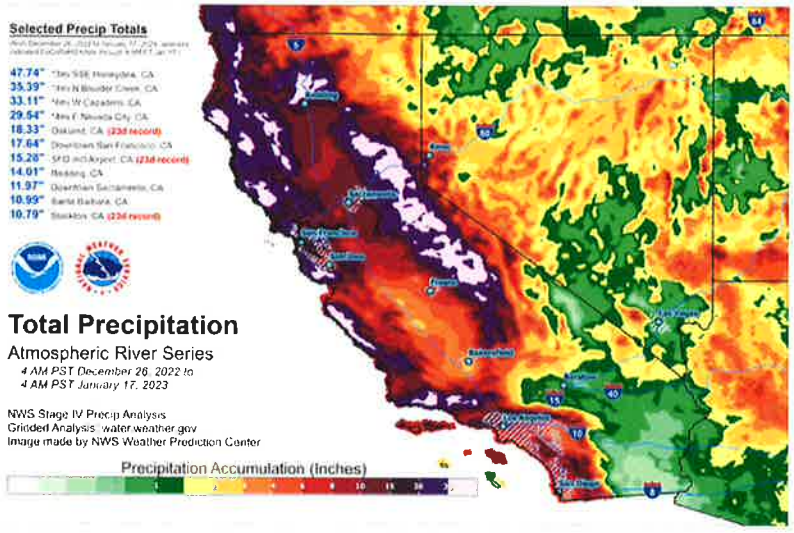
What Problems are we trying to avoid?

California's weather is becoming more extreme. Rapid shifts between too little and too much water can lead to serious flooding. At the same time, state and federal regulations for flood protection are changing and becoming stricter.

As a result, properties in Stockton face two types of risk:

- Physical flooding
- Financial impacts from changes to state and federal flood protection regulations (mandatory flood insurance and building restrictions)

The best way to defend against both risks in the greater Stockton-metropolitan region is to improve and properly maintain levees.



Did you know? In January 2023, Stockton received one-half of its annual precipitation in only 17 days after a series of atmospheric rivers hit the region. Atmospheric Rivers are responsible for 80% of flood damages over the past 40 years in the western United States.

Proposed Assessment Will Fund Levee Construction and Maintenance

The San Joaquin Area Flood Control Agency (SJAFCA) is responsible for reducing flood risk through planning, financing and implementing projects and programs to improve flood protection. The San Joaquin County Flood Control and Water Conservation Agency Zone 9 (Zone 9), a division of San Joaquin County, maintains urban levees that protect approximately 90,000 Stockton properties.

The agencies are jointly proposing a new Levee Construction and Maintenance property assessment to:

1. Fund the local cost share (10%) for the $1.4 billion Lower San Joaquin River Project
2. Ensure continued FEMA accreditation of the levees protecting North and Central Stockton
3. Address an annual $1.5 million shortfall between existing and needed revenues for the proper maintenance of existing levees

Improving Levees

- SJAFCA is partnering with the US Army Corps of Engineers and the CA Central Valley Flood Protection Board on the $1.4 billion Lower San Joaquin River Project to protect North and Central Stockton.
- The project will strengthen 23 miles of levees along the Calaveras and San Joaquin Rivers and move the community closer to a 200-year level of flood protection.
- Ninety percent (estimated $1.26 billion) of all project costs will be paid for with state and federal funding.
- The community must provide the remaining 10 percent cost share (approximately $140 million)
- SJAFCA will also implement other improvements to ensure levees throughout the assessment district meet FEMA requirements for 100-year flood protection.

Calaveras River Levee Damage - January 2023

Maintaining Levees

- Zone 9 maintains 112 miles of levees that protect urban areas (Project levees).
- Levees must be maintained to strict state and federal standards to retain FEMA accreditation and eligibility for federal emergency funding following a flood event.

