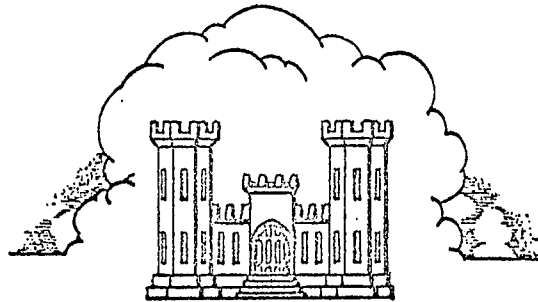


SUPPLEMENT TO STANDARD  
OPERATION AND MAINTENANCE  
MANUAL  
SACRAMENTO RIVER  
FLOOD CONTROL PROJECT

UNIT NO. 108  
LEVEES AROUND  
PETERS TRACT



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

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SUPPLEMENT TO STANDARD  
OPERATION AND MAINTENANCE MANUAL  
SACRAMENTO RIVER FLOOD CONTROL PROJECT

UNIT NO. 108  
LEVEES AROUND  
PETERS TRACT

U. S. ARMY ENGINEER DISTRICT, SACRAMENTO  
CORPS OF ENGINEERS  
SACRAMENTO, CALIFORNIA  
APRIL 1964

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<u>Exhibit</u>	<u>Description</u>	
A	Flood Control Regulations . . . . . (Contained in Standard Manual)	Unattached
A-1	Location Map . . . . .	1 Sheet
B	"As Constructed" Drawings . . . . .	1 Sheet
C	Plates of Suggested Flood Fighting Methods . . (Contained in Standard Manual)	Unattached
D	Suggested Check List No. 1 - Levee Inspection . (Contained in Standard Manual)	Unattached
E	Suggested Check List - Levee, Channels and . . Structures	Sheets 1 thru 7
F	Transfer to the State Reclamation Board . . . .	Sheets 1 and 2
G	Suggested Semi-Annual Report Form . . . . .	Sheets 1 and 2

SUPPLEMENT TO STANDARD  
OPERATION AND MAINTENANCE MANUAL  
SACRAMENTO RIVER FLOOD CONTROL PROJECT  
UNIT NO. 108  
LEVEES AROUND  
PETERS TRACT

SECTION I  
INTRODUCTION

1-01. Location. The improvement covered by this manual is that part of the Sacramento River Flood Control Project levee and channel that is located in Solano County and surrounds the Peters Tract. The levee lies along the right bank of Haas Slough and the left bank of Cache Slough with a cross levee along the west side between the two sloughs. Location by levee mileage is described as beginning at the southwesterly corner of the Peters Tract; thence continuing in a counterclockwise direction a distance of 7.40 miles around the Tract to the point of beginning. The area is located about eight miles north of Rio Vista 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 are a part of the Sacramento River Flood Control Project authorized by the Flood Control Act of 1917, as modified by the Acts of 1928, 1937 and 1941 and consists of the levees and channels as described in paragraph 1-01 above. The levees around Peters Tract were originally constructed by local interests and portions as shown on the drawings of EXHIBIT B were enlarged, raised or repaired by the Corps of Engineers to project standards.

1-03. Protection Provided. Levees of this unit provide direct protection to adjacent agricultural lands within the Peters Tract together with related homes, buildings and roads. Along the right bank of Haas Slough and the left bank of Cache Slough the grade of the adopted flood plane profile is level at elevation 18.4. All elevations are referred to U. S. Corps of Engineers' datum. Levee grades within this unit provide for a freeboard of at least 3 feet above the adopted flood plane profile. The reaches of Haas and Cache Slough within this unit are subject to back-water from tidal fluctuations and the levees have been designed accordingly.

