



SUPPLY AND DELIVERY POINT(S)

RD 2033#1 South side of Woodbridge Road, 5 miles west of Interstate 5 next to Grain Bins

RD 2033#2 Vanesek Dairy on Woodbridge Road west side of Interstate 5

RD 2086 Canal Ranch Headquarters

SPECIAL FLOOD CONSIDERATIONS - BRACK TRACT

Underground P.G.&E. gas lines with flow toward East run through RD2033 as shown. Lodi Gas Storage gas lines also run through RD2033 as shown. Underground lines include two 8" lines and one 12" line running parallel to Woodbridge Road and across Mokelumne River at west end of RD2033. Monitoring wells placed to check levee where lines penetrate.

Mokelumne River channel between Heron rookery where channel was straightened is deep and fast and levee in this location is very steep. Potential for erosion during high flows is higher than in other sections of RD2033 levee.

LEVEE PATROL PROCEDURES AND CONSIDERATIONS CANAL RANCH

District President will initiate and coordinate patrols upon prediction that water elevations will reach Monitor Stage at Benson's Ferry Gauge. District will conduct three patrols per day at Monitor Stage and continuous 24-hour a day patrols at Flood Stage.

Patrol personnel meet at Canal Ranch Headquarters on north side of district to receive briefings, meet relief crews, and exchange communications equipment. Patrols provided with sandbags, shovels, and other supplies to respond to problems.

Single 2 person patrol to cover the seven miles of primary levee starting from Canal Ranch Headquarters and exiting at east end of Hog Slough

LEVEE PATROL PROCEDURES AND CONSIDERATIONS BRACK TRACT

District President determines need and frequency of patrols and organizes patrols. Patrol members meet at Del Rio Partners Offices to receive assignments and determine schedules.

Patrols organized into three sectors as follows:

- Del Rio Partners Offices to East end of Hog Slough
- Del Rio Partners Offices to Merlo Camp Access Road ramp on Sycamore Slough
- Merlo Camp Access Road ramp to East end of Sycamore Slough

Patrols reports findings, status, and problems directly to District President.

RECLAMATION DISTRICT No. 2086 - CANAL RANCH FLOOD HISTORY

1889 - Area originally reclaimed by Ross C. Sargent who owned Terminus, New Hope, and most of Brack and Canal Ranch Tracts. Canal Ranch levee around 1878. Major flood in March caused Mokelumne River to break out on left bank and inundate east bank of South Fork of the Mokelumne River from New Hope to Terminus Tract and including area of Canal Ranch.

1899 - High flows in March caused Mokelumne River to break out on left (southern) bank northeast of Canal Ranch and flood 20,000 from New Hope to Brack Tracts.

1904 - High flows in Sacramento River led to a break on east bank of Sacramento River three miles below City of Sacramento (Edwards Break). The diversion of a good part of the river into the Sacramento Basin occurred at a time when high water arrived from the Mokelumne River. Levees were overwhelmed within 15 miles of Stockton including the east bank of the South Fork of the Mokelumne River.

1958 - Reports of the flooding of Canal Ranch in various State documents are incorrect. Flood flows from the New Hope area of the Mokelumne River moved west to a dryland levee protecting the east side of the district where water ponded to a couple of feet deep. District area west of dryland levee did not flood.

1986 - Failure of district pumps from loss of power during high water event caused water to pond in west end of district up to a couple of feet deep. Area impacted shown on map. No levee failure.

RECLAMATION DISTRICT No. 2086 - CANAL RANCH FLOOD OPTIONS

HIGH WATER EVENT
The general floodfight strategy will be to maintain primary district levees and evacuate equipment and other property.

Actions Needed
Initiate and coordinate patrol of primary levees and respond to identified problems
Participate in North Delta Unified Flood Fight Command with command post at Van Exel Dairy in Brack Tract
Move equipment off the tract if possible but at least away from levees to facilitate inspection

FAILURE OF PRIMARY LEVEE
The general floodfight strategy will be to close breach and install emergency pumping capacity at site of current district pumping station on south side of district to dewater district.

Actions Needed
Armor edges of breach to limit length of levee washed out.
Install emergency pumping capacity pending closure of breach at site shown for district pumping station
Protect interior slopes of primary levee from damage from impounded water

UPSTREAM BREAK ON MOKELUMNE RIVER OR FAILURE OF HOG OR BEAVER SLOUGHS EAST OF CANAL RANCH DRYLAND LEVEE
The general floodfight strategy will be to hold Canal Ranch Dryland levee on east side of district to prevent flooding of district and facilitate movement of floodwaters into Hog Slough.

