

U. S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
FEDERAL & COURTS BLDG., 650 CAPITOL MALL
P. O. BOX 1739, SACRAMENTO, CALIFORNIA 95808

Volume D
OPERATIONS BRANCH
FLOOD CONTROL SECTION

SUPPLEMENT TO STANDARD
OPERATION AND MAINTENANCE
MANUAL

LOWER SAN JOAQUIN RIVER AND
TRIBUTARIES PROJECT, CALIFORNIA

UNIT NO. 6
EAST LEVEE OF THE SAN JOAQUIN RIVER
IN RECLAMATION DISTRICTS NO. 2063 & 2091



U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

Incl 1

CORPS OF ENGINEERS

U. S. ARMY

SUPPLEMENT TO STANDARD
OPERATION AND MAINTENANCE MANUAL
SAN JOAQUIN RIVER & TRIBUTARIES PROJECT

UNIT NO. 6
EAST LEVEE OF THE SAN JOAQUIN RIVER
IN RECLAMATION DISTRICTS NO. 2063 & 2091

SACRAMENTO DISTRICT
CORPS OF ENGINEERS
U. S. ARMY
Sept 1961

**SUPPLEMENT TO STANDARD
OPERATION AND MAINTENANCE MANUAL
LOWER SAN JOAQUIN RIVER AND TRIBUTARIES PROJECT, CALIFORNIA**

UNIT NO. 6

EAST LEVEE OF THE SAN JOAQUIN RIVER
IN RECLAMATION DISTRICTS NO. 2063 & 2091

LOCATION	ADDITION OR REVISION	DATE
1-04 e.	Add contract no. 66-23	Unknown
Exhibit B	Add drawing no. 7-4-1699	Unknown
Exhibit F	Add copy of letter of transfer dated 1 Mar 1961	25 May 2011
1-04	Add subparagraph f	25 May 2011
Exhibit B	Add drawing no. 7-4-1856	25 May 2011
Exhibit F	Add copy of letter of transfer dated 11 Apr 2001 (R.D. 2091)	25 May 2011
Exhibit F	Add copy of letter of transfer dated 11 Apr 2001 (R.D. 2063)	25 May 2011
Exhibit F	Add copy of letter of acceptance dated 20 Jul 2001	25 May 2011
Exhibit F	Add copy of letter of acceptance dated 19 Oct 2001	25 May 2011

TABLE OF CONTENTS

SECTION I - INTRODUCTION

<u>Paragraph</u>	<u>Subject</u>	<u>Page</u>
1-01	Location	1
1-02	Project Works	1
1-03	Protection Provided	1
1-04	Construction Data and Contractor	1
1-05	Flood Flows	2
1-06	Assurances Provided by Local Interests	2
1-07	Acceptance by the State Reclamation Board	2
1-08	Inspection Procedure	2

SECTION II - FEATURES OF THE PROJECT
SUBJECT TO FLOOD CONTROL REGULATIONS

2-01	Levees	4
2-02	Drainage and Irrigation Structures	4
2-03	Channels	6
2-04	Miscellaneous Facilities	7
2-05	Special Features	8

SECTION III - REPAIR OF DAMAGE TO PROJECT WORKS
AND METHODS OF COMBATING FLOOD CONDITIONS

3-01	Repair of Damage	10
3-02	Applicable Methods of Combating Floods	10

EXHIBITS

<u>EXHIBIT</u>	<u>DESCRIPTION</u>	
A	Flood Control Regulations	Unattached
A-1	Location Map	1 Sheet
B	“As Constructed” Drawings	Unattached
C	Plates of Suggested Flood Fighting Methods (Contained in Standard Manual)	Unattached
D	Suggested Check List No. 1- Levee Inspection Report (Contained in Standard Manual)	Unattached
E	Suggested Check List - Levee, Channels & Structures	Sheets 1 – 9
F	Letters of Acceptance by the State Reclamation Board	1 Sheet
G	Suggested Semi-Annual Report Form	Sheets 1 & 2

SUPPLEMENT TO STANDARD
OPERATION AND MAINTENANCE MANUAL
SAN JOAQUIN RIVER & TRIBUTARIES PROJECT

UNIT NO. 6
EAST LEVEE OF THE SAN JOAQUIN RIVER
IN RECLAMATION DISTRICTS NO. 2063 & 2091

SECTION I
INTRODUCTION

1-01. Location. - The improvement covered by this manual is a part of the San Joaquin River and Tributaries Project levee and channel located on the right bank of the San Joaquin River between the Merced and Tuolumne Rivers. The area lies about 9 miles southwesterly from Modesto and 4 miles easterly from Patterson, California. Location by levee mileage is from mile 0.00 at the north boundary of R.D. 2091 to mile 7.59 on the south boundary of R.D. 2091 and from mile 0.00 at the north boundary of R.D. 2063 to mile 10.63 at the south boundary of R.D. 2063 and to the Mitchell Road. The area is located in Reclamation Districts No. 2063 and 2091 in the Counties of Stanislaus and Merced, California and in the general vicinity as shown on the Location Map, Exhibit A-1.

1-02. Project Works. - The project works covered by this manual is a part of the Lower San Joaquin River and Tributaries Project as authorized by the Flood Control Act of 22 December 1944, Public Law 534, 78th Congress, 2nd Session, Section 10, and consists of the north levee and channel of the Merced River at high ground to approximate river mile 93.0 on the east bank of the San Joaquin River, a total distance of about 18.2 miles.

1-03. Protection Provided. - The levee of the San Joaquin River, as described in this unit, provides direct protection to adjacent agricultural land within Reclamation Districts No. 2063 and 2091. Along the east levee of the San Joaquin River within this unit, the grade of the adopted flood plane varies from elevation 66.2 at the upper end to elevation 49.6 at the lower end. All elevations are referred to mean sea level datum (1929 adjustment). Levee grades within this unit provide for a freeboard of at least 3 feet above the adopted flood plane profile. Within this unit the project design flood for the San Joaquin River is 45,000 cubic feet per second.

