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FLOODPLAIN INFORMATION REPORT

UPPER BOULDER CREEK & FOURMILE CREEK

BOULDER COUNTY, COLORADO

GINGERY ASSOCIATES, INC.

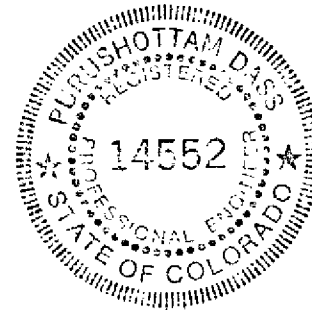
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PREPARED FOR BOULDER COUNTY
AND COLORADO WATER CONSERVATION BOARD
DECEMBER, 1981

This Floodplain Information Report, Upper Boulder Creek and Fourmile Creek, Boulder County, was prepared under the supervision and direction of the undersigned whose seal as a professional engineer is affixed.



Purush Dass

Purushottam Dass, Ph.D., P.E.

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FLOODPLAIN INFORMATION REPORT
UPPER BOULDER CREEK
AND
FOURMILE CREEK
BOULDER COUNTY, COLORADO

Prepared For:

Boulder County
and the
Colorado Water Conservation Board

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December 1981

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PREFACE

This Floodplain Information Report presents the results of a study on the Boulder Creek and Fourmile Creek floodplains in the vicinity of Boulder, Colorado. It was prepared from hydrologic and hydraulic information provided by the U.S. Army Corps of Engineers, Omaha District. The report document was prepared by Gingery Associates, Inc., Englewood, Colorado, at the request of Boulder County in cooperation with the Colorado Water Conservation Board.

Copies of this report are available for public distribution, for a nominal fee, at the below listed offices.

Boulder County
Department of Public Works
P.O. Box 471
2046 13th Street
Boulder, Colorado 80306
Telephone: 441-3900

Colorado Water Conservation Board
823 State Centennial Building
1313 Sherman Street
Denver, Colorado 80203
Telephone: 866-3441

Technical back up data is available for review from the offices listed above. The technical back up includes all pertinent data and calculations used in the floodplain analyses.

INTRODUCTION

Authorization

This report was authorized by the Colorado Water Conservation Board in joint sponsorship with Boulder County.

The Board's power and duty is:

" . . . to devise and formulate methods, means and plans for bringing about the greater utilization of the waters of the state and the prevention of flood damages therefrom and to designate and approve storm or floodwater runoff channels or basins, and to make designations available to legislative bodies of cities and incorporated towns; to county planning commissions; and to boards of adjustment of cities; incorporated towns; and counties of this state" . . .

as stated in Section 37-60-106(1)(c) of the Colorado Revised Statutes 1973.

The cities, incorporated towns, and counties within the study area may provide zoning regulations.

" . . . to establish, regulate, restrict, and limit such uses on or along any storm or floodwater runoff channel or basin, as such storm or floodwater runoff channel or basin has been designated and approved by the Colorado Water Conservation Board, in order to lessen or avoid the hazards to persons and damage to property resulting from the accumulation of storm or floodwaters" . . .

as stated in Section 30-28-11 for county governments and Section 31-23-201 for municipal governments of the Colorado Revised Statutes 1973.

Therefore, upon official approval of this report by the Colorado Water Conservation Board, the areas described as being inundated by the 100-year flood (see Glossary - Intermediate Regional Flood) can be designated as flood hazard areas and their use regulated accordingly by the local agencies.

Purpose and Scope

This report was prepared to guide local officials in planning the use and regulation of the floodplain areas such that flood hazards and future flood damages are minimized. It includes information on historical floods, existing factors which influence the flood hazard, and the nature and extent of probable future floods.

The report data includes flooded area maps delineating the 100-year flood boundary and flood profiles showing the water surface elevations for the 10-, 50-, 100-, and 500-year floods.

Supplemental material to this report in the form of technical back up includes the supporting engineering and hydrologic data which may also be used in the location and design of roads, bridges, and channel modifications.

Acknowledgements

The assistance and cooperation of the individuals, agencies, and firms listed below was appreciated and is gratefully acknowledged.

Benchmark Mapping Services - Denver, Colorado
Larry Buss - U.S. Army Corps of Engineers, Omaha District
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Colorado Water Conservation Board
D. Randolph Seaholm - Water Resources Specialist, Colorado Water
Conservation Board
Mike G. Serlet - Public Works Department, Boulder County, Colorado

Related Flood Studies

Information on past floods was obtained from the Corps of Engineers, Omaha District and the U.S. Geological Survey publication entitled "Floods in Colorado" (Reference 1).

Previous floodplain studies have been completed on Boulder Creek downstream from the reach covered in this report. These include two studies by the Corps of Engineers, Omaha District: "Floodplain Information, Boulder Creek and South Boulder Creek, Volume II, Boulder Metropolitan Region, Colorado", August 1969 (Reference 2); and "Special Flood Hazard Information Report, Boulder Creek, City of Boulder, Colorado", May 1972 (Reference 3).

In addition, Boulder Creek was included in the City of Boulder Flood Insurance Study published in 1978.

This Floodplain Information Report for Upper Boulder Creek and Fourmile Creek is the only detailed study completed to date for the particular reaches covered herein and is, therefore, authoritative.

Maps and Surveys

Cross-section data and topographic maps at a scale of 1:1200 and having a contour interval of two feet were prepared by Benchmark Mapping of Denver by photogrammetric methods from flights made on October 26, 1977 (Reference 4). These data were supplied by the Colorado Water Conservation Board and Boulder County. U.S. Geological Survey 7.5 minute series topographic maps with 40-foot contour intervals at a scale of 1:24,000 were also used in the study (Reference 5). Bridge data was supplied by the Corps of Engineers and Boulder County. Control monuments exist in the field for use in relating actual ground data to information contained in the report (see Table 5).

STUDY AREA DESCRIPTION

Drainage Basin Characteristics

The Boulder Creek basin above the City of Boulder has a drainage area of approximately 129 square miles. This typical front range canyon (steep and narrow) contains both streams covered in this report: Boulder Creek and Fourmile Creek. Boulder Creek headwaters originate on the eastern slope of the Continental Divide at elevations in excess of 13,000 feet. The stream flows generally eastward approximately 22 miles to the City of Boulder and then out onto the plains another 18 miles to its confluence with St. Vrain Creek. Fourmile Creek, a tributary of Boulder Creek, flows east then southeast through the mountains approximately 12 miles to its confluence with Boulder Creek at Orodell.

The approximate drainage areas at selected locations are shown in Table 1.

TABLE 1

Drainage Areas

<u>Location</u>	<u>Area (sq. mi.)</u>
Boulder Creek at Barker Reservoir	38
Boulder Creek above Fourmile Creek	102
Boulder Creek at Arapahoe Road	129
Fourmile Creek at U/S Study Limit	7
Fourmile Creek at Mouth	25

The normal annual precipitation over the basins is approximately 23 inches (Reference 6). Average temperatures range from 75°F in July to 25°F in January (Reference 7). The topography of the Upper Boulder Creek and Fourmile Creek basins is generally rugged, forested mountain slopes.

Vegetation in the basin below 11,000 feet is typically subalpine grasses and brush with stands of conifer and aspen. Above 11,000 feet in the tundra area vegetation is generally sparse.

The Soil Conservation Service in their "Soil Survey of Boulder County Area, Colorado" (Reference 8) classified the soils in the basin as part of the Juget-Baller Association. This Association consists of rock outcrops and sloping to very steep, shallow, very gravelly and stony soils on mountains formed in residuum weathered from granites and sandstones.

The land uses accompanying this Association generally relate to wildlife habitat, recreation, and private home sites in a rural community setting.

Study Reach Description

Boulder Creek was studied in detail from Arapahoe Road upstream to Barker Reservoir. Fourmile Creek was studied in detail from its mouth at Boulder Creek to a point just upstream of Sunset, Colorado. The lengths of the streams studied were 14.2 miles on Boulder Creek and 10.9 miles on Fourmile Creek. Stream bed elevations range from 5,447 feet mean sea-level (m.s.l.) to 8,022 feet m.s.l. on Boulder Creek in the study reach. Both creeks can be classified as steep mountain streams. Stream bed slopes range from 56 ft./mile to 581 ft./mile on Boulder Creek and from 84 ft./mile to 343 ft./mile on Fourmile Creek.

Development along both streams consists primarily of single-family residences and their related structures. The development along Boulder Creek is mainly in the lower half of the study reach while the structures along Fourmile Creek are scattered throughout the study reach.

Obstructions to flood flows within the study reach include natural obstructions such as large rocks, boulders, and brush and other vegetation growing along the streambank as well as man-made obstructions such as bridges, buildings and culverts. During floods, these obstructions impede flood flows and cause backwater conditions that may increase the flood heights upstream of the obstruction and velocities downstream of the obstruction. Brush and rock washed out during floods is carried downstream and may collect at bridges and in culverts, thus creating a damming effect and overbank flow. As flood flows increase, masses of debris may break loose and cause a wall of water and debris to surge downstream until another obstruction is encountered. In some instances, debris may collect to the point where structural capability is exceeded and a bridge is destroyed or abutments and roadbeds damaged.

HISTORY OF FLOODING

Large floods in the basins were reported in 1864, 1876, 1894, 1914, 1923, 1938, 1941, 1956 and 1969. Descriptions of the major floods that have affected either the Upper Boulder and Fourmile Creek basins are presented below.

A detailed flood history of the county, prepared by Boulder County, will be published in the near future. That publication will contain more detailed information than given here.

Flood of May 23-23, 1876 - A general storm over the Boulder Creek basin created flooding on the plains of reportedly 1 1/2 miles wide. Railroad service to Boulder was disrupted.

Flood of May 29-June 2, 1894 - Heavy rains fell over the mountains extending from the Colorado-Wyoming border southward into the Republican and Arkansas River basins. Rainfall over the Boulder and South Boulder Creek basins was particularly heavy. Rainfall records for a 96-hour period ending at 3:00 a.m. on June 2, 1894 indicate that the mountain drainage area received from 4.5 to 6.0 inches of precipitation. Rainfall amounts over the high plains gradually decreased from west to east and varied from 5 inches at Boulder to approximately 2.5 inches at the mouth. The mountain rainfall combined with the snowmelt runoff to produce the greatest flood known at Boulder inundating the valley during the night of May 30, 1894. Buildings, bridges, roads and railroads were washed away. All bridges were reportedly swept away in Boulder Canyon with the highway and railroad almost totally destroyed as far up the canyon as Fourmile Creek and up Fourmile Creek as far as Sunset. The Boulder Camera stated that six buildings were destroyed at Crisman, eight

at Sunset, and practically everything at Copper Creek. Computations made 18 years later produced estimates of the peak discharge in Boulder that ranged from 9,000 cubic feet per second to 13,600 cubic feet per second.

Flood of September 4, 1938 - A large storm system produced general rains over all of eastern Colorado. The largest amount of precipitation occurred in the mountains where over six inches was reported west of Eldorado Springs. Boulder reported 3.62 inches of precipitation from August 31 to September 4 with 2.32 inches falling on September 2. Eldorado Springs located in the South Boulder Creek basin had 4.42 inches of rainfall. A maximum discharge of 4,410 cubic feet per second occurred near the mouth of Boulder Creek at noon on September 3, 1938.

Flood of May 6-8, 1969 - This flood was the result of long duration rainfall. Precipitation was heaviest in the mountains, part of which fell as snow. In the Boulder and South Boulder Creek basins, the rainfall continued at a moderate rate for nearly four days. Total precipitation for the storm amounted to 7.60 inches at Boulder and 9.34 inches at the Boulder Hydroelectric Plant located about three miles up the canyon from Boulder. Precipitation amounts totaled 8.11 inches at Eldorado Springs and 10.05 inches at Gross Reservoir on South Boulder Creek. Peak flooding occurred on the 7th of May on both Boulder and South Boulder Creeks. The gauging station at Orodell recorded a peak discharge of 1,220 cubic feet per second. In Boulder, local inflow increased the Boulder Creek peak discharge to an estimated 3,000 cubic feet per second. The peak discharge on South Boulder Creek at Eldorado Springs was 1,690 cubic feet per second. Flooding below the confluence of these two streams extended over large portions of the floodplain.

HYDROLOGIC AND HYDRAULIC DETERMINATIONS

Flood Characteristics

Floods in the Boulder Creek basin are produced by intense rainfall during either isolated convectional or general frontal storm systems. In addition, flows normally increase during the mountain snowmelt and runoff period in May and June which when augmented by rainfall runoff increases the severity of flooding.

Hydrologic Analysis

The hydrologic analysis for Boulder Creek and for Fourmile Creek was performed by the U.S. Army Corps of Engineers, Omaha District and consisted of determining the magnitude of the 10-, 50-, 100-, and 500-year floods. Since the fragmentary gauging record for Boulder Creek at Boulder was considered too short to be a reliable basis for estimating the discharge probability at Boulder and since the long-term records for Boulder Creek at Orodell does not include the flows on Fourmile Creek, which according to historical information, has been the major source of flooding in Boulder, the discharge probability relationships for Boulder Creek and Fourmile Creek were developed using the EPA's Storm Water Management Model (SWMM) (Reference 9). This model was calibrated using data collected from the flood hydrograph of May 1973 for the uncontrolled area of Cherry Creek located downstream from Cherry Creek Dam. Based upon this calibration, the hydrologic model was applied to the Boulder Creek and Fourmile Creek basins. The resulting discharge probability relationships were compared with that from the short record on Boulder Creek at Boulder and with regional criteria prepared by the U.S. Geological Survey.

