Flood Fight History
Impacts vicinity of East Bank
of San Joaquin near Stanislaus River Junction

1935 - Snowmelt flood caused a break on San Joaquin River a short distance above the Durham Ferry road bridge at 2:30 a.m. on Friday, May 31st. Approximately 3,000 acres were flooded. Break reached 400 feet but a relief cut was promptly made approximately 1 mile below the bridge. A renewed rise of the San Joaquin and Stanislaus Rivers on Tuesday, June 4th occured due to hot weather in the mountains rapidly melting the snow pack. This hindered attempts to close the break. (News article from Ken Mohler)

1983 - Spring flood was occuring on San Joaquin River due to El Nino weather pattern that prevailed for most of the winter. Flows on Stanislaus River were not significant since the new New Melones Reservoir was still in the process of initially filling. San Joaquin levee failed approximately one-fourth mile upstream from current Airport Way Bridge at approximately 7:45 a.m on March 6, 1983. Water level at Vernalis Gauge was 31.5 feet. Relief cut made at 3 p.m. On March 6 by District officials above Cardoza Village at location shown on plan map. Cut was delayed by objections from Corps of Engineers. District officials had to travel to Sacramento to obtain permission to make cut. By this time it was almost too late to save the Trahern Dryland Levee. Small initial cut with back hoe widened naturally to 200'. Second cut was unnecessary since this cut widened fast enough to prevent overtopping of Trahern Levee. RD2075 officials conducted floodfight on Trahern Dryland Levee to prevent movement of water northward. District officials, with materials and crews from Department of Water Resources, laid visquine wave wash protection and raised levee with sandbags. Once PL99 assistance was approved by COE, that agency did work all night to raise levee with earth fill and rock the water side. Dairy farmer just to south of Trahern levee floodfought private levee until its failure next day. (Baldwin and interviews with District Officials)

1997 - Over a 3 -day period centered on January 1, 1997 warm moist winds from the southwest blowing over the Sierra Nevada poured more than 30 inches of rain into watershesds that were already saturated by one of the wettest Decembers on record. By January 2, 1998 Don Pedro Reservoir and Millerton Lake at Friant Dam releases were much above channel capacity. Don Pedro water, in particular, caused a dramatic surge in San Joaquin River stages by early morning of January 4, 1997. Stanislaus river flows were near channel capacity because of greatly increased releases from New Melones Reservoir. District officials feel that restricted capacity of channel at Airport Way bridge caused these high flows to back up further. Numerous boils were responded to during the next 36 hours. At approximately 2:00 p.m on Sunday January 5, San Joaquin levee failed one-fourth of a mile above Airport Way bridge near where floodfight work was in progress. At approximately 4:00 p.m the same day Stanislaus River levee failed near Sturgeon Bend, one-quarter mile upstream from junction with San Joaquin River. At approximately 10 p.m that night district officials made relief cut at same site as in 1983 as shown on map (Upper Cardoza Relief Cut). Higher water levels at time of cut did not produce as rapid growth of cut as in 1983. By early morning it was apparent that water levels in the district were still rising and a second relief cut was begun at 7:00 a.m Monday January 6, downstream near Trahern cross levee as shown on map (Lower Cardoza Relief Cut). Approximately three hours later the high water levels in the district caused failure of the district levee at Cardoza Village creating a third route for waters in the district to reenter the river. This failure caused the loss of two homes in Cardoza Village. RD2075 officials, assisted by Department of Water Resources staff on-site, began a floodfight on the Trahern Dryland Levee to prevent water from flowing northward. See Below.

2006 - **See Below**

Flood Fight History
Impacts on East Bank of
San Joaquin River south of Mossdale

1950 - Failure of levee on Thankgiving Day near junction with Hays Road near present location of district pumps. River broke back into main channel near Hildebrand Farm since primary levee was no higher than Almondwood Dryland Levee on north side of district. Primary levee is now much higher than Almondwood Dryland Levee and so this would not happen again. Instead water would overtop the dryland levee and continue to move north as it did in 1997. Stanislaus River flows reached 68,000 cfs.