- Adequate funding will allow Zone 9 to comply with state and federal regulations for:
    - Removal of debris that obstructs storm water and flood flows, or that otherwise damages levees and channels
    - Vegetation removal and control
    - Rodent removal and control
    - Levee patrol during high water warning and flood stages
    - Resurfacing of levee maintenance and patrol roads
    - Minor repair of levee embankments and erosion protection
    - Inspection and repair of gates
    - Participation in and reporting for state and federal inspections and evaluations
    - State and federal permit application and compliance

Properties that receive benefit from the Lower San Joaquin River Project, FEMA Accredited levees and/or maintenance of Zone 9 levees will be assessed to fund levee construction and maintenance activities. View the **LCMA Boundary Map** to see if your property is included.

- Each property will be assessed only for the benefit it receives.
- Benefits for levee improvements include avoidance of flood damages and ongoing FEMA accreditation of Project levees.
- Benefits of levee maintenance include the avoidance of flood damages.
- Not all properties benefit from levee improvement services. Some properties only benefit from levee maintenance services.
- The proposed assessment for the majority of single-family residential properties is $100 or less per year

Assessments will differ based upon land use type, structure square footage, size of parcel, location of property, and depth of flooding. More details can be found in the **Public Review Draft of the Preliminary Engineer's Report**.

Consequences of Inadequate Funding

If SJAFCA is unable to fund the local cost share for the Lower San Joaquin River Project, the community will lose the $1.26 billion in state and federal funding. The Stockton community will be required to pay 100 percent of costs for necessary levee improvements in the future. Other consequences include:

- Zone 9 will not have funding to address deferred levee maintenance, nor meet regulatory requirements.
- Properties will face an increasing risk for physical flooding from deficient, degrading levees.
- Near and long-term financial impacts to properties will include:
- the loss of FEMA accreditation, resulting in mandatory flood insurance for all properties with mortgages
- higher flood insurance rates for all properties
- loss of eligibility for federally-funded levee repairs following a flood emergency

Questions? Contact us!
LCMA Hotline: (209) 475-7010

ITEM 19(a)

SECOND AMENDMENT TO EMPLOYMENT CONTRACT

For Abel Palacio
Reclamation District 1614

THIS CONTRACT ("Contract") is made, effective as of the 4th day of April, 2022, by and between **Reclamation District 1614**, a reclamation district organized under the laws of the State of California (hereinafter called "Employer"), and **Abel Palacio** (hereinafter called "Employee").

The parties agree as follows:

Section 1. **Duties**

A. **General**. Employer hereby employs Employee to perform the duties specified in Exhibit A attached hereto and incorporated herein.

Section 2. **Term**.

A. The term of this Contract shall be indefinite, unless terminated as provided herein.

B. Nothing in this Contract shall prevent, limit or otherwise interfere with the right of Employee to resign at any time.

C. Employee in the position of Levee Superintendent serves at the will of the Employer and may be removed by Employer at any time with or without cause or notice.

Section 3. **Salary**.

A. Employer agrees to pay Employee for Employee's duties as Levee Superintendent an hourly rate of FORTY-EIGHT and 0/100 Dollars ($48.00) payable monthly, subject to usual and normal withholdings.

Section 4. **Performance Evaluation**. Employer shall review and evaluate the performance at least once annually. Such review shall include review of Employee's accomplishment of objectives and goals established by Employer.

Section 5. **Hours of Work**. Employee shall devote such hours as may be necessary to carry out the duties set forth in Exhibit A. It is anticipated that Employee will typically work approximately ten (10) hours per week depending on conditions and the needs of the Employer.

Section 6. **Vacation and Sick Leave.**

A. Employee shall not earn vacation and sick leave other than as required by law.

Section 7. **Disability, Health and Life Insurance**. Employer shall not provide disability, health or life insurance for Employee.

Section 8. **Retirement**. Employer shall not provide retirement benefits or pension benefits for Employee.

Section 9. **Reimbursement Expenses**. Employee will receive reimbursement for all sums necessarily incurred and paid by Employee in the performance of Employee's duties.

Section 10. **Indemnification**. Employer shall defend, save harmless and indemnify Employee in accordance with Division 3.6 of the California Government Code, sections 800 et seq.