1-04. Construction Data and Contractor. - Work required by the Corps of Engineers to bring levees of this unit to project standards was accomplished under the following contracts:

a. Emergency levee repairs on the right bank of the San Joaquin River in Stanislaus County was accomplished under Contract DA-04-167-CIVENG-59-44 by Lee Stephens, contractor, during the period

from 13 October 1958 to 9 November 1958.

b. Levee construction on the right banks of the San Joaquin and Merced Rivers was accomplished under Contract No. DA-04-167-CIVENG-60-49 by the M. Malfitano & Son, Inc. & Vega Engineering & Grading Co., & Grading Co., contractors, during the period from 29 February 1960 to 20 February 1961.

c. In addition to levee construction as noted in sub-paragraph b above, the Turlock Irrigation District constructed one mile of diversion canal along the east side of Mitchell Road from T.I.D. Lateral No. 6 to Williams Avenue (the beginning of the project levee on the upstream end) together with diversion control structures at T.I.D. Laterals No. 6 & 7.

d. A pumping plant at levee mile 7.34 (R.D. 2091) is covered in a separate operation and maintenance manual.

e. Emergency levee repairs on the right bank of the San Joaquin River at Mile 93.5 was accomplished under Contract No. DA-04-167-CIVENG-66-23 by H. Sykes during the period from 18 August 1965 to 9 September 1965, Specification No. 3266, Drawing No. 7-4-1699.

f. Emergency levee repairs to a breach on the right bank of the San Joaquin River from Levee Mile 0.00 to 0.05 in R.D. 2091 were completed on 29 October 1997, and Levee Miles 1.81 to 2.27 and 5.52 to 5.64 in R.D. 2063 were completed on 16 October 1997 by Cal Inc., contractor, under Contract No. DACW05-97-C-0124. Specification No. 9884E, Drawing No. 7-4-1856.

1-05. Flood Flows. – For purposes of this manual, the term “flood” or “high water period” for the San Joaquin River shall refer to flows when the water surface in the San Joaquin River reaches or exceeds the reading of 63.0 on the U.S. Geological Survey gage on the left bank of the San Joaquin River at Hills Ferry Bridge, 3.5 miles northeast of Newman, or a reading of 48.0 on the State Department of Water Resources gage near the left bank of the San Joaquin River on the downstream side of the Patterson highway bridge. Both gages are set on mean sea level datum (1929 adjustment).

1-06. Assurance Provided by Local Interests. – Assurance of cooperation by local interests is provided by State legislation as contained in Chapters 1 and 2, Part 4, Division 5 of the State Water Code. (See paragraph 2-02a of the Standard Manual).

1-07. Acceptance by the State Reclamation Board. – Responsibility for operating and maintaining this unit was officially accepted by the State Reclamation Board by letter dated 30 March 1961, as shown in the attached letter, Exhibit F.

1-08. Inspection Procedure. – Since the enactment of State Legislation of Chapter 1528, Statutes of 1947, the Department of Water Resources, State of California, has made semi-annual inspection of all levees of authorized flood control projects in the Sacramento-San Joaquin drainage basin pursuant to the Federal Regulations of 16 August 1944 (Title 33), and reports its

findings to the local agency, the State Reclamation Board and the Sacramento District, Corps of Engineers, U.S. Army. This activity, initiated pursuant to Section 208.10(a) of the Federal Regulations, has in effect provided for transfer from the local agencies to the State Department of Water Resources the obligation of compliance with Sections 8371, 8372, and 8373 of the Water Code of the State of California. These sections of the Code require the local responsible agencies to submit a report to the State Department of Water Resources on or before 1 June of each year on the condition of the levees within their jurisdiction. Supervisory powers and duties of the Department are applicable to all works on the Lower San Joaquin River and Tributaries Flood Control Project maintained and operated by the local agencies without regard to status of completion, or expenditure of Federal funds on the construction of such works.

The following procedure is used in inspecting the levees of the responsible maintaining agency:

Personnel of the State Department of Water Resources make a detailed inspection in the spring and fall or each year and make a report on any required maintenance. The inspection objectives are determine if the following items, which are a condensation of Federal Regulations, are being adhered to:

- a. That all brush, trees and wild growth other than sod are removed from the levee crown and slopes.
- b. That all weeds, grass and debris on the levee have been burned during the appropriate season, where not dangerous or impractical.
- c. That all grass and weeds on the levee have been mowed where removal by burning is dangerous or impracticable. This applies only on peat levees or where burning would constitute a hazard to improvements.
- d. That all burrowing animals have been exterminated.
- e. That all caves, sloughs, burrows, holes, slips or other damaged portions of the levee have been repaired.
- f. That all irrigation and drainage structures through the levee are in good working condition.
- g. That no revetment work or riprap have been displaced, washed out or removed.
- h. That the crown of the levee is well shaped and maintained and that unauthorized vehicular travel is restricted.
- i. That stock grazing on the levee is restricted to conditions and seasons when the levee would not be seriously scarred or otherwise damaged thereby.

j. That encroachments are not being erected on the levee which would hinder travel by authorized patrol vehicles.

k. Prevent the erection of structures on, additions to, or alterations of, the levee unless authorized permit from the State Reclamation Board.

Following this detailed inspection a joint field inspection is made with representatives of the responsible maintaining agency and the State Department of Water Resources to review and discuss the inspection report.

Upon completion of the fall inspection the State Department of Water Resources publishes an annual report entitled, "Status of Project Levee Maintenance" which indicates the degree of proficiency attained by each obligated local agency in providing required maintenance.

SECTION II

FEATURES OF THE PROJECT SUBJECT TO FLOOD CONTROL REGULATIONS

2-01. Levees. -

a. The levee described in this manual lies along the east side of the San Joaquin River in the general area between the Merced and Tuolumne Rivers and extends for a total distance of about 18.2 miles. The levee has been reconstructed with slopes of 1 on 3 waterside and 1 on 2 landside with a crown width of 12 feet. The necessary drainage structures, road approaches, bank protection, and appurtenances were also included in the work. For more complete detail in construction of the above-mentioned levee, refer to the "As Constructed" drawings of EXHIBIT B.

b. For pertinent Requirements of the Code of Federal Regulations and other requirements see the following:

- (1) Maintenance - paragraph 4-02 of the Standard Manual.
- (2) Suggested Check Lists - EXHIBIT E of this Supplement Manual.
- (3) Operation - paragraph 4-04 of the Standard Manual.
- (4) Special Instructions - paragraph 4-05 of the Standard Manual.

