



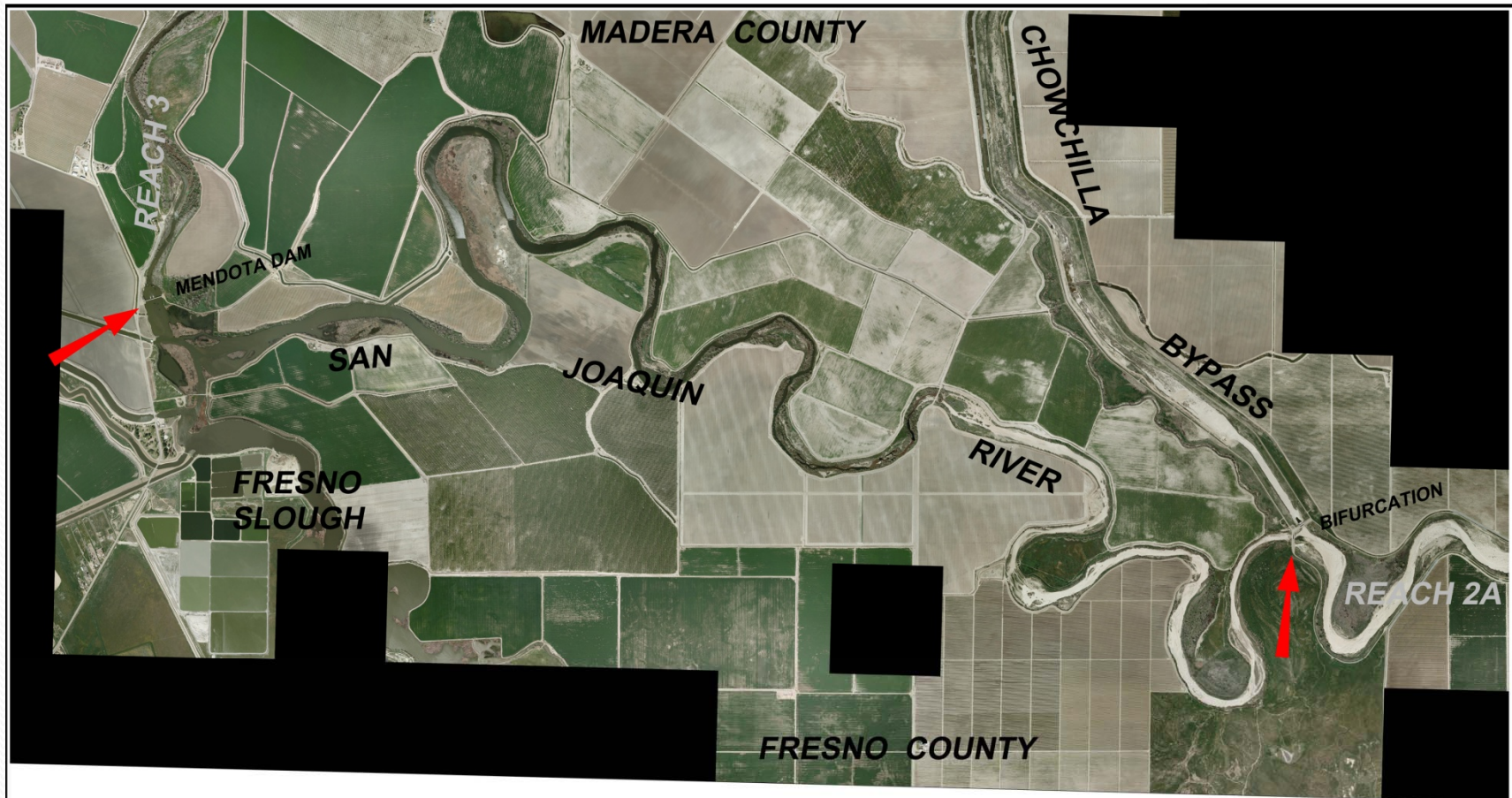
# THE SAN JOAQUIN RIVER



DISCUSSION PURPOSES ONLY

CALIFORNIA STATE LANDS COMMISSION

# SAN JOAQUIN RIVER REACH 2B



## REACH 2B SAN JOAQUIN RIVER RESTORATION PROJECT, REACH 2B CHOWCHILLA BIFURCATION TO MENDOTA DAM

DISCUSSION PURPOSES ONLY



# OVERVIEW OF THE CALIFORNIA STATE LANDS COMMISSION ADMINISTRATIVE MAPS PRESENTATION

- Water Boundary Principles
- Best Available Evidence of High and Low Water
- Location of High and Low Water  
on the San Joaquin River
- Administrative Maps Effect on Adjacent Land

# WATER BOUNDARY PRINCIPLES

- High Water
- Low Water
- Ambulatory in a Natural State
- Water Boundaries May become Fixed due to Artificial Changes and Avulsion