1952 - Levee failed downstream of 1997 break in June probably as a result of poor maintenance and inadequate patrolling (Alex Hildebrand)

1955 - Rapid rise on San Joaquin River on Christmas Day caused failure of RD2075 levee in the area of the pocket. Stanislaus River reached 55,000 cfs which caused levee upstream from Manteca Road to fail. Stanislaus River water flow moved south of Moncure Road to River Junction/McMullin Dryland Levee where it was diverted north past Perrin Road and then west along West Ripon Road into Walthal Slough. Area around Brady Road next to River Junction/McMullin Dryland Levee flooded deep but water did not back up that far east on Brady. Leal house in Brady/Melton Roads area had water up to the eaves. Break on south side of Stanislaus River on Mapes Ranch caused rapid drop in water levels. (Merlin Mohler)

1983 - RD2075 conducted floodfight on Trahern Levee to prevent northward movement of water after levee failure in RD2064. This floodfight was successful. RD2075 also dealt with a problem on primary levee near junction with Hays Road. Failure of the primary levee was prevented. (Baldwin)

1997 - Over a 3-day period centered on January 1 warm moist winds from the southwest blowing over the Sierra Nevada poured more than 30 inches of rain into watershesds that were already saturated by one of the wettest Decembers on record. By Thursday, January 2 Don Pedro Reservoir and Millerton Lake at Friant Dam releases were much above channel capacity. Don Pedro water, in particular, caused a dramatic surge in San Joaquin River stages by early morning of Saturday, January 4. Following levee failures in RD2064 on January 5, 1997 Department of Water Resources and RD2075 officials began a floodfight on the Trahern Dryland Levee to prevent water from flowing northward. District official Lloyd Hayward closed gates one-quarter mile west of Airport Way to prevent water from flanking the Trahern Levee. Corps of Engineers under PL99 were requested to floodfight Trahern Dryland Levee which was approved. Corps of Engineers contractors placed leach line rock on top of levee to prevent wave wash damage. Water levels reached top of levee where previously placed gravel prevented washout from slight overtopping flow. By afternoon of Monday January 6 trucks and heavy equipment could not access top of levee. Private drag line used to try to maintain access. COE ceased floodfight work on levee that afternoon. District officials feel that Trahern Levee would have failed if break further downstream had not occurred early next morning. During the time of the floodfight on the Trahern Dryland Levee, district officials noticed instability and bulging on their primary levee one-quarter mile downstream from junction with Hays Road. An additional problem area was being watched downstream. At 2:00 a.m on Tuesday, January 7 levee patrol found that levee at first location near Hays Road had pushed out. Levee road was still overhanging break upon discovery but quickly collapsed into break which spread to over 1,200 feet over the next several days. Water reached Almondwood Dryand Levee around 5:30 a.m. Water reached Weatherby Lake by 7:00 a.m that morning. Levee breach opened to 1,200 feet over several days. District remained flooded until March 1997. (Baldwin with interviews of District Officials)

2006 - Spring flood occurred on San Joaquin River due to sustained rains in March that saturated ground culminating in a very heavy rainfall event on April 2nd-4th which forced reservoirs to make large releases. Initial predictions of a 32' stage at Vernalis, combined with a forecasted additional large precipitation event, initiated a large flood fight operation. Precipitation event failed to occur and subsequent peak flow crested at 35,000 cfs at Vernalis Gauge causing a peak stage of 29.3'. Erosion protection and seepage control work were necessary at nearly a dozen sites but no levees failed. Extensive seepage flooded numerous fields and some structures and seepage continued to hinder farm operations into the summer. (Baldwin after interview with Art Hinojosa)

Flood Contingency Options
Reclamation Districts 2064, 2075, 2094, 2096

Highwater Event and Failure of Primary District Levees
The general strategy in a high water event is to establish effective levee patrol, coordinate response through South Delta Unified Flood Fight Command, and prepare to take additional emergency actions.

Actions

- Establish levee patrols in accordance with district plans.
- Involved districts and local, State, and Federal agencies provide representatives to South Delta Unified Flood Fight Command to coordinate response to levee problems
- Identify equipment to make pre-planned relief cuts if needed.
- Determine advisability of providing pro-active wave wash protection on some or all dryland levees within districts as a precautionary measure.

Failure of RD 2064 Primary Levee (see 2064 Annex)

The general flood fight strategy will be to flood fight the Trahern Dryland Levee, make the Lower Cardoza Relief Cut in RD2075, and protect interior levee slopes.