2-02. Drainage and Irrigation Structures. -

a. Description - Drainage and irrigation structures which extend through the levee are listed as follows:

Levee Mile	Size of Pipe	Other Description	Feet Below Crown
<u>R.D. No. 2063</u>			
1.29	24" CMP	Riser unit W.S. - Pump W.S.	10.0
1.35	2-48" CMP	Lateral Drain No. 5 - Riser unit W.S.	25.5
1.91	36" CMP	Riser unit W.S.	19.0
2.11	30" CMP	Riser unit W.S.	16.5
2.29	30" CMP	Flapgate W.S. - Slide gate L.S.	12.0
2.46	24" CMP	Riser unit W.S.	10.0
2.65	24" CMP	Flapgate W.S.	12.0
2.71	24" CMP	Flapgate W.S.	20.3

DRAINAGE AND IRRIGATION STRUCTURES, CONT'D

Levee Mile	Size of Pipe	Other Description	Feet Below Crown
2.97	24" CMP	Flapgate W.S.	9.5
3.33	24" CMP	Flapgate W.S.	12.5
3.44	24" CMP	Flapgate W.S.	10.5
3.50	24" CMP	Riser unit W.S.	9.5
3.69	24" CMP	Flapgate W.S.	12.0
4.08	24" CMP	Flapgate W.S.	12.0
4.16	24" CMP	Riser unit W.S.	10.0
4.23	2-20" Steel	Riser unit W.S. - Pumps L.S.	13.0
4.23	24" CMP	Riser unit W.S.	26.0
4.54	2-2" Steel	Domestic Supply - Well W.S.	2.0
4.65	10" Steel	Pump W.S.	4.0
4.87	10" Steel	Pump W.S.	10.0
5.13	14" Steel	Riser unit W.S. - Pump W.S.	9.0
5.13	16" Steel	Riser unit W.S. - Pump W.S.	9.0
7.08	10" Steel	Riser unit W.S. - Pump W.S.	10.0
7.61	36" CMP	Riser unit W.S.	25.5
7.62	10" Steel	Riser unit W.S. - Pump W.S.	7.0
8.60	2-16" Steel	Riser units W.S. - Pumps W.S.	3.5
8.60	2-42" CMP	Riser units W.S.	18.0
9.21	24" CMP	Flapgate W.S.	12.0
9.66	24" CMP	Flapgate W.S.	5.6
10.11	48" CMP	Slidegate W.S.	6.0
10.12	24" CMP	Flapgate W.S.	3.5
10.62	6" Steel	Slidegate W.S.	4.0

R.D. No. 2091

0.07	24" CMP	Riser unit W.S.	7.2
0.10	24" CMP	Riser unit W.S.	9.0
0.13	24" CMP	Flapgate W.S. - Flashboards L.S.	7.0
0.23	24" CMP	Flapgate W.S.	10.0
0.40	24" CMP	Flapgate W.S.	10.0
0.64	24" CMP	Flapgate W.S.	12.0
0.91	2-24" Steel	Flapgates W.S. - Pumps L.S.	3.0
0.91	30" CMP	Riser unit W.S.	25.0
4.67	30" CMP	Slidegate W.S.	15.0
6.31	36" CMP	Riser unit W.S. - Pump W.S.	15.0
7.34	3-42"	R.D. 2091 Drainage - Pumps L.S. - Concrete Conduit	22.0

Note on abbreviations:

CMP - Corrugated Metal Pipe
W.S. - Water Side
L.S. - Land Side

b. For pertinent Requirements of the Code of Federal Regulations and other requirements, see the following:

- (1) Maintenance - paragraph 5-02 of the Standard Manual.
- (2) Suggested Check Lists - EXHIBIT E of this Supplement Manual.
- (3) Operation - paragraph 5-04 of the Standard Manual.
- (4) Additional Requirements - paragraph 5-05 of the Standard Manual.
- (5) Safety Requirements - paragraph 5-06 of the Standard Manual.

2-03. Channels. -

a. Description - The main channel and floodway of the San Joaquin and Merced Rivers for this unit lie adjacent to the levees as described in paragraph 1-02. The project design capacities of said channels are as listed in paragraph 1-03 of this manual.

b. For pertinent Requirements of the Code of Federal Regulations and other requirements, see the following:

- (1) Maintenance - paragraph 6-02 of the Standard Manual.
- (2) Suggested Check Lists - EXHIBIT E of this Supplement Manual.
- (3) Operation - paragraph 6-04 of the Standard Manual.
- (4) Safety Requirements - paragraph 6-05 of the Standard Manual.

It shall be the duty of the local agency responsible for maintenance to keep in contact with the State Department of Water Resources Flood Operation Center during all periods of flood danger, and to maintain a patrol of the project works in their area during periods of flood in excess of a reading of 63.0 on the gage located on the Hills Ferry Bridge, or a reading of 48.0 on the gage located on the downstream side of the Patterson highway bridge, as referred to in paragraph 1-05 of this manual.

The Flood Operation Center is responsible for data collection and issuance of a joint river forecast with the U.S. Weather Bureau and coordinates with the Sacramento District Engineer, and other

agencies to keep appraised of the current situation in accordance with terms of the Memorandum of Understanding dated 1 November 1956, between the Division Engineer, U.S. Army Engineer Division, South Pacific, and the Director, Department of Water Resources, State of California for cooperative action during flood emergencies.

2-04. Miscellaneous Facilities. -

a. Description. Miscellaneous structures or facilities which were constructed as a part of, or in conjunction with, the protective works, and which might affect their functioning, include the following:

(1) Bridges.

(a) The Patterson Bridge crossing the San Joaquin River.

(b) The Crows Landing Bridge crossing the San Joaquin River.

(2) Utility Relocation. Because of the nature of the construction of structures by local interests, records of utility relocations are not available.

(3) Hydrologic Facilities. Hydrologic facilities provided in the vicinity of this unit consist of the following:

(a) U.S. Geological Survey continuous water stage recorder and staff gage located on the left bank of the San Joaquin River at the Hills Ferry Bridge. This gage to be maintained by the U.S. Geological Survey.

(b) State Department of Water Resources continuous water stage recorder and staff gage located near the left bank of the San Joaquin River on the downstream side of the Patterson highway bridge. This gage to be maintained by the Department of Water Resources.

b. For pertinent Requirements of the Code of Federal Regulations and other requirements, see the following:

(1) Maintenance - paragraph 7-02 of the Standard Manual.

(2) Suggested Check Lists - paragraph 7-03 of the Standard Manual.

(3) Operation - paragraph 7-04 of the Standard Manual.

2-05. Special Features.

a. Description of Pumping Plant for Turlock Irrigation District Lateral No. 6.