Section 11. **Unavailability**. If Employee should be temporarily unavailable (as, for example, because of illness) to perform Employee's duties, Employee shall inform Employer and the Engineer for Employer.

Section 12. **Entire Contract**. This Contract contains all the understandings and agreements between the parties concerning Employee's employment and Employee acknowledges that no person who is either an agent or Employee of the District may orally or by conduct modify, delete, vary, or contradict, the terms and conditions set forth herein. Any modification or waiver of this Contract must be expressly made in writing executed and approved by the Board of Trustees of the District. This Contract replaces any and all prior agreements between Employee and the District related to Employee's employment and any and all such prior agreements are hereby canceled.

EMPLOYER
Reclamation District 1614

By _____
Kevin Kauffman, President, Board of Trustees

EMPLOYEE

_____
ABEL PALACIO

EXHIBIT "A"

RECLAMATION DISTRICT 1614
JOB DESCRIPTION, DUTIES AND REQUIREMENTS
FOR THE POSITION OF
LEVEE SUPERINTENDENT

Qualification Requirements

The Levee Superintendent must:

- Have a valid California Driver's License at the time of employment
- Have a high school diploma or equivalent
- Pass a pre-employment drug test prior to employment at the election of the Board of Trustees.
- Be able to read and write, and possess basic record keeping skills
- Be knowledgeable and comfortable around power tools, such as chainsaws, power drills, grinders, etc.
- Be physically fit to perform physical and manual labor
- Be available to work weekends, holidays and extended hours if there is a need for emergency repairs or levee patrols during potential flood events.
- Have a general knowledge of mechanical and electrical systems, and of landscape maintenance principles and an ability to communicate issues within the district to the board of directors, district engineers, and other contractor or agencies servicing district property, equipment, or responsibilities.

General Duties and Performance

The Levee Superintendent will report to the Board of Trustees, and will coordinate his or her activities with the District's Engineer, Attorney and Secretary.

Become knowledgeable on and ensure the Levee Encroachment Standards for Reclamation District 1614 are enforced.

The Levee Superintendent will also field and evaluate complaints, requests or questions from the District's residents.

The Levee Superintendent is responsible for routine levee inspections to check for levee problems and encroachments and take action when necessary

When representing the district, the Levee Superintendent will treat all property owners (including trustees) equally and in a fair manner

The Levee Superintendent shall make the effort to meet new property owners and assist them to become familiarize with the district's permit requirements and levee encroachment standards.

During abnormal high tides, inclement weather with high winds, and earthquakes, or other potential flood events, the Levee Superintendent must conduct intensive levee patrol/inspections (in coordination with the District's Engineer) to check for damages and the integrity of the levee

Attend and provide report of activities at the monthly District meeting

Respond to incidents within the jurisdiction of the reclamation district that could or will impact the operations of district equipment and/or expose the district to regulatory issues outside of normal operations.

Flood Fight Contingencies

Become knowledgeable on the Reclamation District 1614 Preliminary Levee Patrol and Emergency Plan. In coordination with the District Engineer, work on the annual Patrol Schedule, and on updating the Plan.

During winter and periods of rain or high water, the Levee Superintendent should obtain daily reports of the delta river stage from the following website:
http://www.water.ca.gov/nav.cfm?topic=Water_Conditions&subtopic=River_Conditions_and_Forecasts

During periods of rain or high water, the Levee Superintendent shall make every effort to be available and on call.

The Levee Superintendent shall attend flood fight training when available.

The Levee Superintendent shall maintain the flood fight storage shed. Materials are to be stored in an orderly manner and kept clean and free of rodents. Levee Superintendent shall keep adequate flood fight inventory on hand and replenish used materials before the start of flood season, and purchase supplies as necessary within the approved budget.

The Levee Superintendent shall become familiar with, and coordinate, the District's relations with State and County Emergency Services.

The Levee Superintendent shall know where a supply of sand can be utilized for sandbagging purposes during a flood crisis.