Actions (RD2075)

- Coordinate with P.G.&E. to cut power to flooded sections.
- Position equipment at Lower Cardoza Relief Cut if levee failure is probable. Upon failure of primary levee, make relief cut to just above water line of river. As impounded waters build up to the level of river water, complete cut.
- Monitor outflow from first relief cut and elevation of impounded water to determine need for a second relief cut to stabilize water elevation. If appropriate, make Upper Cardoza Relief Cut to stabilize elevation of impounded waters and assist flood fight operations.
- Flood fight Trahern Dryland Levee. Close gates through Trahern Dryland Levee at Walthal Slough and other culverts to prevent water from penetrating or flanking east end of levee.
- Protect interior slopes of district levees.

Failure of Trahern Dryland Levee or RD 2075 Primary Levee
The general flood fight strategy will be to make Mizuno Farms Relief Cut and protect interior of district levees. Support activity by RD17 to flood fight Woodward Dryland Levee on north side of RD2094.

Actions (RD 2094 & 2096)

- Position equipment to make Mizuno Farms Relief Cut. Upon failure of primary levee, make cut to just above water level of river. Monitor elevation of impounded flood waters and complete cut when elevation of impounded waters reach elevation of river waters.
- Protect interior slopes of district levees.

Failure of RD 2094 or RD 2096 Primary Levee
The general flood fight strategy will be to flood fight Almondwood Dryland Levee to prevent flood waters from backing up into RD2075.

Actions

- Coordinate with P.G.&E. to cut power to areas impacted by flood waters
- Flood fight Almondwood Dryland Levee.
- Protect interior slopes of district levees.
- Support RD17 flood fight of Woodward Dryland Levee.

Failure of Stanislaus River Levees East of Manteca Road Dryland Levee (See 2064 Annex)
The general flood fight strategy will be to flood fight Manteca Road Dryland Levee, make Brocchini Farm Relief Cut, and install emergency pumps at mouth of Walthall Slough to evacuate flood waters that may move north and west into Walthall Slough.

- Coordinate with P.G.&E. to cut power to areas impacted by flood waters.
- Flood fight Manteca Dryland Levee. Close Melton and Perrin Roads with temporary berms.
- Extend Almondwood Dryland Levee if needed to control any flow towards Walthall Slough.
- Position equipment at Brocchini Farms Relief Cut. If impounded floodwater elevations exceed elevation of river water complete relief cut.
- Install emergency pumps at mouth of Walthall Slough to pump flood waters entering slough back into river.

Dewatering Plan

Situation:
District has a gradient drop of 8' from south to north making a relief cut an effective dewatering step. District does not own or operate drainage pumping stations however the Walthall Slough Drains by gravity to RD2096 floodwater gates.

Phase I:
In the event of flooding of entire district, a relief cut will be made as located on map when impounded waters reach elevation of river waters at point of relief cut. Relief cut will remain open to allow impounded waters to exit district as river returns to normal elevations. Once flood waters will no longer drain through relief cut, the cut will be repaired along with breaches(es).

Phase II:
Upon closure of breaches and relief cut, district will coordinate with RD2096 for additional floodwater releases and set up dewatering pumping stations to pump out remaining impounded waters. Emergency pumping station placed as shown for flood dewatering.

Tactical Plans – (Preliminary Engineering Designs)

Following tactical plans available at www.sjmap.org/oesfcm or KSN Engineers.

- Mizuno Farms Relief Cut

Levee Patrol Plans

Reclamation Districts 2075, 2094

District Incident Commander will coordinate patrol schedule. Upon receipt of a DWR prediction that stages at Vernalis Gauge will exceed Monitor Stage (EL=24.5 feet), develop tentative schedules and assignments for 12 hour and hourly patrols. Upon reaching 24.5 feet at Vernalis Gauge, RD2094 will initiate 12 hour patrols. Upon reaching 26.5 feet at Vernalis Gauge, all districts initiate hourly patrols. District officials anticipate requesting mutual aid for levee patrols if hourly patrols continue without break for more than two weeks or if RD2064 levee fails.

Patrols will meet at command post located at Mizuno Packing Shed. Communications will be with personal cellular telephones. Lath marking procedures will follow the Levee Threat Monitoring Guidelines.