Rainfall input for the hydrologic model was derived from the National Oceanic and Atmospheric Administration's Atlas for Colorado (Reference 10). This data was adjusted for expected probability. Values for the 500-year storm were extrapolated. After study of the various rainfall durations contained in the Atlas, a six-hour duration was selected. A 30-minute distribution of the six-hour storm was developed from a study of hourly precipitation data recorded for major streams in the South Platte River basin and refined to 30-minute values. The precipitation values used in the model are shown in Tables 2 and 3.

TABLE 2

Fourmile Creek

Average Basin Rainfall Depths for Six-Hour Storm Duration at Various Frequencies.

<u>Frequency</u>	<u>Depth (Inches)</u>
10-year	1.9
50-year	2.8
100-year	3.2
500-year	4.3

TABLE 3

Boulder Creek

Average Basin Rainfall Depths for Six-Hour Storm Duration at Various Frequencies (inches).

<u>Frequency</u>	<u>Depth (Inches)</u>
10-year	1.7
50-year	2.5
100-year	2.8
500-year	3.8

Loss rate information for the hydrologic model was based upon infiltrometer studies by the U.S. Forest Service in forest areas, mixed forest and grassland areas, and grassland areas for mountain terrain in the South Platte River basin over a period of years. The results of these studies showed average infiltration rates in inches per hour for pine forest, pine forest and grassland mixed, and grassland of 2.37, 1.94, and 1.5. Infiltration studies conducted for the Missouri River Basin Framework Study indicated infiltration rates of about 50% of infiltrometer studies for plains areas. Based upon these studies, an infiltration rate of one-inch per hour was selected for the Upper Boulder Creek and Fourmile Creek basins.

Hydraulic Analysis

Water surface elevations for the 10-, 50-, 100-, and 500-year floods were computed using the U.S. Army Corps of Engineers step backwater computer program HEC-2 (Reference 11).

No high water marks were located from which to calibrate the hydraulic model on Boulder Creek or Fourmile Creek. Stream gauging data collected at the U.S. Geological Survey stream gauge on Boulder Creek at Orodell was used to compare results from the hydraulic model. No adjustment was made to the computer model for the gauge data since the gauge data consisted only of discharges much lower than those analyzed in this study.

Manning's "n" values ranged from 0.060 to 0.1 in the channel on Boulder Creek and from 0.065 to 0.080 in the channel on Fourmile Creek. Overbank "n" values of 0.080 were used. Channel "n" values were computed using the formula $n = .22 (S+0.001)^{0.33}$ where S is the channel slope (Reference 12).

Starting water surface elevations for Boulder Creek were computed assuming that the Arapahoe Road bridge at Boulder was blocked with all flow passing over the roadway as weir flow. Starting water surface elevations on Fourmile Creek were obtained by assuming that the Colorado Highway 119 bridge was blocked for the 50-, 100-, and 500-year floods, but open for the 10-year flood. Flow over the roadway for the 50-, 100-, and 500-year floods was determined by weir computations. Flow through the bridge for the 10-year flood was determined by pipe flow computations.

Bridges in this study were analyzed using a blockage criteria dependent upon bridge construction and water depth. Concrete and steel bridges were assumed unobstructed until the upstream water surface elevation reached the bridge "low steel" elevation at which time the bridge was assumed fully obstructed. Wooden bridge decks were assumed destroyed due to debris. This type of bridge was assumed unobstructed at all discharges with wingwalls and abutments in place, but the deck removed. Wooden footbridges on both streams and two wooden car bridges on Boulder Creek were not included in the hydraulic model since removal of the bridge deck left only a natural channel without abutments or wingwalls. Head losses at fully obstructed bridges were determined by weir computations. Unobstructed bridge losses were computed by using the normal bridge routine in HEC-2.

INTERPRETATION AND USE OF REPORT DATA

Flood Frequency and Discharge

The 10-, 50-, 100-, and 500-year flood events were used as the flood frequencies for this floodplain analysis. Thus, the data developed in this report will be compatible not only for regulation purposes and H.B. 1041 designations, but also for Federal Emergency Management Agency flood insurance rate studies.

These various flood events have an average occurrence of once in the number of years as indicated. For example, the 100-year flood occurs, on the average, once in a 100-year period and has a one-percent chance of being equaled or exceeded in any given year.

The particular uses for the various flood events in addition to those stated above are as follows:

10-Year and 50-Year Events - Information regarding these lower frequency floods is especially useful for future engineering studies and land use planning purposes related to minor road systems, minor channel improvements, the location of parks and recreational facilities, agricultural lands, and appurtenant structures. For structures and uses of this type on the smaller tributaries and in areas where the high risk of structural failure is economically feasible and the hazard to life and property nonexistent, the use of the lower frequency floods may be considered.

100-Year Event - The 100-year flood event may also be used for engineering design purposes where a lower risk of failure than the 10-, or 50-year flood is desired. However, the most important use of the 100-year flood event lies in the floodplain designation and land use

regulation as set forth in the state statutes. The State of Colorado considers the 100-year frequency flood as the flood event to be used in designing and protecting structures and dwellings for human occupation. Therefore, all floodplain regulations are based upon the 100-year flood. Also, the area which would be inundated by the 100-year flood may be delineated as an area of state interest as set forth in H.B. 1041 -- the state's land use bill.

500-Year Event - The 500-year flood event is useful in making the public aware that floods larger than the 100-year flood can and do occur. Because an individual is living outside the 100-year flood boundary does not mean that he is completely safe from flooding. The 500-year flood event can also be used for regulating high risk developments within the floodplain such as nuclear power plants, or the storage or manufacture of toxic or explosive materials.

Table 4 lists the discharges and water surface elevations for the 10-, 50-, 100-, and 500-year flood events at selected reference points.

Flooded Areas

The 100-year frequency flood has been selected by the State of Colorado as the flood event to be used for floodplain delineation and regulation. Thus, the Flooded Area plates show only the boundary of the 100-year floodplain. Since the base map for the Flooded Area plates is a two-foot contour map, the outlines of the other events - 10-, 50, and 500-year can be readily plotted using the information in Table 4.

The area delineated on the Flooded Area plates as the 100-year floodplain meets the requirements of H.B. 1041 as an area of state interest.

Also upon official approval of this report by the Colorado Water Conservation Board, the area outlined by the 100-year flood boundary will be designated a floodplain area and may be regulated accordingly by the local officials.

Flood Elevations

Flood crest elevations for the 10-, 50-, 100-, and 500-year floods may be found in three separate locations in this report. The Peak Discharge and Water Surface Elevation Data Table (Table 4) lists these elevations at selected reference points. The Flooded Area plates give the plan view of the flooded area on a contour base map and the high water elevations for the 100-year flood can be interpolated from this. Plates 3 through 18 cover Upper Boulder Creek and Plates 19 through 30 cover Fourmile Creek. The Flood Profile plates show the streambed elevation and the high water elevations for all four frequency floods. Plates 31 through 37 cover Upper Boulder Creek and Plates 38 through 42 cover Fourmile Creek.

The Flood Profiles may be used in areas where controversy arises over the 100-year flood boundary on the Flooded Area plates. Since the Flood Profile plates given the elevations and distance or stationing from a known point, the high water elevations can be surveyed on the ground to alleviate any discrepancies on the base map. Survey control markers exist in the field in the vicinities of Boulder Creek and Fourmile Creek and their associated floodplain areas. A summary of these control markers and their locations is given in Table 5.

TABLE 4
PEAK DISCHARGE AND WATER SURFACE ELEVATION DATA
Upper Boulder Creek

Identification	Reference Point Number	Distance From Mouth Ft.	Stream ^{1/} Bed Elevation Ft.-m.s.l.	10-Year		50-Year		100-Year		500-Year	
				Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.
Barker Reservoir Upstream Study Limit	1	2094+85	8022.0	8024.1	350	8026.1	1560	8027.5	2340	8029.6	4770
	2	2092+20	8013.2	8017.4		8021.2		8026.6		8028.3	
Private Drive	3	2091+90	8013.2	U/S 8017.4 D/S 8017.2		U/S 8021.2 D/S 8021.0		U/S 8026.6 D/S 8022.3		U/S 8028.3 D/S 8024.5	
	4	2088+60	8012.7	8015.1		8019.3		8019.9		8021.4	
	5	2084+35	8007.6	8010.7		8012.5		8013.8		8015.3	
	6	2080+25	8002.7	8004.3		8006.2		8007.4		8010.6	
	7	2077+80	7996.1	7999.1		8001.9		8002.9		8004.9	
	8	2071+80	7987.8	7989.7		7991.0		7991.7		7993.3	
	9	2065+10	7976.8	7979.1		7981.3		7981.9		7983.6	
	10	2059+30	7966.8	7968.8		7970.8		7971.6		7973.1	
	11	2053+85	7957.3	7959.7		7962.0		7962.7		7964.4	
	13	2048+45	7951.6	7954.2		7956.3		7957.0		7958.2	
	14	2043+15	7940.5	7942.1		7944.4		7945.1		7947.7	
	15	2038+70	7930.4	7933.1		7936.7		7938.3		7940.4	
	16	2033+30	7921.8	7924.1		7926.8		7927.8		7930.4	
	17	2027+55	7909.9	7911.9		7913.6		7914.3		7915.8	
	18	2021+50	7891.9	7893.9		7896.4		7897.4		7899.8	
	19	2016+30	7879.7	7882.7		7886.4		7887.8		7890.3	
	20	2012+40	7874.2	7876.7		7878.8		7879.7		7882.1	
	21	2006+90	7851.9	7853.3		7855.4		7856.2		7857.8	
	22	2001+35	7828.4	7830.7		7833.2		7834.4		7837.8	
	23	1996+00	7813.2	7815.9		7818.4		7819.3		7820.5	
	24	1991+90	7799.3	7801.4		7803.2		7803.9		7806.7	
	25	1988+25	7788.2	7790.2		7792.2		7793.1		7793.9	
	26	1983+30	7773.3	7775.7		7777.5		7778.2		7781.4	
County Road 54	27	1981+60	7764.0	U/S 7769.0 D/S 7766.1		U/S 7776.2 D/S 7768.6		U/S 7777.4 D/S 7769.7		U/S 7781.2 D/S 7772.1	
	28	1980+50	7760.3	7761.9		7764.2		7765.2		7768.4	
	29	1978+45	7747.1	7748.7		7749.4		7750.1		7751.7	
	30	1973+20	7728.5	7731.1	350	7739.4	1530	7740.3	2300	7742.2	4710

^{1/} Low water elevation as determined by aerial photogrammetric methods.

^{2/} Discharges are prorated between stations.

TABLE 4
PEAK DISCHARGE AND WATER SURFACE ELEVATION DATA
Upper Boulder Creek

Identification	Reference Point Number	Distance From Mouth Ft.	Stream ^{1/} Bed Elevation Ft.-m.s.l.	10-Year		50-Year		100-Year		500-Year	
				Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.
	31	1968+75	7718.5	7720.9	350	7723.6	1530	7724.9	2300	7727.3	4710
	32	1963+90	7708.1	7709.6		7711.9		7713.0		7715.7	
	33	1959+20	7697.6	7700.6		7703.5		7704.7		7707.0	
	34	1954+50	7691.3	7693.1		7695.3		7696.2		7698.4	
	35	1948+90	7672.7	7674.9		7677.5		7678.4		7680.3	
	36	1943+80	7665.7	7668.1		7669.8		7670.5		7672.2	
	37	1938+90	7657.3	7659.0		7661.6		7662.8		7665.4	
	38	1933+50	7646.0	7648.8		7651.5		7652.6		7655.1	
	39	1928+55	7637.7	7639.4		7642.1		7643.4		7645.9	
	40	1924+15	7627.2	7629.9		7632.7		7633.8		7636.5	
	41	1918+05	7613.5	7615.6		7618.5		7619.7		7622.3	
	42	1912+60	7601.0	7603.4		7605.7		7606.4		7608.4	
	43	1907+45	7589.8	7591.7		7594.7		7596.2		7599.6	
	45	1902+70	7580.2	7583.6		7586.9		7587.9		7590.0	
	46	1897+70	7573.0	7575.4		7577.8		7578.7		7581.2	
	47	1892+55	7562.8	7565.7		7568.7		7569.5		7571.3	
	48	1887+65	7556.5	7558.5		7559.9		7560.5		7562.0	
	49	1884+05	7550.7	7552.3		7554.3		7555.1		7556.6	
	50	1879+80	7544.5	7546.7		7548.3		7548.8		7549.8	
	51	1875+40	7538.5	7540.7		7542.6		7543.4		7545.2	
	52	1871+55	7532.1	7534.5		7537.2		7538.1		7539.9	
	53	1866+80	7526.1	7528.6		7530.5		7531.3		7533.6	
	54	1861+40	7516.0	7517.9		7520.4		7521.5		7523.8	
	55	1856+50	7506.2	7509.2		7511.6		7512.5		7514.8	
	56	1851+10	7493.9	7495.9		7499.2		7500.6		7502.9	
	57	1845+65	7468.4	7471.4		7474.1		7475.1		7478.0	
	58	1839+90	7435.3	7438.5		7442.0		7443.2		7445.3	
	59	1835+50	7410.1	7411.7		7413.7		7414.7		7416.8	
	60	1830+10	7388.4	7390.4		7392.8		7393.8		7396.3	
	61	1824+30	7358.0	7360.1		7361.8		7362.6		7364.2	
	62	1819+00	7320.4	7323.1	350	7325.9	1510	7327.0	2270	7329.6	4660

^{1/} Low water elevation as determined by aerial photogrammetric methods.