Pump Procedures

The Levee Superintendent shall:

- Check the District's pump at least once every week
- Check pump for oil and lubricate when needed
- Make sure that the pump is in working order
- Arrange for repairs when necessary and oversee work. Let contracts within the approved budget
- Arrange for annual power efficiency test of pumps

Levee Maintenance

The Levee Superintendent shall:

- Ensure that the District's contractor used by the District to perform weed control does perform weed control, based on a schedule determined by the Board and weather conditions
- Eliminate rodents causing burrows and holes, using standard bait and smoke bombs and other legal means; repair damages caused by rodents
- Assure that all levee maintenance work is properly inspected, resolved and photographed before starting work and after completion; write appropriate reports in accordance with this section
- Remove tree saplings from levee slopes before they reach a diameter of 2 inches
- Contact property owners regarding violations of the levee encroachment standards.
- Observe for levee encroachments and check owners for permits
- Follow progress of all work being done and inspect and make progress reports
- Clear levee crown and slopes of fallen branches where such work is necessary.

- Repair or cause to be repaired any and all erosion problems as soon as possible.

- Remind anglers/trespassers of private properties and posted areas and request them to leave when appropriate; make arrangements to move vehicles blocking levee access. This should be done in a manner to avoid confrontation. When required, the Levee Superintendent should call for assistance from the Stockton Police Department

- Let contracts under $5,000 for gate, lock and fence repairs within the approved budget.

- Let contracts under $5,000 for erosion control, rock placement and similar levee protection needs within the approved budget.

- Let contracts for sign replacement or placement within the approved budget.

Permit Processing

The Levee Superintendent shall:

- Review application, meet with the requester, and conduct site inspection

- Review plans for completeness and compliance with Levee Encroachment Standards

- Discuss any issues with application with requester

- Prepare conditions of approval and explain these to requester

- Submit request to district engineer if required; present to Reclamation District 1614 Board of Directors

- Review permits with engineer for suggestions and recommendations when appropriate

Office Work Summary

The Levee Superintendent shall:

- Propose a maintenance and operation budget. In the event there is a projected increase in the operation and maintenance costs beyond those in the annual maintenance budget, the Levee Superintendent will notify the Reclamation District 1614 Trustees of the amount of the

projected increase so that the District Trustees can determine whether to approve such an increase and appropriate any additional funds, or take other appropriate actions to meet the additional facilities maintenance needs

- Fill out daily time cards completely, assigning time to job numbers
- Prepare monthly activity report for Board meetings, including monthly budget reports
- Arrange and supervise casual labor within the approved budget.
- Maintain desk and file for paperwork, permits, photos etc.
- Keep track of permits and expirations and permitted work progress
- Keep records of all contracts let and purchases made. Ensure that all contracts and purchases comply with bidding requirements and prevailing wage requirements, where applicable, in consultation with the District's attorney.
- Review contractor billings for inaccuracies/discrepancies; recommend approval of billings that are correct, submit to Board of Trustees for approval, in consultation with the District's attorney and engineer.
- Document levee work and maintenance, and preventative maintenance, with reports and photos.
- Maintain records of pump repairs and maintain a binder for pump
- Document all high water patrols and any flood fight work.
- Documentation of work, purchases, patrols and flood fighting may be accomplished by a daily log or journal.

Labor Employees

The Levee Superintendent shall:

- Schedule and supervise labor employees. All directions to labor employees shall be from the Levee Superintendent only, with suggestions from Trustees and engineers.
- Review and approve timecards completed by the individuals submitting the timecards

- Assist District Secretary with employee information necessary for record documentation

- Acknowledge that personal vehicles may be required for District work from time to time.

Miscellaneous

The Levee Superintendent shall

- Perform such other tasks as may be assigned, from time to time, by the Board of Trustees.

ITEM 19(b)

THIRD AMENDED AND RESTATED CONTRACT FOR SECRETARIAL SERVICES

This Contract is made as of the 4th day of April, 2022, by and between RECLAMATION DISTRICT 1614, a reclamation district organized under the laws of California ("District"), and RHONDA L. OLMO ("Secretary") and supersedes all previous contracts between the parties hereto.