(1) General Description. A pumping plant has been constructed where the T.I.D Lateral No. 6 crosses the levee within R.D. No. 2063 at levee mile 8.60. It is designed to take care of local runoff from the area below Mitchell Road during either the flood season or irrigation season. Gravity drains are also provided to supplement the pumping operations. The facility consists of two pumps with automatic controls and appurtenances. Runoff from the drainage area flows via Lateral No. 6 to the sump at the pumping plant, the entrance being protected by a wood trash rack. Flap gates are provided at the waterside ends of the two 16-inch steel discharge pipes to prevent back flow. Two 42-inch C.M.P. gravity drain pipes through the levee permit gravity drainage when the river flow stages are low enough to permit such drainage. These pipes are provided with flap gates at the discharge ends and slide gates (manually operated) in corrugated metal riser units near the crown of the levee for closure in case of required emergency repairs.

(2) Type. Each pump is a vertical single axial flow propeller pump, complete with motor, controls, and appurtenances, suspended from a wood platform.

(3) Capacity. Each pump when operating with submergence of 3 feet and at approximately full load speed of 1,160 r.p.m., will deliver a minimum of 4,000 gallons per minute at 8.5 feet total dynamic head and is capable of priming the siphon discharge line with one pump starting at elevation 57.0 feet. The automatic controls shall be set to start the first pump at elevation 57.0 feet and the second pump at elevation 58.0 feet and stop both pumps at elevation 54.0 feet.

(4) Motors. The motors are electric 15 hp., vertical hollow draft, weather protected type, built to NEMA Standards, 40 degree centigrade rated with a 1.15 service factor, and built for across the line starting. The power service is 3-phase, 60-cycle, 200-volts.

(5) Float Switch. The float controls are provided for automatic operation of the pumps in accordance with the prescribed operating procedure. The float control assembly consists of an 8-inch float well and a float control device designed for automatic control of the two pumps. The float control well column extends down to within 6-inches of the bottom of the sump with the lower portion slotted.

b. Maintenance.

(1) Pertinent requirements of the Code of Federal Regulations, paragraph 208.10(f)(1), are quoted in part as follows:

"(f) Pumping plants--(1) Maintenance. Pumping plants shall be inspected by the Superintendent at intervals not to exceed 30 days during flood seasons and 90 days during off-flood seasons to insure that all equipment is in order for instant use. At regular intervals, proper measures shall be taken to provide for cleaning plant, buildings, and equipment, repainting as necessary, and lubricating all machinery. Adequate supplies of lubricants for all types of machines . . . shall be kept on hand at all times . . . Repairs requiring removal of equipment from the plant shall be made during off-flood seasons insofar as practicable."

c. Description of the Turlock Irrigation District Structures for Laterals No. 6 and 7.

(1) General Description. Construction by the T.I.D. of about 1 mile of diversion canal along the east side of Mitchell Road from T.I.D. Lateral No. 6 to Williams Avenue is an essential part of this project. Included with this diversion canal are diversion structures at Laterals No. 6 and 7 and Mitchell Road and the Williams concrete siphon (two barrels-each 5' x 7') diagonally across the intersection of Mitchell Road and Williams Avenue designed to divert excess flood flows from these laterals around the end of the project levee. The control structures are essentially radial and slide gate type control structures.

(2) Operation. Operation of the control gates at Laterals No. 6 and 7 should be closely correlated with flood flow stages in the San Joaquin River. Whenever the San Joaquin River stage is such that pumping is necessary at the lower end of Lateral No. 6, the control gates at Mitchell Road shall be closed and all flows of Laterals No. 6 and 7 originating above Mitchell Road shall be diverted around the end of the project levee.

SECTION III
REPAIR OF DAMAGE TO PROJECT WORKS AND
METHODS OF COMBATING FLOOD CONDITIONS

3-01. Repair of damage. - In the event of serious damage to the project works, whether due to flood conditions or other causes, and which may be beyond the capability of local interests to repair, the local agency responsible for maintenance will contact a representative of the Department of Water Resources, State of California, who coordinates maintenance of project works of the Lower San Joaquin River and Tributaries Flood Control Project. The State representative will give assistance or advise, or will determine appropriate action to be taken.

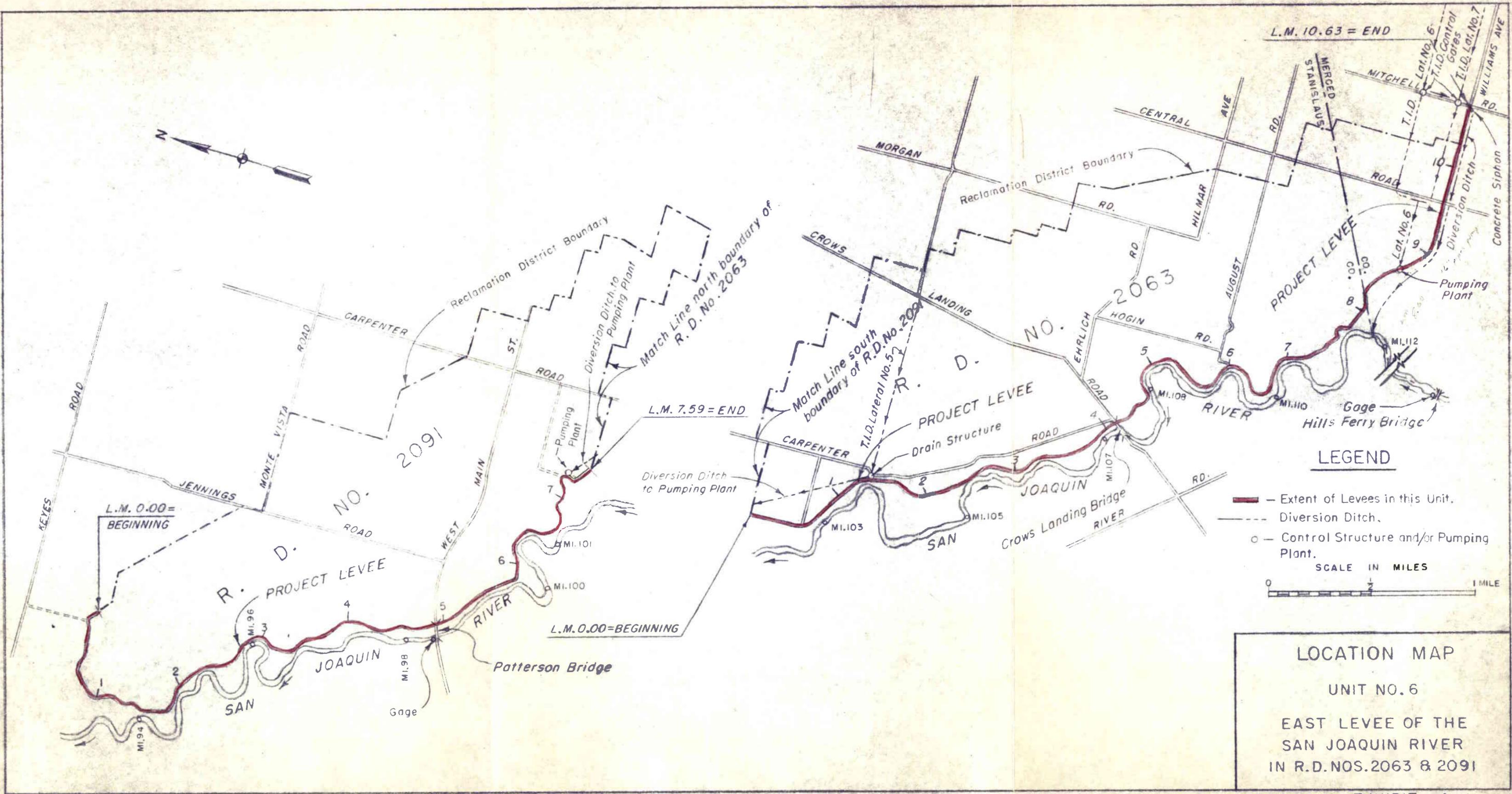
3-02. Applicable methods of combating floods. - For applicable methods of combating flood conditions, reference is made to Section VIII of the Standard Operation and Maintenance Manual, revised May 1955, where the subject is fully covered.