1-04. Construction Data and Contractor. Construction required by the Corps of Engineers to bring levees of this unit to project standards and to perform repair work to locally built levees was accomplished under the following job orders and contracts:

a. Levee enlargement along the easterly levee of Peters Tract was completed by M. N. Ball & Sons on 31 January 1943 under Job Order No. 840.

b. Levee enlargement along the west levee of Haas Slough from its junction with Cache Slough upstream approximately 2 miles was completed on 23 May 1943 under Job Order No. 854. Drawing No. 50-4-2005.

c. Levee enlargement along the easterly levee of Cache Slough on Peters Tract for approximately 2.4 miles was completed on 30 June 1943 under Job Order No. 858. Drawing No. 50-4-1977.

d. Levee construction to complete the levee around Peters Tract to project standards was accomplished under Contract No. DA-04-167-CIVENG-63-57 by Bill Gattung, Inc., during the period from 3 June 1963 to 16 December 1963. Specification No. 2896 and Drawing No. 50-4-3379.

1-05. Flood Flows. For purposes of this manual, the term "flood" or "high water period" shall refer to flows when the water surface reaches or exceeds a reading of 12.0 on the State Department of Water Resources continuous water stage recorder and staff gage located on the right bank of Lindsey Slough at the California Packing Corporation headquarters, 1.1 miles upstream from the Yolo Bypass. Gage set at 0.00 feet U. S. Corps of Engineers datum and minus 2.92 U.S.G.S. datum.

1-06. Assurances Provided by Local Interests. Assurances of co-operation by local interests is provided by State Legislation, as contained in Chapter 3, Part 2, Division 5 of the State Water Code (see paragraph 2-02a of the Standard Manual).

1-07. Transfer to the State Reclamation Board. Responsibility for operating and maintaining the completed works was officially transferred to the Reclamation Board of the State of California by letter dated 16 December 1963, see 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 inspections 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 8471, 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 of the Sacramento River 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 of each year and make a report on any required maintenance. The inspection objectives are to 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 by permit from the State Reclamation Board.

Following this detailed inspection a joint field inspection is made with representatives of the responsible maintaining agency and in 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. Description. Levees as described in paragraph 1-01 of this manual lie along the right bank of Haas Slough and the left bank of Cache Slough with a cross levee along the west side between the two sloughs. The levees have been reconstructed with slopes of 1 on 3 waterside and 1 on 2 landside and crown width of 12 feet. The necessary drainage structures, road approaches, and appurtenances were also included in the work. For more complete detail in construction of the above-mentioned levees, 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) 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 Structure Description	Feet Below Crown
0.14	20"		14.8
1.52	16"	Slide gate W. S.	5.7
2.04	16"	Flapgate W. S.	
2.60	24"	Flapgate W. S.	18.0
3.12	12"	Flapgate W. S.	13.0
3.37	4' x 4'	Concrete Culvert - Flashboard L. S.	17.0
3.98	10"	No gate	9.8
4.32	12"	No gate	2.0
4.65	24"	Flapgate W. S. - Standpipe L. S.	11.0
5.06	18"	Slidegate W. S. (abandoned)	1.8
5.50	12"	Flapgate W. S.	9.5
7.06	18"	No gate or control valve	3.5

Note on abbreviations:

W. S. = Waterside

L. S. = Landside

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 channels and floodways of Haas and Cache Sloughs lie adjacent to the levees as described in paragraph 1-01 and are subject to tidal fluctuations.

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 maintain a patrol of the project works in their area during periods of flood in excess of a reading of 12.0 on the gage located on the right bank of Lindsey Slough at the California Packing Corporation headquarters, 1.1 miles upstream from the Yolo Bypass.

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

(2) Hydrologic Facilities. A continuous water stage recorder and staff gage located on the right bank of Lindsey Slough at the California Packing Corporation headquarters, 1.1 miles upstream from Yolo Bypass. This gage to be maintained by the State Department of Water Resources.

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

- (1) Maintenance - paragraph 7-02 of the Standard Manual.
- (2) Check Lists - paragraph 7-03 of the Standard Manual.
- (3) Operation - paragraph 7-04 of the Standard Manual.

### 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 Sacramento River Flood Control Project. The State representative will give assistance or advice, or will determine appropriate action to be taken.

