State of California

THE RESOURCES AGENCY

The Reclamation Board

LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT

DEDICATION

LOS BANOS, CALIFORNIA

OCTOBER 6, 1966

HUGO FISHER
Administrator
The Resources Agency

EDMUND G. BROWN
Governor
State of California

STANLEY W. KRONICK
President
The Reclamation Board

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THE RESOURCES AGENCY
THE RECLAMATION BOARD

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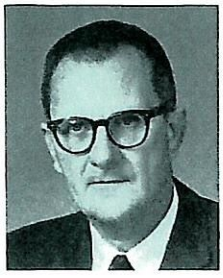
ALBERT E. McCOLLAM
General Manager

J. J. MADIGAN
Vice President

WALLACE J. McCORMACK
Secretary



GEORGE W. NICKEL, JR.
Member

HAROLD J. O'BANION
Member

DONALD L. WEILER
Member

H. TERRILL SARTAIN
Member

STATE OF CALIFORNIA—RESOURCES AGENCY EDMUND G. BROWN, *Governor*

THE RECLAMATION BOARD
RESOURCES BUILDING, 1416 9TH STREET • SACRAMENTO 95814

STANLEY W. KRONICK, *President*
J. J. MADIGAN, *Vice President*
WALLACE McCORMACK, *Secretary*
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H. TERRILL SARTAIN
DONALD L. WEILER
COL. A. E. McCOLLAM, *General Manager*

Refer to:

On behalf of the Reclamation Board I welcome you to the dedication of the Lower San Joaquin River Flood Control Project.

This Fall will see the completion of the planning and design and construction of this project at a cost of $23,000,000. We have now reached the goal, after 16 years of effort, of the control of the disastrous flooding from the San Joaquin River in Fresno, Madera and Merced counties.

The flood control protection now afforded by the project will prevent millions of dollars in damages, permit the orderly development of agriculture and increase development and property values in areas along the river which were previously subject to extensive flood damage.

Our special expression of thanks go to Senator James A. Cobey of the California Legislature for his enthusiastic and continued support of the project throughout the past years. Without his support it is doubtful that our hopes would ever have been realized. I would also like to convey our appreciation to the Department of Water Resources for the engineering and construction of the facility, and to the local people for their understanding and support of the Reclamation Board during the long years of decision in determining what type of project and its location.

It is with a sense of pride for a job well done that we gather in Los Banos today to dedicate this project.

Stanley W. Kronick

STANLEY W. KRONICK, President
State Reclamation Board

THE NEED FOR FLOOD CONTROL

The Great Central Basin of California drains an area of 58,960 square miles. This entire watershed drains through the Sacramento and San Joaquin Valleys and eventually empties into San Francisco Bay.

From 1907 to 1964 a total of 47 damaging floods occurred in the Sacramento Valley, causing an estimated damage of $96.4 million, based upon value of damage at time of occurrence.

Since 1900 lands in the San Joaquin River Basin have suffered from 42 damaging floods, but the floods of 1937-38, 1950-51, 1952, 1955-56, 1962-63 are the only ones for which detailed and accurate records of the damages are available. The flood damages in 1937-38 were estimated by the Corps of Engineers at $7,624,000; the 1950-51 damages at $12,400,000; the 1952 damages at $2,000,000; 1955-56 at $16,100,000; 1958 at $13,240,000, and 1962-63 at $1,700,000. Approximately 390,000 acres in this basin under present conditions are subject to overflow.

The completed flood control projects within the Great Central Basin are designed to afford protection from waters which would, if unchecked, cause up to $350 million in damages. During the 1962-63 floods the estimated flood damages prevented exceeded $265 million.

It is of paramount importance to the State of California, and particularly to those living within areas that are vulnerable to the floodwaters of the Sacramento and San Joaquin Rivers, that flood protection be achieved as rapidly as possible. The completion of the Sacramento and San Joaquin River Flood Control Projects is essential at an early date in order that loss of life and the periodic damage and waste caused by floods may be forever eliminated.

A flood which a few decades ago was considered only an inconvenience would today create a major disaster in some localities.

It is a certainty, measured by the yardstick of the past, that without completion of these remedial measures for flood control, damages from floods in the Sacramento and San Joaquin Valleys will increase in proportion to future growth of this part of the state. The current rapid growth in population, agriculture, industry, property values and other developments demands that immediate and sustained action be taken to provide protection commensurate with this ever-growing need.

THE RECLAMATION BOARD

History and Creation

For 50 years preceding the adoption of a flood control plan by the Federal Government and the State of California, protection against floodwaters in the Great Basin of California had been a matter of the survival of the financially strongest.

There had been a continuous conflict between swampland owners and reclamation districts, based on the right of each owner to protect himself as best he could against the common enemy—the floodwaters. Prior to 1910, Sacramento Valley and Delta landowners had built flood control works at an estimated cost of $28,000,000.

As each small holding, or unit, provided defenses for itself only, without following any comprehensive plan and regardless of the effect upon other holdings or units, protection in each instance was secured by diverting the flood waters upon neighbors. The neighbors retaliated by constructing higher levees; so with each new reclamation the flood plane was raised, the common danger increased, and the cost of reclamation unnecessarily multiplied. With each man for himself, no general plan adopted, and no tribunal to enforce all work for the common good, many millions of dollars were thrown away in levees while general conditions gradually grew worse. In the meantime navigation was seriously impaired.

THE RECLAMATION BOARD

Recurrent floods, together with hydraulic mining, carried on under federal toleration and license, clogged the rivers with debris and reduced enormously the flood-carrying capacity of the river channels. This wave of debris shoaled San Pablo Bay and also lessened the depth of water over the bar at the entrance to San Francisco Bay.

It has been estimated that over six billion cubic yards of hydraulic mining debris is located in the Sacramento River and its tributaries, a large portion of which may eventually pass to tidal waters.

So stood the situation when, in 1893, Congress created the California Debris Commission comprised of three officers of the Corps of Engineers appointed by the President. The commission took steps to alleviate the debris conditions. By 1910 they had built several debris barriers and commenced the opening of the mouth of the Sacramento River below the mouth of Cache Slough to create a channel of sufficient capacity to pass the floodwaters of the Sacramento River to Suisun Bay and thence to the sea.

The Debris Commission realized that it would be impossible to contain the floodwaters within the channel of the Sacramento River and suggested a flood control plan based on the construction of bypasses and weirs to contain the floodwaters. Governor Johnson in 1911 approved the plan and created the Reclamation Board to help implement it.

Authority

The Water Code, Part 4, Sections 8520 to 9377, codifies the law governing the Reclamation Board. Other parts of this code, especially Sections 8350-9577 and 12878 - 12878.45 inclusive, covering the responsibilities of the Department of Water Resources, assigns certain responsibilities to the Board relative to the maintenance of flood control works after completion.

The Water Resources Act of 1945 (Chapter 1514), and the Flood Control Fund Act of 1946 (Chapter 142) assigns functions to the Reclamation Board relative to construction activities in cooperation with the Federal Government, on flood control works outside the boundaries of the Sacramento and San Joaquin Drainage District. These units are referred to as the "Merced County Stream Group," the "Fresno County Stream Group," the "Farmington Project," and the "Middle Creek Project."

THE RECLAMATION BOARD

Organization and Activities

The Reclamation Board, which manages and controls the Sacramento and San Joaquin Drainage District, is the State agency which cooperates with the U. S. Army Corps of Engineers in the planning, establishment, and construction of flood control works on the Sacramento and San Joaquin Rivers and their tributaries.

The Reclamation Board was created in 1911 at an extra session of the State Legislature and reorganized in 1913. The Sacramento and San Joaquin Drainage District, which was authorized by Chapter 170, Statutes of 1913, comprises 1,726,553 acres situated within the boundaries of 14 counties: Glenn, Butte, Colusa, Sutter, Yuba, Sacramento, Yolo, Solano, Contra Costa, San Joaquin, Stanislaus, Merced, Madera, and Fresno.

The Reclamation Board since 1956 has been a part of the Department of Water Resources. By statute, however, it continues to exercise and have all of its original powers, duties, purposes, responsibilities, and jurisdiction. The Department of Water Resources superintends the operation and maintenance of all completed projects and regularly inspects them to be sure that they are properly maintained.

This Board was the first California agency commissioned by the Legislature to deal primarily with flood control problems.

For the past 54 years the Board has provided a direct liaison between the State, the Federal Government, landowners, and all others interested in the control of floodwaters of the Sacramento and San Joaquin Rivers and their tributaries. The Board has established an open forum of long standing before which all interests have been privileged to appear and express their views relative to the control of floods. Adherence to this procedure has proven highly valuable in the ultimate solution of the many complex problems that have arisen in carrying out the flood control projects of the Sacramento and San Joaquin Valleys.

The seven Board members serve at the pleasure of the Governor and receive necessary expenses incurred in the performance of their duties including attending meetings of the Board.

THE RECLAMATION BOARD

Functions

Briefly summarized, the main functions of the Reclamation Board are as follows:

(1) Acts as the governing body of the Sacramento and San Joaquin Drainage District.

(2) Passes on plans of construction of any character, including buildings, drainage and irrigation plants, bridges, communication and power lines, levees, canals, dams and similar structures, which pass over, along, under, or through any of the streams, levees, flowage areas, or other works of flood protection on the Sacramento and the San Joaquin Rivers or any of their tributaries.

(3) Passes upon proposed plans for the reclamation of lands located within the boundaries of any reclamation district situated within the Sacramento and San Joaquin Drainage District.

(4) Considers plans for construction of all flood control works on the Sacramento or San Joaquin Rivers and their tributaries to require that they conform to any adopted flood control project.