^{2/} Discharges are prorated between stations.

TABLE 4
PEAK DISCHARGE AND WATER SURFACE ELEVATION DATA
Upper Boulder Creek

Identification	Reference Point Number	Distance From Mouth Ft.	Stream 1/ Bed Elevation Ft.-m.s.l.	10-Year		50-Year		100-Year		500-Year	
				Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.
North Boulder Creek	63	1813+20	7272.7	7274.9	350	7277.2	1510	7278.3	2270	7281.2	4660
	64	1807+00	7204.7	7206.9		7209.1		7210.1		7212.6	
	65	1801+50	7147.0	7149.5		7152.2		7153.5		7156.6	
	66	1796+40	7097.0	7098.4		7100.5		7101.5		7104.2	
	67	1791+70	7054.1	7057.2		7059.9		7061.1		7063.8	
	68	1786+40	7008.5	7010.8		7013.5		7014.8		7017.7	
	69	1782+00	6971.6	6973.6		6976.1		6977.1		6979.6	
	70	1776+90	6931.7	6933.7		6935.9		6936.9		6939.0	
	71	1772+10	6881.6	6884.2		6887.1		6888.4		6891.2	
		1770+60		U/S	350		1510		2270		4660
				D/S	1310		4710		6040		11610
	72	1766+75	6847.2	6853.7		6858.2		6859.5		6863.3	
	73	1761+45	6827.4	6831.3		6835.4		6836.5		6840.3	
	74	1755+95	6791.9	6795.5		6799.7		6800.8		6802.8	
	75	1749+80	6763.4	6768.4		6772.2		6773.4		6777.7	
	76	1746+80	6747.9	6751.3		6754.7		6755.7		6759.1	
	77	1741+60	6716.9	6722.0		6725.8		6726.9		6730.7	
	78	1734+25	6677.7	6681.3		6685.2		6686.3		6690.5	
	79	1728+45	6644.3	6650.3		6653.8		6655.0		6659.0	
	80	1721+75	6617.3	6622.6		6628.0		6628.7		6630.8	
	81	1716+80	6574.9	6580.2		6586.1		6587.8		6594.5	
	82	1712+35	6544.7	6549.3		6552.7		6553.7		6557.0	
	83	1704+65	6497.7	6502.4		6506.4		6507.2		6509.7	
	84	1697+65	6437.6	6442.3		6447.1		6448.6		6453.0	
	85	1691+70	6404.8	6410.4		6415.0		6416.2		6419.8	
	86	1685+45	6384.5	6387.8		6391.7		6392.8		6397.0	
Private Drive	88	1680+60	6363.5	6369.1		6373.3		6374.4		6377.8	
	89	1677+60	6354.8	6358.6		6362.7		6363.8		6367.5	
	91	1672+95	6335.3	6341.6		6346.5		6347.7		6351.3	
	92	1668+15	6322.0	6325.9		6330.0		6331.1		6334.9	
	93	1665+00	6312.2	U/S 6318.8		U/S 6327.3		U/S 6328.4		U/S 6330.8	
				D/S 6314.2		D/S 6319.0		D/S 6320.2		D/S 6323.8	
	94	1664+40	6310.3	6314.2	1340	6319.0	4790	6320.2	6150	6323.8	11670

^{1/} Low water elevation as determined by aerial photogrammetric methods.

^{2/} Discharges are prorated between stations.

TABLE 4

PEAK DISCHARGE AND WATER SURFACE ELEVATION DATA
Upper Boulder Creek

Identification	Reference Point Number	Distance From Mouth Ft.	Stream ^{1/} Bed Elevation Ft.-m.s.l.	10-Year		50-Year		100-Year		500-Year	
				Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.
Private Drive	95	1659+70	6293.5	6301.4	1340	6306.0	4790	6307.4	6150	6311.2	11670
	96	1654+60	6283.1	U/S 6289.8 D/S 6288.7		U/S 6298.2 D/S 6292.2		U/S 6299.2 D/S 6293.4		U/S 6302.4 D/S 6296.4	
Private Drive	97	1652+90	6279.8	6286.2		6289.9		6290.9		6295.4	
	98	1652+60	6278.5	U/S 6286.2 D/S 6282.7		U/S 6289.9 D/S 6288.1		U/S 6290.9 D/S 6289.4		U/S 6295.4 D/S 6294.7	
Private Drive	99	1648+35	6260.9	6269.1		6275.5		6275.9		6278.1	
	99.1		6258.5	U/S 6269.1 D/S 6262.4		U/S 6275.5 D/S 6266.1		U/S 6275.9 D/S 6267.4		U/S 6278.1 D/S 6271.4	
Private Drive	100	1643+70	6244.1	6248.5		6254.9		6256.3		6260.2	
	101	1638+10	6226.7	6233.8		6237.0		6238.4		6242.7	
Private Drive	102	1634+05	6214.5	U/S 6221.2 D/S 6220.0		U/S 6232.8 D/S 6224.0		U/S 6233.8 D/S 6225.0		U/S 6237.1 D/S 6229.8	
	103	1633+75	6213.9	6220.0		6224.0		6225.0		6229.8	
	104	1629+50	6202.4	6206.4		6211.1		6212.5		6215.5	
	105	1623+85	6180.4	6187.3		6192.6		6193.9		6199.0	
	106	1618+95	6164.6	6168.8		6173.3		6174.7		6178.8	
	107	1613+85	6149.2	6155.9		6162.7		6164.4		6168.4	
	108	1610+10	6141.1	6146.4		6151.0		6152.4		6157.0	
	109	1603+90	6114.9	6118.9		6123.0		6124.2		6127.8	
	110	1599+20	6099.6	6105.5		6110.1		6111.0		6114.2	
	111	1593+60	6087.7	6092.5		6097.2		6098.6		6101.7	
	112	1589+40	6072.5	6080.6		6084.2		6085.6		6089.1	
	113	1584+50	6064.6	6070.1		6076.5		6077.1		6080.4	
	114	1578+20	6049.6	6056.8		6059.8		6061.7		6065.1	
	115	1573+15	6038.2	6043.6		6050.9		6051.9		6055.1	
Private Drive	115.5	1572+10	6031.5	U/S 6041.2 D/S 6037.4		U/S 6051.0 D/S 6046.6		U/S 6052.0 D/S 6047.7		U/S 6055.3 D/S 6051.1	
Magnolia Road	116	1568+30	6026.1	U/S 6034.0 D/S 6032.6		U/S 6046.0 D/S 6037.3		U/S 6047.0 D/S 6038.1		U/S 6050.0 D/S 6041.2	
	117	1567+40	6025.0	6032.6		6037.3		6038.1		6041.2	
Keystone Gulch		1565+90		U/S D/S	1350 1390		4820 4910		6200 6330		11700 11830

^{1/} Low water elevation as determined by aerial photogrammetric methods.

^{2/} Discharges are prorated between stations.

TABLE 4
PEAK DISCHARGE AND WATER SURFACE ELEVATION DATA
Upper Boulder Creek

Identification	Reference Point Number	Distance From Mouth Ft.	Stream ^{1/} Bed Elevation Ft.-m.s.l.	10-Year		50-Year		100-Year		500-Year	
				Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.
	118	1564+60	6019.6	6027.7	1390	6031.9	4910	6032.8	6330	6034.7	11830
	119	1560+60	6008.5	6012.3		6016.5		6017.9		6021.5	
	120	1555+30	5993.2	6002.0		6005.5		6006.6		6009.6	
Bummers		1553+60		U/S	1390		4910		6330		11830
Gulch				D/S	1460		5090		6630		12100
Private Drive	120.5	1553+25	5988.2	U/S 6001.9		U/S 6005.0		U/S 6006.0		U/S 6008.7	
				D/S 5992.2		D/S 5995.6		D/S 5996.5		D/S 5999.2	
	121	1549+50	5976.6	5980.4		5984.5		5985.5		5988.2	
Hawkins		1543+60		U/S	1460		5090		6630		12100
Gulch				D/S	1520		5270		6920		12360
	122	1543+50	5962.0	5970.5		5973.8		5974.9		5977.6	
Private Drive	122.1	1542+85	5960.0	U/S 5970.5		U/S 5973.8		U/S 5974.9		U/S 5977.6	
				D/S 5962.8		D/S 5966.3		D/S 5967.4		D/S 5970.1	
	123	1537+05	5943.6	5948.8		5953.0		5954.3		5955.4	
	124	1531+30	5926.5	5932.0		5937.2		5938.7		5942.0	
	125	1525+40	5910.6	5916.2		5922.1		5924.2		5930.0	
	127	1522+35	5901.2	5906.9		5912.6		5914.5		5919.3	
	128	1517+30	5883.4	5889.4		5893.4		5894.4		5897.7	
	129	1512+85	5873.3	5878.4		5889.2		5891.2		5895.8	
Hydroelectric	130	1512+60	5872.3	U/S 5878.4		U/S 5889.2		U/S 5891.2		U/S 5895.8	
Plant Drive				D/S 5876.4		D/S 5881.2		D/S 5882.8		D/S 5885.6	
	131	1507+80	5860.3	5866.5		5875.2		5876.2		5879.1	
Private Drive	132	1507+50	5859.1	U/S 5866.5		U/S 5875.2		U/S 5876.2		U/S 5879.1	
				D/S 5864.6		D/S 5869.3		D/S 5870.3		D/S 5872.8	
	133	1506+00	5855.2	5861.4		5868.3		5869.5		5872.4	
Footbridge	134	1505+80	5854.5	U/S 5861.4		U/S 5868.3		U/S 5869.5		U/S 5872.4	
				D/S 5859.8		D/S 5864.5		D/S 5865.5		D/S 5867.9	
	135	1502+20	5845.5	5850.5		5854.6		5855.6		5858.4	
	136	1496+90	5834.4	5839.2		5842.1		5843.2		5845.4	
	137	1490+25	5822.2	5825.3		5829.1		5830.3		5833.1	
	138	1485+10	5809.4	5818.4		5826.2		5827.1		5829.4	
Private Drive	139	1484+90	5809.0	U/S 5818.4		U/S 5826.2		U/S 5827.1		U/S 5829.4	
				D/S 5815.9		D/S 5821.0		D/S 5822.1		D/S 5825.1	
	140	1480+10	5799.5	5804.2		5808.9		5810.7		5814.1	
	142	1473+75	5786.7	5800.2		5803.0		5803.9		5806.1	
Private Drive	143	1473+40	5785.9	U/S 5800.2	1560	U/S 5803.0	5360	U/S 5803.9	7080	U/S 5806.1	12470
				D/S 5789.8		D/S 5793.9		D/S 5795.0		D/S 5797.7	

^{1/} Low water elevation as determined by aerial photogrammetric methods.

^{2/} Discharges are prorated between stations.

TABLE 4

PEAK DISCHARGE AND WATER SURFACE ELEVATION DATA
Upper Boulder Creek

Identification	Reference Point Number	Distance From Mouth Ft.	Stream ^{1/} Bed Elevation Ft.-m.s.l.	10-Year		50-Year		100-Year		500-Year	
				Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.
Private Drive	144	1466+70	5770.0	5775.7	1560	5779.8	5360	5781.1	7080	5784.4	12470
	145	1460+80	5759.0	5764.9		5770.0		5771.4		5773.4	
	146	1453+50	5742.8	5747.6		5751.7		5753.3		5757.2	
	147	1446+70	5726.3	5732.4		5739.7		5741.0		5744.5	
	148	1444+20	5720.9	5726.6		U/S 5739.2		U/S 5740.5		U/S 5744.0	
Fourmile Creek				D/S 5724.0		D/S 5729.6		D/S 5732.3		D/S 5736.7	
	149	1443+60	5719.4	5724.0		5729.6		5732.3		5736.7	
		1440+90		U/S	1570		5390		7130		12510
				D/S	2050		7960		11660		21180
	150	1439+70	5712.1	5719.3		5726.6		5729.7		5733.9	
Colorado Highway 119	151	1435+25	5705.0	5710.7		5717.2		5719.8		5725.5	
	152	1429+95	5693.8	U/S 5701.3		U/S 5708.8		U/S 5711.8		U/S 5721.5	
				D/S 5699.7		D/S 5706.2		D/S 5708.9		D/S 5714.5	
	153	1429+35	5693.0	5699.7		5706.2		5708.9		5714.5	
	154	1423+30	5680.1	5687.0		5693.8		5696.1		5700.8	
	155	1416+80	5667.8	5672.9		5677.8		5679.9		5682.9	
	156	1409+15	5645.9	5651.5		5657.7		5659.7		5664.5	
	157	1402+90	5622.8	5629.0		5635.4		5637.8		5642.0	
	158	1397+00	5601.5	5609.9		5616.4		5618.6		5623.1	
	159	1393+85	5591.2	5597.5		5604.4		5607.6		5612.3	
	160	1387+65	5573.6	5581.4		5587.4		5589.1		5594.4	
	161	1383+05	5562.8	5567.5		5572.6		5574.9		5579.0	
	162	1376+70	5544.1	5548.4		5553.0		5555.2		5559.8	
	163	1371+90	5530.2	5535.4		5540.9		5542.9		5547.0	
	164	1366+60	5498.9	5506.3		5513.7		5516.1		5519.9	
	165	1362+30	5486.9	5492.3		5497.5		5498.8		5501.7	
	166	1357+50	5473.6	5478.3		5483.1		5485.8		5489.7	
	167	1353+20	5463.5	U/S 5477.2		U/S 5480.4		U/S 5481.8		U/S 5485.0	
				D/S 5474.7		D/S 5477.5		D/S 5479.0		D/S 5482.1	
	168	1352+20	5462.3	U/S 5474.7		U/S 5477.5		U/S 5479.0		U/S 5482.1	
Colorado Highway 119 Private Drive				D/S 5467.4		D/S 5474.1		D/S 5475.4		D/S 5477.9	
	169	1351+65	5461.7	5467.4		5474.1		5475.4		5477.9	
	170	1346+65	5450.2	5460.9		5464.8		5466.5		5469.7	
	170.1	1345+30	5447.2	U/S 5460.9	U/S 2050	U/S 5464.7	U/S 7960	U/S 5466.4	U/S 11660	U/S 5469.6	U/S 21180

^{1/} Low water elevation as determined by aerial photogrammetric methods.