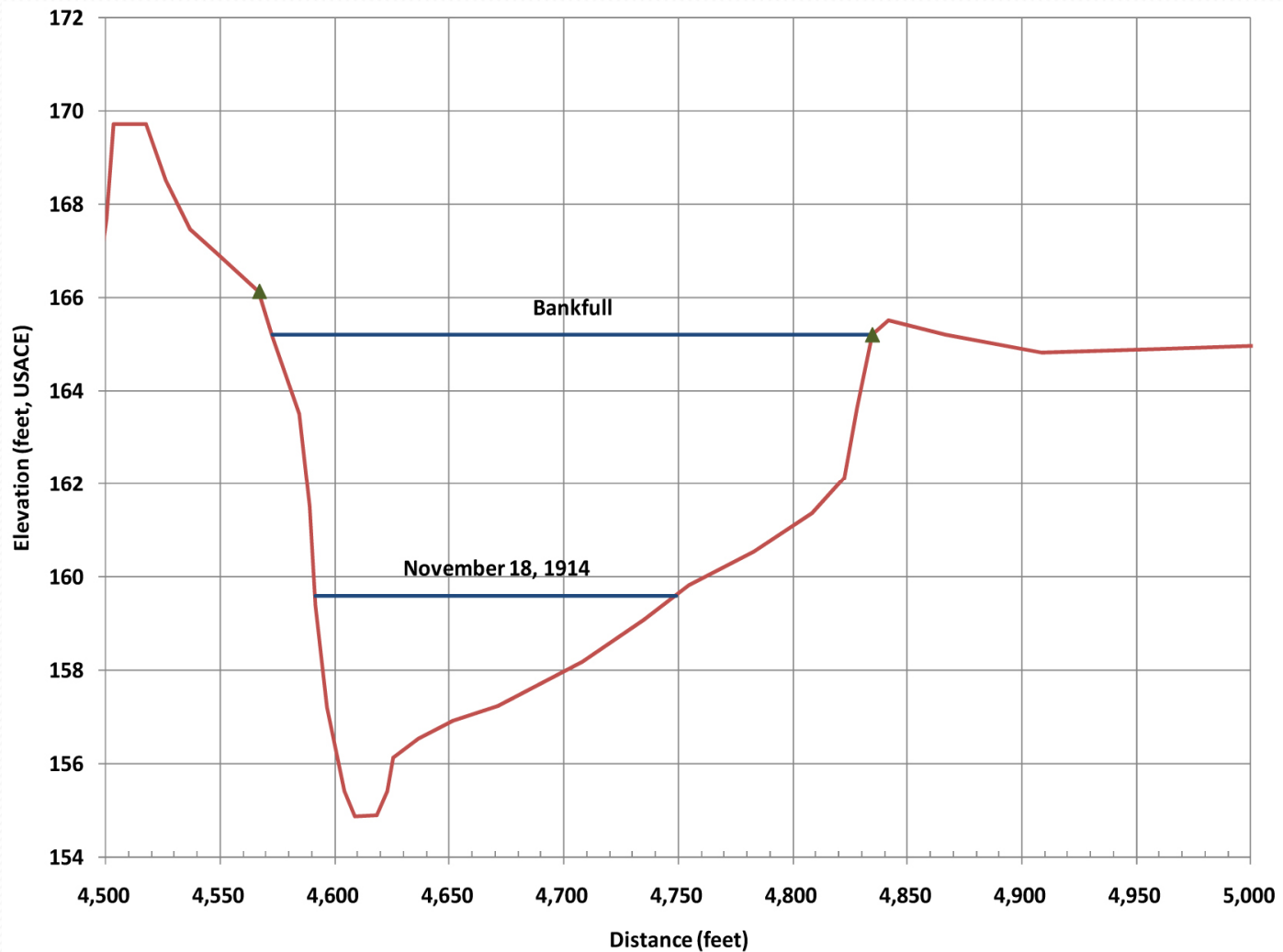
# HIGH WATER LINE



- Not a line reached by floods
- A line where erosion occurs; change in or lack of vegetation
- May relate to bank full level on many rivers
- Best evidence and application of case law