Lath Protocol

Red – Boil/Seepage
Blue – Rock Slippage
White – Slope/Levee Distress

Flood History
Stanislaus River Impacts

1906 - Flood broke out of the river east of Ripon and flowed down Jack Tone Road toward Stockton and west around the City of Ripon.

1928 - Stanislaus River overtopped the levee on the Hard Ranch near South Austin Road on March 29th. Approximately 6,000 acres flooded generally along Stanislaus River and within RD2064. Water reached depths of eight to ten feet in areas.

1950 - Stanislaus River flows reached 68,000 cfs. Extensive rains on Thanksgiving Day caused last general flood of area. Flood peaked at 68,000 cfs. Flood waters broke out south of intersection of Mohler and Moncure Roads and extended north of Mohler and Moncure roads nearly to Hutchinson. Water movement north of those roads was caused by the existence of open irrigation ditches which served to back up water to north. Flood waters traveled west to cross levee along Manteca Road and then north along that levee to West Ripon Road and then into Walthal Slough. Levee broke on south side of river near Mapes Ranch which lowered water levels considerably. (Interview with Merlin Mohler and Ken Mohler)

1951 - Local Interest Private Levee (LIPL) extending from Ruess Road to East end of Caswell Park built through cooperative agreement among affected landowners. Height of levee was built to handle 1950 flood levels which they marked at the time with tin cans to trees. It was noted that river brush and topography caused deviations from a smooth elevational fall of water levels. Water levels at specific points will deviate from calculated water heights based on elevation alone. (Interview with Merlin Mohler)

1955 - Stanislaus River flows reached 55,000 cfs. Stanislaus River levee failed upstream from Manteca Road. Stanislaus River flows reached 55,000 cfs. Water levels came within inches of the top of the LIPL Levee. Landowners subsequently raised the LIPL levee by 30 inches in 1956. Landowners also subsequently removed all cross levees to facilitate flow and reduce flood depths. (Interview with Merlin Mohler)

1964 - Stanislaus River flows reached 36,000 cfs in Spring flood in June. Levees held although considerable patrolling and remedial work was necessary.

1983 - 31.5' at Vernalis Gauge; normal flows in the Stanislaus River. Spring flood was occuring on San Joaquin River due to El Nino weather pattern that prevailed for most of the winter. Flows on Stanislaus River were not significant since the new New Melones Reservoir was still in the process of initially filling.

1997 - 34' at Vernalis Gauge before levee failure; District officials feel that water level in district after break on Stanislaus River reached 35-36' above sea level. San Joaquin River flows estimated to reach 70,000 cfs. Stanislaus River flows held at 8,000 cfs. Over a 3 -day period centered on January 1, 1997 warm moist winds from the southwest blowing over the Sierra Nevada poured more than 30 inches of rain into watershesds that were already saturated by one of the wettest Decembers on record. By January 2, 1998 Don Pedro Reservoir and Millerton Lake at Friant Dam releases were much above channel capacity. Don Pedro water, in particular, caused a dramatic surge in San Joaquin River stages by early morning of January 4, 1997. Stanislaus river flows were near channel capacity because of greatly increased releases from New Melones Reservoir. District officials feel that restricted capacity of channel at Airport Way bridge caused these high flows to back up further. Numerous boils were responded to during the next 36 hours. At approximately 2:00 p.m on Sunday January 5, San Joaquin levee failed one-fourth of a mile above Airport Way bridge near where floodfight work was in progress. At approximately 4:00 p.m the same day Stanislaus River project levee failed near Sturgeon Bend, one-quarter mile upstream from junction with San Joaquin River. Flows on Stanislaus River reached 8,000 cfs which caused levels that reached LIPL Levee and required raising of 1,000 feet of levee in anticipation of potential higher flows. No major problems were experienced on LIPL Levee at 8,000 cfs flows. (Baldwin and interviews with District Officials)

Communications Plan

Field Command Posts

RD 2094-01	Mizuno Packing Area, 23441 S. Hays Rd. Manteca, CA 95337	121°16'51.4"W 37°44'09.0"N
RD 2094-02	South Delta Flood Fight Unified Command Cardoza Barn, 4380 Perrin Rd. Manteca, CA 95337	121°15'20.8"W 37°43'29.4"N

Communications Equipment
The District does not own communications equipment.