^{2/} Discharges are prorated between stations.

TABLE 4
PEAK DISCHARGE AND WATER SURFACE ELEVATION DATA
Fourmile Creek

Identification	Reference Point Number	Distance From Mouth Ft.	Stream ^{1/} Bed Elevation Ft.-m.s.l.	10-Year		50-Year		100-Year		500-Year	
				Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.
Upstream Limit	1	571+50	7736.6	7740.2	490	7741.0	1320	7741.4	1850	7742.5	3700
	2	567+70	7718.2	7721.5		7723.6		7724.3		7726.2	
County Road	3	567+35	7716.0	U/S 7721.5		U/S 7723.6		U/S 7724.3		U/S 7726.2	
95J				D/S 7719.8		D/S 7721.4		D/S 7722.2		D/S 7724.1	
Pennsylvania		565+50	7710.0	U/S	490		1320		1850		3700
and Routt Gulches				D/S	520		1780		2510		4750
	4	563+00	7700.3	7703.6		7706.3		7707.2		7709.6	
	5	557+75	7677.2	7681.7		7683.4		7684.0		7685.2	
	6	552+75	7660.4	7662.8		7664.0		7664.5		7665.8	
	7	547+50	7639.9	7643.0		7644.6		7645.2		7646.6	
	8	541+30	7621.1	7623.8		7625.4		7626.0		7628.0	
Bear Gulch		536+00	7600.0	U/S	580		2020		2860		5420
				D/S	670		2310		3270		6160
	9	535+75	7598.5	7602.6		7605.2		7606.4		7608.6	
	10	531+60	7585.3	7589.1		7590.5		7590.9		7592.2	
	11	526+65	7567.9	7570.9		7573.5		7574.2		7575.9	
	12	521+85	7552.8	7557.4		7559.1		7560.0		7561.6	
	13	517+70	7540.7	7544.2		7545.9		7546.5		7548.0	
Private Drive	13.5	516+40	7536.5	U/S 7542.2		U/S 7543.9		U/S 7544.7		U/S 7546.7	
				D/S 7539.1		D/S 7541.5		D/S 7542.0		D/S 7543.3	
	14	512+10	7522.5	7526.2		7528.3		7528.8		7530.5	
Private Drive	15	511+70	7521.0	U/S 7526.2		U/S 7528.3		U/S 7528.8		U/S 7530.5	
				D/S 7524.2		D/S 7525.5		D/S 7526.1		D/S 7527.2	
	16	507+20	7504.2	7508.5		7509.9		7510.5		7511.9	
	17	502+65	7490.1	7493.6		7495.4		7496.2		7497.8	
	18	498+35	7478.3	7481.0		7483.0		7483.9		7486.1	
	19	493+95	7462.1	7467.0		7469.7		7470.6		7472.5	
	20	489+95	7446.8	7450.7		7454.1		7455.2		7457.1	
	21	485+50	7432.9	7435.7		7437.6		7438.4		7440.0	
	22	481+15	7417.7	7422.4		7424.9		7425.6		7427.5	
	23	476+65	7403.4	7407.5		7410.4		7411.5		7413.5	
	24	472+75	7391.9	7396.2		7397.7		7398.2		7399.8	
	25	468+35	7375.7	7380.3		7383.0		7384.0		7386.3	
Private Drive	25.5	467+25	7372.1	U/S 7380.0		U/S 7382.6		U/S 7383.6		U/S 7385.8	
				D/S 7375.4		D/S 7377.8		D/S 7378.8		D/S 7381.2	
	26	464+00	7363.2	7366.6		7369.5		7370.5		7372.7	
	27	459+65	7349.6	7354.0		7356.9		7358.2		7360.7	
	28	454+95	7332.7	7337.2		7341.5		7342.8		7345.6	
	29	449+60	7316.1	7322.0		7324.5		7325.7		7327.7	
	30	444+85	7301.0	7305.7	790	7309.8	2670	7310.8	3750	7313.4	7060

^{1/} Low Water elevation as determined by aerial photogrammetric methods.

^{2/} Discharges are prorated between stations.

TABLE 4
PEAK DISCHARGE AND WATER SURFACE ELEVATION DATA
Fourmile Creek

Identification	Reference Point Number	Distance From Mouth Ft.	Stream ^{1/} Bed Elevation Ft.-m.s.l.	10-Year		50-Year		100-Year		500-Year	
				Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.
Private Drive	30.5	443+35	7295.0	U/S 7303.8 D/S 7298.4	790	U/S 7305.3 D/S 7302.3	2670	U/S 7306.2 D/S 7303.4	3750	U/S 7308.9 D/S 7305.9	7060
	31	440+95	7285.4								
	32	436+85	7272.3								
	33	432+30	7255.8								
	34	428+35	7243.1								
Private Drive	34.5	426+85	7238.8	U/S 7247.5 D/S 7242.7		U/S 7249.6 D/S 7245.8		U/S 7250.5 D/S 7247.0		U/S 7252.3 D/S 7249.8	
	35	424+10	7230.6								
	36	420+10	7210.4								
	37	415+15	7193.3								
	38	414+85	7192.0	U/S 7200.3 D/S 7194.0		U/S 7202.9 D/S 7196.9		U/S 7204.2 D/S 7198.0		U/S 7206.9 D/S 7200.3	
Long Gulch		411+30	7176.7	U/S D/S	810 920		2760 3170		3910 4470		7340 8400
	39	410+90	7175.0								
	40	406+30	7157.4								
	41	401+20	7141.5								
	42	397+70	7123.3								
	43	392+90	7104.0								
	44	388+65	7088.4								
	45	384+55	7072.0								
	45.5	382+10	7062.1	U/S 7070.7 D/S 7065.7		U/S 7073.0 D/S 7068.3		U/S 7073.9 D/S 7069.3		U/S 7076.4 D/S 7071.5	
	46	379+40	7051.2								
	48	374+50	7031.2								
	49	369+85	7005.2								
	50	365+50	6982.3								
	51	359+65	6958.6								
	52	355+90	6943.9								
Private Drive	53	351+35	6929.4								
	54	347+00	6912.1								
	55	342+30	6895.9								
	56	337+30	6878.1								
	57	332+50	6860.3								
	58	332+10	6859.3	U/S 6867.5 D/S 6863.5		U/S 6869.5 D/S 6867.1		U/S 6870.4 D/S 6868.1		U/S 6872.2 D/S 6869.9	
	59	328+10	6847.1								
	60	324+75	6834.9								
					990		3370		4720		8850

^{1/} Low water elevation as determined by aerial photogrammetric methods.

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TABLE 4
PEAK DISCHARGE AND WATER SURFACE ELEVATION DATA
Fourmile Creek

Identification	Reference Point Number	Distance From Mouth Ft.	Stream ^{1/} Bed Elevation Ft.-m.s.l.	10-Year		50-Year		100-Year		500-Year	
				Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.
Private Drive	60.2	323+20	6829.5	U/S 6837.4	990	U/S 6839.5	3370	U/S 6840.3	4720	U/S 6842.4	8850
				D/S 6831.6		D/S 6834.7		D/S 6835.5		D/S 6837.3	
Private Drive	61	321+40	6822.8	6830.3		6832.8		6833.7		6835.7	
	62	321+10	6820.8	U/S 6830.3		U/S 6832.8		U/S 6833.7		U/S 6835.7	
Private Drive				D/S 6823.7		D/S 6826.8		D/S 6827.6		D/S 6829.4	
	63	318+70	6813.3	U/S 6819.7		U/S 6821.5		U/S 6822.1		U/S 6823.8	
				D/S 6816.1		D/S 6818.2		D/S 6819.1		D/S 6820.7	
	64	318+20	6811.4	6816.1		6818.2		6819.1		6820.7	
	65	314+10	6798.8	6802.6		6804.4		6805.1		6806.9	
	66	309+35	6784.4	6788.5		6790.5		6791.1		6792.7	
	67	305+50	6774.5	6777.3		6778.6		6779.2		6780.8	
	68	302+55	6761.7	U/S 6770.7		U/S 6772.6		U/S 6773.3		U/S 6775.1	
Private Drive				D/S 6766.3		D/S 6769.5		D/S 6770.1		D/S 6771.6	
	69	302+30	6760.5	6766.3		6769.5		6770.1		6771.6	
	70	297+70	6747.2	6751.0		6753.0		6753.7		6755.3	
	71	294+00	6735.7	6742.9		6745.2		6746.1		6748.3	
Private Drive	72	293+70	6734.4	U/S 6742.9		U/S 6745.2		U/S 6746.1		U/S 6748.3	
				D/S 6737.7		D/S 6739.9		D/S 6740.7		D/S 6742.6	
	73	287+25	6718.0	6721.1		6723.3		6724.3		6726.6	
	74	282+30	6701.5	6706.3		6708.7		6709.7		6711.9	
	75	276+15	6683.7	6689.3		6692.4		6693.9		6696.9	
	76	271+00	6668.6	6672.9		6676.1		6677.3		6680.1	
	77	268+30	6658.9	6667.0		6669.8		6671.2		6674.1	
	78	268+05	6657.8	U/S 6667.0		U/S 6669.8		U/S 6671.2		U/S 6674.1	
Footbridge				D/S 6662.4		D/S 6665.5		D/S 6666.7		D/S 6668.8	
	78.5	265+65	6645.2	U/S 6656.4		U/S 6659.5		U/S 6660.9		U/S 6664.4	
Private Drive				D/S 6649.9		D/S 6652.8		D/S 6653.9		D/S 6656.6	
	79	263+95	6636.4	6641.8		6645.3		6646.4		6649.2	
Private Drive	80	261+15	6624.0	U/S 6632.9		U/S 6635.8		U/S 6636.9		U/S 6639.9	
				D/S 6628.6		D/S 6631.6		D/S 6632.6		D/S 6634.5	
	81	260+90	6623.2	6628.6		6631.6		6632.6		6634.5	
	82	256+50	6603.7	6609.1		6612.1		6613.3		6616.3	
	83	252+70	6593.3	6599.2		6602.6		6604.1		6607.3	
	Gold Run	249+30	6582.0	U/S	1020		3460		4870		9110
				D/S	1190		3950		5570		10430
	84	248+20	6578.7	6584.5		6588.9		6590.4		6593.5	
	85	243+80	6558.1	6565.9		6570.1		6571.5		6575.0	
	86	239+65	6537.0	6543.4		6548.7		6549.9		6552.6	
	87	235+65	6514.3	6519.5		6521.8		6523.0		6525.9	
	88	230+00	6485.2	6490.3	1210	6494.1	3990	6495.4	5630	6498.3	10530

^{1/} Low water elevation as determined by aerial photogrammetric methods.

^{2/} Discharges are prorated between stations.