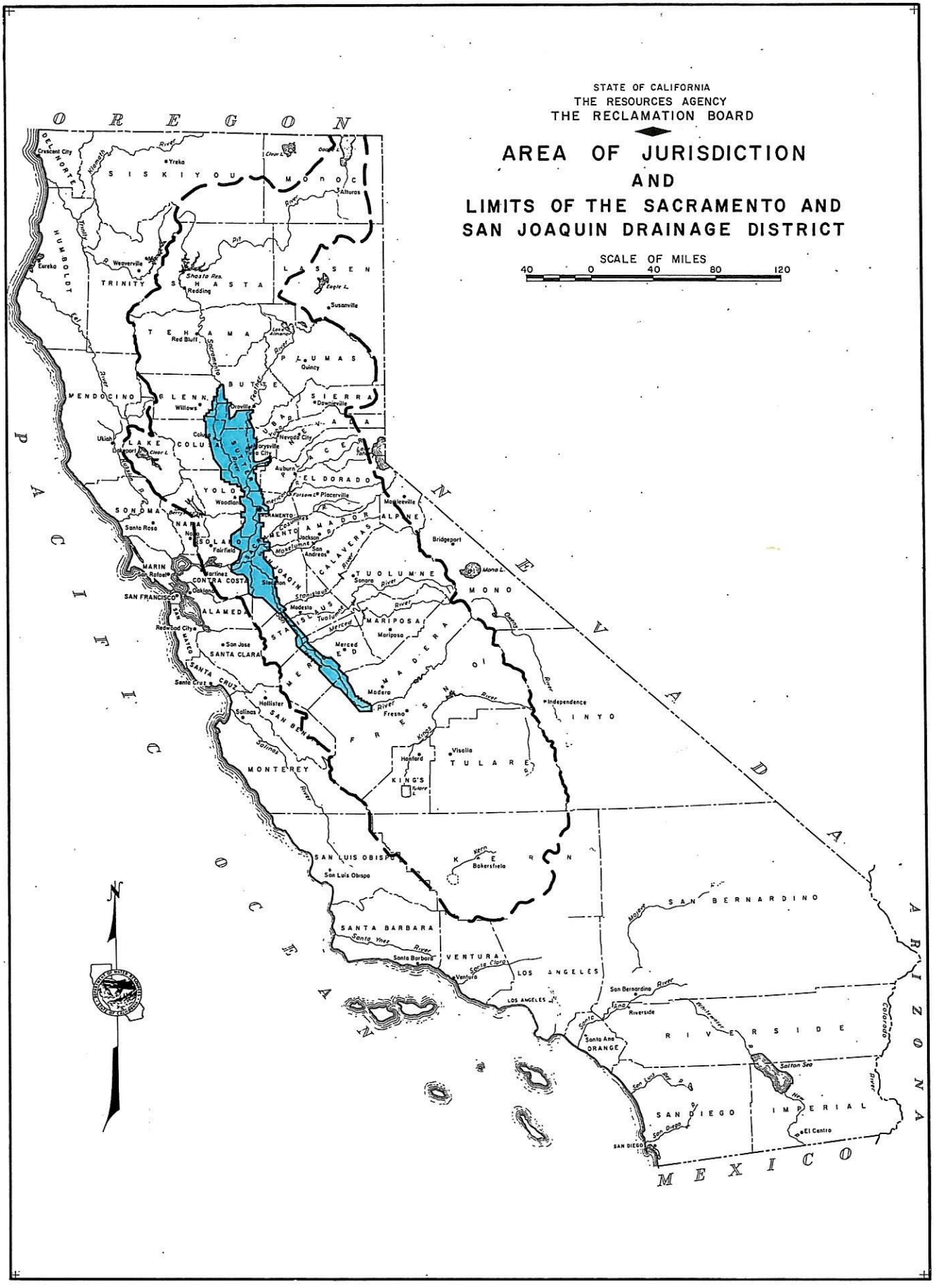
(5) Cooperates with the Corps of Engineers, U. S. Army, in the planning and construction of flood control works on the Sacramento and San Joaquin Rivers and their tributaries.

(6) Secures all lands, rights-of-way and easements and completes all incidental construction required of the state for flood protection in the two valleys and also for certain flood control reservoirs built by the U. S. Engineers on the upper streams.

(7) Receives, hears, and adjudicates complaints and objections relative to flood control matters in the two valleys.

(8) Takes all necessary steps to assure the proper maintenance of the flood control works under its jurisdiction, including the formation of maintenance areas and the bringing of necessary legal actions.

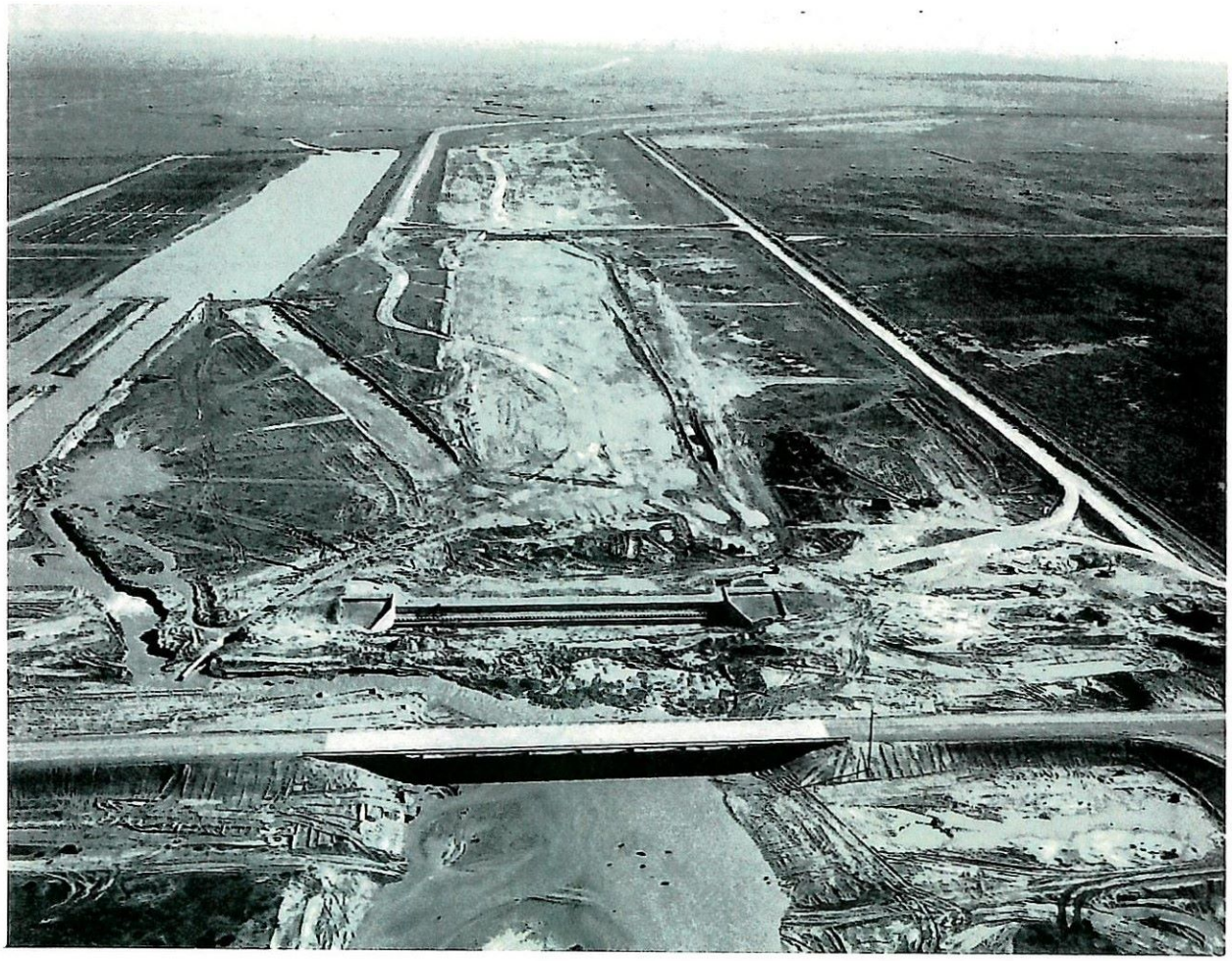
(9) Administers the property held by the Sacramento and San Joaquin Drainage District for flood control purposes, including the sale of surplus property and the leasing of other lands or interests therein whenever possible to maximize the revenue of the state.


STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE RECLAMATION BOARD
AREA OF JURISDICTION
AND
LIMITS OF THE SACRAMENTO AND
SAN JOAQUIN DRAINAGE DISTRICT
SCALE OF MILES
40 0 40 80 120
OREGON
NEVADA
ARIZONA
MEXICO
PACIFIC OCEAN
DEL NORTE
HUMBOLDT
SISKIYOU
MODOC
TRINITY
SHASTA
LASSEN
TEHAMA
PLUMAS
MENDOCINO
GLENN
BUTTE
SIERRA
LAKE
COLUSA
YUBA
NEVADA
PLACER
YOLO
EL DORADO
SONOMA
NAPA
SOLANO
SACRAMENTO
AMADOR
ALPINE
MARIN
CONTRA COSTA
CALAVERAS
SAN FRANCISCO
ALAMEDA
TUOLUMNE
MONO
SAN MATEO
STANISLAUS
MARIPOSA
SANTA CLARA
MERCED
MADERA
SANTA CRUZ
SAN BENITO
FRESNO
INYO
MONTEREY
KINGS
TULARE
KERN
SAN LUIS OBISPO
SAN BERNARDINO
SANTA BARBARA
VENTURA
LOS ANGELES
RIVERSIDE
ORANGE
SAN DIEGO
IMPERIAL
Crescent City
Yreka
Alturas
Eureka
Weaverville
Shasta Res.
Redding
Susanville
Red Bluff
Quincy
Willows
Oroville
Downieville
Ukiah
Colusa
Nevada City
Marysville
Yuba City
Auburn
Placerville
Folsom L.
Woodland
Sacramento
Meadeville
Santa Rosa
Napa
Fairfield
Martinez
Oakland
San Andreas
Jackson
Bridgeport
Mono L.
Sonora
Stockton
Modesto
Tuolumne
Merced
Mariposa
Redwood City
San Jose
Santa Cruz
Hollister
Salinas
Madera
Fresno
Independence
Hanford
Visalia
Kings
Bakersfield
San Luis Obispo
Santa Barbara
Ventura
Los Angeles
San Bernardino
Riverside
Santa Ana
Salton Sea
San Diego
El Centro
Eel
Trinity
Klamath
Pit
Sacramento
Feather
Yuba
Bear
American
Cosumnes
Mokelumne
Calaveras
Stanislaus
Tuolumne
Merced
San Joaquin
Fresno
Kings
Kern
Santa Ynez
Santa Clara
Mojave
San Bernardino
Santa Ana
Colorado
San Luis Rey
San Diego

Financing Flood Control

Prior to the commencement of federal participation in 1917, the Reclamation Board secured essentially all of the funds necessary for construction of flood control works under its jurisdiction, by levying direct assessments against the lands benefited.

Eight assessments were spread by the Board upon 3,225,000 acres within the Sacramento and San Joaquin Drainage District, amounting to a total principal of $12,000,000. The large acreage involved resulted from the fact that parts of the projects for which lands were assessed overlaid benefited areas that already had been assessed for prior flood control projects. The liquidation of all of these assessments has been accomplished after arduous and complicated procedures engaging the combined efforts of the Reclamation Board and the interested landowners for over 20 years and has resulted in substantial savings to the landowners.



Eastside Bypass and Fresno River - Madera County Road 9 Bridge and Eastside Bypass Drop Structures under construction.

