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SACRAMENTO-SAN JOAQUIN DELTA
CALIFORNIA

SPECIAL STUDY

HYDROLOGY

US Army Corps
of Engineers
Sacramento District

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DFCG-5

LIST OF TABLES

LIST OF CHARTS

LIST OF CHARTS

LIST OF CHARTS

1. PURPOSE AND SCOPE -

A. General - This report presents stage-frequency curves for 24 tide gage locations, wave runup data for 12 locations and 50-, 100- and 300-year maximum water-surface elevation plots around the islands in the Sacramento-San Joaquin Delta. The stage-frequency curves in this report are updates to the stage-frequency curves presented in the report entitled "Sacramento-San Joaquin Delta, California, Stage-Frequency Study, Hydrology" and dated December 1976. The stage-frequency curves in this report include stage data recorded through water year 1988.

B. Exclusions - This report does not address FEMA guidelines. The stage-frequency curves do not reflect any expected probability adjustment. The stage-frequency curves and maximum water-surface elevation plots reflect present conditions. They do not show the effects of any proposed dams, levee improvements, possible levee failures or Delta operational changes. ?

C. Interior Drainage - A study of interior drainage for the Delta islands was not included in the scope of this report. At this time it is not known if projects will be feasible on any of the islands. Any future levee improvement projects will address interior drainage on a case-by-case basis.

D. Delta Maximum Water-Surface Elevation Plots - The maximum water-surface elevation plots presented in this report were not developed using a hydraulic model. They were derived from the stage-frequency curves by, in most cases, straightlining between gaging stations. See page 13 for an explanation.

E. Future Conditions - The effects on the stage-frequency curves and maximum water-surface elevations due to future land development were not studied. Due to the size of the drainage area contributing flow to the Delta, it is not expected that land use changes will have an appreciable effect on the water-surface elevations in the Delta.

If future projects include levee raising or construction of new levees, then these features will have to be analyzed to determine their impacts on the water-surface elevations at adjacent locations. Possible impacts would have to be studied when a particular project is proposed.

F. Usage - The data provided in this report will be used in Phase I of the Sacramento-San Joaquin Delta Special Study. The purpose of the Special Study is to recommend islands or groups of islands for possible levee projects. The Special Study will use the maximum water-surface elevation plots to perform the following:

A. The 300-year water-surface will be used to estimate levee construction costs.
B. Determine the approximate probability of overtopping at levee low spots.
C. To set stages within the islands to compute damages.

The levee construction cost information will be used as part of the benefit-cost economic analysis which will determine the feasibility of a proposed levee project.

The islands selected in Phase I will be analyzed in Phase II. Phase II will be a feasibility level study. During the Phase II study, it will be necessary to determine what effects a proposed levee project will have in the surrounding area and if any mitigation measures are necessary. The method of analyzing these effects will be determined when Phase I is completed and it is known which islands will be recommended for Phase II studies. It is possible that hydraulic modeling will be necessary.

Phase II studies should include some type of risk analysis to determine the final NED plan.

G. Levee Crown Profiles - Levee crown profiles plotted on Charts 27-74 were surveyed by the Engineering firm retained by the respective Reclamation District. Dates of the surveys are shown on Table ~~8~~. 9

2. <u>RESULTS</u> - Locations of Delta gaging stations can be found on Chart 1. Stage-frequency curves are plotted on Charts 2-25. Locations where wave runup calculations were made are shown on Chart 26. Charts 27 through 74 show the 50-, 100- and 300-year maximum water-surface elevations around the Delta Islands. Charts 76 through 91 show the levee stationing around each island. Caution should be used when using the stationing on the water-surface plots since station zero on the plot is not always at the same location as station zero on the base map. Column 4 of Table 8, pages 16 and 17, lists the station on the base map that corresponds to station zero on the water-surface plots for each island. Tables 3 through 5, pages 9-11, list yearly maximum stage readings at each gage location in the Delta. Table 6, page 12, tabulates the 50- and 100-year stages. Table 7, page 15, tabulates the wind-wave calculations. The adequacy of the results of the study along with general assumptions are presented on page 7, paragraph C.

3. <u>STUDY AREA</u> -

A. General - The Delta, which covers more than 1,000 square miles, is in Central California. It is situated upstream of the confluence of the Sacramento and San Joaquin Rivers at the head of Suisun Bay, the most easterly extending arm of the San Francisco Bay system. In general, the Delta extends from about Sacramento on the north, to Stockton on the south, and near Pittsburg on the west. This region, which is very flat, has been reclaimed from a natural tidal area by hundreds of miles of levees along natural and manmade waterways that divide it into about 100 tracts locally know as "islands". Land elevations range from just above mean sea level to 10 feet below mean sea level. Before islands were reclaimed, much of the Delta was covered by water from the daily tide cycle. During times of high runoff from the Sacramento and San Joaquin Basins, much of the Delta would be flooded. Chart 1 is a map of the Delta region.

B. Flood Characteristics - The contributing drainage area to the Sacramento-San Joaquin Delta encompasses approximately 40,000 square miles. Chart 1A shows the contributing drainage area and Table 1 lists the approximate drainage areas.

TABLE 1
SACRAMENTO-SAN JOAQUIN DELTA CONTRIBUTING AREA

RIVER SYSTEM	DRAINAGE AREA (sq. mi.)
Sacramento	25,200
San Joaquin	13,500
Mokelumne	1,200

Chart 1A and Table 1 show that the Sacramento-San Joaquin Delta derives its name from it's two main contributors, the Sacramento and San Joaquin Rivers. Flows in these systems come from areas that are geographically and physically different.

A review of annual maximum stages in the Delta shows that in some years the annual maximum stage at all locations will be occur during the same storm event. However, in other years, the peak stages in the northern part of the Delta occur during a different time period than those in the southern part of the Delta and vice versa. The differences are caused by the geographical distribution of the contributing drainage basin and the fluctuation of the storm track over California. If the main section of a storm system drops it's precipitation over the Sacramento River basin, the stages will be higher in the northern part of the Delta. If the main section is over the San Joaquin, then the stages will be higher in the southern part.

Also contributing to the puzzle is the tidal influence of the Pacific Ocean. The tides can have a profound effect on the stages especially in the lower and central parts of the Delta. If high tides combine with high runoff events very high stages will result.

In summary, the maximum stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes which seldom reach their maximum stages concurrently with the peak flows.

C. Tidal Hydraulics - The normal tide cycle has two high stages and two low stages in a day. Tides follow the moon more closely than they do the sun, and the lunar or tidal day is about 50 minutes longer than the solar day. This causes the tide to occur later each day, and the tide that has occurred near the end of one calendar day will be followed by a corresponding tide that may skip the next day and occur in the early morning of the third day. Thus on certain days of each month only a single high or single low water occurs. At some stations, during portions of each month, the tide becomes diurnal, that is, only one high and one low water will occur during the period of a lunar day.

During a low flow period, tidal effects can be seen on the Sacramento River at Verona and the San Joaquin River at Mossdale. During periods of high flow, the tidal effects are dampened upstream of the delta. As the high flows enter the Delta, they are affected by the tidal cycle. The hourly gage readings in the central and lower sections of the Delta will reflect the tidal variation, even during high flow periods.

The times that high flows are concurrent with high tides in the delta is when extreme elevations occur. The incoming tide from the Pacific Ocean will have a tendency to slow down and backup the incoming high flows to the Delta. When this "stacking" occurs, especially with high wind periods, levee flood fights are a common sight.

4. STAGE-FREQUENCY ANALYSIS -

A. General - Selection of gages for analysis in this study was based primarily on availability of records. The 24 gages selected were judged to have the most suitable records and proper areal distribution in the Delta. The datum of most of the gages selected has changed one or two times during the period of record. Therefore, all of the records were adjusted to a datum of zero elevation, mean sea level (NGVD of 1929) to maintain continuity among all stations. Table 2 shows the gages analyzed.

B. Stage Data - Many stage recording gages have been installed in the Delta over the past 50-60 years. Depending on the need for information at specific sites, some gages have been short lived while others have a long record. Until 1976, stage data were published annually in the 130 Series Bulletins of the California Department of Water Resources. Since 1976, stage data are being stored by the California Department of Water Resources Central District Office, Data and Operations Branch, Sacramento, California. This agency is to be contacted for obtaining unpublished tidal records.

TABLE 2
STAGE RECORDING LOCATIONS

GAGE LOCATION	I.D NUMBER[1]	GAGE LOCATION	I.D NUMBER[1]
SACRAMENTO RIVER		**SAN JOAQUIN RIVER**	
Collinsville	B9-1110	Antioch	B9-5020
Three-Mile Slough	B9-1160	Three-Mile Slough	B9-5060
Rio Vista	B9-1210	San Andreas Landing	B9-5100
Walnut Grove	B9-1650	Venice Island	B9-5580
Snodgrass Slough	B9-1750	Rindge Pump	B9-5620
I Street Bridge	AO-2100	Burns Cutoff	B9-5660
OLD RIVER		Brandt Bridge	B9-5740
Rock Slough	B9-5180	Mossdale Bridge	B9-5820
Byron Tract	B9-5270	**MIDDLE RIVER**	
Clifton Court Ferry	B9-5340	Bacon Island	B9-5460
Tracy Road Bridge	B9-5380	Borden Highway	B9-5500
OTHER STATIONS		Mowry Bridge	B9-5540
Grant Line Canal at Tracy Road Bridge	B9-5300		
S.F Mokelumne River at New Hope Bridge	B9-5140		
Georgiana Slough at Mokelumne River	B9-4100		

1 I.D. Number - Station Identification number used in the Department of Water Resources Series 130 Bulletins.

The many factors influencing stages in the Delta include tides, inflow from Central Valley streams, and high winds. Barometric pressure, land subsidence, recorder malfunction, vandalism, and other miscellaneous factors also may influence readings from continuously recording stage gages. Stage data known to be erroneous due to gage malfunction or some other cause are adjusted prior to their publication.

Land subsidence, which is constantly occurring in the Delta, results in erroneously high readings. Bench marks throughout the Delta are periodically resurveyed to correct for land subsidence. When a bench mark is updated, the tide gage datum is resurveyed and updated by the agency maintaining the gage. Department of Water Resources and Corps of Engineers tide gages were updated in 1976. Currently, the Delta area is in the process of being included in the Global Positioning System (GPS). This system, using data from satellites, will tie the benchmarks in the Delta to those in the more geologically stable foothill areas in order to access subsidence in the Delta and adjust the benchmarks to correct for subsidence.

Tables 3 through 5 summarize the higher-high stage data, adjusted to mean sea level, that have been recorded at the stations listed in Table 2. The period of 1945-1988 was selected for analysis. This period covers the maximum length of record for most stations, coincides with the post Shasta era and the hydraulics of the Delta have not significantly changed during this period. Operation of the major storage projects in the Sacramento River Basin is coordinated with operation of Shasta Dam to maintain, as much as possible, decreed water quality standards near Antioch.

Stage data for each station were compared with data from neighboring stations and, when necessary, adjusted to obtain consistency. These data were plotted using weibull plotting positions. The weibull equation is shown below.

$$P=\frac{M}{N+1}$$

Where:
P=Plotting Position
M=Order of sequence with 1 being largest
N=Number of items in data set

Curves were then drawn graphically to fit the data. The curves are shown on Charts 2 through 25. Once the curves were drawn they were reviewed as a group and adjusted, if necessary, to maintain consistency. This review showed:

1. The statistical parameters were inconsistent from gage to gage along the same river.

2. The computed frequency curves do not reflect inundation of large areas from levee

failures. The curves were smoothed to remove any localized effects of a levee failure.

3. The maximum elevation on a stage-frequency curve does not exceed the height of the levee crowns at that location. The curves are drawn solid up to the 100-year level. This reflects the reliability of the gaged data. Above the 100-year elevation, the stage-frequency curves are dashed. The curves are dashed above the 100-year level due to the many uncertainties that can occur at the higher frequencies. No stations have a period of record long enough to have actual data that would have a plotting position rarer than the 100-year event. Therefore, in order to estimate elevations of frequencies greater than the 100-year, the curves are extrapolated based on judgement and the shape of the curve below the 100-year. The height of the adjacent levee crown is also taken into account. The stage-frequency curves do not exceed the height of the adjacent levee crown.

C. Results - The 50- and 100-year higher-high stages at the 24 stations used in the analysis are shown in Table 6. In an attempt to determine the conditions that would cause a 100-year flood stage, or any other high flood stage, historical events were examined to establish the influence of wind, flood inflow, tidal cycle and barometric pressure on Delta stages. It was concluded that many combinations of these parameters could be possible, each with a varying degree of probability, and that predicting the factors which cause a particular high stage, or the effect of changes in one or more parameters, would be quite difficult.

When the stage-frequency data in this memorandum are used, it must be understood that:

1. For any particular frequency, the stage shown on the stage-frequency curve is valid only for that station. A stage created by any combination of high flows, tide, extreme barometric pressure, and winds could give a 100-year stage at one station and something of greater or lesser frequency at neighboring stations.

2. A maximum water-surface elevation plot developed for a particular frequency by straight-line connection of elevations from a series of stage-frequency curves will give an elevation higher, at some locations along the reach, than a historical event of corresponding frequency. This is due to the variation in width, depth and bottom slope of Delta channels. However, the error resulting from straight line elevations is less than 0.3 foot.

3. The stage data presented are for static water conditions. Wave action from wind, boats or other sources must be added to any stage data being analyzed. Wind set and any other hydrologic action that increases stages are reflected in the static stage data.

1. Sacramento River at Rio Vista - The stage recording gage for the Sacramento

River at Rio Vista was relocated from the Army Yard to the Rio Vista Bridge in 1981. The stage-frequency curve for the Bridge location is shown on Chart 4.

Based on the stage-frequency analyses for the American River Study, it was determined that the 1986 peak stages fell within the 50-90 year frequency, depending on location. The curve for Rio Vista was drawn to remain consistent with this finding and with the shape of the stage-frequency curve for Sacramento River at Threemile Slough. The 1986 peak stage at Rio Vista reflects approximately an 80 year frequency.

The records at the new and old gage sites have 5 years of overlapping record. The new location is slightly more than a mile upstream of the old location. However, for all five overlapping years, the peak stage at the new location was lower than the peak stage at the old location. There are many questions about subsidence and the reliability of surveyed bench marks in the Rio Vista area. This area is currently being included in the Global Positioning System in order to get a better handle on the amounts of subsidence occuring in the area. No data points are plotted on Chart 4 due to datum uncertainties. The data cannot be adjusted to mean sea level datum until the benchmark elevations in this area are verified.

TABLE 3
SACRAMENTO RIVER - MOKELUMNE RIVER
PEAK STAGES

SACRAMENTO RIVER												MOKELUMNE RIVER			
COLLINSVILLE		RIO VISTA NEW		RIO VISTA OLD		WALNUT GROVE		SNODGRASS SLU		I-STREET		NEW HOPE		GEORGIANA SLU	
WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl
1983	5.90	1986	8.30	1984	7.60	1986	14.00	1986	19.70	1986	30.70	1986	13.30	1986	7.00
1984	5.80	1983	7.20	1983	7.50	1956	12.40	1951	18.00	1951	30.10	1956	12.90	1983	6.90
1973	5.80	1984	6.90	1973	6.80	1965	12.20	1965	17.60	1965	29.40	1940	11.90	1956	6.70
1956	5.80	1982	5.60	1956	6.70	1970	12.20	1956	17.20	1956	28.70	1958	11.20	1958	6.40
1958	5.70	1988	5.30	1980	6.60	1958	11.80	1970	17.10	1963	28.40	1943	9.80	1980	6.10
1950	5.70	1987	5.00	1958	6.30	1974	11.50	1980	17.00	1980	28.30	1983	9.10	1951	6.00
1952	5.70	1985	4.90	1951	6.10	1973	11.40	1974	16.60	1970	28.20	1963	8.90	1984	5.70
1986	5.60	1981	4.30	1952	6.10	1969	11.30	1969	16.50	1969	28.20	1982	8.70	1952	5.60
1988	5.50			1970	6.10	1983	11.10	1958	16.50	1945	27.90	1984	8.30	1965	5.50
1951	5.40			1965	5.90	1980	11.10	1984	16.40	1946	27.40	1980	8.30	1982	5.50
1980	5.30			1953	5.80	1967	11.00	1982	16.30	1967	27.40	1942	8.20	1987	5.15
1969	5.30			1985	5.80	1984	10.90	1973	16.20	1984	27.40	1988	8.10	1978	5.10
1965	5.30			1982	5.80	1946	10.90	1967	16.10	1982	27.30	1965	8.00	1963	5.10
1953	5.10			1967	5.70	1945	10.70	1963	16.10	1983	27.20	1969	7.90	1988	5.00
1967	5.10			1978	5.60	1982	10.40	1946	15.70	1974	27.20	1970	7.70	1974	5.00
1970	5.00			1975	5.60	1952	10.20	1945	15.40	1958	27.10	1973	7.50	1962	4.90
1959	4.80			1974	5.50	1953	10.00	1952	15.30	1952	26.90	1952	7.30	1985	4.80
1978	4.70			1959	5.40	1978	9.50	1983	15.30	1973	26.70	1945	7.20	1959	4.80
1963	4.70			1971	5.30	1963	9.30	1953	14.90	1961	25.90	1951	7.10	1960	4.70
1974	4.60			1963	5.30	1957	9.30	1978	14.00	1957	25.80	1967	6.50	1975	4.60
1982	4.60			1954	5.30	1951	9.20	1950	13.40	1953	25.50	1946	6.10	1979	4.60
1971	4.50			1962	5.20	1950	8.60	1954	13.20	1960	25.30	1978	6.00	1954	4.60
1962	4.50			1950	5.20	1971	8.60	1962	12.90	1950	24.60	1962	5.70	1957	4.50
1946	4.40			1946	5.10	1962	8.60	1971	12.50	1978	24.10	1949	5.40	1947	4.50
1955	4.40			1981	5.00	1959	8.40	1975	12.50	1954	23.80	1974	5.40	1966	4.40
1966	4.30			1955	5.00	1975	8.30	1979	12.30	1962	22.90	1953	5.30	1955	4.40
1954	4.30			1979	5.00	1948	8.10	1959	12.10	1948	22.60	1979	5.30	1948	4.30
1948	4.30			1966	4.90	1988	8.10	1960	12.10	1975	21.90	1971	5.20	1945	4.30
1960	4.30			1972	4.90	1968	8.10	1948	12.00	1971	21.80	1987	5.10	1981	4.30
1949	4.20			1960	4.90	1960	8.00	1968	11.80	1979	21.80	1950	5.00	1961	4.20
1987	4.20			1977	4.90	1954	7.90	1949	11.00	1959	21.50	1960	5.00	1950	4.20
1957	4.20			1948	4.90	1979	7.80	1964	9.10	1968	20.80	1975	4.90	1949	4.20
1968	4.20			1949	4.80	1949	7.70	1966	8.90	1949	20.40	1959	4.80	1964	4.10
1985	4.20			1968	4.80	1966	6.30	1947	8.90	1947	18.30	1985	4.80	1976	4.00
1972	4.10			1957	4.80	1964	6.30	1981	8.60	1964	17.30	1968	4.60	1977	4.00
1975	4.00			1976	4.70	1961	6.00	1961	8.10	1981	16.80	1955	4.50		
1947	4.00			1947	4.50	1947	5.90	1955	7.50	1966	16.80	1954	4.50		
1945	4.00			1961	4.50	1955	5.90	1985	7.00	1955	13.90	1972	4.50		
1961	4.00			1964	4.50	1972	5.30	1988	6.40	1985	12.20	1981	4.40		
1979	3.80			1945	4.00	1985	5.20	1972	6.30	1972	10.30	1944	4.40		
1964	3.80					1981	4.90	1987	6.00			1966	4.40		
1981	3.70					1987	4.40	1976	5.10			1957	4.40		
1977	3.60					1976	4.20	1977	4.30			1976	4.20		
1976	3.40					1977	4.10					1977	4.00		

TABLE 4
SAN JOAQUIN RIVER
PEAK STAGES

SAN JOAQUIN RIVER															
ANTIOCH		3-MILE SLOUGH		SAN ANDREAS		VENICE ISLAND		RINDGE PUMP		BURNS CUTOFF		BRANDT BRIDGE		MOSSDALE	
WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl
1983	6.30	1986	6.40	1983	6.80	1984	6.80	1984	6.90	1983	7.40	1958	13.00	1951	24.40
1956	6.20	1983a	6.30	1984a	6.50	1983a	6.80	1983	6.90	1984	7.30	1969	12.70	1956	20.30
1984	6.10	1984a	6.10	1973	6.50	1956	6.80	1956	6.80	1986a	6.80	1983	12.10	1969	20.30
1986	6.00	1958	5.90	1986	6.40	1986	6.70	1986	6.60	1973	6.70	1986	11.00	1958	19.50
1973	5.90	1951	5.60	1958	6.30	1973	6.30	1973	6.50	1980	6.50	1980	10.10	1983	19.30
1958	5.90	1980	5.50	1980	5.90	1958	6.30	1958	6.50	1969	6.50	1984	9.80	1952	17.60
1980	5.70	1952	5.50	1969	5.70	1980	5.90	1951	6.20	1970	6.00	1982	9.40	1980	17.00
1969	5.40	1969	5.20	1970	5.50	1969	5.90	1969	6.10	1982	5.90	1970	9.30	1984	15.90
1951	5.30	1967	5.20	1967	5.40	1951	5.80	1980	6.10	1965	5.70	1965	8.40	1982	15.40
1952	5.30	1970	5.00	1965	5.30	1970	5.70	1970	5.80	1967	5.70	1963	7.30	1970	15.10
1967	5.20	1965	5.00	1982a	5.20	1967	5.60	1952	5.70	1974	5.40	1973	7.10	1967	14.80
1970	5.10	1982	5.00	1974	5.10	1965	5.60	1967	5.70	1988	5.40	1962	6.80	1978	14.30
1982	5.00	1950	4.90	1978	5.10	1985	5.50	1965	5.60	1978	5.40	1979	6.60	1965	14.10
1963	5.00	1978	4.90	1988	4.90	1955	5.50	1982	5.60	1985	5.30	1974	5.90	1945	12.90
1965	4.90	1988a	4.80	1963	4.90	1982	5.50	1988	5.20	1963	5.30	1959	5.70	1946	11.50
1954	4.80	1987	4.70	1962	4.70	1963	5.10	1963	5.10	1987	5.30	1975	5.60	1979	10.30
1946	4.80	1974	4.70	1975	4.70	1988	5.10	1974	5.10	1962	5.20	1960	5.60	1963	10.00
1950	4.80	1962	4.60	1971	4.70	1987	5.00	1987	5.10	1979	5.10	1964	5.30	1962	9.10
1988	4.80	1963	4.60	1987	4.70	1962	4.90	1978	5.10	1971	5.10	1966	5.10	1974	7.90
1978	4.80	1946	4.60	1985a	4.70	1974	4.90	1946	5.00	1975	5.00	1971	5.00	1966	7.80
1962	4.70	1960	4.50	1979	4.60	1971	4.80	1962	5.00	1959	4.90	1961	5.00	1954	7.60
1953	4.70	1985	4.50	1959	4.60	1978	4.80	1985	4.95	1960	4.80	1985	4.90	1973	7.30
1955	4.70	1947	4.40	1972	4.50	1946	4.70	1971	4.90	1981	4.80	1987	4.90	1957	7.40
1987	4.70	1948	4.40	1981	4.40	1960	4.70	1979	4.70	1972	4.70	1988	4.90	1971	7.10
1939	4.70	1945	4.40	1968	4.30	1959	4.70	1960	4.70	1968	4.60	1972	4.60	1948	6.80
1944	4.60	1971	4.40	1966	4.30	1945	4.60	1975	4.70	1966	4.50	1968	4.50	1975	6.70
1971	4.60	1966	4.30	1964	4.20	1975	4.60	1966	4.60	1977	4.40	1981	4.50	1953	6.30
1974	4.60	1939	4.30	1961	4.10	1966	4.50	1955	4.60	1964	4.30	1976	4.50	1959	5.90
1943	4.60	1955	4.30	1977	4.10	1979	4.50	1945	4.60	1961	4.30			1950	5.90
1960	4.60	1949	4.30	1976	4.00	1954	4.50	1959	4.60	1976	4.30			1968	5.20
1957	4.50	1975	4.20			1953	4.50	1949	4.50					1981	5.10
1945	4.50	1968	4.20			1950	4.40	1972	4.50					1960	5.00
1964	4.40	1979	4.20			1968	4.40	1968	4.50					1976	5.00
1966	4.40	1964	4.10			1947	4.40	1948	4.50					1972	4.80
1947	4.40	1957	4.10			1957	4.30	1947	4.40					1949	4.70
1949	4.30	1961	4.00			1972	4.30	1954	4.40					1964	4.40
1968	4.20	1981	4.00			1948	4.20	1981	4.40					1955	4.20
1961	4.20	1976	3.80			1981	4.20	1950	4.40					1961	4.10
1975	4.20	1977	3.80			1964	4.20	1964	4.30					1947	4.00
1981	4.10	1972	3.80			1949	4.10	1957	4.20					1977	5.
1972	4.10					1961	4.10	1977	4.20						
1979	4.10					1977	3.90	1976	4.10						
1977	3.80					1976	3.90	1961	4.00						
1976	3.70														

DFCG-5

TABLE 5
OLD RIVER - MIDDLE RIVER - GRANT LINE CANAL
PEAK STAGES

OLD RIVER							
ROCK SLOUGH		BYRON TRACT		CLIFTON COURT		TRACY BRIDGE	
WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl
1956	6.70	1983	6.60	1958	7.30	1969	8.70
1958	6.30	1986	6.30	1983	7.10	1958	8.20
1973	6.20	1982	6.20	1969	6.50	1983	8.00
1982	6.00	1969	6.10	1986	6.40	1986	6.80
1983	5.80	1984	6.00	1984	6.30	1970	6.70
1970	5.60	1973	5.80	1973	6.20	1980	6.70
1952	5.40	1980	5.75	1970	6.10	1973	6.50
1965	5.30	1970	5.55	1980	6.00	1984	6.40
1967	5.30	1965	5.40	1965	5.80	1965	6.30
1980	5.10	1962	4.85	1967	5.50	1967	5.90
1963	5.00	1967	4.80	1963	5.30	1963	5.70
1953	5.00	1974	4.50	1974	5.00	1982	5.70
1950	4.80	1966	4.40	1962	4.90	1974	5.30
1974	4.80	1978	4.40	1982	4.90	1962	5.20
1971	4.70	1987	4.35	1959	4.80	1978	5.20
1962	4.70	1975	4.30	1960	4.70	1959	4.90
1946	4.60	1979	4.25	1978	4.60	1960	4.80
1959	4.50	1971	4.20	1966	4.40	1966	4.80
1960	4.50	1985	4.00	1975	4.40	1975	4.70
1966	4.50	1968	4.00	1988	4.40	1979	4.70
1964	4.50	1972	3.80	1968	4.40	1968	4.70
1947	4.30	1981	3.70	1979	4.30	1988	4.60
1954	4.30	1977	3.70	1964	4.20	1987	4.50
1957	4.30	1976	3.60	1985	4.10	1971	4.50
1955	4.30			1961	4.00	1964	4.40
1972	4.20			1987	3.90	1985	4.20
1948	4.20			1972	3.80	1972	4.10
1978	4.20			1981	3.70	1961	4.10
1964	4.00			1977	3.70	1981	3.80
1949	4.00			1976	3.40	1977	3.80
1975	3.90					1976	3.60
1961	3.90						
1979	3.90						
1977	3.50						
1976	3.40						
1984	3.30						
1981	3.30						

MIDDLE RIVER						GRANT LINE CANAL AT TRACY ROAD BRIDGE	
BACON ISLAND		BORDEN HIGHWAY		MOWRY BRIDGE			
WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl	WATER YEAR	STAGE ft msl
1986	6.40	1956	6.90	1958	12.30	1983	8.60
1975	6.20	1983	6.90	1969	11.90	1969	8.50
1958	6.10	1986	6.60	1983	11.40	1958	8.20
1984	6.00	1951	6.50	1986	10.40	1980	6.80
1983	6.00	1984	6.30	1980	9.50	1970	6.70
1969	5.70	1969	6.20	1984	8.90	1984	6.50
1970	5.60	1980	5.80	1970	8.40	1973	6.40
1965	5.40	1970	5.80	1982	8.20	1965	6.20
1982	5.00	1952	5.70	1963	7.60	1982	5.90
1963	5.00	1965	5.60	1978	7.50	1963	5.80
1988	4.90	1967	5.40	1973	6.70	1978	5.30
1978	4.80	1953	5.20	1965	6.00	1962	5.20
1974	4.80	1966	5.10	1979	5.60	1974	5.20
1971	4.70	1963	5.10	1962	5.50	1959	5.00
1987	4.70	1958	5.10	1974	5.50	1966	4.80
1962	4.70	1950	5.00	1959	5.10	1960	4.80
1985	4.60	1960	4.90	1975	4.90	1975	4.70
1959	4.60	1975	4.90	1960	4.90	1979	4.70
1960	4.60	1974	4.90	1973	4.90	1971	4.50
1973	4.50	1962	4.80	1988	4.80	1964	4.30
1966	4.40	1982	4.80	1987	4.80	1961	4.10
1979	4.30	1946	4.70	1971	4.70	1972	4.10
1972	4.20	1988	4.70	1985	4.60	1981	3.90
1964	4.10	1945	4.70	1972	4.50	1985	3.90
1981	4.10	1987	4.60	1981	4.50	1977	3.70
1980	4.00	1980	4.60	1964	4.20	1976	3.50
1977	4.00	1959	4.60	1961	4.10		
1976	3.80	1947	4.50	1977	3.80		
1961	3.50	1978	4.50	1976	3.70		
		1971	4.40				
		1966	4.40				
		1954	4.40				
		1955	4.40				
		1979	4.35				
		1973	4.33				
		1985	4.30				
		1949	4.30				
		1948	4.30				
		1968	4.20				
		1957	4.10				
		1964	4.00				
		1961	3.80				
		1972	3.80				
		1977	3.80				
		1981	3.70				
		1976	3.60				

TABLE 6
50- and 100-YEAR STAGES

Frequency Curve Number	Location	50-Year	100-Year
	SACRAMENTO RIVER		
2	Collinsville	6.3	6.4
3	Three-Mile Slough	7.7	7.9
4	Rio Vista	8.3	8.7
5	Walnut Grove	14.4	15.0
6	Snodgrass Slough	20.1	20.6
7	I-Street	30.4	31.4
	SAN JOAQUIN RIVER		
10	Antioch	6.3	6.5
11	Three-Mile Slough	6.3	6.4
12	San Andreas Landing	6.8	7.0
13	Venice Island	7.1	7.4
14	Rindge Pump	7.2	7.4
15	Burns Cutoff	7.4	7.6
16	Brandt Bridge	14.9	17.0
17	Mossdale	22.4	25.0
	OLD RIVER		
18	Rock Slough	6.8	7.2
19	Byron Tract	7.3	7.6
20	Clifton Court	7.5	7.8
21	Tracy Bridge	8.8	9.2
	MIDDLE RIVER		
23	Bacon Island	6.9	7.2
24	Borden Highway	7.3	7.6
25	Mowry Bridge	12.8	13.4
	OTHER STATIONS		
22	Grant Line Canal at Tracy Bridge	8.8	9.2
8	Mokelumne River at New Hope Landing	13.4	14.0
9	Georgiana Slough at Mokelumne River	7.5	7.8

5. WIND-WAVE RUNUP -

A. General - Wind-wave calculations were made for 12 locations in the Delta. These locations are shown on Chart 26. Table 7 shows the results of the wind-wave analysis.

B. Wind Analysis - Wind data from the Stockton Metropolitan Airport was used to compute the design windspeed. Although Stockton is some distance from some of the 12 locations, it was the closest location for reliable wind data. This analysis found that high winds can occur from most any direction particularly the North, Northwest and Southeast.

6. MAXIMUM WATER-SURFACE ELEVATIONS - Maximum water-surface elevations were developed for the rivers and sloughs in the Delta. The elevations are plotted for the estimated 1986 water surface, the 50-, 100- and 300-year events. The elevation plots are shown on Charts 27 through 74.

The 50-, 100-, and 300-year elevation plots represent an estimation of how the 50-, 100-, and 300-year stages, at the gaged locations, translate around the island. These plots should not be considered as "profiles" since ~~that~~ THEY are derived directly from frequency curves of recorded maximum annual stages at gaged locations. As was discussed in the section "Flood Characteristics", on page 3, the annual maximum stages may result from an event that is not concurrent throughout the Delta. Therefore, the maximum water-surface elevations should not be considered to be concurrent throughout the Delta. While one area of the Delta is experiencing maximum elevations, the elevations in other areas will be rising or falling.

Some elevation plots may appear to be "increasing" in the downstream direction. McCormack-Williamson Tract, Chart 48, is a good example of this. However, it is important to remember that all elevations on these Charts are plotted relative to the island. Charts 75-91, which show island stationing, combined with Table 8, will help determine in which relative direction the plot was drawn around the island.

The 1986 flood elevations were estimated using recorded gage heights at the respective gage locations. The 1986 flood elevations reflect levee failures that occured in 1986. The elevations for the 50-, 100-, and 300-year events were derived using their respective elevations on the stage-frequency curves. As described in the stage-frequency analysis on page 4, the stage-frequency curves reflect a no levee failure situation. Therefore, the elevations are also no failure elevations.

In almost all cases, the elevation plots were drawn by straightlining between gaging stations. However, in areas where no recorded data were available, results from the State of California's Department of Water Resources Link Node computer model were used to estimate the water-surface elevation trend. The results of the Link Node model are not shown in this report. Water-surface profiles shown in the Documentation Report entitled "Sacramento-San Joaquin Delta, California" and dated October 1982 were also used to help in determining the water-surface elevation trends between gaging stations on the major rivers in the Delta. Maximum water-surface elevatons on the Mokelumne River, North and South Forks of the Mokelumne River and Snodgrass Slough were based on results presented in Appendix C of the "Draft Environmental Report, Environmental Impact Statement, North Delta Program" prepared by the California Department of Water Resources and dated November 1990. In fringe backwater tributary channels of the Delta, it was assumed that the elevation in the tributary would be the same as in the major channel where the tributary connects.

7. <u>LEVEE CROWN PROFILES</u> - Levee Crown profiles were plotted from surveys acquired from each reclamation district. Some profiles show localized high points. These points are not indicative of the actual freeboard around the island. The levee stationing base maps, Charts 76-91, show the stationing along each levee crown for each island. Station zero on a water-surface profile is not always at the same location as station zero on the base map. Column 4 of Table 8, pages 16 and 17, lists the station on the base map that corresponds to station zero on the profile for each island.

The levee crown elevation for McCormack-Williamson Tract is mandated by the State of California Reclamation Board. This island will be allowed to fail during large flood events as was the case in 1986.

TABLE 7
WIND-WAVE CALCULATIONS

Location	Levee Slope	Wind Direction	Design Windspeed (mph)	Wind Duration (min)	Design Wave (ft)	Wind Set (ft)	Wave Runup (ft)	Water Depth (ft)	Fetch Length (ft)
Holland Tract Location 1	1:2	North	35	45	2.5	.17	4.96	15	15,850
	1:3	North	35	45	2.5	.17	3.46	15	15,850
Quimby Tract Location 2	1:2	Northwest	29	51	2.1	.13	4.15	15	16,900
	1:3	Northwest	29	51	2.1	.13	2.89	15	16,900
Webb Tract Location 3	1:2	South	27	50	1.9	.10	3.70	15	15,850
	1:3	South	27	50	1.8	.10	2.56	15	15,850
Webb Tract Location 4	1:2	Southeast	35	47	2.3	.19	4.57	15	16,900
	1:3	Southeast	35	47	2.3	.19	3.30	15	16,900
Webb Tract Location 5	1:2	Southwest	23	60	1.7	.09	3.32	15	18,500
	1:3	Southwest	23	60	1.7	.09	2.30	15	18,500
Webb Tract Location 6	1:2	West	28	50	2.0	.11	3.89	15	16,150
	1:3	West	28	50	2.0	.11	2.70	15	16,150
Bethel Island Location 7	1:2	North	36	42	2.5	.17	4.90	15	14,600
	1:3	North	36	42	2.5	.17	3.41	15	14,600
Bouldin Island Location 8	1:2	Northwest	30	43	2.0	.11	3.84	15	13,500
	1:3	Northwest	30	43	2.0	.11	2.65	15	13,500
Sherman Island Location 9	1:2	Northwest	30	59	2.1	.17	4.20	15	21,350
	1:3	Northwest	30	59	2.1	.17	3.05	15	21,350
Jersey Island Location 10	1:2	West	27	76	2.1	.18	4.67	15	28,100
	1:3	West	27	76	2.1	.18	3.84	15	28,100
Twitchell Island Location 11	1:2	Southeast	36	39	2.4	.16	4.71	15	13,500
	1:3	Southeast	36	39	2.4	.16	3.26	15	13,500
Venice Island Location 12	1:2	West	29	22	1.2	.04	2.28	15	5,200
	1:3	West	29	22	1.2	.04	1.50	15	5,200

TABLE 8
ZERO STATION INDEX

ISLAND NAME	ELEVATION CHART #	INDEX MAP CHART #('s)	ZERO STATION
ATLAS	26A	83, 84	110
BACON	27	82, 86	700
BETHEL	28	81, 82	480
BISHOP	29	83, 84	150
BOULDIN	30	78, 82, 83	0
BRACK	31	78, 79	240
BRADFORD	32	81	0
BRANNAN ANDRUS	33	77, 78, 81, 82	560
BYRON	34	86, 89	450
CANAL RANCH	35	79	0
CONEY	36	89	210
DEADHORSE	37	78, 79	130
DREXLER	37A	87	350
EMPIRE	38	83	540
FABIAN	39	89, 90	530
FAY	40	86	0
HOLLAND	41	82, 86	550
HOTCHKISS	42	81, 85, 86	380
JONES, LOWER	43	86, 87	0
JONES, UPPER	44	86, 87	0
KING	45	83	430
LITTLE MANDEVILLE	46	82	230
MANDEVILLE	47	82	730
McCORMACK-WILLIAMSON	48	76, 79	0
McDONALD	49	82, 83, 86, 87	700
MEDFORD	50	82, 83	0
MILDRED	50A	86	30
NEW HOPE	51	76, 79	20

TABLE 8
ZERO STATION INDEX

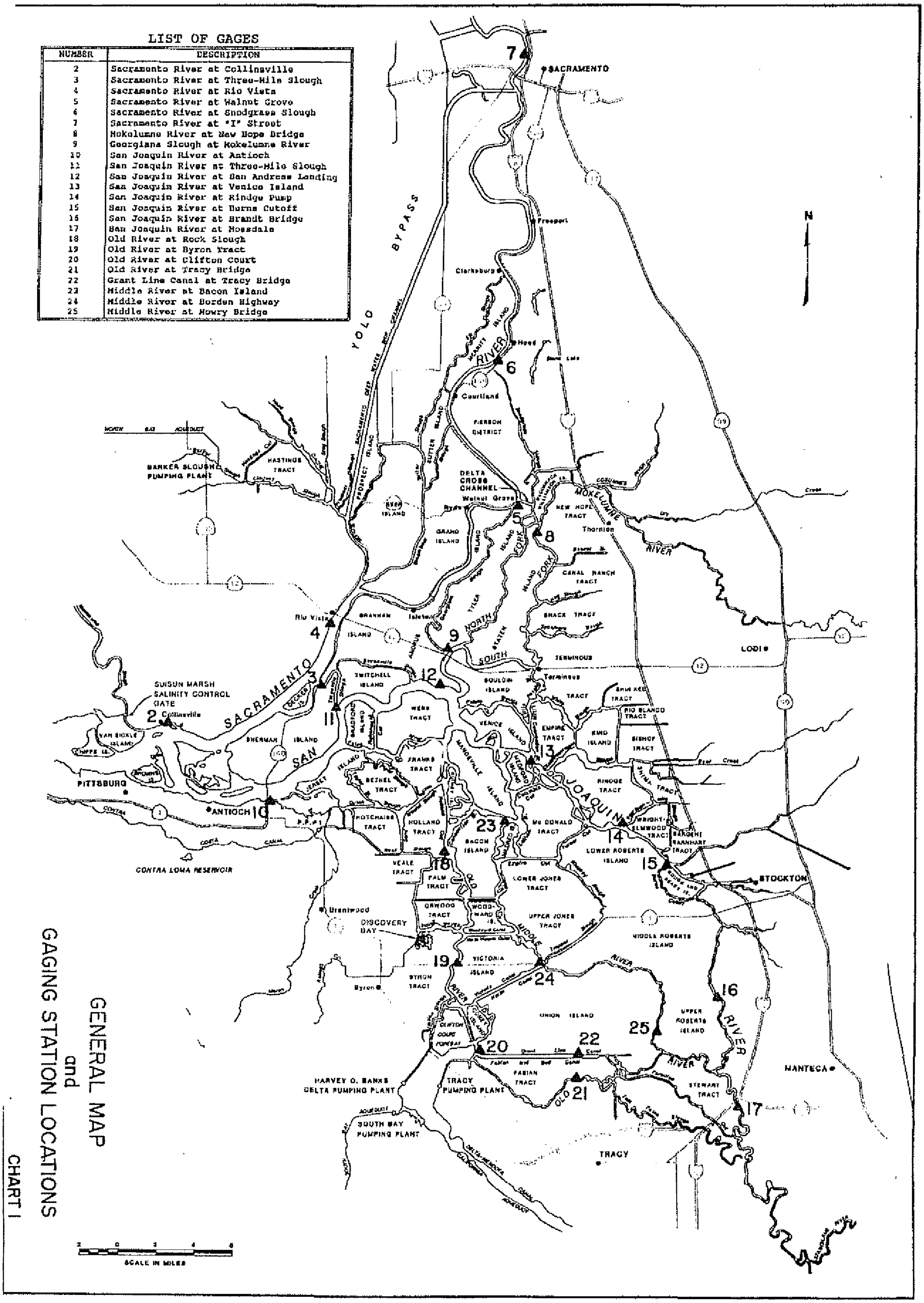
ISLAND NAME	ELEVATION CHART #	INDEX MAP CHART #('s)	ZERO STATION
ORWOOD	52	86	0
PALM	53	86	0
PESCADERO	54	90, 91	0
PICO NAGLEE	55	89, 90	0
QUIMBY	56	82	0
RD 17	56A	88, 91	0
RINDGE	57	83, 87	810
RIO BLANCO	58	83	130
ROBERTS, LOWER	59	87, 88	0
ROBERTS, MIDDLE	59A	87, 88, 91	0
ROBERTS, UPPER	60	90, 91	750
SARGENT-BARNHART	60A	88	0
SHERMAN	61	80, 81	200
SHIMA	62	83, 84	0
SHIN KEE	63	83	0
STARK	64	90	0
STATEN	65	78, 79, 82	50
STEWART	65A	90, 91	110
TERMINOUS	66	78, 79, 83	127
TWITCHELL	67	81, 82	0
TYLER	68	78, 79	30
UNION	69	87, 89, 90	210
VEALE	69A	85, 86	70
VENICE	70	82	630
VICTORIA	71	86, 87, 89	790
WALNUT GROVE	71A	78, 79	10
WEBB	72	81, 82	0
WOODWARD	73	86	0
WRIGHT-ELMWOOD	74	83, 84, 87, 88	0

TABLE 9
LEVEE CROWN SURVEY DATES

ISLAND	SURVEY DATE	ISLAND	SURVEY DATE
ATLAS	AUG 1979	PALM	JUNE 1991
BACON	JUNE 1991	PESCADERO	SEPT 1987
BETHEL	AUG 1991	PICO NAGLEE	JUNE 1987
BISHOP	AUG 1989	QUIMBY	APR 1990
BOULDIN	JULY 1991	RD 17	--------
BRACK	OCT 1988	RINDGE	JULY 1990
BRADFORD	AUG 1987	RIO BLANCO	MAY 89, JULY 91
BRANNAN ANDRUS	JUNE 1989	ROBERTS, LOWER	FEB 1987
BYRON	JUNE 1991	ROBERTS, MIDDLE	--------
CANAL RANCH	JUNE 1991	ROBERTS, UPPER	FEB 1987
CONEY	JUNE 1990	SARGENT BARNHART	--------
DEADHORSE	OCT 1988	SHERMAN	JULY 1990
DREXLER	--------	SHIMA	MAR 1990
EMPIRE	JULY 1989	SHIN KEE	JUNE 1979
FABIAN	JULY 1987	STARK	JUNE 1987
FAY	MAR 1990	STATEN	MAR 1990
HOLLAND	JULY 1990	STEWART	--------
HOTCHKISS	NOV 1990	TERMINOUS	JUNE 1987
JONES, LOWER	OCT 1990	TWITCHELL	AUG 1989
JONES, UPPER	1986	TYLER	SEPT 1986
KING	JULY 1989	UNION	JUL, NOV 1991
LITTLE MANDEVILLE	OCT 1987	VEALE	--------
MANDEVILLE	DEC 1990	VENICE	AUG 1985
McCORMACK-WILLIAMSON	AUG 1989	VICTORIA	APR 1990
McDONALD	AUG 1991	WALNUT GROVE	--------
MEDFORD	APR 1991	WEBB	SEPT 1989
MILDRED	--------	WOODWARD	1990
NEW HOPE	APR 1990	WRIGHT-ELMWOOD	JUNE 1991
ORWOOD	JUNE 1987		

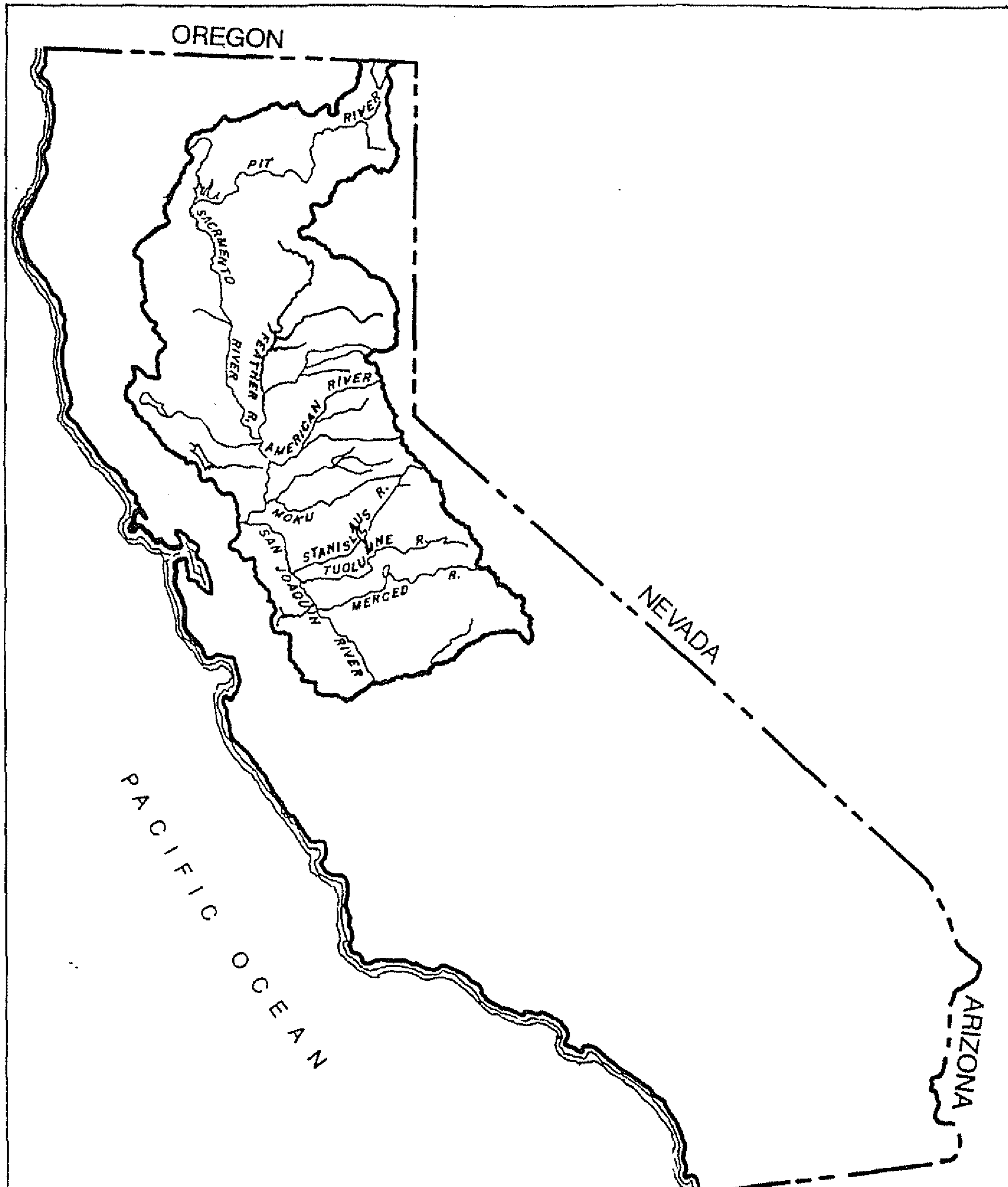
LIST OF GAGES

NUMBER	DESCRIPTION
2	Sacramento River at Collinsville
3	Sacramento River at Three-Mile Slough
4	Sacramento River at Rio Vista
5	Sacramento River at Walnut Grove
6	Sacramento River at Snodgrass Slough
7	Sacramento River at "I" Street
8	Mokelumne River at New Hope Bridge
9	Georgiana Slough at Mokelumne River
10	San Joaquin River at Antioch
11	San Joaquin River at Three-Mile Slough
12	San Joaquin River at San Andreas Landing
13	San Joaquin River at Venice Island
14	San Joaquin River at Rindge Pump
15	San Joaquin River at Burns Cutoff
16	San Joaquin River at Brandt Bridge
17	San Joaquin River at Mossdale
18	Old River at Rock Slough
19	Old River at Byron Tract
20	Old River at Clifton Court
21	Old River at Tracy Bridge
22	Grant Line Canal at Tracy Bridge
23	Middle River at Bacon Island
24	Middle River at Borden Highway
25	Middle River at Mowry Bridge



GENERAL MAP and GAGING STATION LOCATIONS

CHART I

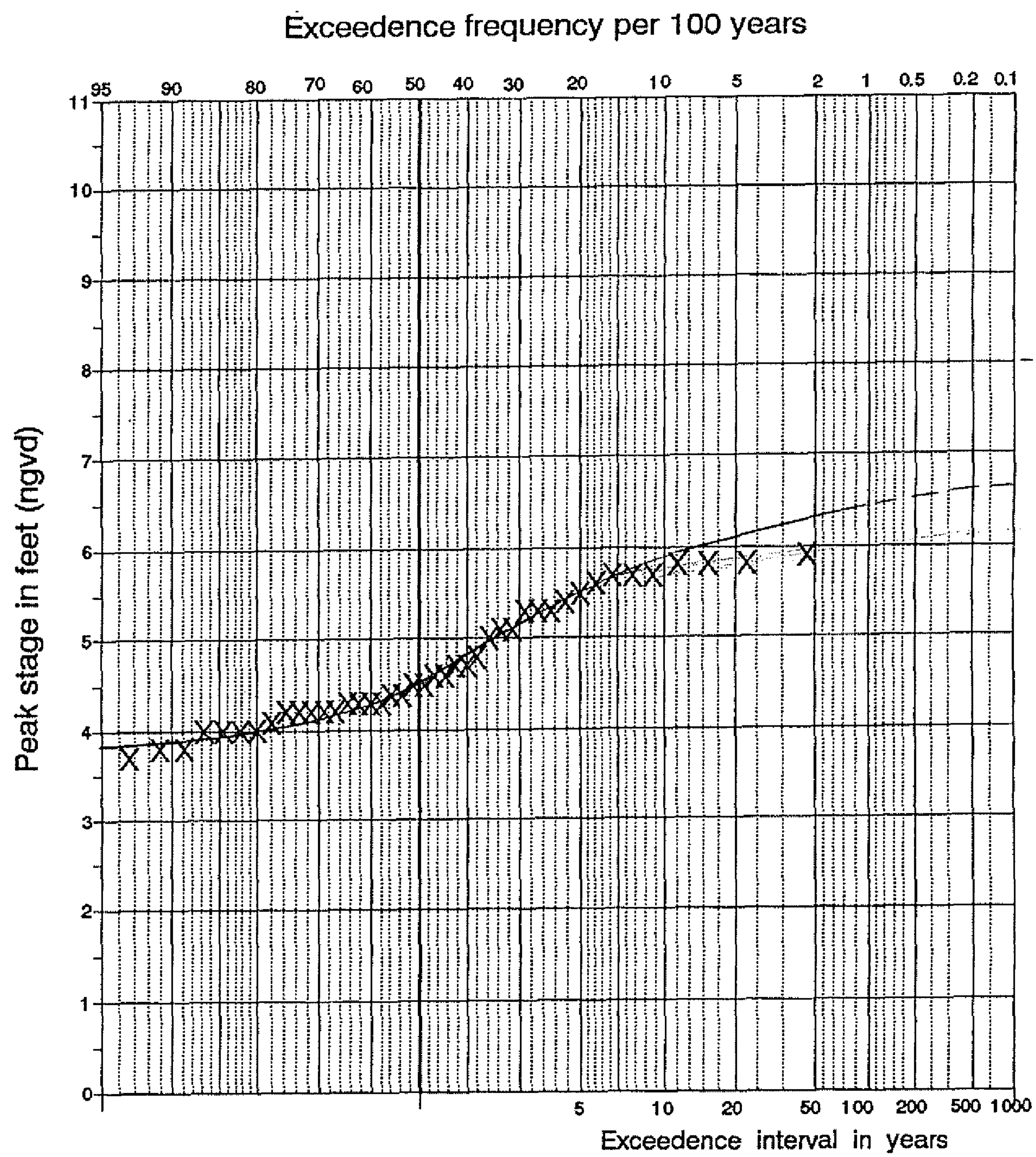


SACRAMENTO - SAN JOAQUIN DELTA

SACRAMENTO-SAN JOAQUIN DELTA CONTRIBUTING DRAINAGE AREA

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

CHART 1A



NOTES:
PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1945-1988
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN

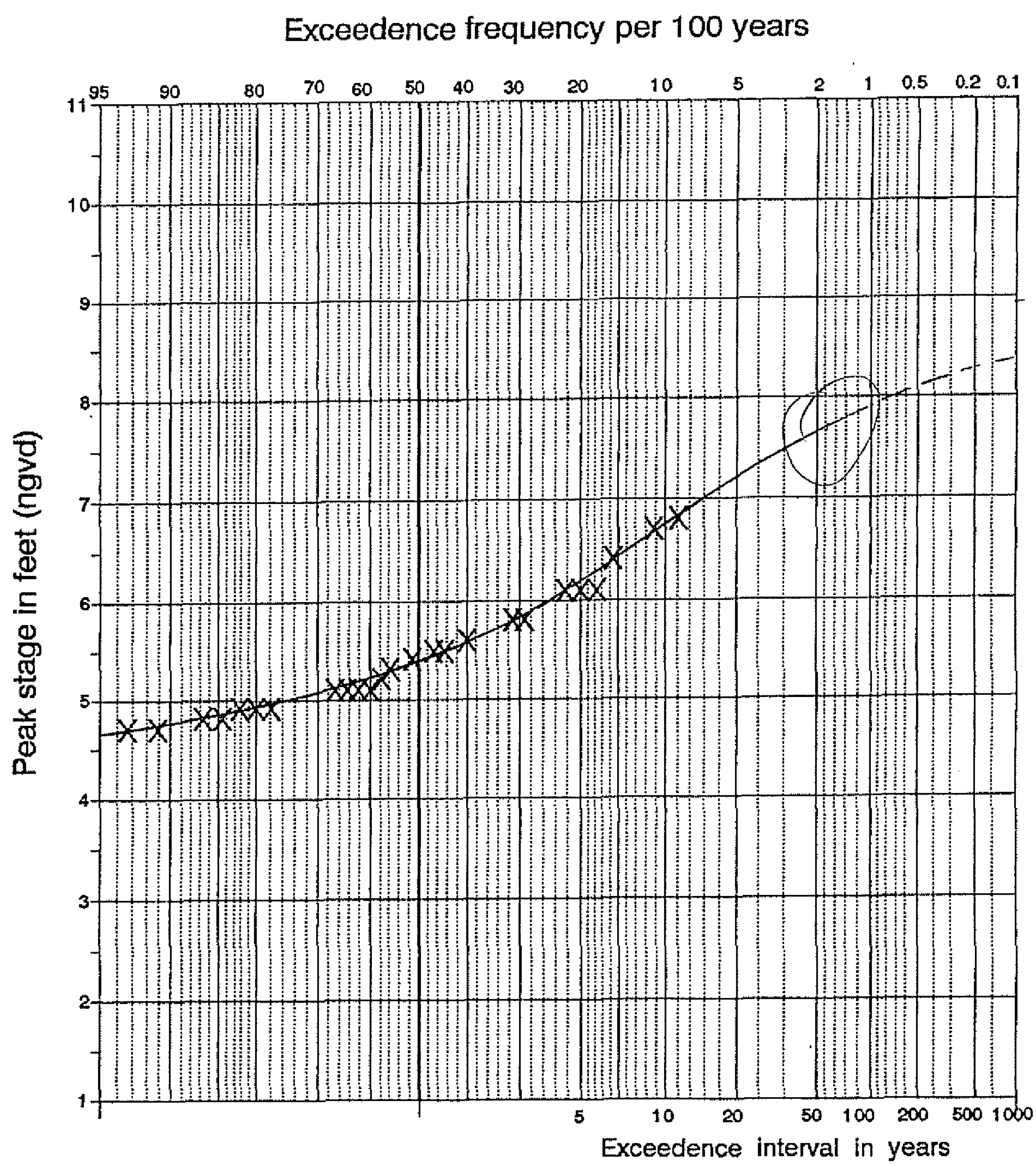
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE
SACRAMENTO RIVER AT
COLLINSVILLE

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 2



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1945-1974
MISSING DATA 1970-1972
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTING POSITIONS REPRESENT 44 YEARS OF DATA
PLOTTING POSITIONS BASED ON RECORD EXTENDED BY CORRELATION WITH RIO VISTA AND COLLINSVILLE

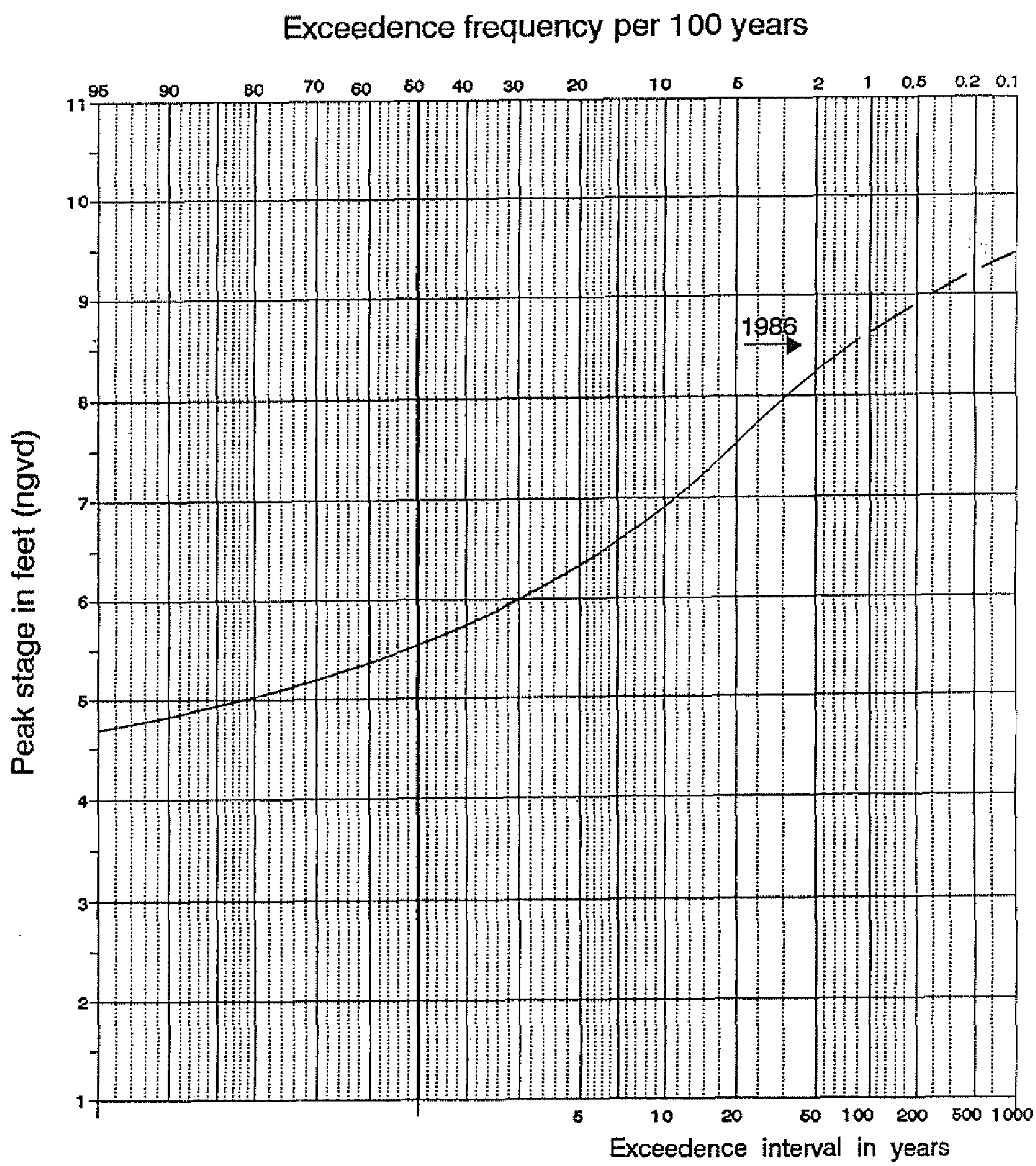
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE SACRAMENTO RIVER AT THREE MILE SLOUGH