EXHIBIT A

FEDERAL FLOOD CONTROL REGULATIONS

(SEE STANDARD MANUAL)

EXHIBIT A



LOCATION MAP
 UNIT NO. 6
 EAST LEVEE OF THE
 SAN JOAQUIN RIVER
 IN R.D. NOS. 2063 & 2091

EXHIBIT B

“AS CONSTRUCTED”
DRAWINGS

See separate folder for the following drawings:

<u>File No.</u>	<u>Title</u>
7-4-1555	Right Bank San Joaquin River Between Merced River and Tuolumne River, sheets 1, 3 to 17, incl., 21, 22, 23, 25 to 37 incl., 41 to 55, incl., and 58 to 65, incl.
7-4-1570	Emergency Levee Repairs, Right and Left Banks San Joaquin River and Right Bank Merced River, sheets 1 and 2.
7-4-1654	Turlock Irrigation District Drain Ditch and Structures for Control of Spill at Laterals 6 and 7, in 6 sheets.
7-4-1699	Emergency Levee Repairs, Right Bank San Joaquin at Reclamation District 2091 Pump Mile 93.5, in 1 sheet.
7-4-1856	PI 84-99 – Phase III Emergency Levee Repair RD 2063 and RD 2091, San Joaquin River Stanislaus County, California, in 4 sheets.

EXHIBIT C

PLATES OF SUGGESTED FLOOD FIGHTING METHODS

(SEE STANDARD MANUAL)

EXHIBIT C
Unattached

EXHIBIT D

SUGGESTED CHECK LIST NO. 1

LEVEE INSPECTION REPORT

(SEE STANDARD MANUAL)

EXHIBIT D

EXHIBIT E

SUGGESTED CHECK LISTS OF LEVEES,

CHANNEL AND STRUCTURES

For definition of "flood" or "high water period", see paragraph 1-05 this manual.

EXHIBIT E

Sheet 1 of 9

SUGGESTED CHECK LIST NO. 2
UNIT NO. 6
SAN JOAQUIN RIVER

Inspector's Report Sheet No. _____ Inspector _____

Date _____ Superintendent _____

Item	Remarks
(a) Location by Station	
(b) Settlement, sloughing, or loss of grade	
(c) Erosion of both levee slopes	
(d) Condition of roadways, including ramps	
(e) Evidence of seepage	
(f) Condition of farm gates and fencing	
(g) Maintenance measures taken since last inspection	
(h) Comments	

EXHIBIT E

Sheet 2 of 9

Instructions for Completing Sheet 2, Exhibit E
(To be printed on back of Sheet 2)

- Item (a) Indicate levee station of observation, obtained by pacing from nearest reference point; indicate right or left bank.
- Item (b) If sufficient settlement of earthwork has taken place to be noticeable by visual observation, indicate amount of settlement in tenths of a foot. If sloughing has caused a change in slope of the embankment sections, determine the new slope. Note areas where erosion or gulying of the section has occurred.
- Item (c) If sufficient erosion or gulying of back face of back toe of levee has taken place to be noticeable by visual inspection, indicate area affected and depth.
- Item (d) Note any natural change in any section of roadway or ramps. Indicate any inadequacy in surface drainage system.
- Item (e) Indicate any evidence of seepage through the embankment section.
- Item (f) Indicate the serviceability of all farm gates across the embankments and roadway, and indicate if repainting is required.
- Item (g) Indicate maintenance measures that have been performed since last inspection and their condition at the time of this inspection.
- Item (h) Record opinion, if any, of contributory causes for conditions observed and also any observations not covered under other columns.

NOTE: One copy of the Inspector's Report is to be mailed to the District Engineer immediately on completion, and one copy is to be attached to and submitted with the Superintendent's semi-annual report.