THE RECLAMATION BOARD

Eastside Bypass – C. H. Carter, Chief Construction Branch; H. G. Dewey, Jr., Assistant Chief Engineer, Division of Design and Construction; and N. W. Hoover, Project Engineer, discuss the energy dissipator blocks on the Eastside Bypass Drop Structure.

In 1917 the Federal Government adopted a plan of flood control for the Sacramento River (known as the Jackson Report). This act has been modified through the years as to state and federal participation and project planning. Since 1933 most of the expenditures by the Reclamation Board have been appropriated from General Fund revenues of the State.

Under the cooperative program now operative between the State and the United States, the Federal Government shares in the construction and right-of-way costs. The Reclamation Board is required to give assurances to the Secretary of the Army that the State will (a) acquire all lands, easements, and rights-of-way necessary for the construction of the project under the adopted flood control plan (except as otherwise provided in Public Law No. 738, 74th Congress); (b) hold and save the United States free from damage due to the construction works; (c) maintain and operate the works after completion according to regulations prescribed by the Secretary of War; (d) do all other things required by Public Law No. 738, or any acts amending or adding thereto, now or hereafter adopted.

LEGISLATIVE SUPPORTERS

SENATOR JAMES A. COBEY
California Legislature

ASSEMBLYMAN CARLEY V. PORTER
California Legislature

Senator James A. Cobey, Chairman of the Senate Standing and Fact Finding Committees on Water Resources has been an outstanding advocate of beneficial water resources and flood control development since he began serving in the Senate of the California Legislature in 1955. In 1955 he authored the legislation adopting the plan for levees on the Lower San Joaquin River Flood Control Project. Senator Cobey deserves the just plaudits of the flood control project's beneficiaries for his instrumental support in bringing the facility to its present successful completion.

Assemblyman Carley V. Porter Chairman of the Assembly Water Committee of the California Legislature, has served the people of California in an exemplary manner since his initial election to the Assembly in 1949. His experienced background, interest, and continued support in the development and use of water in California is evidenced by his active participation in cosponsoring many of the water-oriented acts passed by the Legislature in the last several years as well as his guidance through the Assembly of the legislation authorizing the Lower San Joaquin River Flood Control Project.

LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT

Purpose

The Lower San Joaquin River Flood Control Project has been designed and constructed to provide flood protection along the San Joaquin River and tributaries in Merced, Madera, and Fresno Counties from the mouth of the Merced River upstream to a point near the head of Gravelly Ford Canal.

Authorization

The authorized project area comprises the flood plain of the San Joaquin River and its tributaries betwen Friant Dam and the mouth of the Merced River. However, construction of flood control works is required only along a 125-mile reach from Gravelly Ford Canal to the Merced River.

Prior to World War II, flood plain lands along the San Joaquin River were devoted principally to the production of nonirrigated or subirrigated native pasture. Following World War II new developments in agricultural practice resulted in the development and intensive use of flood plain lands for irrigated agriculture with accompanying demands for land reclamation and protection against flooding.

The Lower San Joaquin River Flood Control Project authorized by the Congress in 1944 as part of Public Law 534 was approved by the California Legislature in 1946 (Section 12651 of the State Water Code). The authorization was the result of the following sequence of events relating to the control of San Joaquin River floods:

(a) The Federal Flood Control Act of 1936, Public Law 738, declared a national interest in the prevention of flood damage.

(b) The Chief of Engineers reported to the Congress that certain projects for the control of floods in the Sacramento and San Joaquin Valleys should be adopted. The flood control plan proposed for the lower San Joaquin Valley provided in part that, in lieu of flood protection works, an area comprising about 118,000 acres of grassland flood plain between Friant Dam and Merced River be reserved for natural detention basins during periods of excessive runoff (see page 17). The Corps of Engineers in 1940 estimated the total cost of the acquisition of this acreage at $800,000.

LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT

Development

Upon termination of World War II it was assumed that the acquisition of flowage easements for the passage of flood water would take place during the course of construction of the total Sacramento and San Joaquin Valleys flood control project; however, the acquisition of the grassland water rights by the U. S. Bureau of Reclamation in connection with the operations of the Central Valley Project, approval by the Reclamation Board of applications for land reclamation along the San Joaquin River, and the difficulty experienced in the operation of Friant Reservoir for flood control during November and December 1950 emphasized a need for reanalyzing the portion of the authorized project between Friant Dam and Merced River.

In February 1952 the Reclamation Board held a public hearing in Los Banos to acquaint the landowners and agriculturists in the area with the proposal contained in the authorized flowage easement plan and to obtain an expression from the affected parties with regard to the control of flood waters in and adjacent to the San Joaquin River. Opposition to the authorized plan developed because the reservation of large areas for unrestricted overflow would prevent full utilization of the lands. The consensus favored further studies to develop a feasible plan for control of floods within confined channels which would meet with the approval of a majority of the interested parties and the Federal Government.

Subsequently the Reclamation Board engaged the services of a board of consulting engineers consisting of Messrs. B. A. Etcheverry, T. H. Means, and Harry Barnes to review the estimated costs of the 118,000 acres of flowage easements set forth in the report of the Chief of Engineers and to evaluate the costs of the easements under post-war conditions of development. The consulting board's report in March 1953 estimated the total cost of acquiring such easements on this acreage had escalated to $18,300,000.

The difference in valuation with the Corps of Engineers' 1940 estimate of $800,000 is attributable to the large increase in market values resulting from the development of lands, construction of reclamation works, changes in land use, and the generally accelerated demand for irrigable lands.

Plan "A"

At the request of the Reclamation Board the Division of Water Resources submitted its 1954 report, "Control of Floods, San Joaquin River and Tributaries between Friant Dam and Merced River". The report presented two alternative plans of development for the confinement of flood flows in leveed channels and bypasses which required 22,000 acres of land for right-of-way. Reclamation would thereby be provided to 96,000 acres of land which would have been reserved for overflow under the plan of flowage easements (see page 18).

LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT

Modified Plan "A"

In January 1955 the Reclamation Board by resolution recommended that the State Legislature adopt and authorize the substitute plan for flood control on the San Joaquin River as generally described in the Division of Water Resources' 1954 report. The Legislature adopted the substitute plan during the 1955 Session. Approval of the substitute plan was obtained from the Corps of Engineers, and in December 1955 the Reclamation Board adopted a modification of Plan "A" of the 1954 report as the approved substitute plan (see page 19).

Eastside Bypass Plan

By mid-1957 local interests within the project area had expressed opposition to the 1955 adopted plan to such an extent that the Reclamation Board in June 1957 ordered a suspension of construction planning and right-of-way negotiations for the project. Opposition to the adopted plan was based on several factors, including the Eastside Bypass alignment; the flow split at the head of Sand Slough; the design capacities in the Eastside Bypass, Sand Slough, and the Mariposa Bypass; and difficulties in acquiring rights-of-way.

In February 1958 the Department of Water Resources submitted its "Supplemental Report to the July 1954 Report on Control of Floods, Lower San Joaquin River and Tributaries, Friant Dam to Merced River" as a modified plan to meet the objections to the 1955 plan (see page 20). The Reclamation Board approved the plan in March 1958 after holding a public meeting in Los Banos.

Chowchilla Canal Bypass Plan

In May 1959 the Reclamation Board asked the Department for a review investigation of proposed bypass routes put forth by property owners along the San Joaquin River. The plan submitted by the Department was discussed in a public meeting in Los Banos in July 1959. Because the results of the meeting were inconclusive, the Board retained Mr. Harold E. Hedger, a consulting civil engineer, to conduct an investigation of alternative plans for flood control in the upper project area. In July 1960 Mr. Hedger issued his report entitled "Lower San Joaquin River Flood Control Project, Investigation of Alternative Plans for Flood Control, Gravelly Ford Canal to 5 Miles below Firebaugh". Following review of Mr. Hedger's report the Reclamation Board by resolution in May 1961 adopted the Chowchilla Canal Bypass Plan (see page 21).

LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT

Project Plan

In October 1962 the land area for project usage along the Chowchilla Canal was determined when the Reclamation Board decided to construct a two-levee confined channel in the reach instead of a single-levee unconfined channel because of the difference in right-of-way costs.

In October 1963 the Department was requested to report to the Reclamation Board a final determination of the right-of-way width for the Chowchilla Canal Bypass consistent with side drainage requirements and the most economical hydraulic section, construction, and right-of-way costs. Based on the Department's recommendation the Chowchilla Canal Bypass right-of-way was firmly established in January 1964. The Fresno Slough levees were deleted from the project because they were not required for operation of the project, and a control structure was added at the foot of the Mariposa Bypass to control the Mariposa Bypass gradient drop into the San Joaquin River (see page 22).

Project Benefits

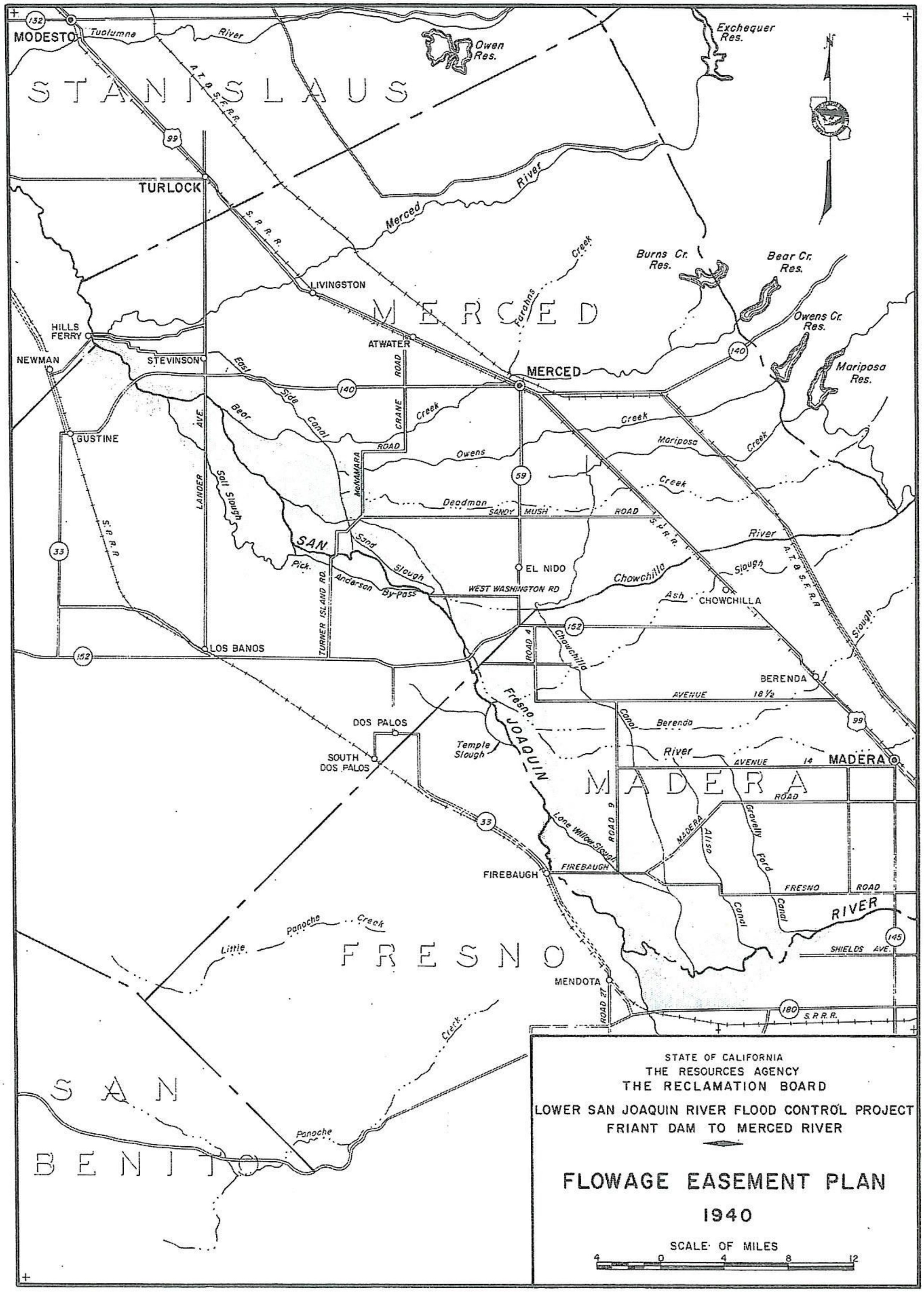
The project works will afford approximately 50-year flood frequency protection when the Merced County Stream Group, the Chowchilla River, and the Fresno River projects are completed. Ninety-six thousand acres of property subject to annual flooding before completion of the project levees will now be protected. Prolonged periods of inundation and ponding following floods will now be eliminated and reduce the severity of crop damage, crop planting delays, and limitations of access.