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 3



NOTES:

SEE PAGE 8 IN TEXT FOR A DISCUSSION OF THIS CURVE

SACRAMENTO - SAN JOAQUIN DELTA

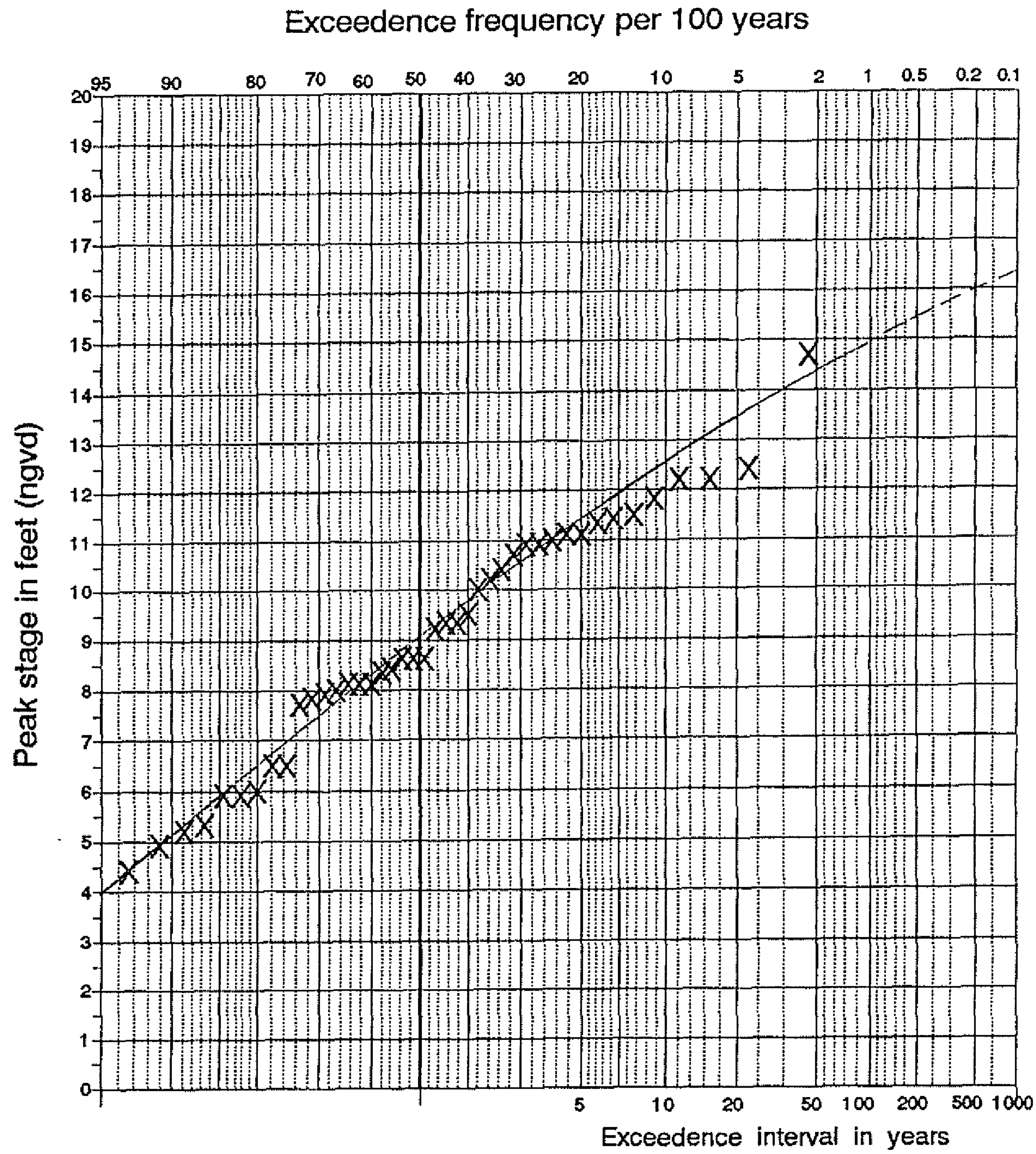
STAGE FREQUENCY CURVE
SACRAMENTO RIVER AT
RIO VISTA

NEW LOCATION AT HIGHWAY 12 BRIDGE

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 4



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1945-1988
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN

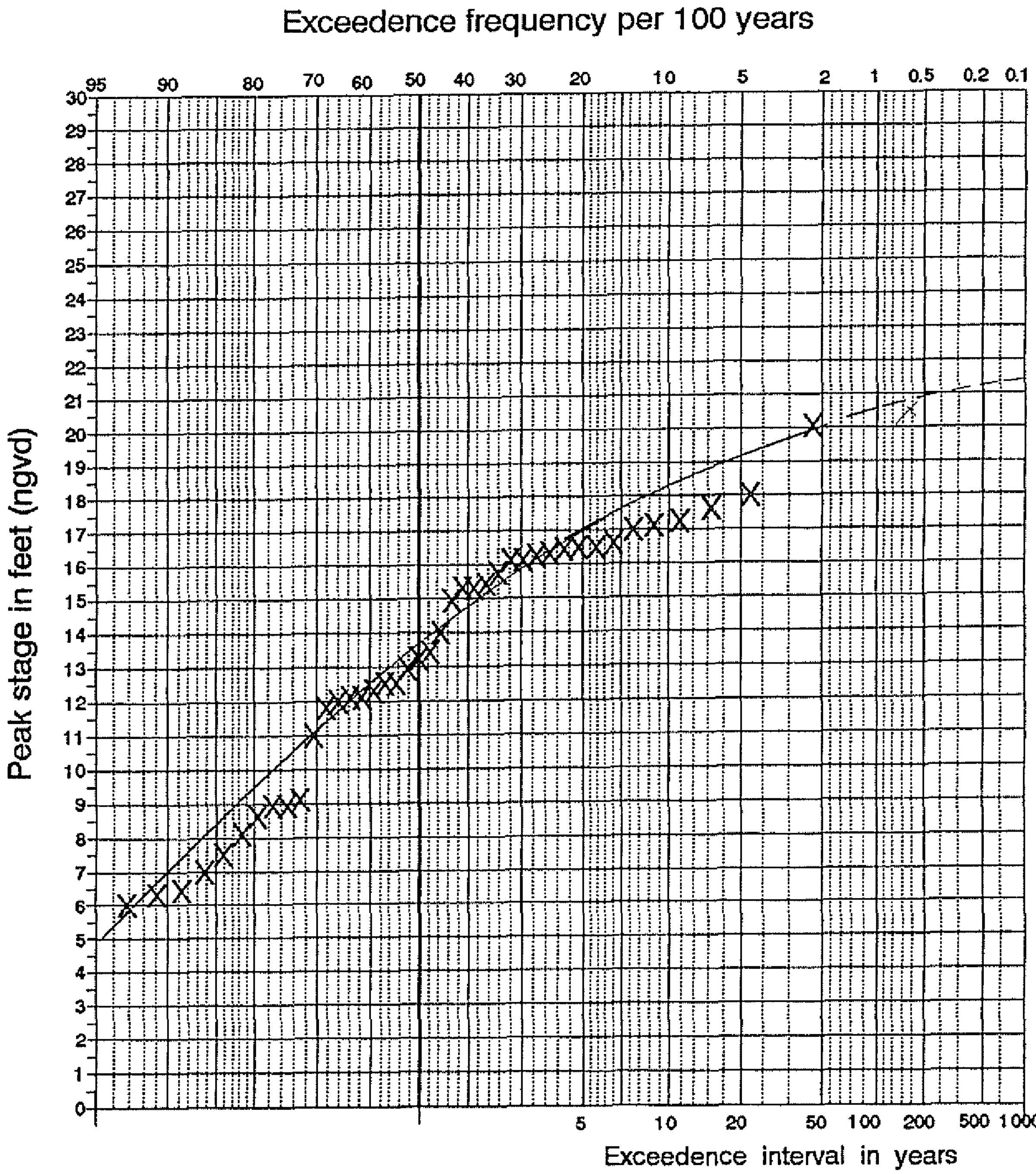
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE SACRAMENTO RIVER AT WALNUT GROVE

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 5



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1945-1988
MISSING DATA 1957
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 43 YEARS OF DATA

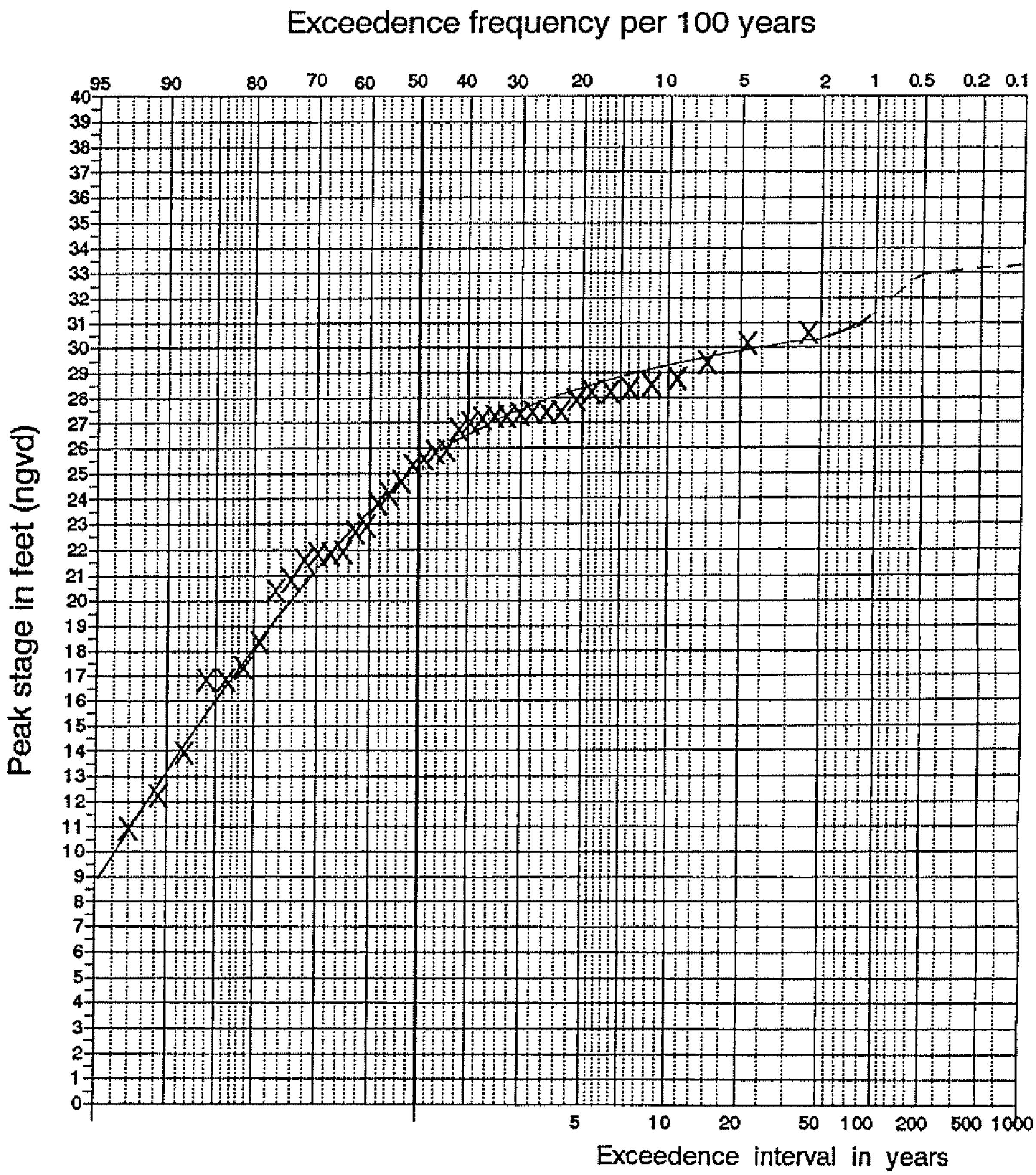
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE SACRAMENTO RIVER AT SNODGRASS SLOUGH

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 6



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1945-1988
MISSING DATA 1977, 1976
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 42 YEARS OF DATA
SHAPE OF CURVE ABOVE THE 63-YEAR FREQUENCY REFLECTS LOSS OF CONTROL AT FOLSOM DAM

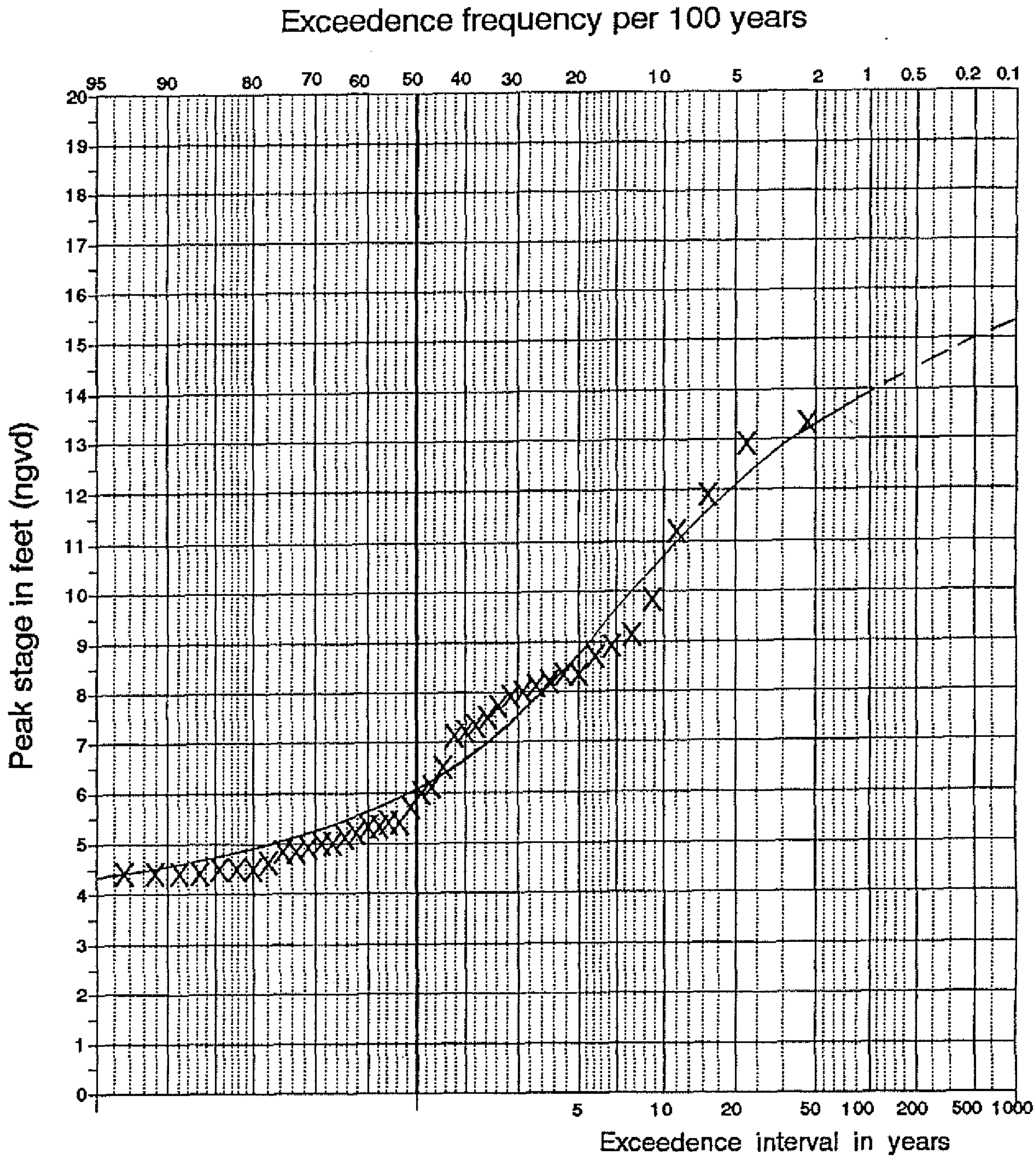
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE SACRAMENTO RIVER AT I-STREET

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 7



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1940-1988
MISSING DATA 1964, 1961, 1948, 1947, 1941
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 45 YEARS OF DATA

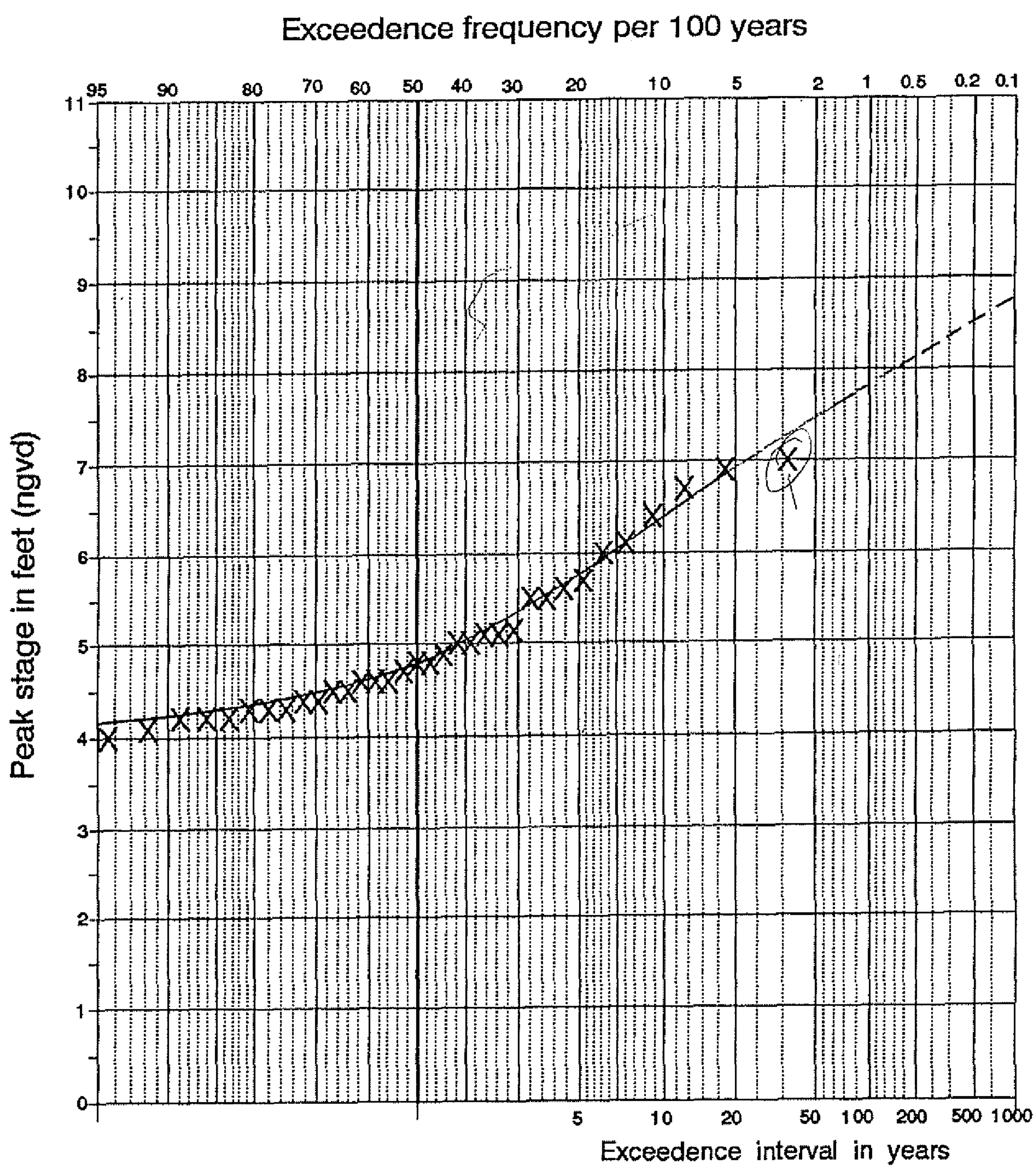
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE S. F. MOKELUMNE RIVER AT NEW HOPE LANDING

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 8



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1945-1988
MISSING DATA 1953 AND 1966-1973
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 35 YEARS OF DATA

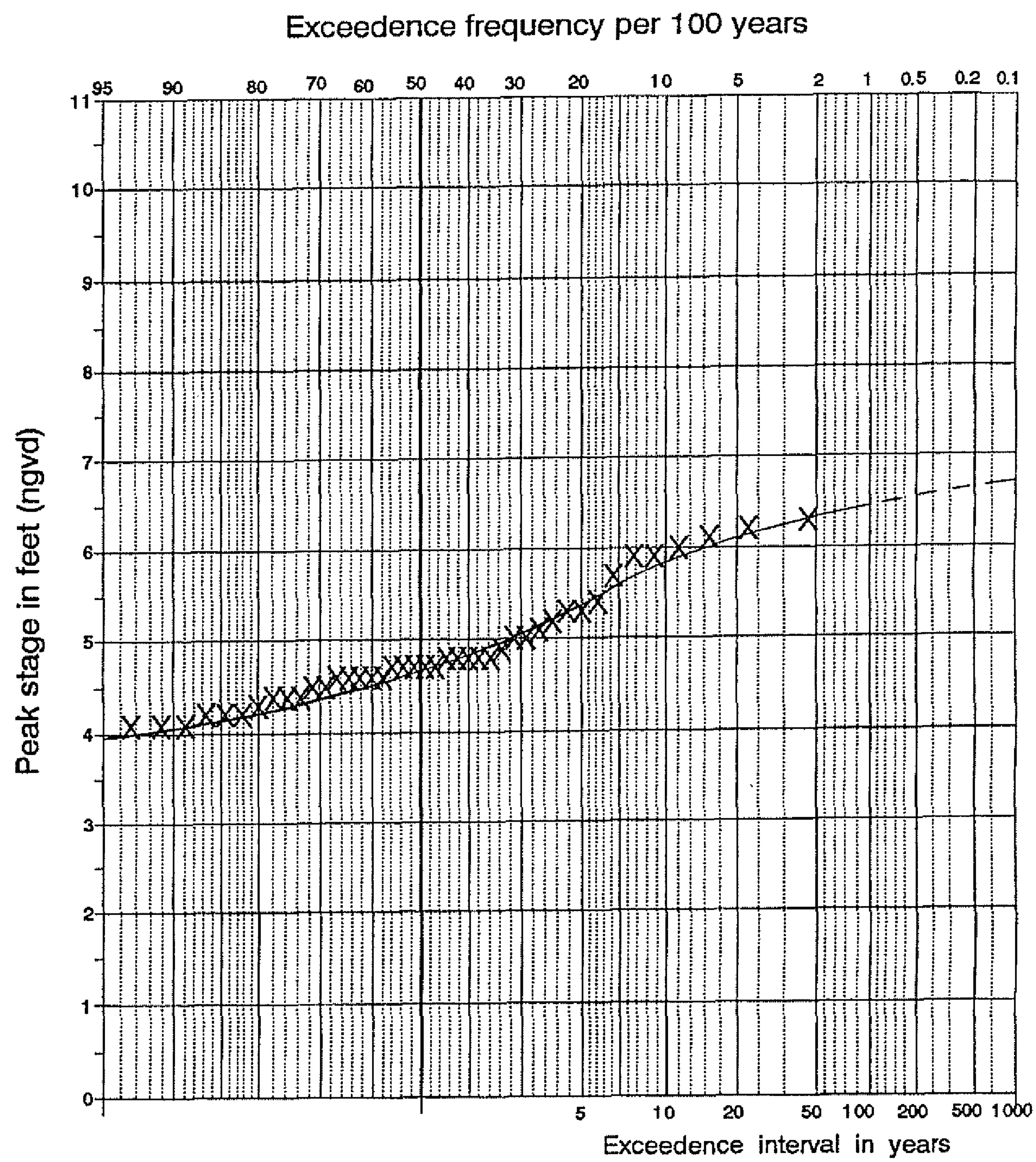
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE GEORGIANA SLOUGH AT MOKELUMNE RIVER

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 9



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1945-1988
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN

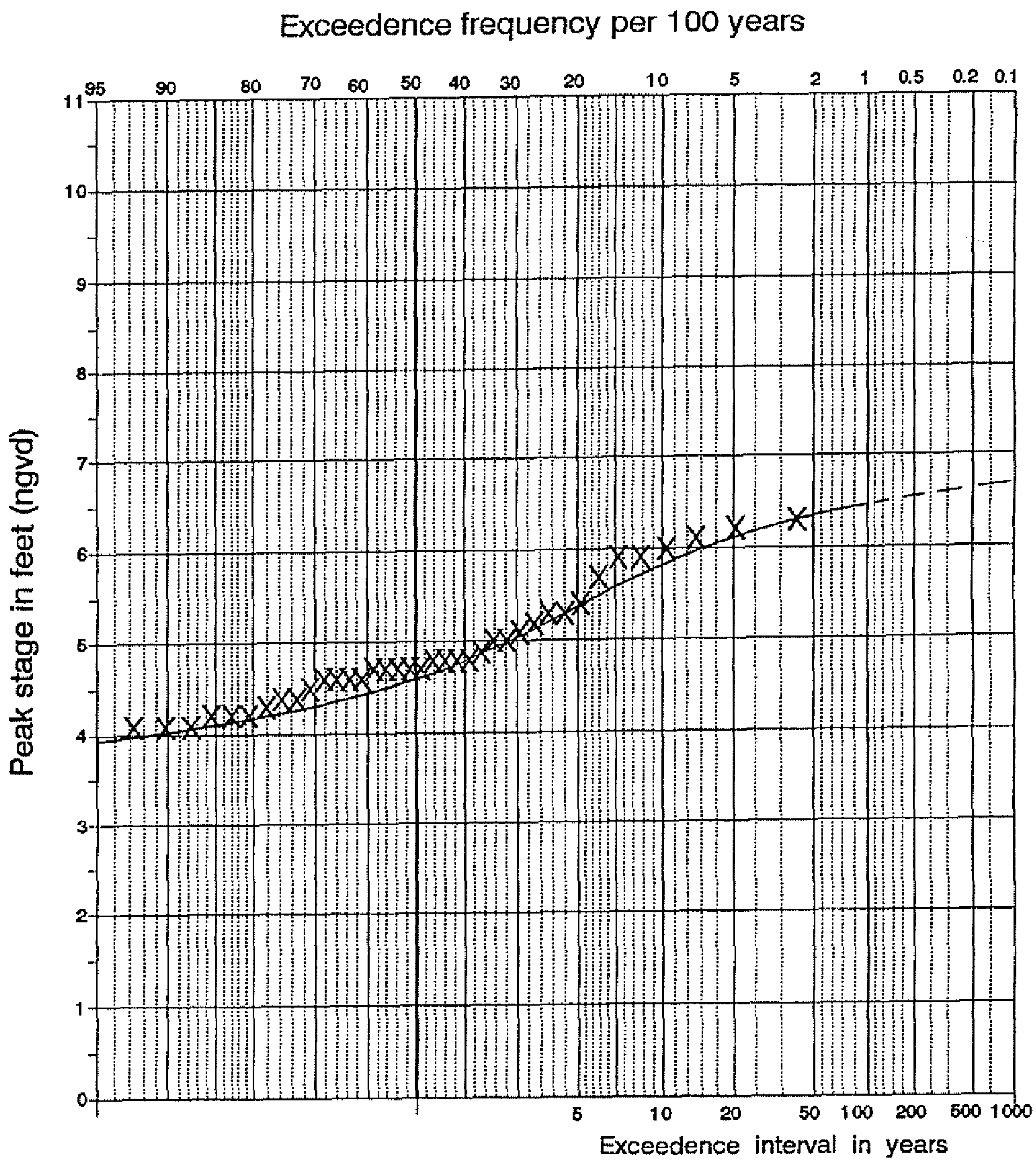
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE SAN JOAQUIN RIVER AT ANTIOCH

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 10



NOTES:
PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1945-1988
MISSING DATA 1973, 1956, 1954, 1953
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 40 YEARS OF DATA

SACRAMENTO - SAN JOAQUIN DELTA

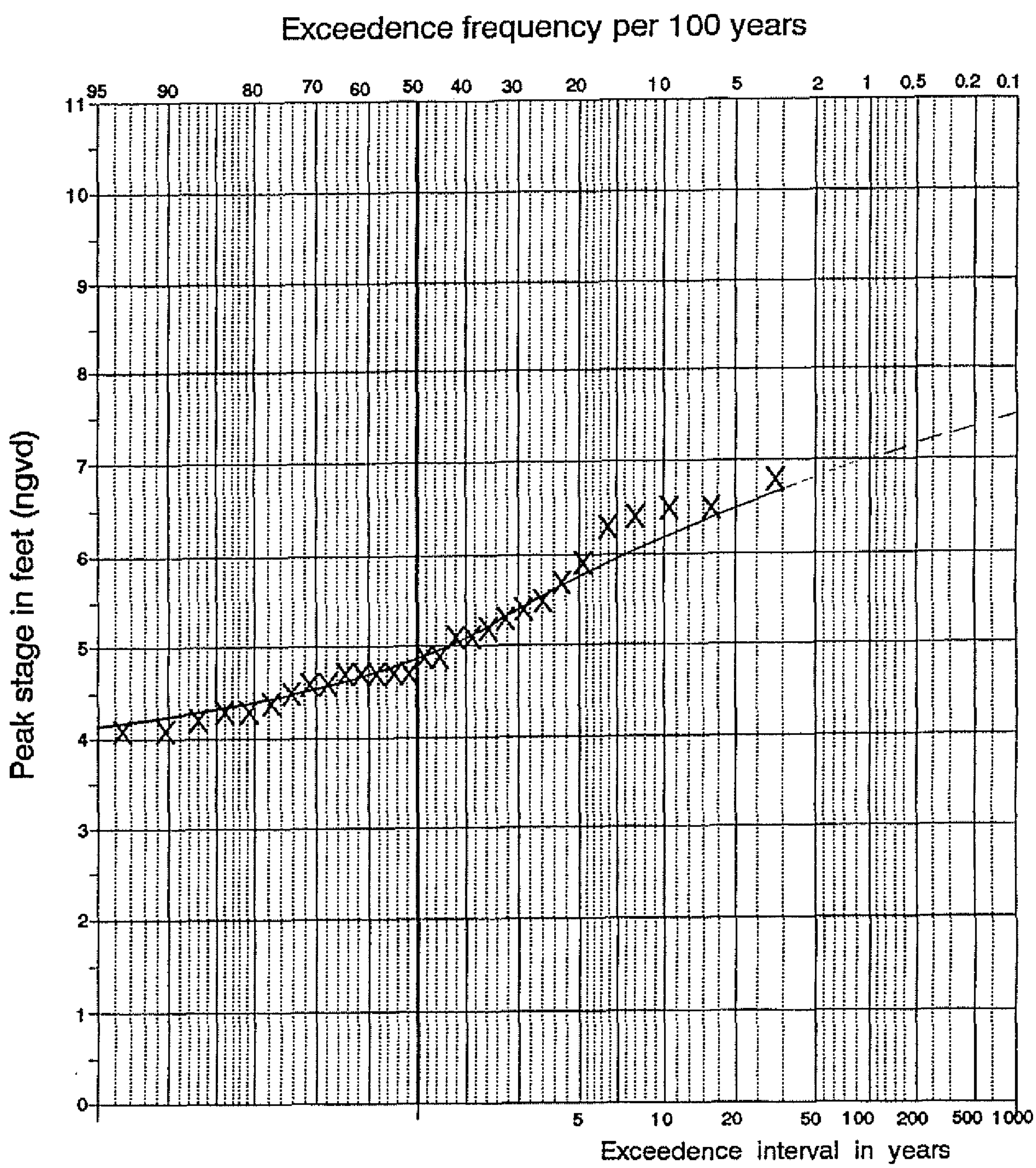
STAGE FREQUENCY CURVE SAN JOAQUIN RIVER AT THREE MILE SLOUGH

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 11

70



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1958-1988
MISSING DATA 1960
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 30 YEARS OF DATA

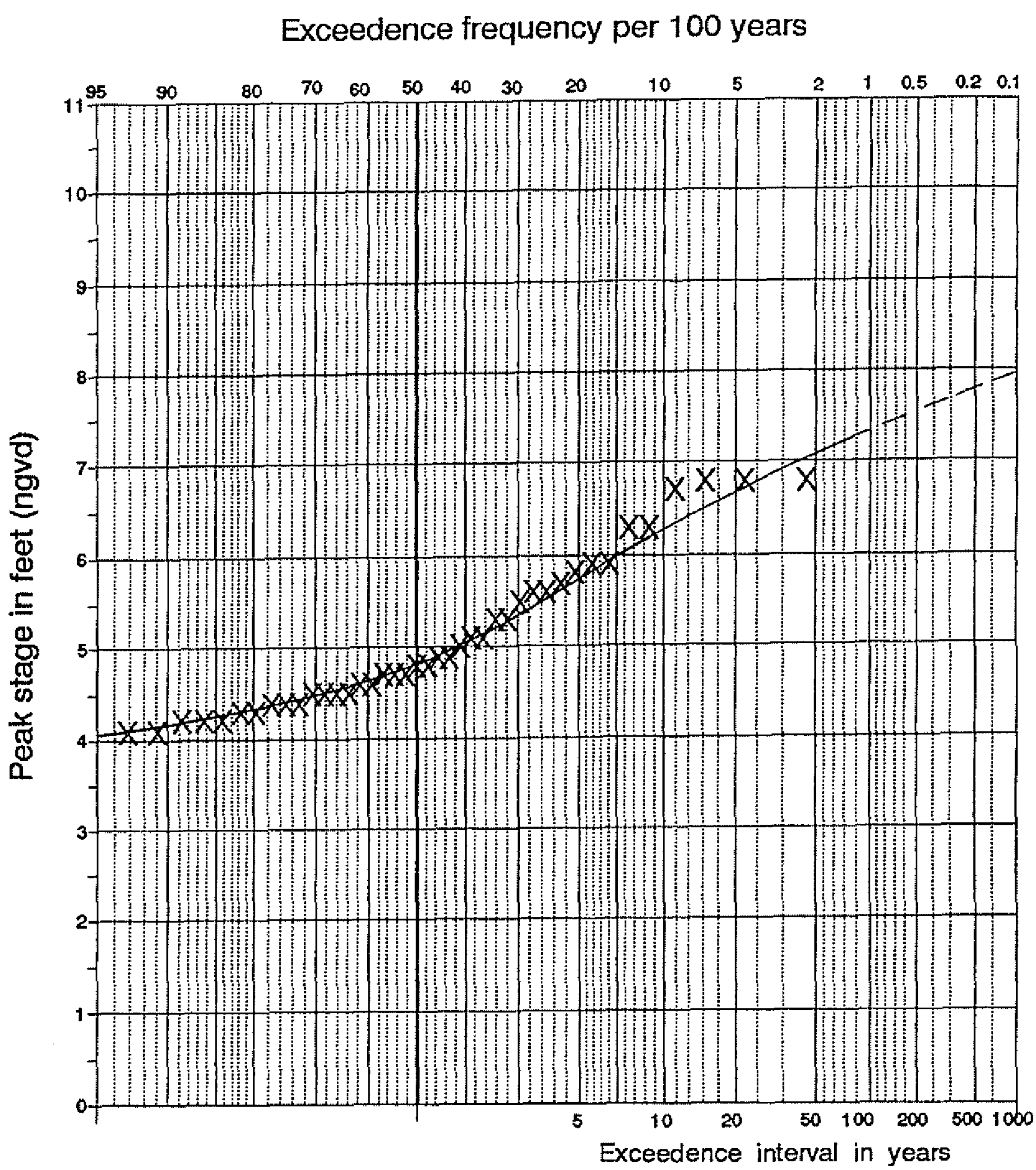
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE SAN JOAQUIN RIVER AT SAN ANDREAS LANDING

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 12



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1945-1988
MISSING DATA 1952
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 43 YEARS OF DATA

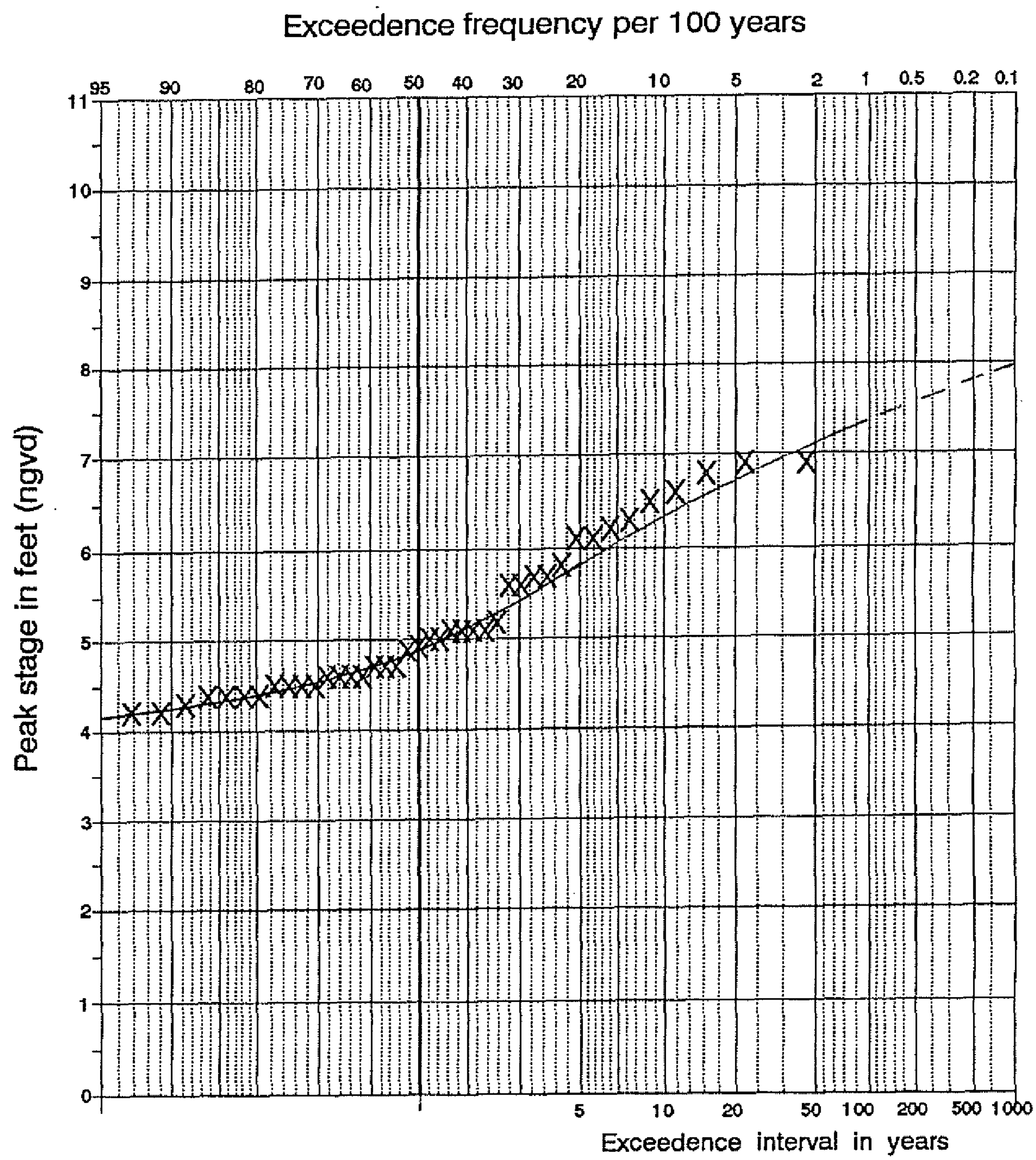
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE SAN JOAQUIN RIVER AT VENICE ISLAND

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 13



NOTES:

PLOTTED POINTS ARE ANNUAL PEAKS
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1945-1988
MISSING DATA 1953
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 43 YEARS OF DATA

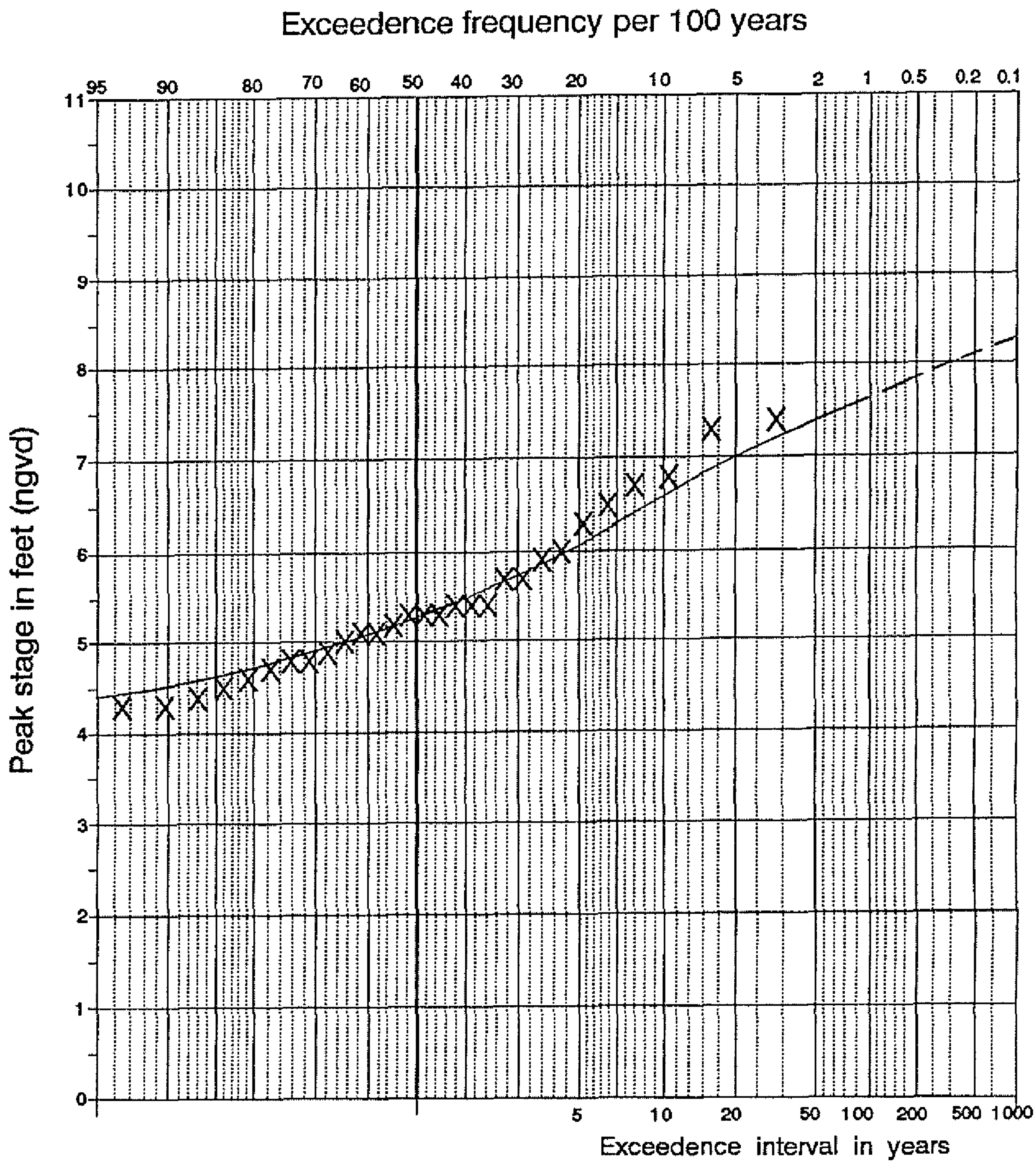
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE
SAN JOAQUIN RIVER AT
RINDGE PUMP

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 14



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1959-1988
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN

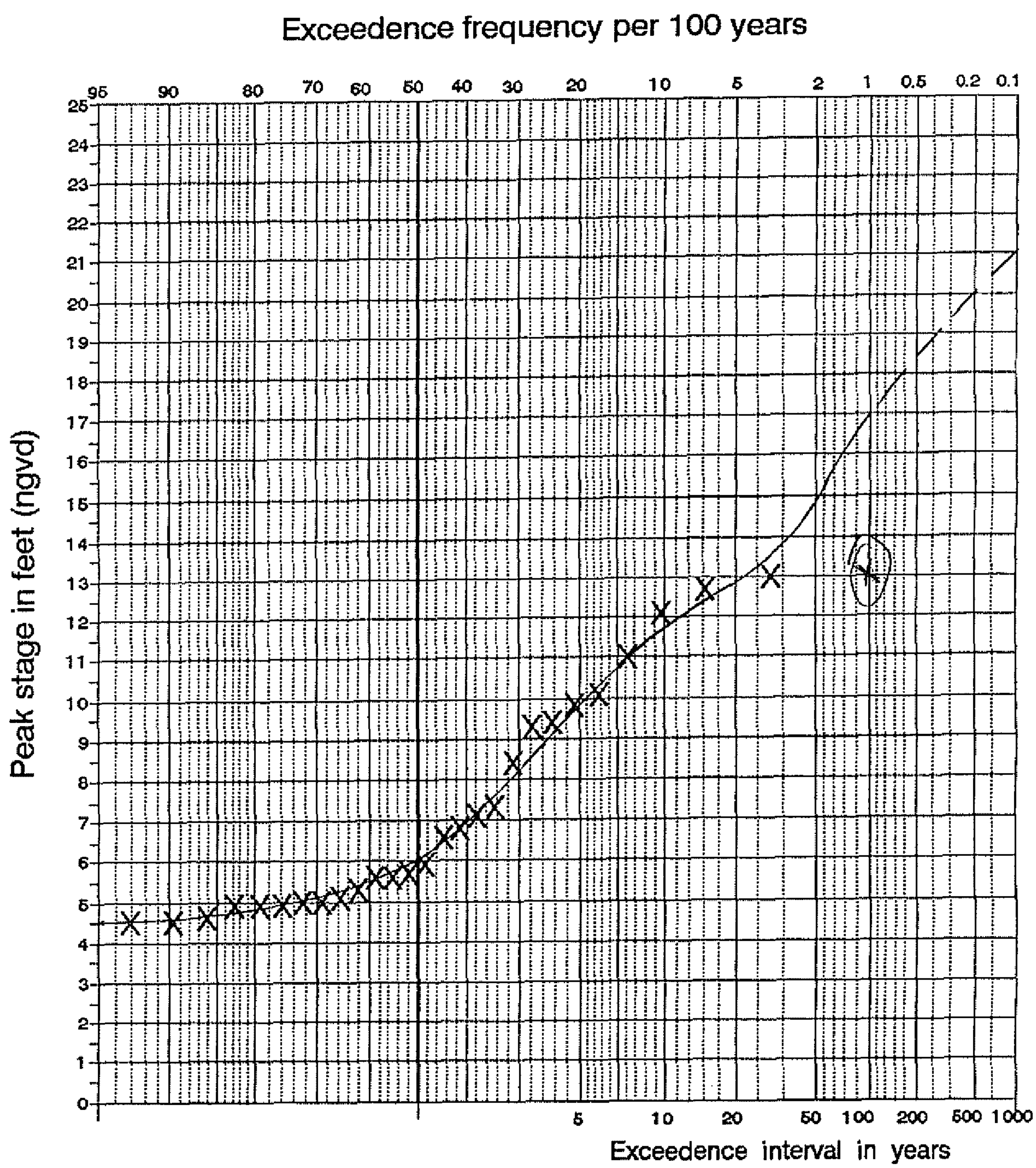
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE SAN JOAQUIN RIVER AT BURNS CUTOFF

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 15



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1958-1988
MISSING DATA 1976, 1977, 1967
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 28 YEARS OF DATA
CURVE BASED ON UPDATED FLOW-FREQUENCY CURVE FOR SAN JOAQUIN RIVER AT VERNALIS

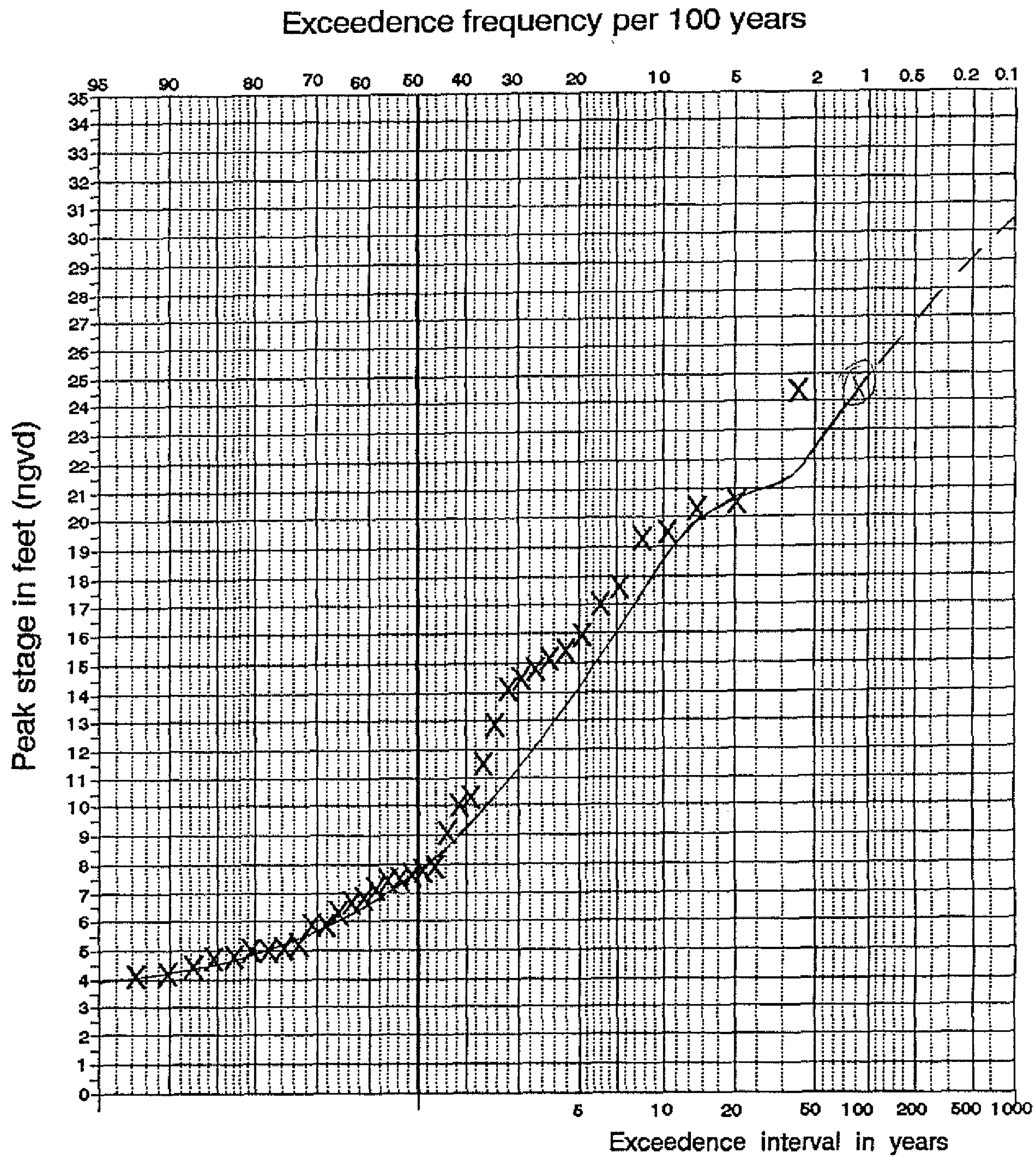
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE
SAN JOAQUIN RIVER AT
BRANDT BRIDGE

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 16



NOTES:
PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1945-1984
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
CURVE BASED ON UPDATED FLOW-FREQUENCY CURVE FOR SAN JOAQUIN RIVER AT VERNALIS

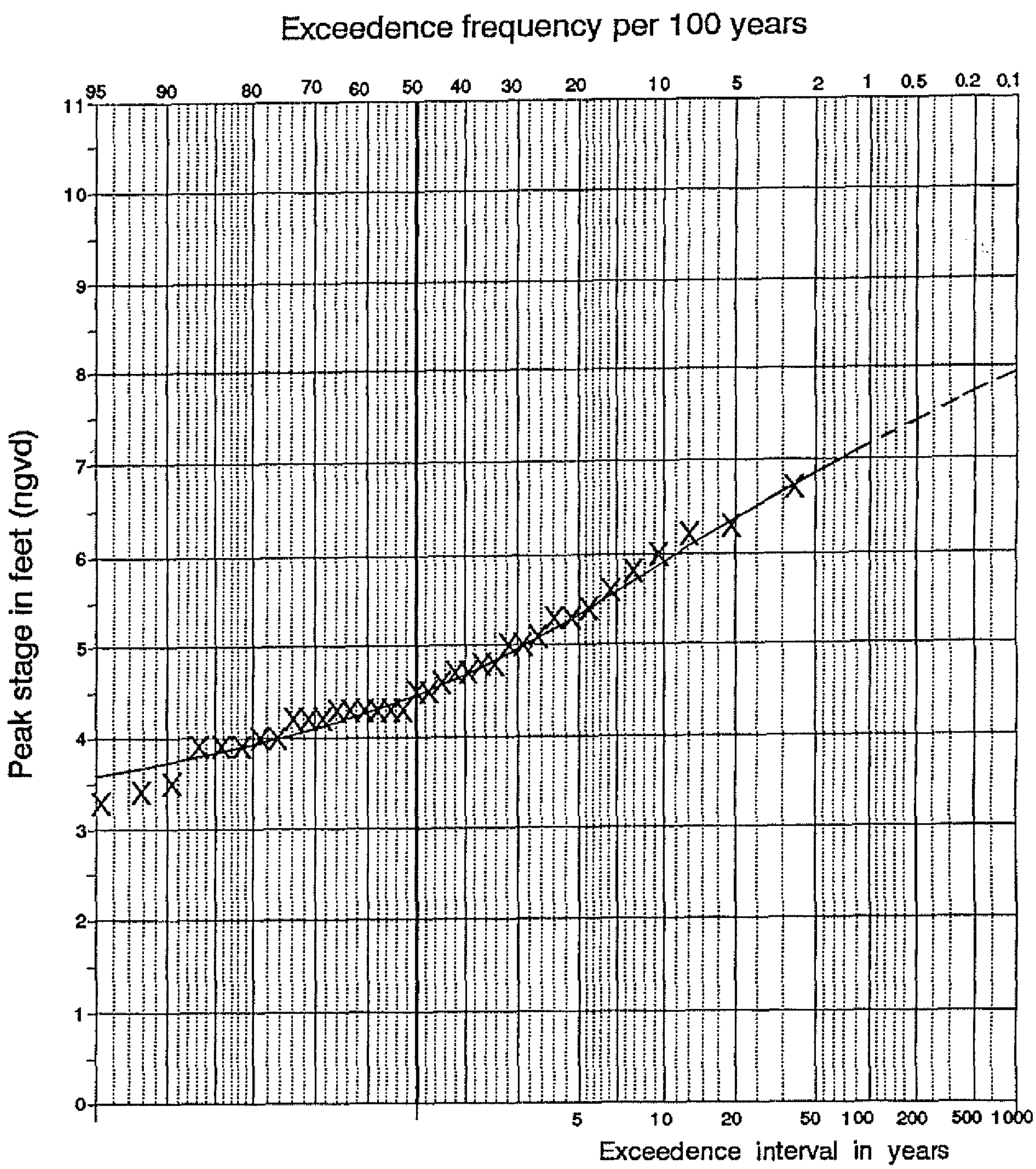
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE SAN JOAQUIN RIVER AT MOSSDALE

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 17



NOTES:
PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1946-1984
MISSING DATA 1969, 1951
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 37 YEARS OF DATA

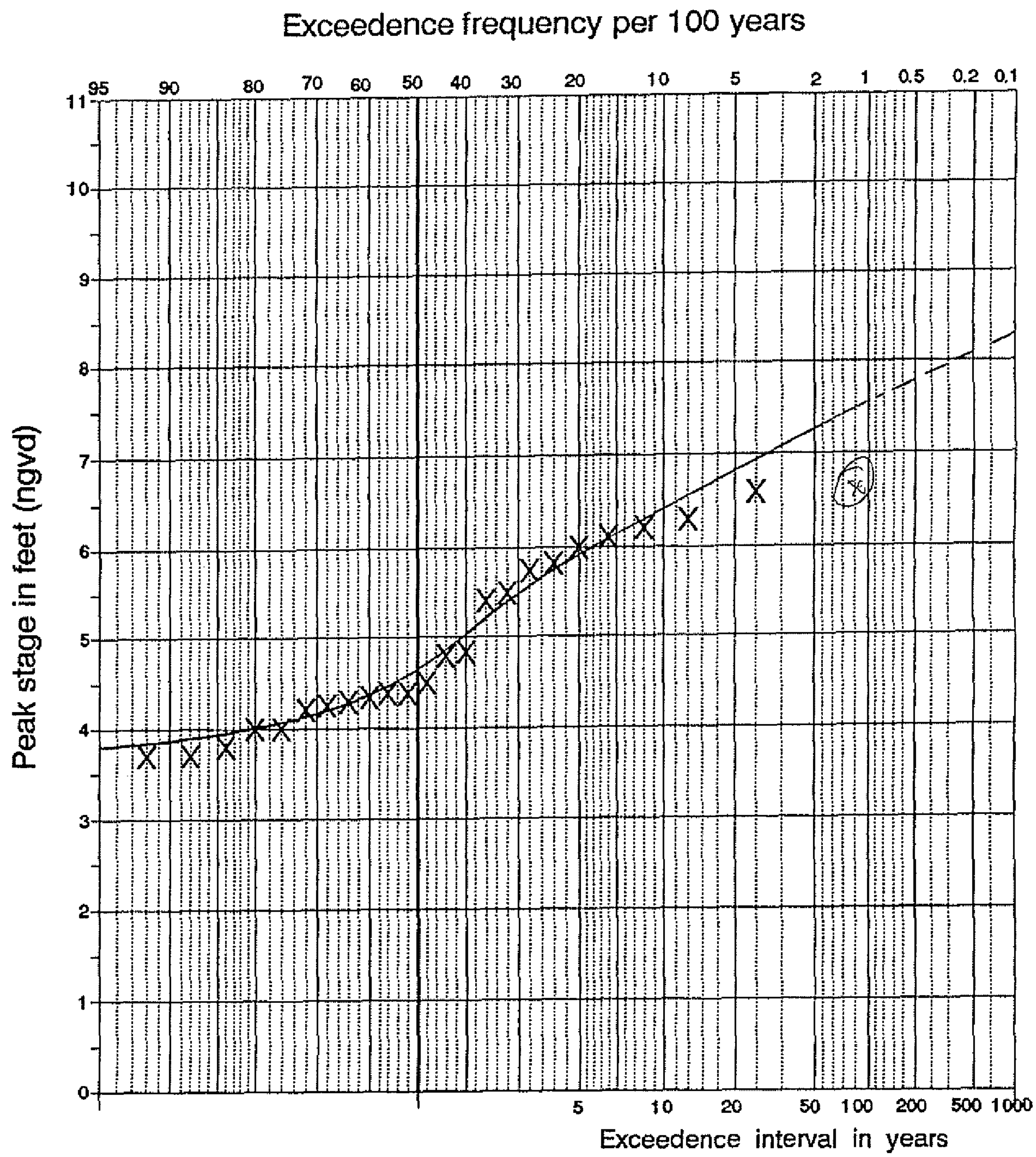
SACRAMENTO - SAN JOAQUIN DELTA

STAGE-FREQUENCY CURVE OLD RIVER AT ROCK SLOUGH

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 18



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1965-1988
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN

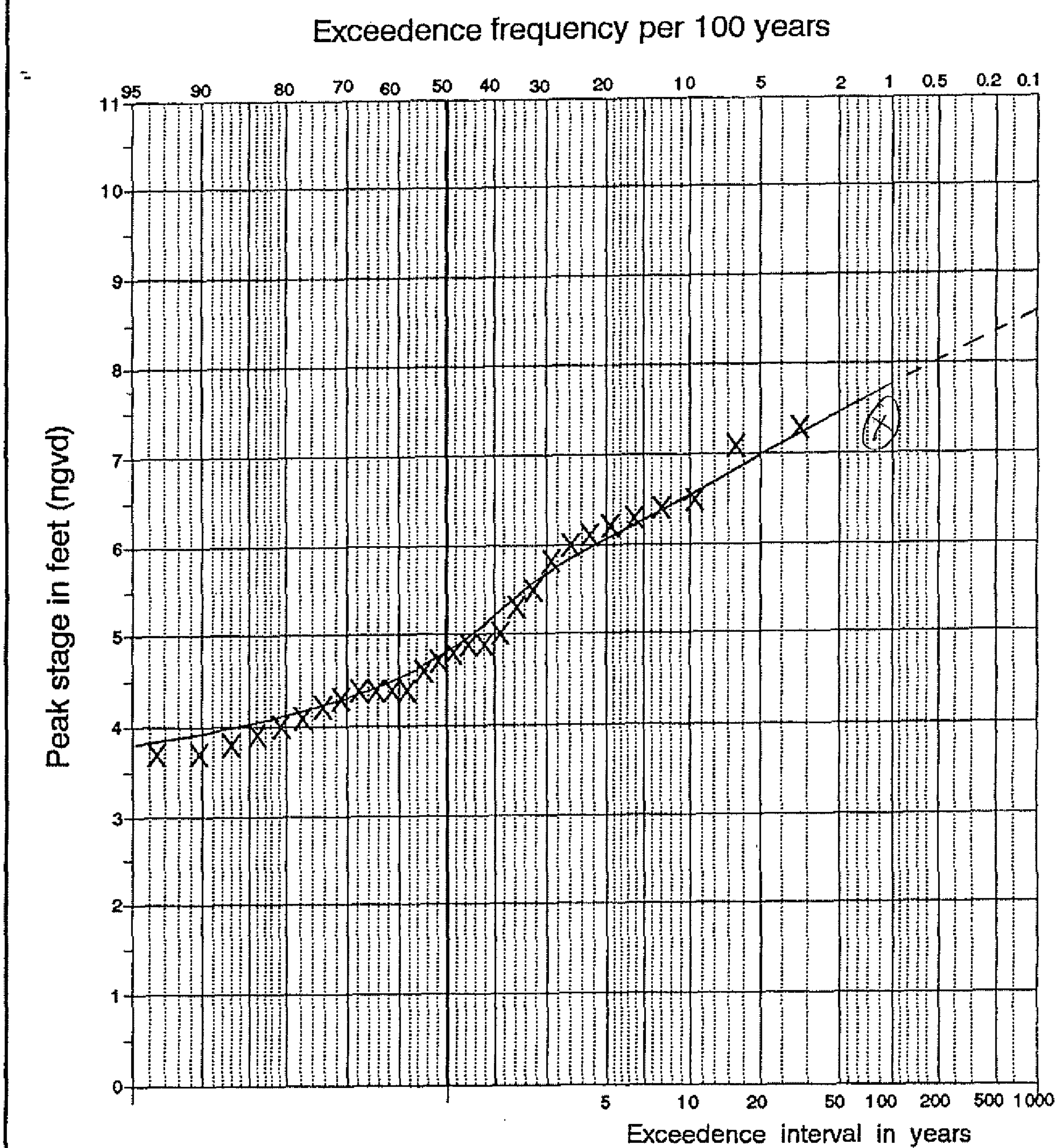
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE
OLD RIVER AT
BYRON TRACT

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 19



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1958-1988
MISSING DATA 1971
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 30 YEARS OF DATA

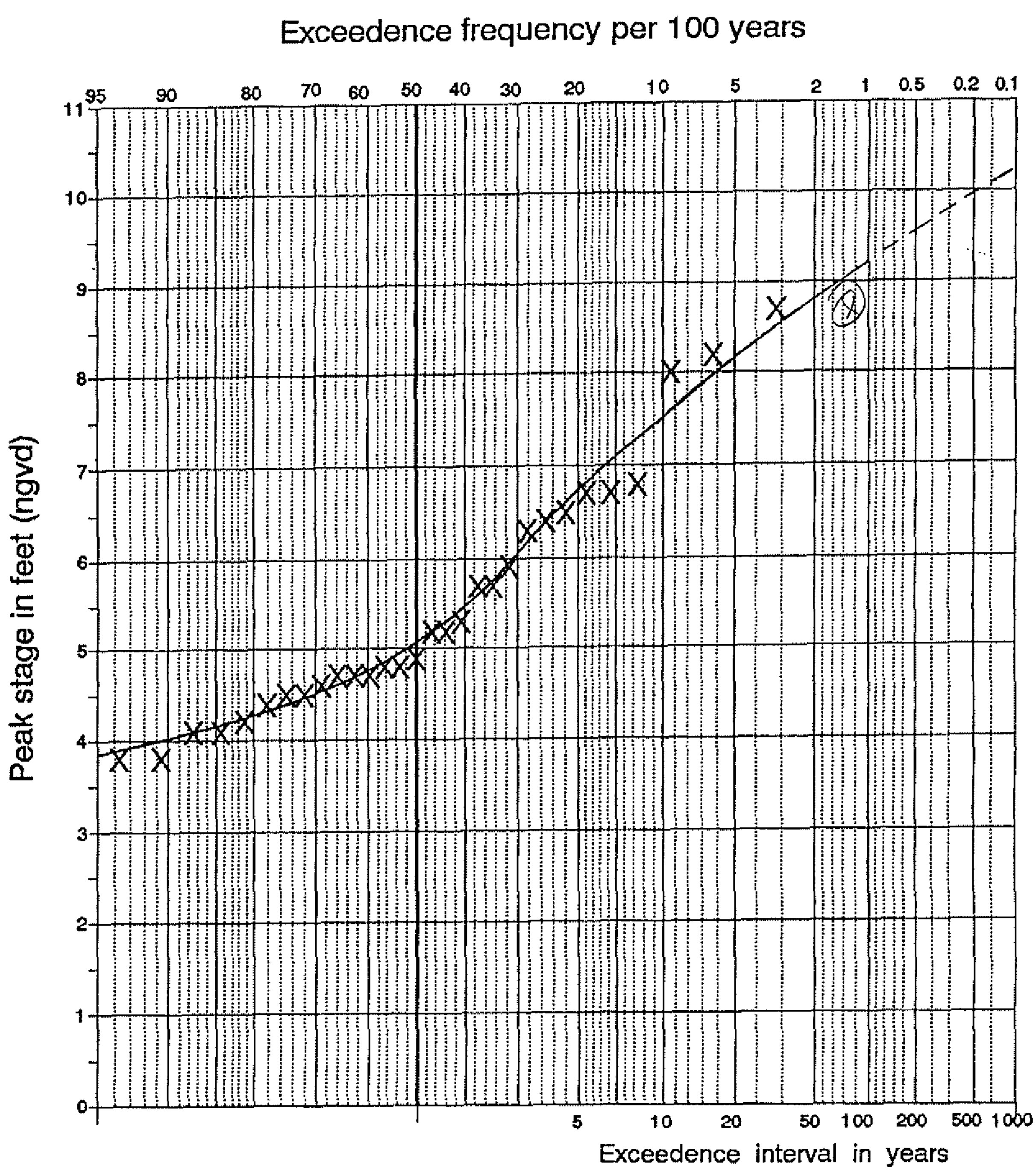
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE OLD RIVER AT CLIFTON COURT

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 20



NOTES:
PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1958-1988
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN

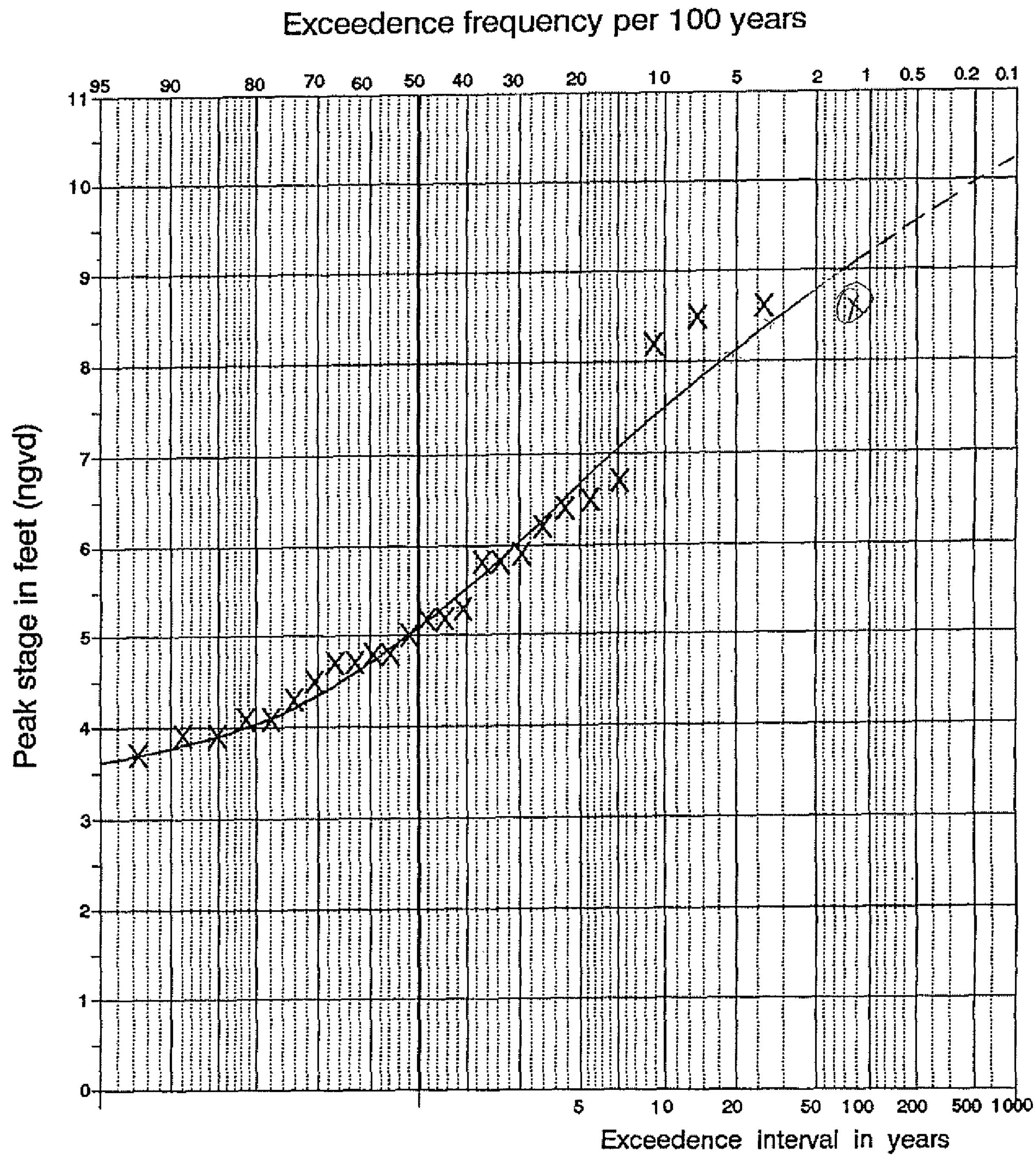
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE OLD RIVER AT TRACY BRIDGE

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 21



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1958-1985
MISSING DATA 1968, 1967
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 26 YEARS OF DATA

SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE
GRANT LINE CANAL AT
TRACY ROAD BRIDGE

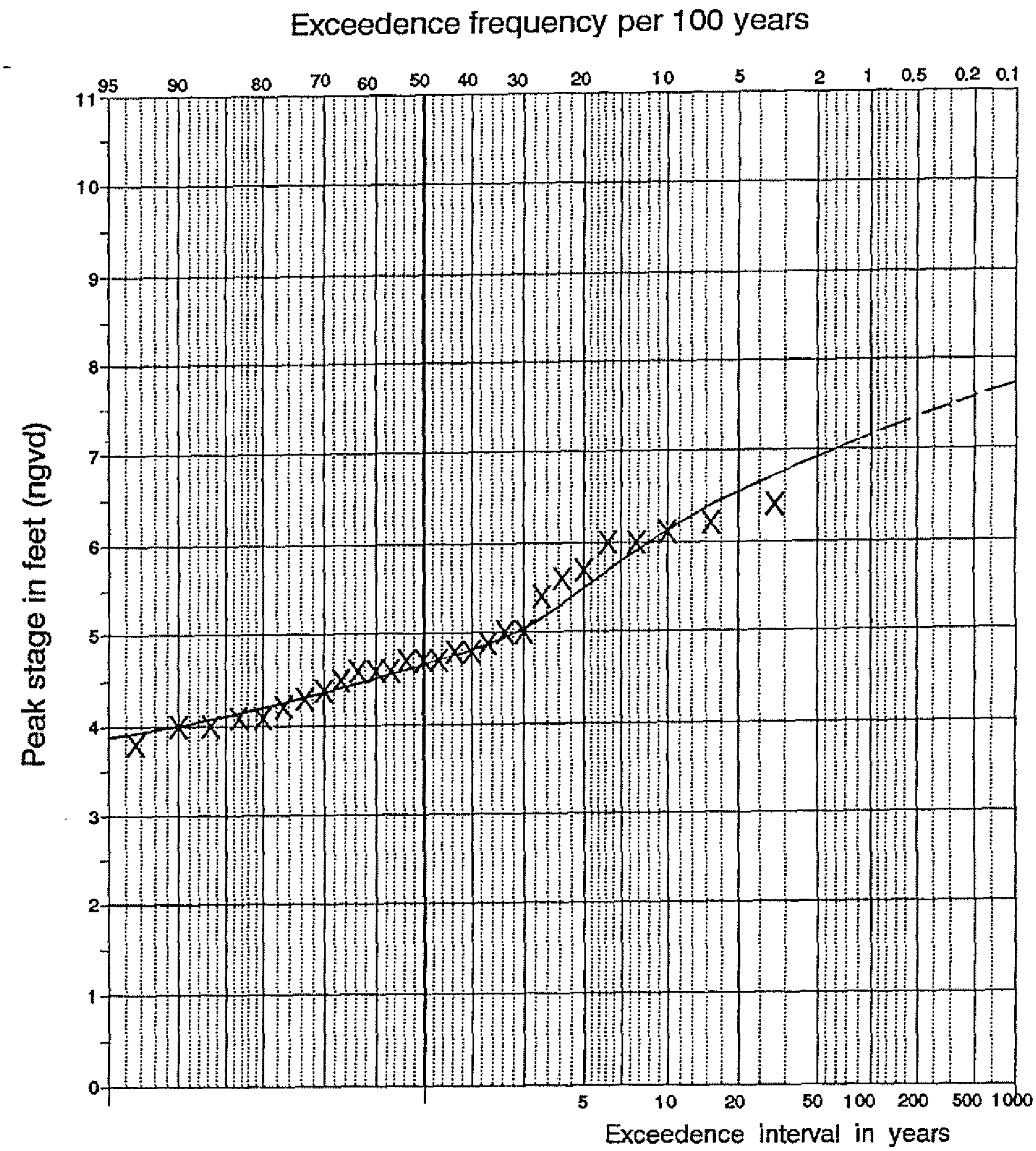
CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.

Date: February 1992

CHART 22

7.1.



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1958-1988
MISSING DATA 1968, 1967
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 29 YEARS OF DATA

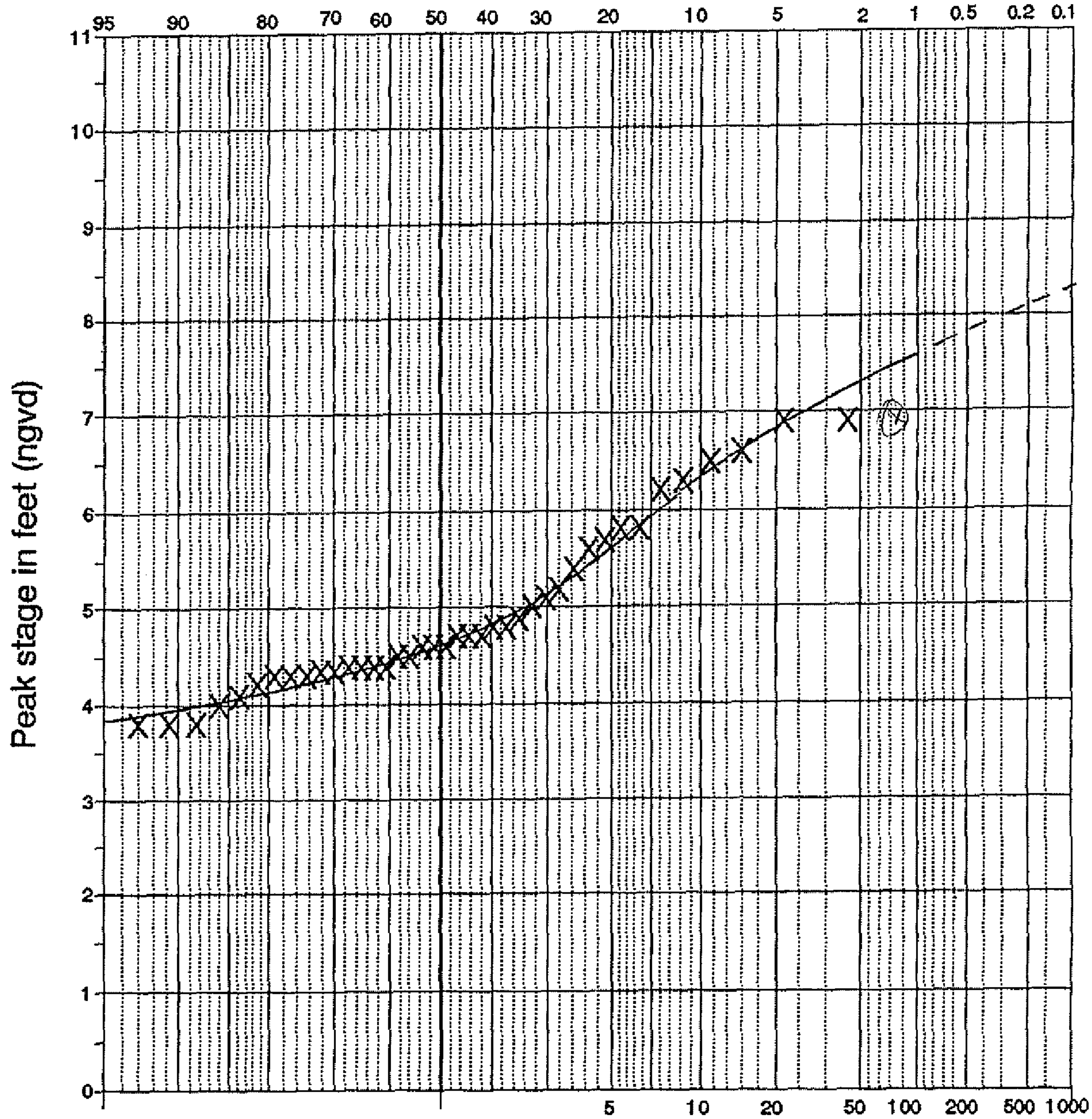
SACRAMENTO - SAN JOAQUIN DELTA

STAGE FREQUENCY CURVE MIDDLE RIVER AT BACON ISLAND

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 23



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1945-1988
MISSING DATA 1973, 1958
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 42 YEARS OF DATA

SACRAMENTO - SAN JOAQUIN DELTA

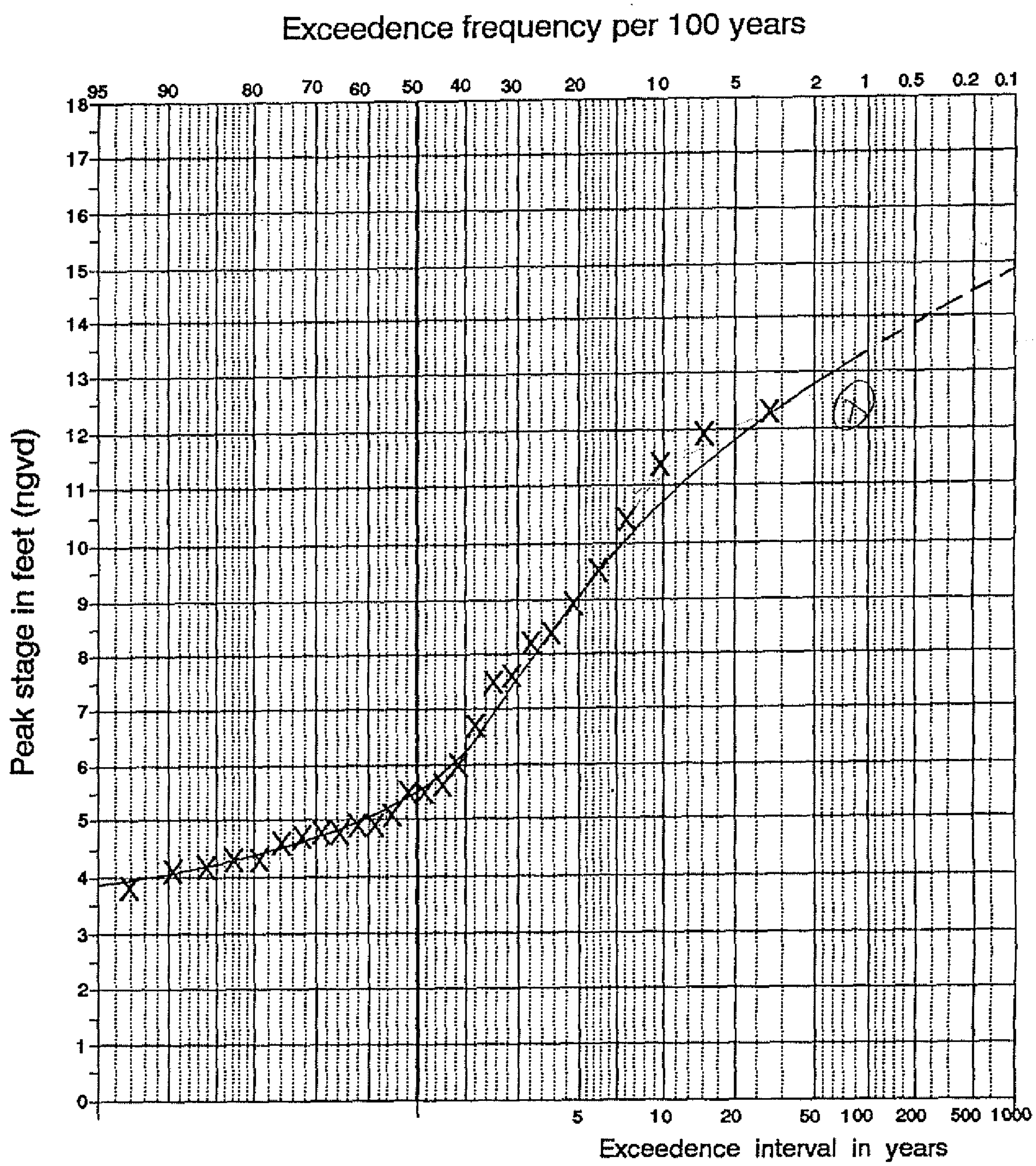
STAGE FREQUENCY CURVE MIDDLE RIVER AT BORDEN HIGHWAY

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

CHART 24

3A



NOTES:

PLOTTED POINTS ARE ANNUAL PEAK STAGES
CURVE PLOTTED GRAPHICALLY
PERIOD OF RECORD 1958-1988
MISSING DATA 1968, 1967, 1966
POINTS BEYOND 95% EXCEEDENCE FREQUENCY NOT SHOWN
PLOTTED POINTS REPRESENT 28 YEARS OF DATA

SACRAMENTO - SAN JOAQUIN DELTA

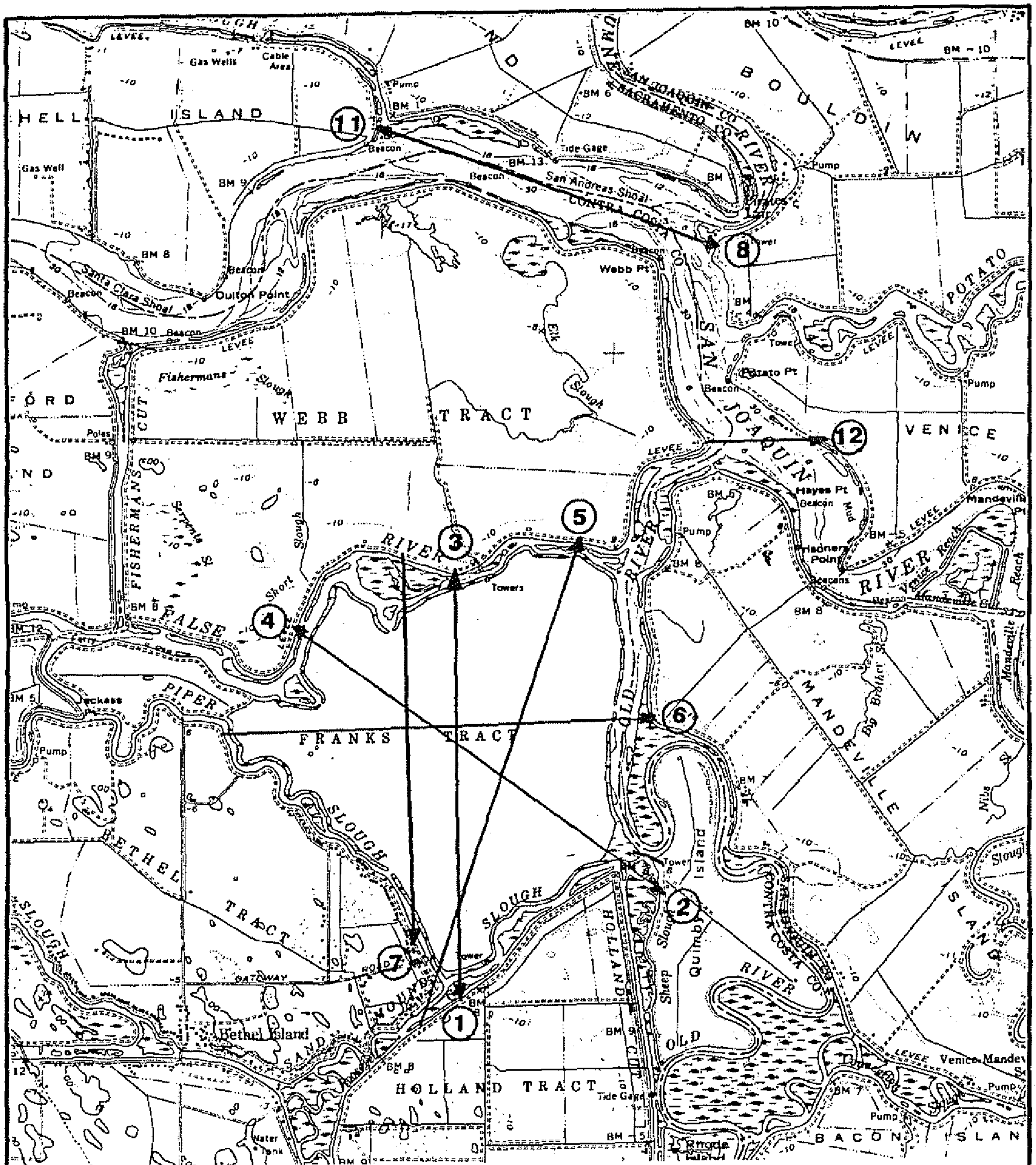
STAGE FREQUENCY CURVE MIDDLE RIVER AT MOWRY BRIDGE

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.

Date: February 1992

CHART 25



SCALE 1:62500

1 ½ 0 1 2 3 4 MILES

-N-

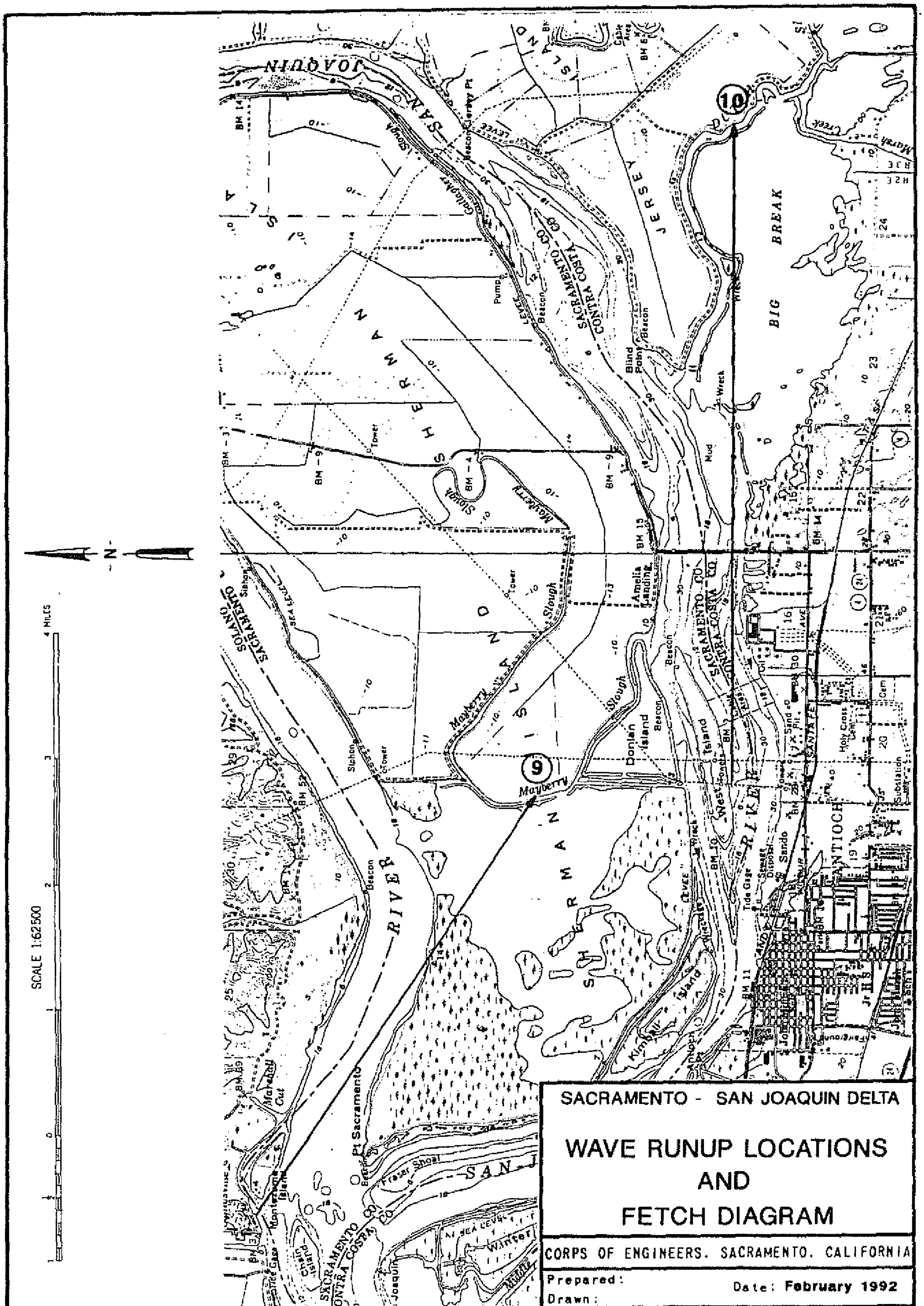
SACRAMENTO - SAN JOAQUIN DELTA

WAVE RUNUP LOCATIONS AND FETCH DIAGRAM

CORPS OF ENGINEERS, SACRAMENTO, CALIFORNIA

Prepared: J.H.
Drawn: J.H.
Date: February 1992

SHEET 1 OF 2 CHART 26



SACRAMENTO - SAN JOAQUIN DELTA

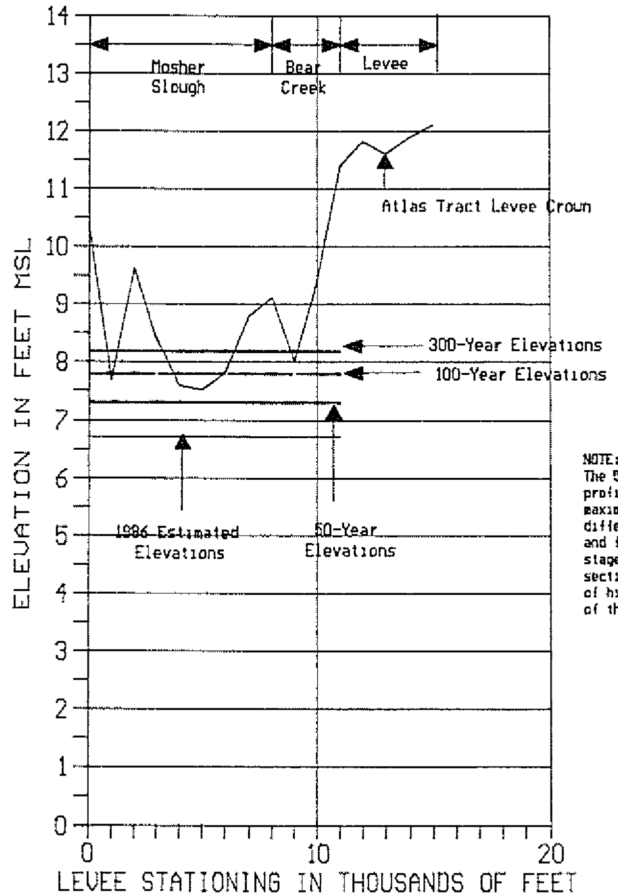
WAVE RUNUP LOCATIONS AND FETCH DIAGRAM

CORPS OF ENGINEERS. SACRAMENTO. CALIFORNIA

Prepared:
Drawn:

Date: February 1992

SHEET 2 OF 2 CHART 26



RECLAMATION DISTRICT 2021

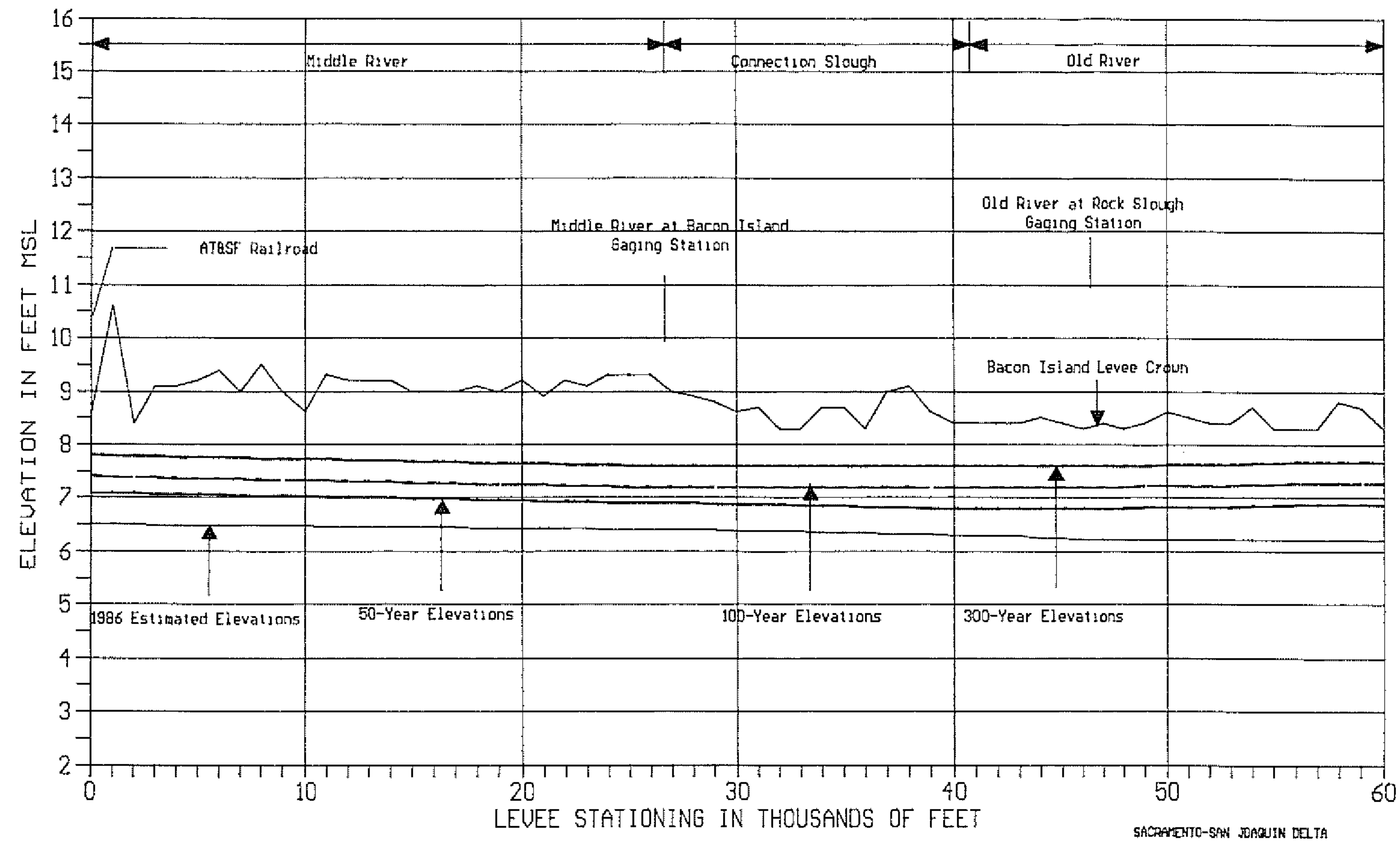
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
ATLAS TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 26A SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

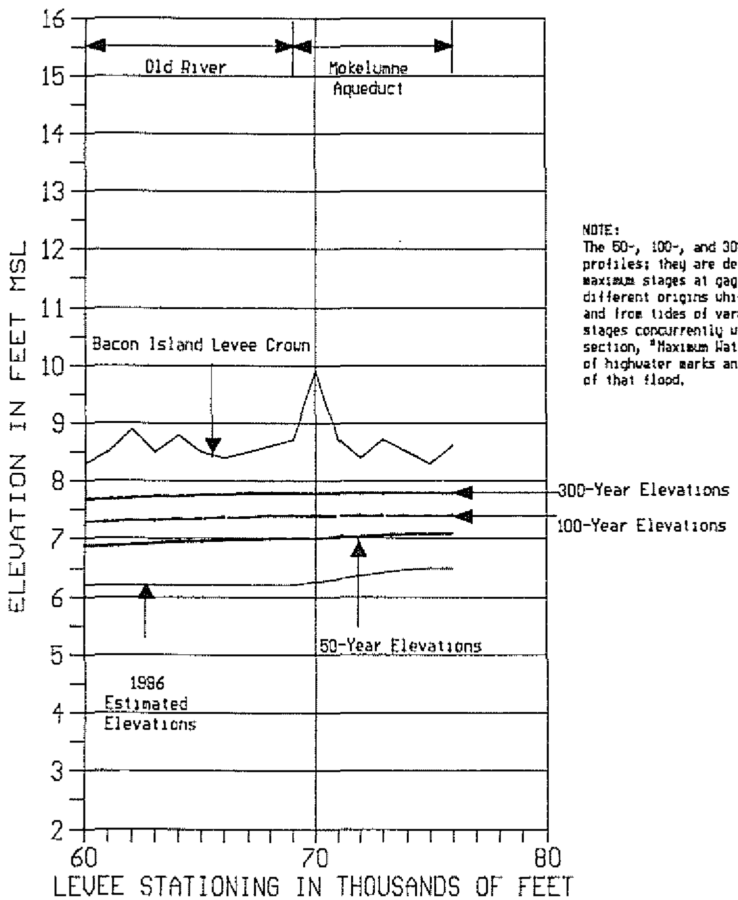
RECLAMATION DISTRICT 2068

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
BACON ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 27 SHEET 1 OF 2



RECLAMATION DISTRICT 2068

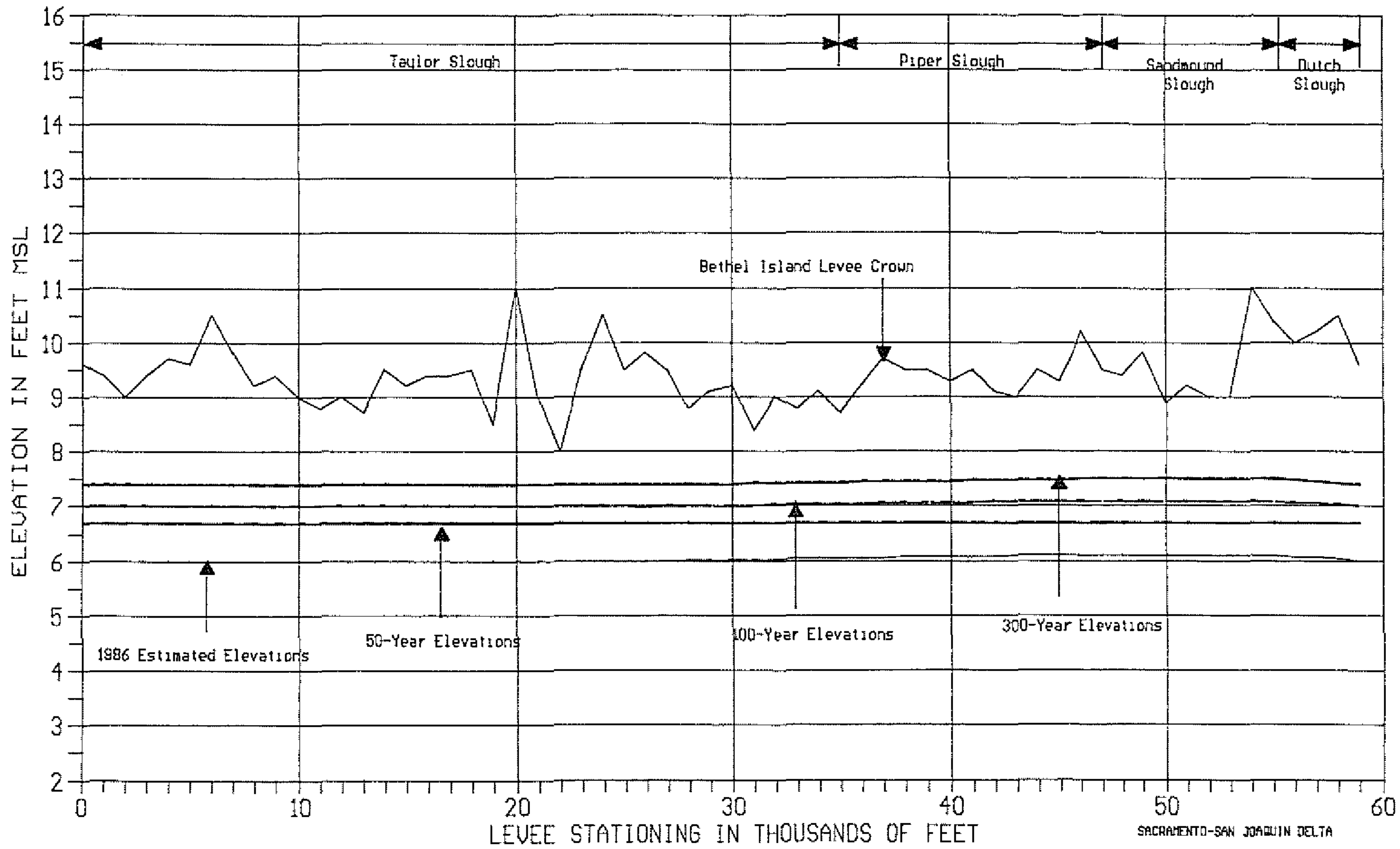
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
BACON ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 27 SHEET 2 OF 2



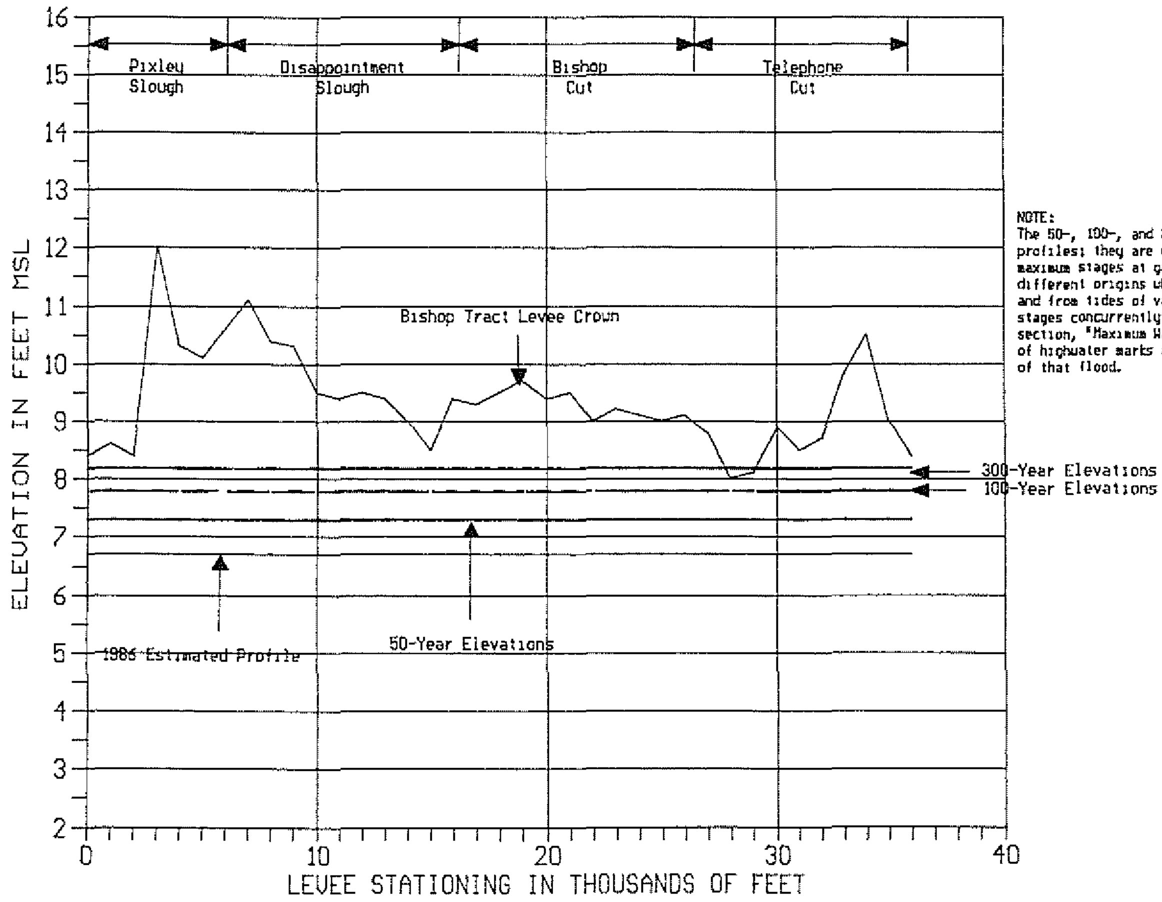
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
BETHEL ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 28 SHEET 1 OF 1



RECLAMATION DISTRICT 2042

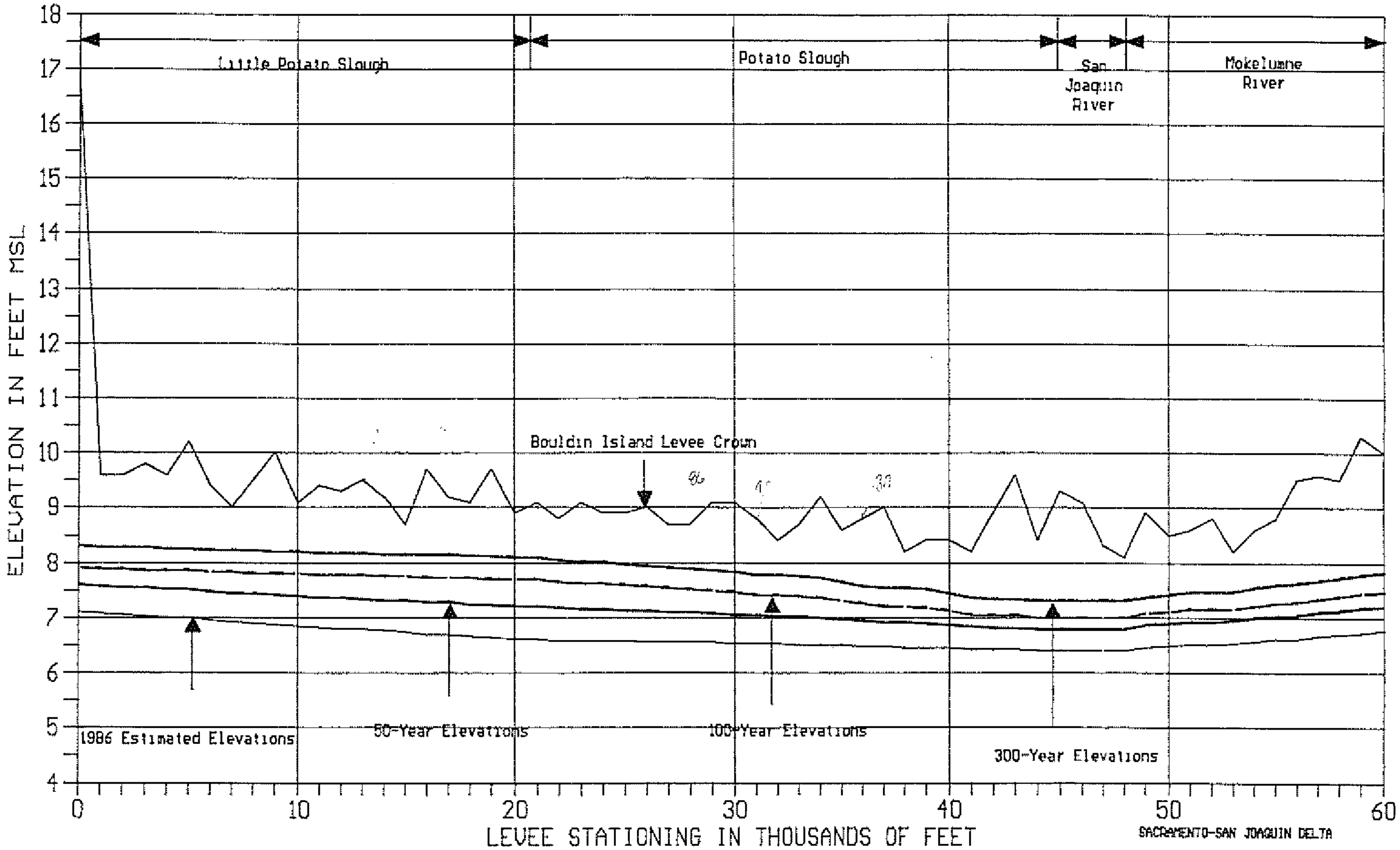
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
BISHOP TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 29 SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

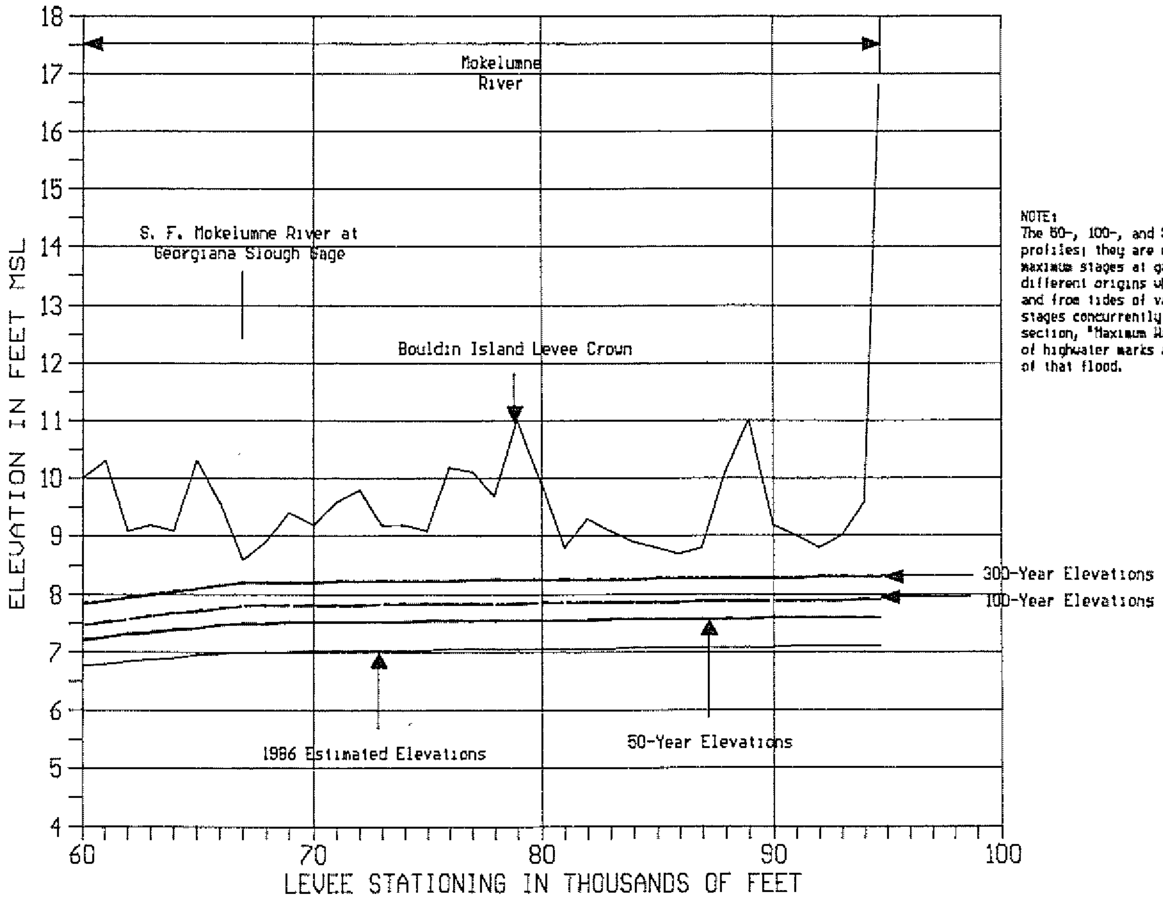
RECLAMATION DISTRICT 756

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
BOULDIN ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 30 SHEET 1 OF 2



RECLAMATION DISTRICT 756

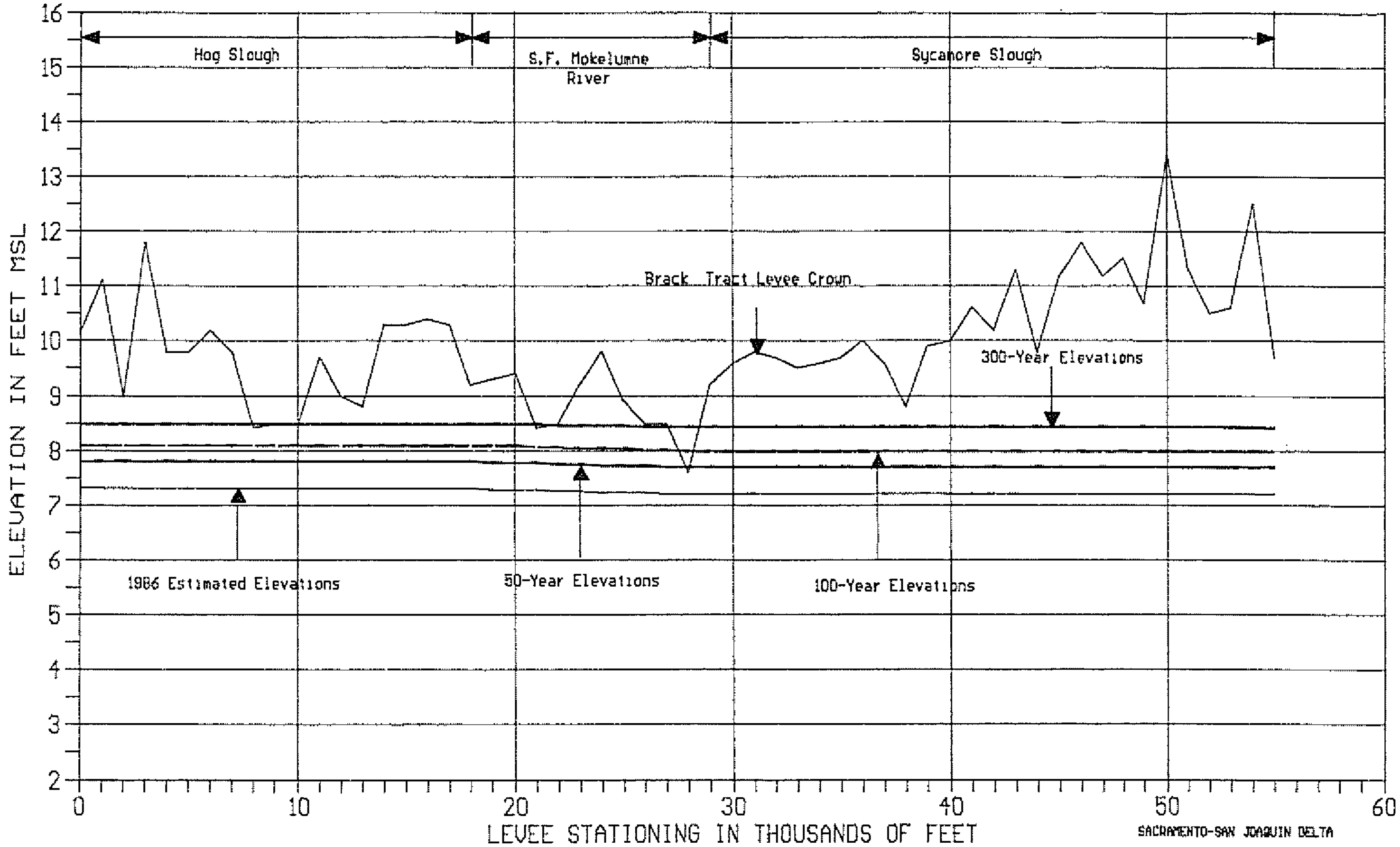
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
BOULDIN ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 30 SHEET 2 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

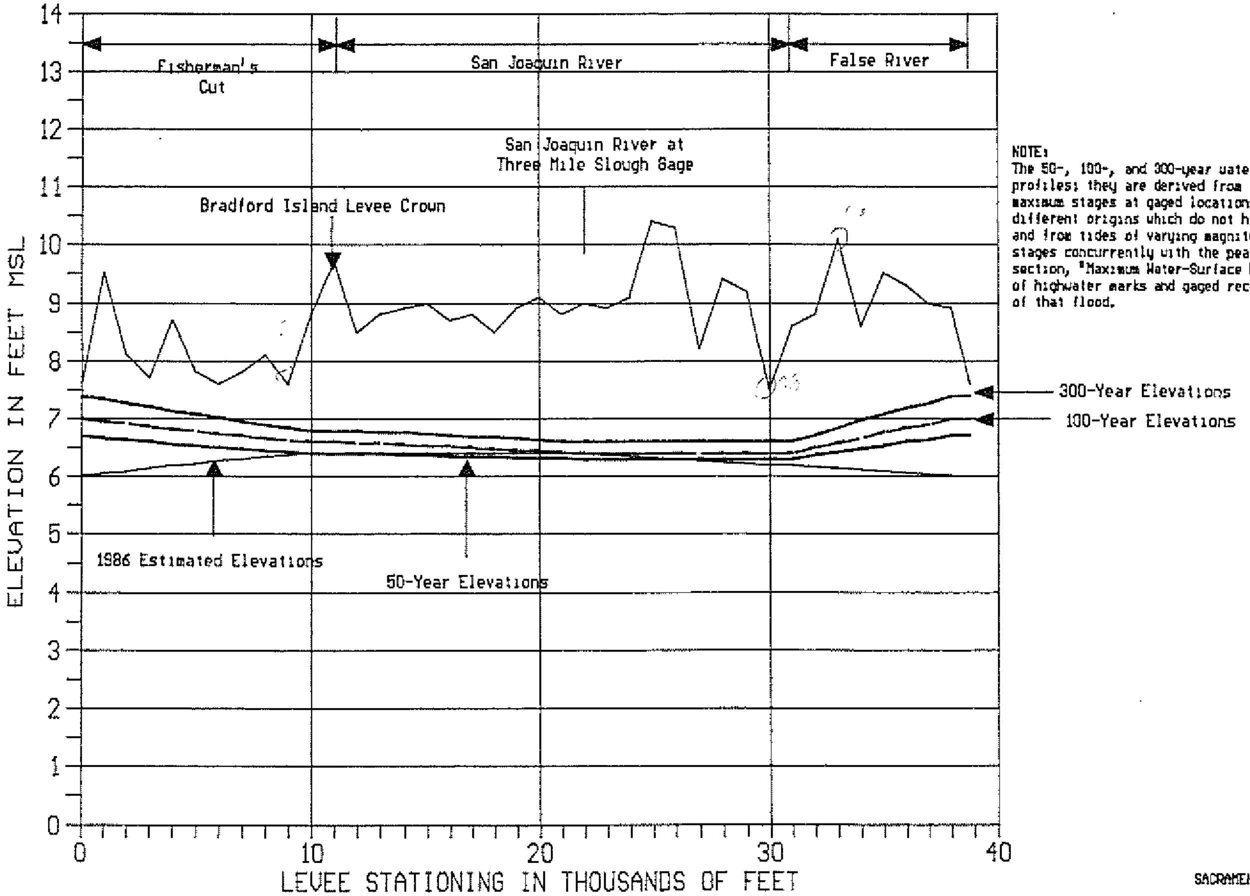
RECLAMATION DISTRICT 2033

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
BRACK TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 31 SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