EXHIBIT E

Sheet 3 of 9

SUGGESTED CHECK LIST NO. 3

CHANNEL AND RIGHT-OF-WAY

UNIT NO. 6

SAN JOAQUIN RIVER

Inspector's Report Sheet No. _____ Inspector _____

Date _____ Superintendent _____

Item	Remarks
(a) Name of Channel and location by Stations	
(b) Vegetal growth in channel	
(c) Debris and refuse in channel	
(d) New construction within right-of-way	
(e) Extent of a aggradation or degradation	
(f) Condition or ripped section	
(g) Condition of bridges	
(h) Measures taken since last inspection	
(i) Comments	

Instructions for Completing Sheet 4, Exhibit E
(To be printed on back of Sheet 4)

- Item (a) Indicate station of observation obtained by pacing from nearest reference point.
- Item (b) Note nature, extent, and size of vegetal growth within the limits of flood flow channel.
- Item (c) Note nature and extent of debris and refuse that might cause clogging of the conduits of the irrigation intake works, fouling of the tainter gates, or the bridges over the channel.
- Item (d) Report any construction along the diversion channel or above the diversion channel or above the diversion works that has come to the attention of the inspector and that might affect the functioning of the project.
- Item (e) Indicate any change in grade or alignment of the channels, either by deposition or sediment or scour, that is noticeable by visual inspection. Estimate amount and extent.
- Item (f) Indicate any change that has taken place in the riprap such as disintegration of the rock, erosion, or movement of the rock. Note the presence of vegetal growth through the riprap.
- Item (g) Note any damage or settlement of the footings of the bridges. Indicate condition of wooden structures and if repainting is required. Indicate condition of bridge approaches, headwalls, and other appurtenances.
- Item (h) Indicate maintenance measures that have been performed since the last inspection and their condition at time of this inspection.
- Item (i) Record opinion, if any, of contributory causes for conditions observed, also any observations not covered under other columns.

NOTE: One copy of the Inspector's Report is to be mailed to the District Engineer immediately on completion and one copy is to be attached to and submitted with the Superintendent's semi-annual report.

SUGGESTED CHECK LIST NO. 4

DRAINAGE AND IRRIGATION STRUCTURES

UNIT NO. 6
SAN JOAQUIN RIVER

Inspector's Report Sheet No. _____

Inspector _____

Date _____

Superintendent _____

(a) Location by Levee mileage	(b) Bank	(c) Debris or other obstruc- tion to flow	(d) Damage or settle- ment of pipe or conduit	(e) Condi- tion of concrete headwall or invert paving	(f) Condi- tion of right- of-way adjacent to struc- ture	(g) Repair measures taken since last inspec- tion	(h) Comments
			<u>R. D. NO. 2063</u>				
1.29	RT.						
1.35	"						
1.91	"						
2.11	"						
2.29	"						
2.46	"						
2.65	"						
2.71	"						
2.97	"						
3.33	"						
3.44	"						
3.50	"						
3.69	"						

SUGGESTED CHECK LIST NO. 4

DRAINAGE AND IRRIGATION STRUCTURES

UNIT NO. 6
SAN JOAQUIN RIVER

Inspector's Report Sheet No. _____

Inspector _____

Date _____

Superintendent _____

(a) Location by Levee mileage	(b) Bank	(c) Debris or other obstruc- tion to flow	(d) Damage or settle- ment of pipe or conduit	(e) Condi- tion of concrete headwall or invert paving	(f) Condi- tion of right- of-way adjacent to struc- ture	(g) Repair measures taken since last inspec- tion	(h) Comments
4.08	Rt.						
4.16	"						
4.23	"						
4.23	"						
4.54	"						
4.65	"						
4.87	"						
5.13	"						
5.13	"						
7.08	"						
7.61	"						
7.62	"						
8.60	"						
8.60	"						
9.21	"						
9.66	"						

EXHIBIT E

SUGGESTED CHECK LIST NO. 4

DRAINAGE AND IRRIGATION STRUCTURES

UNIT NO. 6
SAN JOAQUIN RIVER

Inspector's Report Sheet No. _____

Inspector _____

Date _____

Superintendent _____

(a) Location by Levee mileage	(b) Bank	(c) Debris or other obstruc- tion to flow	(d) Damage or settle- ment of pipe or conduit	(e) Condi- tion of concrete headwall or invert paving	(f) Condi- tion of right- of-way adjacent to struc- ture	(g) Repair measures taken since last inspec- tion	(h) Comments
10.11	Rt.						
10.12	"						
10.62	"						
			<u>R.D. No.</u>	<u>2091</u>			
0.07	"						
0.10	"						
0.13	"						
0.23	"						
0.40	"						
0.64	"						
0.91	"						
0.91	"						
4.67	"						
6.31	"						
7.34	"						

Instructions for Completing Sheet 6, 7 & 8 Exhibit E
(To be printed on back of Sheet 6 7 & 8)

- (1) Enter station of all structures under Column (a) for check list.
- (2) Inspect inlet, barrel, and outlet for accumulation of sediment, rubbish, and vegetal matter. Note condition under Column (c).
- (3) If any settlement or damage to the pipe, barrel, or invert of the drain has occurred, estimate the location and amount. Note particularly if any backfill has come into the pipe or been disturbed. Record observations under Column (d).
- (4) Inspect the concrete portions of the structures for evidence of settlement, cracks, "pop-outs", spaces, abrasive wear, or other deterioration. Record conditions under Column (e).
- (5) Inspect backfill area adjacent to structure for evidence of erosion caused by overflow of the drainage structure and note conditions in Column (f).
- (6) Under Column (g) indicate physical measures that have been taken to correct conditions reported in last inspection, and their condition at time of this inspection.
- (7) Under Column (h) record opinion, if any, of contributory causes for conditions observed, also any observations not covered under other columns.
- (8) A copy of the inspector's report is to be mailed to the District Engineer immediately on completion, and a record copy shall be attached to the Superintendent's semi-annual report.

EXHIBIT F

LETTER OF ACCEPTANCE BY
THE STATE RECLAMATION BOARD

EXHIBIT F

SPICCO-C

1 MAR 1961

The Reclamation Board
State of California
1215 "O" Street
Sacramento 14, California

Gentlemen:

Reference is made to the joint inspection made on 25 and 26 January 1961 of certain levee sections pertaining to the Lower San Joaquin River and Tributaries Project for the purpose of transferring them to the State of California for operation and maintenance.

The required work, consisting of levee construction and bank protection on the San Joaquin River was completed on 17 February 1961 in accordance with Specification No. 2615, Contract No. DA-04-167-CIVENG-60-49 and Drawing No. 7-4-1555. The levee sections referred to above are listed as follows:

<u>LEVEE</u> <u>SECT. NO.</u>	<u>SITE NO.</u>	<u>BANK</u>	<u>SAN JOAQUIN RIVER MILE POINTS</u>
38	Unit "A"	Right	93.50 to 114.00 <i>unit 6</i>
39	Unit "C"	Right	85.00 to 88.00 <i>unit 5</i>

The levee sections Nos. 38 to 39 inclusive, described above now meet the requirements of the Lower San Joaquin River and Tributaries Project. Therefore, said levee sections together with the waterway banks contiguous thereto, are hereby transferred to the State of California for operation and maintenance.