TABLE 4
PEAK DISCHARGE AND WATER SURFACE ELEVATION DATA
Fourmile Creek

Identification	Reference Point Number	Distance From Mouth Ft.	Stream ^{1/} Bed Elevation Ft.-m.s.l.	10-Year		50-Year		100-Year		500-Year	
				Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.
	89	226+30	6467.0		1230		4030		5680		10630
Private Drive	90	226+10	6466.0	U/S 6476.3		U/S 6479.6		U/S 6480.9		U/S 6484.0	
				D/S 6471.1		D/S 6475.3		D/S 6478.4		D/S 6482.0	
Private Drive	90.5	223+15	6452.2	U/S 6458.7		U/S 6464.7		U/S 6478.2		U/S 6481.6	
				D/S 6456.2		D/S 6460.9		D/S 6462.5		D/S 6467.0	
	91	221+50	6444.2								
	92	216+95	6430.4								
	93	213+20	6415.5								
	94	208+00	6382.5								
	95	204+20	6366.2								
	96	199+20	6348.8								
	97	194+45	6340.7								
Private Drive	98	194+00	6339.1	U/S 6351.3		U/S 6354.1		U/S 6355.2		U/S 6357.8	
				D/S 6342.2		D/S 6345.6		D/S 6347.1		D/S 6350.4	
	99	190+40	6325.5								
	100	185+55	6306.8								
	101	181+40	6292.2								
Private Drive	102	180+90	6290.9	U/S 6301.7		U/S 6304.5		U/S 6305.6		U/S 6308.4	
				D/S 6296.5		D/S 6300.8		D/S 6301.7		D/S 6303.9	
Private Drive	103	177+80	6281.2	U/S 6290.0		U/S 6292.4		U/S 6293.4		U/S 6295.9	
				D/S 6285.0		D/S 6287.8		D/S 6288.8		D/S 6290.8	
	104	177+20	6279.3								
	105	172+60	6268.3								
	106	168+25	6255.0								
	107	162+65	6234.6								
	108	154+90	6212.9								
	109	149+80	6199.1								
	110	144+30	6163.2								
	111	140+70	6139.6								
	112	135+90	6122.0								
	113	131+65	6109.3								
	114	127+55	6091.4								
	115	123+90	6077.2								
	116	120+20	6067.0								
	117	116+15	6053.4								
	118	109+85	6032.5								
	119	105+20	6019.0								
	120	99+85	6005.7								
Private Drive	121	95+10	5994.5	U/S 6003.0		U/S 6004.7		U/S 6005.7		U/S 6009.0	
				D/S 5998.8	1370	D/S 6002.1	4310	D/S 6003.5	6030	D/S 6007.1	11280

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TABLE 4

PEAK DISCHARGE AND WATER SURFACE ELEVATION DATA
Fourmile Creek

Identification	Reference Point Number	Distance From Mouth Ft.	Stream ^{1/} Bed Elevation Ft.-m.s.l.	10-Year		50-Year		100-Year		500-Year	
				Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.
	122	94+65	5993.8		1370	6002.1	4310	6003.5	6030	6007.1	11280
	123	90+30	5982.2			5992.8		5994.2		5997.2	
	124	85+60	5970.7			5978.4		5979.5		5982.4	
	125	81+30	5951.6			5960.9		5962.1		5965.0	
	126	76+50	5935.2			5944.7		5945.8		5948.3	
	127	71+90	5916.7			5927.9		5928.9		5931.4	
	128	67+70	5901.3			5908.9		5910.4		5913.8	
	129	64+25	5888.7			5900.6		5901.9		5905.3	
Private Drive	130	64+00	5888.0	U/S 5898.6 D/S 5894.4		U/S 5900.6 D/S 5896.6		U/S 5901.9 D/S 5897.6		U/S 5905.3 D/S 5899.6	
	131	60+35	5877.6			5888.6		5890.1		5893.4	
Private Drive	132	60+05	5876.4	U/S 5885.0 D/S 5882.0		U/S 5888.6 D/S 5885.8		U/S 5890.1 D/S 5887.0		U/S 5893.4 D/S 5889.7	
Private Drive	133	57+25	5869.3	U/S 5878.4 D/S 5876.0		U/S 5881.0 D/S 5879.2		U/S 5882.3 D/S 5880.4		U/S 5885.5 D/S 5883.3	
	134	56+40	5867.1			5878.5		5879.6		5882.3	
Private Drive	134.1	55+70	5865.0	U/S 5875.6 D/S 5871.2		U/S 5878.5 D/S 5874.7		U/S 5879.6 D/S 5875.8		U/S 5882.3 D/S 5878.4	
	135	53+00	5856.8			5866.6		5868.1		5872.7	
Private Drive	136	49+70	5846.1			5853.9		5857.7		5861.1	
Private Drive	137	49+45	5845.3	U/S 5853.9 D/S 5850.0		U/S 5857.7 D/S 5855.1		U/S 5859.1 D/S 5856.4		U/S 5861.1 D/S 5858.9	
Private Drive	137.5	47+85	5839.0	U/S 5848.6 D/S 5843.6		U/S 5851.2 D/S 5848.7		U/S 5852.5 D/S 5850.1		U/S 5855.1 D/S 5852.5	
	138	44+90	5827.7			5838.8		5840.4		5844.0	
Private Drive	139	44+55	5826.5	U/S 5835.9 D/S 5833.2		U/S 5838.8 D/S 5836.9		U/S 5840.4 D/S 5838.1		U/S 5844.0 D/S 5841.0	
Private Drive	140	42+85	5822.0	U/S 5832.7 D/S 5828.0		U/S 5836.0 D/S 5831.6		U/S 5837.2 D/S 5833.2		U/S 5839.8 D/S 5836.4	
	141	42+60	5821.6			5831.6		5833.2		5836.4	
	142	39+30	5813.0			5823.7		5824.8		5827.6	
Private Drive	143	38+95	5812.0	U/S 5821.2 D/S 5815.4		U/S 5823.7 D/S 5819.4		U/S 5824.8 D/S 5820.7		U/S 5827.6 D/S 5823.7	
Private Drive	144	35+90	5804.2	U/S 5813.2 D/S 5808.2		U/S 5816.0 D/S 5812.1		U/S 5817.2 D/S 5813.2		U/S 5820.4 D/S 5815.9	
Footbridge	145	35+65	5803.6			5812.1		5813.2		5815.9	
	147	32+85	5796.3		1410	5804.6	4410	5805.8	6180	5808.0	11550

^{1/} Low water elevation as determined by aerial photogrammetric methods.

^{2/} Discharges are prorated between stations.

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PEAK DISCHARGE AND WATER SURFACE ELEVATION DATA
Fourmile Creek

Identification	Reference Point Number	Distance From Mouth Ft.	Stream ^{1/} Bed Elevation Ft.-m.s.l.	10-Year		50-Year		100-Year		500-Year	
				Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.	Flood Elevation Ft.-m.s.l.	Peak Discharge ^{2/} c.f.s.
Private Drive	146	32+15	5794.2	U/S 5802.1	1410	U/S 5804.6	4410	U/S 5805.8	6180	U/S 5808.0	11550
				D/S 5798.3		D/S 5800.0		D/S 5800.7		D/S 5802.7	
	148	28+40	5783.9	5789.2		5792.9		5794.3		5796.2	
	149	24+15	5772.1	5778.2		5782.2		5784.1		5788.0	
Private Drive	150	20+85	5765.0	5774.3		5777.1		5778.4		5781.5	
	150.1	20+25	5763.5	U/S 5774.3		U/S 5777.1		U/S 5778.4		U/S 5781.5	
				D/S 5769.4		D/S 5773.8		D/S 5775.4		D/S 5778.1	
	151	18+00	5757.7	5767.7		5772.6		5773.7		5776.5	
Private Drive	152	17+75	5757.0	U/S 5767.7		U/S 5772.6		U/S 5773.7		U/S 5776.5	
				D/S 5763.8		D/S 5767.6		D/S 5769.3		D/S 5773.1	
	153	16+70	5753.9	5763.6		5767.2		5768.9		5772.7	
	154	16+45	5753.5	U/S 5763.6		U/S 5767.2		U/S 5768.9		U/S 5772.7	
Private Drive				D/S 5759.5		D/S 5762.6		D/S 5763.9		D/S 5767.1	
	154.5	14+25	5748.1	U/S 5759.2		U/S 5761.7		U/S 5762.8		U/S 5765.9	
				D/S 5754.4		D/S 5757.5		D/S 5758.5		D/S 5761.1	
	155	12+20	5743.7	5749.0		5752.6		5753.9		5756.2	
Prop Structure	155.5	10+20	5739.7	U/S 5746.6		U/S 5749.2		U/S 5750.1		U/S 5752.8	
				D/S 5745.6		D/S 5748.2		D/S 5749.4		D/S 5752.4	
	156	8+75	5736.5	5745.4		5747.7		5748.8		5751.7	
	157	8+50	5736.0	U/S 5745.4		U/S 5747.7		U/S 5748.8		U/S 5751.7	
Private Drive				D/S 5740.4		D/S 5744.8		D/S 5745.8		D/S 5748.2	
	158	5+20	5726.2	5732.1		5744.4		5745.3		5747.3	
	159	2+50	5720.5	5728.7		5744.4		5745.2		5747.2	
Colorado Highway											
119											
Mouth	160	1+10	5717.5	U/S 5727.6	1420	U/S 5744.3	4440	U/S 5745.1	6230	U/S 5746.8	11640

^{1/} Low water elevation as determined by aerial photogrammetric methods.

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Table 5

Control Marker Data

<u>Boulder Creek Plate #</u>	<u>Map Identification</u>	<u>Cap Set By</u>	<u>Monument Elevation</u>	<u>General Location</u>
18	107	Boulder Co.	5568.84	+1.1 mile downstream from Monument 111, west of Colorado 119 roadbed 35 feet
17	111	Boulder Co.	5682.86	+3.0 mile downstream from Monument 119, 45 feet south of Colorado 119 guardrail.
16	119	Boulder Co.	5825.55	+0.4 mile downstream from Monument 121, turn right across river travelling 300 feet, go 200 feet to Y in road. Monument is 54.8 feet northeast from cattle guard.
16	121	Boulder Co.	5840.67	+0.7 mile downstream from Monument #124, turn south on dirt road 200 feet to monument 40' north of stream gage.
15	124	Boulder Co.	5923.92	+1.5 mile downstream from Monument #130, and thence 170 feet along old road on north side of Colorado 119, 8 feet north of roadbed.
14	130	Boulder Co.	6044.76	+2.3 mile downstream from Monument #139, 16 feet south of Colorado 119 edge of pavement.
13	133	Boulder Co.	6128.79	+0.6 mile downstream from Monument #139 and 16.3 feet north of Colorado 119 edge of pavement.

Table 5 (Continued)

Control Marker Data

<u>Boulder Creek Plate #</u>	<u>Map Identification</u>	<u>Cap Set By</u>	<u>Monument Elevation</u>	<u>General Location</u>
13	139	Boulder Co.	6227.00	+1.9 mile downstream from Monument #145, 11.5 feet north of Colorado 119 edge of pavement near Wheelman.
12	145	Boulder Co.	6397.95	+1.4 mile downstream from Monument #147, northwest of Colorado 119 roadbed, 26.3 feet at Sunnyside Bridge.
11	147	Boulder Co.	6639.84	+1.7 mile downstream from Monument #155, south of Colorado 119 roadbed 5 feet and 3.5 feet from the guardrail.
10	155	Boulder Co.	6894.15	+1.2 mile downstream from Monument #159, west of Colorado 119 roadbed 11.1 feet from edge of pavement at Boulder falls turnout.
9	159	Boulder Co.	7180.43	+1.1 mile downstream from Monument #163, east side of Colorado 119 roadbed, 4.5 feet from guardrail posts.
9	163	Boulder Co.	7413.46	+1.8 mile downstream from Monument #170, northwest side of Colorado 119 roadbed, 54 feet from edge of pavement.
8	170	Boulder Co.	7558.24	+1.6 mile downstream from Monument #180, 12 feet southeast of south edge of pavement on Colorado 119 at dirt road intersection.
7	180	Boulder Co.	7640.12	+1.1 mile downstream from Monument #183, north side of Colorado 119 at dirt road intersection.

Table 5 (Continued)

Control Marker Data

<u>Boulder Creek Plate #</u>	<u>Map Identification</u>	<u>Cap Set By</u>	<u>Monument Elevation</u>	<u>General Location</u>
6	183	Boulder Co.	7699.16	+2.7 mile downstream from Monument #195, 4.7' south of Colorado 119 edge of pavement.
5	195	Boulder Co.	7925.94	+1.3 mile downstream from Monument #199, 17.8' north of Colorado 119 edge of pavement.
3	199	Boulder Co.	7999.91	+0.9 mile downstream from Barker Reservoir Dam, south of Colorado 119 roadbed 155 feet.

- Note: 1) Please check with Boulder County or Colorado Water Conservation Board office for additional monument information and conditions.
- 2) These monument elevations will differ with U.S.G.S. elevations on benchmark "5732 Denver" and "A-26-1942" by +7.39 and +7.09 feet respectively. See February 5, 1980 file memo for further details.

Table 5 (Continued)

Control Marker Data

<u>Fourmile Creek Plate #</u>	<u>Map Identification</u>	<u>Cap Set By</u>	<u>Monument Elevation</u>	<u>General Location</u>
19	208	Boulder Co.	7771.66	+0.7 mile upstream from Monument #210, north of Colorado Road 118 roadbed 45 feet and 26.7 feet from rail in top of fence post.
19	210	Boulder Co.	7689.89	+1.1 mile upstream from Monument #214, north of Colorado Road 118 roadbed 4 feet and 47 feet from power pole.
20	214	Boulder Co.	7579.47	+1.0 mile upstream from Monument #217, south of Colorado Road 116 roadbed 3 feet and 5.6 feet from power pole.
21	217	Boulder Co.	7475.22	+0.7 mile upstream from Monument #218, north of Colorado Road 118 roadbed 3 feet and 28' from a stump.
21	218	Boulder Co.	7411.18	+0.8 mile upstream from Monument #222, 8.0 feet north of Colorado Road 118 roadbed.
21	222	Boulder Co.	7339.21	+1.4 mile upstream from Monument #227, three feet south of Colorado Road 118 roadbed.
22	227	Boulder Co.	7202.95	+1.4 mile upstream from Monument #233, north of Colorado Road 118 roadbed 3 feet. Just past dirt road to south and 48.6 feet from power pole.
23	233	Boulder Co.	7053.02	+1.8 mile upstream from Monument #242, south of Colorado Road 118 roadbed 2 feet.