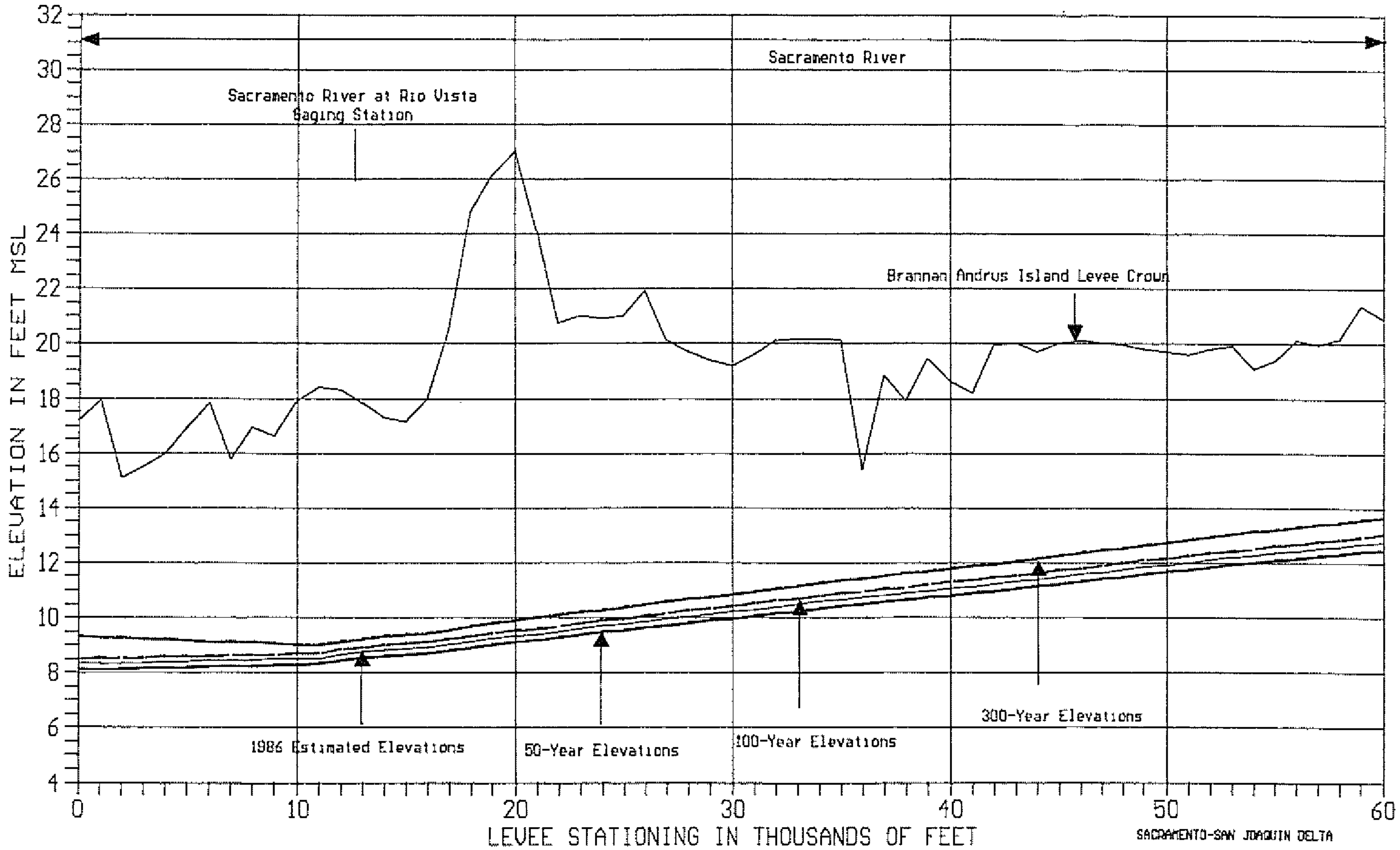
RECLAMATION DISTRICT 2059

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
BRADFORD ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 32 SHEET 1 OF 1



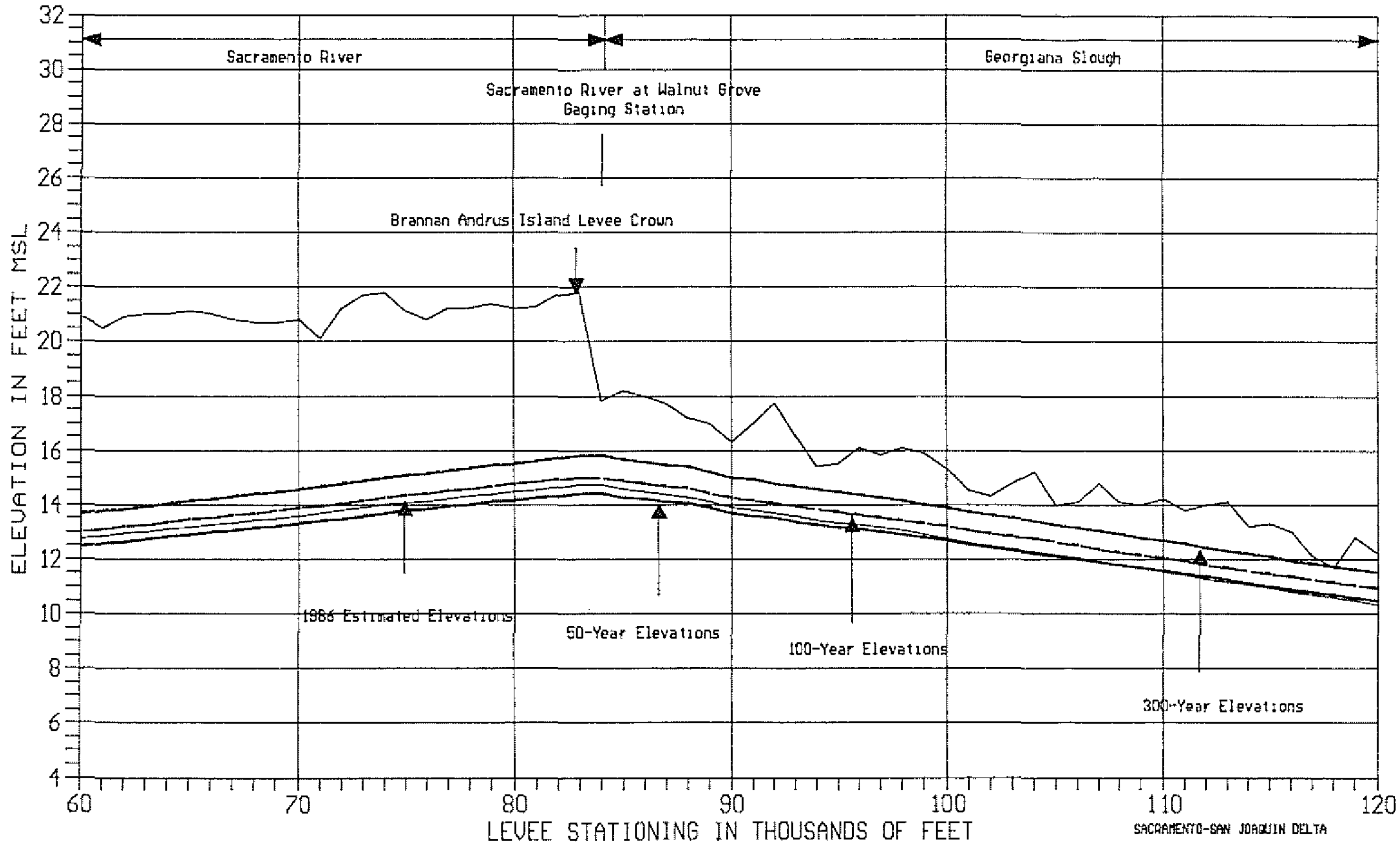
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
BRANNAN ANDRUS ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 33 SHEET 1 OF 4



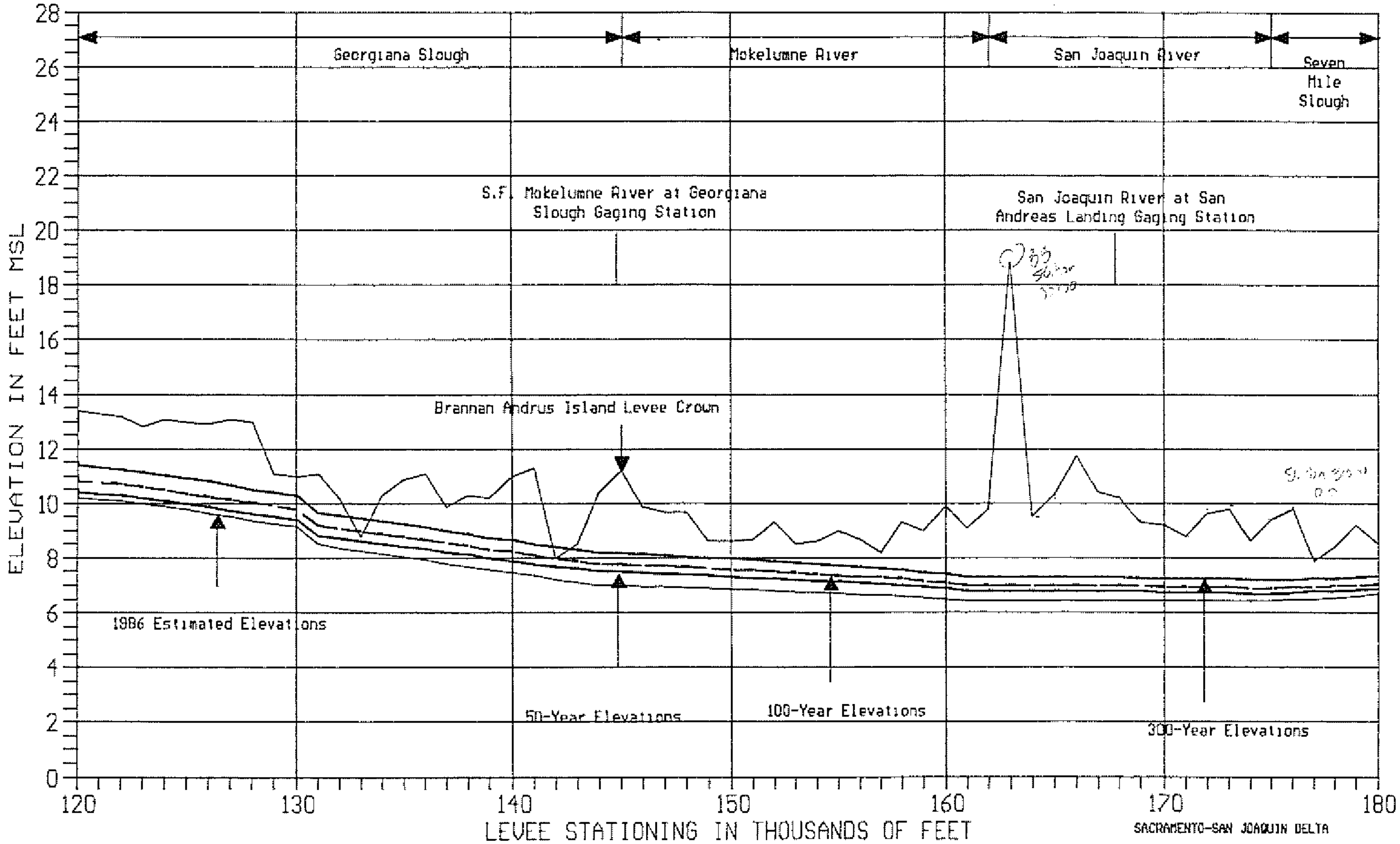
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
BRANNAN ANDRUS ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 33 SHEET 2 OF 4



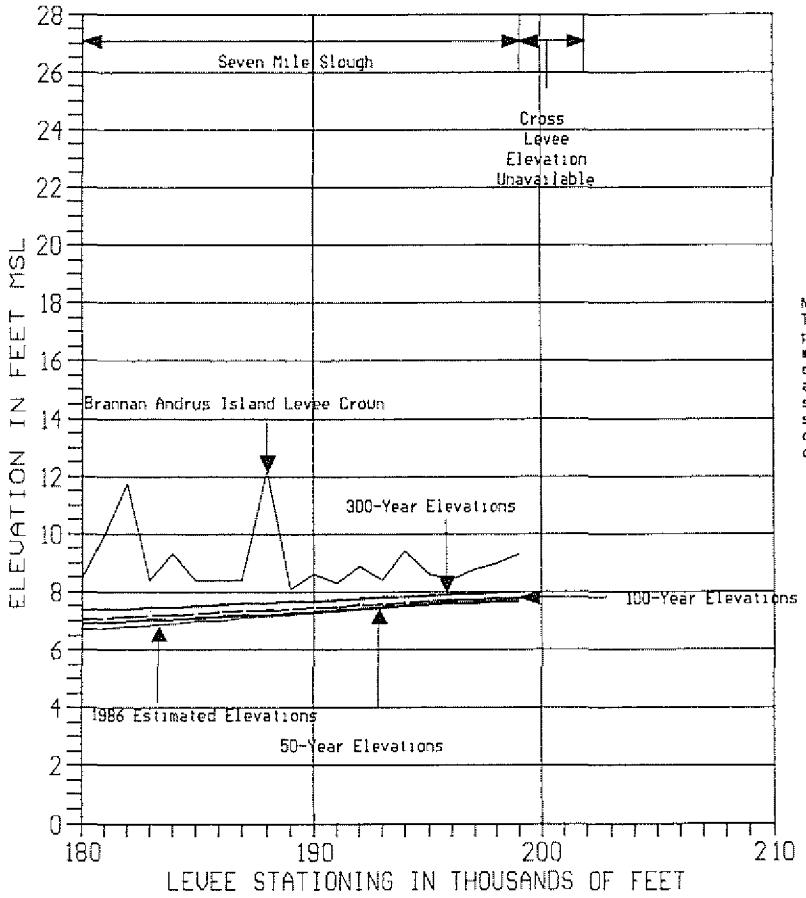
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
BRANNAN ANDRUS ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 33 SHEET 3 OF 4



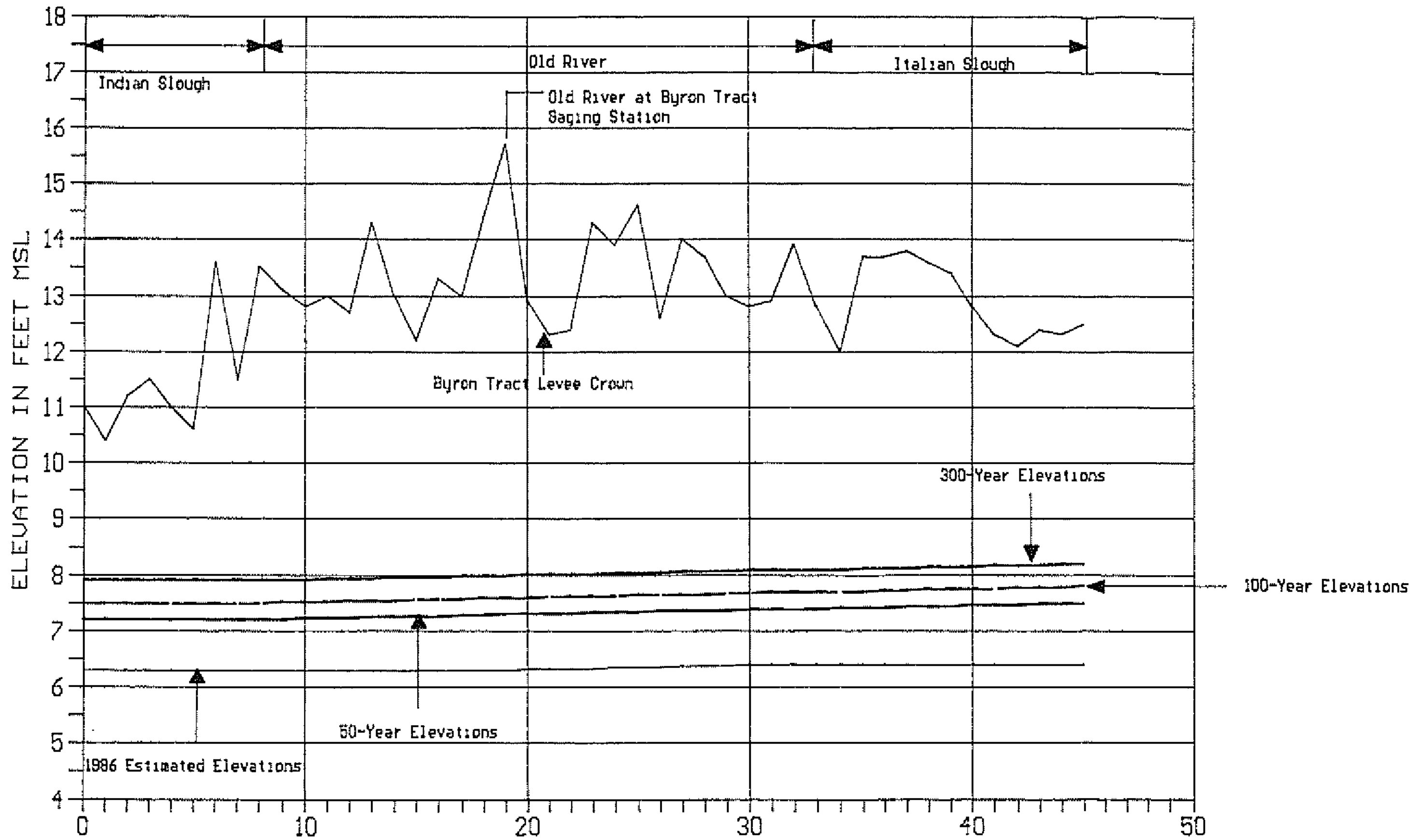
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
BRANNAN ANDRUS ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 33 SHEET 4 OF 4



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

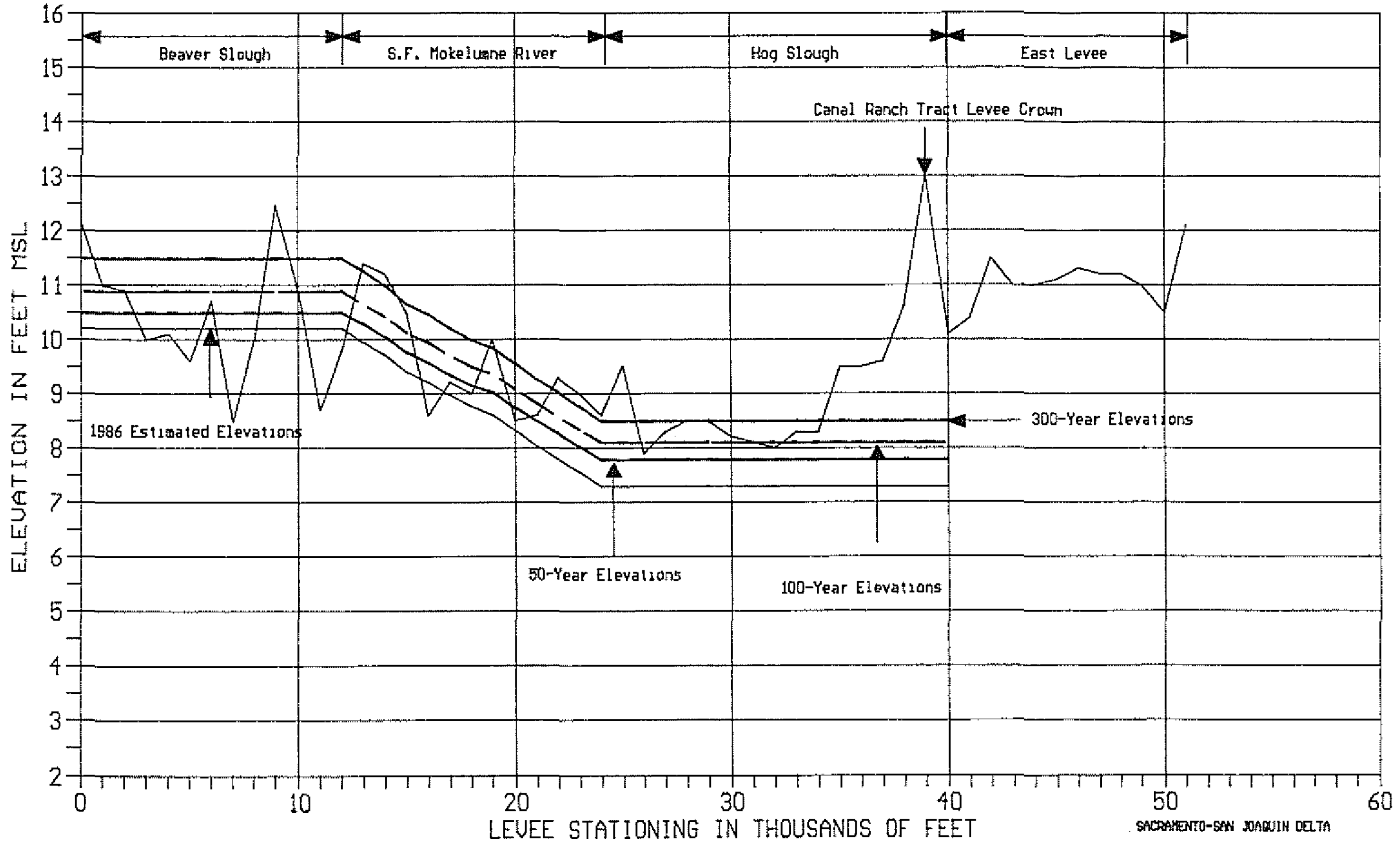
RECLAMATION DISTRICT 800

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
BYRON TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 34 SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

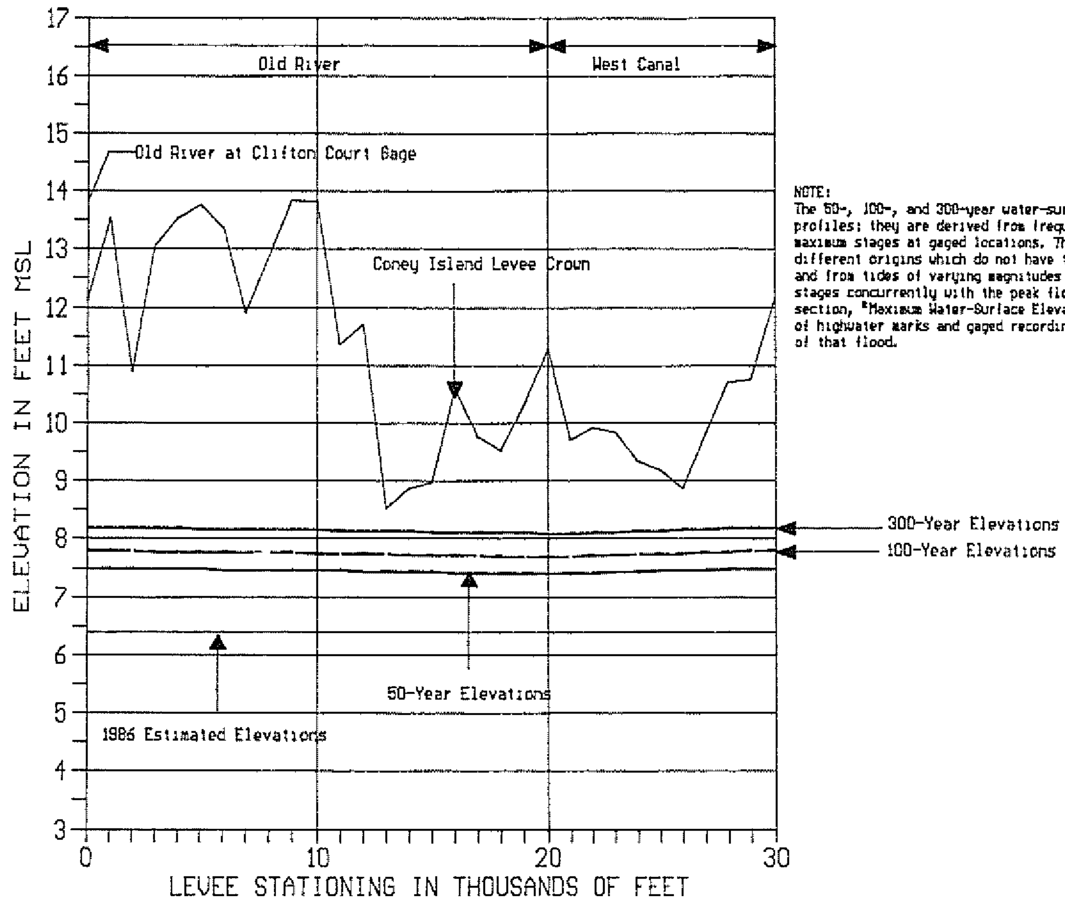
RECLAMATION DISTRICT 2086

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
CANAL RANCH TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 35 SHEET 1 OF 1



RECLAMATION DISTRICT 2117

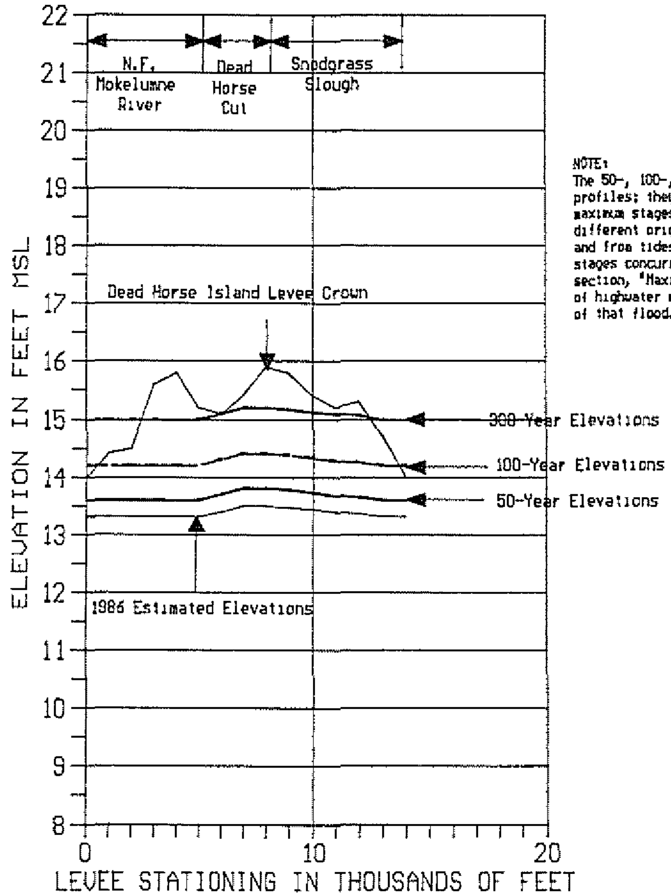
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
CONEY ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 36 SHEET 1 OF 1



RECLAMATION DISTRICT 2111

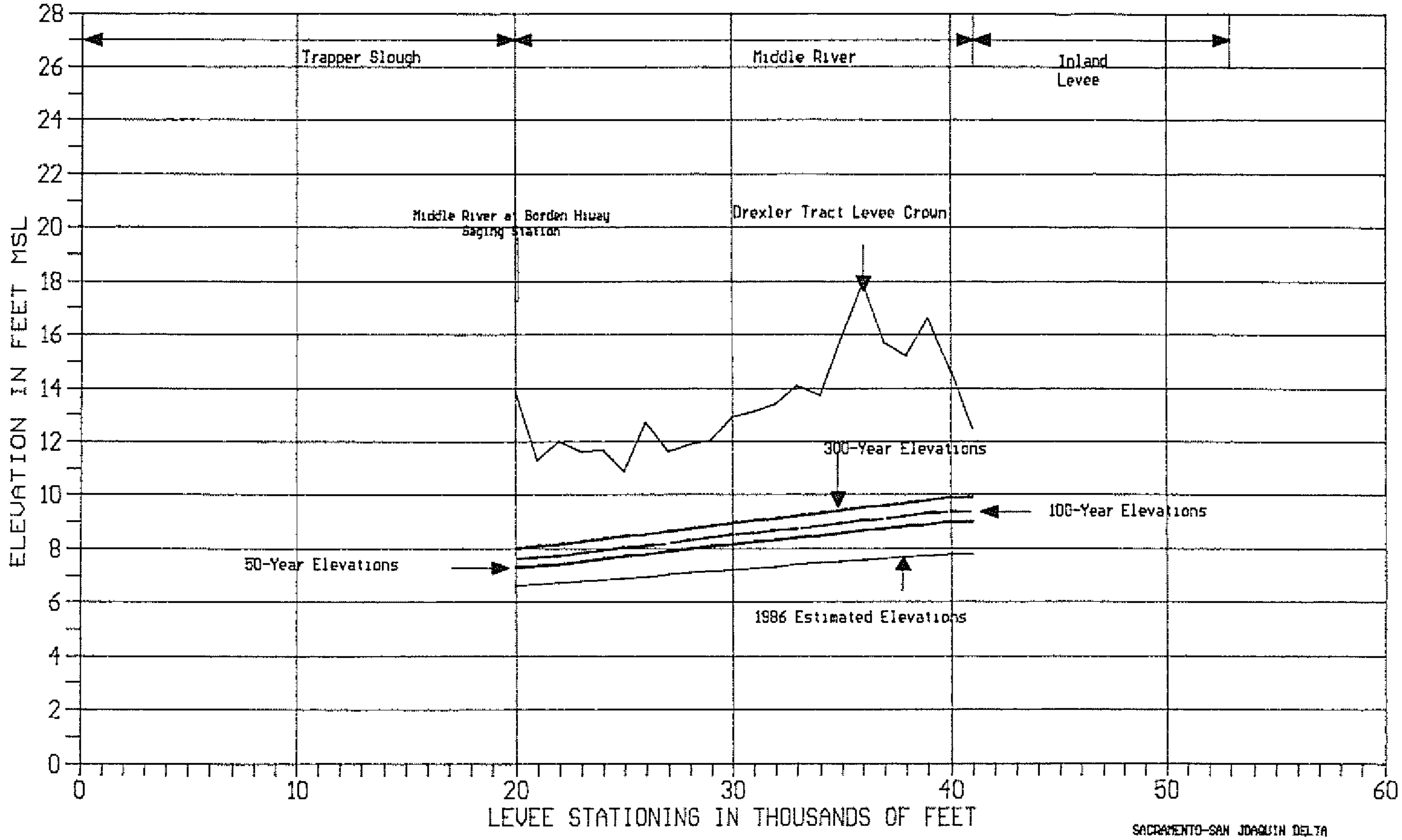
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
DEADHORSE ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 37 SHEET 1 OF 1



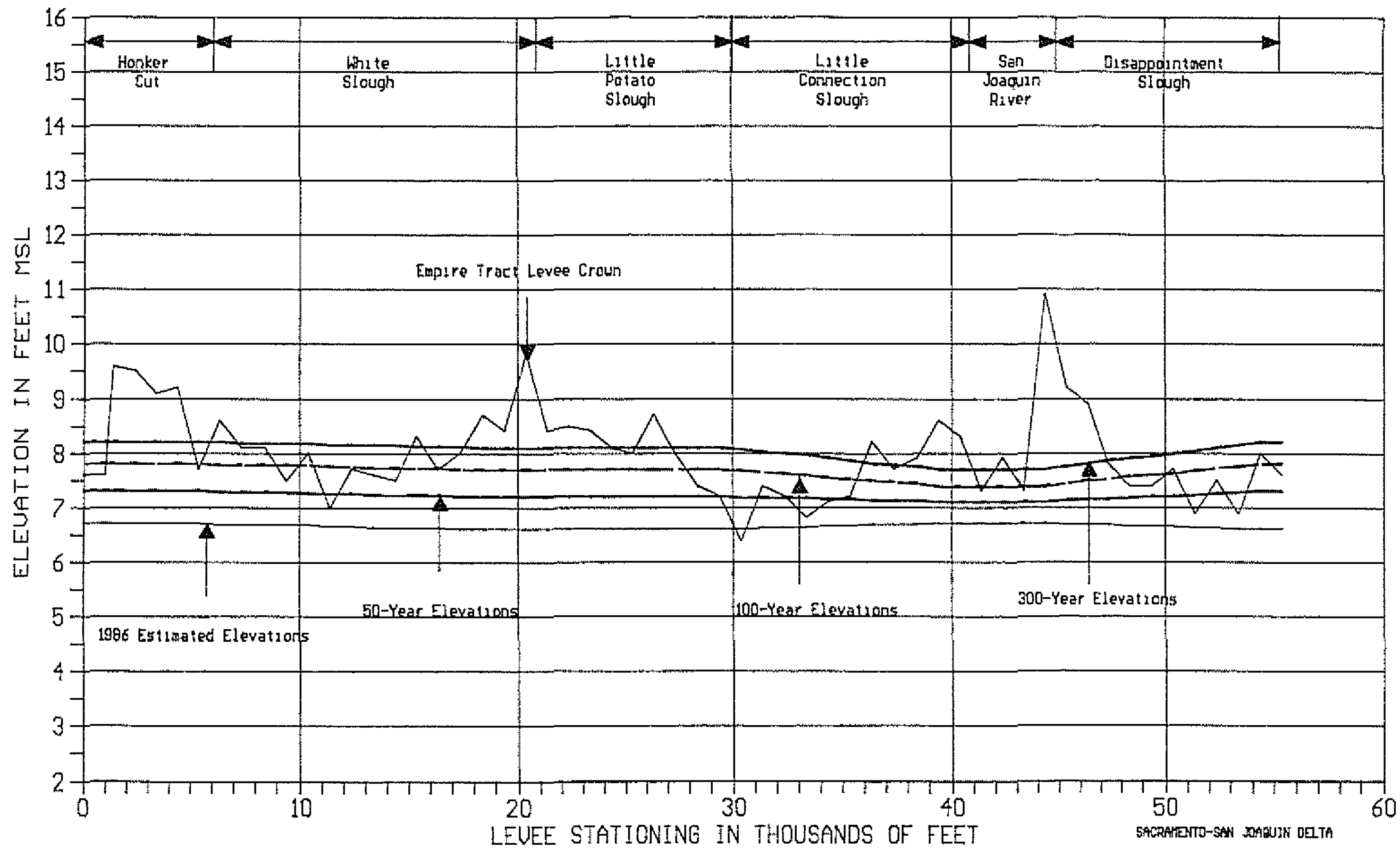
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
DREXLER TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 37A SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles: they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

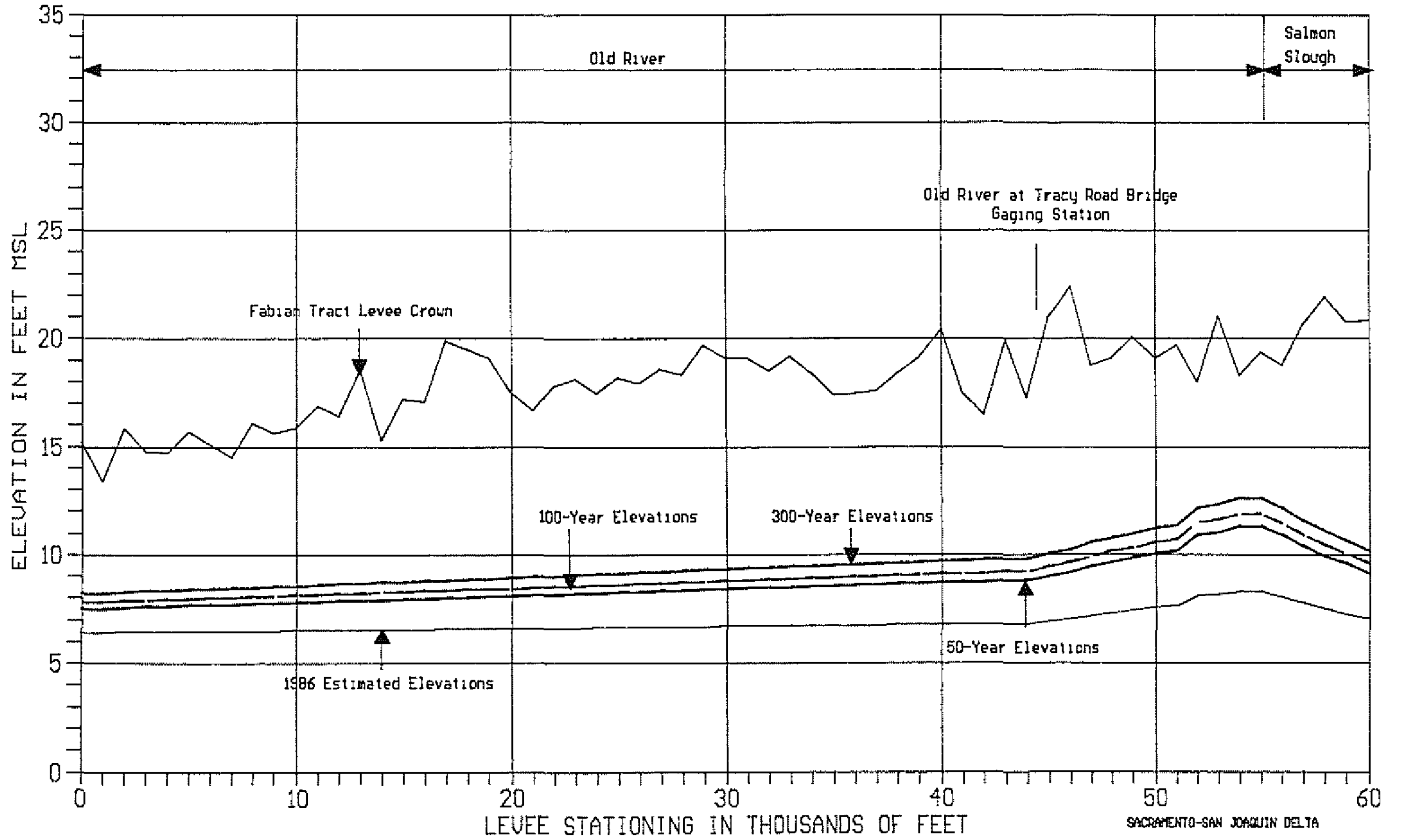
RECLAMATION DISTRICT 2029

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
EMPIRE TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 38 SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

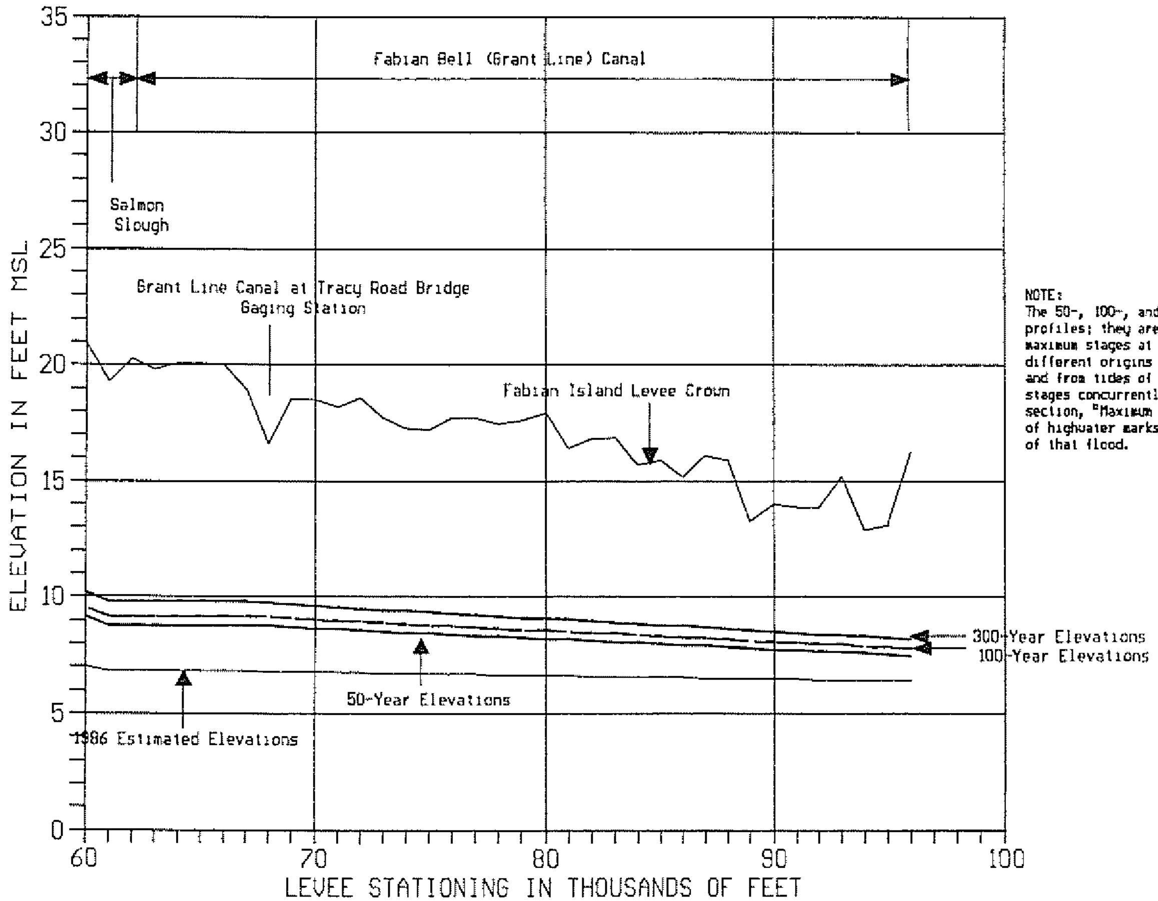
RECLAMATION DISTRICT 773

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
FABIAN TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 39 SHEET 1 OF 2



RECLAMATION DISTRICT 773

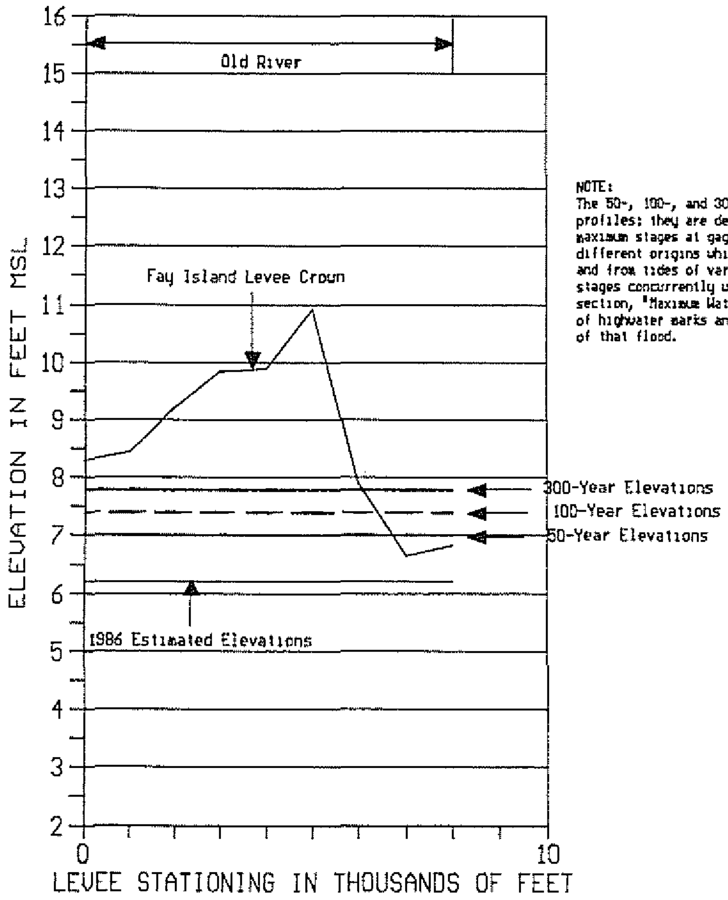
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
FABIAN TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 39 SHEET 2 OF 2



RECLAMATION DISTRICT 2113

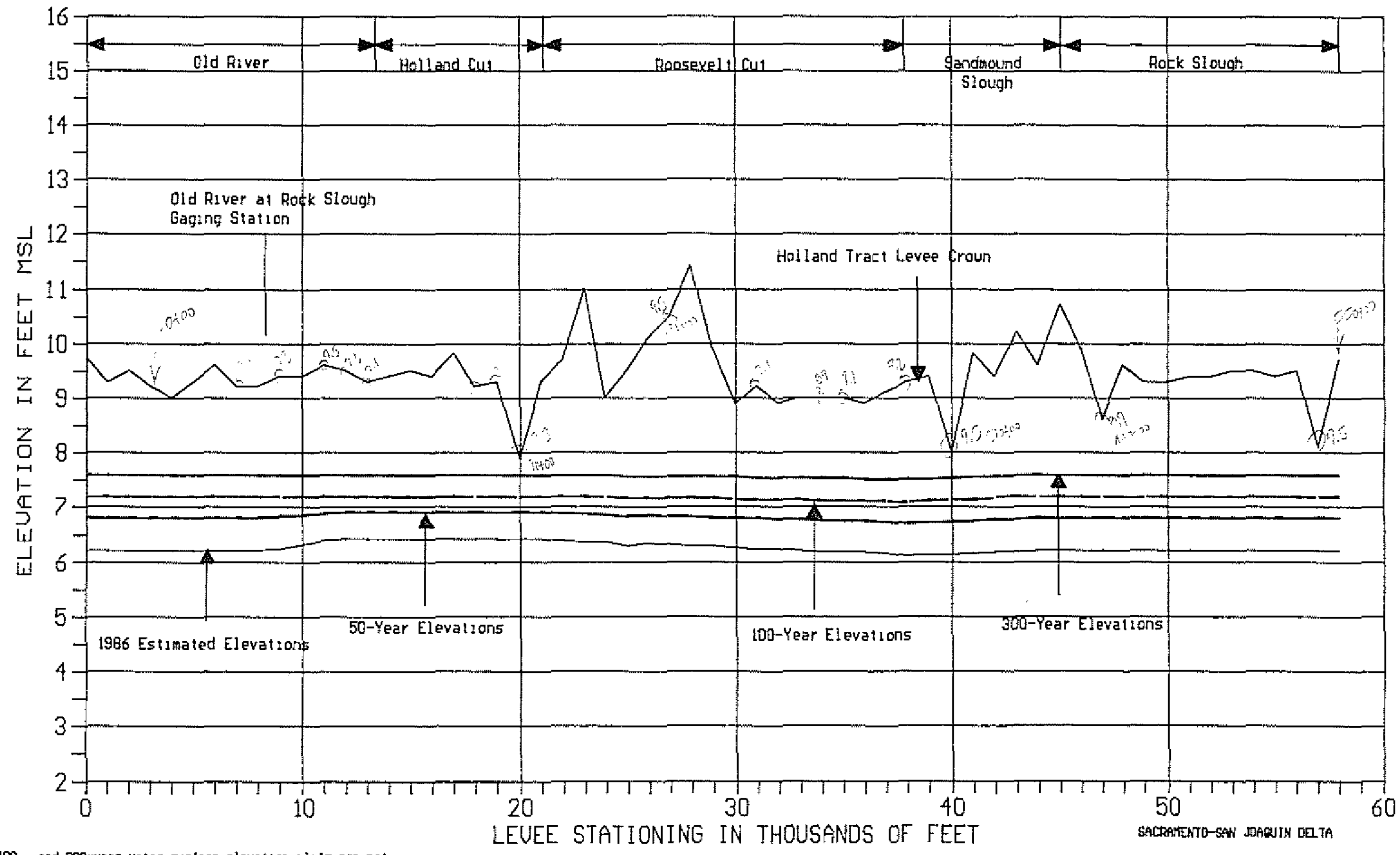
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles: they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
FAY ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 40 SHEET 1 OF 1



SACRAMENTO-SAN JOAQUIN DELTA

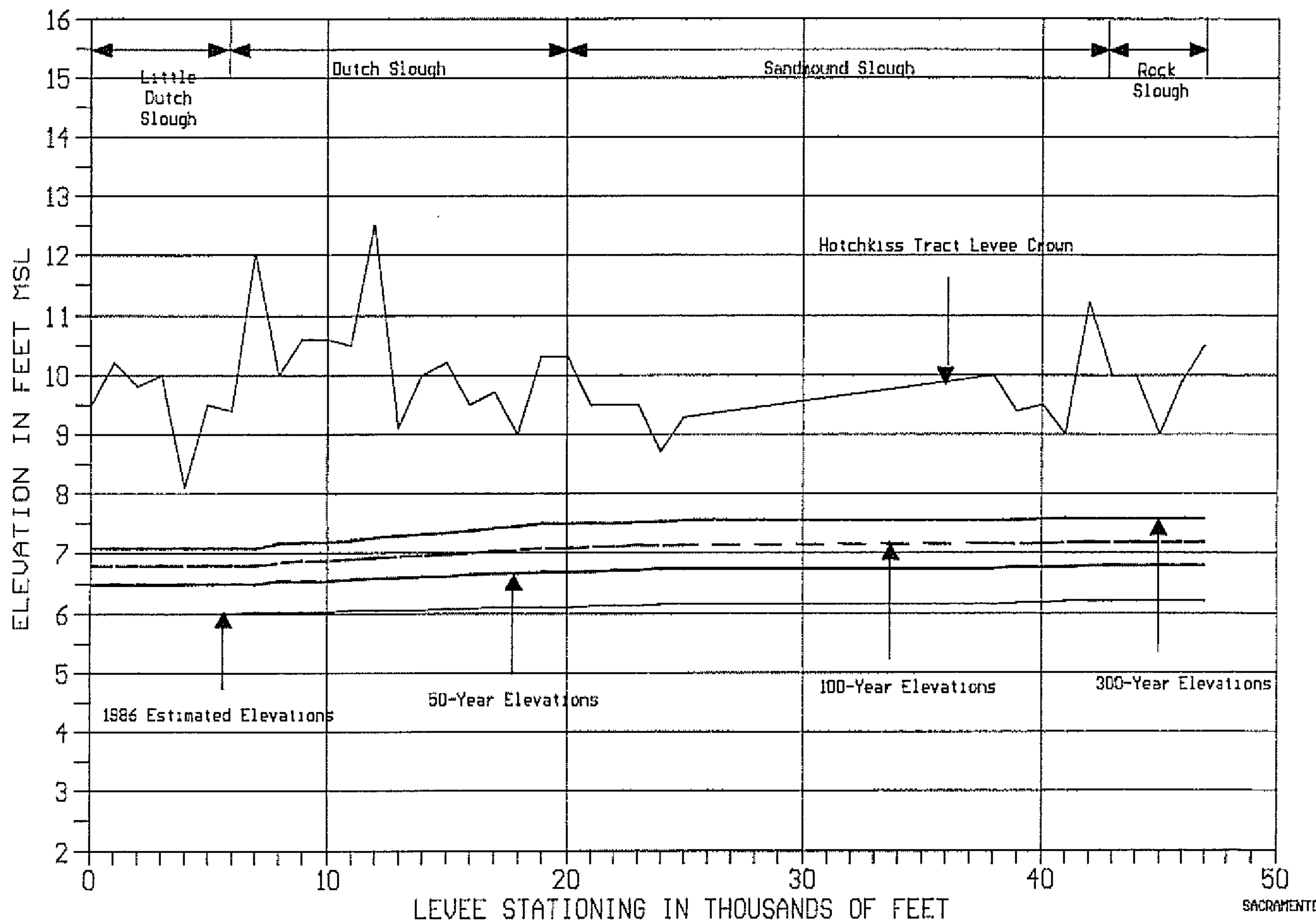
MAXIMUM WATER SURFACE ELEVATIONS
HOLLAND TRACT

RECLAMATION DISTRICT 2025

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 41 SHEET 1 OF 1

NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles: they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

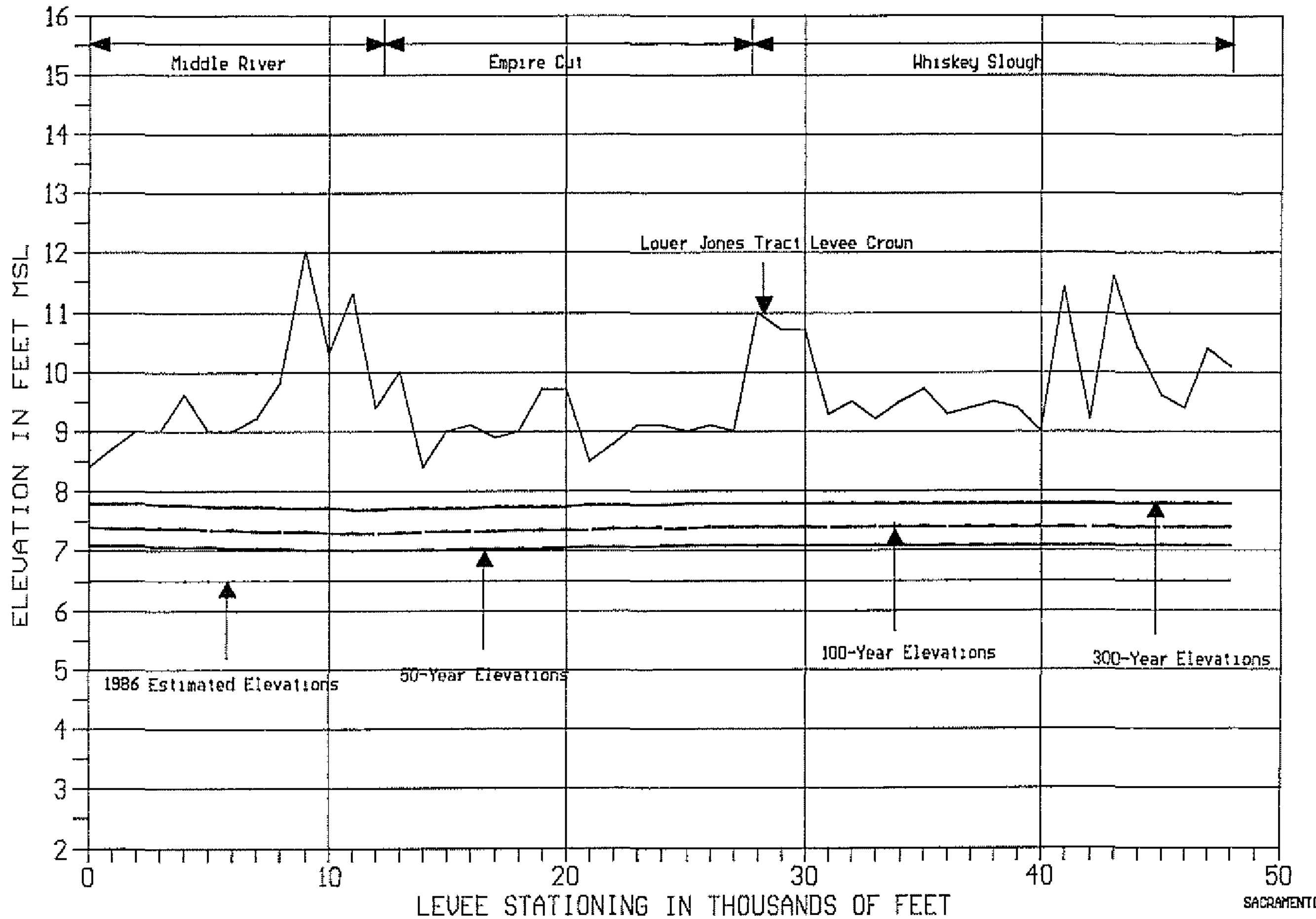
RECLAMATION DISTRICT 799

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
HOTCHKISS TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 42 SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

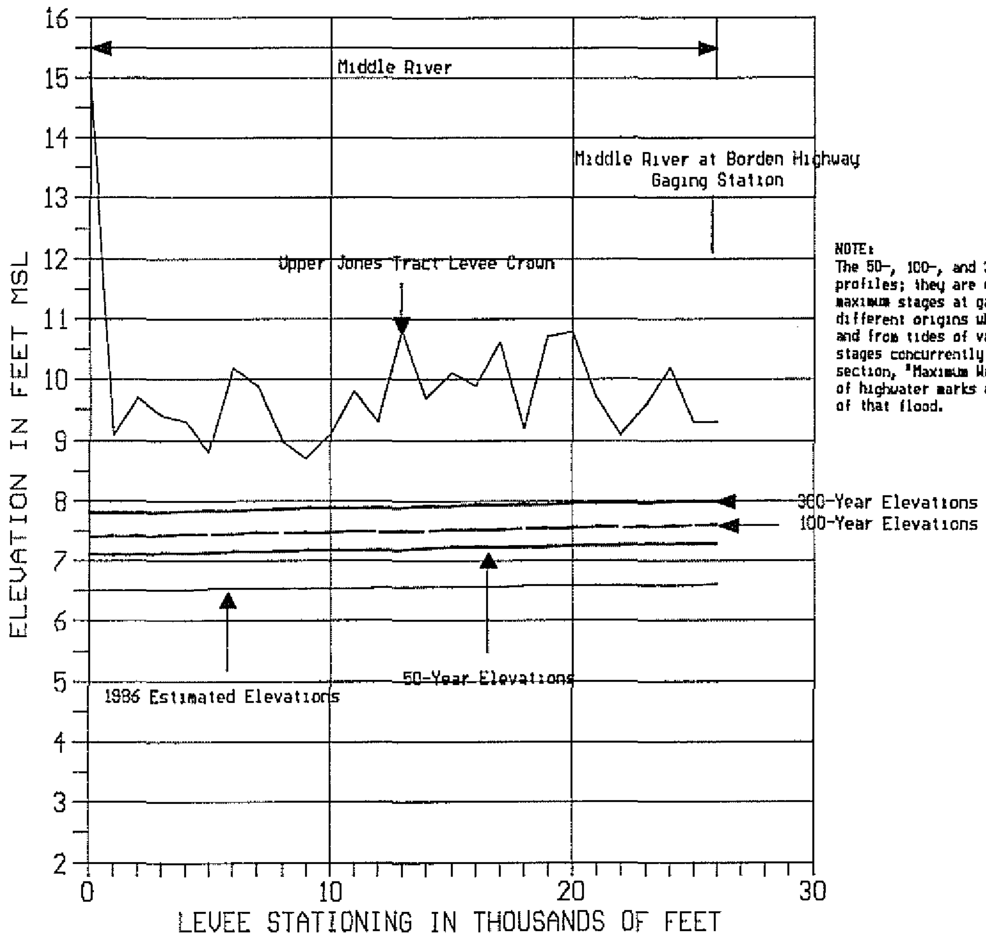
RECLAMATION DISTRICT 2038

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
LOWER JONES TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 43 SHEET 1 OF 1



RECLAMATION DISTRICT 2039

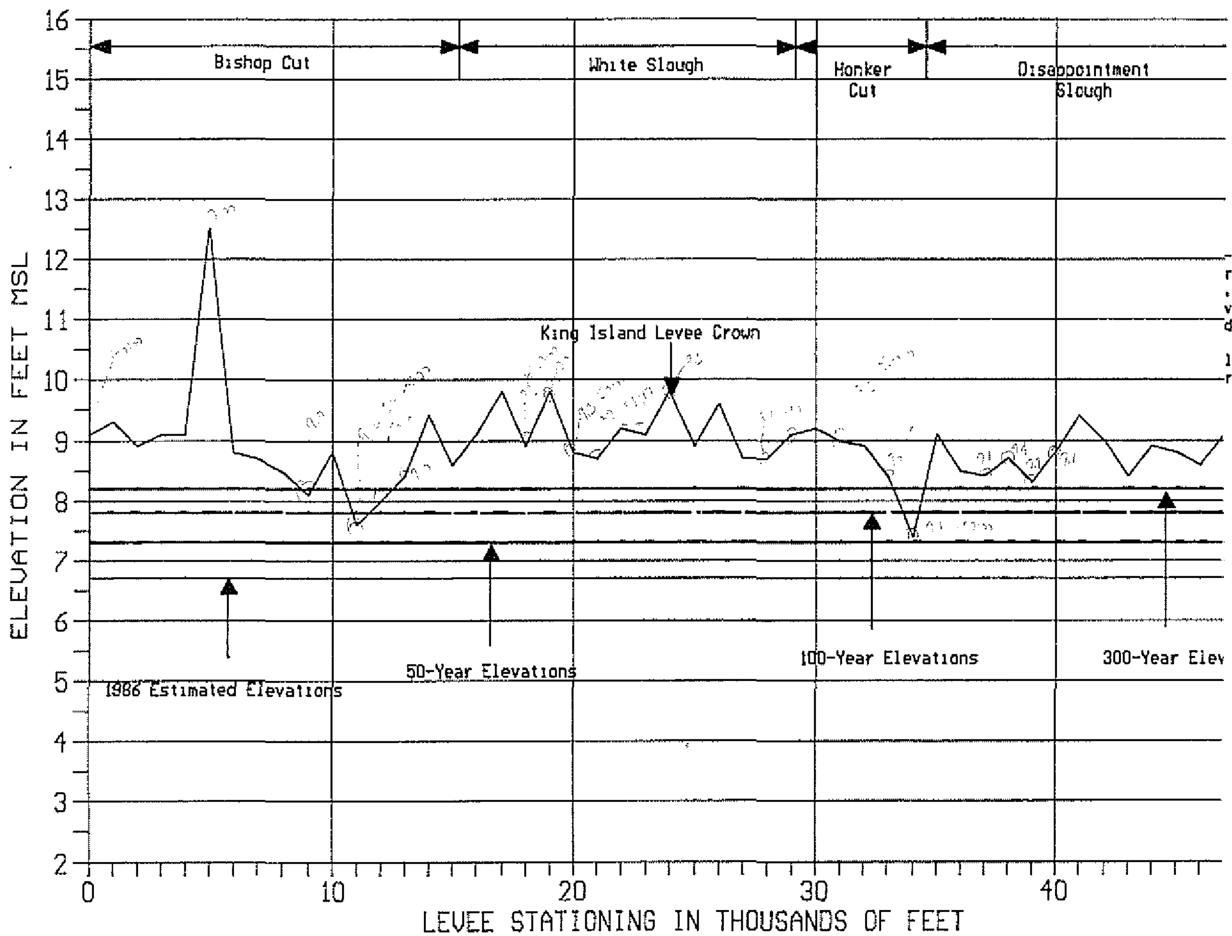
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
UPPER JONES TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 44 SHEET 1 OF 1



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flows. See explanation in text in
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rdings and represents the maximum stages

NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

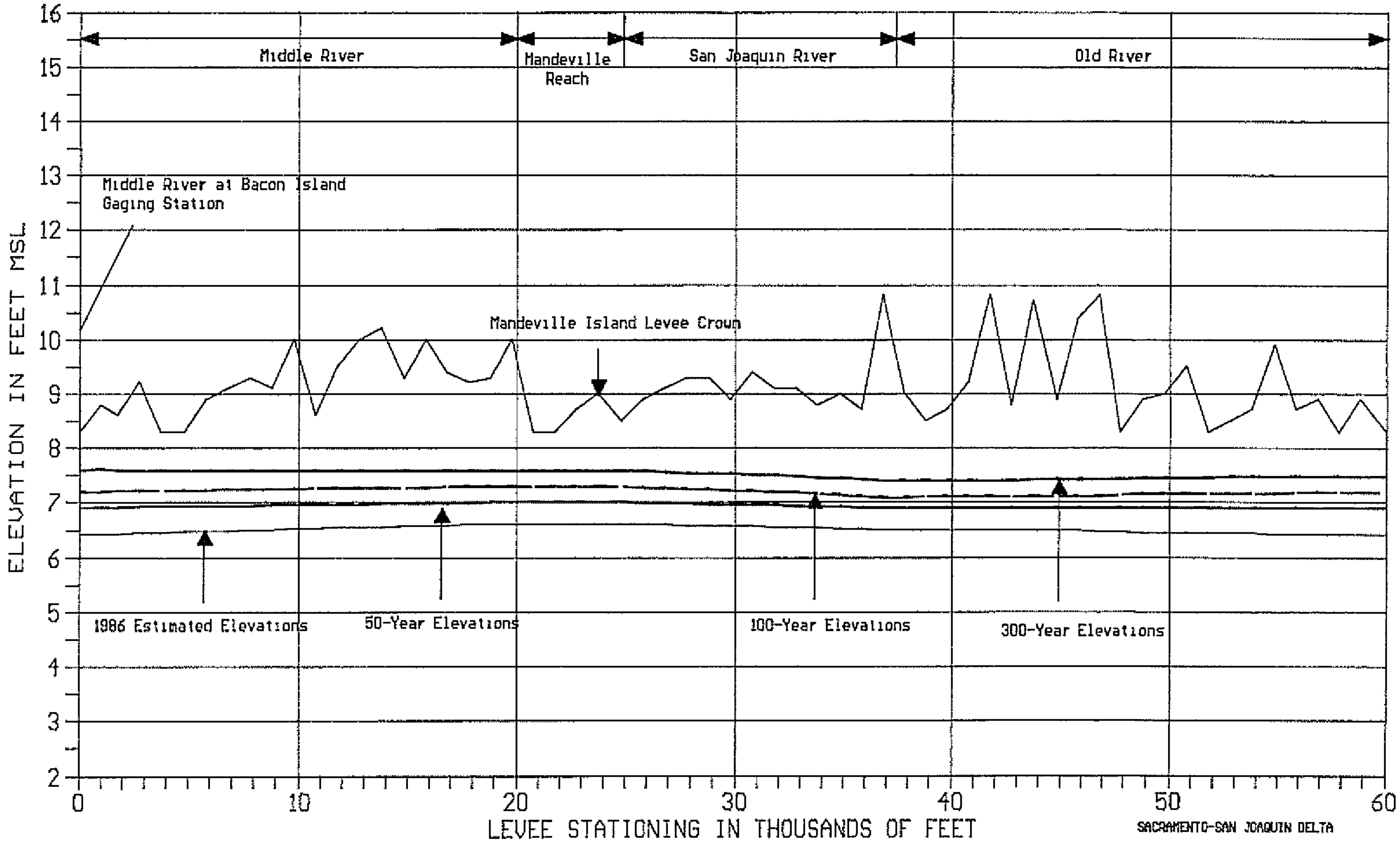
RECLAMATION DISTRICT 2044

SACRAMENTO-SAN JOAGUIN DELTA

MAXIMUM
MAXIMUM WATER SURFACE ELEVATIONS
LITTLE MANDEVILLE TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 46 SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

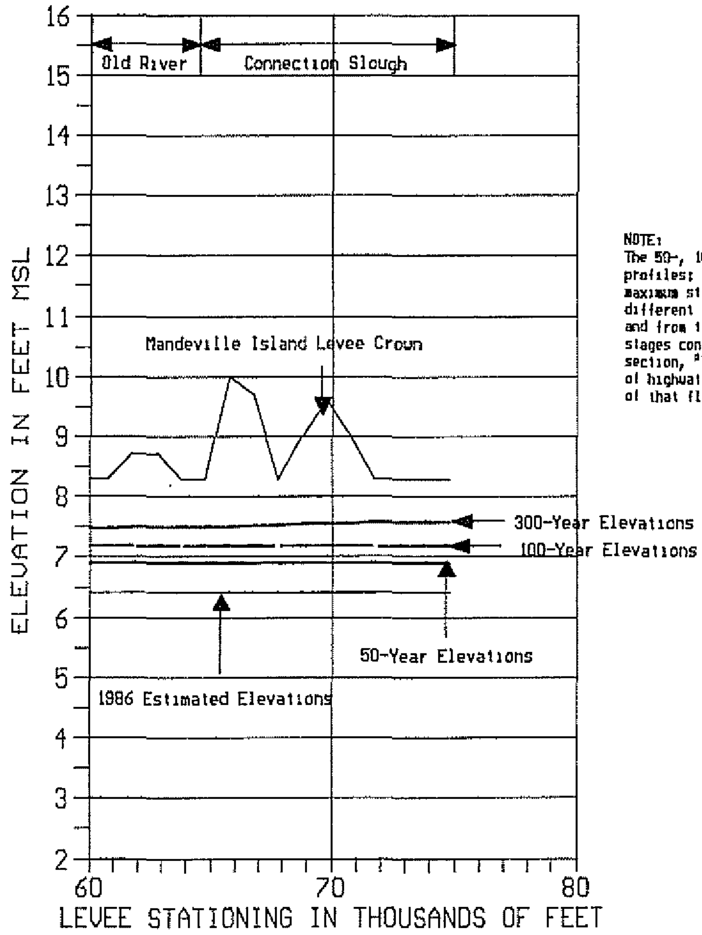
RECLAMATION DISTRICT 2027

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
MANDEVILLE ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 47 SHEET 1 OF 2



RECLAMATION DISTRICT 2027

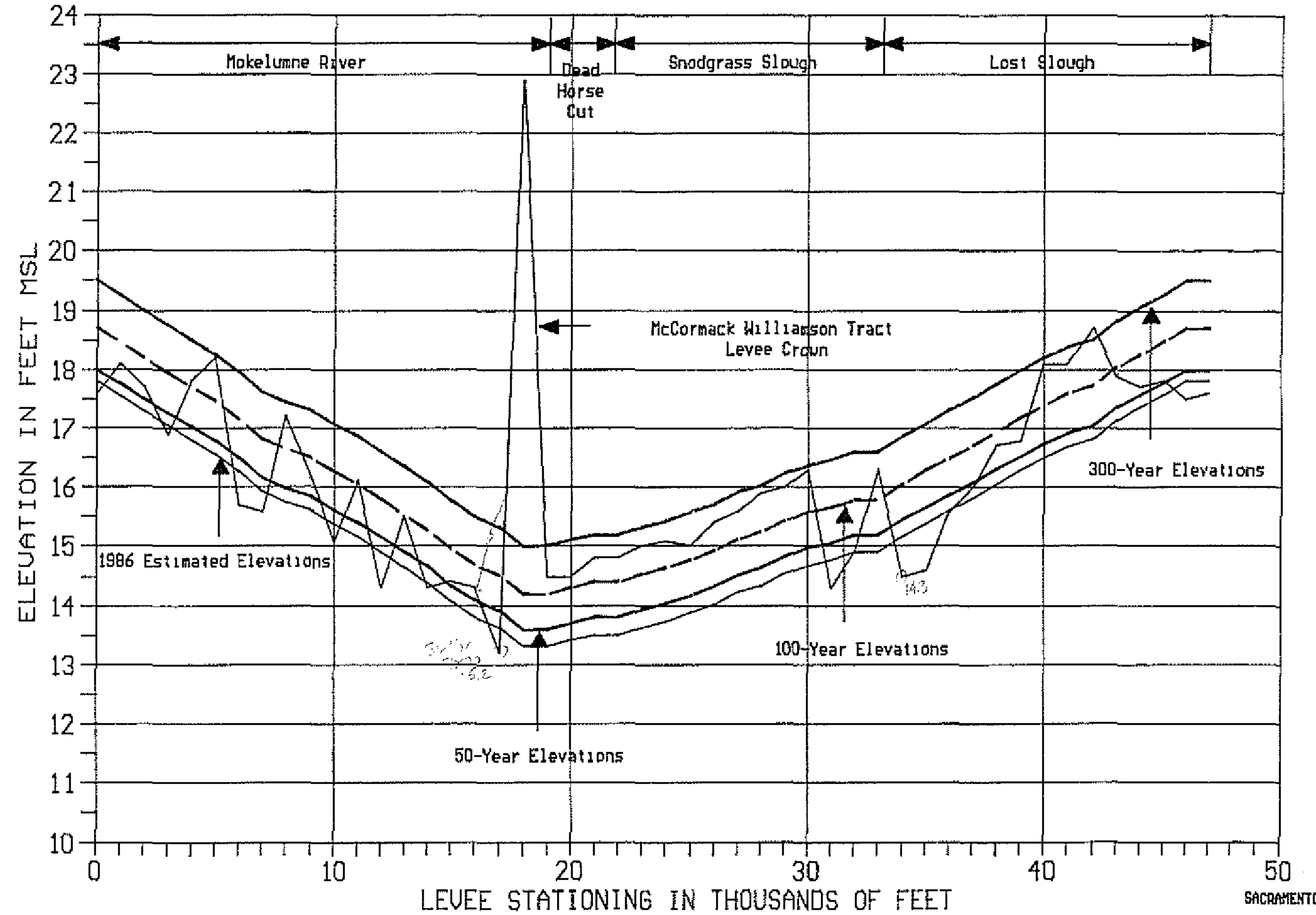
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
MANDEVILLE ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 47 SHEET 2 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

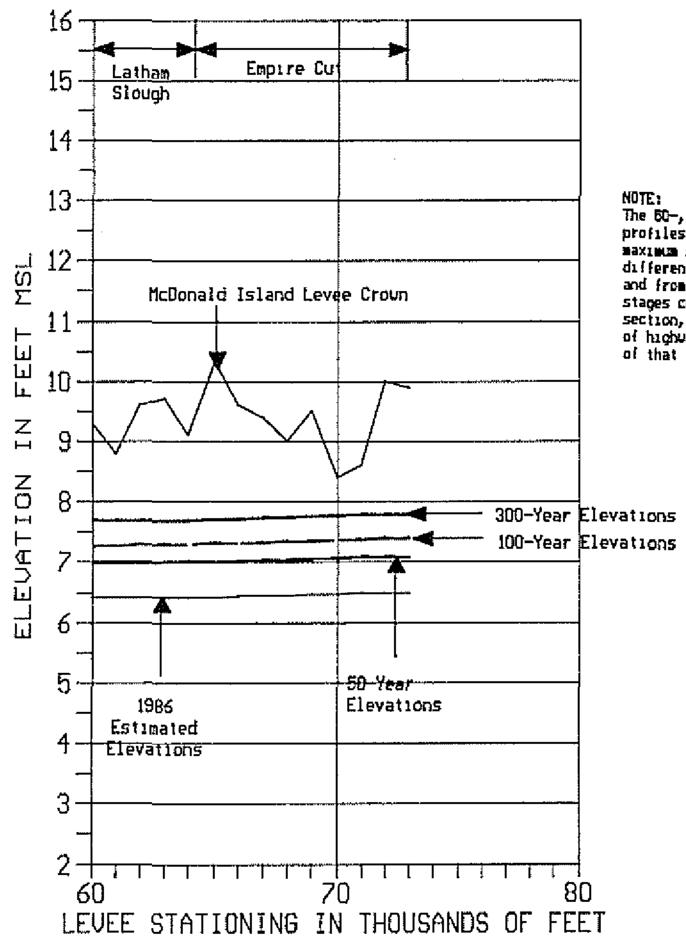
RECLAMATION DISTRICT 2110

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
McCORMACK WILLIAMSON TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 48 SHEET 1 OF 1



RECLAMATION DISTRICT 2030

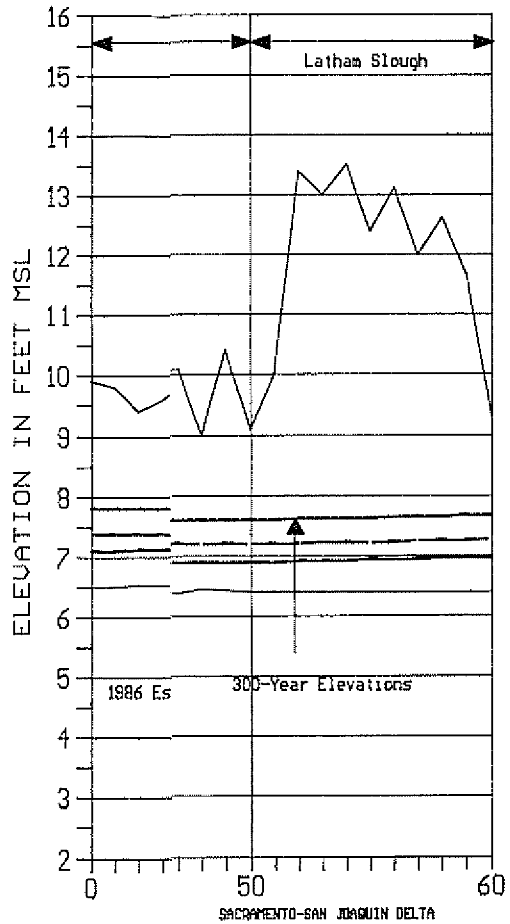
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
McDONALD ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 49 SHEET 2 OF 2



NOTE:
The 50-, 100-, and 300-year wate
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maximum stages at gaged location
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section, "Maximum Water-Surface I
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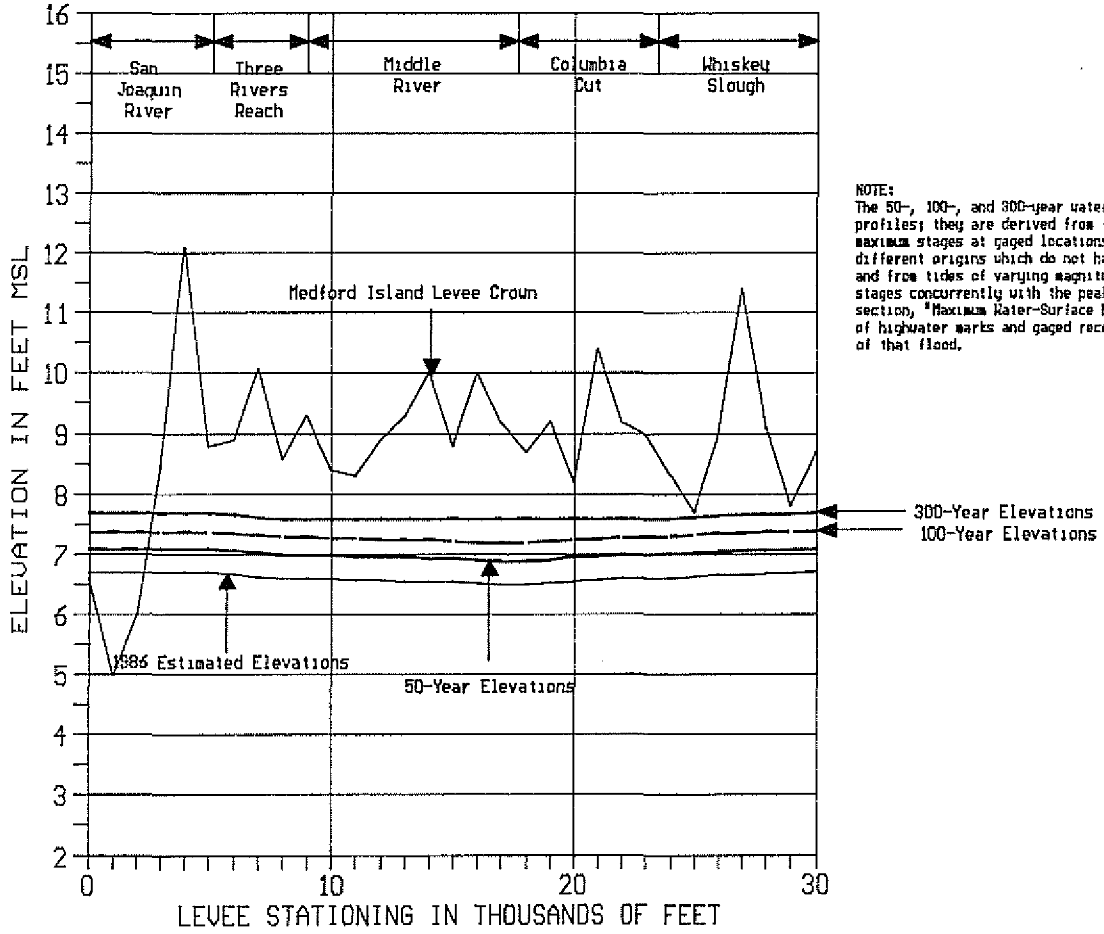
of that flood.

1 WATER SURFACE ELEVATIONS

McDONALD ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 49 SHEET 1 OF 2



RECLAMATION DISTRICT 2041

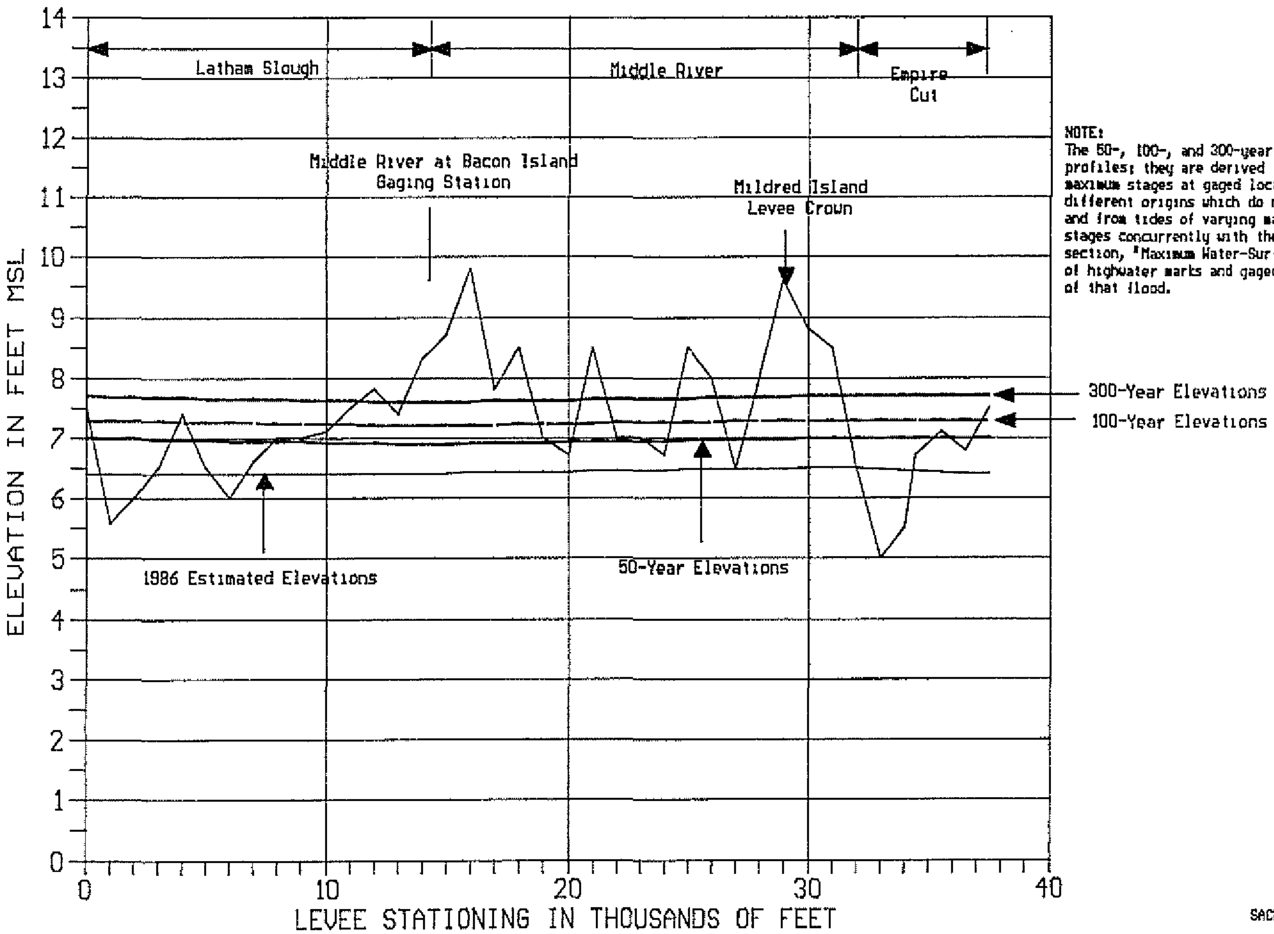
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
MEDFORD ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 50 SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

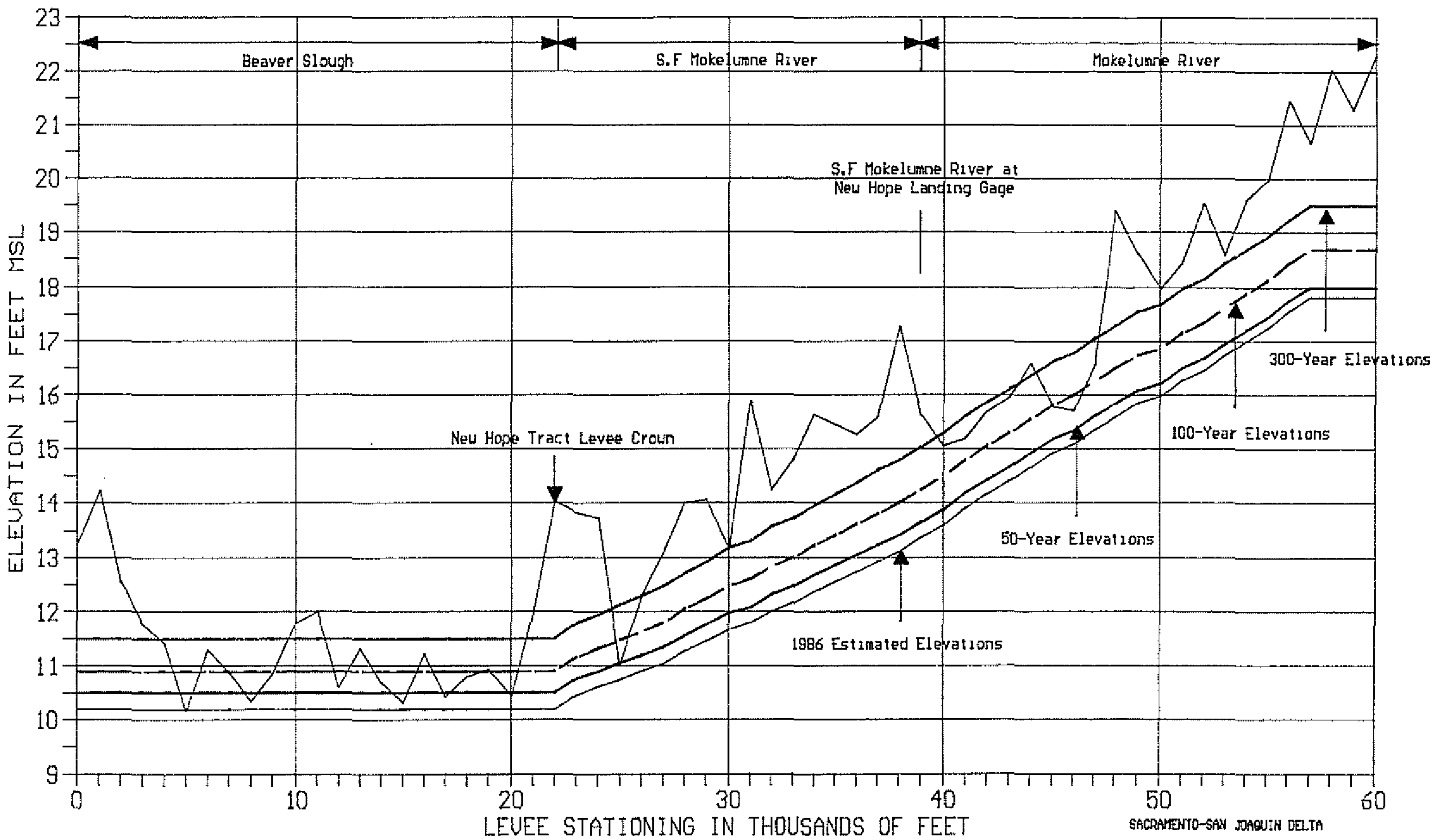
RECLAMATION DISTRICT 2021

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
MILDRED ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 50A SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

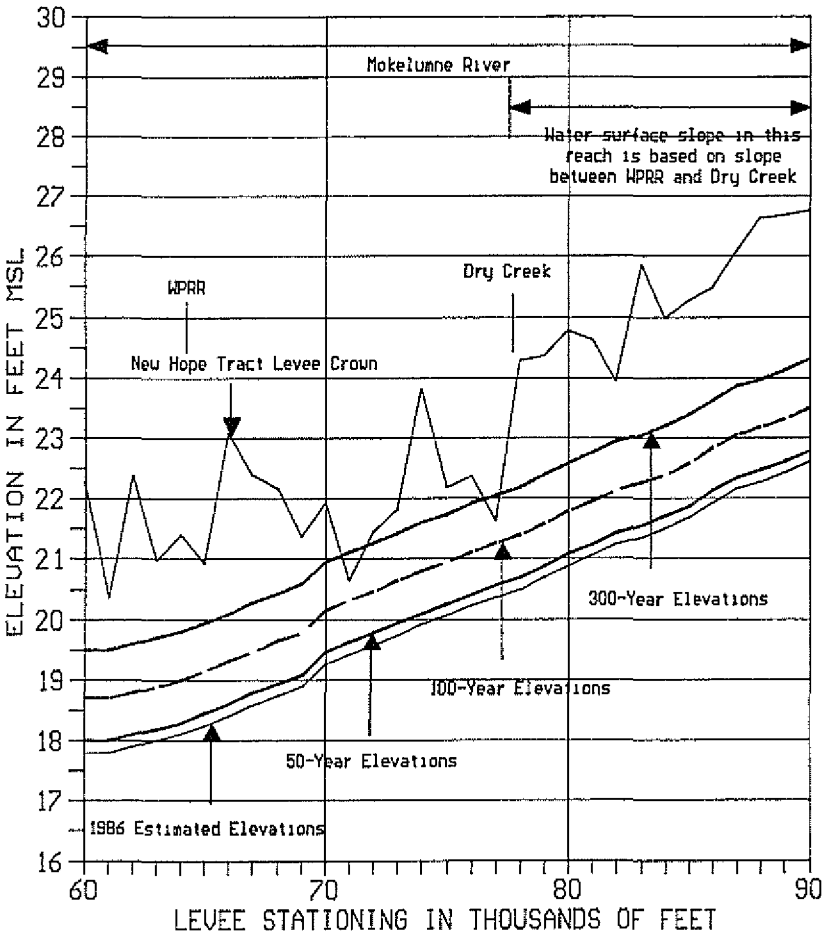
RECLAMATION DISTRICT 348

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
NEW HOPE TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 51 SHEET 1 OF 2



RECLAMATION DISTRICT 348

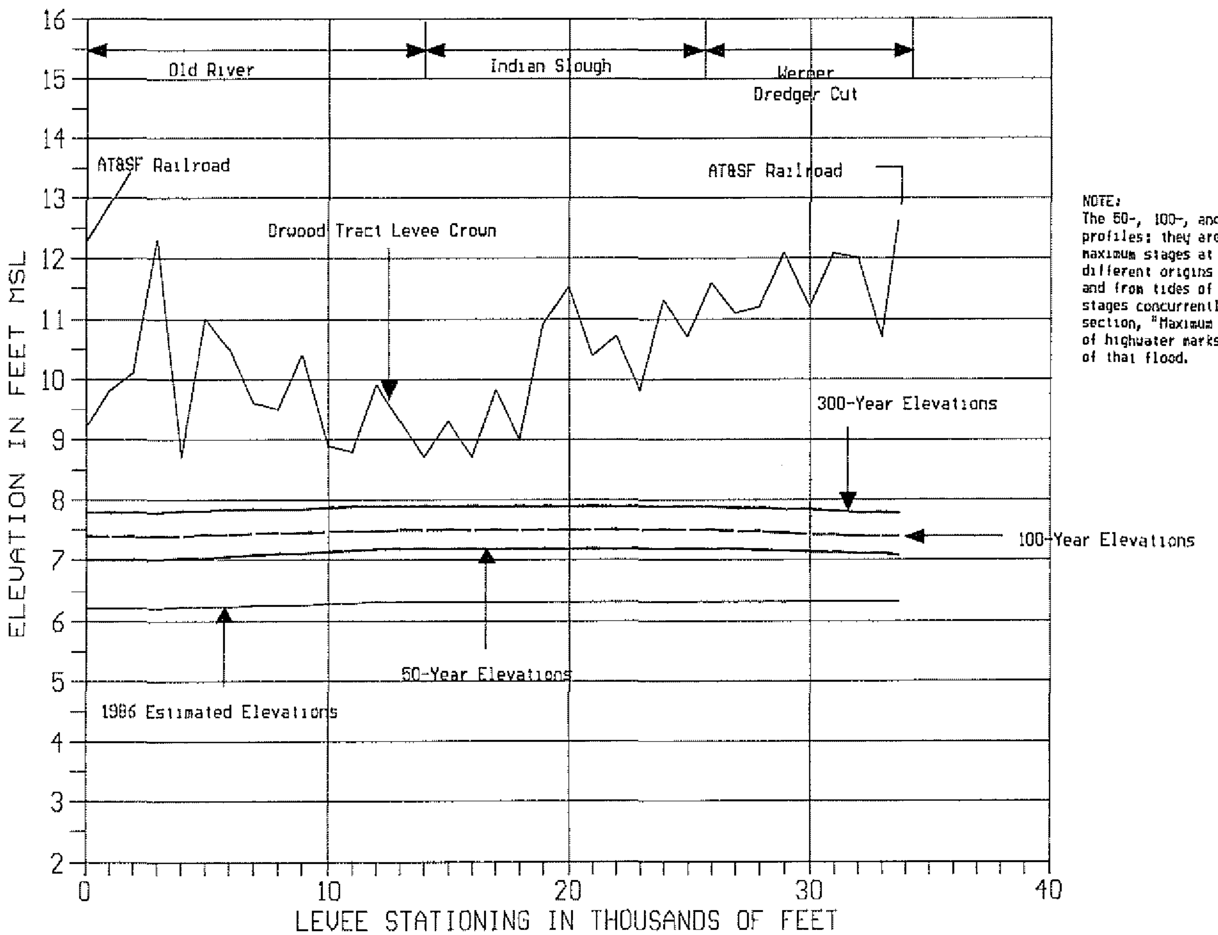
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
NEW HOPE TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 51 SHEET 2 OF 2



RECLAMATION DISTRICT 2024

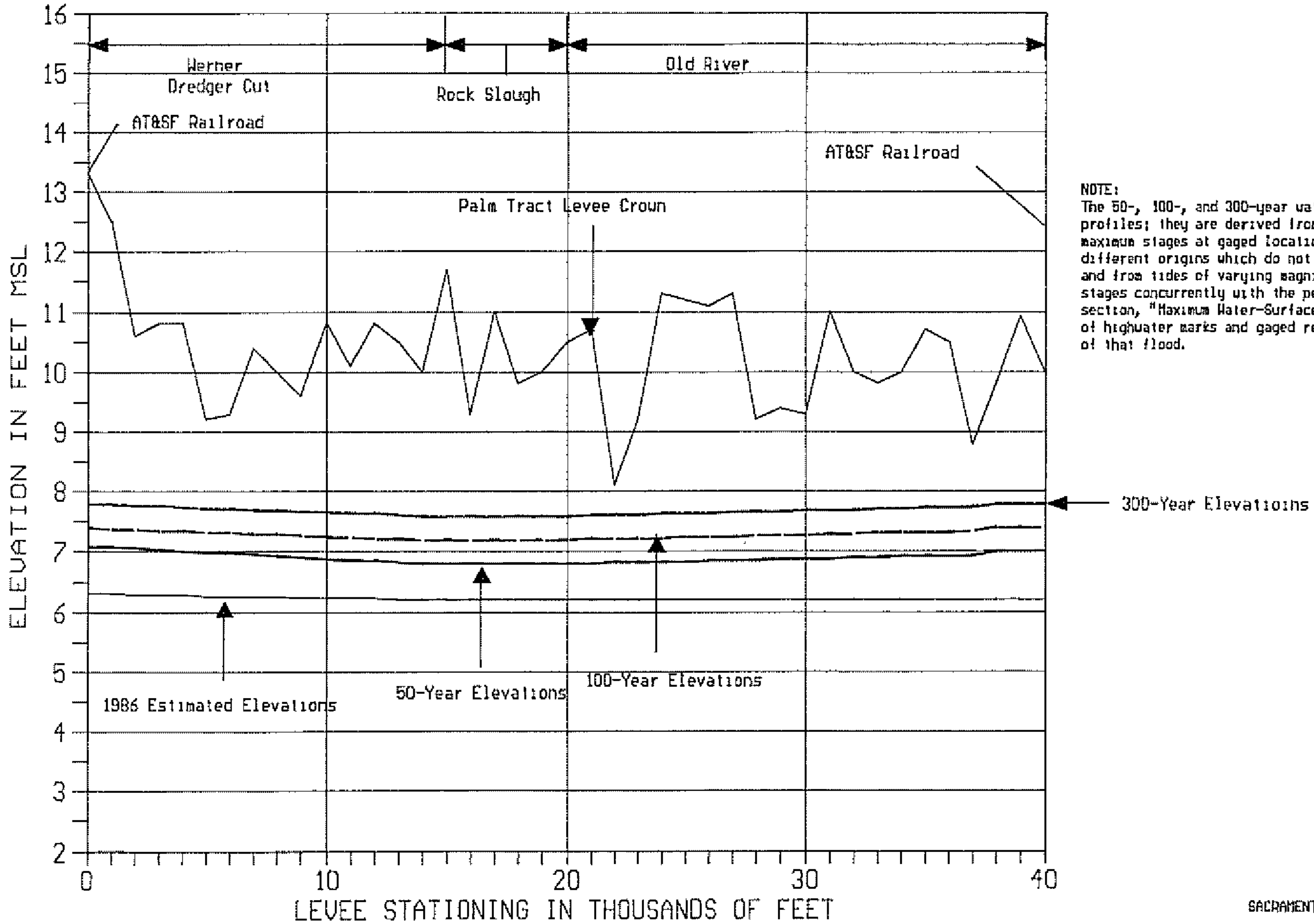
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
ORWOOD TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 52 SHEET 1 OF 1



RECLAMATION DISTRICT 2028

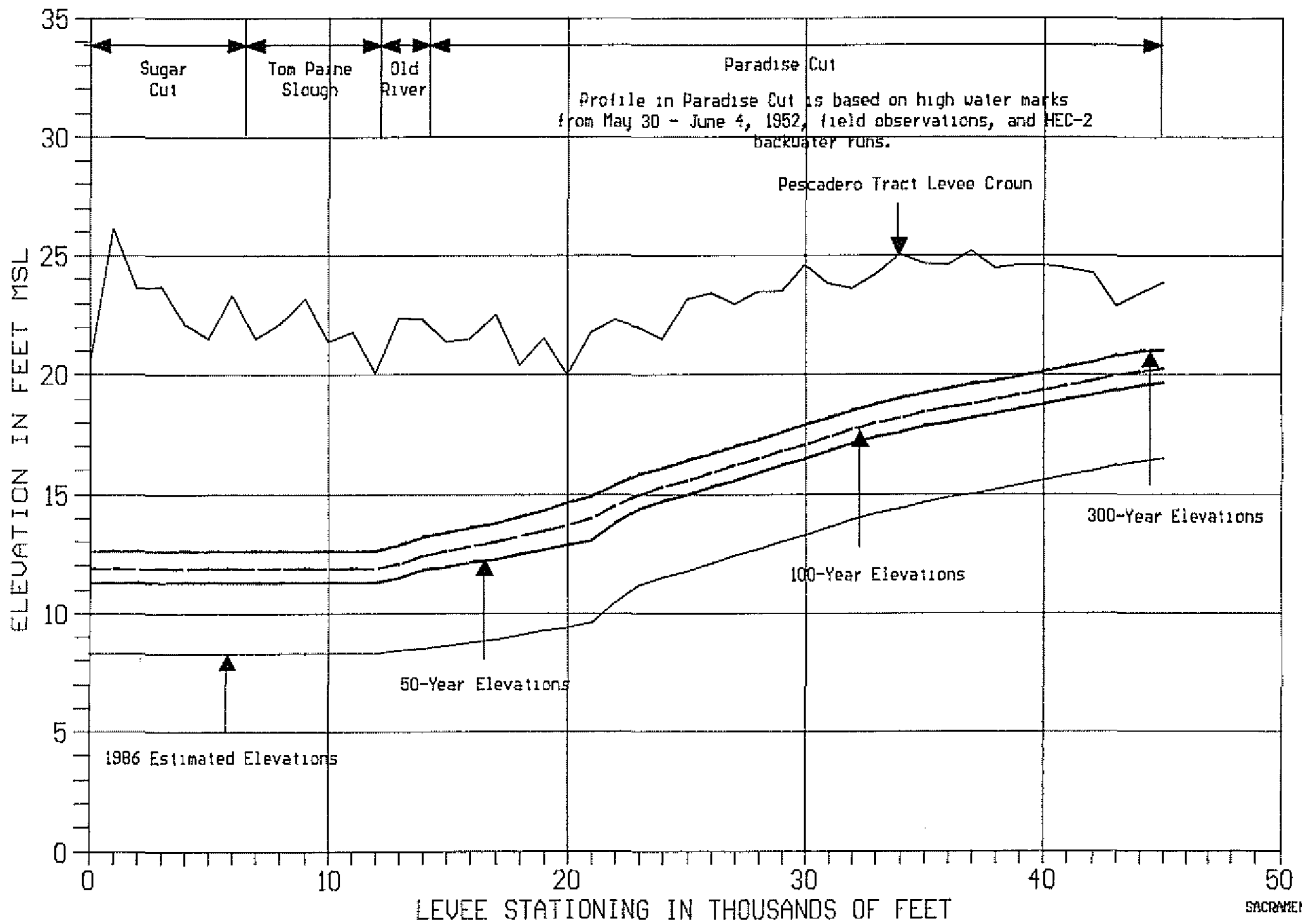
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
PALM TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 53 SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

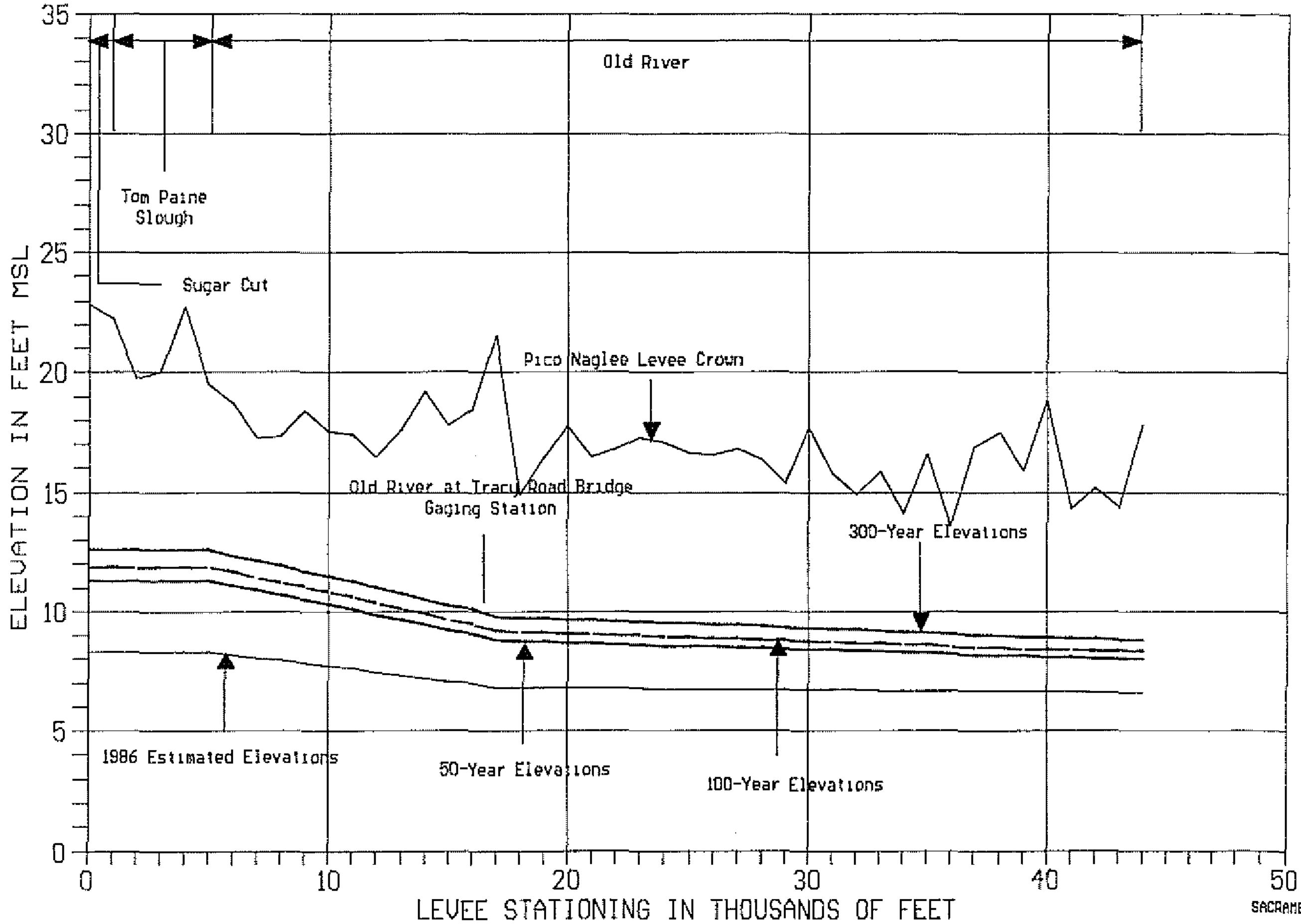
RECLAMATION DISTRICT 2058

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
PESCADERO TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 54 SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

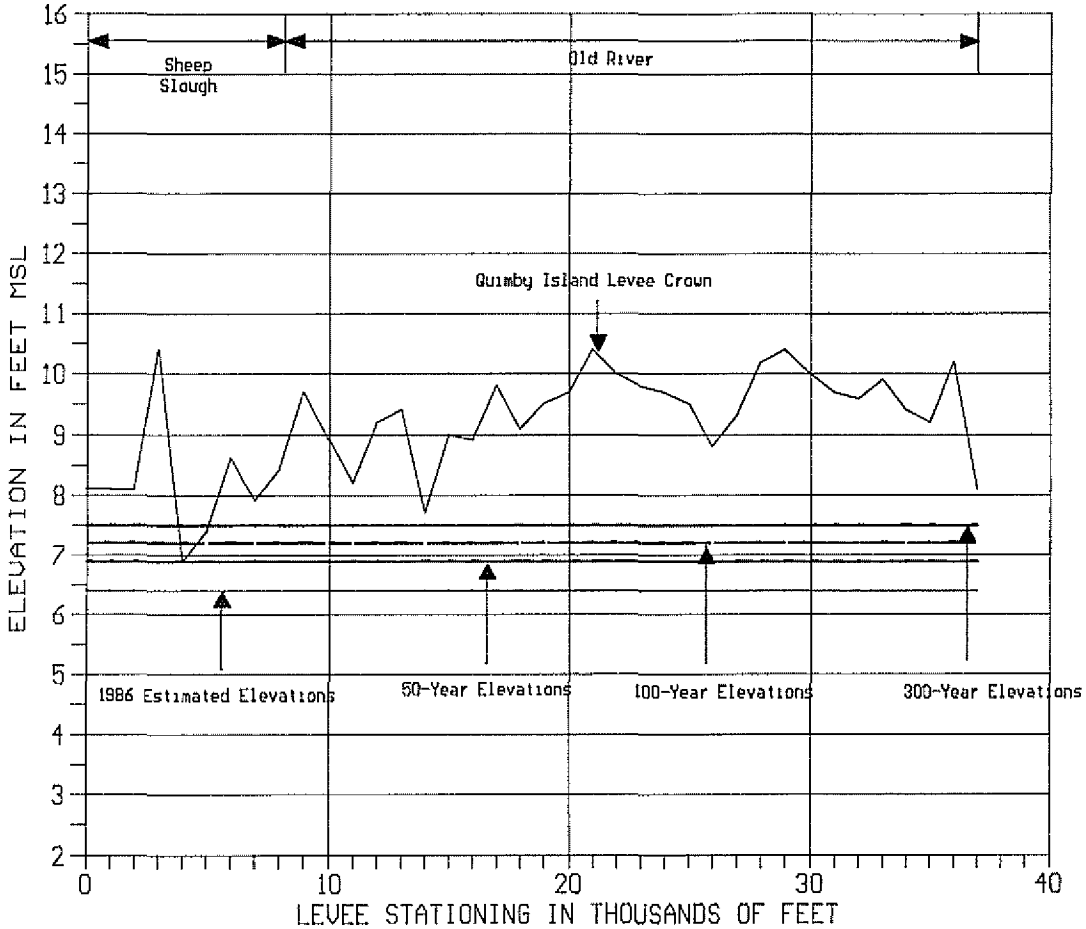
RECLAMATION DISTRICT 1007

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
PICO NAGLEE TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 55 SHEET 1 OF 1



RECLAMATION DISTRICT 2090

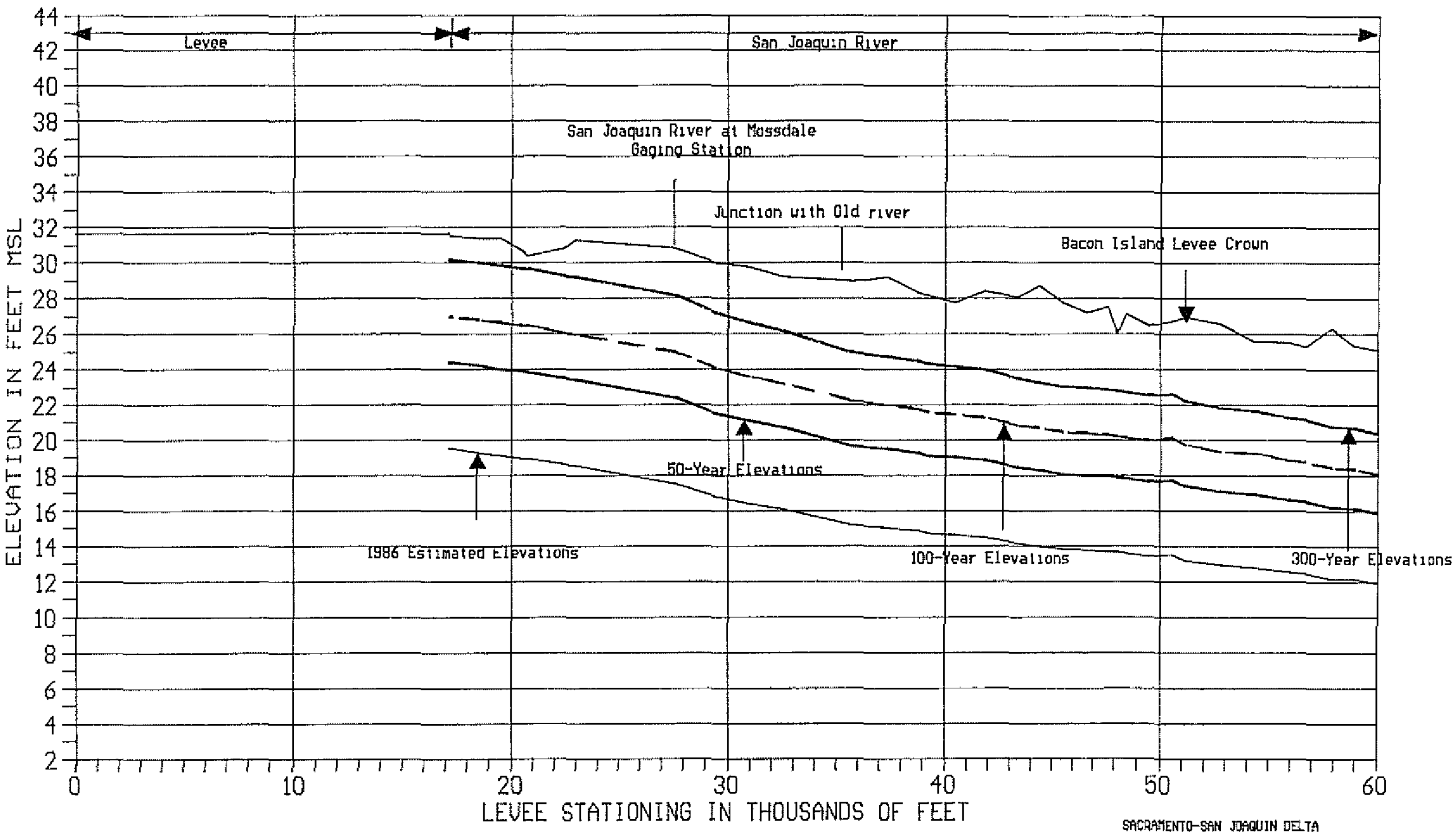
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
QUIMBY ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 56 SHEET 1 OF 1



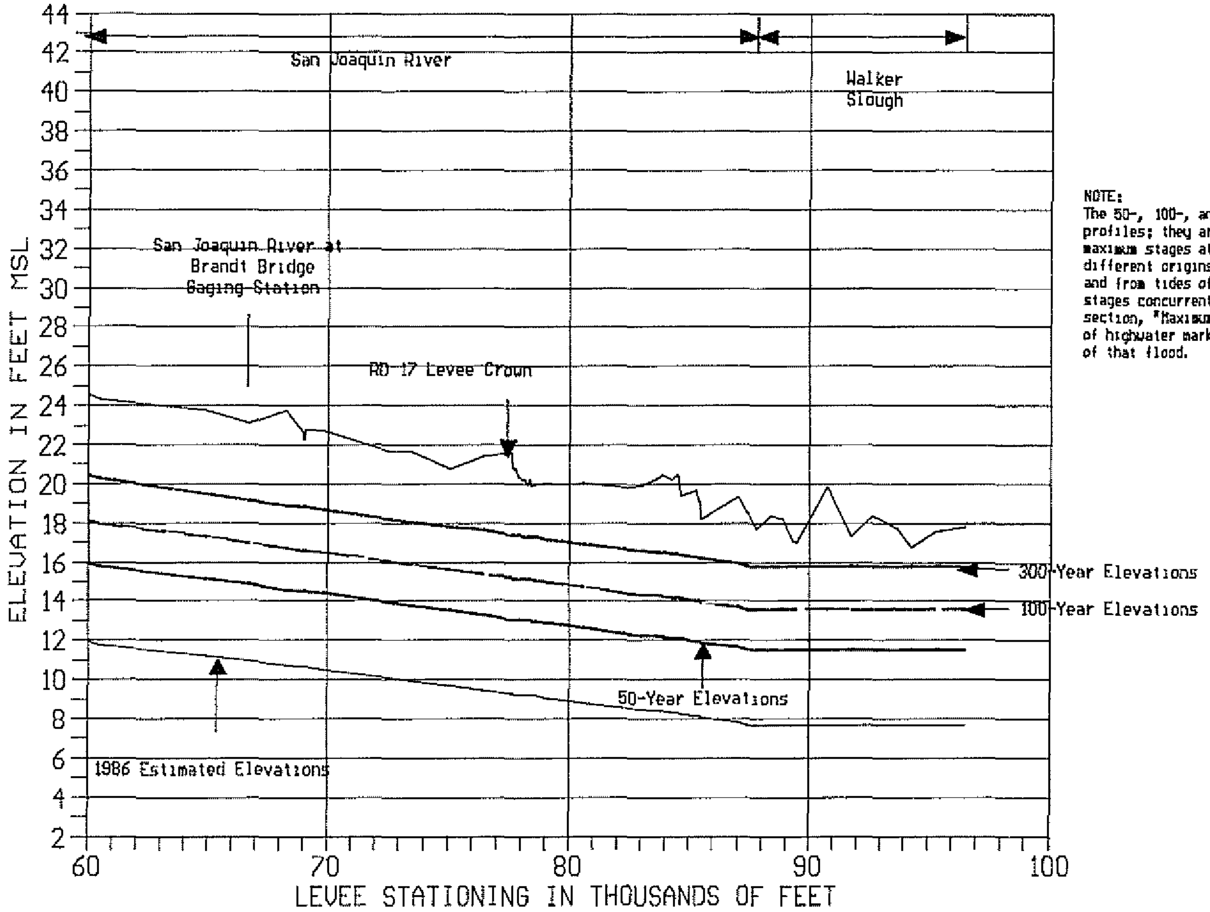
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
RD 17

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 56A SHEET 1 OF 2



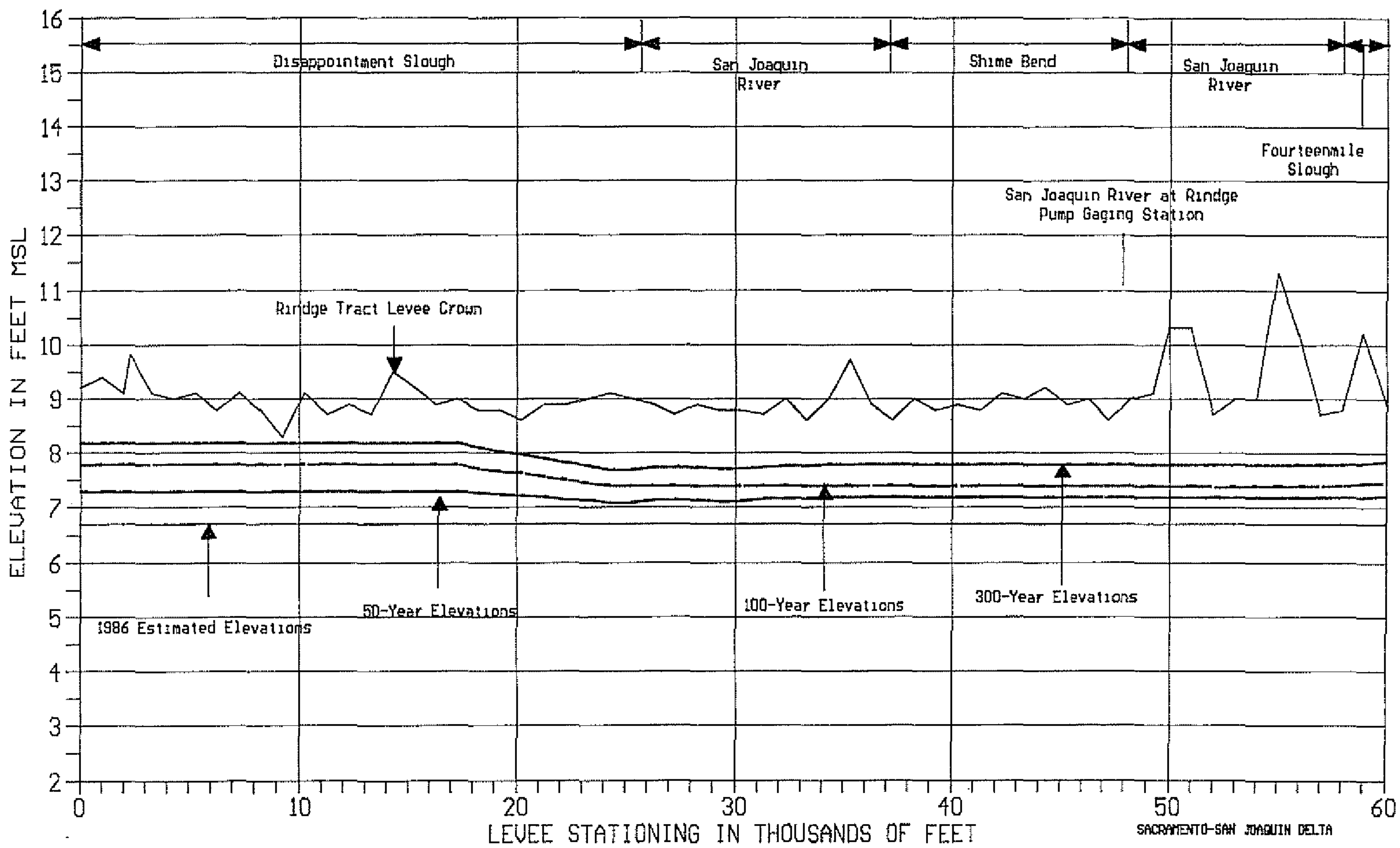
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
RD 17

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 56A SHEET 2 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

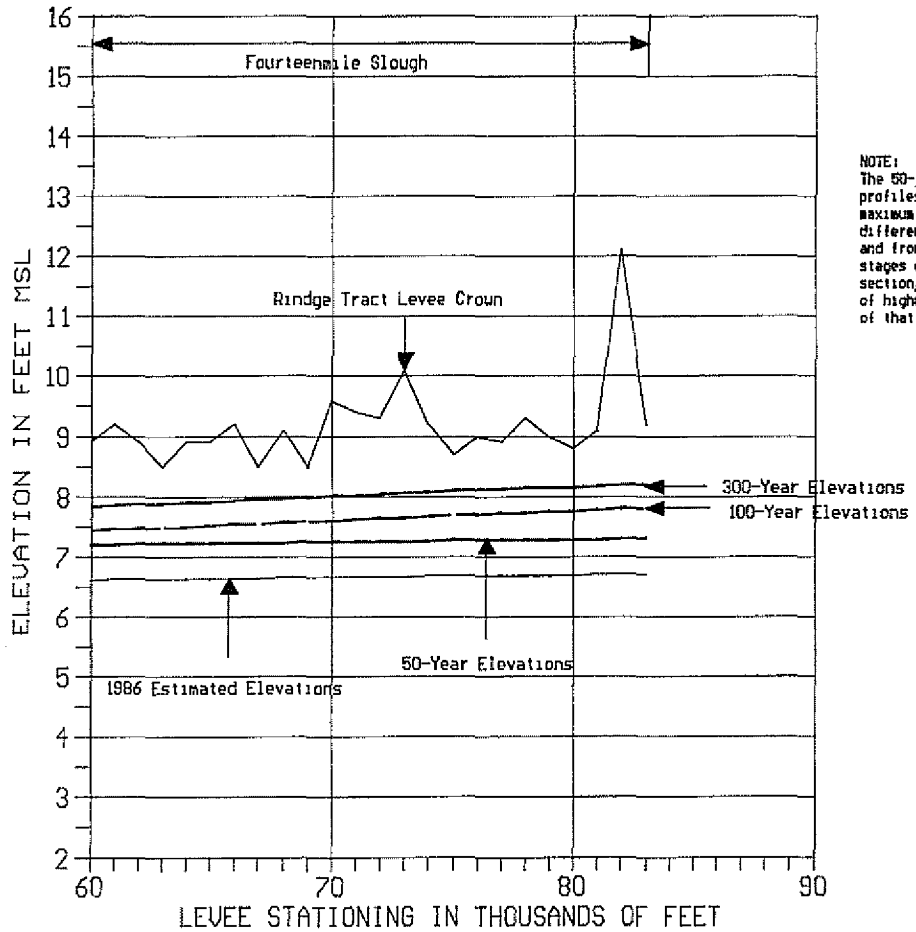
RECLAMATION DISTRICT 2037

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
RINDGE TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 57 SHEET 1 OF 2



RECLAMATION DISTRICT 2037

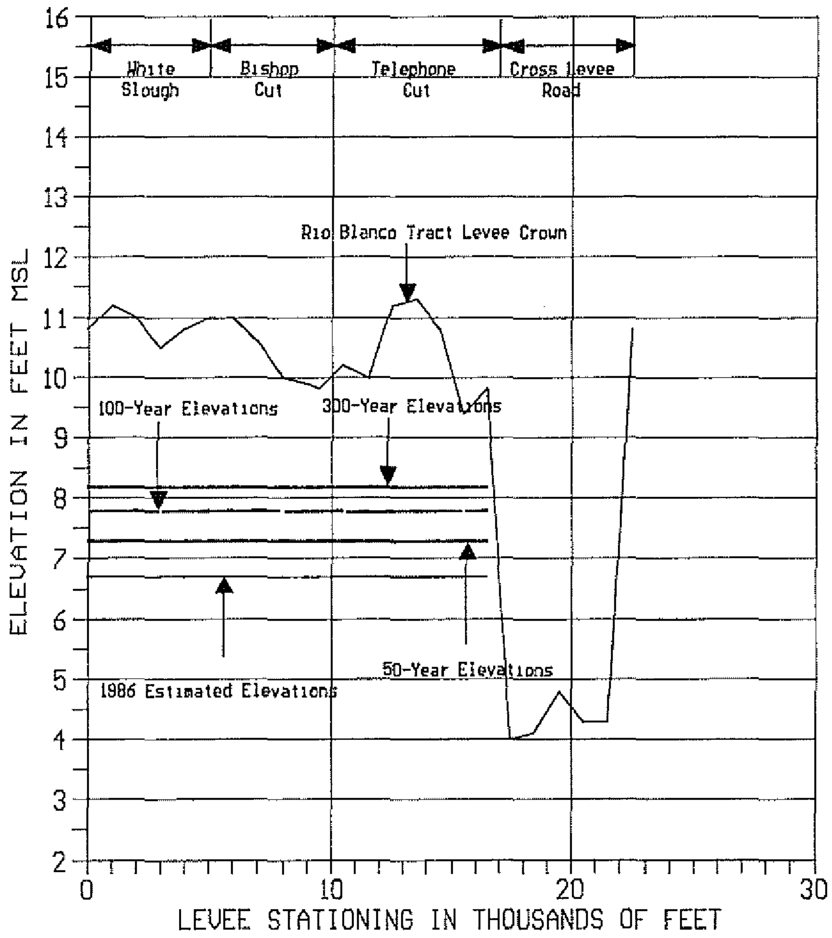
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
RINDGE TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 57 SHEET 2 OF 2