The maintenance work required under the provisions of the Lower San Joaquin River and Tributaries Project shall be performed in accordance with existing Flood Control Regulations, inclosed herewith, which have been prescribed by the Secretary of the Army pursuant to Section 3 of the Act of Congress, approved 22 June 1936, as amended and supplemented by a Standard Operation and Maintenance Manual for the Lower San Joaquin River and Tributaries Project which is being prepared. As

Postcard

1 MAR 1961

SPKXO-C
The Reclamation Board

provided under Paragraph 203.10(10) of these regulations, a supplement to the Standard Operation and Maintenance Manual covering these units of work will be furnished to you upon completion.

A copy of this letter is being transmitted to the Department of Water Resources.

Sincerely yours,

1 Incl
F.C. Reg.

H. N. TURGER
Colonel, CE
District Engineer

- Copy furnished:
- ✓ Dept Water Resources
23rd & "R" Streets
Sacramento, California w/o incl
 - ✓ O. C. E. w/o incl
 - ✓ S. P. D. w/o incl

- cc: Engr Divn, Levees & Channels w/o incl
 Engr Divn, Program Dev. Br. w/o incl
 Northern Area Office w/o incl
 Operations Br. w/o incl

OPERATIONS BRANCH
CHANNELS & LEVEES SECTION

Concurrences	
Originator:	LHK
Date:	2/27/61
Dist.	
Engr.	<i>[Signature]</i>
Asst. D.E. (A)	
Asst. D.E. (O)	
Exec. Asst.	<i>[Signature]</i>
Cmptlr.	
Budget	
Fin. & Acctg.	
Mgmt.	
Property	
Office	
Engr. Divn.	
Const.	
Oper.	<i>[Signature]</i>
Engr. g.	
R. E.	
Print.	
Legal	
Supply	

Unit 516

[Handwritten mark]

C
O
P
Y

C
O
P
Y

THE RECLAMATION BOARD
of the
State of California

March 30, 1961

District Engineer
Sacramento District
U. S. Corps of Engineers
P. O. Box 1739
Sacramento 8, California

Dear Sir:

Reference is made to your letter of March 1, 1961, File SPKKO-C, regarding transfer to the State of California of levee sections on the Lower San Joaquin River and Tributaries Project, Specification No. 2615 at the locations listed below:

<u>LEVEE</u>			
<u>SECT. NO.</u>	<u>SITE NO.</u>	<u>BANK</u>	<u>SAN JOAQUIN RIVER MILE POINTS</u>
38	Unit "A"	Right	93.50 to 114.00
39	Unit "C"	Right	85.00 to 88.00

The Reclamation Board at its meeting of March 16, 1961, formally accepted these levee sections for operation and maintenance.

Sincerely yours,

/s/ A. N. Murray
A. N. MURRAY

General Manager and Chief Engineer

Navigation and Flood Control Unit

APR 11 2001

Mr. Peter D. Rabbon, General Manager
The Reclamation Board
State of California
1416 - 9th Street, Room 1601
Sacramento, California 95814

Dear Mr. Rabbon:

This letter is to transfer a portion of work on the right levee of the San Joaquin River from Levee Mile 0.00 (south boundary of RD 2091) to Levee Mile 10.63 (Mitchell Road) in RD 2063, to the State of California for operation and maintenance.

The work consisted of restoring the right levee of the San Joaquin River damaged by the January 1997 Flood, from L.M. 1.81 to L.M. 2.27. Wavewash-damaged areas were filled on the waterside with levee fill material and compacted, restoring the waterside slope to 3 horizontal on 1 vertical. Sand boils were remediated on the landside from L.M. 5.52 to L.M. 5.64 by constructing a gravel berm on the landside, 630-foot-long, 50-foot-wide, and an average of 2½-foot-deep. The work as listed in the enclosure was completed on October 16, 1997 in accordance with Specification No. 9884E, Drawing File No. 7-4-1856, Contract No. DACW05-97-C-0124.

The work was performed under the general authority of 33 U.S.C. 701n (69 Stat. 186) PL 84-99 and now meets the requirements of the Operations and Maintenance Manual for the San Joaquin River Flood Control System in RD 2063. Therefore, said flood control work, together with the waterway banks contiguous thereto, are transferred as of the date of this letter to the State of California for operation and maintenance.

This portion of the project work will be added by amendment to the Operation and Maintenance Manual, San Joaquin River Flood Control Project, which is being transferred under separate cover.

Sincerely,

Michael J. Walsh
Colonel, Corps of Engineers
District Engineer

jm
MINTON/dd

[Signature]
TAVANA

[Signature]
SANDNER

[Signature]
WINTON

[Signature]
DURHAM-AGUILERA

[Signature]
DOYLE

[Signature]
KORMAN

[Signature]
CHARLTON

[Signature]
O'BRIEN

[Signature]
WALSH

Unit le

Enclosure

cc:
CESPK-CO-E
CESPK-ED
CESPK-ED-D
CESPK-PM
CESPK-CO-RV



REPLY TO
ATTENTION OF

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

APR 11 2001

Navigation and Flood Control Unit

Mr. Peter D. Rabbon, General Manager
The Reclamation Board
State of California
1416 - 9th Street, Room 1601
Sacramento, California 95814

Dear Mr. Rabbon:

This letter is to transfer a portion of work on the right levee of the San Joaquin River in Unit 2 from Levee Mile 0.00 to Levee Mile 0.05 in RD 2091, to the State of California for operation and maintenance.

The work consisted of restoring the right levee of the San Joaquin River breached by the January 1997 Flood, in Unit 2, from L.M. 0.00 to L.M. 0.05. The breach in the levee was repaired by placing and compacting clay fill and topping with 6-inches of aggregate course, restoring the waterside slope to 3 horizontal on 1 vertical and the landside slope to 2 horizontal on 1 vertical. The work as listed in the enclosure was completed on October 29, 1997 in accordance with Specification No. 9884E, Drawing File No. 7-4-1856, Contract No. DACW05-97-C-0124.

The work was performed under the general authority of 33 U.S.C. 701n (69 Stat. 186) PL 84-99 and now meets the requirements of the Operations and Maintenance Manual of the San Joaquin River Flood Control System in RD 2091. Therefore, said flood control work, together with the waterway banks contiguous thereto, are transferred as of the date of this letter to the State of California for operation and maintenance.