Table 5 (Continued)

Control Marker Data

<u>Fourmile Creek Plate #</u>	<u>Map Identification</u>	<u>Cap Set By</u>	<u>Monument Elevation</u>	<u>General Location</u>
24	242	Boulder Co.	6856.48	+0.8 mile upstream from Monument #242.1, south of Colorado Road 118 roadbed 2 feet and 1 foot from metal guard post.
24	242-1	Boulder Co.	6792.38	+0.9 mile upstream from Monument #246, north of Colorado Road 118 roadbed 18 feet and 50 from power pole.
25	246	Boulder Co.	6748.81	+1.3 miles upstream from Monument #250, at dirt road junction, 40 feet north of junction, and 20.9 feet west of a twin pine.
25	250	Boulder Co.	6593.01	+1.2 mile upstream from Monument #255, south of Colorado Road 118 6 feet and 3.4 feet southwest of mile post.
26	255	Boulder Co.	6444.43	+0.8 mile upstream from Monument #257, west of County Road 118 guardrail 10.7 feet.
26	257	Boulder Co.	6351.42	+1.4 mile upstream from Monument #263, west of Colorado Road 118 roadbed 7.2 feet.
27	263	Boulder Co.	6375.78	+1.2 mile upstream from Monument #267 34.2 east of Co. Rd. pavement edge.
28	267	Boulder Co.	6229.63	+1.3 mile upstream from Monument #268 south of Colorado Road 118 guardrail 12.6 feet.
29	268	Boulder Co.	6059.26	+1.2 mile upstream from Monument #272, east of Colorado 118 roadbed 37 feet.

Table 5 (Continued)

Control Marker Data

<u>Fourmile Creek Plate #</u>	<u>Map Identification</u>	<u>Cap Set By</u>	<u>Monument Elevation</u>	<u>General Location</u>
29	272	Boulder Co.	5920.17	+1.2 mile upstream from Monument #276, west of Colorado Road 118 roadbed 6.6 feet.
30	276	Boulder Co.	5806.66	+1.2 mile upstream on Colorado Road 118, from junction of Colorado 119 and Colorado Road 118, west of roadbed 6.6 feet at dirt road.

NOTE: Please check with Boulder County or Colorado Water Conservation Board offices for additional monument information and condition.

Flood Insurance

The National Flood Insurance Program is a federal program that enables property owners to buy flood insurance at a reasonable, subsidized cost. In return, communities are required to carry out floodplain management measures to protect lives and new construction from future flooding.

Flood insurance through the National Flood Insurance Program is available to all residents of Boulder County under the regular phase of the program. Boulder County entered the regular program February 1, 1979. A Flood Insurance Summary is shown in Table 6.

Additional information on the Flood Insurance Program is available from local insurance agents or brokers and the:

Federal Emergency Management Agency
Division of Insurance and Mitigation
Denver Federal Center, Building 710
Lakewood, Colorado 80225
Telephone: 234-6582

Table 6

Federal Emergency Management Agency
National Flood Insurance Program Summary

	Total Amount Available (First Layer) (1)(3)	Subsidized Rate per \$100 of Coverage	Second Layer	Actuarial Rate for \$100 Coverage Based on Risk Rate Varies with Risk	Total Amount Available 1st & 2nd Layers(2)	Maximum Required (2)
Single- Family Residence	\$ 35,000	\$.25	150,000	Rate varies with risk	185,000	\$ 70,000
Other Residential	100,000	.25	150,000	Rate varies with risk	250,000	200,000
Contents, Residential	10,000	.35	50,000	Rate varies with risk	60,000	20,000
Small Business	100,000	.40	150,000	Rate varies with risk	250,000	200,000
Contents, Small Business	100,000	.75	200,000	Rate varies with risk	300,000	200,000
Other Non- Residential	100,000	.40	100,000	Rate varies with risk	200,000	200,000
Contents, Other, Non- Residential	100,000	.75	100,000	Rate varies with risk	200,000	200,000

- NOTES: 1) Only the first layer of coverage is available under the Emergency Program.
- 2) a. Full coverage is available under the Regular Program for all structures in the community.
b. New construction and substantial improvements are charged actuarial rates for all coverage.
c. All existing structures are charged actuarial rates for the second layer of coverage and property owners have the option of paying either the subsidized or actuarial rate for the first layer, whichever is lower.
- 3) Limits required under Section 102(a)(b) of Act of 1973.

All property owners shown in this study to be within areas subject to flooding should consider the purchase of flood insurance.

GLOSSARY

Backwater Effect - The rise in surface elevation of flowing water upstream from and as a result of an obstruction to flow.

Channel - A natural or artificial watercourse of perceptible extent with definite bed and banks to confine and conduct continuously or periodically flowing water.

Cloudburst - A sudden and extremely heavy downpour of rain that is small in areal extent; of short duration; and may be accompanied by lightning, thunder, and strong gusts of wind.

Conveyance Capacity

- a. Channel conveyance capacity is the rate of discharge, in cubic feet per second, which can flow in a water course with the water surface not greater than the height of the channel banks.
- b. Floodway conveyance capacity is the rate of discharge in the overflow portion of the floodway which can pass through a specified area at depths and velocities governed by the hydraulic dimensions of the floodway.

Designated Floodplain - The area designated as a floodplain by official action of the board of county commissioners or city council with the prior concurrence of the Colorado Water Conservation Board.

Flood - An overflow of lands not normally covered by water and that are used or usable by man. Floods have two essential characteristics: the inundation of land is temporary; and the land is adjacent to and inundated by overflow from a river or stream or an ocean, lake or other body of standing water.

Normally a flood is considered as any temporary rise in streamflow or stage, but not the ponding of surface water, that results in significant adverse effects in the vicinity. Adverse effects may include damages from overflow of land areas, temporary backwater effects in sewers and local drainage channels, creation of unsanitary conditions or other unfavorable situations by deposition of materials in stream channels during flood recessions, use of ground water coincident with increased streamflow, and other problems.

Flood, 100-Year - A type of flood, including the water surface elevation and territorial occupation thereof, which can be expected to occur at any time in a given area based upon recorded historical precipitation and other valid data, but with an average statistical one percent chance of being equalled or exceeded during any one year. The term is used interchangeably with a one percent flood or Intermediate Regional Flood. (See definition for Intermediate Region Flood).

Flood Crest - The maximum stage or elevation reached by the waters of a flood at a given location.

Flood Frequency - (see Probability) The average recurrence interval of specific discharges or water stages which cause flooding.

Flood Peak - The maximum instantaneous discharge of a flood at a given location. It usually occurs at or near the time of the flood crest.

Floodplain - An area in and adjacent to a stream, which area is subject to flooding as the result of the occurrence of a 100-year flood and which area thus is so adverse to past, current, or foreseeable construction or land use as to constitute a significant hazard to public health and safety or to property.

Flood Profile - A graph showing the relationship of water surface elevations to location, the latter generally expressed as distance above mouth for a stream of water flowing in an open channel. It is generally drawn to show surface elevation for the crest of a specific flood, but may be prepared for conditions at a given time or stage.

Flood Stage - The stage or elevation at which overflow of the natural banks of a stream or body of water begins in the reach or area in which the elevation is measured.

Floodway Zone - The channel of a stream and those portions of the adjoining floodplain which are reasonably required to carry and discharge the floodwaters of a 100-year flood. It is the designated floodplain less than the low hazard zone, if any such low hazard zone has been identified. If no low hazard zone has been identified, then the terms "designated floodplain" and "floodway zone" shall be considered as being synonymous.

Intermediate Regional Flood - A type of flood, including the water surface elevation and territorial occupation thereof, which can be expected to occur at any time in a given area based upon recorded historical precipitation and other valid data, but with an average statistical one percent chance of being equalled or exceeded during any one year. The term is used interchangeably with a one percent flood or one hundred year flood. (See definition for 100-year flood.)

Left Bank - The bank on the left side of a river, stream or water course as the observer looks downstream.

Low Hazard Zones - That area of the floodplain in which the waters of a 100-year flow will not attain a maximum depth greater than one and one-half feet.

Probability - The annual chance of occurrence of specified hydrologic events, such as rainfall over a specified area of peak discharge at a specified location expressed in percent, e.g., 5 percent representing one chance in 20 of the event occurring in any year or an average recurrence of once in twenty years.

Reference Point - A numbered point identifying a specific location for correlating the data shown in various forms throughout the report.

Right Bank - The bank on the right side of a river, stream or water course, looking downstream.

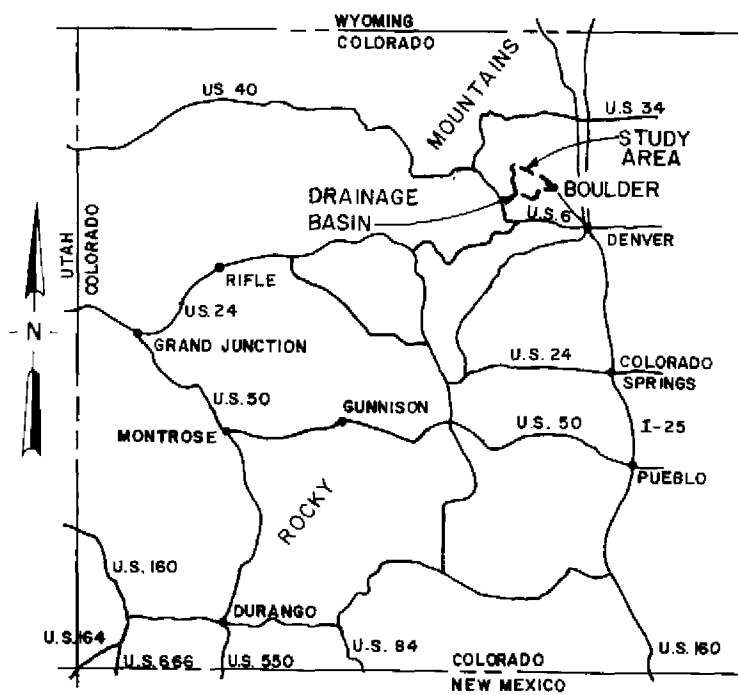
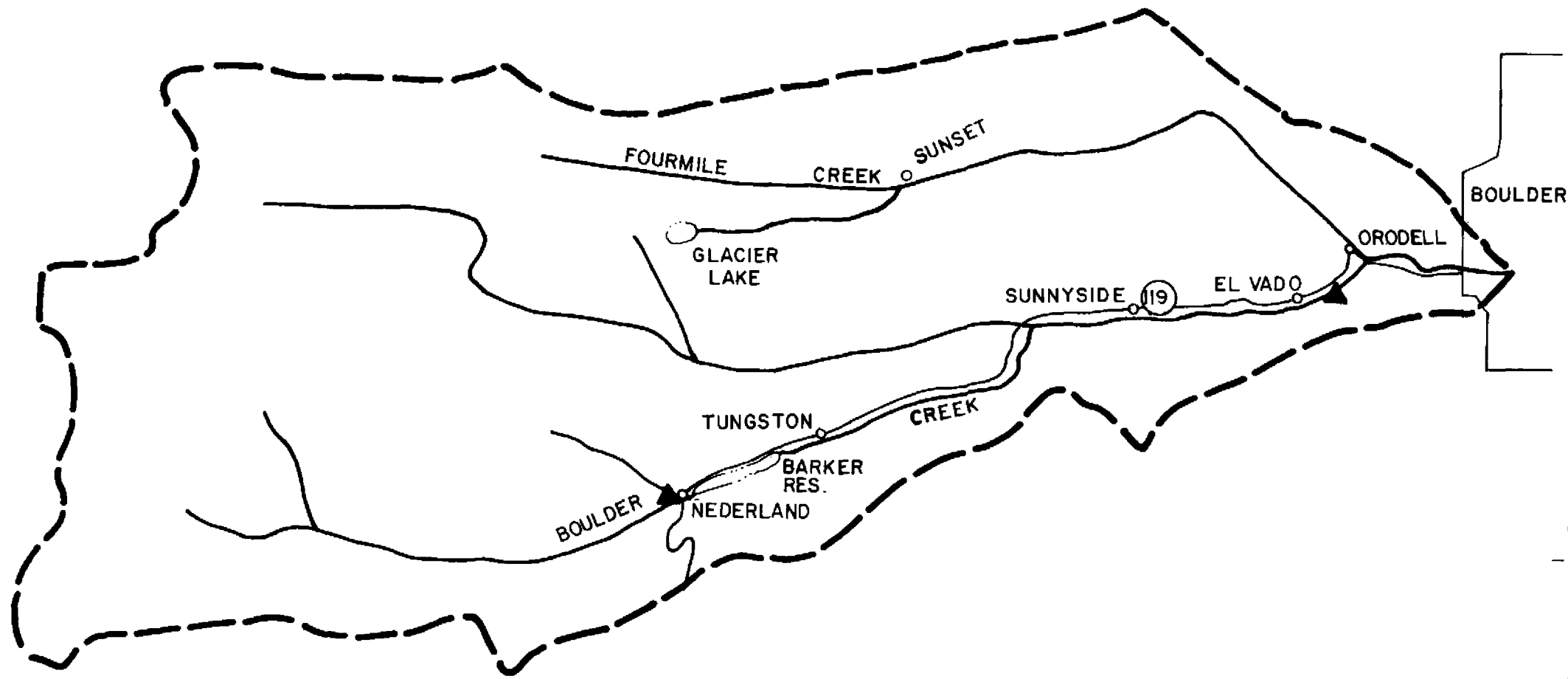
Runoff - The quantity of rainfall which flows over the surface to enter the stream as discharge volume. The difference in quantity between rainfall and runoff represents losses to infiltration and interception.