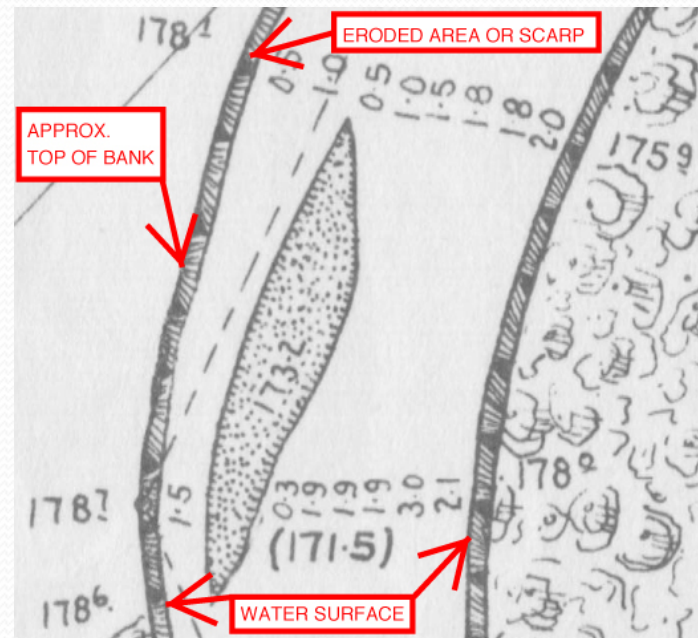
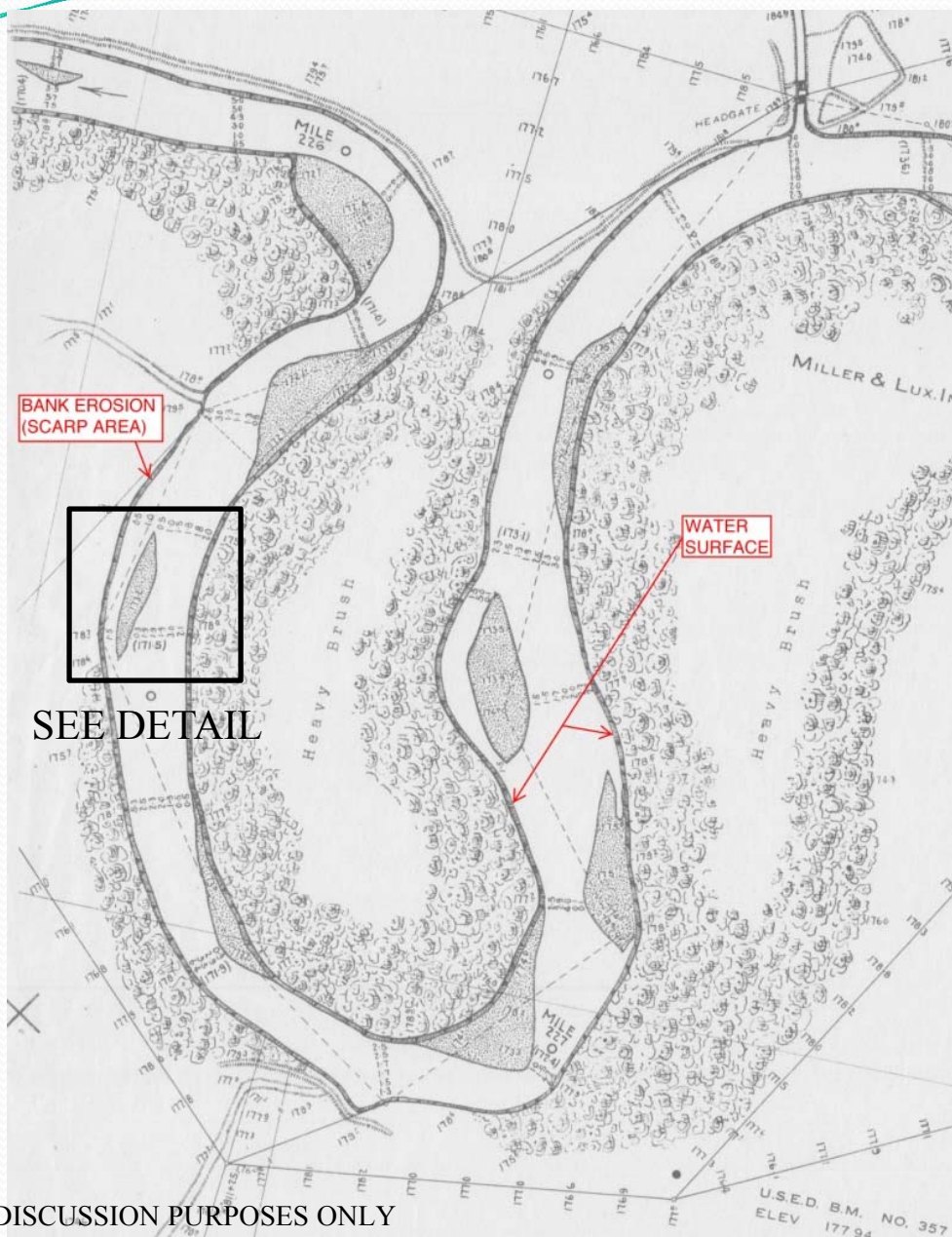
# TYPICAL BANK FULL CROSS SECTION

## 1914 CALIFORNIA DEBRIS COMMISSION MAPS



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# HIGH WATER PHYSICAL FEATURES GEOMORPHOLOGY



DETAIL



## LOW WATER LINE

- Covered by water most the year
- Low Water occurs during the Fall season
- Low Water should be determined during a **normal** water year
- Low Water determination should exclude years of droughts or floods
- Difficult to use physical or geomorphic features