RECLAMATION DISTRICT 2114

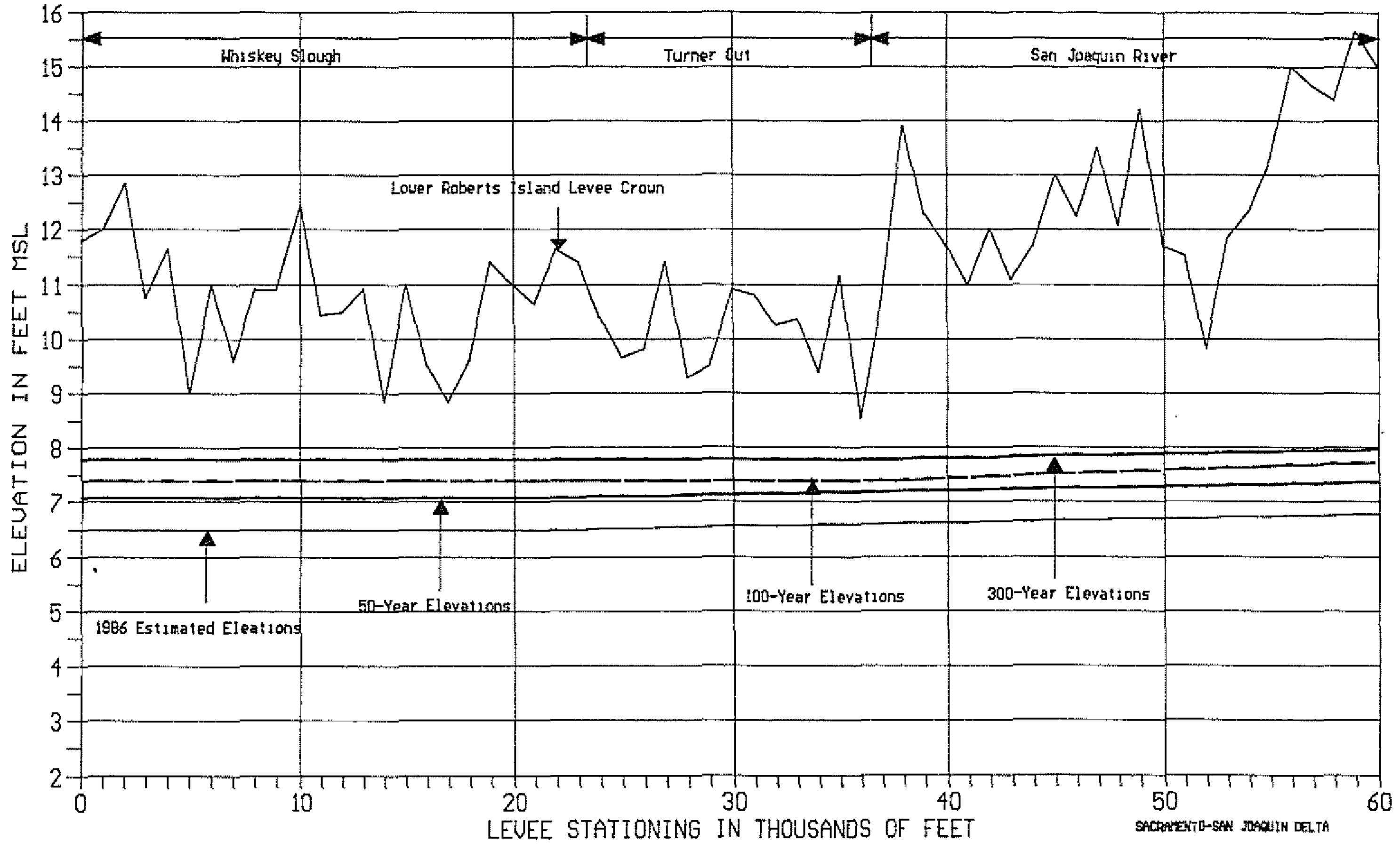
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
RIO BLANCO TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 58 SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

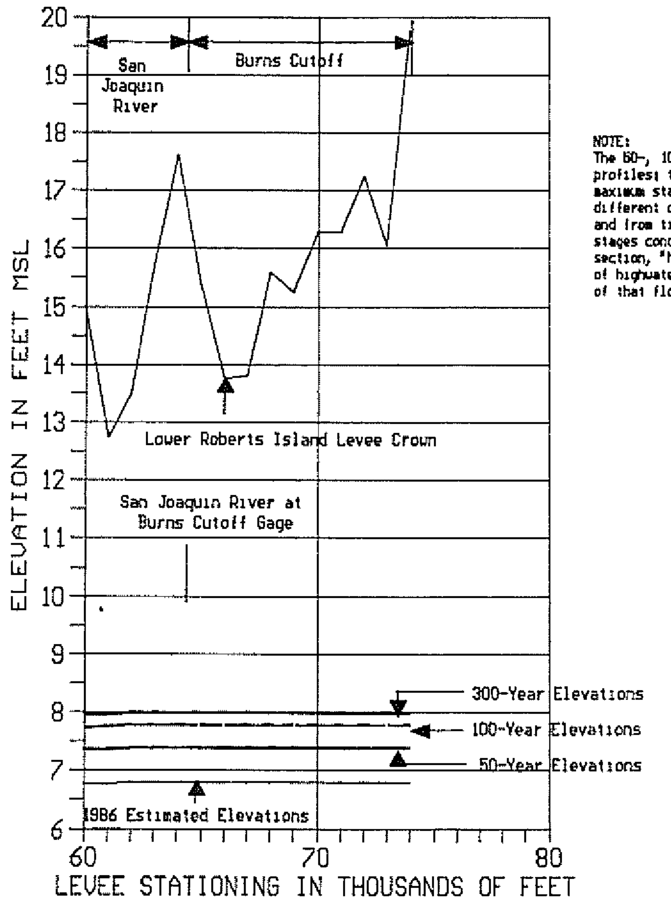
RECLAMATION DISTRICT 684

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
LOWER ROBERTS ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 59 SHEET 1 OF 2



RECLAMATION DISTRICT 684

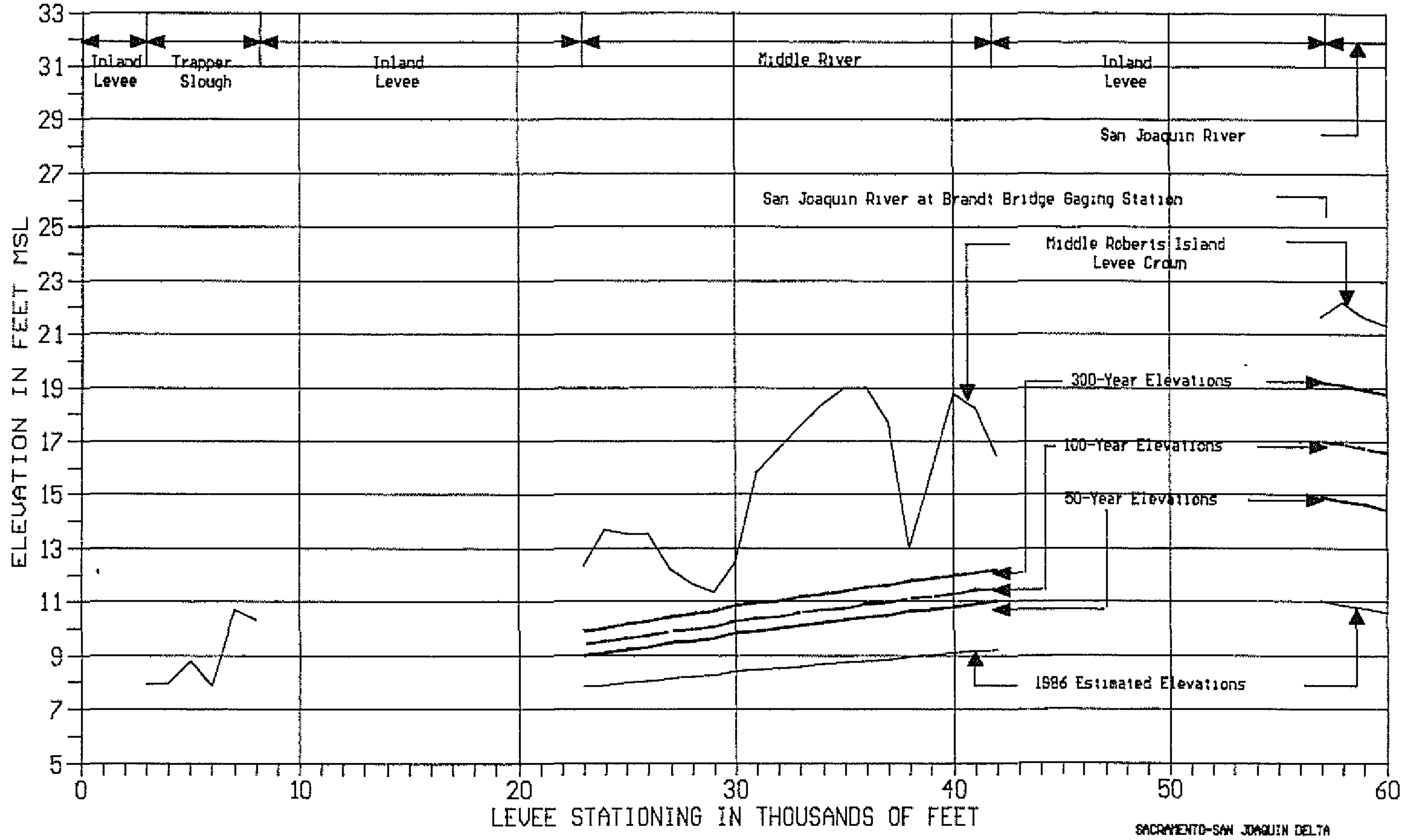
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
LOWER ROBERTS ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 59 SHEET 2 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

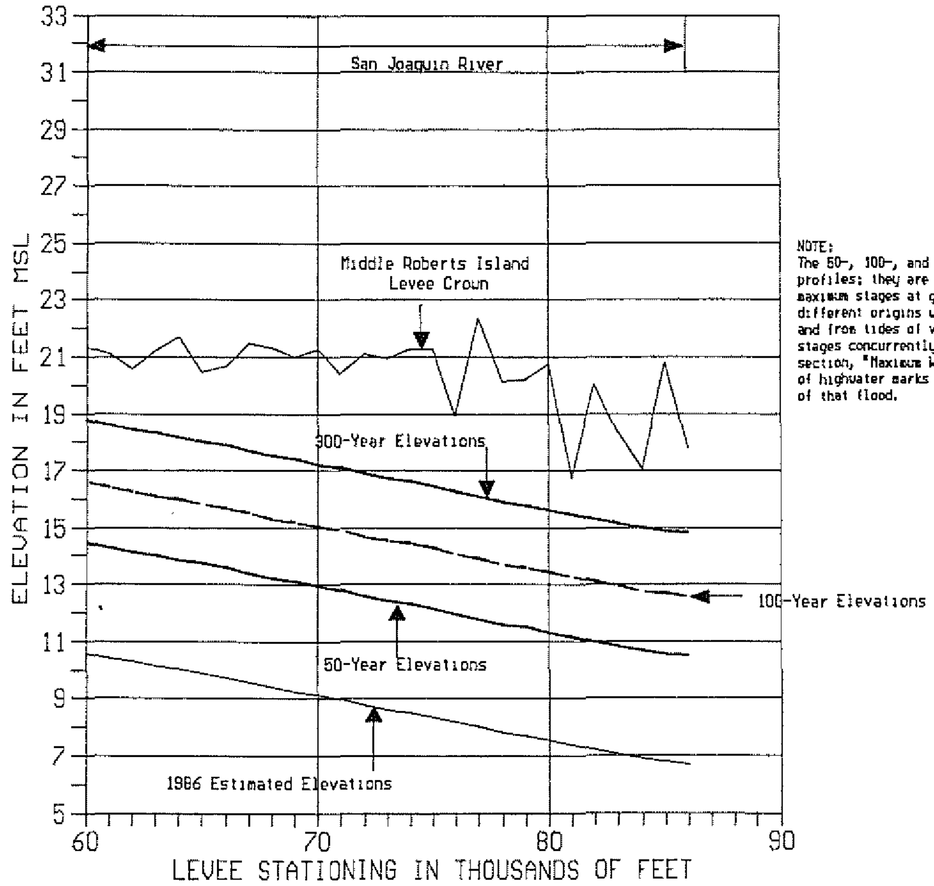
RECLAMATION DISTRICT 524

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
MIDDLE ROBERTS ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 59A SHEET 1 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

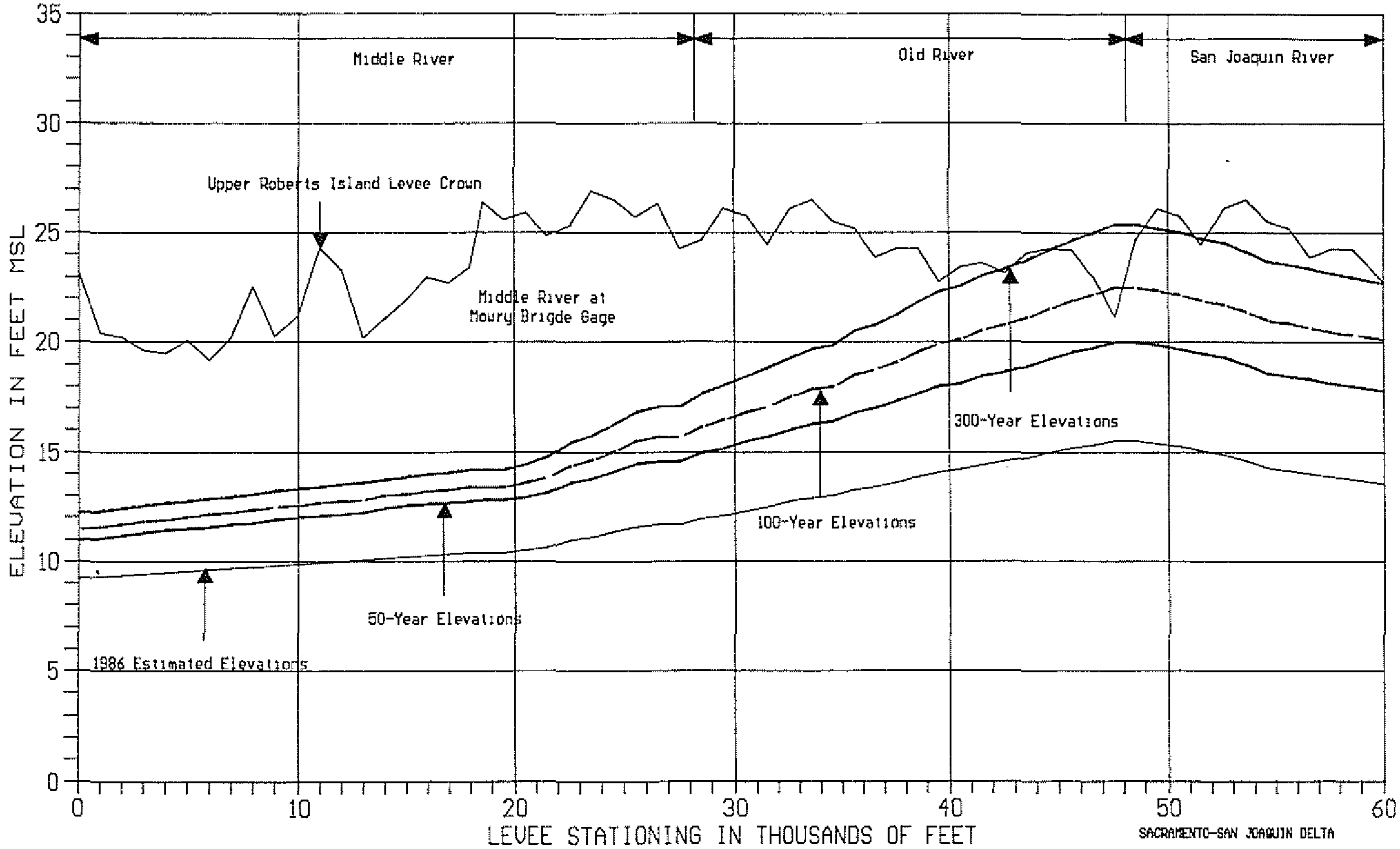
RECLAMATION DISTRICT 524

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
MIDDLE ROBERTS ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 59A SHEET 2 OF 2



SACRAMENTO-SAN JOAQUIN DELTA

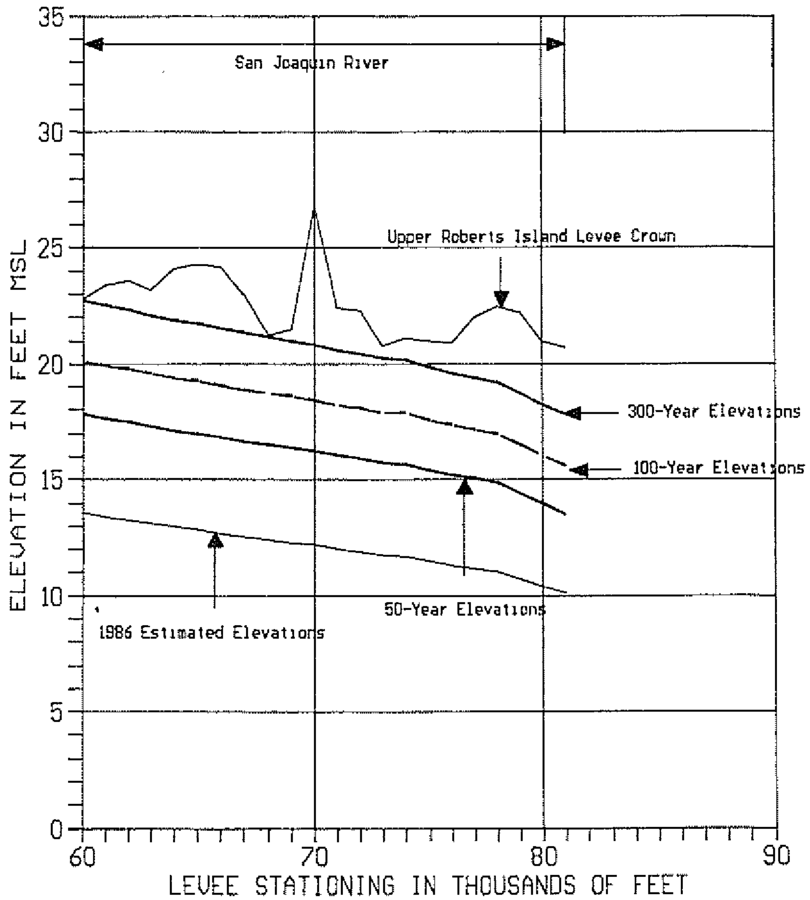
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

RECLAMATION DISTRICT 544

MAXIMUM WATER SURFACE ELEVATIONS
UPPER ROBERTS ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 60 SHEET 1 OF 2



RECLAMATION DISTRICT 544

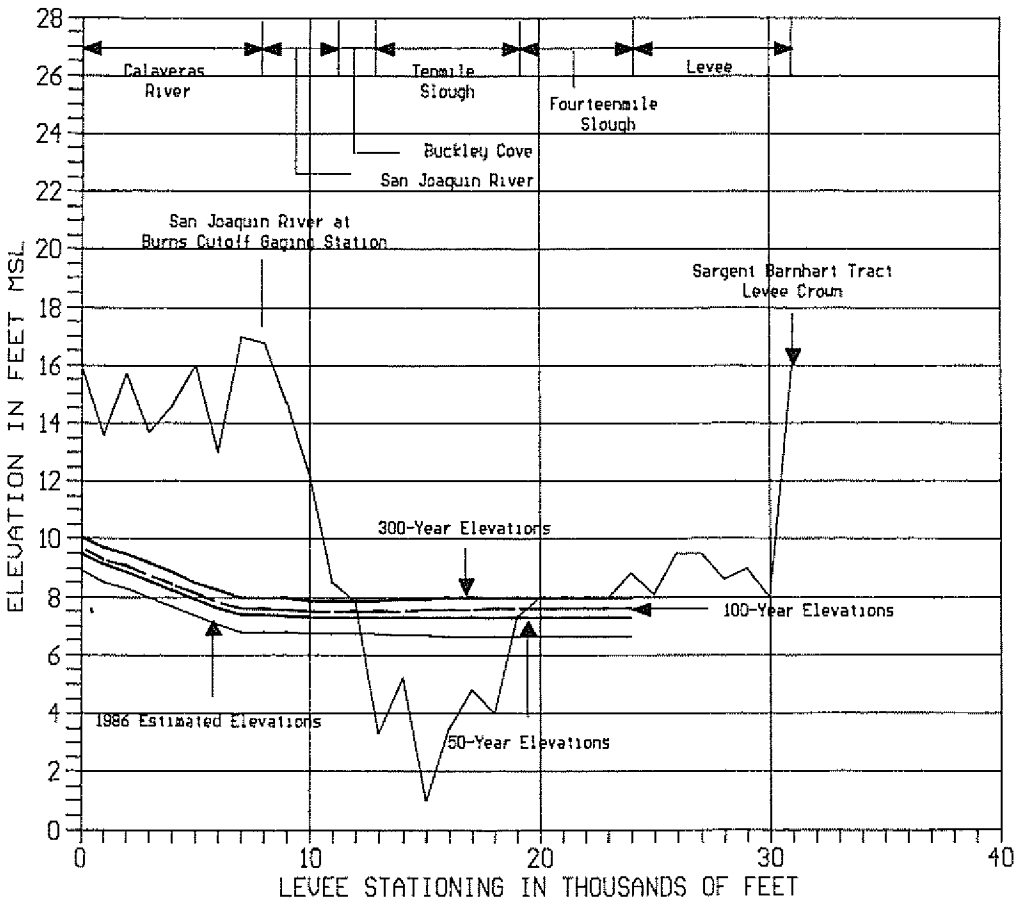
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
UPPER ROBERTS ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 60 SHEET 2 OF 2



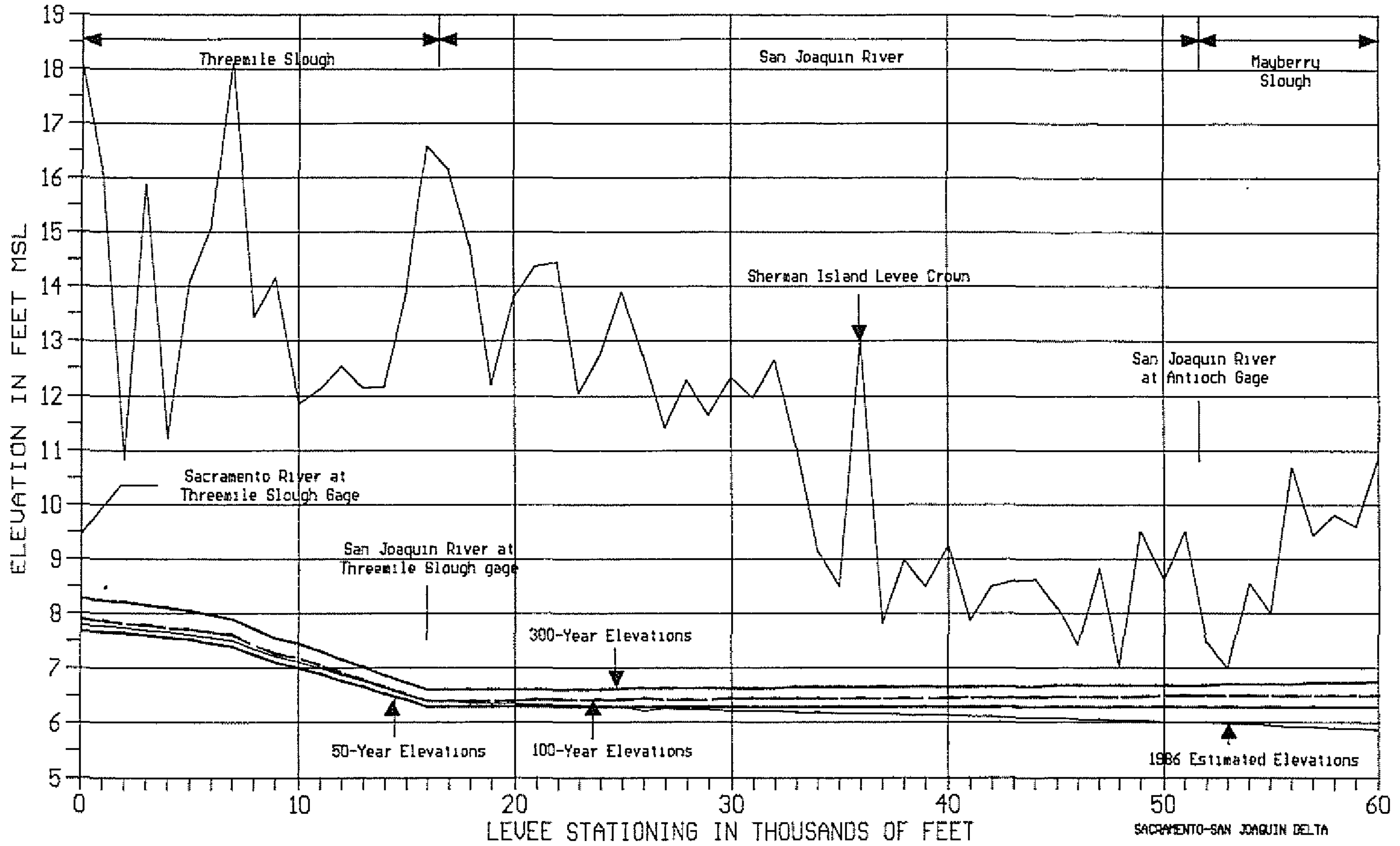
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles: they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
SARGENT BARNHART TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 60A SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

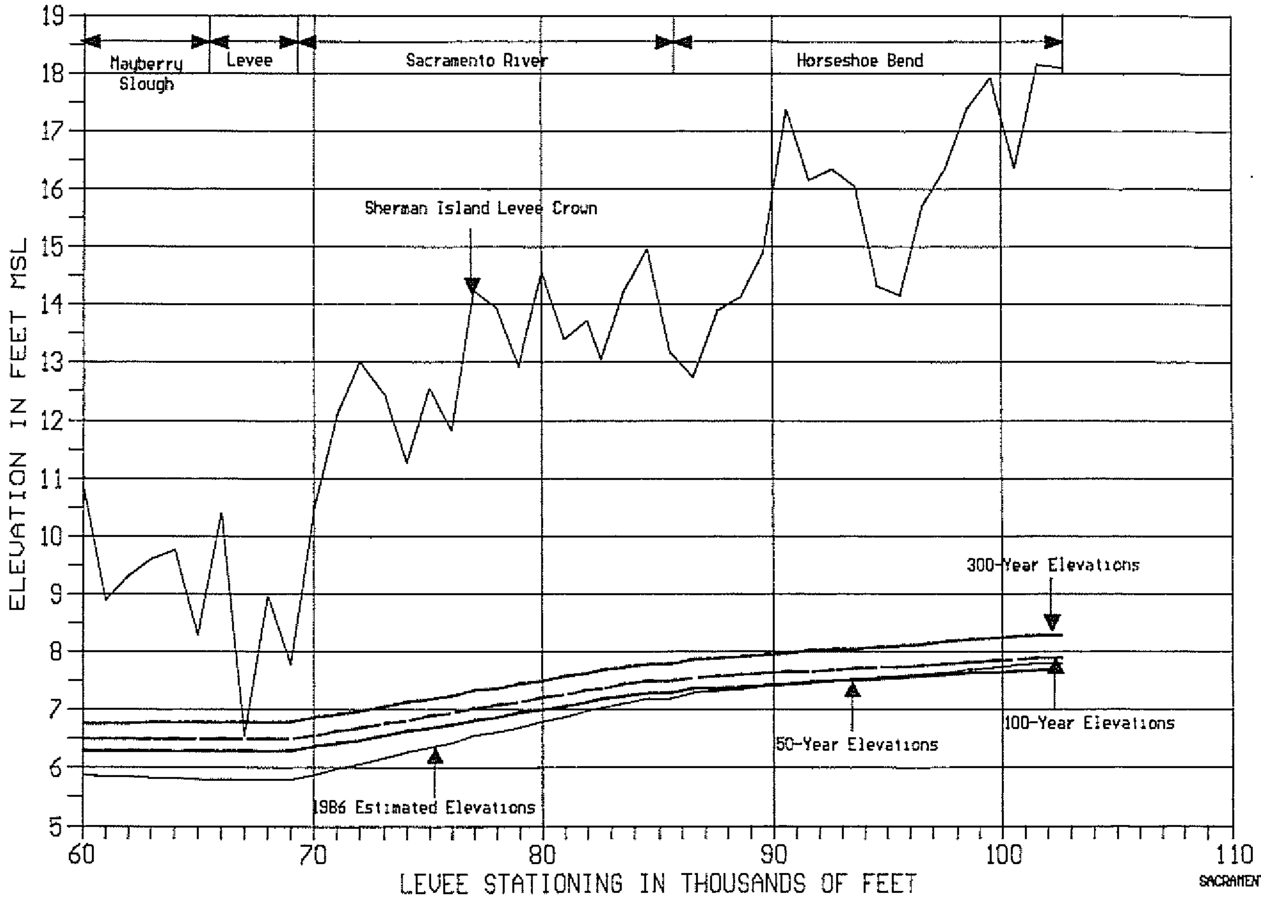
RECLAMATION DISTRICT 341

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
SHERMAN ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 61 SHEET 1 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

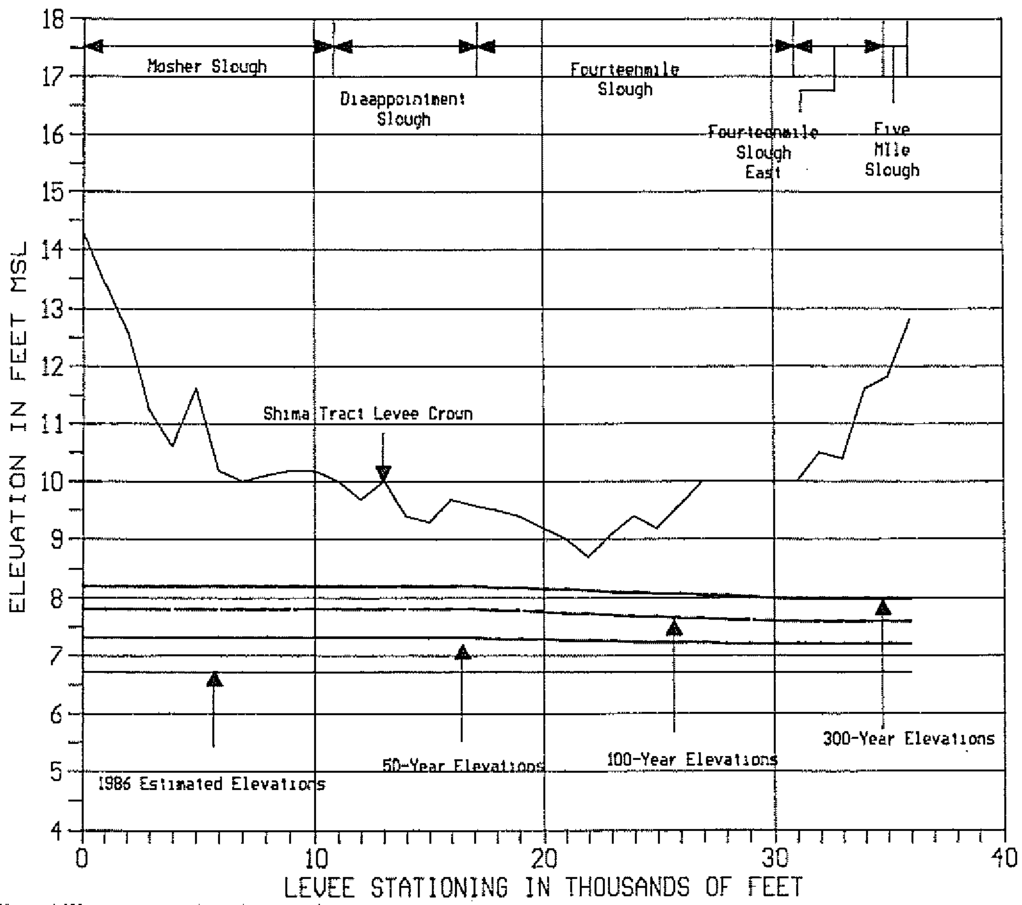
RECLAMATION DISTRICT 341

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
SHERMAN ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 61 SHEET 2 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

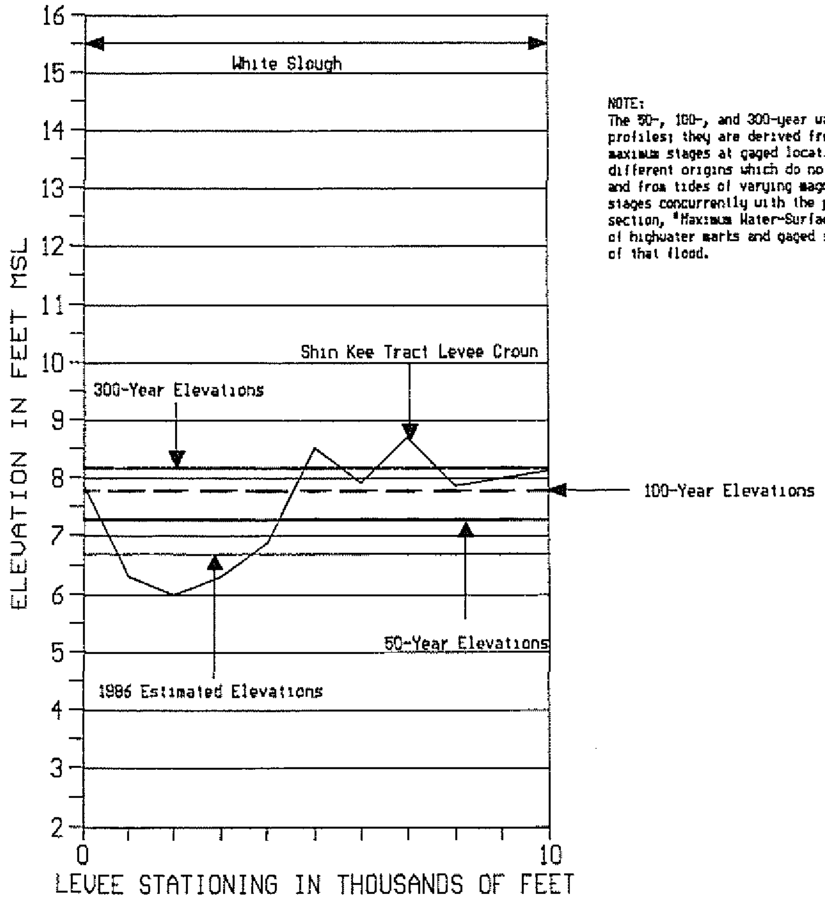
RECLAMATION DISTRICT 2115

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
SHIMA TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 62 SHEET 1 OF 1



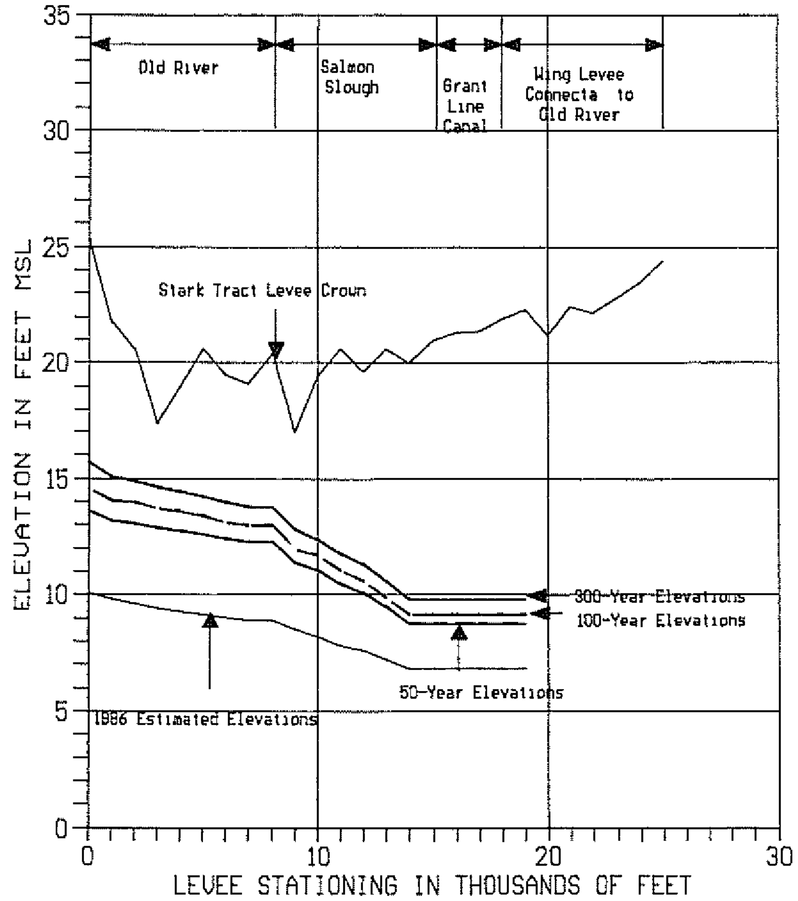
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
SHIN KEE TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 63 SHEET 1 OF 1



RECLAMATION DISTRICT 2089

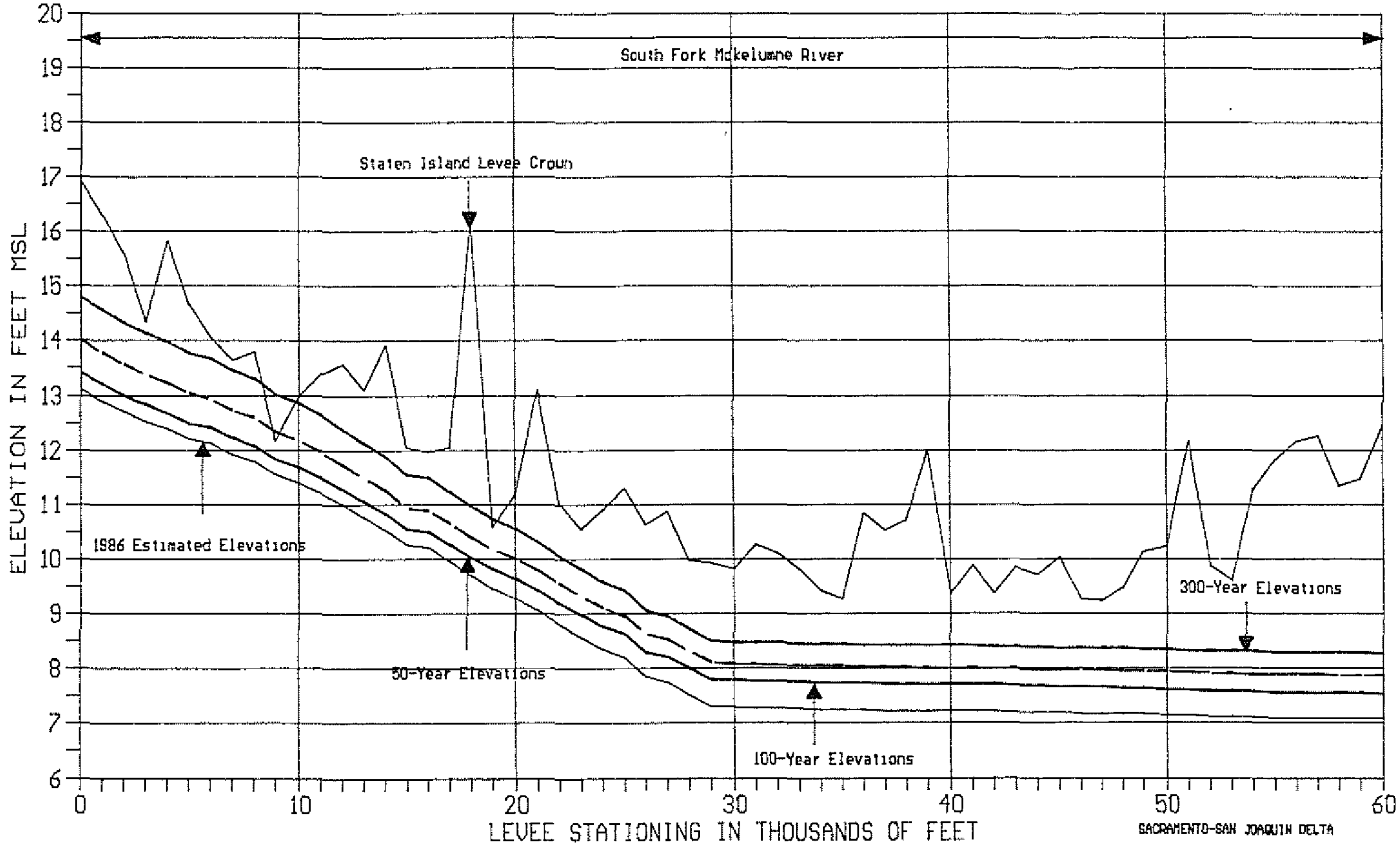
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
STARK TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 64 SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

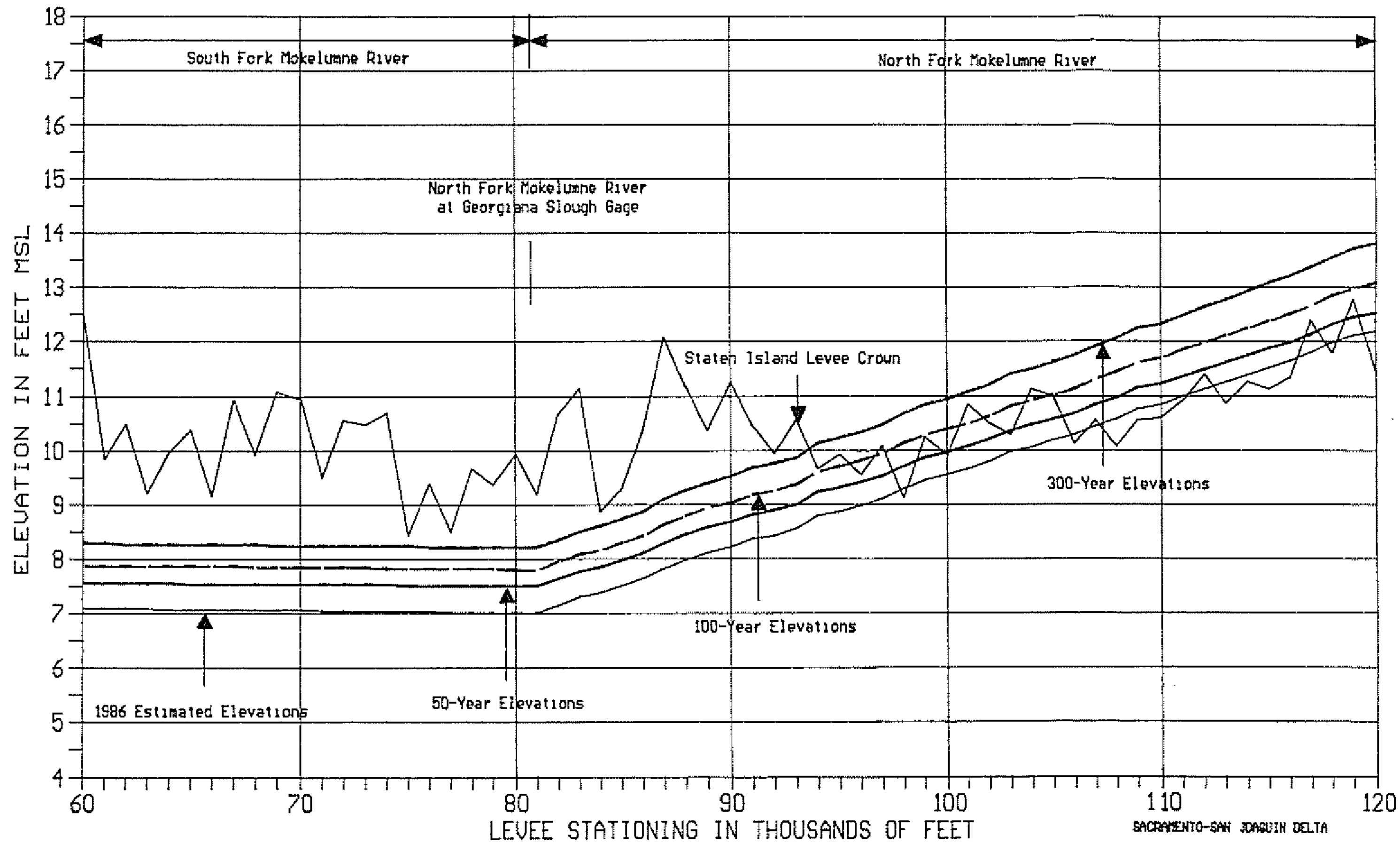
RECLAMATION DISTRICT 38

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
STATEN ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 65 SHEET 1 OF 3



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

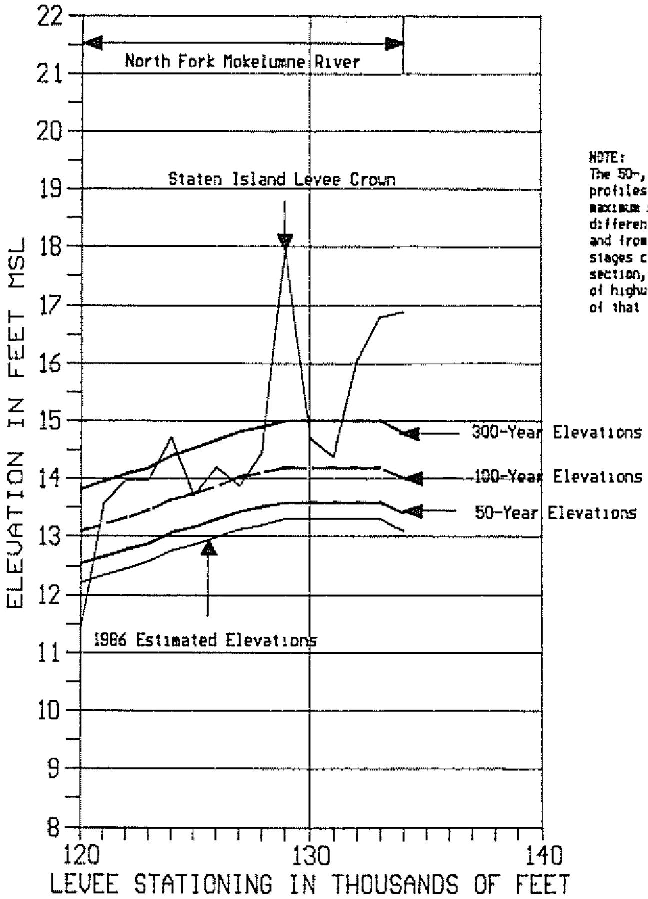
RECLAMATION DISTRICT 38

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
STATEN ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 65 SHEET 2 OF 3



RECLAMATION DISTRICT 38

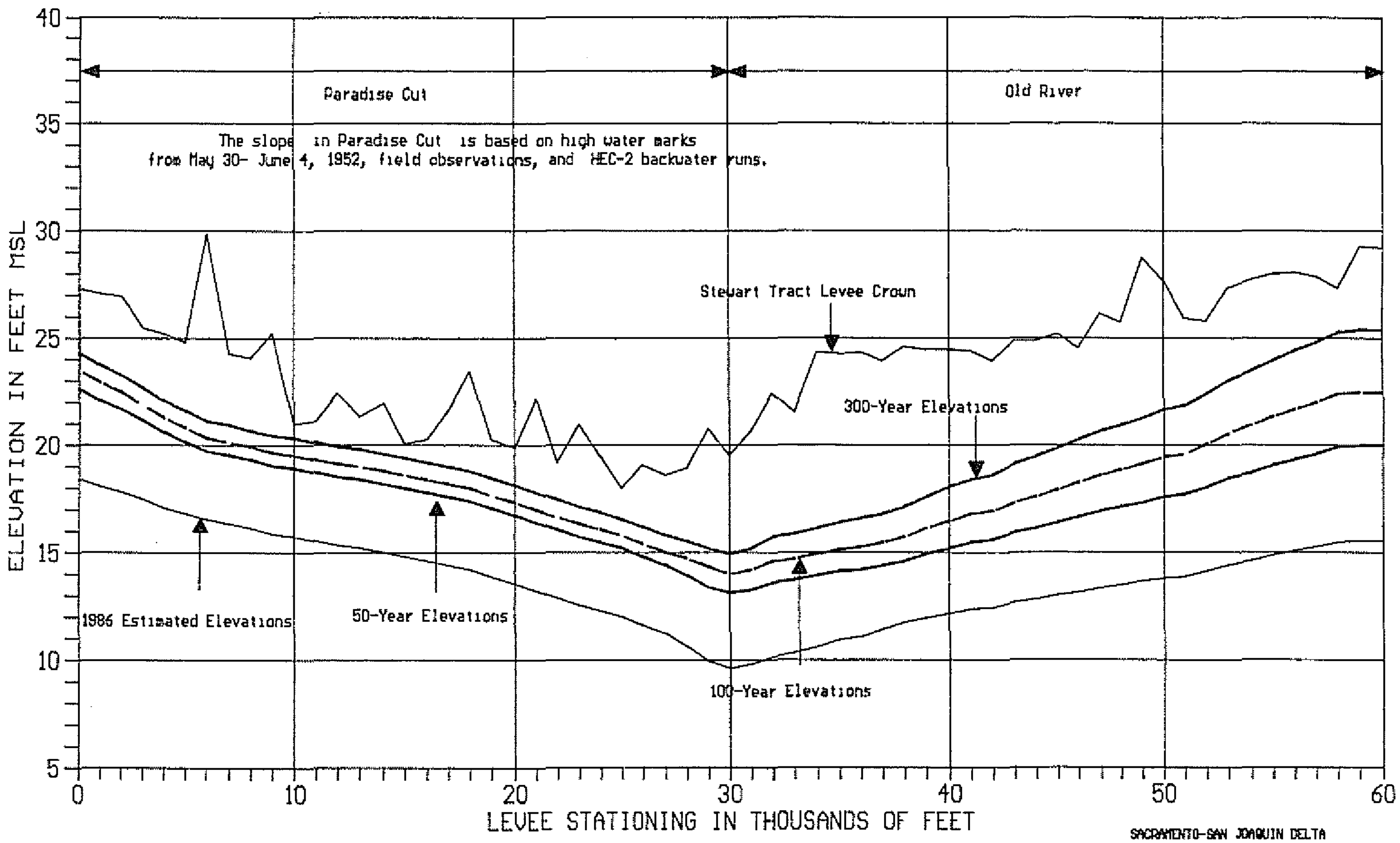
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
STATEN ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 65 SHEET 3 OF 3



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

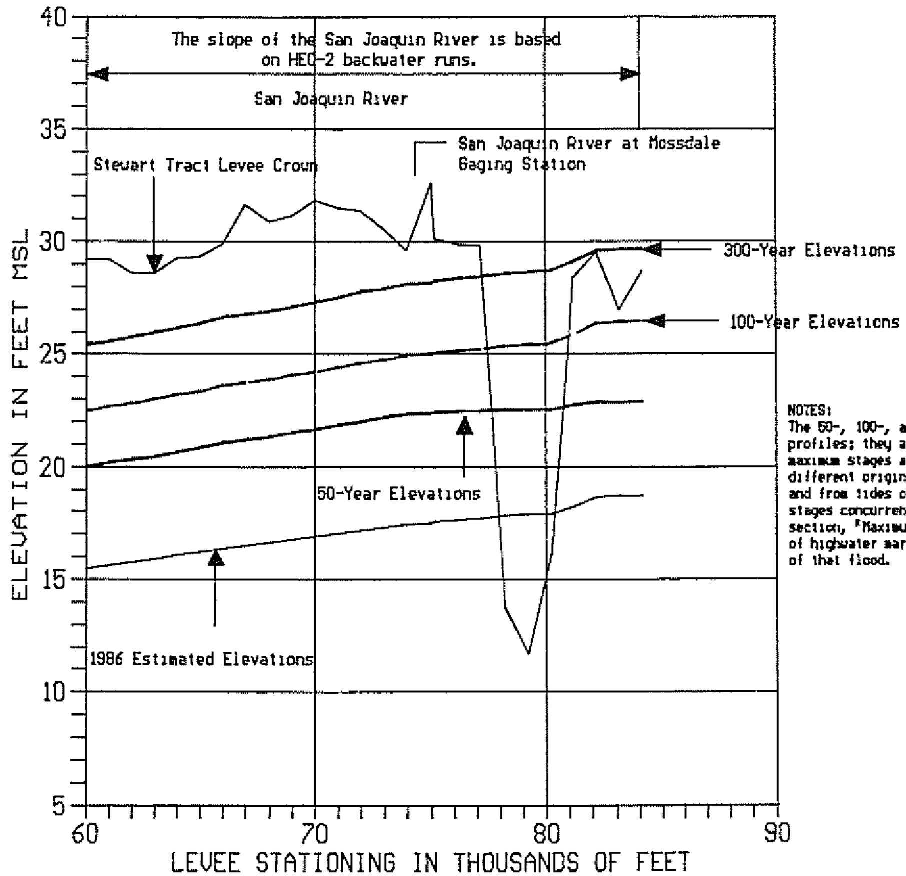
RECLAMATION DISTRICTS 2062, 2107

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
STEWART TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 65A SHEET 1 OF 2



NOTES:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

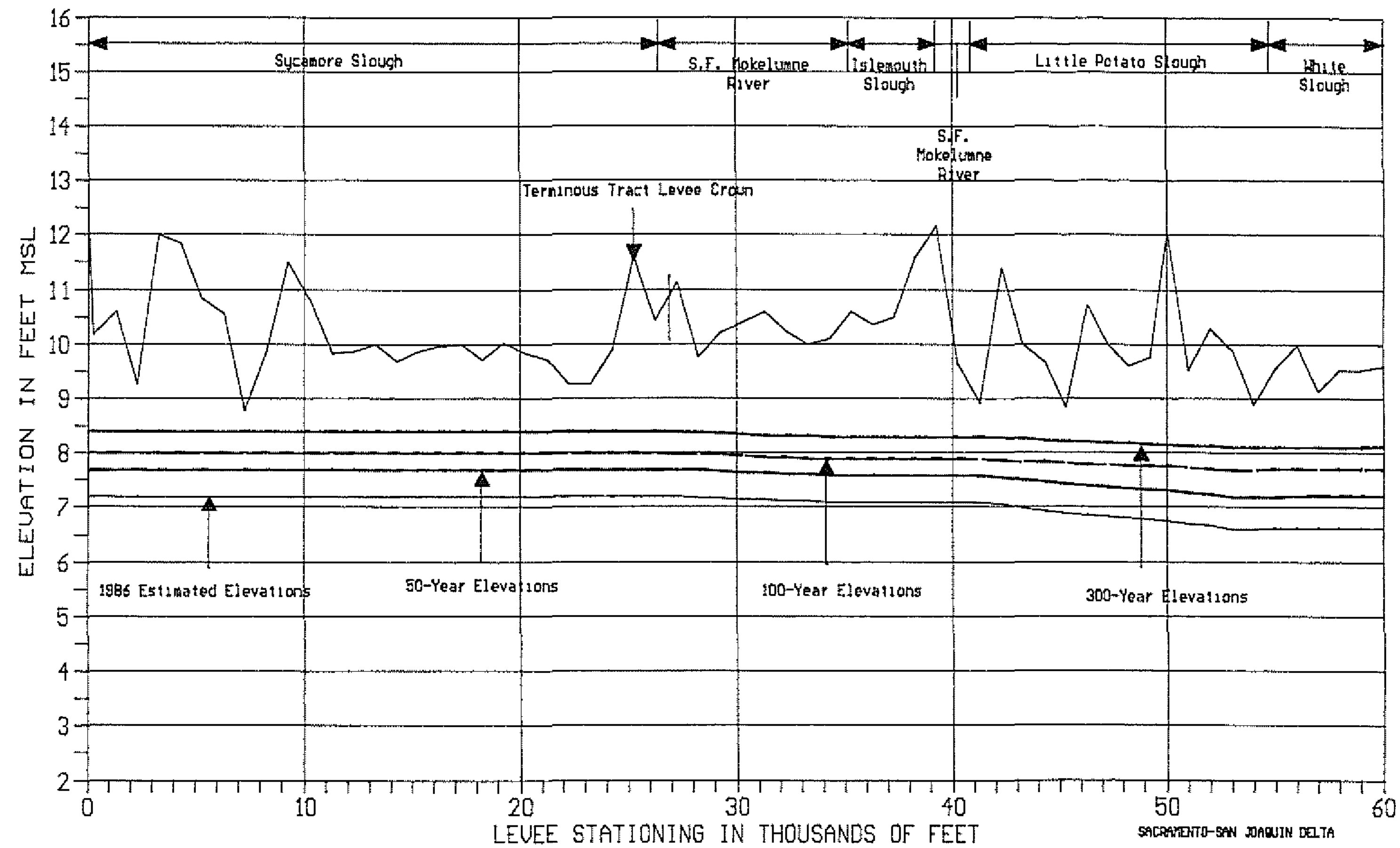
RECLAMATION DISTRICTS 2062, 2107

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
STEWART TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 65A SHEET 2 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

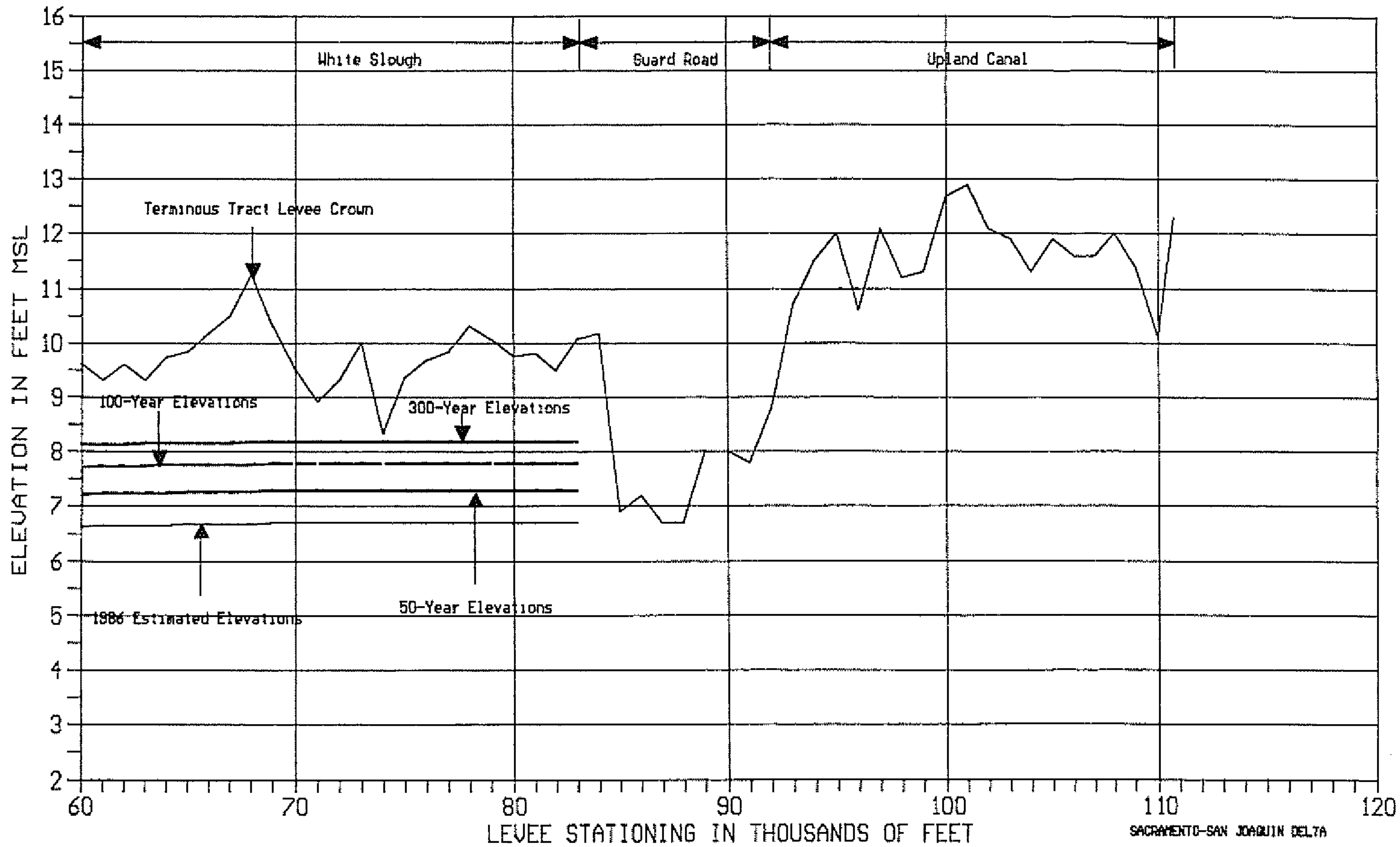
RECLAMATION DISTRICT 548

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
TERMINOUS TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 66 SHEET 1 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