Along some 53 miles of the San Joaquin River where the containment of flood waters is within the river's natural banks the past incidence of sizable damage to crops and, in some cases, to property from seepage under and through existing levees has been eliminated.

Greater protection is afforded the area by the single project as contrasted to the previous existence of certain topographical features such as canal levees, built-up roadways, dikes, etc., which acted as barriers to lessen the extent of flood damage. The single project will eliminate the need and cost for the maintenance of separate levee systems.

Ground water replenishment benefits are estimated to be somewhat greater through the new flood control program than the practice prior to the project.

A most welcome benefit is the inevitable rise in land values certain to evolve as a result of the project's construction. Lands which previously were either unusable or limited in usefulness can now be utilized to a more profitable degree which should further enhance property values throughout the project area.


STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE RECLAMATION BOARD
LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT
FRIANT DAM TO MERCED RIVER
FLOWAGE EASEMENT PLAN
1940
SCALE OF MILES
4 0 4 8 12
STANISLAUS
MERCED
MADERA
FRESNO
SAN BENITO
MODESTO
TURLOCK
LIVINGSTON
ATWATER
MERCED
HILLS FERRY
NEWMAN
STEVINSON
GUSTINE
LOS BANOS
DOS PALOS
SOUTH DOS PALOS
EL NIDO
CHOWCHILLA
BERENDA
MADERA
FIREBAUGH
MENDOTA
Tuolumne River
Merced River
Owen Res.
Exchequer Res.
Burns Cr. Res.
Bear Cr. Res.
Owens Cr. Res.
Mariposa Res.
Fahrens Creek
East Side Canal
Bear Creek
Owens Creek
Mariposa Creek
Deadman Creek
Salt Slough
Sand Slough
Pick. Anderson By-Pass
SAN JOAQUIN
Fresno
Chowchilla River
Ash Slough
Berenda
Temple Slough
Lone Willow Slough
Gravelly Ford Canal
Alsio Canal
RIVER
Little Panoche Creek
Panoche Creek
CRANE ROAD
McNAMARA ROAD
LANDER AVE.
TURNER ISLAND RD.
SANDY MUSH ROAD
WEST WASHINGTON RD
AVENUE 18 1/2
AVENUE 14
MADERA ROAD
FIREBAUGH
FRESNO ROAD
SHIELDS AVE.
ROAD 4
ROAD 9
ROAD 27
A.T. & S.F. R.R.
S. P. R. R.
132
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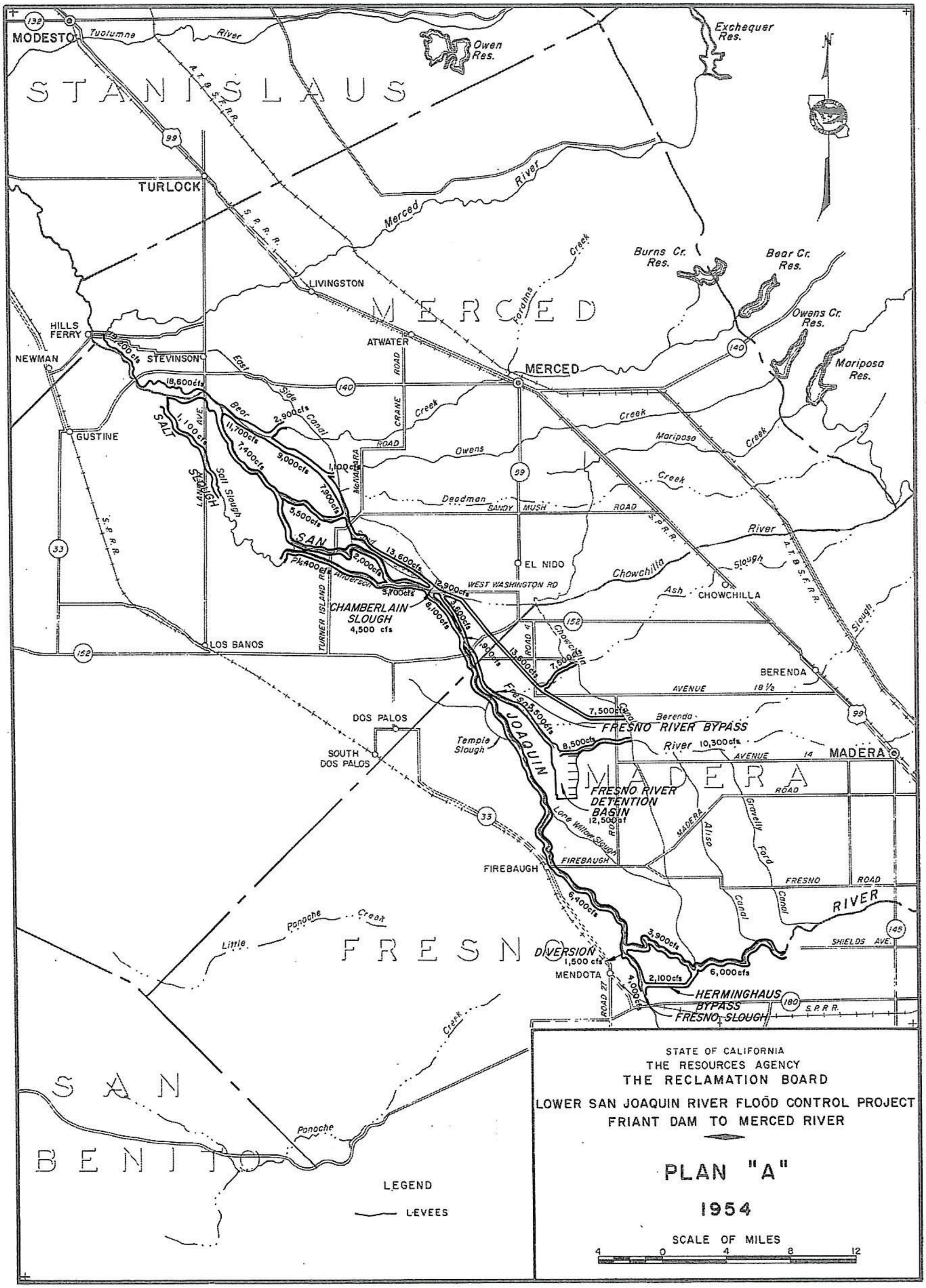
59
33
152
145
180


STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE RECLAMATION BOARD
LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT
FRIANT DAM TO MERCED RIVER
PLAN "A"
1954
SCALE OF MILES
LEGEND
LEVEES
STANISLAUS
MERCED
MADERA
FRESNO
SAN BENITO
MODESTO
TURLOCK
LIVINGSTON
ATWATER
MERCED
HILLS FERRY
NEWMAN
STEVINSON
GUSTINE
LOS BANOS
EL NIDO
CHOWCHILLA
BERENDA
MADERA
DOS PALOS
SOUTH DOS PALOS
FIREBAUGH
MENDOTA
Exchequer Res.
Owen Res.
Burns Cr. Res.
Bear Cr. Res.
Owens Cr. Res.
Mariposa Res.
CHAMBERLAIN SLOUGH
4,500 cfs
FRESNO RIVER BYPASS
FRESNO RIVER DETENTION BASIN
12,500 af
DIVERSION
1,500 cfs
HERMINGHAUS BYPASS
FRESNO SLOUGH
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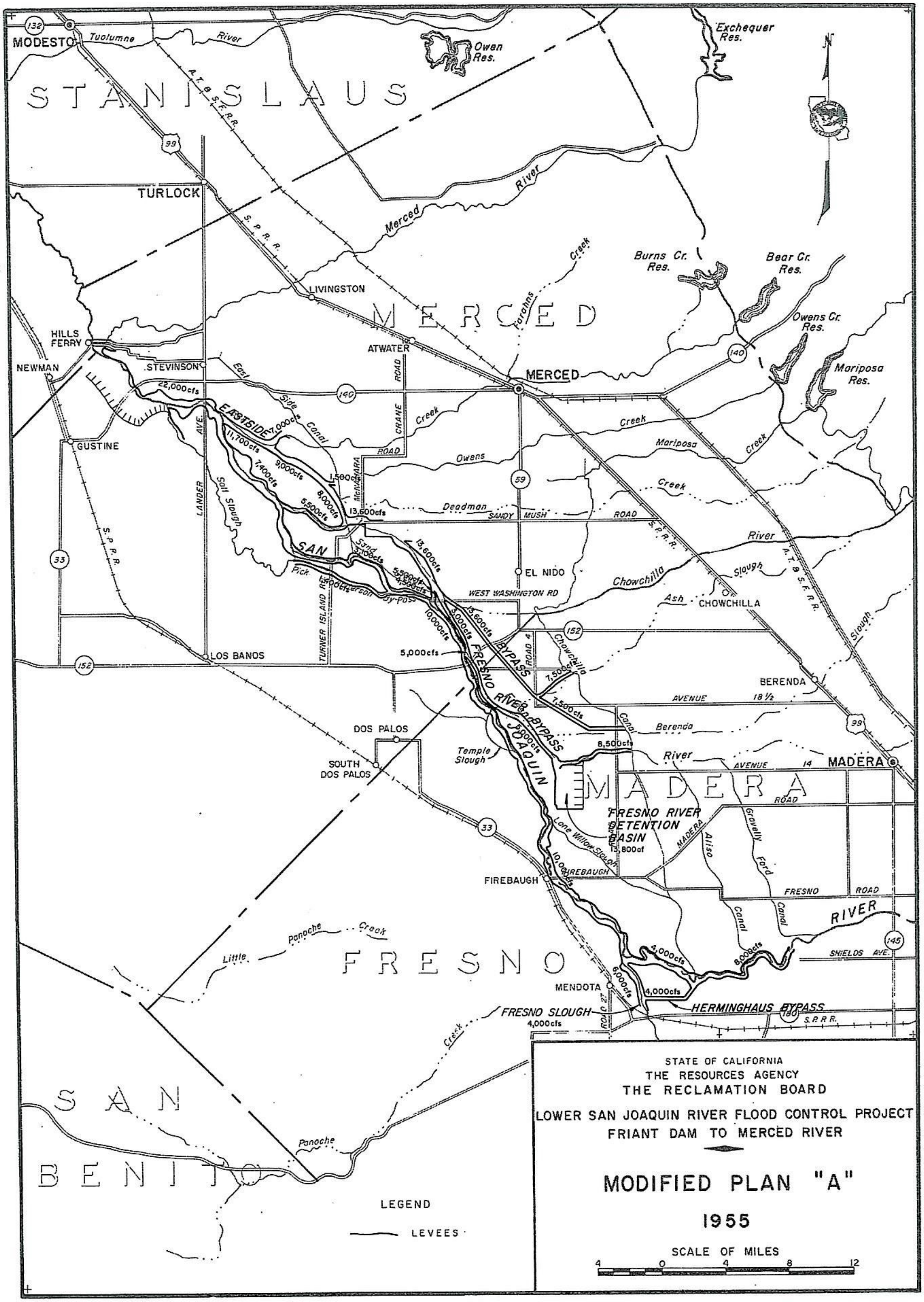
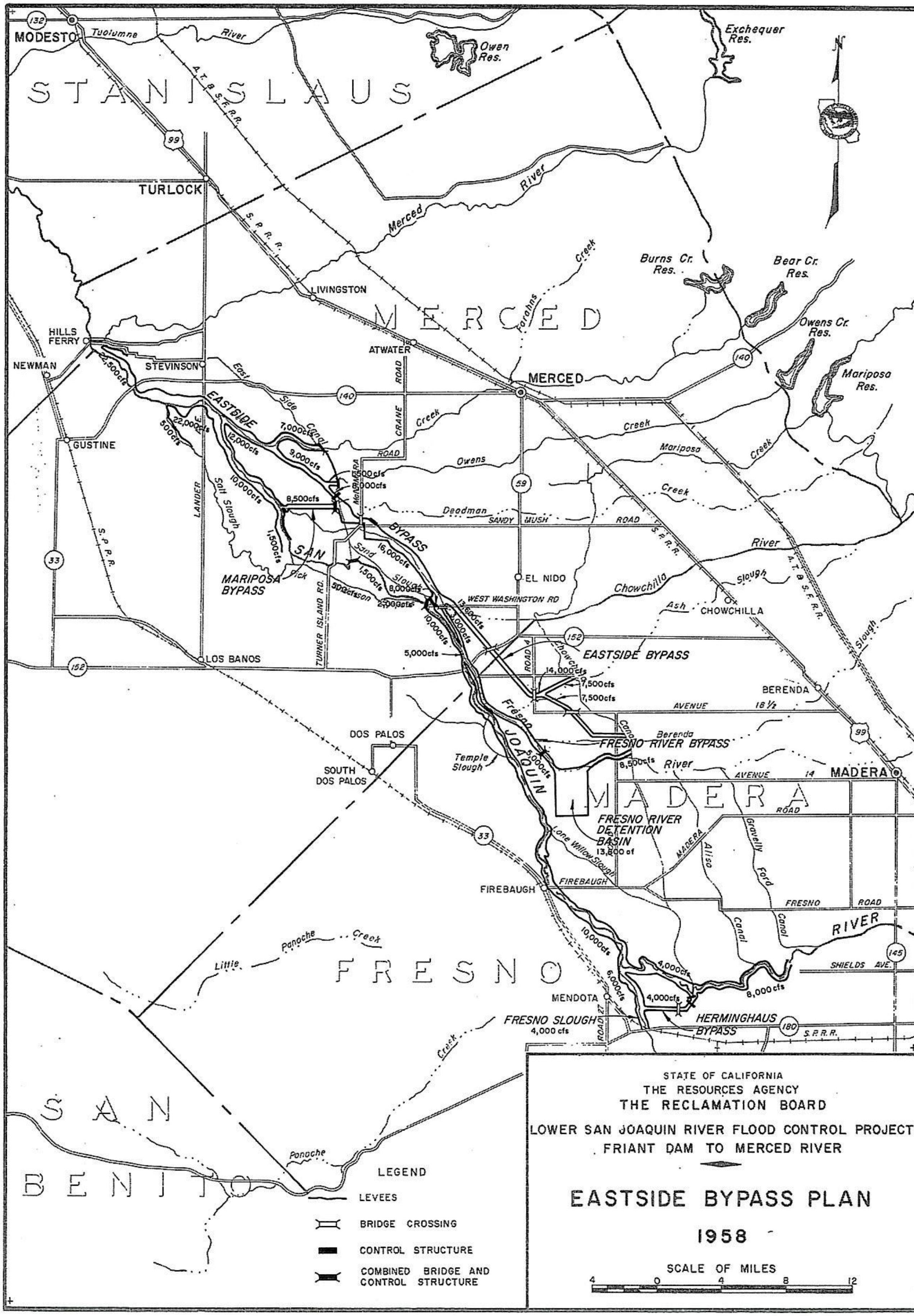
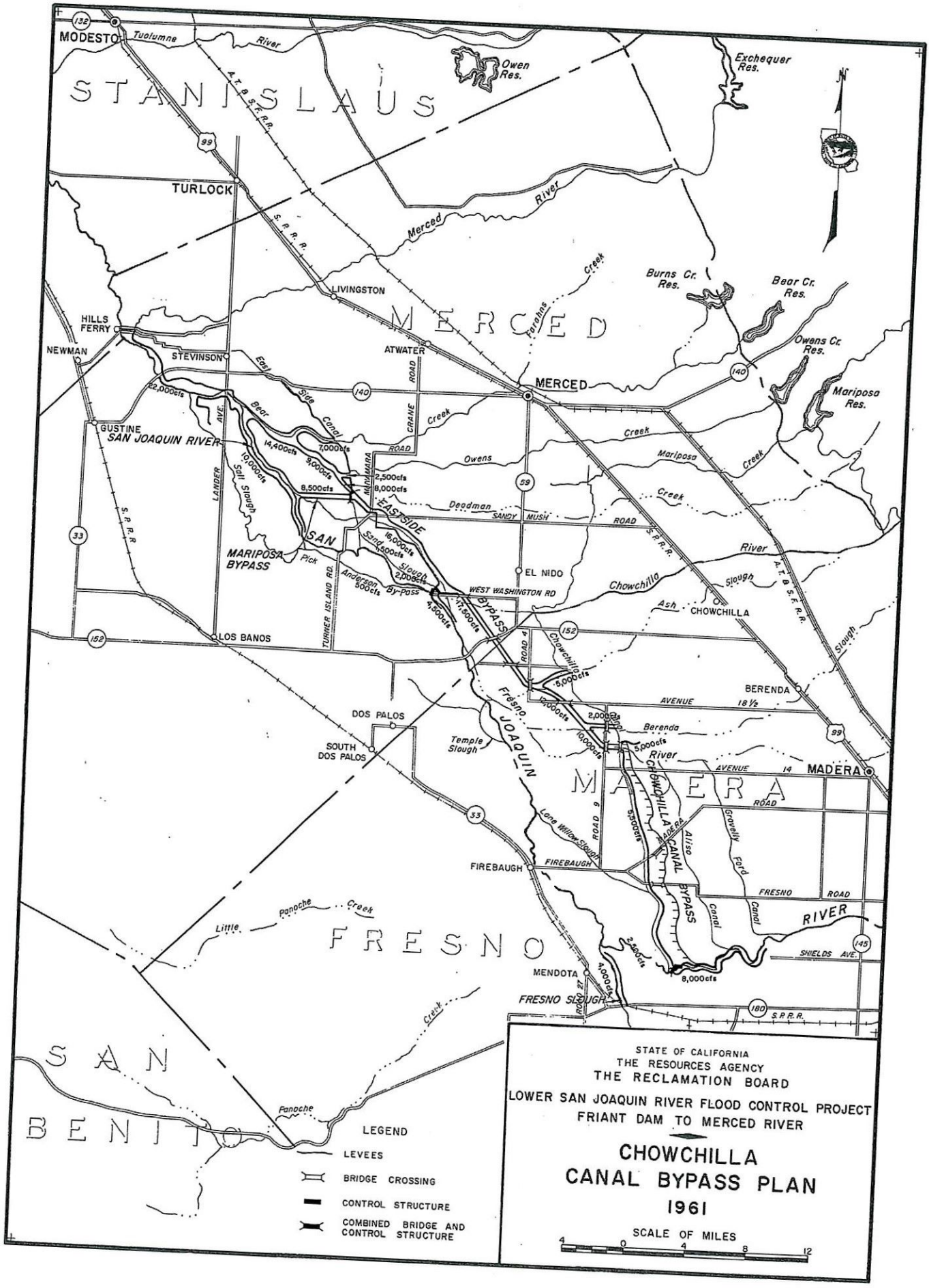
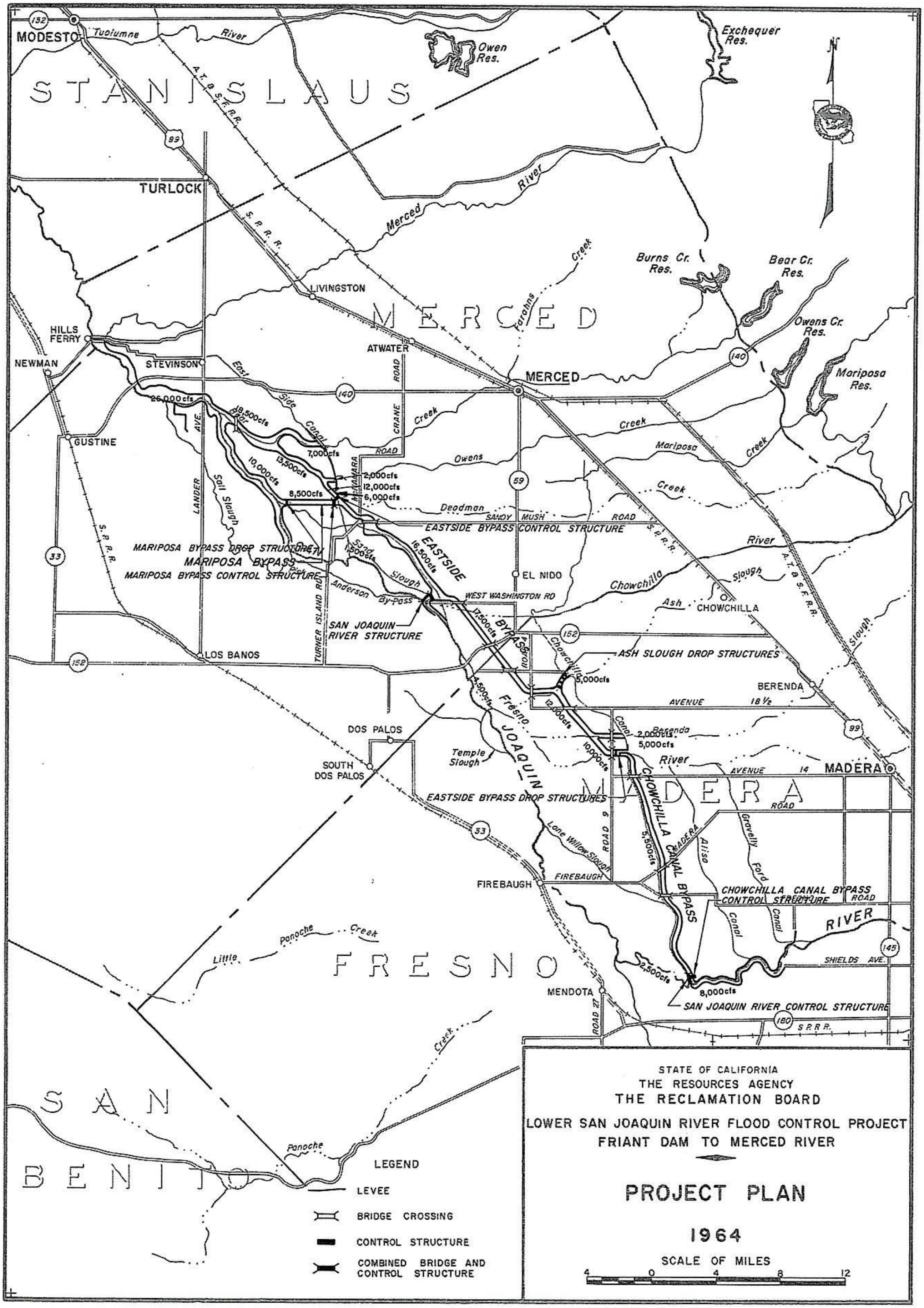
AVENUE 14
SHIELDS AVE.


STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE RECLAMATION BOARD
LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT
FRIANT DAM TO MERCED RIVER
MODIFIED PLAN "A"
1955
SCALE OF MILES
4 0 4 8 12
LEGEND
LEVEES
STANISLAUS
MERCED
MADERA
FRESNO
SAN BENITO
MODESTO
TURLOCK
LIVINGSTON
ATWATER
MERCED
HILLS FERRY
NEWMAN
STEVINSON
GUSTINE
LOS BANOS
EL NIDO
CHOWCHILLA
BERENDA
MADERA
DOS PALOS
SOUTH DOS PALOS
FIREBAUGH
MENDOTA
Exchequer Res.
Owen Res.
Burns Cr. Res.
Bear Cr. Res.
Owens Cr. Res.
Mariposa Res.
Tuolumne River
Merced River
EASTSIDE BYPASS
FRESNO RIVER BYPASS
SAN JOAQUIN
FRESNO RIVER DETENTION BASIN
13,800af
HERMINGHAUS BYPASS
FRESNO SLOUGH
4,000cfs
22,000cfs
13,600cfs
5,000cfs
7,500cfs
8,500cfs
10,000cfs
6,000cfs
8,000cfs


STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE RECLAMATION BOARD
LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT
FRIANT DAM TO MERCED RIVER
EASTSIDE BYPASS PLAN
1958
SCALE OF MILES
4 0 4 8 12
LEGEND
LEVEES
BRIDGE CROSSING
CONTROL STRUCTURE
COMBINED BRIDGE AND CONTROL STRUCTURE
STANISLAUS
MERCED
MADERA
FRESNO
SAN BENITO
MODESTO
TURLOCK
LIVINGSTON
ATWATER
MERCED
HILLS FERRY
NEWMAN
STEVINSON
GUSTINE
LOS BANOS
DOS PALOS
SOUTH DOS PALOS
EL NIDO
CHOWCHILLA
BERENDA
MADERA
FIREBAUGH
MENDOTA
Tuolumne River
Merced River
Owen Res.
Exchequer Res.
Burns Cr. Res.
Bear Cr. Res.
Owens Cr. Res.
Mariposa Res.
EASTSIDE BYPASS
MARIPOSA BYPASS
FRESNO RIVER BYPASS
FRESNO RIVER DETENTION BASIN
13,800 af
HERMINGHAUS BYPASS
FRESNO SLOUGH
4,000 cfs
SAN JOAQUIN
Chowchilla River
Fresno River
Salt Slough
Temple Slough
Lone Willow Slough
Panoche Creek
Little Panoche Creek
WEST WASHINGTON RD
AVENUE 18 1/2
AVENUE 14
FRESNO ROAD
SHIELDS AVE.
A.T. & S.F. R.R.
S.P. R.R.


MODESTO
Tuolumne River
STANISLAUS
Owen Res.
Exchequer Res.
A.T. & S.F. R.R.
TURLOCK
S.P.R.R.
Merced River
LIVINGSTON
Burns Cr. Res.
Bear Cr. Res.
Forebaugh Creek
HILLS FERRY
NEWMAN
STEVINSON
ATWATER
MERCED
Owens Cr. Res.
Mariposa Res.
22,000cfs
East Side Canal
Bear Creek
GUSTINE
SAN JOAQUIN RIVER
14,400cfs
7,000cfs
10,000cfs
9,000cfs
8,500cfs
2,500cfs
8,000cfs
Owens Creek
Mariposa Creek
Deadman Creek
SANDY MUSH ROAD
EASTSIDE
SAN
MARIPOSA BYPASS
Pick
Sand Slough
4,000cfs
2,000cfs
Anderson By-Pass
500cfs
EL NIDO
WEST WASHINGTON RD
Chowchilla River
Ash Slough
CHOWCHILLA
BYPASS
11,500cfs
4,500cfs
LOS BANOS
Chowchilla
5,000cfs
BERENDA
AVENUE 18½
DOS PALOS
SOUTH DOS PALOS
Fresno
JOAQUIN
Temple Slough
2,000cfs
10,000cfs
5,000cfs
Berenda River
AVENUE 14
MADERA
MADERA
ROAD
CHOWCHILLA BYPASS CANAL
Gravelly Ford Canal
Lone Willow Slough
FIREBAUGH
FRESNO ROAD
Little Panoche Creek
FRESNO
RIVER
SHIELDS AVE.
2,500cfs
8,000cfs
MENDOTA
4,000cfs
FRESNO SLOUGH
S.P.R.R.
SAN BENITO
Panoche Creek
LEGEND
LEVEES
BRIDGE CROSSING
CONTROL STRUCTURE
COMBINED BRIDGE AND CONTROL STRUCTURE
STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE RECLAMATION BOARD
LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT
FRIANT DAM TO MERCED RIVER
CHOWCHILLA
CANAL BYPASS PLAN
1961
SCALE OF MILES
4 0 4 8 12


MODESTO
STANISLAUS
TURLOCK
MERCED
FRESNO
MADERA
SAN BENITO
Owen Res.
Exchequer Res.
Burns Cr. Res.
Bear Cr. Res.
Owens Cr. Res.
Mariposa Res.
LIVINGSTON
HILLS FERRY
NEWMAN
STEVINSON
ATWATER
GUSTINE
EL NIDO
CHOWCHILLA
LOS BANOS
BERENDA
DOS PALOS
SOUTH DOS PALOS
FIREBAUGH
MENDOTA
MARIPOSA BYPASS DROP STRUCTURE
MARIPOSA BYPASS
MARIPOSA BYPASS CONTROL STRUCTURE
EASTSIDE BYPASS CONTROL STRUCTURE
EASTSIDE BYPASS
SAN JOAQUIN RIVER STRUCTURE
ASH SLOUGH DROP STRUCTURES
EASTSIDE BYPASS DROP STRUCTURES
CHOWCHILLA CANAL BYPASS
CHOWCHILLA CANAL BYPASS CONTROL STRUCTURE
SAN JOAQUIN RIVER CONTROL STRUCTURE
26,000cfs
19,500cfs
13,500cfs
10,000cfs
8,500cfs
7,000cfs
2,000cfs
12,000cfs
6,000cfs
1,500cfs
16,500cfs
17,500cfs
4,500cfs
5,000cfs
12,000cfs
10,000cfs
2,000cfs
5,000cfs
5,500cfs
2,500cfs
8,000cfs
STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE RECLAMATION BOARD
LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT
FRIANT DAM TO MERCED RIVER
PROJECT PLAN
1964
SCALE OF MILES
4 0 4 8 12
LEGEND
LEVEE
BRIDGE CROSSING
CONTROL STRUCTURE
COMBINED BRIDGE AND CONTROL STRUCTURE

LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT

Project Operation

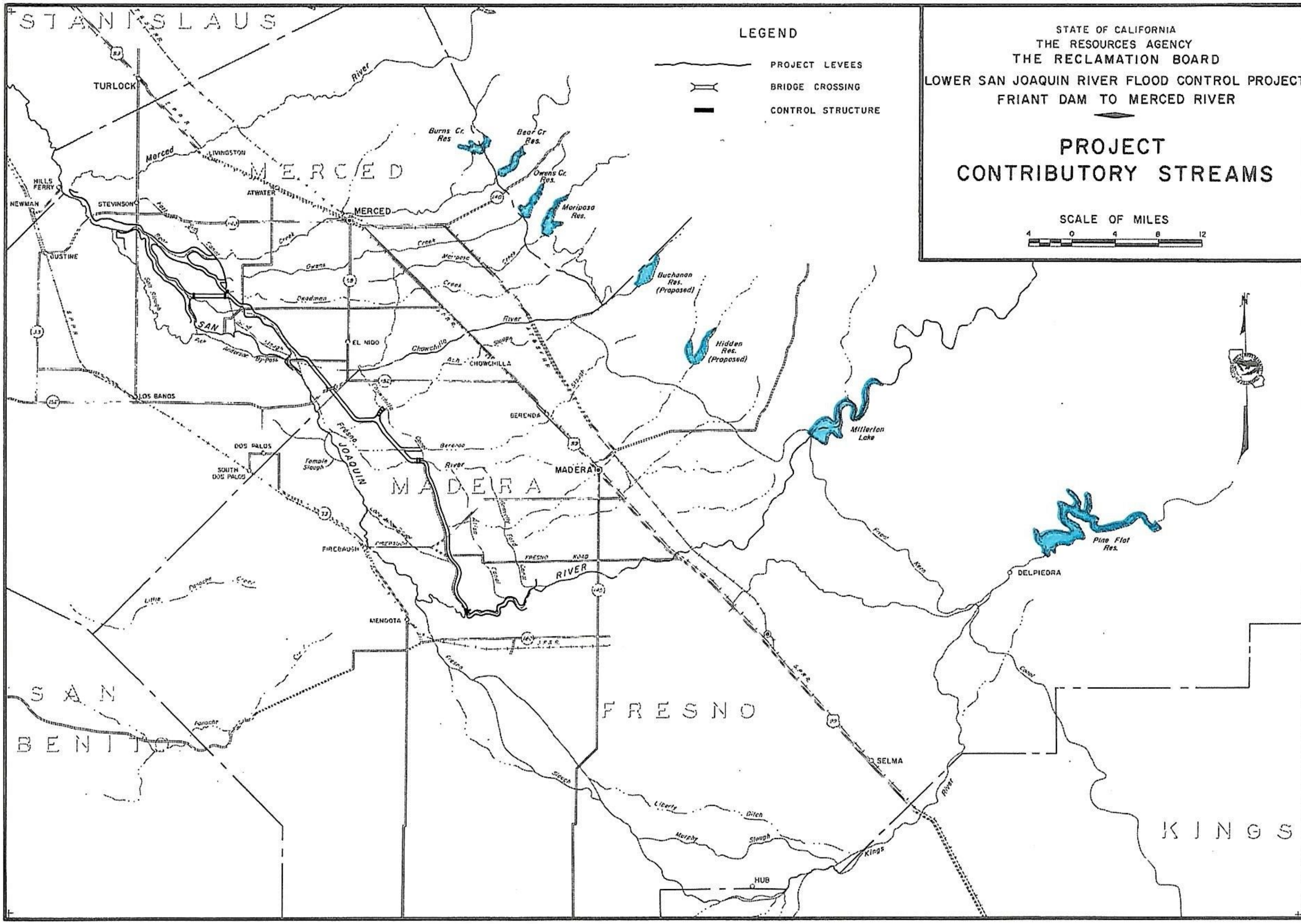
The project contributory streams are shown on the map on page 24. The combined flood releases down the San Joaquin River from Friant Dam (Millerton Reservoir) and down the Kings River from Pine Flat Dam (entering the project above Mendota Dam through Fresno Slough) are operationally scheduled to be no greater than 10,000 cfs at the latitude of Mendota Dam.

The San Joaquin River flows are controlled by the San Joaquin River and the Chowchilla Canal Bypass Control Structures at the head of Lone Willow Slough. The identical four-bay radial-gated structures are automatically operated by the river's elevation through a float well in the gage house located at Gravelly Ford. Initial flows down the San Joaquin River are diverted into the Chowchilla Canal Bypass. When the Bypass reaches its 5,500 cfs capacity, flows in excess of 5,500 cfs cause the gates on the San Joaquin River Structure to open automatically and are passed down the river. The automatic controls in the control house at the structures are equipped with a manual override so that an operator may make selective releases through either of the structures.

Seven drop structures at various locations in the project provide channel stabilization by maintaining velocities below the scouring point. The drops vary from 3.5 to 10 feet. During periods of flood flow in the Chowchilla Canal Bypass or Fresno River, the Road 9 Bridge will offer a vantage point from which to see the spectacular discharge of thousands of gallons of water a minute cascade over the Eastside Bypass Drop Structures.

The San Joaquin River Structure at the head of Sand Slough was designed to provide an automatic split of San Joaquin River flows between the river and the Eastside Bypass. The Lower San Joaquin River Levee District's recent installation of slide gates on the structure now allows the selective control of flows into the river at any flood stage in the Eastside Bypass channel.

The Mariposa Bypass Control Structure operating from a downstream float well discharges the initial 7,500 cfs flow through the Eastside Bypass into the Mariposa Bypass through a 14-bay structure. Eight of the bays are equipped with radial gates which automatically limit the flow into the Bypass to 8,500 cfs. Flow in excess of 8,500 cfs discharges through the six-bay, radial-gated Eastside Bypass Control Structure. Both Structures are automatically controlled from float wells and may also be controlled manually by an operator.


STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE RECLAMATION BOARD
LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT
FRIANT DAM TO MERCED RIVER
PROJECT
CONTRIBUTORY STREAMS
SCALE OF MILES
4 0 4 8 12
LEGEND
PROJECT LEVEES
BRIDGE CROSSING
CONTROL STRUCTURE
STANISLAUS
MERCED
MADERA
FRESNO
SAN BENITO
KINGS
TURLOCK
LIVINGSTON
ATWATER
MERCED
HILLS FERRY
NEWMAN
STEVINSON
GUSTINE
EL NIDO
CHOWCHILLA
LOS BANOS
BERENDA
DOS PALOS
SOUTH DOS PALOS
MADERA
FIREBAUGH
MENDOTA
DELPIEDRA
SELMA
HUB
Burns Cr. Res.
Bear Cr. Res.
Owens Cr. Res.
Mariposa Res.
Buchanan Res. (Proposed)
Hidden Res. (Proposed)
Millerton Lake
Pine Flat Res.
Merced River
SAN JOAQUIN
Chowchilla River
Fresno River
Deadman
Owens
Mariposa
Creek
Tomale Slough
Little Panoche Creek
Panoche
Fresno Slough
Liberty Ditch
Murphy Slough
Kings River
Kern
Canal
S.P.R.R.

RELATED FLOOD CONTROL WORKS

Several major streams are tributary to and contribute to flood damage in the area including the Kings, San Joaquin, Fresno, and Chowchilla Rivers and the Merced County Stream Group. Complete and operating flood control projects exist on the Kings and San Joaquin Rivers.

Fresno River

The construction of Hidden Reservoir and Dam located on the Fresno River 15 miles northeast of the City of Madera was authorized by the 1962 Federal Flood Control Act.

Work consisting of levee construction, channel clearing and enlargement is planned from the Chowchilla Canal east to the vicinity of the Fresno River Bypass, a distance of about seven miles.

The levees and reservoir will provide a good degree of flood protection to the City of Madera and to suburban, industrial, and agricultural areas along the Fresno River. If a project design flood should occur, the project would prevent damages estimated at $14,000,000.

Chowchilla River

The construction of Buchanan Reservoir and Dam, located on the Chowchilla River about 16 miles northeast of the City of Chowchilla, was authorized by the 1962 Federal Flood Control Act.

Levee construction, channel clearing and enlargement will be done along Ash Slough between the Chowchilla Canal and State Highway 152, a distance of about five miles.

The dam, reservoir, and levees will prevent flood damages estimated at $9,700,000 if a project design flood should occur.

Merced County Stream Group

The Corps of Engineers with four flood control dams and two interception channels completed is currently investigating the advisability of modifying the existing project and of providing improvements on other (nonproject) streams in the area.

Forty miles of channel enlargement and clearing have been completed by the Merced Irrigation District under a series of contracts with the Reclamation Board. The Reclamation Board has acquired the rights-of-way for the four dams and reservoirs, contracted for relocation of county roads, acquired the rights-of-way for one intercepting channel, and completed two new concrete bridges and one railroad underpass.

During the December 1955-January 1956 floods, operation of the substantially completed project prevented damages of almost $6,000,000. During the 1958 floods, the project prevented damages of almost $7,000,000.

DEPARTMENT OF WATER RESOURCES

Organization

WILLIAM E. WARNE, Director

REGINALD C. PRICE, Deputy Director Policy
NEELY GARDNER, Deputy Director Administration
WESLEY E. STEINER, Deputy Director Program and Planning
ALFRED R. GOLZE', Chief Engineer

DIVISION OF DESIGN AND CONSTRUCTION

H. G. DEWEY, JR., Assistant Chief Engineer
DONALD P. THAYER, Deputy Division Engineer
JEFF A. WINELAND, Chief, Design Branch
CHARLES H. CARTER, Chief, Construction Branch
CARL G. LIDEN, Chief, Aqueduct Design Section
E. MORRIS McCLUNG, Unit Chief, Design Unit
PAUL PEDONE, Chief, Drafting Services
NORMAN W. HOOVER, Project Engineer

DIVISION OF RIGHT-OF-WAY ACQUISITION

THOMAS H. T. MORROW, Chief, Division of Right-of-Way Acquisition

Persons no longer associated with the project but who have made major engineering contributions to the completion of the facilities include

Harvey O. Banks	Arthur C. Honaker	Carl R. King
Joseph I. Burns	Harald D. Frederiksen	Glenn L. Atkinson
Robert C. Gaskell		

Role of the Department of Water Resources

The Division (now Department) of Water Resources entered into a service agreement in 1953 with the Reclamation Board to conduct the planning studies leading to the 1954 report outlining a plan of levee construction in lieu of flowage easements.

In 1957 the Department of Water Resources agreed to prepare right-of-way documents, design, and supervise the award and construction of the project contracts.