1. Retention of Secretary. District hereby retains Secretary to perform the duties of Secretary and Treasurer for District, on the terms and conditions specified herein. Secretary hereby agrees to perform the duties of Secretary and Treasurer for District, on the terms and conditions specified herein.

2. Duties to be Performed. Secretary shall perform all the normal and usual duties of Secretary and Treasurer, including without limitation, those specified in the California Water Code, and shall serve as recording Secretary to District. Records of the District may be kept by the Secretary, and/or the Attorney, for the District.

3. Specific Attendance at Meetings. Secretary shall (except that Secretary retains the right, in the event of irreconcilable schedule conflicts or absences, to substitute another person as recording Secretary), attend such meetings of the Board of Trustees of District, as may be requested.

4. Term. This Contract shall commence on the date first above written, and shall continue indefinitely, except that District may terminate this Contract at any time, with or without cause, by written notice to Secretary, and shall have no liability for such termination except for services performed prior to termination. Secretary may terminate this Contract, at any time, by written notice to District at least thirty (30) days prior to termination, and shall have no liability for such termination.

5. Compensation. District shall pay Secretary for services performed, the sum of $55.00 per hour worked, plus $250 for each meeting in excess of one meeting per month.

6. Reimbursement. District further agrees to reimburse Secretary for out-of-pocket expenses incurred by Secretary in performing services for District, including, but not limited to, copying costs, long-distance telephone calls, and mileage at the applicable IRS rate per mile. For single expenses in excess of Two Hundred Fifty Dollars ($250.00) District agrees to reimburse the provider thereof directly.

7. Status. Secretary is an independent contractor, and neither Secretary nor any individuals employed by Secretary is, are, or shall be an employee of District. Neither Secretary nor any individual employed by Secretary shall receive or be entitled to receive retirement or pension benefits, Public Employees Retirement System benefits, workers' compensation insurance coverage, health insurance coverage, or any other benefit from District except the compensation specified above.

8. Provision of Material. District shall provide Secretary, at District's sole cost and expense, agendas, notices, reports, and all other materials necessary to enable Secretary to carry out the duties of Secretary.

Notice. Except as otherwise expressly provided by law, any and all notices or other communication required or permitted by this Contract or by law to be served on or delivered or given to a party by another party to this Contract shall be in writing, and shall be deemed duly served, given, or delivered when personally delivered to the party to whom it is directed or, in lieu of such personal service, two (2) days after such written notice is deposited in the United States mail, First Class,, postage pre-paid, addressed to the party at the address identified for that party in this Contract. Any party may change their address for the purpose of this Paragraph by giving written notice of such change to each other party in the manner provided in this Paragraph.

District:	RECLAMATION DISTRICT 1614 c/o Andrew J. Pinasco P.O. Box 20 Stockton, CA 95201-3020
Secretary:	Rhonda L. Olmo 1758 Wawona Street Manteca, California 95337

9. Excuse of Default. Should the performance of the obligations of any party under this Contract be prevented or delayed by act of God, war, civil insurrection, fire, flood, storm, strikes, lockouts, or by any law, regulation, or order of any federal, state, county, municipal authority, or by any other cause beyond the control of such party, such party's performance under this Contract shall be excused to the extent it is so prevented or delayed.

10. No Other Relationship Created. Except as otherwise specifically set forth in this Contract, no partnership, joint venture, employment franchise, agency, corporation, association, or other relationship is intended to have been created between or among the parties as a result of this Contract.

11. Choice of Law. This Contract shall be governed by the procedural and substantive laws of the State of California.

12. Renegotiation of Contract. It is specifically provided that Secretary may renegotiate this Contract, including rates for services.

"DISTRICT"	"SECRETARY"
RECLAMATION DISTRICT 1614	RHONDA L. OLMO
By: _____ Kevin Kauffman, President	By: Rhonda L. Olmo