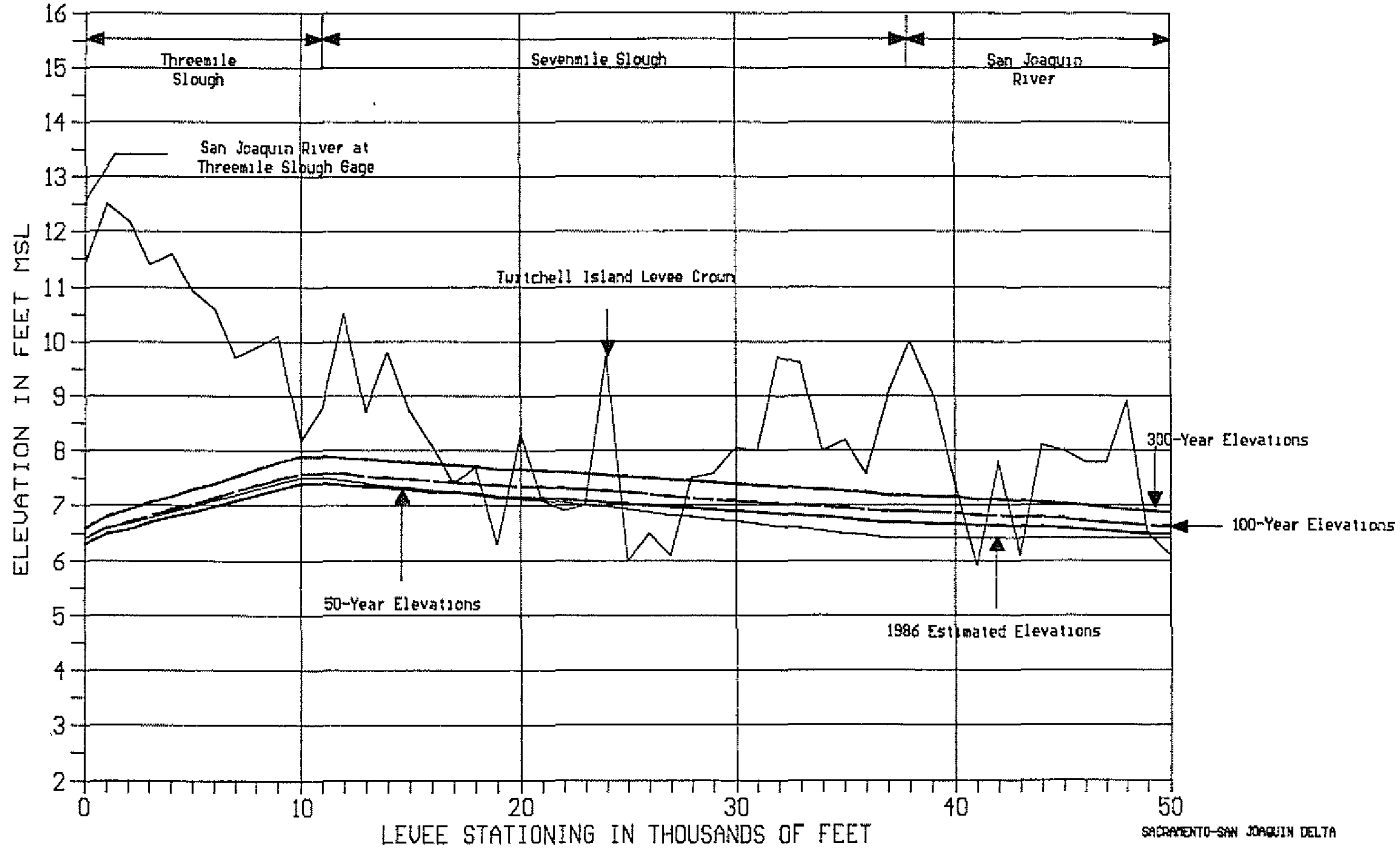
RECLAMATION DISTRICT 548

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
TERMINOUS TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 66 SHEET 2 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

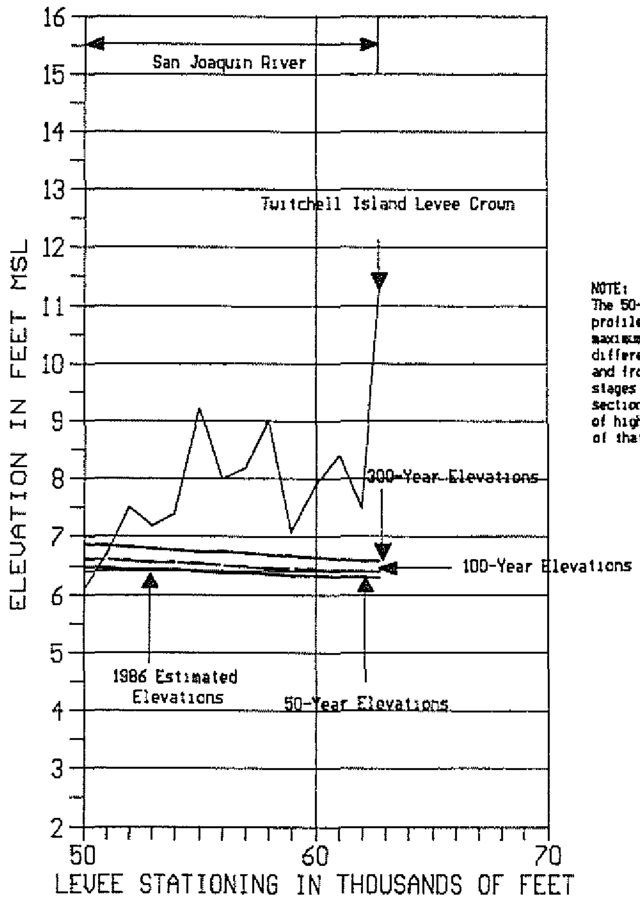
RECLAMATION DISTRICT 1601

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
TWITCHELL ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 67 SHEET 1 OF 2



RECLAMATION DISTRICT 1601

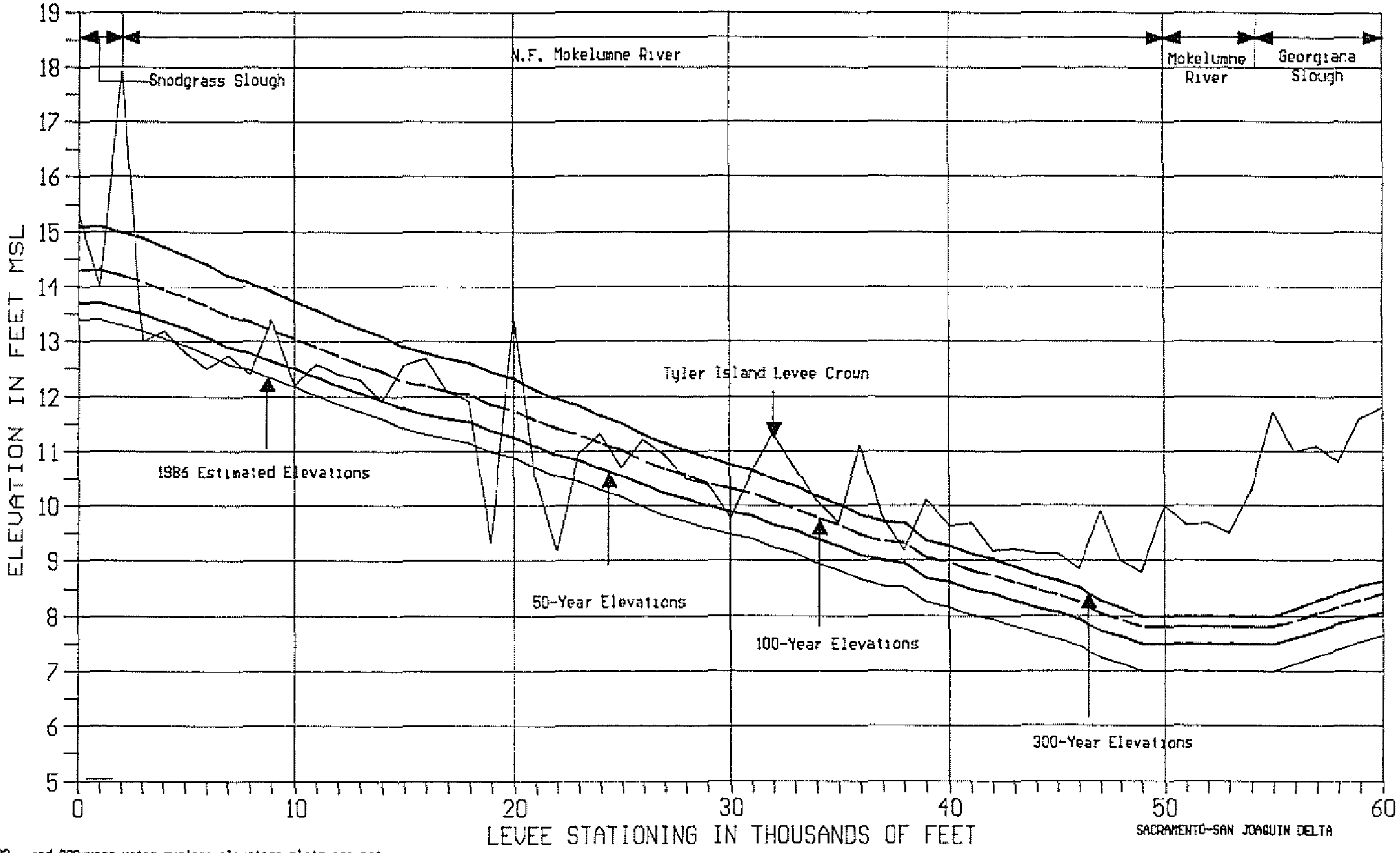
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles: they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
TWITCHELL ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 67 SHEET 2 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

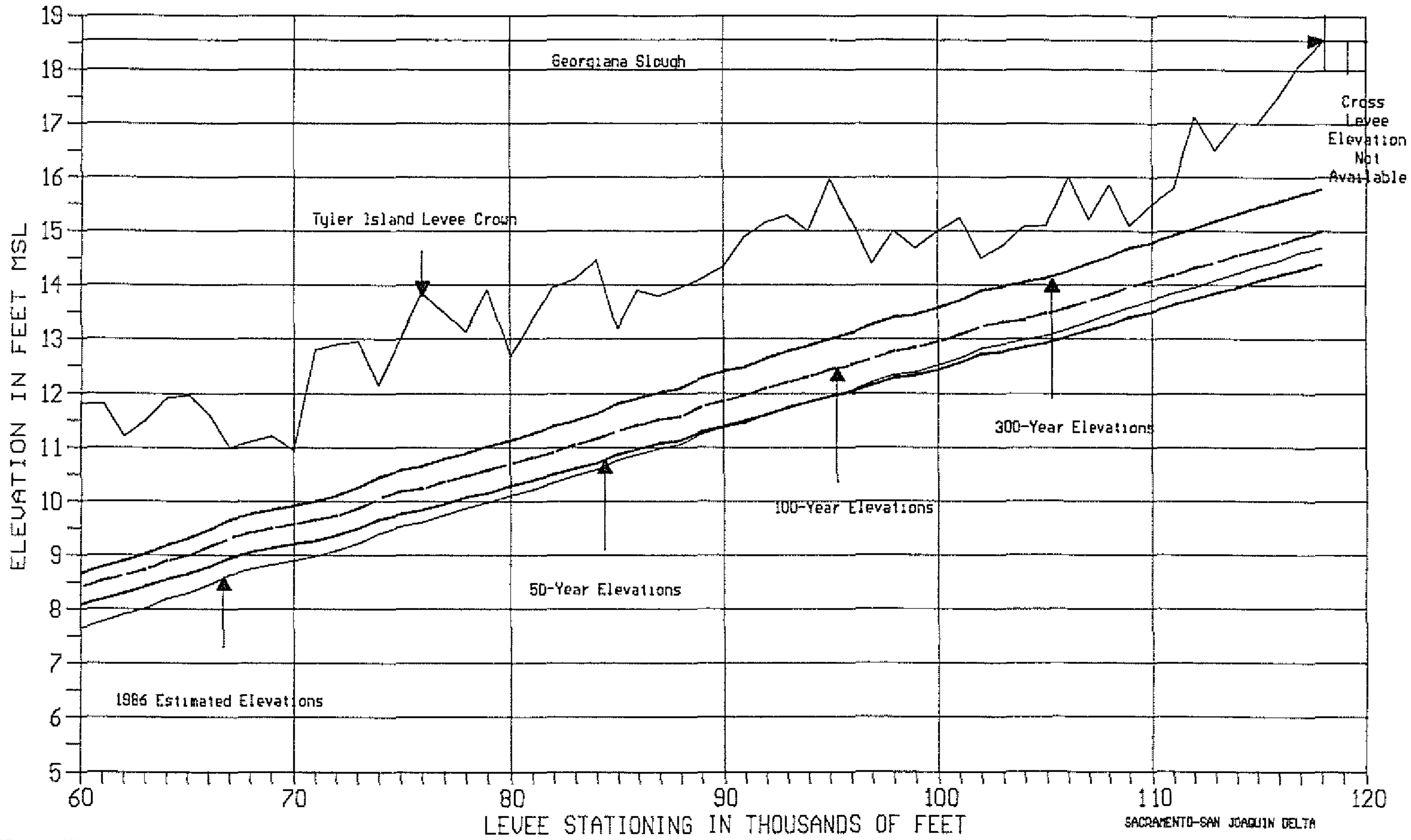
RECLAMATION DISTRICT 563

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
TYLER ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 68 SHEET 1 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

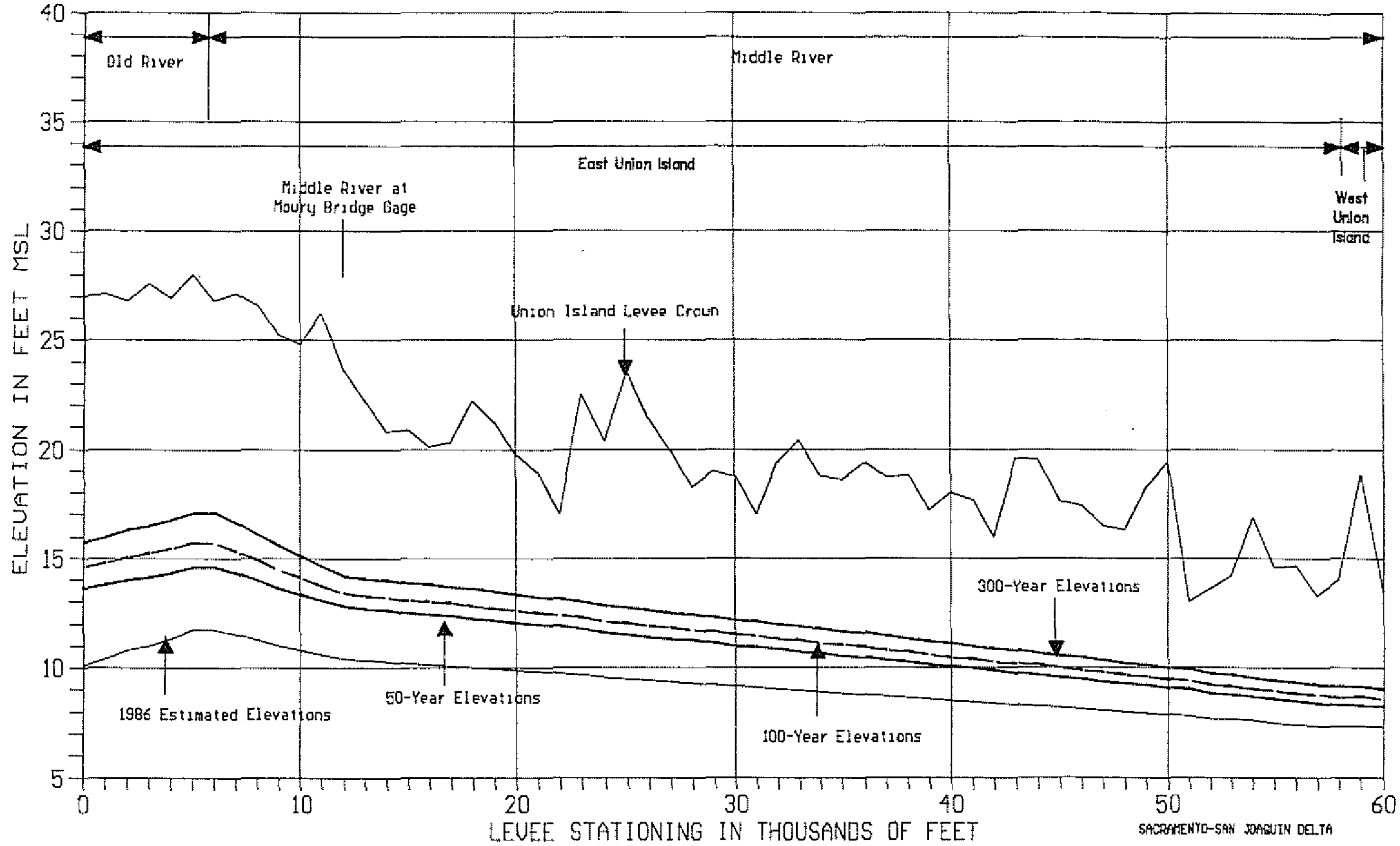
RECLAMATION DISTRICT 563

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
TYLER ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 68 SHEET 2 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

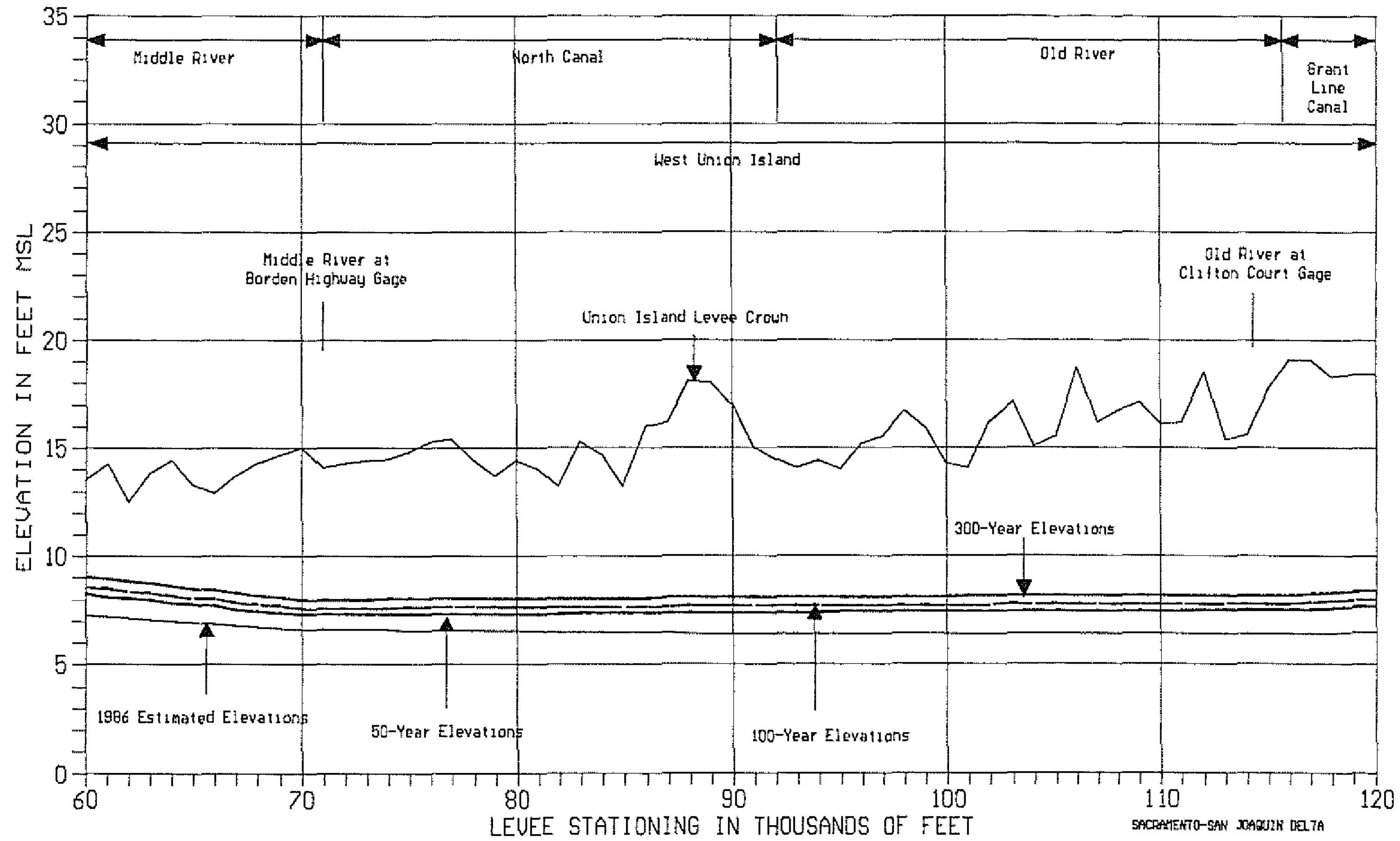
RECLAMATION DISTRICTS 1 and 2

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
UNION ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 69 SHEET 1 OF 3



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

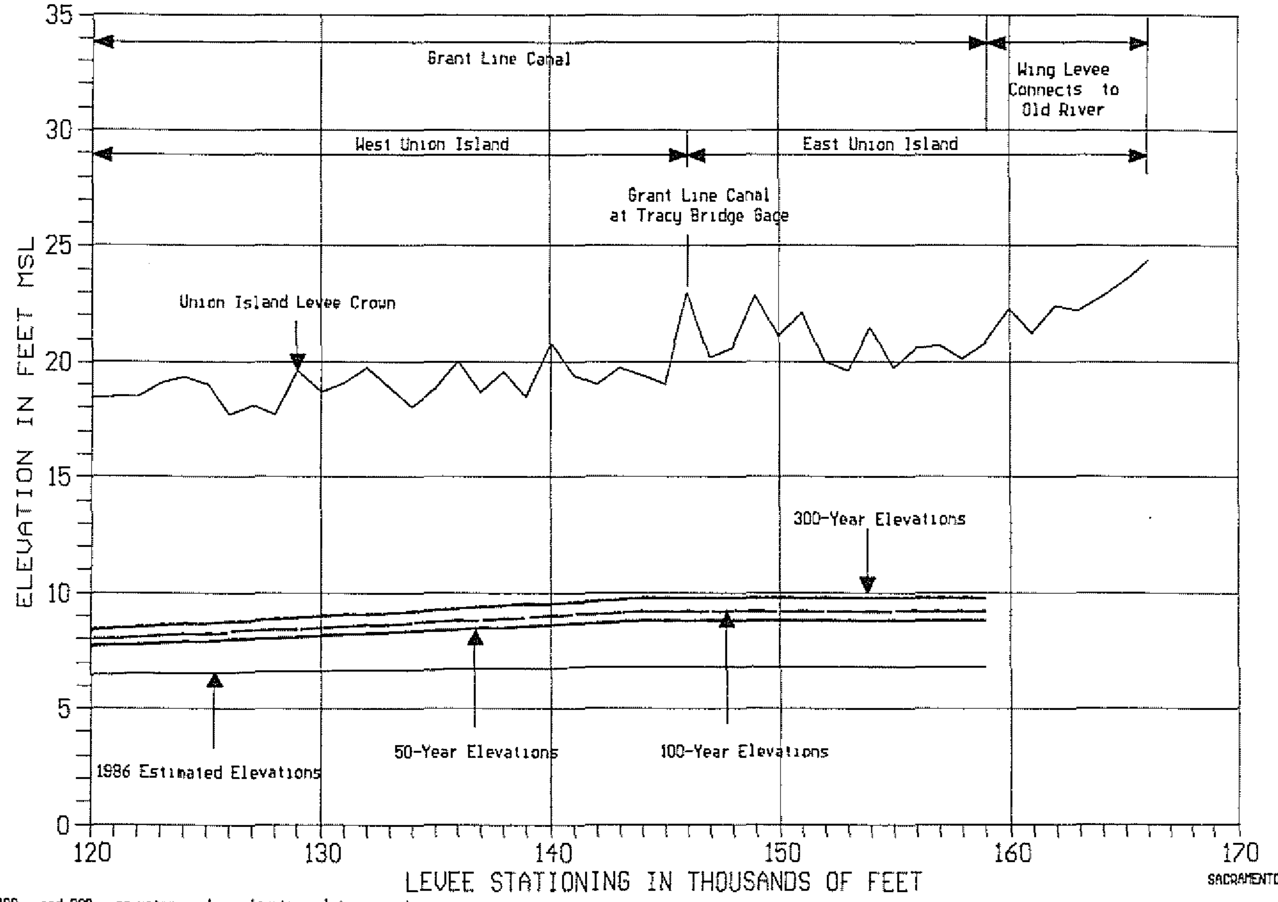
RECLAMATION DISTRICTS 1 and 2

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
UNION ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 69 SHEET 2 OF 3



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

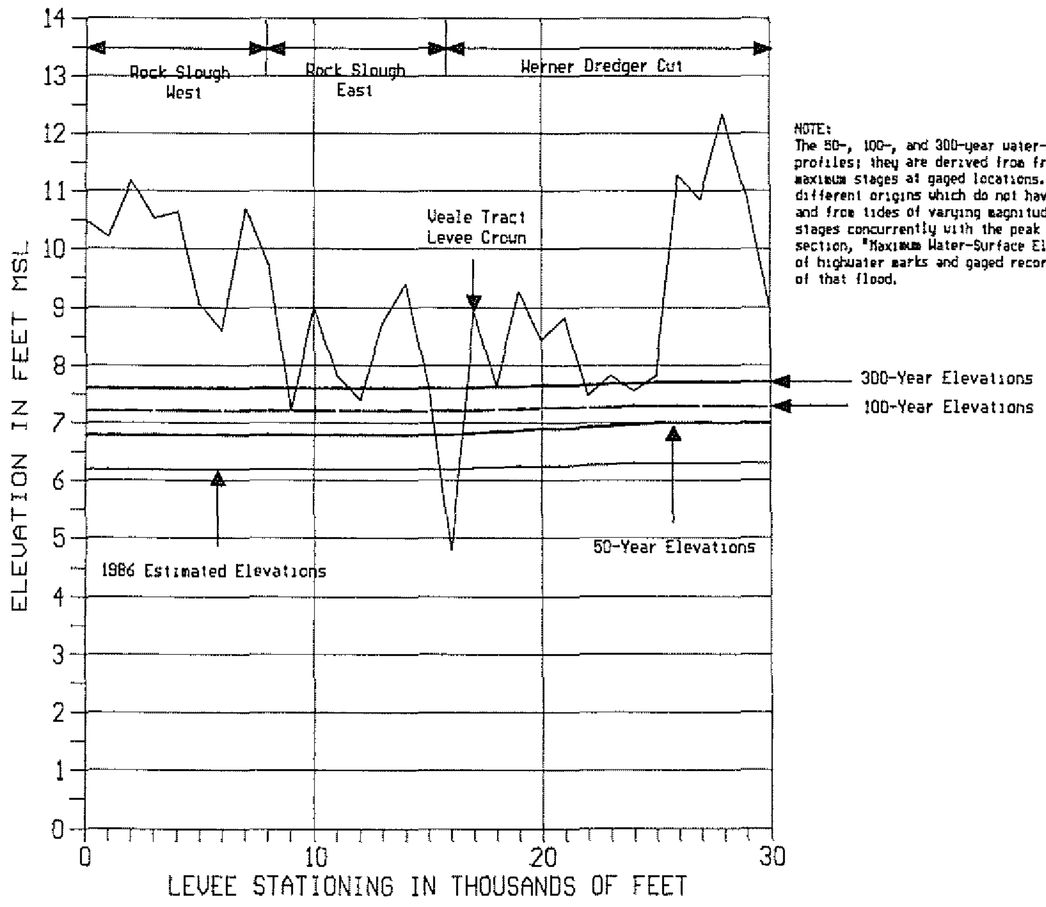
RECLAMATION DISTRICTS 1 and 2

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
UNION ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 69 SHEET 3 OF 3



RECLAMATION DISTRICT 2068

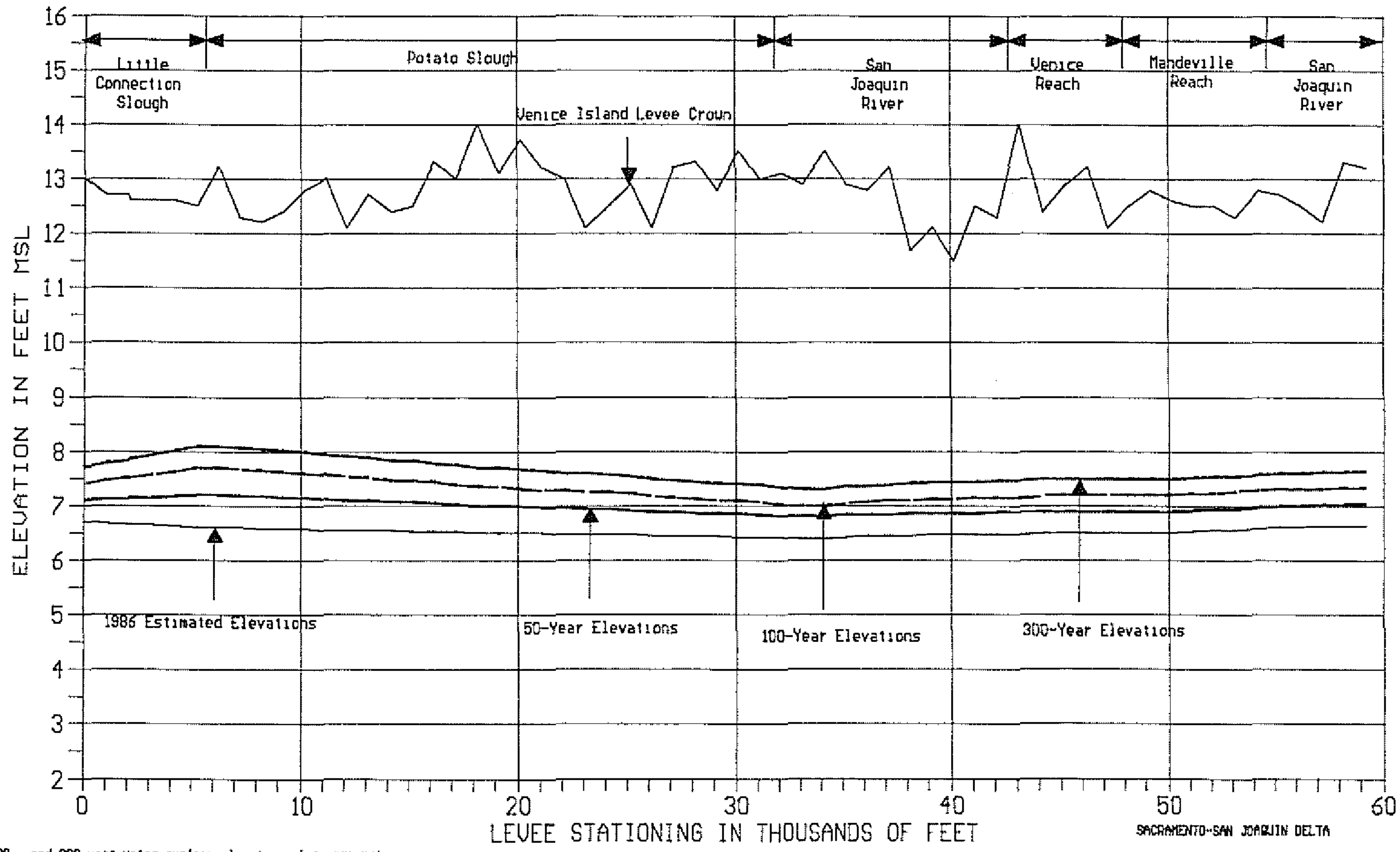
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
VEALE TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 69A SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

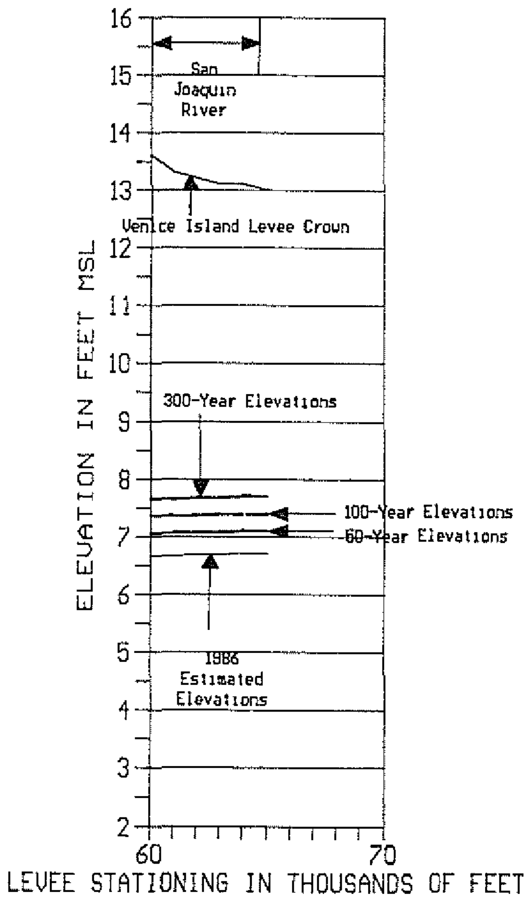
RECLAMATION DISTRICT 2023

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
VENICE ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 70 SHEET 1 OF 2



RECLAMATION DISTRICT 2023

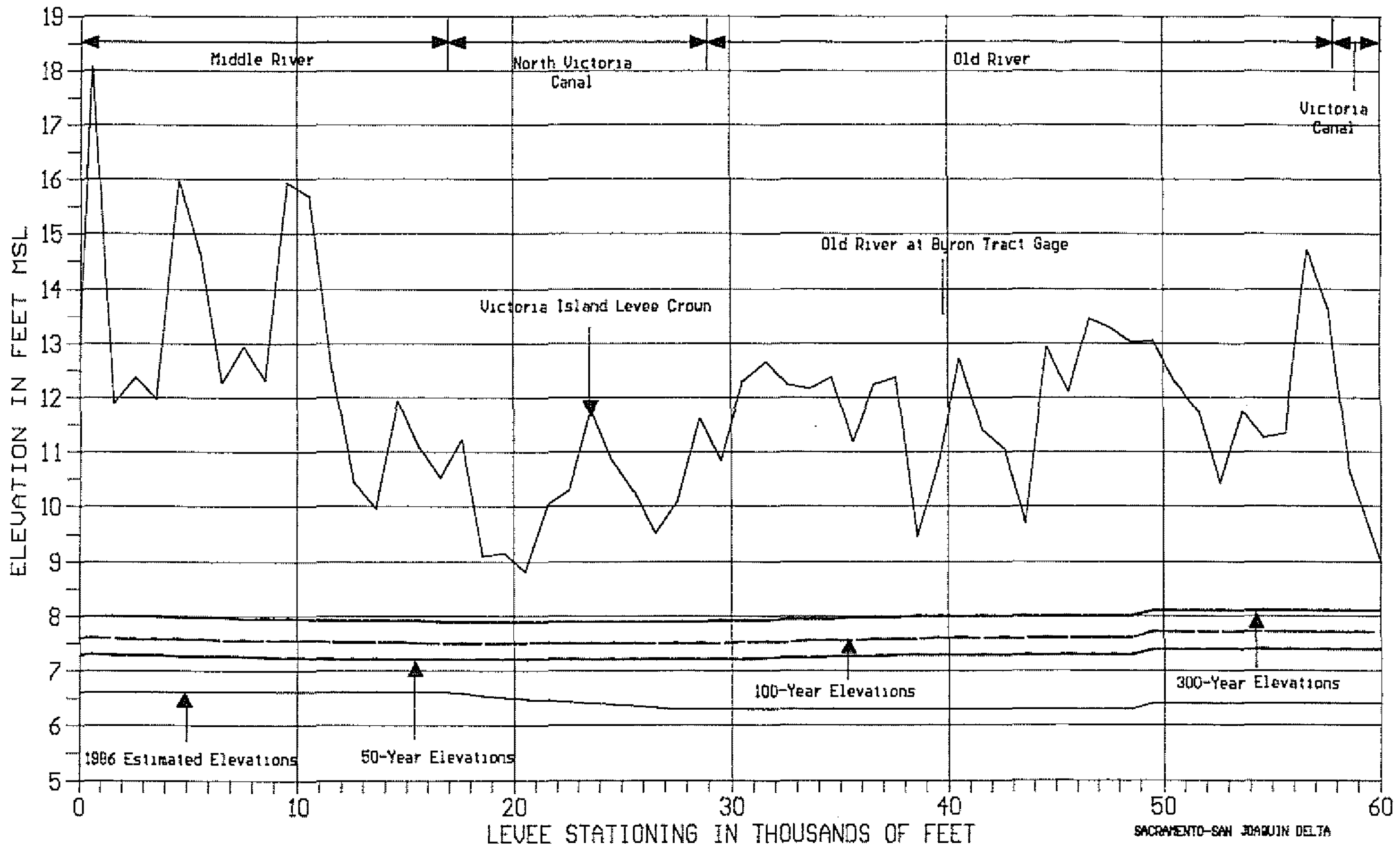
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
VENICE ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 70 SHEET 2 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

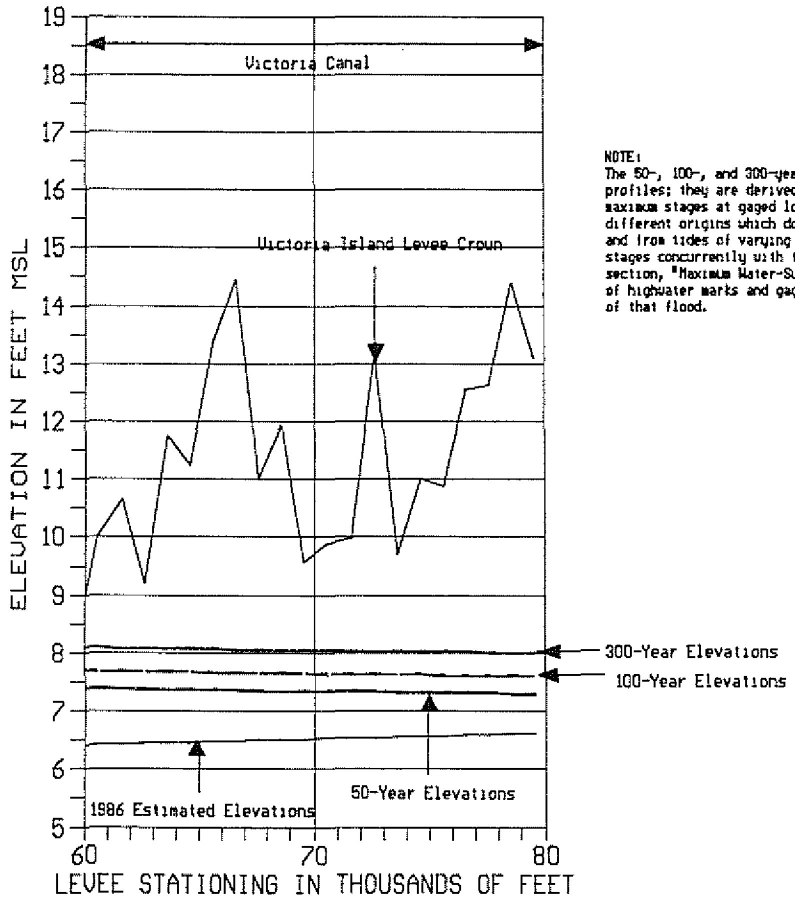
RECLAMATION DISTRICT 2040

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
VICTORIA ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 71 SHEET 1 OF 2



RECLAMATION DISTRICT 2040

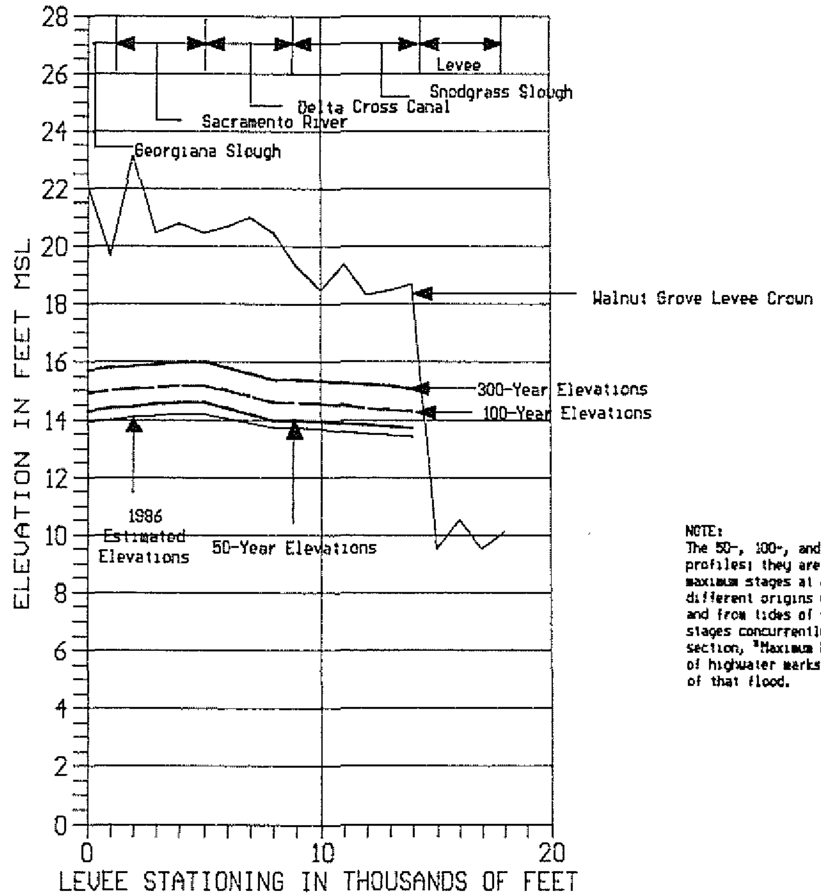
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
VICTORIA ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 71 SHEET 2 OF 2



RECLAMATION DISTRICT 554

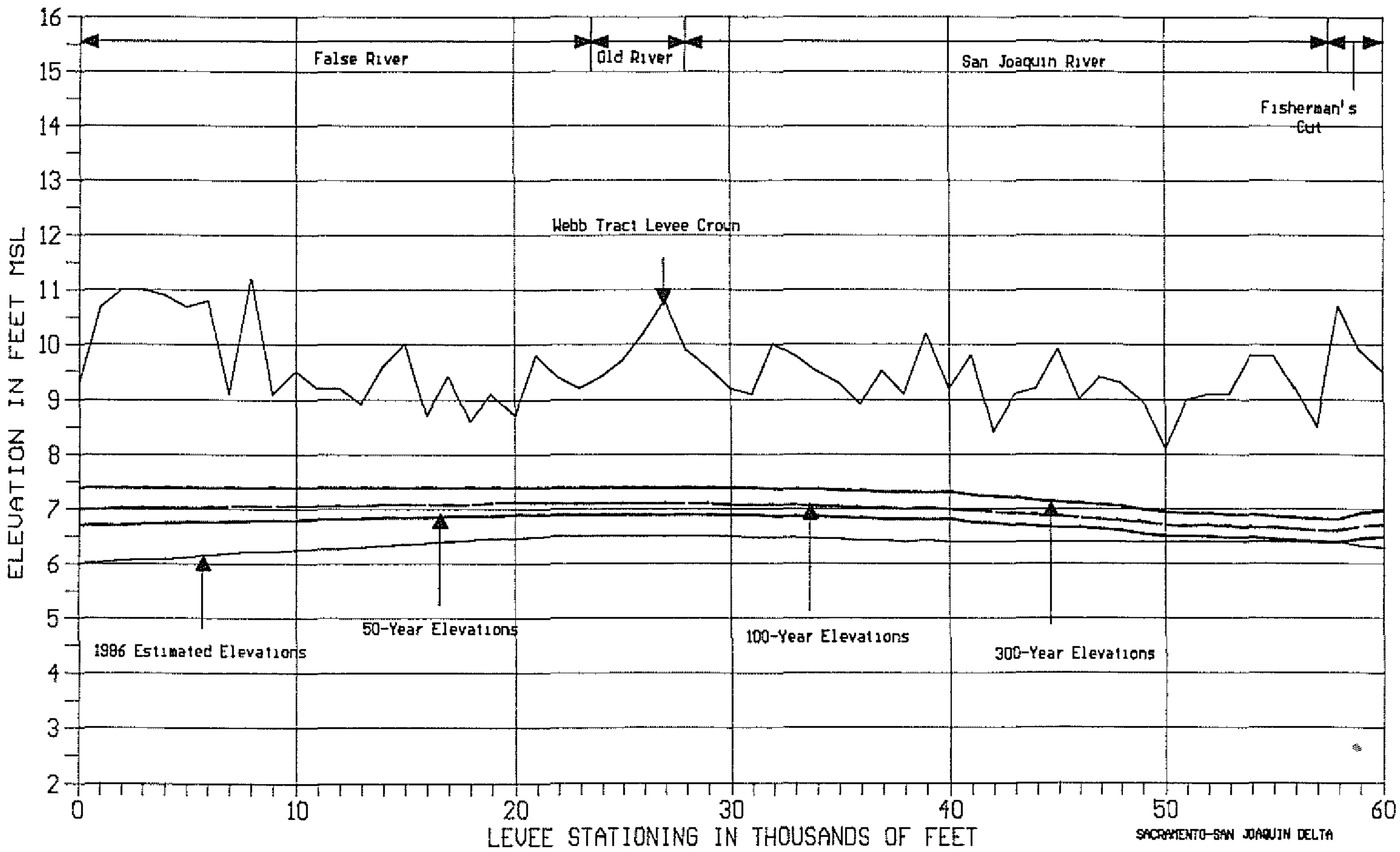
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
WALNUT GROVE

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 71A SHEET 1 OF 1



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

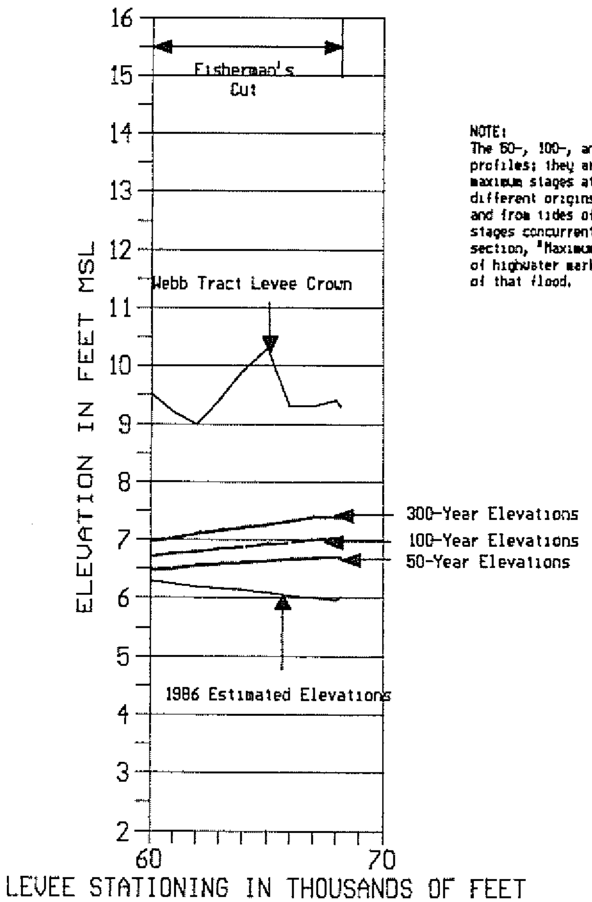
RECLAMATION DISTRICT 2026

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
WEBB TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 72 SHEET 1 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

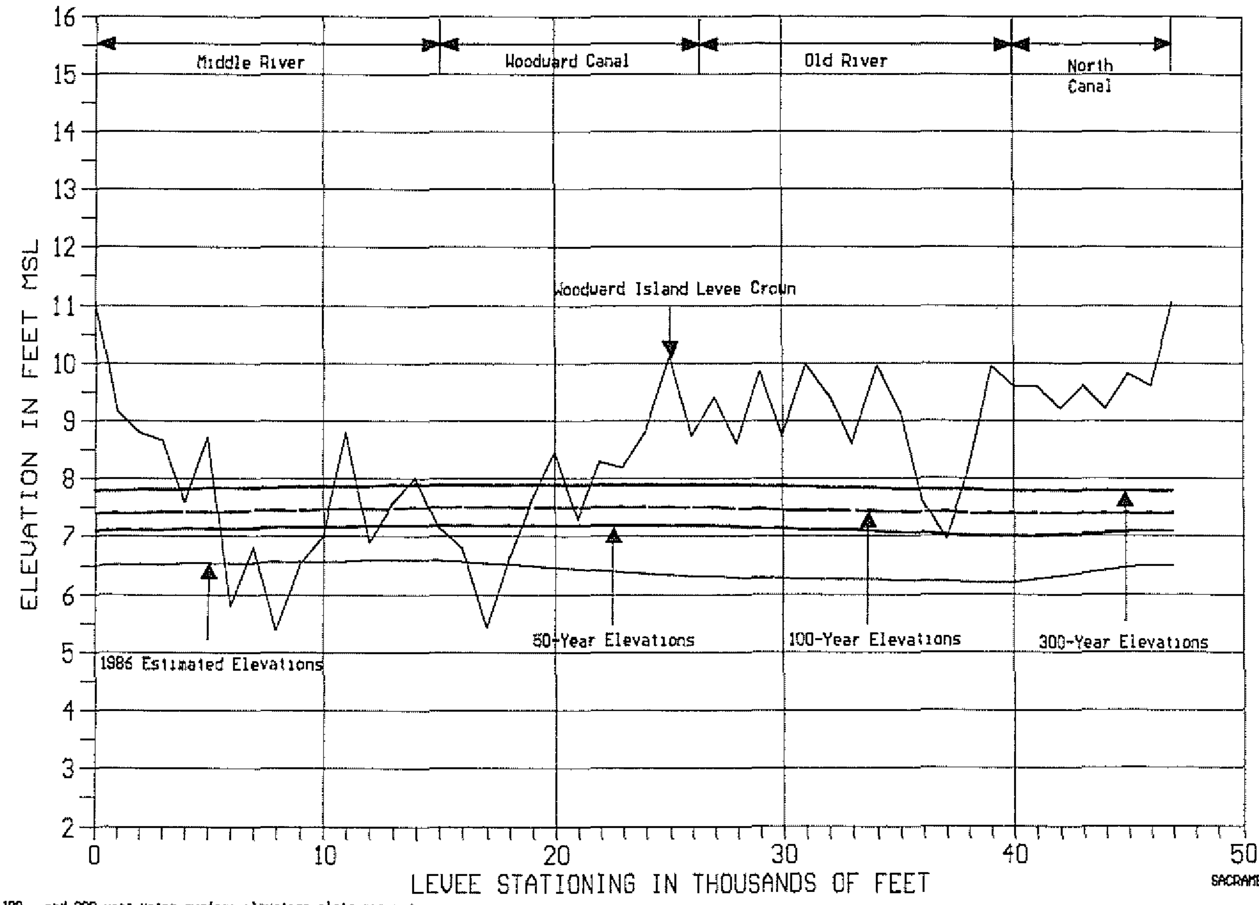
RECLAMATION DISTRICT 2026

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
WEBB TRACT

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 72 SHEET 2 OF 2



NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

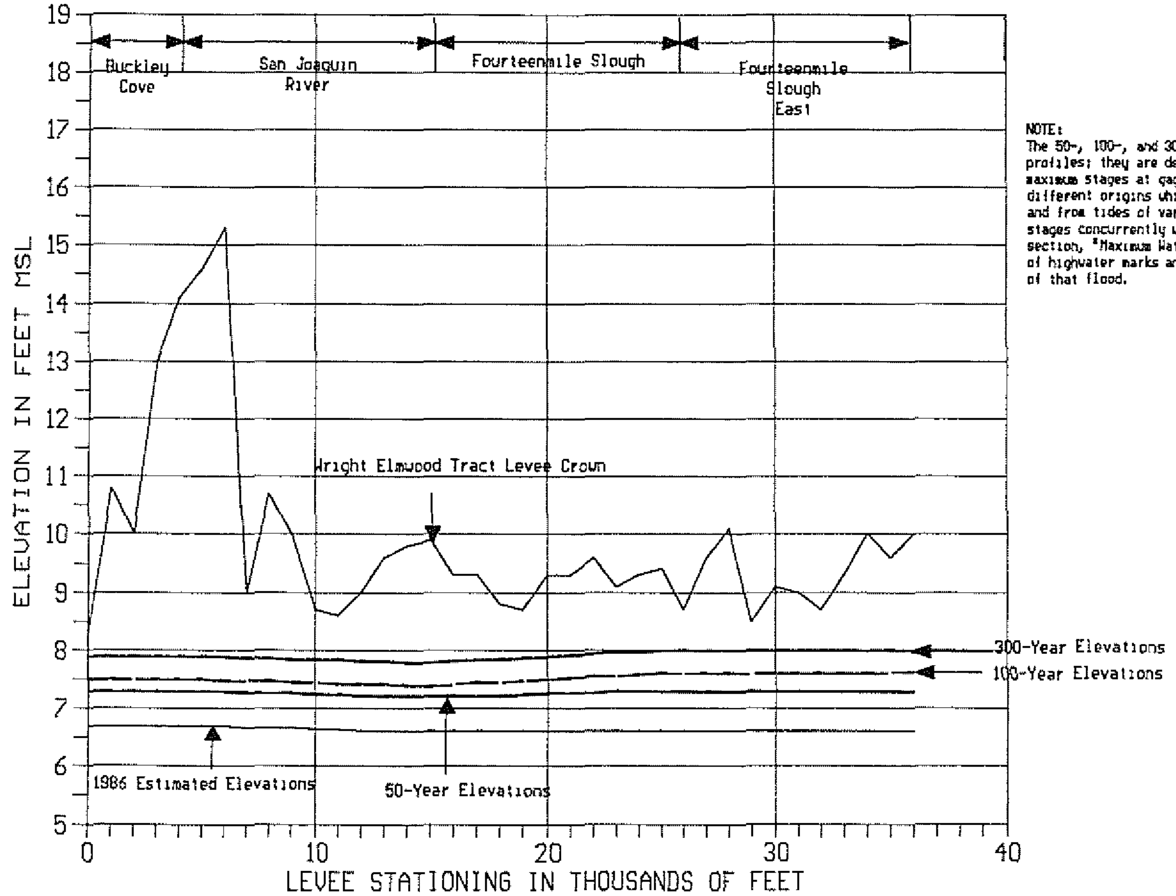
RECLAMATION DISTRICT 2072

SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
WOODWARD ISLAND

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 73 SHEET 1 OF 1



RECLAMATION DISTRICT 2119

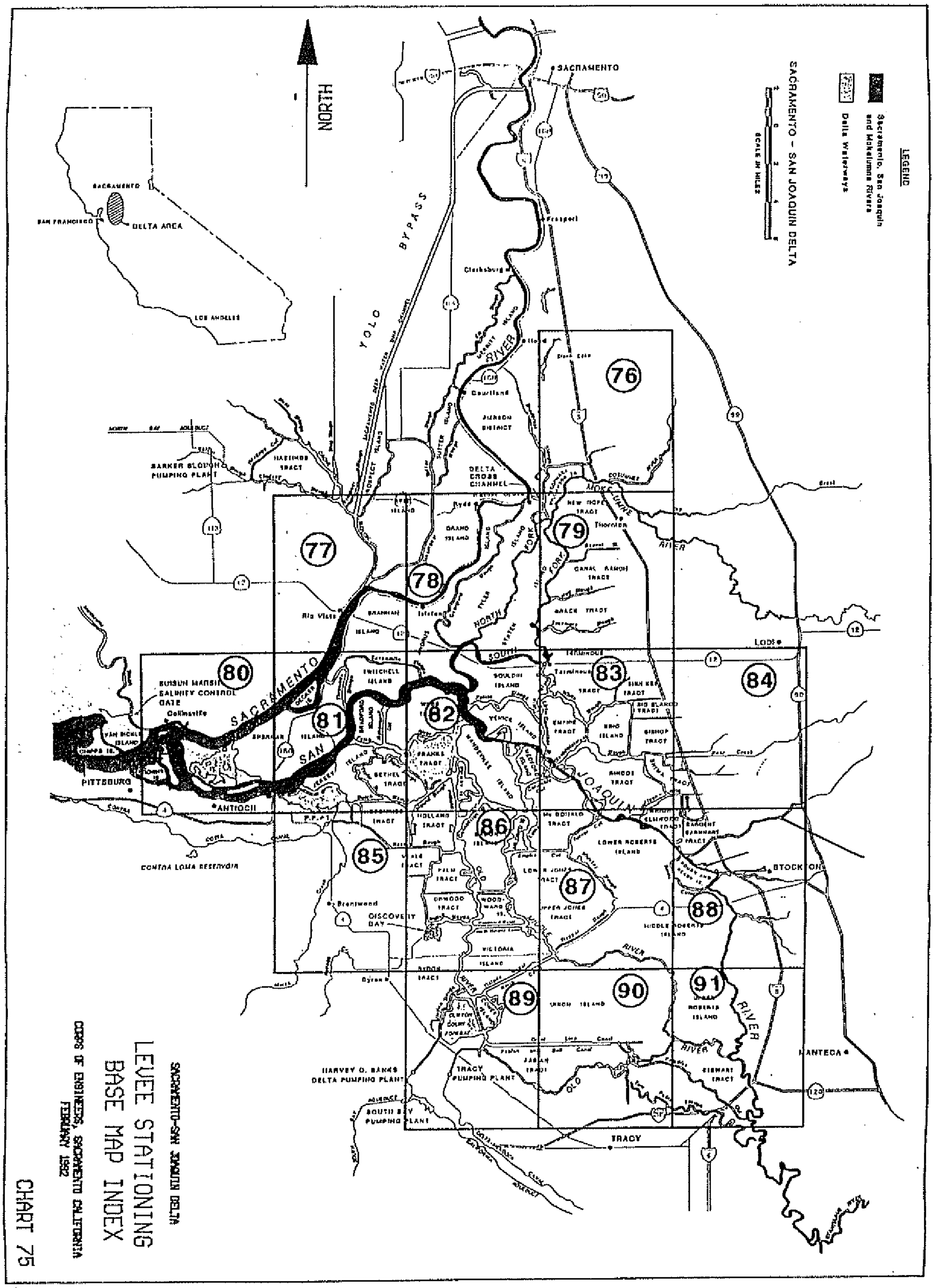
NOTE:
The 50-, 100-, and 300-year water-surface elevation plots are not profiles; they are derived from frequency curves of recorded annual maximum stages at gaged locations. The stages result from storms of different origins which do not have the same frequency at all locations, and from tides of varying magnitudes that seldom reach their maximum stages concurrently with the peak flows. See explanation in text in section, "Maximum Water-Surface Elevations". The 1986 plot is a connection of highwater marks and gaged recordings and represents the maximum stages of that flood.