Sheet Flow - Any natural channel or depression through which water flows either continuously, intermittently or periodically, including any artificial modification of the natural channel or depression.

Watershed - The drainage area situated above a specified point on a stream including the area drained by tributary streams which enter the main stream above this point.

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VICINITY MAP

SCALE IN MILES
0 10 20 30 40 50

LEGEND

- DRAINAGE BASIN BOUNDARY
- ▲ STREAM GAGING STATION
- (119) STATE HIGHWAY

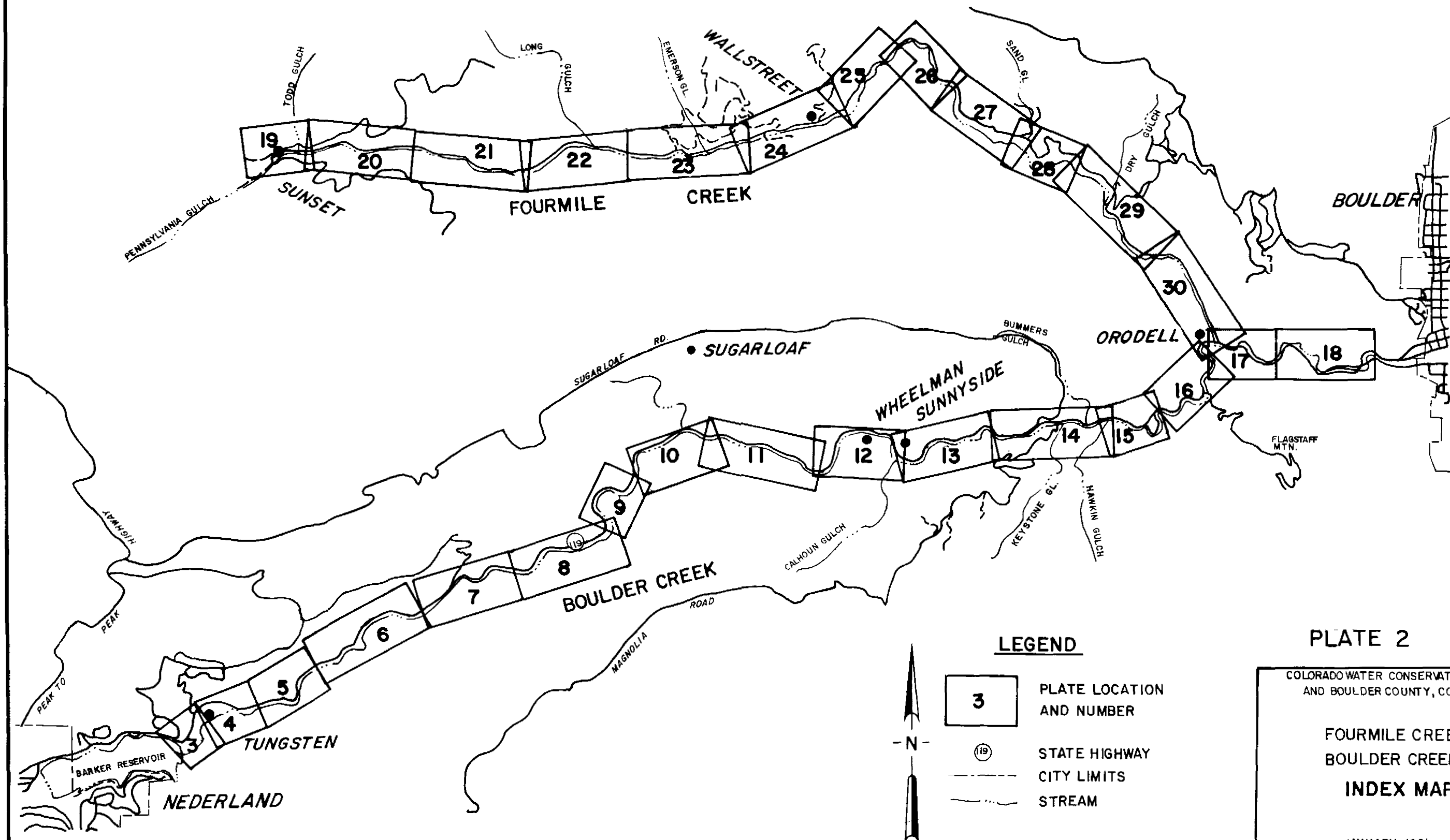
SCALE IN MILES
0 1 2 3 4 5

COLORADO WATER CONSERVATION BOARD
AND BOULDER COUNTY, COLORADO

FOURMILE CREEK
BOULDER CREEK
BASIN MAP

JANUARY, 1981

PREPARED BY
GINGERY ASSOCIATES INC.