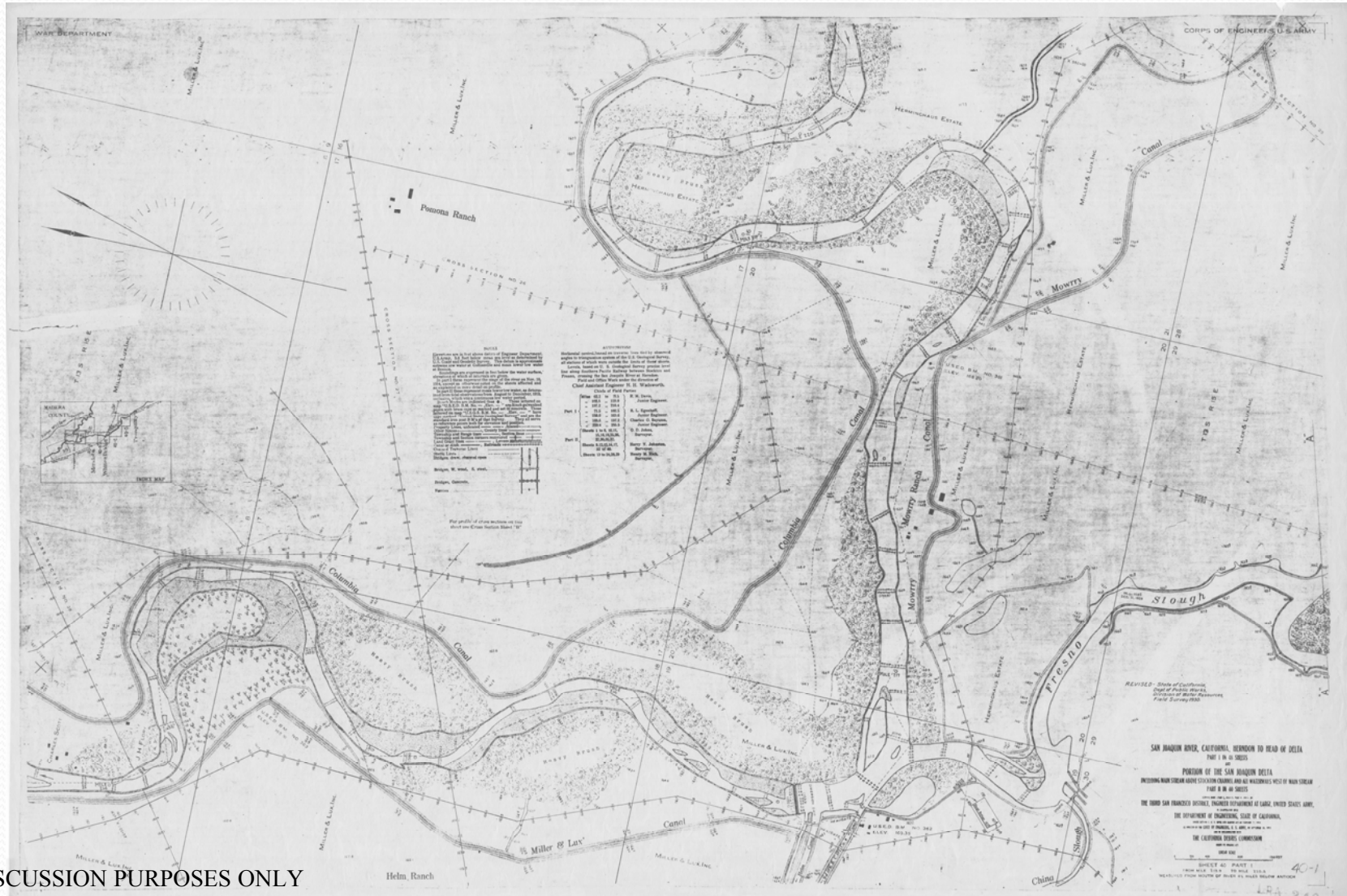


# BEST AVAILABLE EVIDENCE

## ■ HIGH WATER LINE

- Miller Lux Survey – generally located top of bank. Last known survey before Friant Dam
- 1914 CDC Mapping – second choice for high water location used in areas Miller Lux did not follow the top of bank
- 1937 Fairchild Aerial Photographs – third choice for high water line, generally follows current location

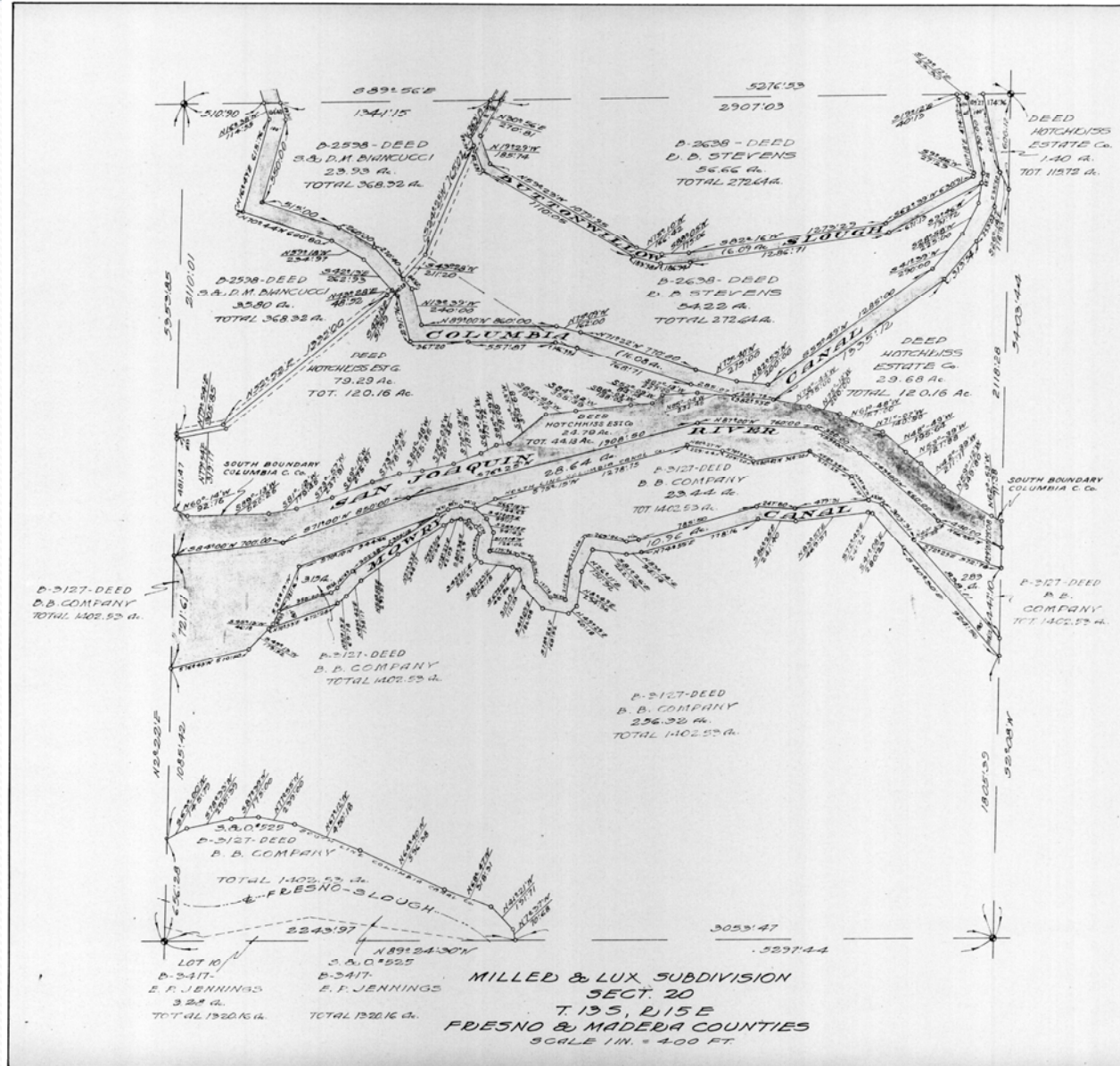
# CALIFORNIA DEBRIS COMMISSION MAPPING 1914



# MILLER LUX PLATS 1920s – 1930s



4" x 4"  
Redwood post  
Original monument?