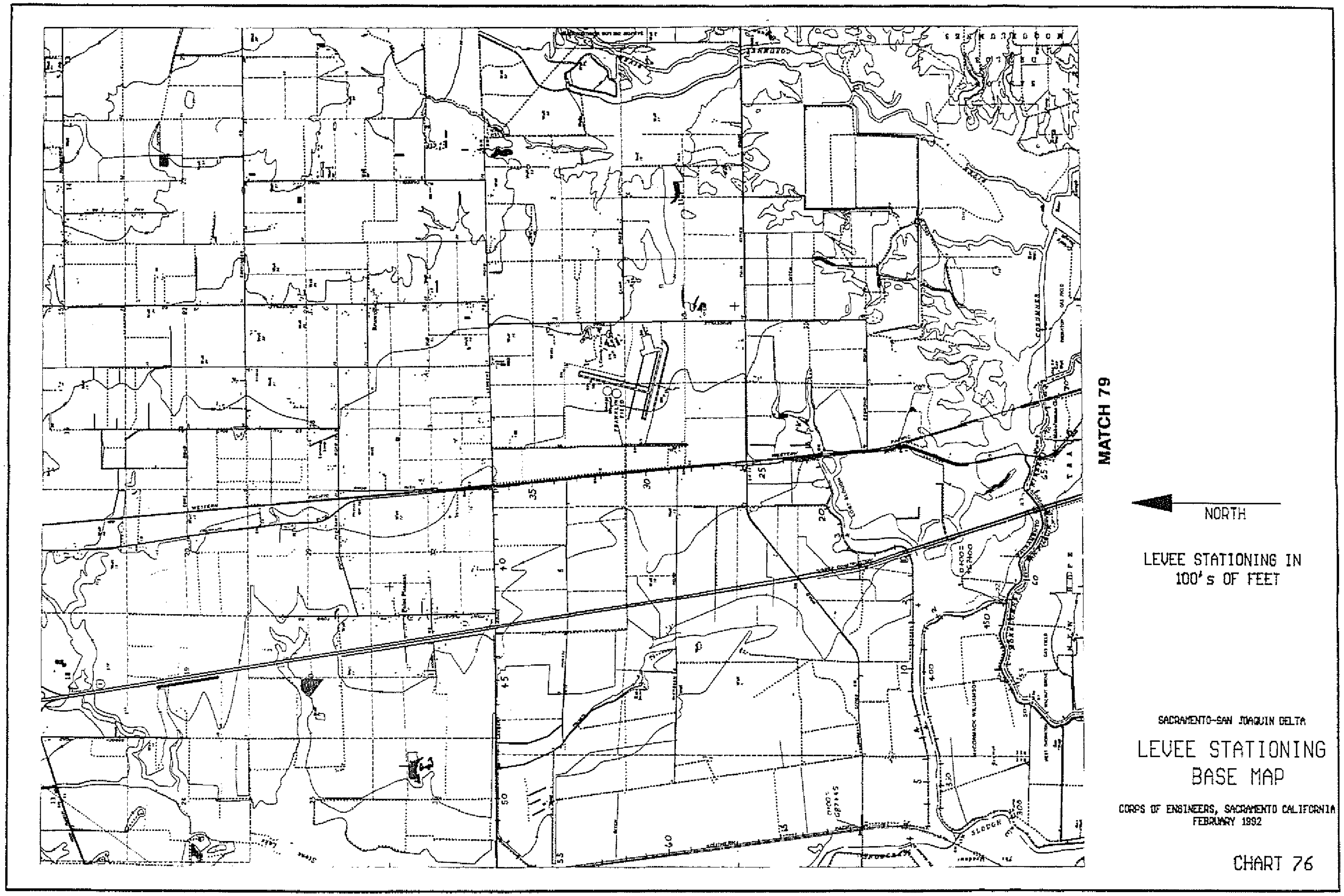
SACRAMENTO-SAN JOAQUIN DELTA

MAXIMUM WATER SURFACE ELEVATIONS
WRIGHT ELMWOOD TRACT

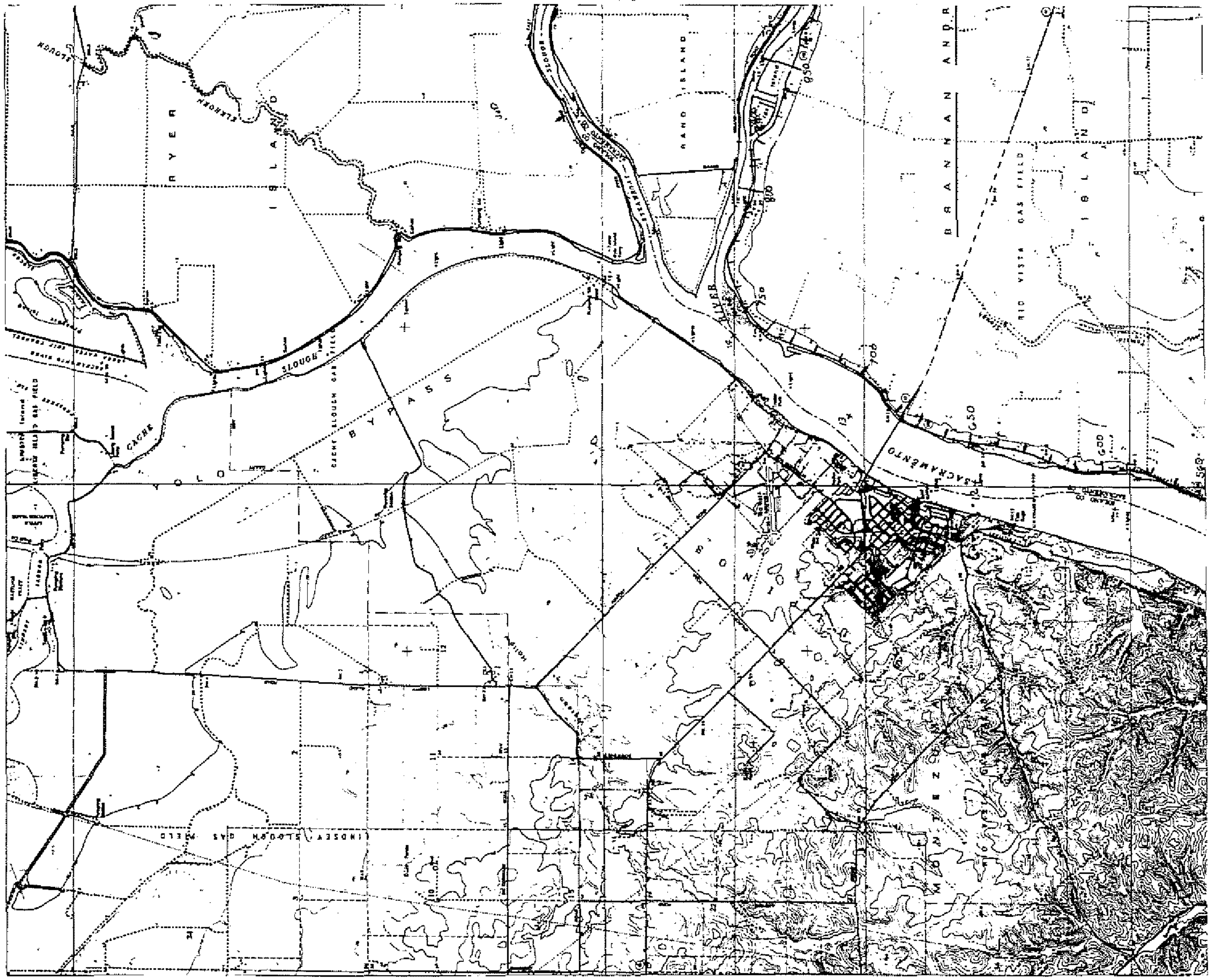
CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 74 SHEET 1 OF 1


SACRAMENTO-SAN JOAQUIN DELTA
LEVEE STATIONING
BASE MAP INDEX
CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992
CHART 75
NORTH
LEGEND
Sacramento, San Joaquin and Mokelumne Rivers
Delta Waterways
SACRAMENTO - SAN JOAQUIN DELTA
SCALE IN MILES
SACRAMENTO
SAN FRANCISCO
DELTA AREA
LOS ANGELES
YOLO BYPASS
SACRAMENTO
Freeport
Clarksburg
RIVER
Courtland
DELTA CROSS CHANNEL
BARKER SLOUGH PUMPING PLANT
Rio Vista
SUISUN MARSH SALINITY CONTROL GATE
Collinsville
PITTSBURG
ANTIOCH
SACRAMENTO
SAN
JOAQUIN
NORTH
SOUTH
FORK
LODI
STOCKTON
MANTECA
TRACY
HARVEY O. BANKS DELTA PUMPING PLANT
TRACY PUMPING PLANT
DISCOVERY BAY
CONTRA LOMA RESERVOIR
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91


MATCH 79
NORTH
LEVEE STATIONING IN
100's OF FEET
SACRAMENTO-SAN JOAQUIN DELTA
LEVEE STATIONING
BASE MAP
CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992
CHART 76

MATCH 78



MATCH 81

NORTH

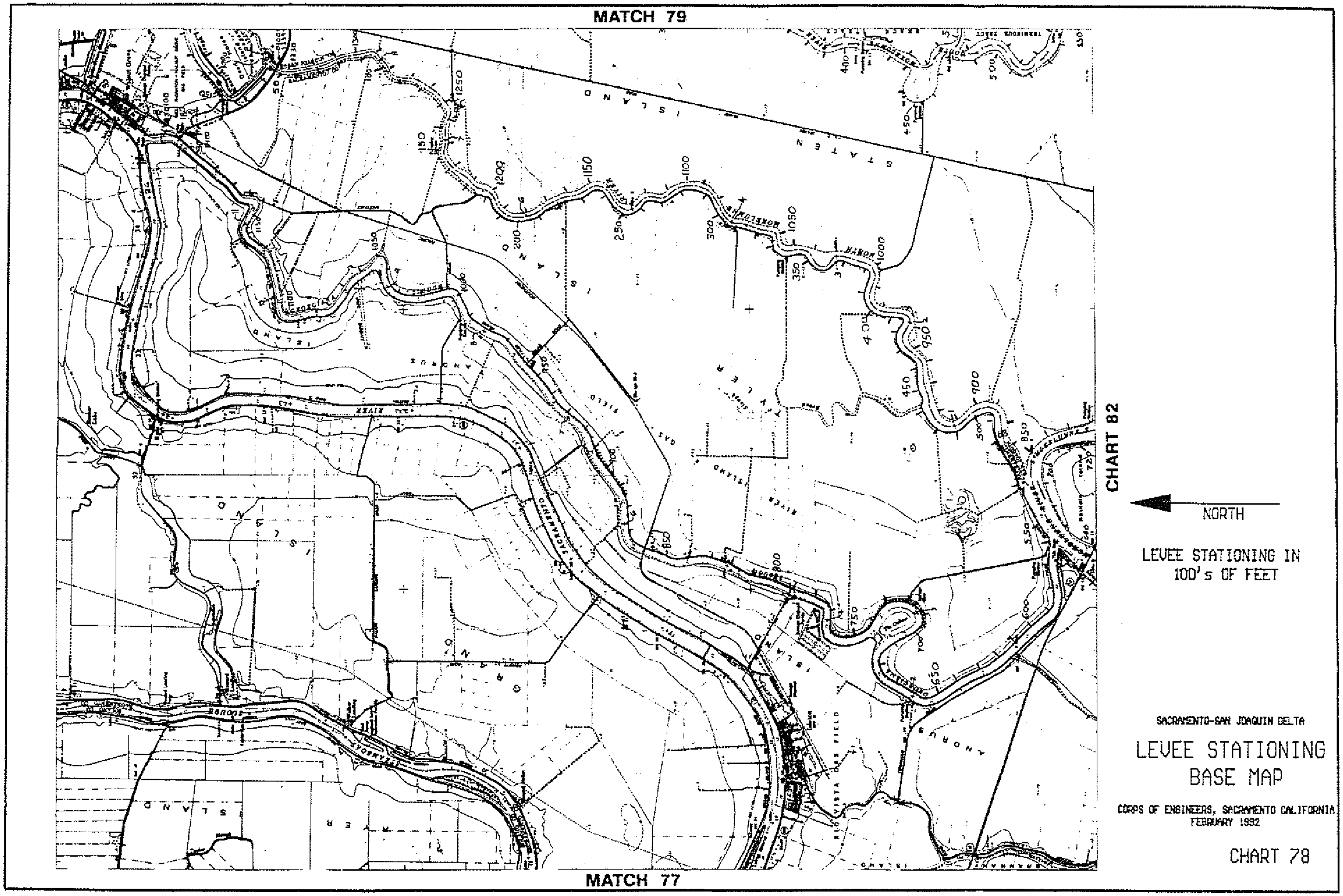
LEVEE STATIONING IN
100's OF FEET

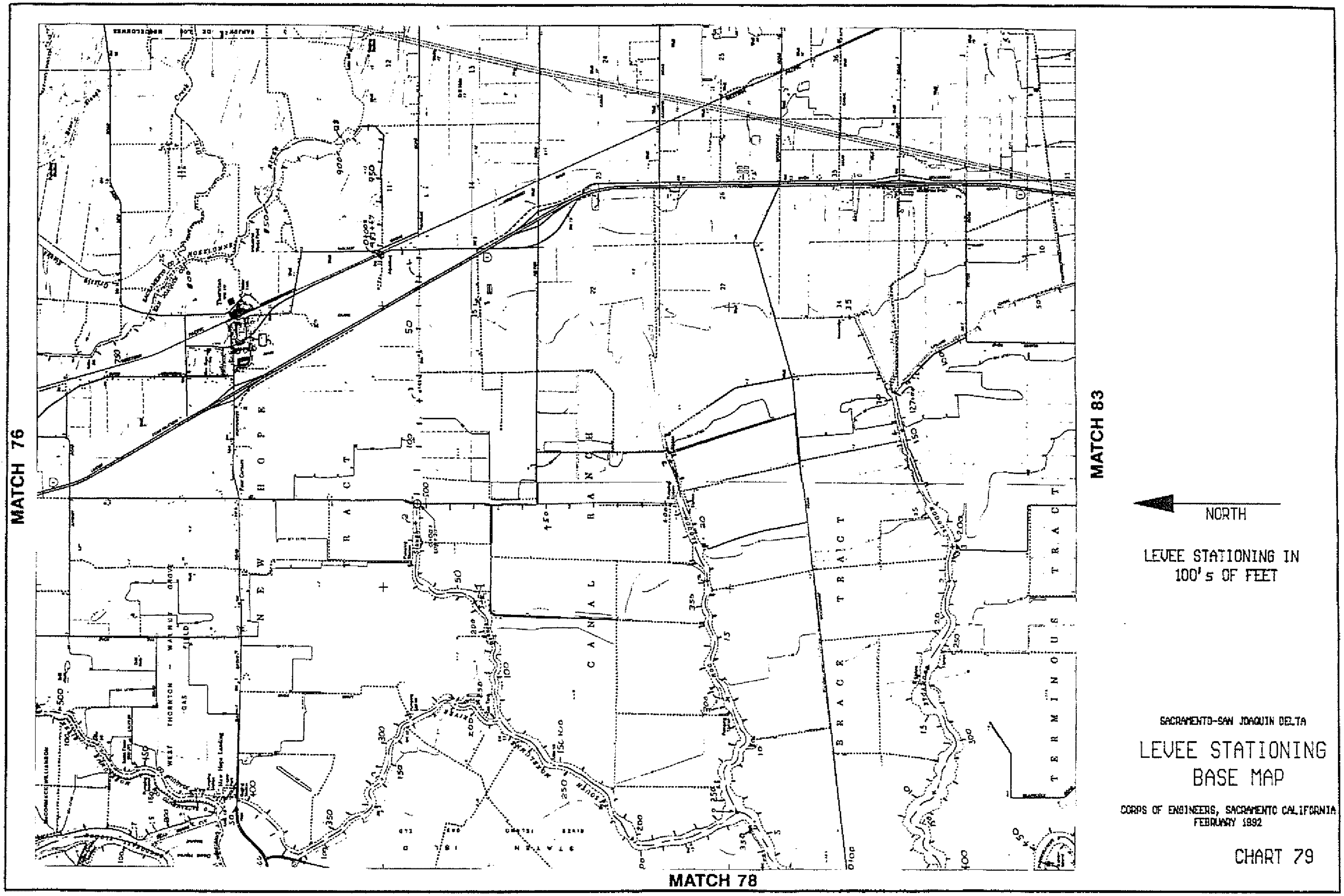
SACRAMENTO-SAN JOAQUIN DELTA

LEVEE STATIONING
BASE MAP

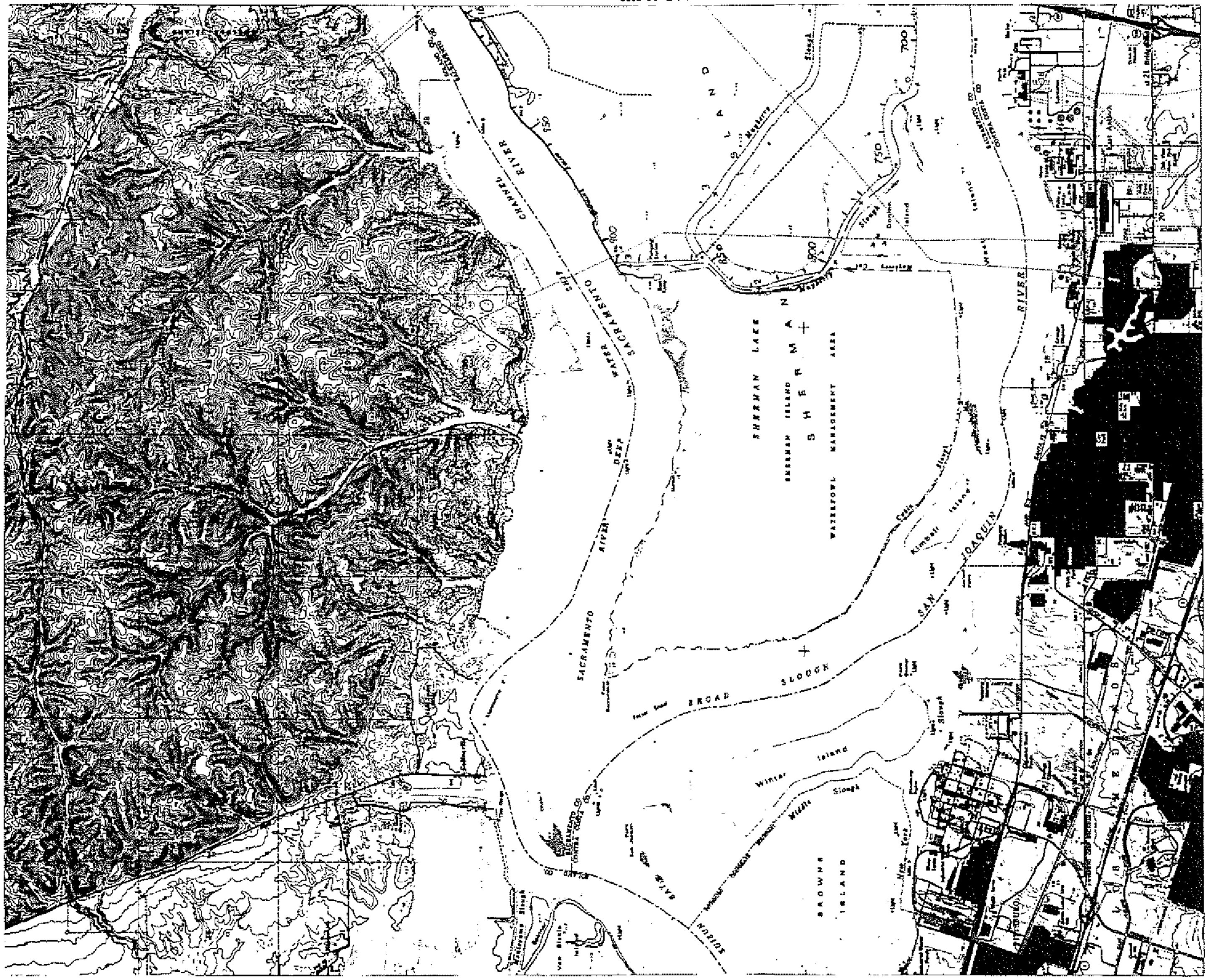
CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 77


MATCH 79
CHART 82
NORTH
LEVEE STATIONING IN 100's OF FEET
SACRAMENTO-SAN JOAQUIN DELTA
LEVEE STATIONING BASE MAP
CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992
CHART 78
MATCH 77


MATCH 76
MATCH 83
MATCH 78
NORTH
LEVEE STATIONING IN
100's OF FEET
SACRAMENTO-SAN JOAQUIN DELTA
LEVEE STATIONING
BASE MAP
CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992
CHART 79

MATCH 81



NORTH

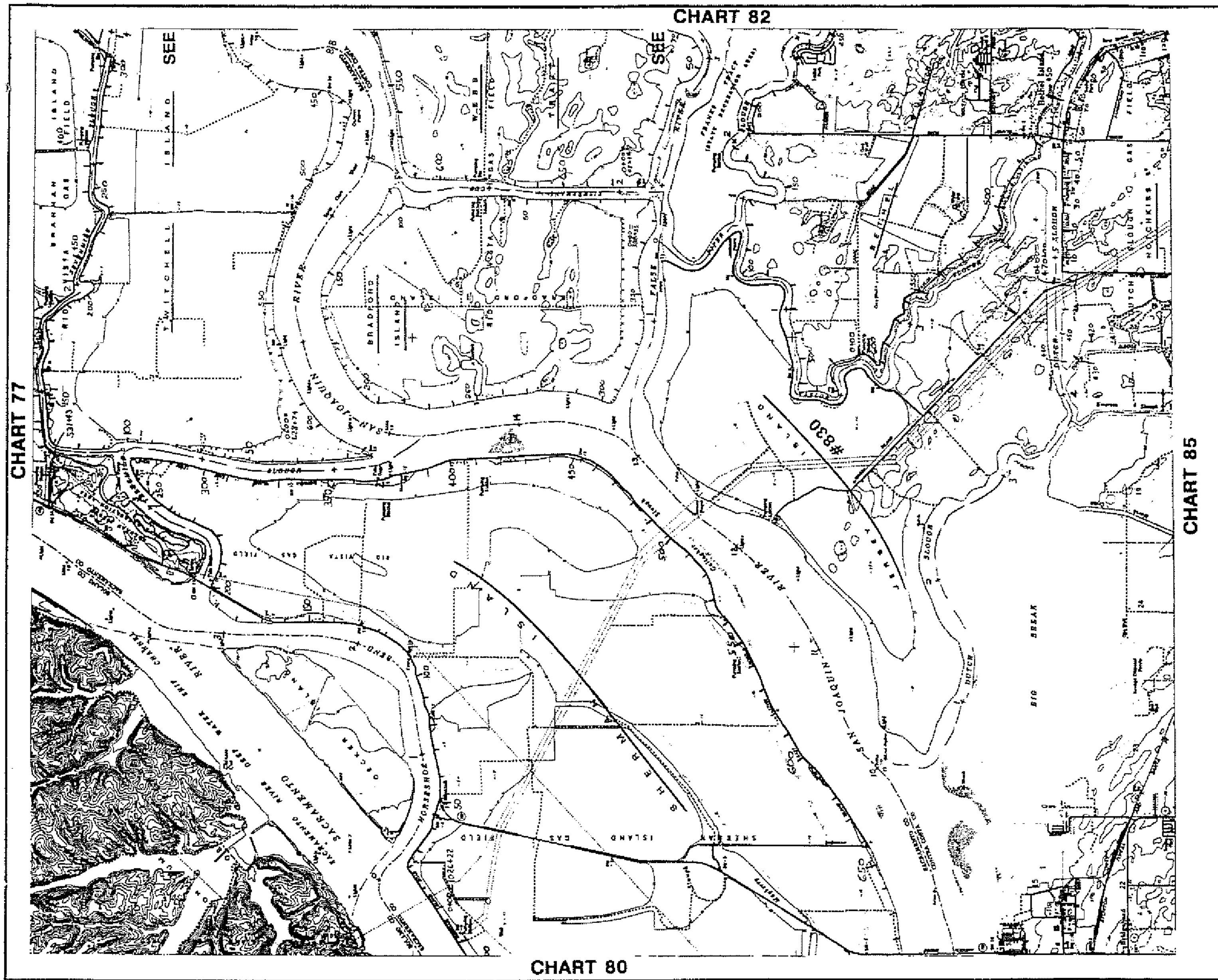
LEVEE STATIONING IN
100's OF FEET

SACRAMENTO-SAN JOAQUIN DELTA

LEVEE STATIONING
BASE MAP

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 80



NORTH

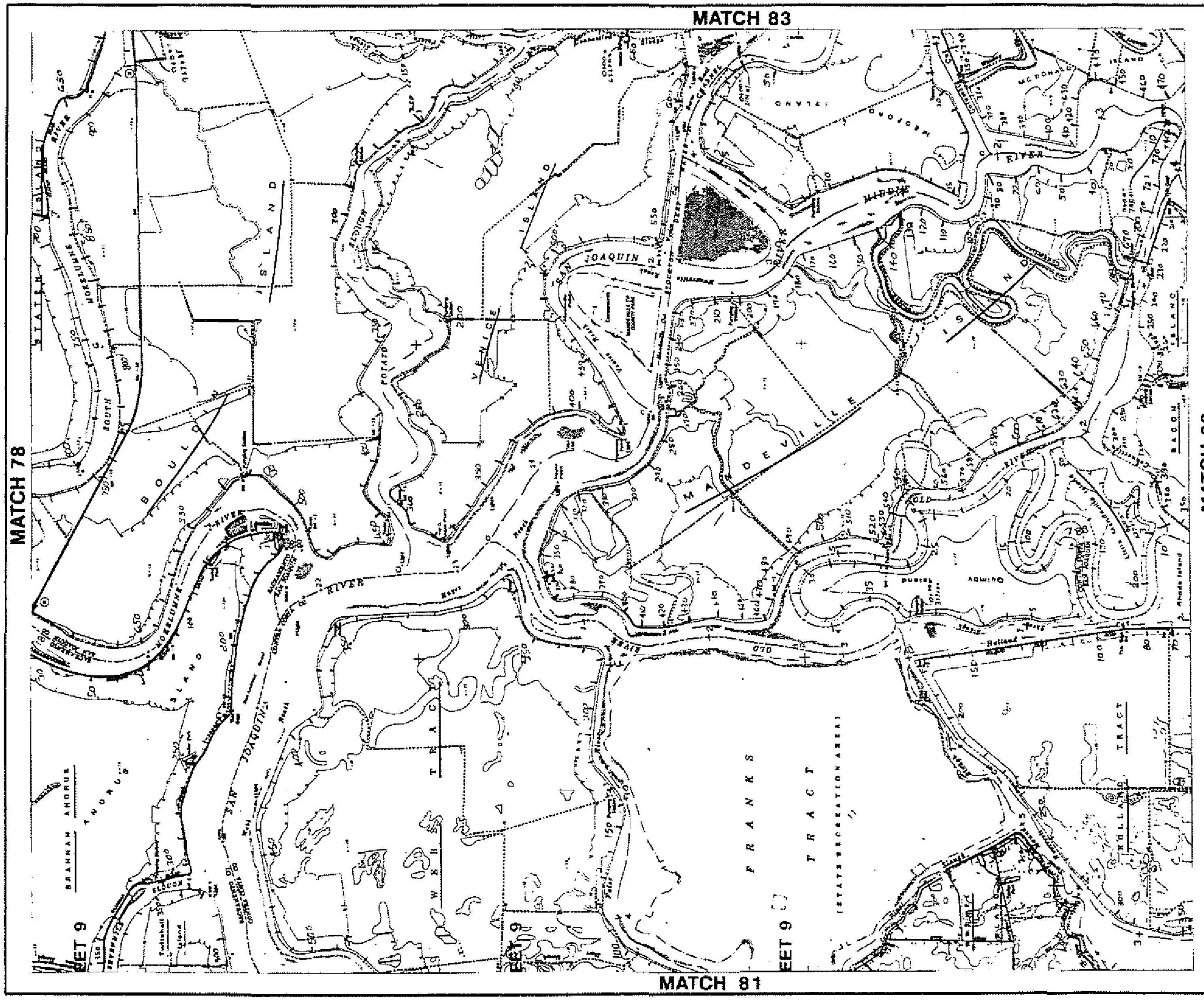
LEVEE STATIONING IN 100's OF FEET

SACRAMENTO-SAN JOAQUIN DELTA

LEVEE STATIONING BASE MAP

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 81



NORTH

LEVEE STATIONING IN 100's OF FEET

SACRAMENTO-SAN JOAQUIN DELTA

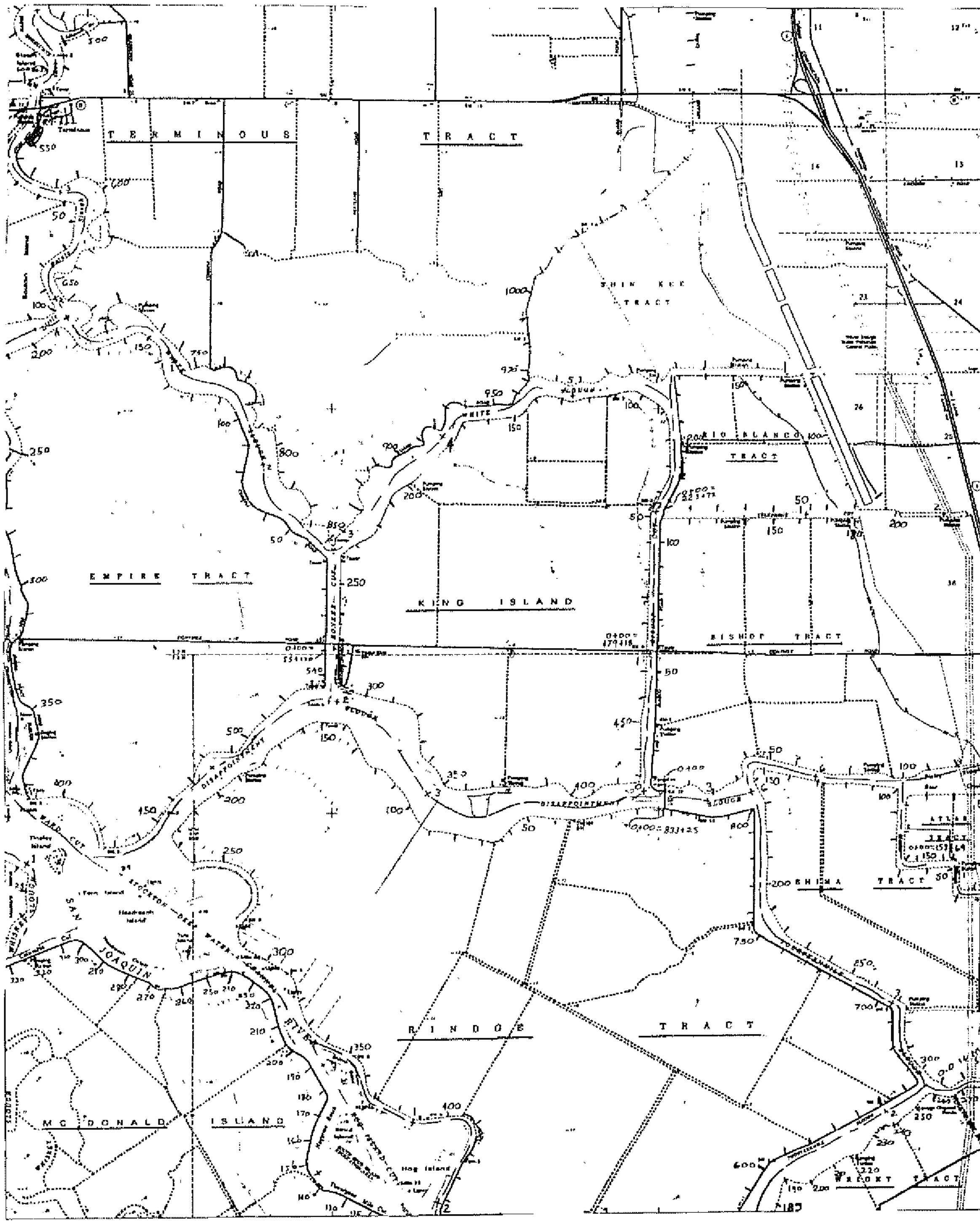
LEVEE STATIONING BASE MAP

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 82

MATCH 79

MATCH 82



MATCH 84

MATCH 87

NORTH

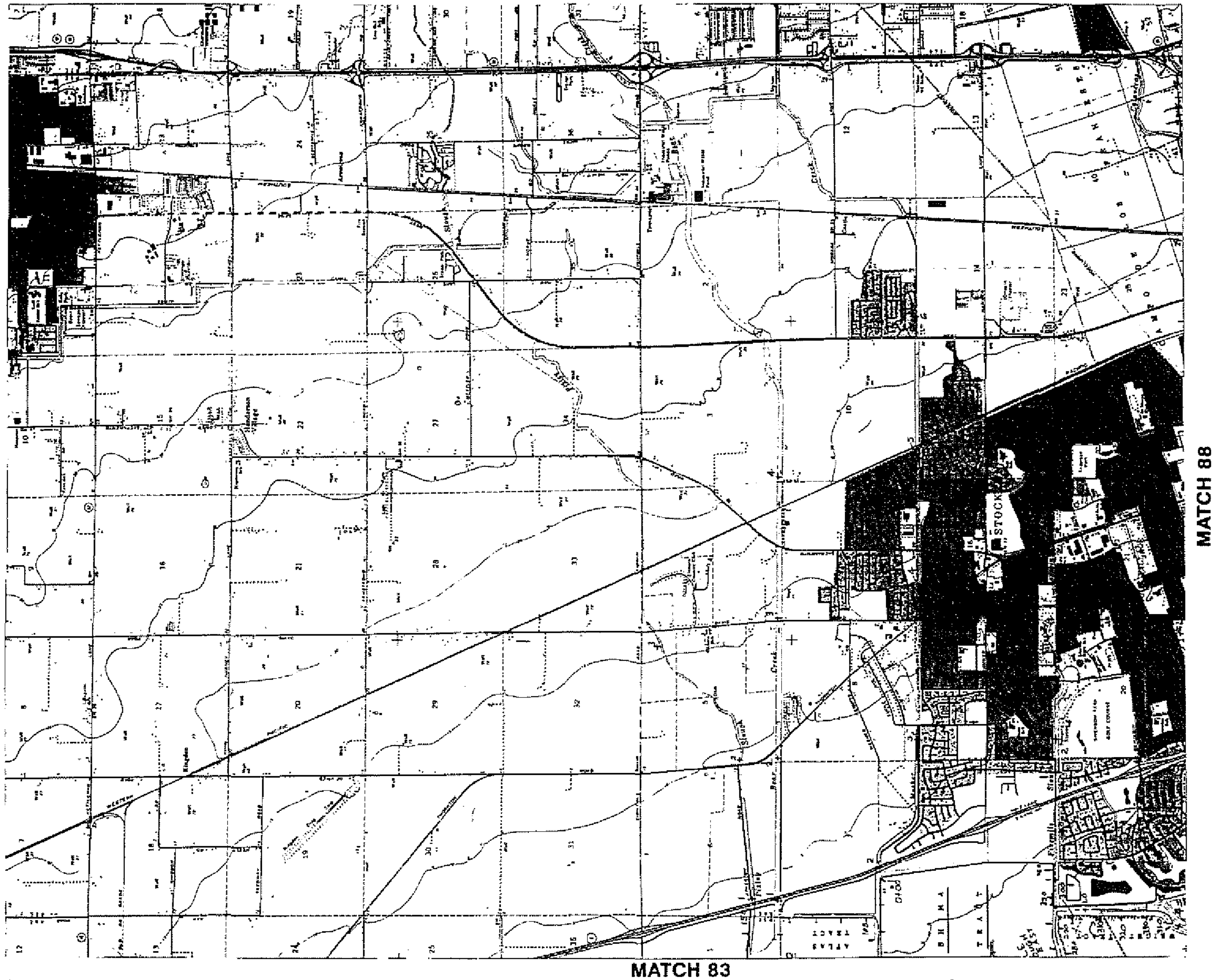
LEVEE STATIONING IN 100's OF FEET

SACRAMENTO-SAN JOAQUIN DELTA

LEVEE STATIONING BASE MAP

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 83



NORTH

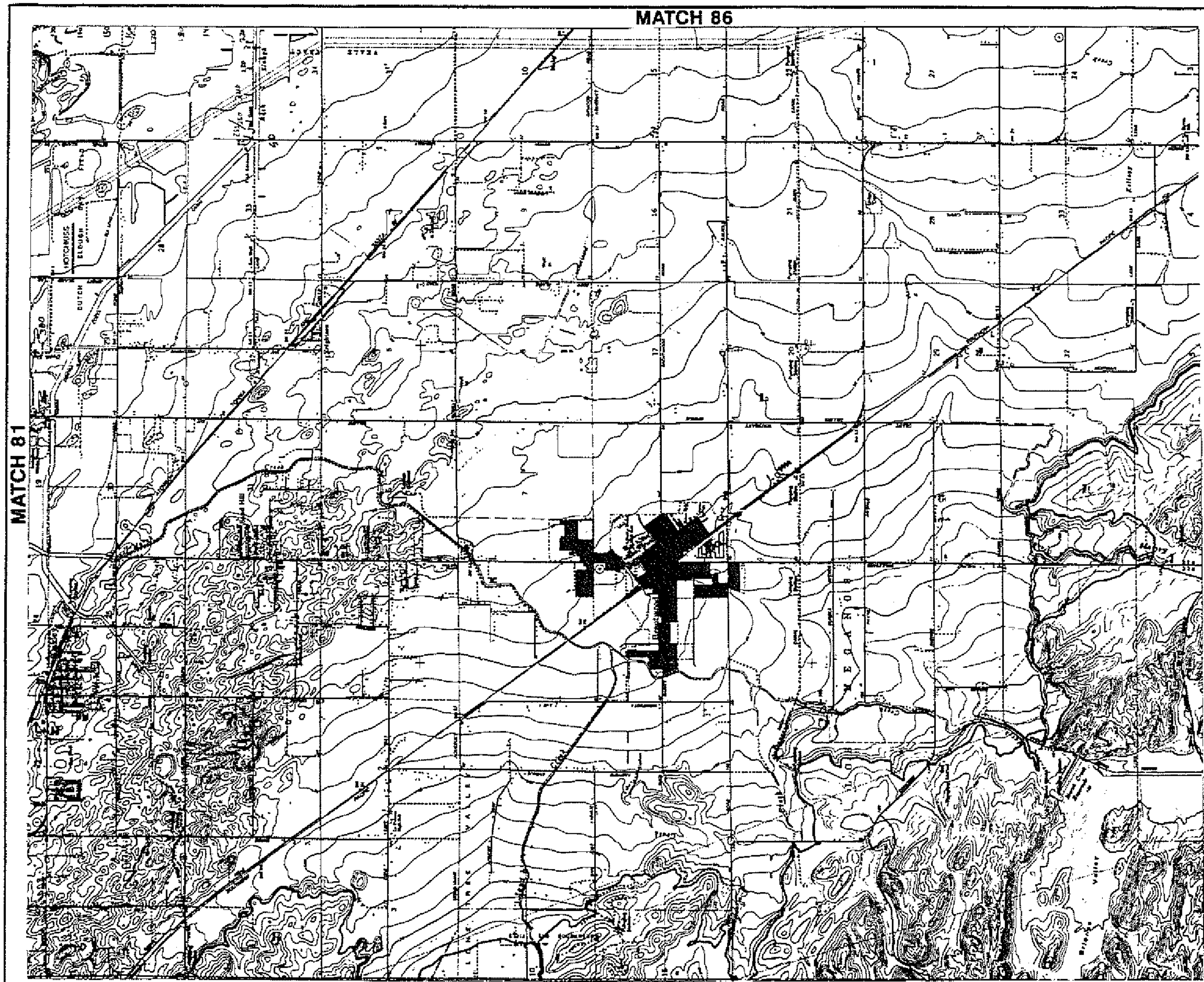
LEVEE STATIONING IN
100's OF FEET

SACRAMENTO-SAN JOAQUIN DELTA

LEVEE STATIONING
BASE MAP

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 84



LEVEE STATIONING IN
100's OF FEET

SACRAMENTO-SAN JOAQUIN DELTA

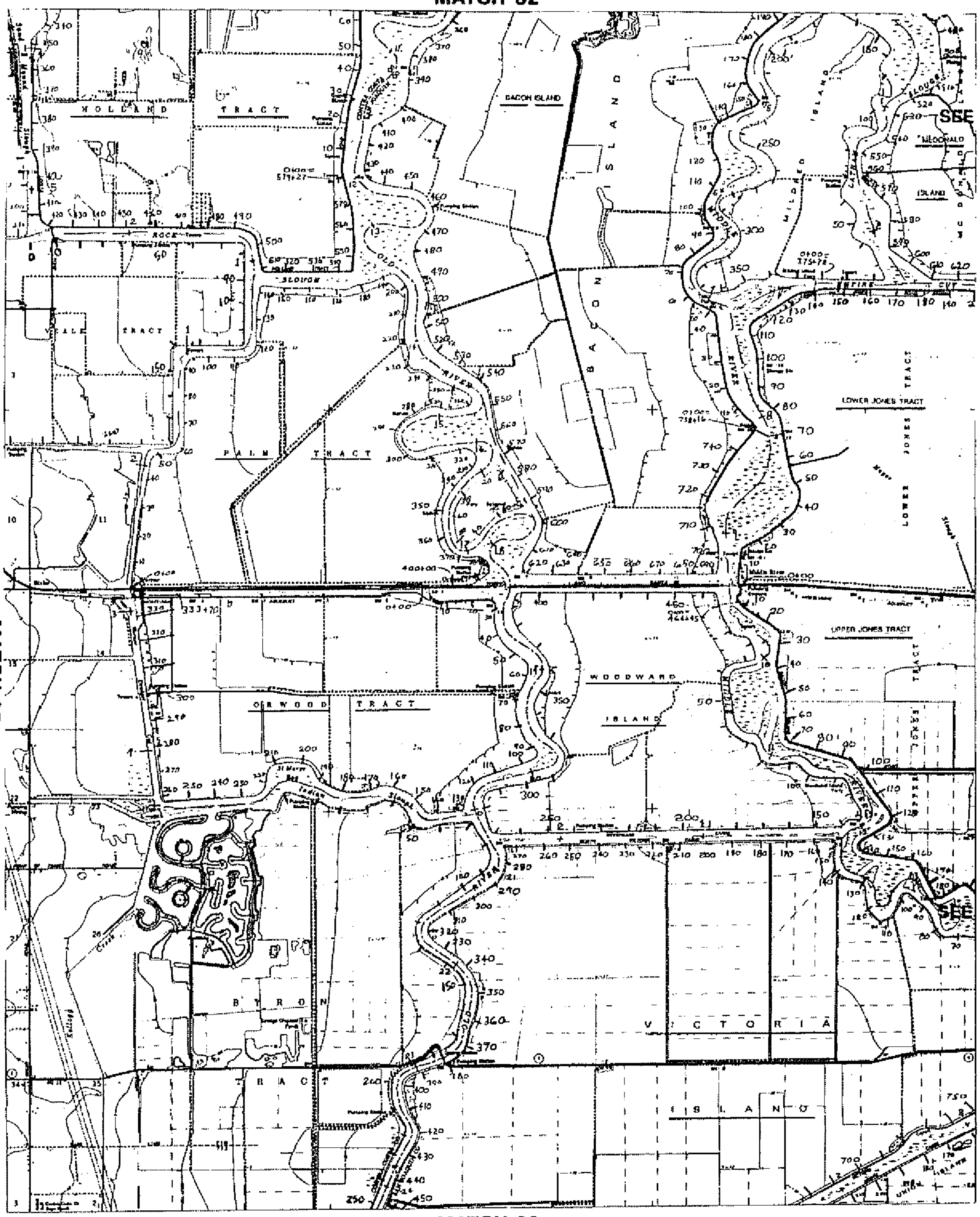
LEVEE STATIONING
BASE MAP

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 85

MATCH 82

MATCH 85



MATCH 87

MATCH 89

NORTH

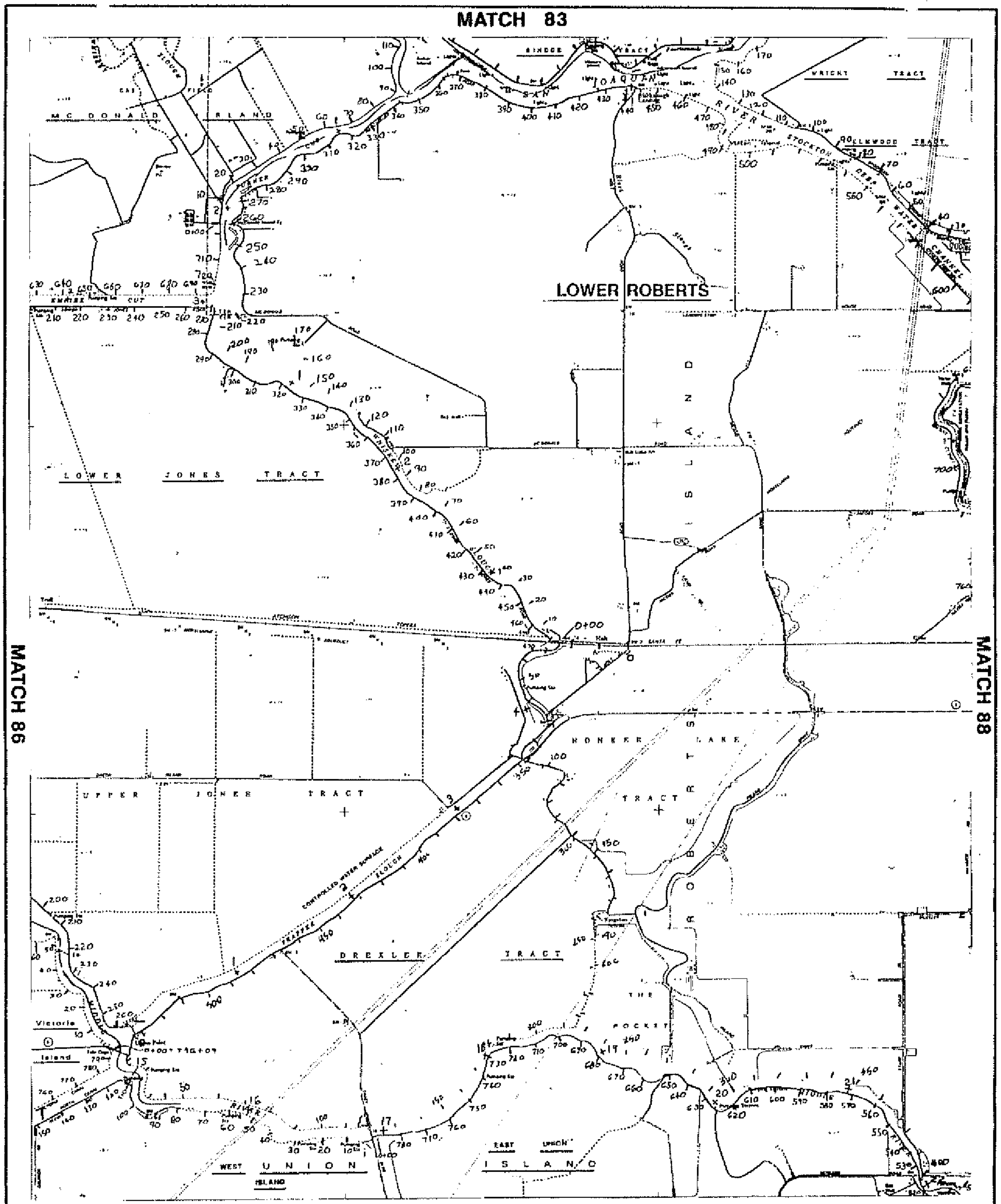
LEVEE STATIONING IN 100's OF FEET

SACRAMENTO-SAN JOAQUIN DELTA

LEVEE STATIONING BASE MAP

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 86



NORTH

LEVEE STATIONING IN 100's OF FEET

SACRAMENTO-SAN JOAQUIN DELTA

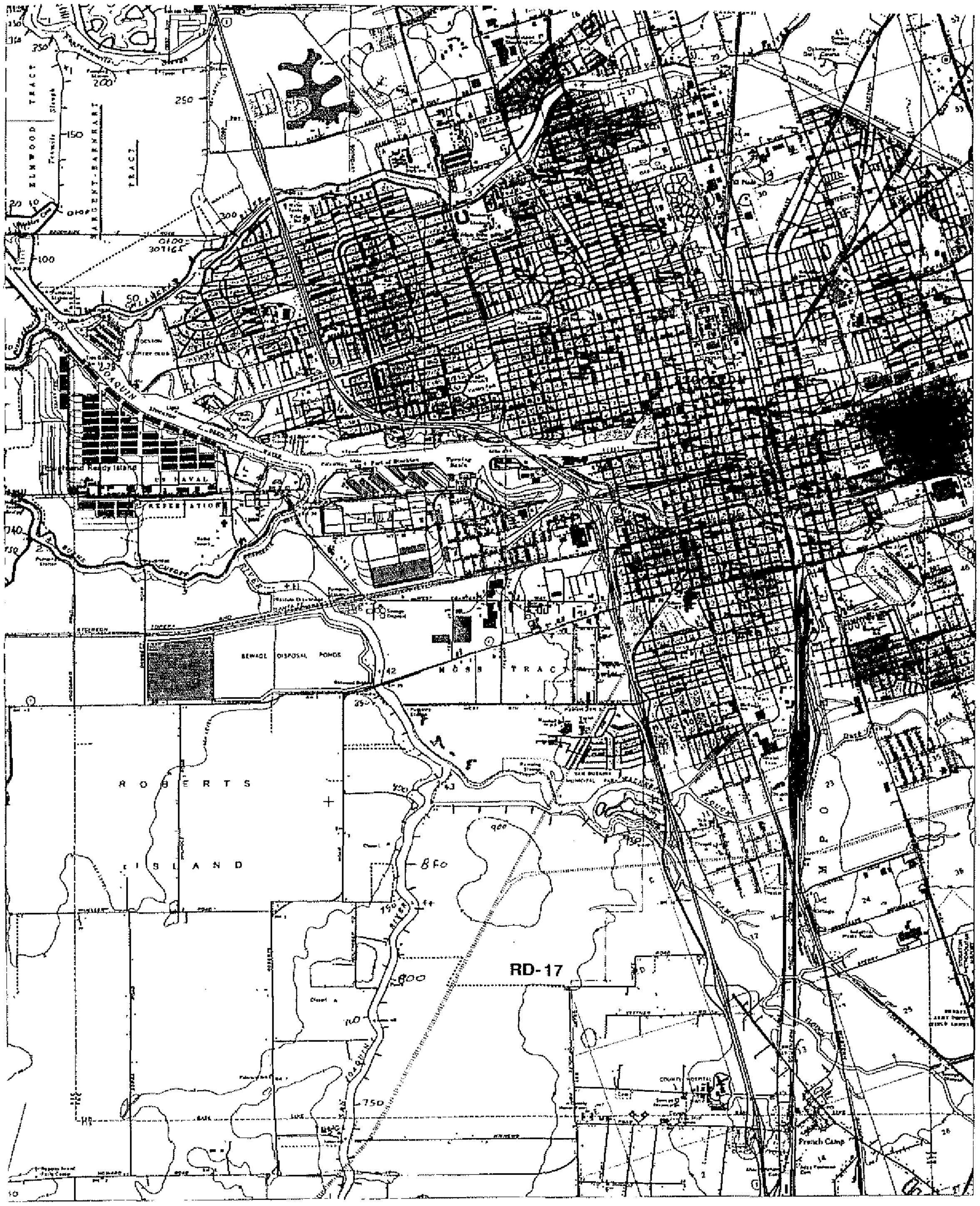
LEVEE STATIONING BASE MAP

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 87

MATCH 84

MATCH 87



MATCH 91

NORTH

LEVEE STATIONING IN 100's OF FEET

SACRAMENTO-SAN JOAQUIN DELTA

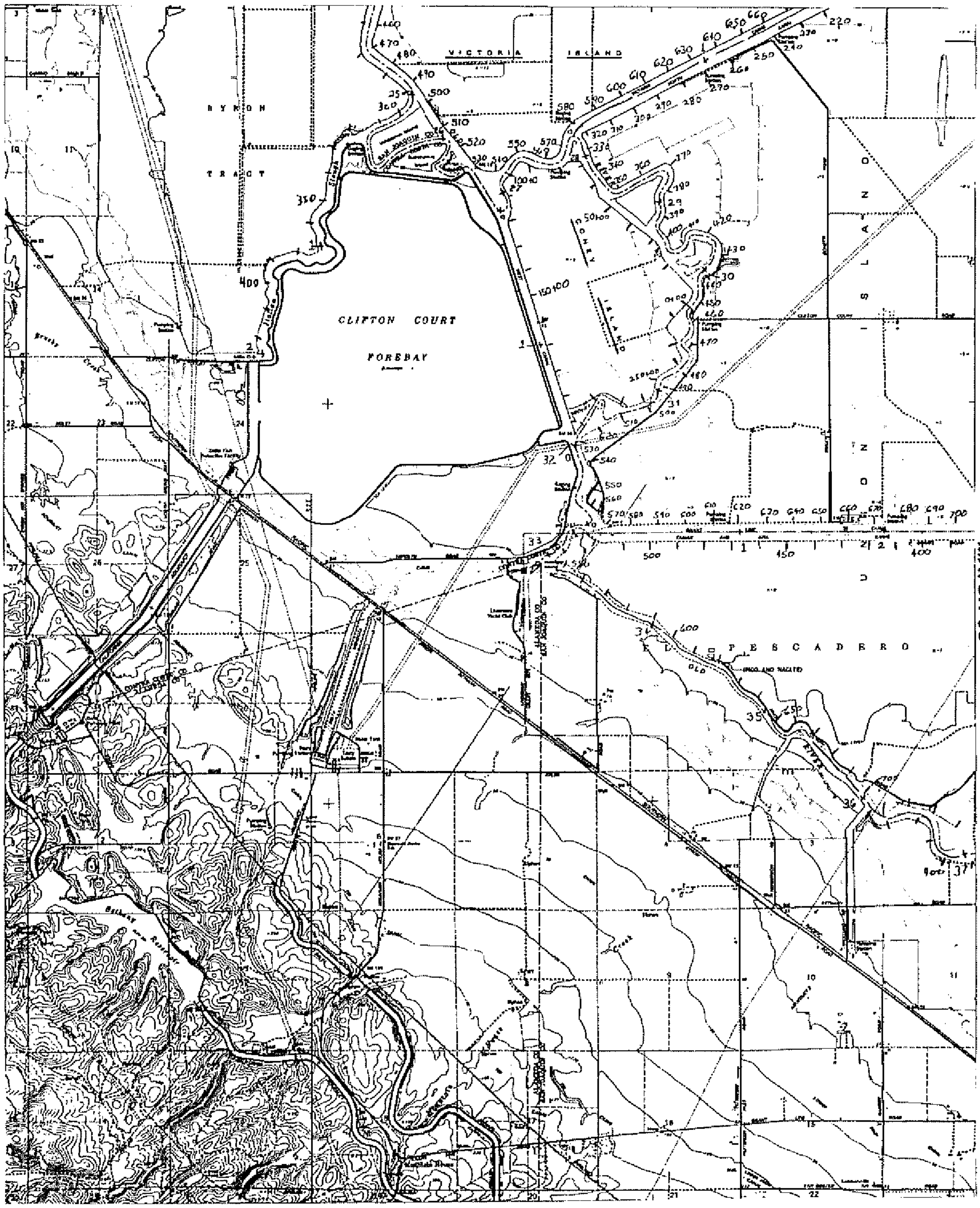
LEVEE STATIONING BASE MAP

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA

FEBRUARY 1992

CHART 88

MATCH 86



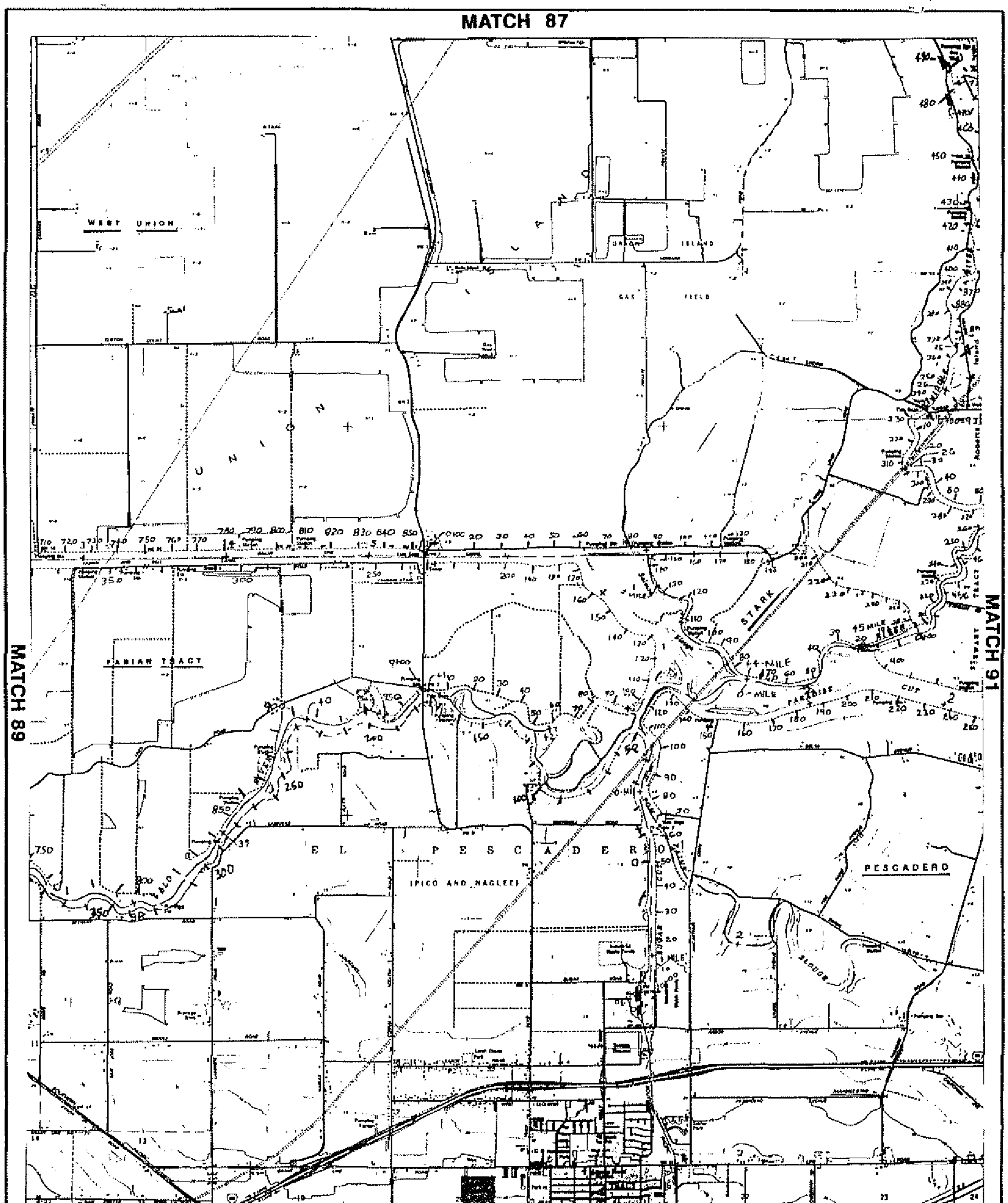
MATCH 90

NORTH

LEVEE STATIONING IN
100's OF FEET

SACRAMENTO-SAN JOAQUIN DELTA
LEVEE STATIONING
BASE MAP
CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 89



NORTH

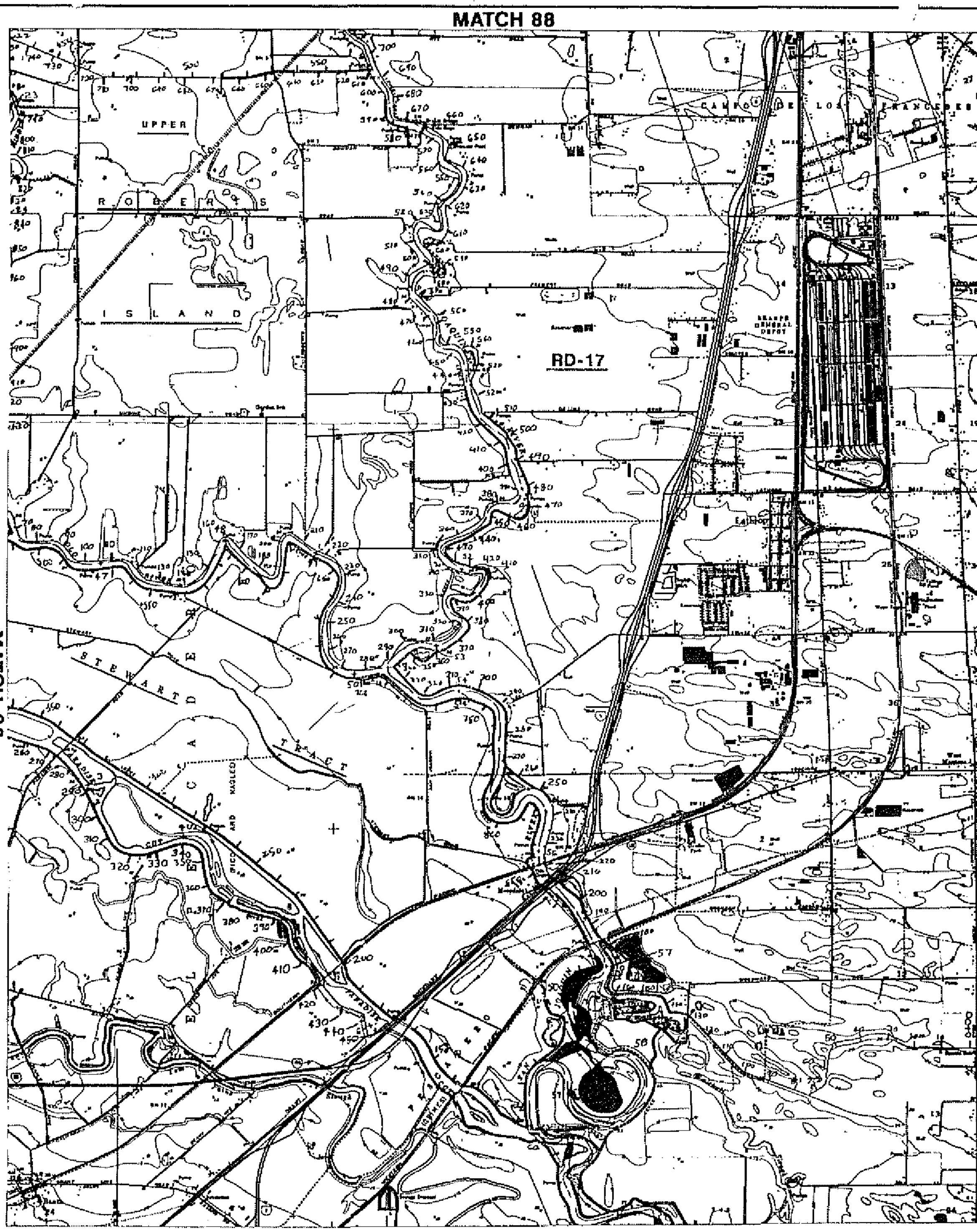
LEVEE STATIONING IN 100's OF FEET

SACRAMENTO-SAN JOAQUIN DELTA

LEVEE STATIONING BASE MAP

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 90



NORTH

LEVEE STATIONING IN
100's OF FEET

SACRAMENTO-SAN JOAQUIN DELTA

LEVEE STATIONING
BASE MAP

CORPS OF ENGINEERS, SACRAMENTO CALIFORNIA
FEBRUARY 1992

CHART 91