Internal Communications
Means of internal communications among district staff and levee patrols will be personal cellular telephones. Telephone numbers will be assigned for response functions at the time of activation.

Communications with outside Jurisdictions
Primary means of communications with outside jurisdictions will be personal cellular telephones. Secondary means of communications will be: 1) attendance at daily meetings of Metropolitan Unified Flood Fight Command, 2) physical contact at public safety unified command post at San Joaquin Defense Depot, Sharpe Site, and 3) through San Joaquin Operational Area EOC.

N

SACRAMENTO SAN JOAQUIN DELTA

0 1,500 3,000 Feet

1 inch = 750 feet

Time/Date of Start of Incident

Map Version

Survey Information

Basis of Coordinates and Elevations - Almondwood, McMullin, River Junction and Trahern Dry Land Levees

Bearings and Distances shown are based on the North American Datum of 1983 (NAD 83) converted to the California Coordinate System of 1983, Zone 3 (CCS83-III) as referenced by available NGS published control monuments. All distances are grid distances. Units shown are based on the U.S. Survey Foot, Epoch date 1997.30.

- Elevations are based on the North American Vertical Datum of 1988 (NAVD 88)
- 100 –Year Flood Elevations Source: 2009 FEMA Firm
- Levee Crown, Contours, and Spot Elevations Source: 2007 DWR LIDAR

Survey Data
The survey points provided for Almondwood, Manteca Road, and Trahern Dryland Levees Profile were surveyed in August, 2005. Horizontal and vertical positions were recorded by GPS RTK, from established site control points.

Legend

- 100 Year Flood Elevation
- Logistics Base
- Delivery Point
- Supply Staging Area
- Water Landing
- Helibase
- Helispot
- Historic Seepage Area
- Historic Levee Breach
- Relief Cut
- Historic Erosion Area
- Historic Slope Stability Area
- Levee Access
- Emergency Berm
- Dryland Levee
- Dryland Levee Critical Section
- Levee
- L.C. EL=25.7' Levee Crown Elevation
- Ground EL=18.1' Spot Elevation
- L.M.=1.0 R.M.=1.0 100+00 Levee Mile-River Mile-Station
- Pump Station – Private Drainage
- Pump Station – Municipal Storm
- Pump Station – Emergency Pump Out
- Pump Station – Municipal Sanitary
- Structure (A-Agricultural, R-Residences (R# = number of homes), H-Hospital, S-School)
- Water Well
- Flood Control Structure
- Gas Well
- Overhead Transmission Line
- Underground Fiber Optics
- Underground Lines
- Command Post
- District Boundary
- Elevation Contour
- Waterways/Channels

Special Considerations

In the event of high water, plug the discharge pipe of irrigation pump stations M1, M6, and M10 to prevent water from siphoning into the District.

Drainage

Cement culverts with gates are in place as shown to allow gravity flow drainage into Walthall Slough and back into the SJ river if impounded water levels are high enough. In the event of flooding, districts would use culverts at low end of RD2096 (end of Walthall Slough) to drain area by gravity flow once river water elevations have subsided. As an alternative dewatering pumps can be placed adjacent the Mizuno Farms Relief Cut to aid in dewatering.

California Data Exchange Center CDEC Gauge

California Data Exchange Center (CDEC) Website

http://cdec.water.ca.gov

San Joaquin River Near Vernalis Gauge

Monitor Stage: 24.5'
Flood Stage: 29.0'
Danger Stage: 29.5'

KSN, Inc surveyed the levee crown of the Almondwood Dry Land Levee and the detailed survey points are on file with the San Joaquin County GIS Department

KSN, Inc surveyed the levee crown of the Trahern and Manteca Road Dry Land Levee and the detailed survey points are on file with the San Joaquin County GIS Department