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# FAIRCHILD 1937 AERIAL PHOTOS SAN JOAQUIN RIVER



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# BEST AVAILABLE EVIDENCE

- LOW WATER LINE

- 1914 CDC Mapping – Only mapping showing a water surface during a low water period before Friant Dam

- In areas affected by Mendota Dam, low water and channel modeled to estimate a pre-dam configuration

# SAN JOAQUIN RIVER HIGH AND LOW WATER ADMINISTRATIVE MAPS

- Riparian Boundaries fixed due to two dominant artificial influences affecting the San Joaquin River system

- Mendota dam – first permanent structure 1871
- Friant Dam completed 1941





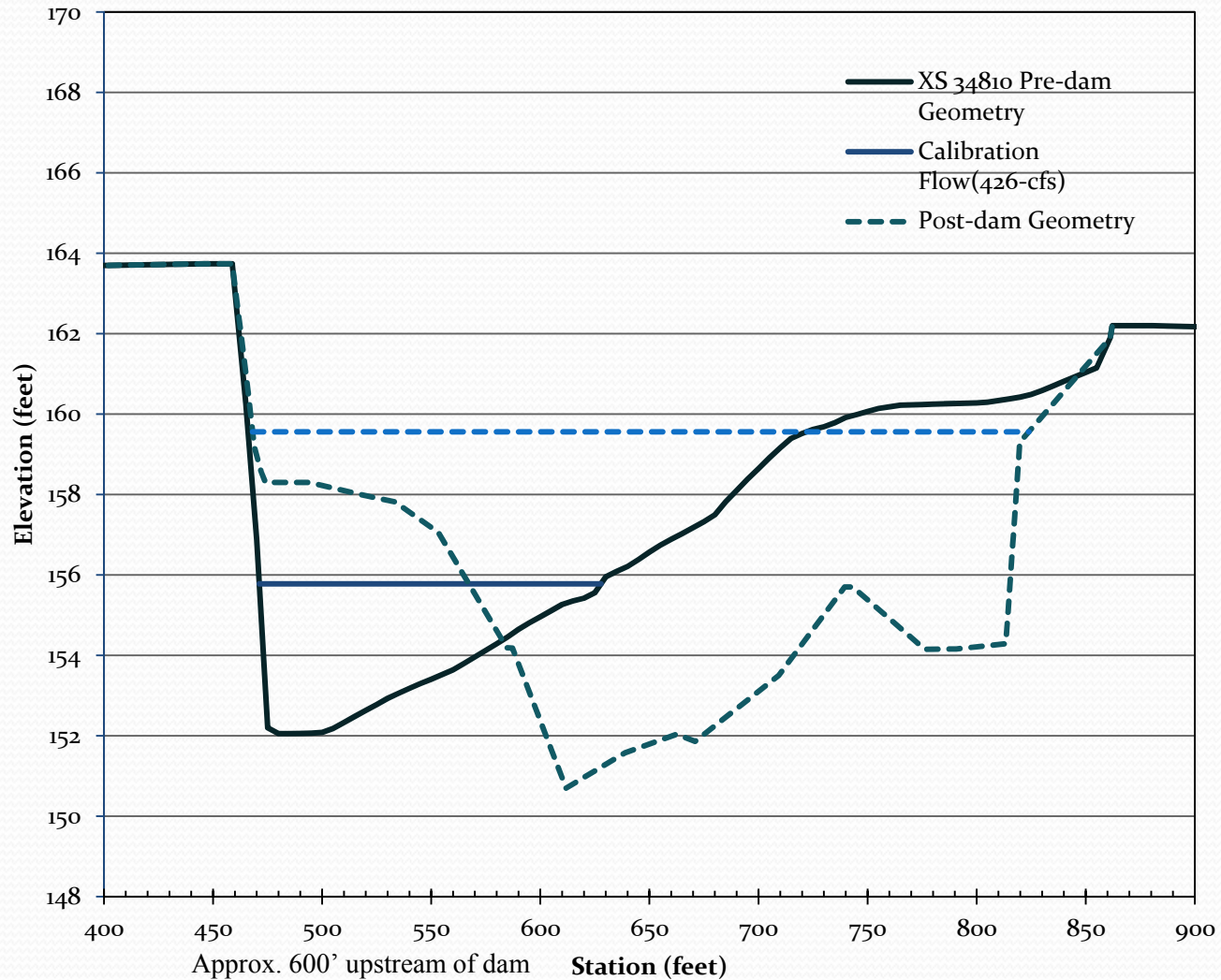
# MENDOTA DAM

## INFLUENCE ON HIGH AND LOW WATER

- High water – no evidence showing alteration of bank full location of main channel prior to 1941
- Low water
  - Affected the water surface 2.7 miles downstream and 2.5 miles upstream
  - Up to 4 feet of aggradation or sedimentation in Reach 2B upstream of Mendota dam
  - Dam increase river width and water surface elevation