This portion of the project work will be added by amendment to the Operation and Maintenance Manual, San Joaquin River Flood Control Project, which is being transferred under separate cover.

Sincerely,


Michael J. Walsh
Colonel, Corps of Engineers
District Engineer

Enclosure

Unit 6

THE RECLAMATION BOARD

1416 NINTH STREET, ROOM 1601
 SACRAMENTO, CA 95814
 (916) 653-5434 FAX: (916) 653-5805
 Permits: (916) 653-5726 FAX: (916) 653-5805



JUL 20 2001

Mr. Marshall Berg, Secretary
 Reclamation District No. 2063
 334 North Center Street, Suite G
 Turlock, California 95380

Dear Mr. Berg:

The U.S. Army Corps of Engineers has completed the 1997 flood-damage repair on the east levee of the San Joaquin River (Levee Mile 0.00 to LM 10.63) in Reclamation District No. 2063. Mr. Ron Bertoli, of the Department of Water Resources' System Integrity Section, contacted Mr. Eli Mendonca, Director of RD 2063, by telephone on June 14, 2001 and received assurance of acceptance for the completed repair. The Corps has transferred the completed repair to the State of California for operation and maintenance (see enclosed letter). At its July 20, 2001 meeting, on behalf of the State of California, The Reclamation Board accepted the completed repair.

The Board hereby transfers the completed repair to RD 2063 for operation and maintenance. The Corps has advised the Board that the completed repair will be added by amendment to the Operation and Maintenance Manual, San Joaquin River Flood Control Project. In the interim, RD 2063 will perform operation and maintenance in accordance with the current O&M Manual. As-designed drawings are enclosed. When we receive the as-constructed version, we will forward a copy to you for your records.

If you have any questions, you may contact Peter D. Rabbon, General Manager of The Reclamation Board at (916) 653-5434, or your staff may contact Debbie Carlisle, Chief of the DWR's System Integrity Section of the Division of Flood Management, at (916) 574-0364.

Sincerely,

Betsy A. Marchand

Betsy A. Marchand
 President

Enclosures

cc: Colonel Michael J. Walsh ✓
 District Engineer
 Sacramento District
 U.S. Army Corps of Engineers
 1325 J Street
 Sacramento, California 95814-2922

Mr. Kell Cloward
 Readiness Branch
 Sacramento District
 U.S. Army Corps of Engineers
 1325 J Street
 Sacramento, California 95814-2922

Unit 6

THE RECLAMATION BOARD

1416 NINTH STREET, ROOM 1601
SACRAMENTO, CA 95814
(916) 653-5434 FAX: (916) 653-5805
Permits: (916) 653-5726 FAX: (916) 653-5805



OCT 19 2001

Colonel Michael J. Conrad Jr.
District Engineer
Sacramento District
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Dear Colonel Conrad:

In Colonel Walsh's April 11, 2001 letter to The Reclamation Board, the U.S. Army Corps of Engineers transferred the repaired right levee of the San Joaquin River (Unit 2, Levee Mile 0.00 to LM 0.05) in Reclamation District No. 2091 to the Board of the State of California for operation and maintenance. The levee is presently being maintained by Stanislaus County. You advised the Board that the completed repairs would be added by amendment to the Operation and Maintenance Manual, San Joaquin River Flood Control Project. We understand that the repairs were completed in accordance with the original plans and specifications. We acknowledge receipt of as-designed drawings and will forward a copy to Stanislaus County.

The Board on behalf of the State of California accepted the completed repairs at its October 19, 2001 meeting and transferred the Stanislaus County levee repairs to RD 2091. Until the Corps provides the O&M Manual, Stanislaus County will perform operation and maintenance according to the current manual.

If you have any questions, you may contact Peter Rabbon, General Manager of The Reclamation Board, at (916) 653-5434, or your staff may contact Mel Yarwood, Acting Chief of the Department of Water Resources' System Integrity Section of the Division of Flood Management, at (916) 574-0367.

Sincerely,

Betsy A. Marchand
President

cc: (See attached list)

Unit 2

Mr. Kell Cloward, Chief
Readiness Branch
Sacramento District
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Mr. George Stillman, Director
Department of Public Works
1100 H Street
Modesto, California 95354

bcc: Jay Punia
Richard Marshall

Unit 6

EXHIBIT G

SUGGESTED SEMI-ANNUAL REPORT FORM

EXHIBIT G

TO: The District Engineer
Sacramento District
Corps of Engineers
1209 - 8th Street
Sacramento, California

(1 May 19__)
(1 Nov 19__)

Dear Sir:

The semi-annual report for the period (1 May 19__ to 31 October 19__) (1 November 19__ to 30 April 19__) Unit No. 6 of the San Joaquin River Tributaries Project is as follows:

a. The physical condition of the protective works is indicated by the inspector's report, copies of which are inclosed, and may be summarized as follows:

(Superintendent's summary of conditions)

It is our intention to perform the following maintenance work in order to repair or correct the conditions indicated:

(Outline the anticipated maintenance operations for the following 6 months.)

b. During this report period, major high water periods (water level at 63.0 on the gage at the Hills Ferry Bridge across the San Joaquin River and 48.0 on the gage at the Patterson highway bridge across the San Joaquin River) occurred on the following dates:

<u>Dates</u>	<u>Maximum Elevation</u>
_____	_____
_____	_____
_____	_____

Comments on the behavior of the protective works during such high water periods are as follows:

(Superintendent's log of flood observations)

During the high water stages when the water level reached a height of _____, on the gage or excess thereof (dates) _____, it was necessary to organize and carry out flood operations as follows:

(See Maintenance Manual _____.)

c. The inspections have indicated (no) or (the following) encroachments or trespasses upon the project right-of-way.

d. (no) (_____) permits have been issued for (the following) improvements or construction within the project right-of-way.

Executed copies of the permit documents issued are transmitted for your files.

e. The status of maintenance measures, indicated in the previous semi-annual report as being required or as suggested by the representatives of the District Engineer, is as follows:

(Statement of maintenance operations, item by item with percent completion.)

f. The fiscal statement of the Superintendent's operations for the current report period is as follows:

	<u>Labor</u>	<u>Material</u>	<u>Equipment</u>	<u>Overhead</u>	<u>Total</u>
1. Inspection					
2. Maintenance					
3. Flood fighting operations					

TOTAL

Respectfully submitted,

Superintendent of Works