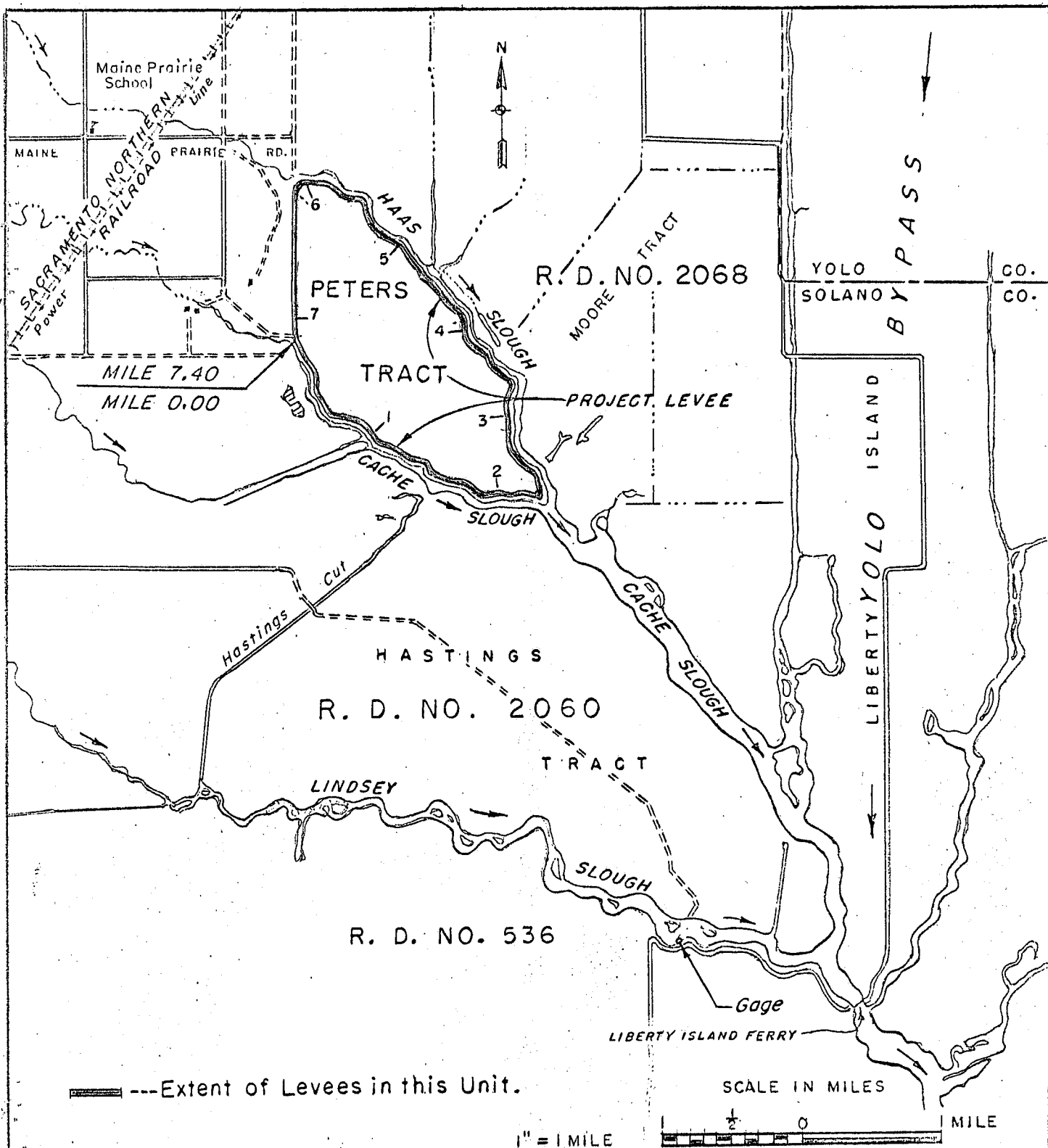
3-02. Applicable methods of combating floods. For applicable methods of combating flood conditions, reference is made to Section VIII of the Standard Operation and Maintenance Manual where the subject is fully covered.