# MENDOTA DAM

## INFLUENCE ON CHANNEL CONFIGURATION



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# FRIANT DAM

## INFLUENCE ON HIGH AND LOW WATER

- Up to 90% of natural flows diverted from the San Joaquin river
  - Retention of sediment above Friant Dam
  - Degradation of channel
  - Reduction of flows and water surface elevation
  - Increase vegetation within channel

# ADMINISTRATIVE MAPS

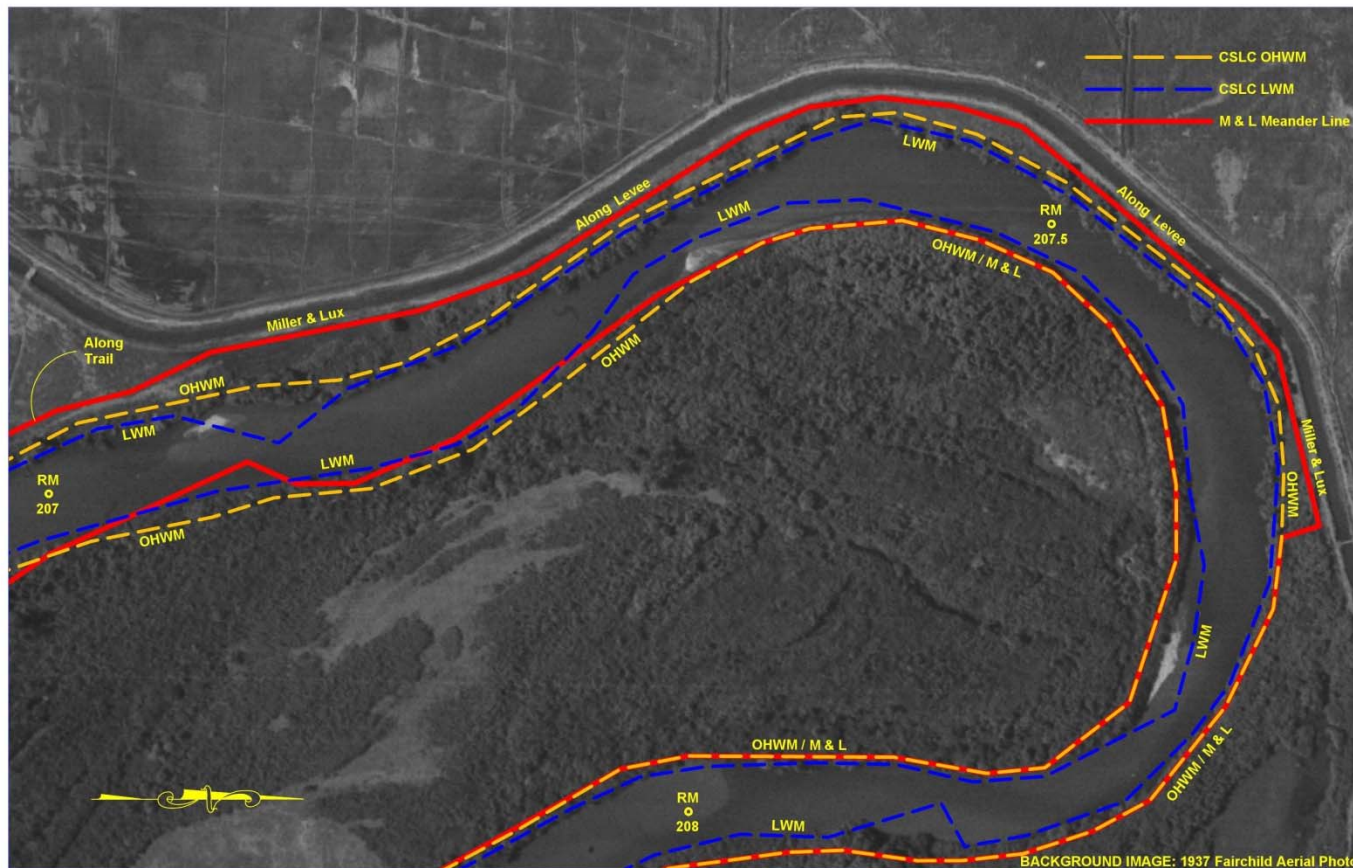
## CSLC HIGH AND LOW WATER



Miller Lux surveyed meander line

# ADMINISTRATIVE MAPS

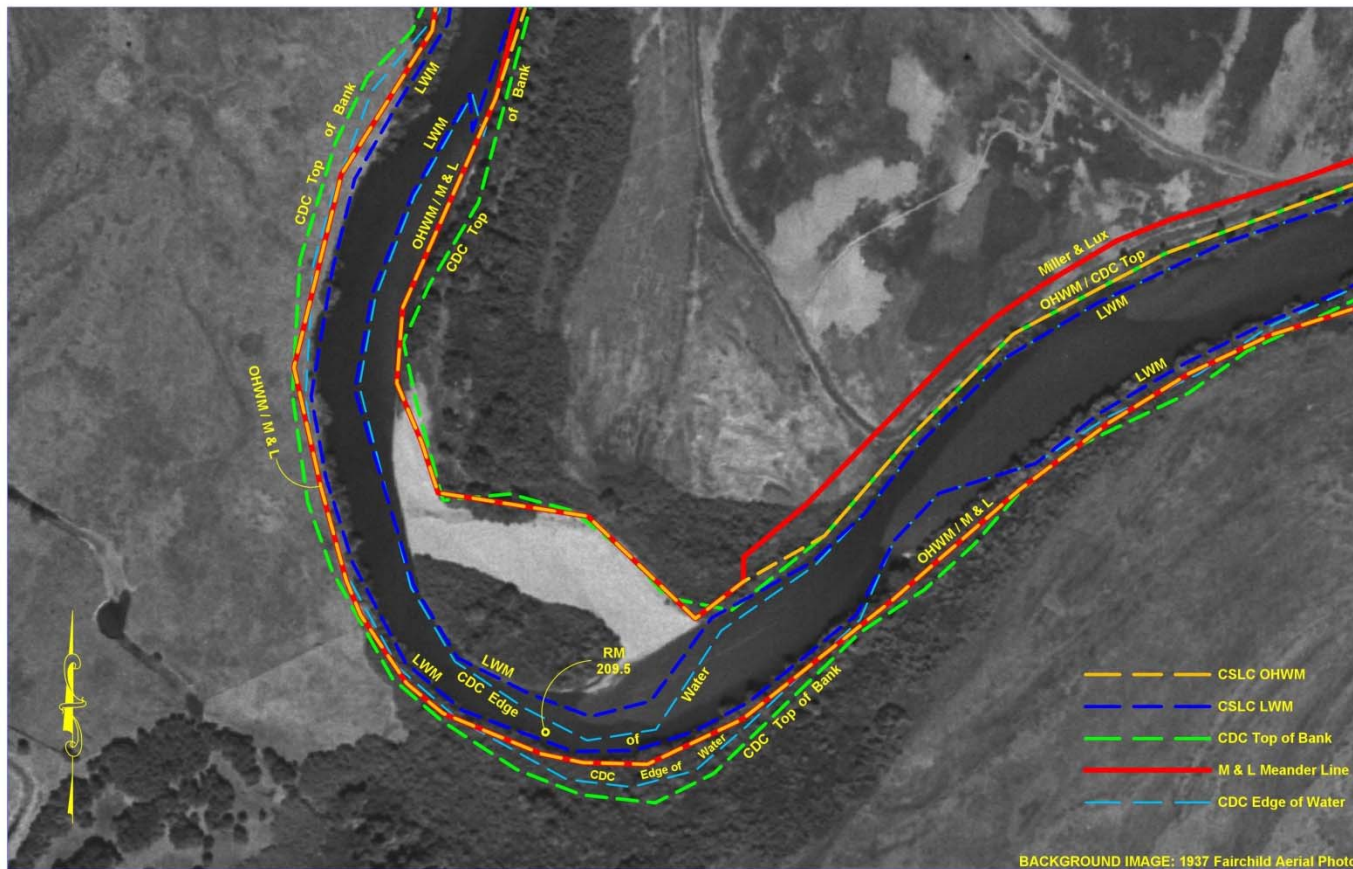
## CSLC HIGH AND LOW WATER



Miller Lux surveyed meander line – not always a meander line