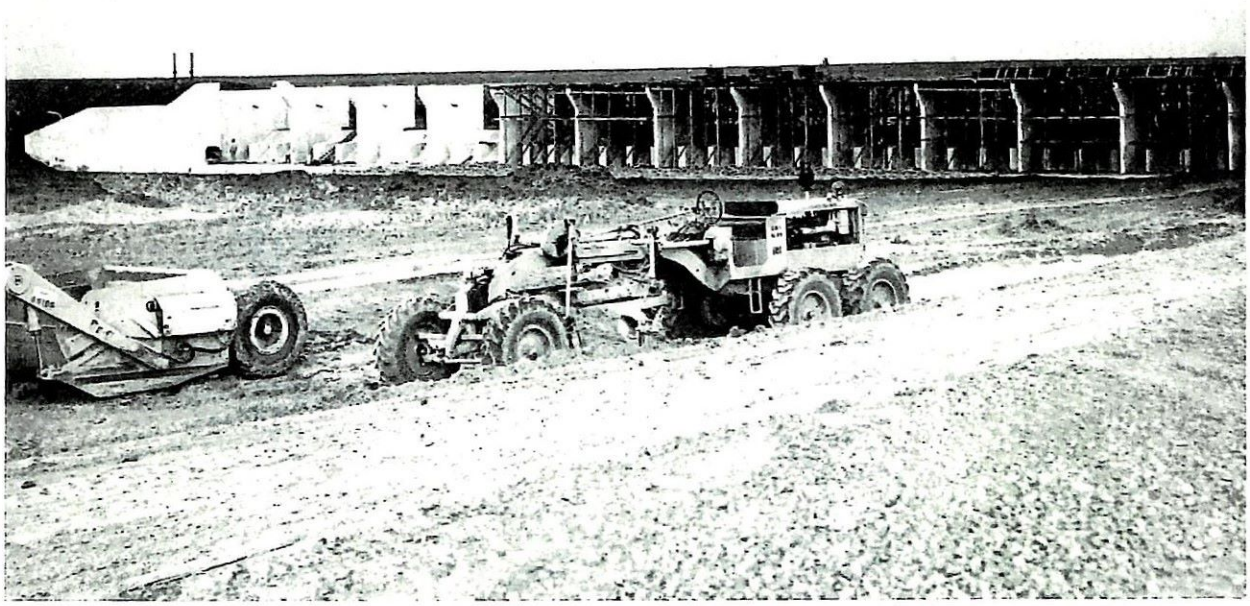
Inspector Pat Dudley; Wm. E. Warne, Director; H. G. Dewey, Assistant Chief Engineer; E. M. McClung, Aqueduct Design Section; and C. H. Carter, Chief, Construction Branch; inspect the East Side Canal Siphon construction.

In April 1959 the first contract was awarded to Fredericksen and Kasler of Sacramento for construction of 56 miles of levees along the San Joaquin River and the Eastside and Mariposa Bypasses. The last major levee construction contract was awarded to Fredrickson and Watson Construction Company of Oakland in October, 1965, for work along the San Joaquin River between Lone Willow Slough and Gravelly Ford.

A total of 16 contracts have been awarded covering the following construction features:

11,000,000	cubic yards of levee embankment
24,000	cubic yards of concrete
326	drainage and irrigation structures
191	miles of levees
103	miles of fencing
96	miles of channel clearing
10	county bridges
9	operation and maintenance bridges
7	drop structures
4	radial-gated control structures
2	operation and maintenance control houses

May 23, 1959 project groundbreaking ceremony at George J. Hatfield State Park - A. M. Barton, Reclamation Board General Manager, and Chief Engineer; S. W. Kronick, Reclamation Board President; Senator James A. Cobey; and H. O. Banks, Director of the Department of Water Resources.



Mariposa Bypass Control Structure under construction.

LOWER SAN JOAQUIN LEVEE DISTRICT

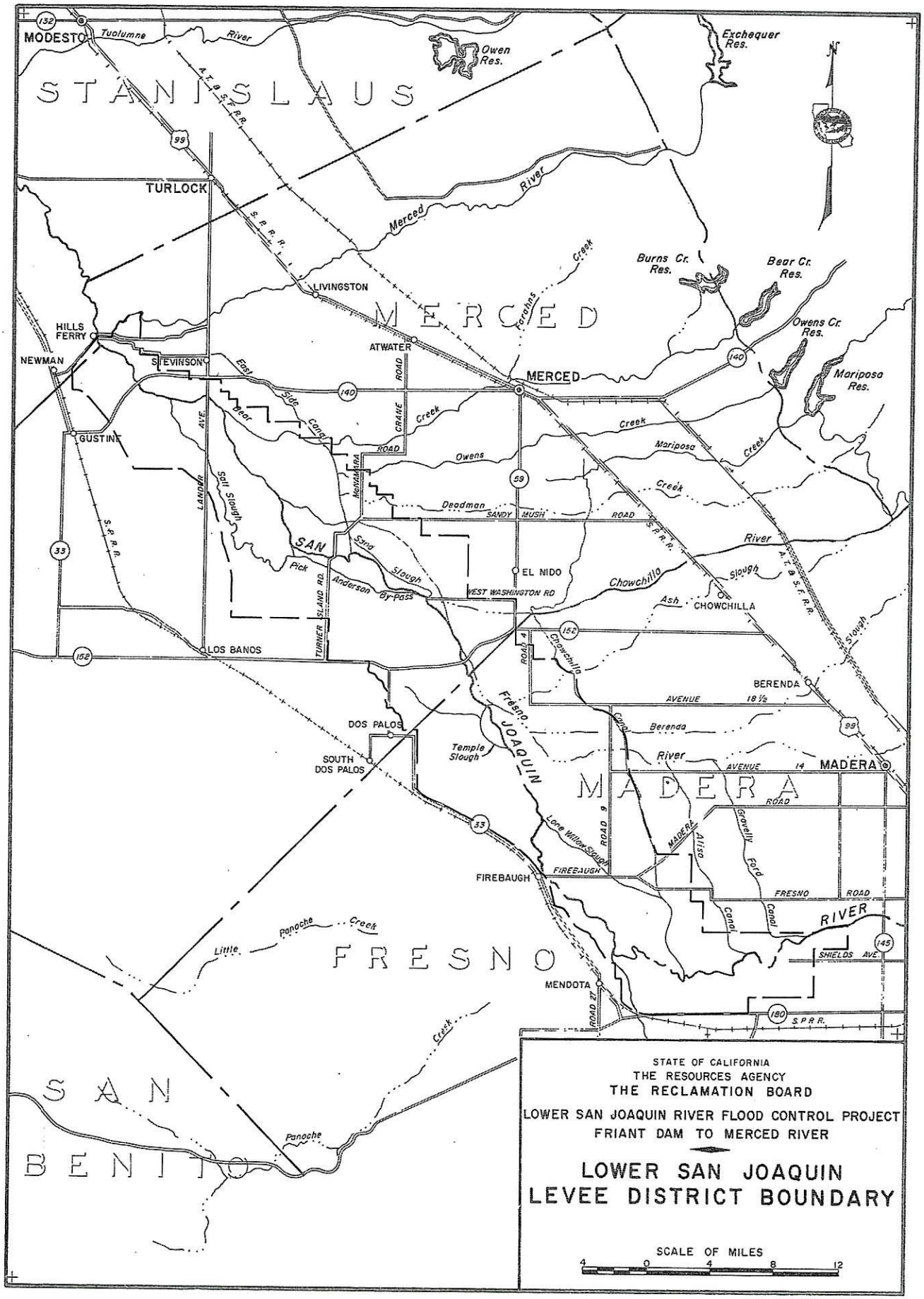
The Lower San Jœaquin Levee District was authorized in 1955 by the California Legislature, Senate Bill No. 1325, for the purpose of repair, operation and maintenance of levees, works, structures, or other facilities in connection with the improvement plan for the San Joaquin River and tributaries.

The District has jurisdiction over 334,000 acres of land extending approximately 108 river miles from the Merced River on the north to State Highway 180 on the south. The existing District Boundaries are shown on the map on page 30.

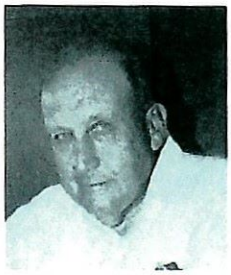
The District's responsibilities for field maintenance on the project began in 1960 with completion by the Department of Water Resources of the initial construction contract for levees along the San Joaquin River between the Merced River and the head of Sand Slough.

The District is controlled by a seven-man Board of Directors elected every two years. Annual operation and maintenance costs are distributed by assessment among the lands within the respective counties of the District. The District cooperates with the Department of Water Resources Flood Control Center in conducting semiannual inspection tours of the project and in coordinating the operation of the project within the framework of all flood control projects in the north state during periods of flood crisis. The District will have a ten-man organization by 1967 to operate and maintain the entire 191 miles of levees and 96 miles of cleared river channel in the project.

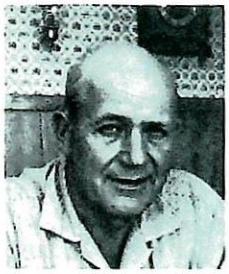
Continuous patrolling and inspection protect levees during flood periods.


MODESTO
Tuolumne River
STANISLAUS
Owen Res.
Exchequer Res.
A. T. & S. F. R.R.
TURLOCK
Merced River
Burns Cr. Res.
Bear Cr. Res.
LIVINGSTON
Cordhas Creek
MERCED
HILLS FERRY
ATWATER
Owens Cr. Res.
NEWMAN
STEVINSON
East Side Canal
MERCED
Mariposa Res.
GUSTINE
Bear Creek
Mariposa Creek
Owens Creek
Deadman Creek
SAN
Sand Slough
Pick Anderson By-Pass
EL NIDO
WEST WASHINGTON RD
Chowchilla River
Ash Slough
CHOWCHILLA
LOS BANOS
BERENDA
AVENUE 18½
DOS PALOS
Fresno JOAQUIN
Temple Slough
Berenda Canal
River
AVENUE 14
MADERA
SOUTH DOS PALOS
MADERA
Lone Willow Slough
Gravelly Ford Canal
FIREBAUGH
FRESNO ROAD
RIVER
Little Panoche Creek
FRESNO
SHIELDS AVE
MENDOTA
S P R R
SAN BENITO
Panoche Creek
STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE RECLAMATION BOARD
LOWER SAN JOAQUIN RIVER FLOOD CONTROL PROJECT
FRIANT DAM TO MERCED RIVER
LOWER SAN JOAQUIN
LEVEE DISTRICT BOUNDARY
SCALE OF MILES
4 0 4 8 12

LOWER SAN JOAQUIN LEVEE DISTRICT
BOARD OF DIRECTORS



HENRY B. WOLFSEN
Chairman



HERBERT R. WILLIS
Vice-Chairman

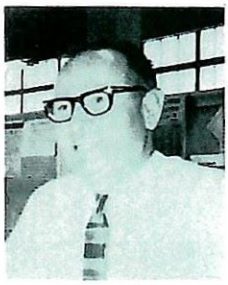
RENO CARDELLA
Director

H. J. JIM FAVIER
Director

ROBERT O. KELLEY
Director

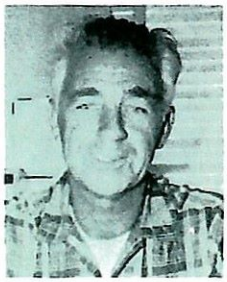
LLOYD RODUNER
Director

PRESTON THOMPSON
Director



DARWIN G. NELSON
Secretary

WILLIAM F. SWEET
Engineer



RAYMOND H. BORDEN
Superintendent

Front Cover – Ash Slough
Back Cover – Intersection of Mariposa and Eastside Bypasses.