EXHIBIT A

FEDERAL FLOOD CONTROL REGULATIONS

(SEE STANDARD MANUAL)

EXHIBIT A



LOCATION MAP  
 UNIT NO. 108  
 LEVEES AROUND  
 PETERS TRACT

EXHIBIT B

"AS CONSTRUCTED"

DRAWINGS

See separate folder for the following drawings:

<u>File No.</u>	<u>Title</u>
50-4-1977	Levee Enlargement Along Easterly Levee of Cache Slough on Peters Tract, in 2 sheets
50-4-2005	Levee Enlargement along West Levee of Haas Slough from its Junction with Cache Slough Upstream Approximately 2 miles, in 1 sheet
50-4-3379	Levee Construction on Cache and Haas Sloughs at Peters Tract, in 10 sheets

EXHIBIT B  
Unattached

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 of this manual.

SUGGESTED CHECK LIST NO. 2

UNIT NO. 108

Inspector's Report Sheet No. \_\_\_\_\_ Inspector \_\_\_\_\_

Date \_\_\_\_\_ Superintendent \_\_\_\_\_

Item	Remarks
(a) Location of 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	

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 gullyng of the section has occurred.
- Item (c) If sufficient erosion or gullyng 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.

SUGGESTED CHECK LIST NO. 3

CHANNEL AND RIGHT-OF-WAY

UNIT NO. 108

Inspector's Report Sheet No. \_\_\_\_\_ Inspector \_\_\_\_\_

Date \_\_\_\_\_ Superintendent \_\_\_\_\_

(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 riprapped 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. 108

Inspector's Report Sheet No. \_\_\_\_\_

Inspector \_\_\_\_\_

Date \_\_\_\_\_

Superintendent \_\_\_\_\_

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Location by levee mileage	Bank	Debris or other obstruction to flow	Damage or settlement of pipe or conduit	Condition of concrete headwall or invert paving	Condition of right-of-way adjacent to structure	Repair Measures taken since last inspection	Comments
0.14	Lt.						
1.52	" "						
2.04	" "						
2.60	Rt.						
3.12	" "						
3.37	" "						
3.98	" "						
4.32	" "						
4.65	" "						
5.06	" "						
5.50	" "						
7.06	Lt.						

INSTRUCTIONS FOR COMPLETING SHEET 6, EXHIBIT E

(To be printed on back of Sheet 6)

- (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

LETTERS OF TRANSFER TO  
THE STATE RECLAMATION BOARD

EXHIBIT F

C O P Y

SPKKO-C

16 December 1963

The Reclamation Board  
State of California  
1215 "O" Street  
Sacramento, California 95814

Gentlemen:

Reference is made to the joint inspection made on 14 November 1963 of flood control work pertaining to the Sacramento River Flood Control Project for the purpose of transferring this work, upon completion, to the State of California for operation and maintenance.

The flood control work consists of levee enlargement and shaping and surfacing patrol roads on Cache and Haas Sloughs and Bunker Road, forming protection for the area known as Peters Tract. The work was completed on 16 December 1963, in accordance with Specification 2896, Contract No. DA-04-167-CIVENG-63-57, and Drawing Number 50-4-3379.

The flood control work described above completes all levees protecting Peters Tract. The work now meets the requirements of the Sacramento River Flood Control Project. Therefore, said flood control work, together with the waterway banks contiguous thereto are transferred to the State of California for operation and maintenance.

The maintenance work required under the provisions of the Sacramento River Flood Control 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

EXHIBIT F  
Sheet 1 of 2

C O P Y

SPKKO-C  
The Reclamation Board

16 December 1963

supplemented by the current issue of the Standard Operation and Maintenance Manual for the Sacramento River Flood Control Project. As provided under Paragraph 208.10 (10) of these regulations, a supplement to the Standard Operation and Maintenance Manual covering the above described unit of work is in process of preparation and 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. Regulations

ROBERT E. MATHE  
Colonel, CE  
District Engineer

EXHIBIT F  
Sheet 2 of 2

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. 108 of the Sacramento River Flood Control 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 12.0 on the gage located on the right bank of Lindsey Slough 1.1 miles upstream from the Yolo Bypass).

Dates	Maximum Elevation
_____	_____
_____	_____
_____	_____

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:

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

TOTAL

Respectfully submitted,

\_\_\_\_\_  
Superintendent of Works