# ADMINISTRATIVE MAPS

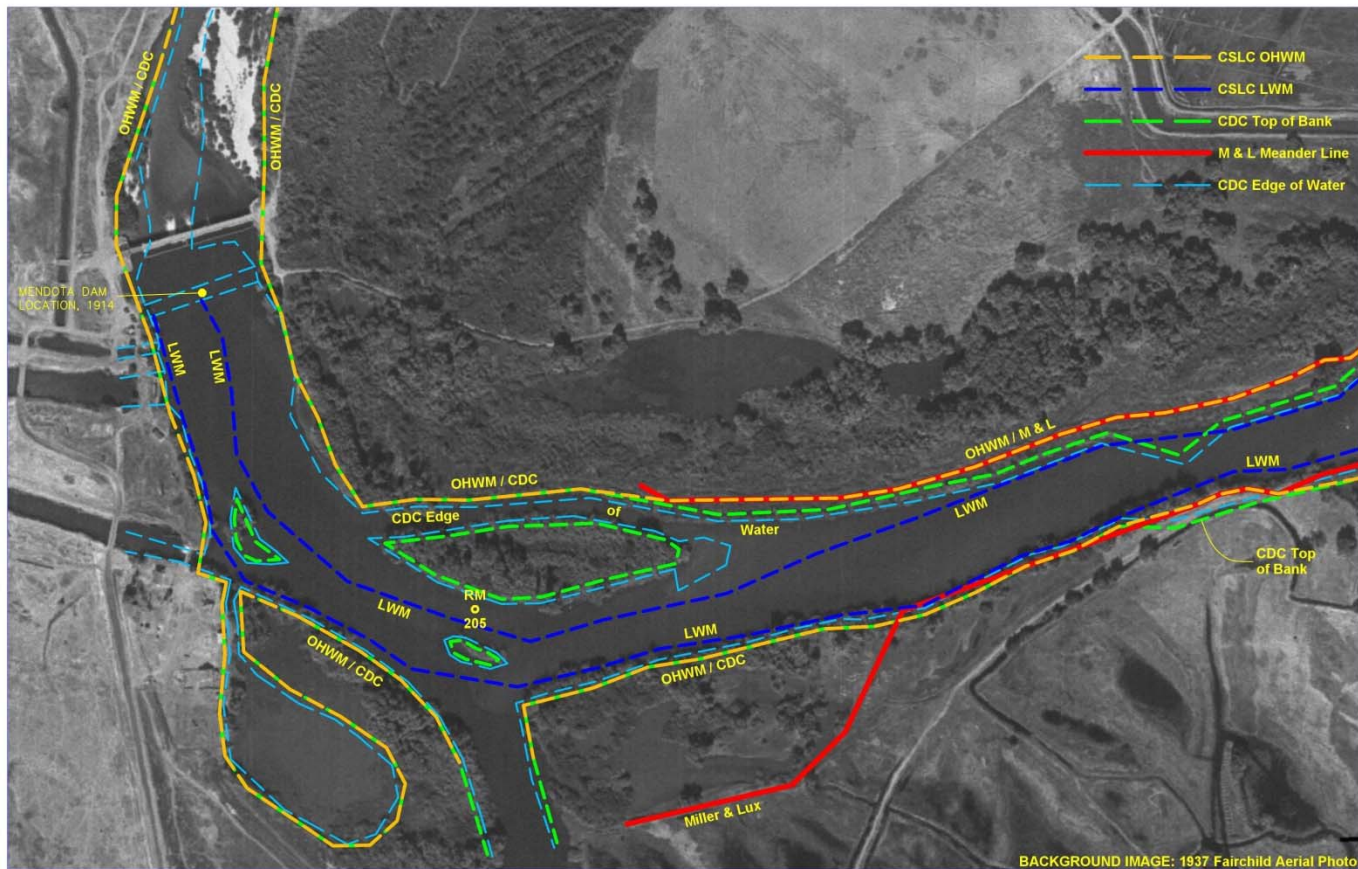
## CSLC HIGH AND LOW WATER



River channel movement - Accretion

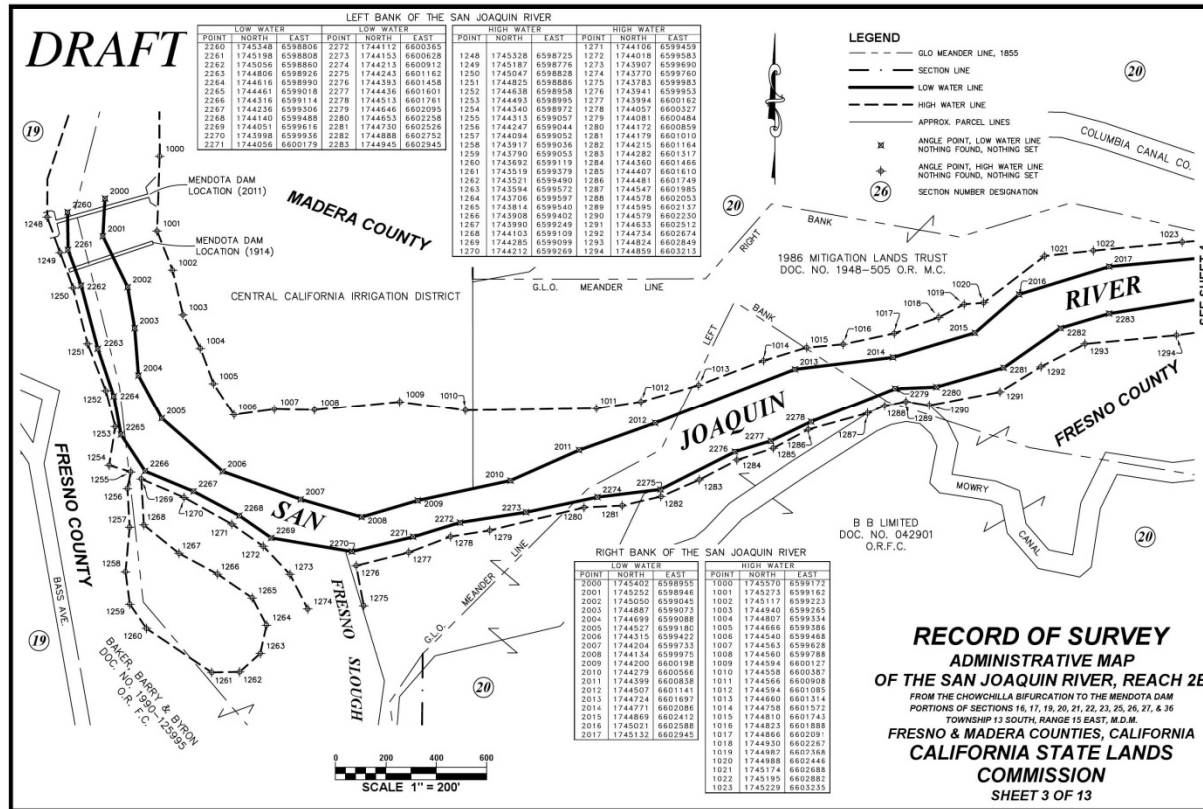
# ADMINISTRATIVE MAPS

## CSLC HIGH AND LOW WATER



River channel before Mendota Dam

# ADMINISTRATIVE MAPS CSLC HIGH AND LOW WATER LINES



TO BE FILED WITH THE COUNTY



## EFFECT AND USE OF LINES SHOWN ON THE ADMINISTRATIVE MAPS

- Basis of State claims of limits of sovereign ownership and Public Trust Easement
- Subject to change if better evidence is found by or presented to the CSLC
- Basis for Real Estate purchases, Exchanges and Boundary Line Agreements
- Basis for CSLC Leases
- CSLC may exercise the Public Trust Easement rights
  - Commissioners must vote at a public meeting



## CONCLUSION

- San Joaquin River is considered to be in an artificial state which fixes boundaries at their last natural location
- Low and high water lines are based on features shown on historic maps aerial photography
- Low and high water lines are based on extensive research, fieldwork, analysis of the best available evidence
- Low and high water lines are subject to reconsideration if better/more reliable data is made available
- CSLC Reach 2B Administrative Maps will be filed with Madera and Fresno Counties