Delivery Points and Supply Staging Areas

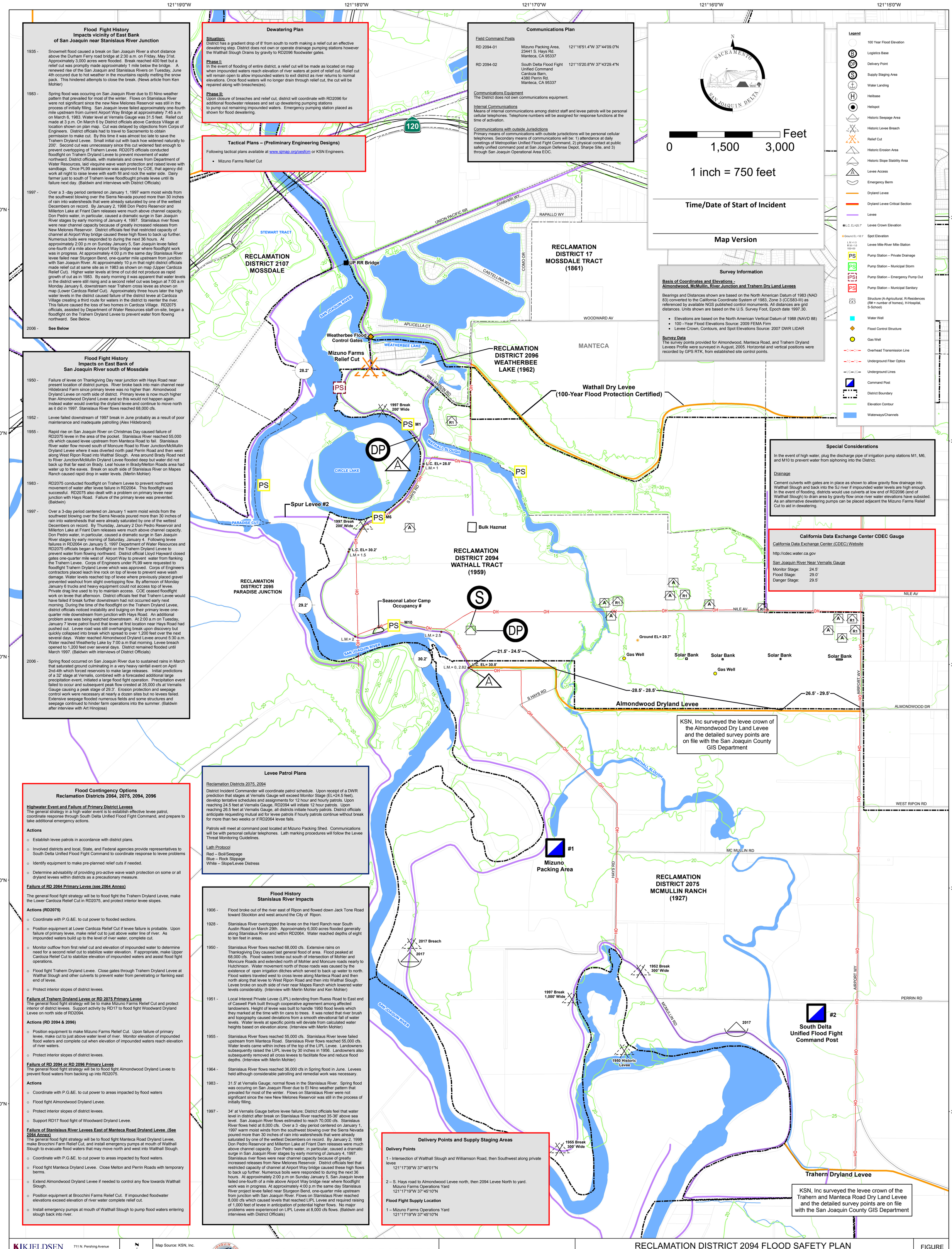
Delivery Points

1 - Intersection of Walthall Slough and Williamson Road, then Southwest along private levee
121°17'39"W 37°46'01"N

2 – S. Hays road to Almondwood Levee north, then 2094 Levee North to yard.
Mizuno Farms Operations Yard
121°17'19"W 37°45'10"N

Flood Fight Supply Location

1 – Mizuno Farms Operations Yard
121°17'19"W 37°45'10"N



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Map Source: KSN, Inc.
Map Date: 05-15-2017

SAN JOAQUIN COUNTY
OFFICE OF EMERGENCY SERVICES

RECLAMATION DISTRICT 2094 FLOOD SAFETY PLAN

Annex A - Wathall Tract Flood Contingency Map

FIGURE A1