Actions Needed
Clear vegetation from east slope of Canal Ranch Dryland Levee and place protection for wave wash.
Stage equipment to place or move additional fill to low or weak portions of Canal Ranch Dryland Levee
Initiate patrol of Canal Ranch Dryland Levee and position materials for addressing identified problems with seepage or overtopping
Maintain access to district primary levees through Beaver Slough levees (or Hog Slough in the event of failure of Beaver Slough east of district) to continue patrol and flood fight of primary levees
Evaluate need for barge or boat access to primary levees in the event that extensive flooding to east of district restricts ground access. Identify landing area.
Stage drainage pumps to relieve ponded floodwaters on east side of Canal Ranch Dryland Levee into Hog Slough and Beaver Slough

RECLAMATION DISTRICT No. 2033 - BRACK TRACT FLOOD HISTORY

1955 - Series of severe storms during period of December 19-24th led to peak flow on Cosumnes River at Michigan Bar of 43,000 cfs and on Mokelumne River of 27,000 cfs. Stage at Benson's Ferry gauge reached a record 18'. Levee failures on Mokelumne River east of districts led to overland flow over wide areas south of river. Local accounts of RD348 sandbagging dryland levee south of Town of Thornton to prevent flooding of town from waters backing up against railroad embankment.

1958 - High flows on Mokelumne River broke through southern levees and sheet flow flooded to RD2086 dryland levee. Interstate 5 did not exist to hinder flow to west. Pumps failed on RD2033 allowing build up of seepage on western end of district.

1986 - Series of storms during period of February 16-17th led to peak flow on Cosumnes River at Michigan Bar of 45,000 cfs with Camanche Reservoir maintaining Mokelumne River flows at 5,000 cfs. Stage at Benson's Ferry gauge reached a record 18.3'. RD2033 experienced extensive seepage in lower end of district but had no levee failures. Large amounts of local runoff created sheet flow that built to a depth of 1-2' on east side of Brack Tract Dryland Levee with flood waters eventually moving around south end of levee.

Local canals were running over top from extensive runoff. Flood water flowed to west end of district and built up to a depth of 3-4' deep. RD348 levees to the north failed on February 20th but flood waters stopped at Beaver Slough and did not affect RD2086 or RD2033.

1997 - Series of storms during period of December 28-31st led to peak flow on Cosumnes at Michigan Bar of approximately 40,000 cfs with Camanche Reservoir maintaining Mokelumne River flows at 5,000 cfs. Local reports that heavy flows in Dry Creek contributing to record stage of 18.7' at Benson's Ferry gauge. Pipe at RD2033 pump station in January failed washing out significant portion of back side of primary levee at district pumping station. Emergency work prevented levee failure until permanent repairs could be completed.

2006 - Spring tide over New Year's weekend combined with high river flows from wet December and strong low pressure storm to generate very high tides (10.7' at Rio Vista gauge). Peak water elevations left only 2' of freeboard on RD2033 levees. District discovered and repaired sand lens which was historic cause of seepage approximately 100' south of west end of Woodbridge Road.

RECLAMATION DISTRICT No. 2033 - BRACK TRACT FLOOD OPTIONS

HIGH WATER EVENT
The primary flood fight strategy is to patrol primary levees, ensure pumping stations remain operational, and monitor Camanche Reservoir situation for any threat of overland flow from the East.

Actions Needed
Organize Patrols and Notification system
Designate District official to attend North Delta Flood Fight Unified Command meetings.

FAILURE OF PRIMARY LEVEE
The primary flood fight strategy will be to prevent movement of floodwaters east of Interstate 5 or south into Terminus Tract from end of Sycamore Slough.

Actions Needed
Repair levee breach
Evaluate potential extent of movement of floodwaters to East and potential depths and prepare plans for emergency berms at Interstate 5 underpass or extending East from Sycamore Slough if warranted
Place visquine on inside of primary levees where exposed to wave action to reduce damage to interior of levees
Place additional pumps at district pumping station for dewatering operations

FAILURE OF PRIVATE LEVEES ON SOUTH BANK OF MOKELUMNE RIVER EAST OF DISTRICT
The primary flood fight strategy will be to prevent movement of floodwaters into district from East.

Actions Needed
Extend Brack Tract Dryland Levee and hold floodwaters at this point and install pumps to move floodwaters into Hog Slough.

Horizontal and Vertical Data

Horizontal - Map is projected to California State Coordinate System Zone 3 NAD 83 (US Feet)

Vertical - Published elevations are on NAVD 29 Vertical adjusted (-2.37') from NAVD 88 (US feet)

LEGEND

		Existing Pumping Station
		Best Location for Pump Structures
		Existing Structures
		Occupied Structures
		Seasonal - Occupied Structures

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Reclamation District No. 2033 - Brack Tract and Reclamation District No. 2086 - Canal Ranch
FLOOD CONTINGENCY MAP

SAN JOAQUIN COUNTY OFFICE OF EMERGENCY SERVICES

SCALE: 1" = 1000'
JOB NUMBER: 491010
REQUESTED BY: CC
DRAWN BY: MB
DATE: January 2007

1 of 1 SHEETS