LEGEND

- 3 PLATE LOCATION AND NUMBER
- 19 STATE HIGHWAY
- CITY LIMITS
- ~~~~~ STREAM

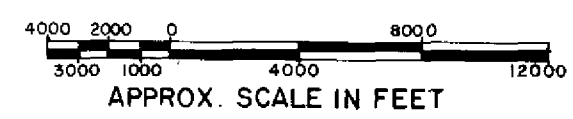
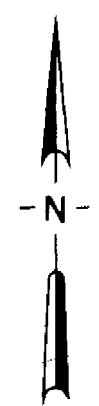


PLATE 2

COLORADO WATER CONSERVATION BOARD
AND BOULDER COUNTY, COLORADO

**FOURMILE CREEK
BOULDER CREEK
INDEX MAP**

JANUARY, 1981

PREPARED BY
GINGERY ASSOCIATES INC.

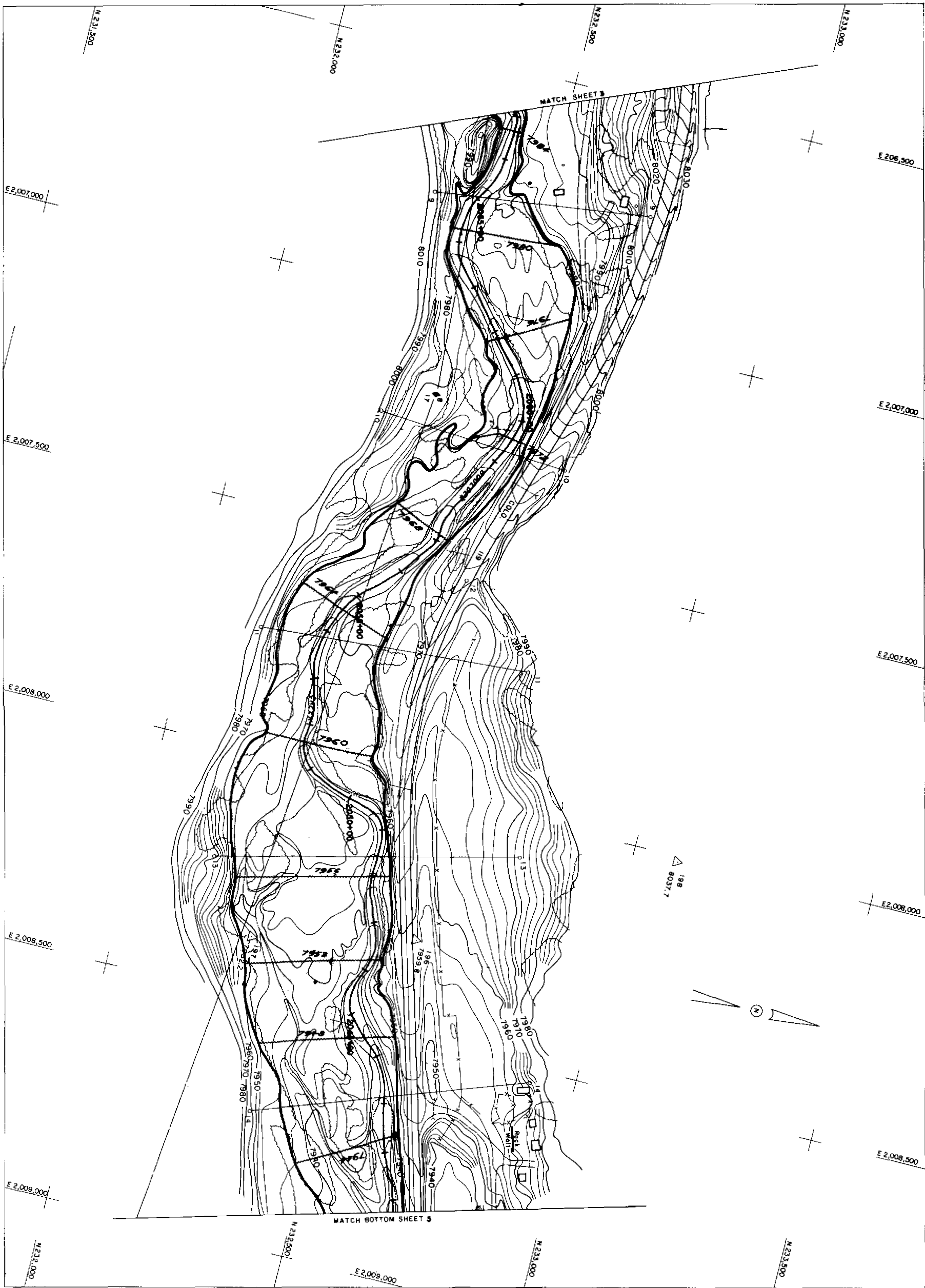


PLATE 4

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE SEE PLATES: 31 THRU 37
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
FLOOD CONTOUR
CHANNEL STATIONING
REFERENCE POINT

200 100 0 200
150 50 100 400
SCALE IN FEET
CONTOUR INTERVAL = 2'

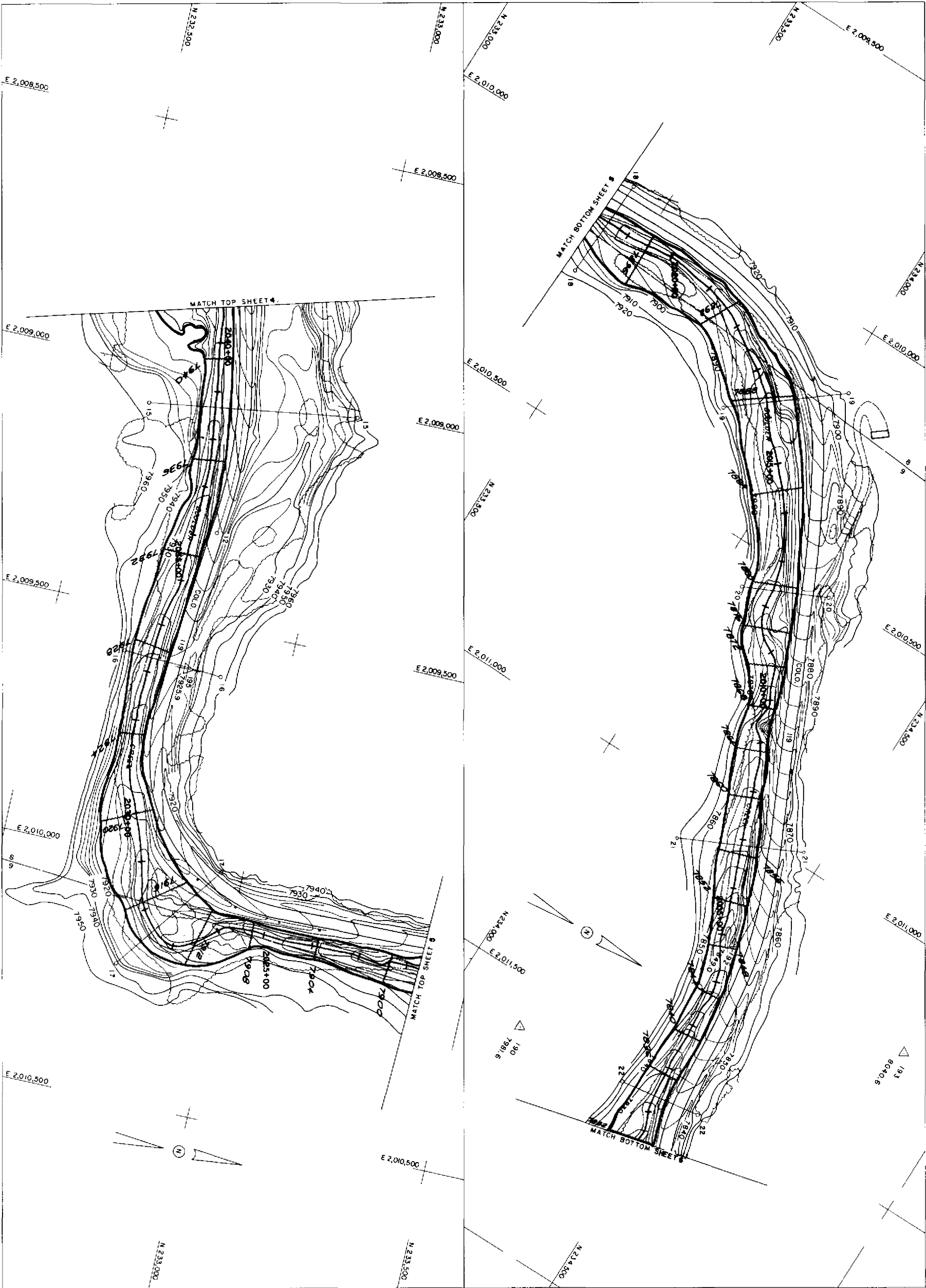


PLATE 5

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

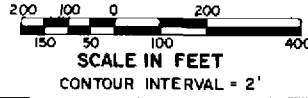
NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE SEE PLATES 31 THRU 37
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT



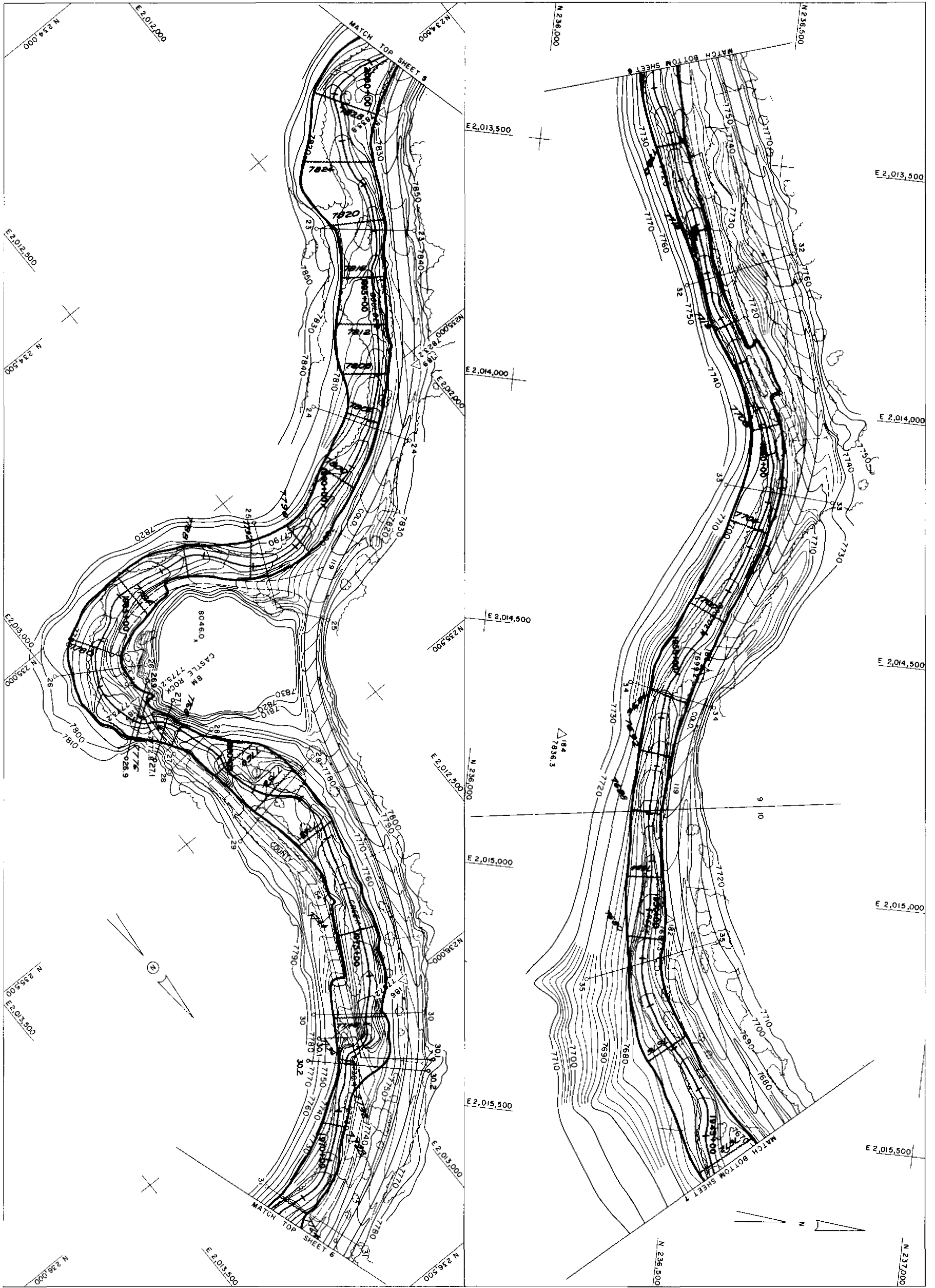


PLATE 6

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

NOTES

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3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
FLOOD CONTOUR
CHANNEL STATIONING
REFERENCE POINT

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SCALE IN FEET
CONTOUR INTERVAL = 2'

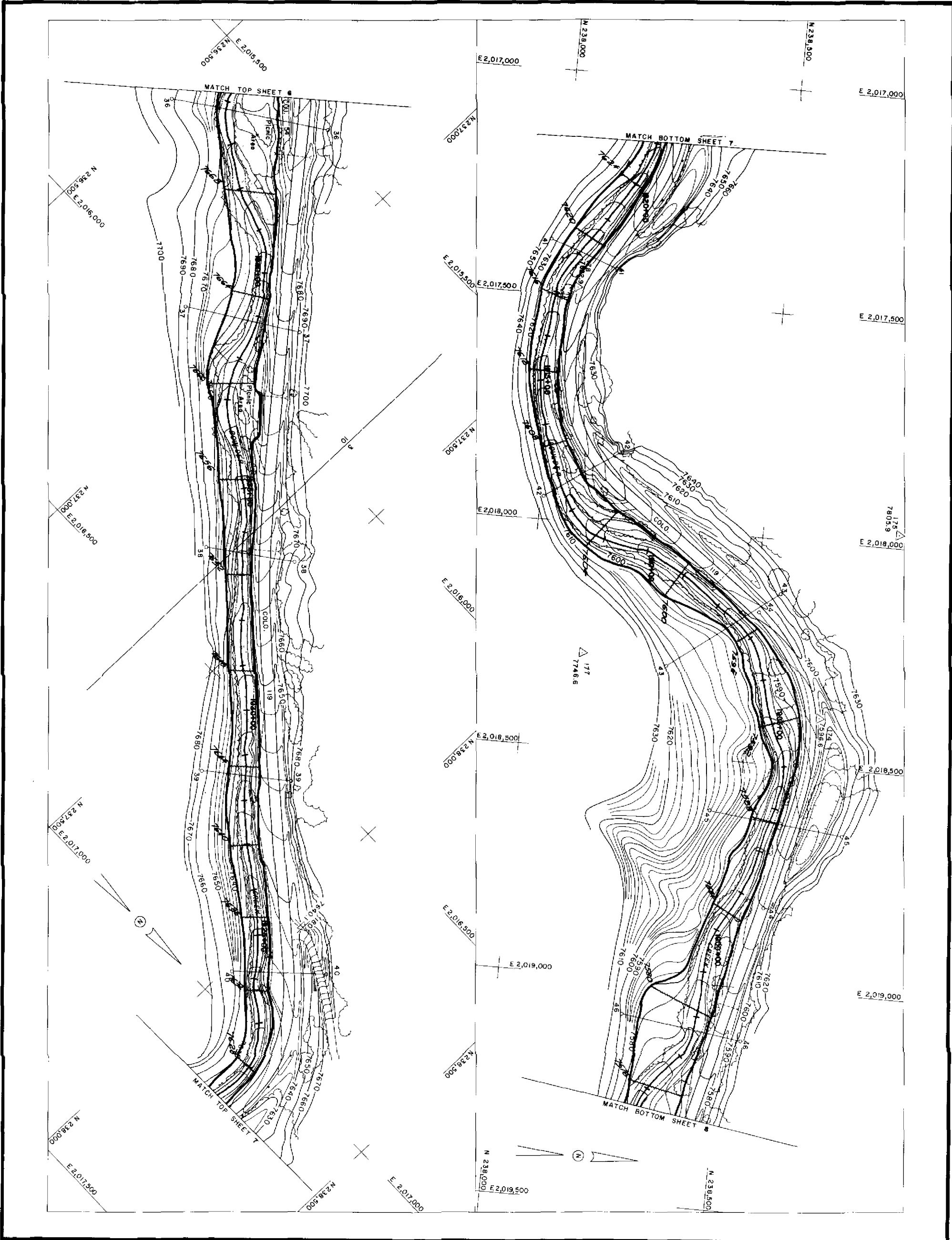


PLATE 7

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

NOTES

- 1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
- 2. FOR PROFILE SEE PLATES: 31 THRU 37
- 3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT





PLATE 8

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981



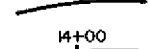

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

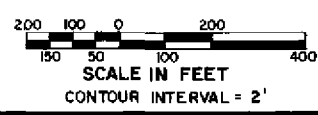
NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE SEE PLATES 31 THRU 37
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

-  100 YEAR FLOOD BOUNDARY
-  FLOOD CONTOUR
-  CHANNEL STATIONING
-  REFERENCE POINT



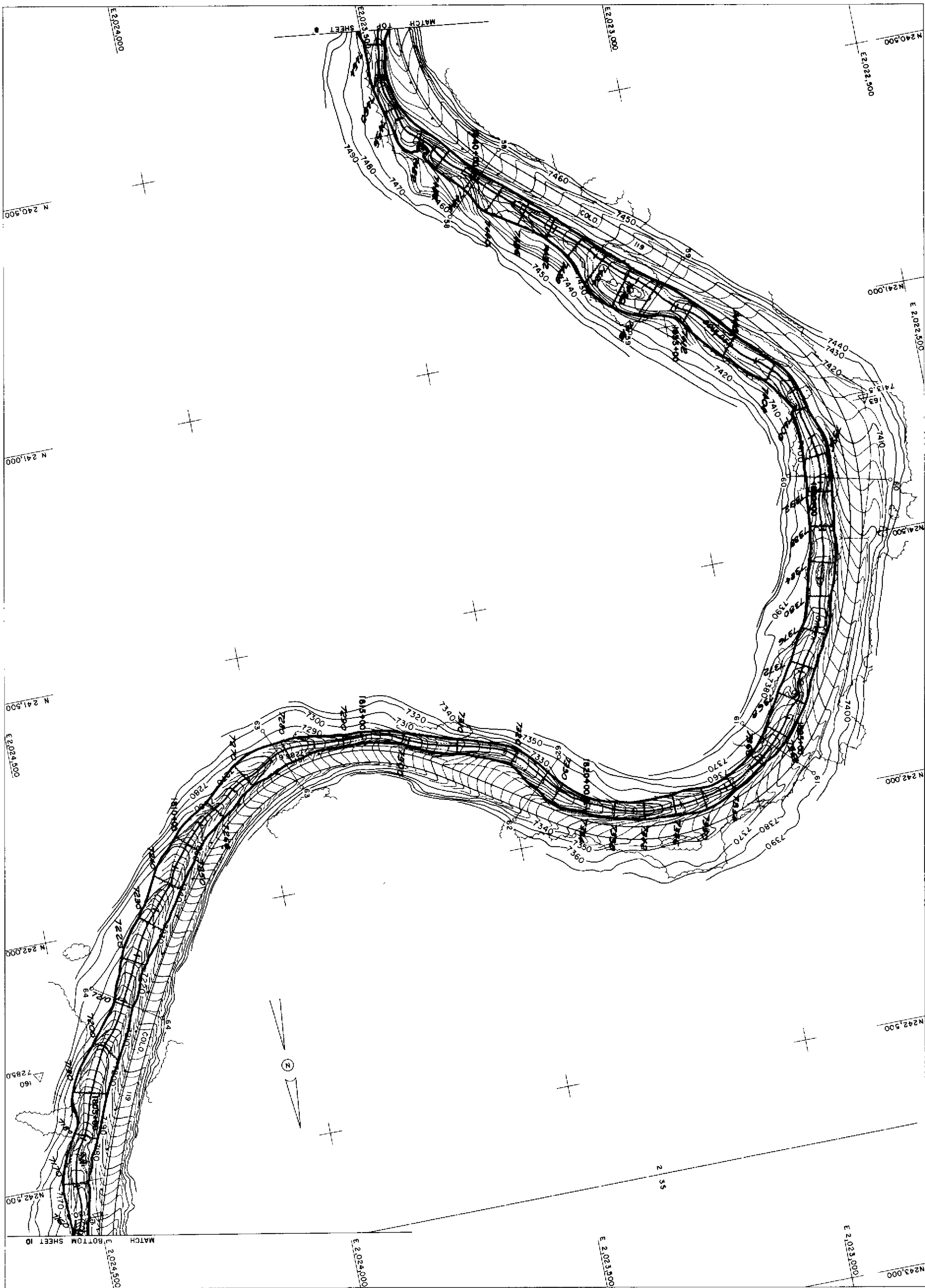


PLATE 9

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

NOTES

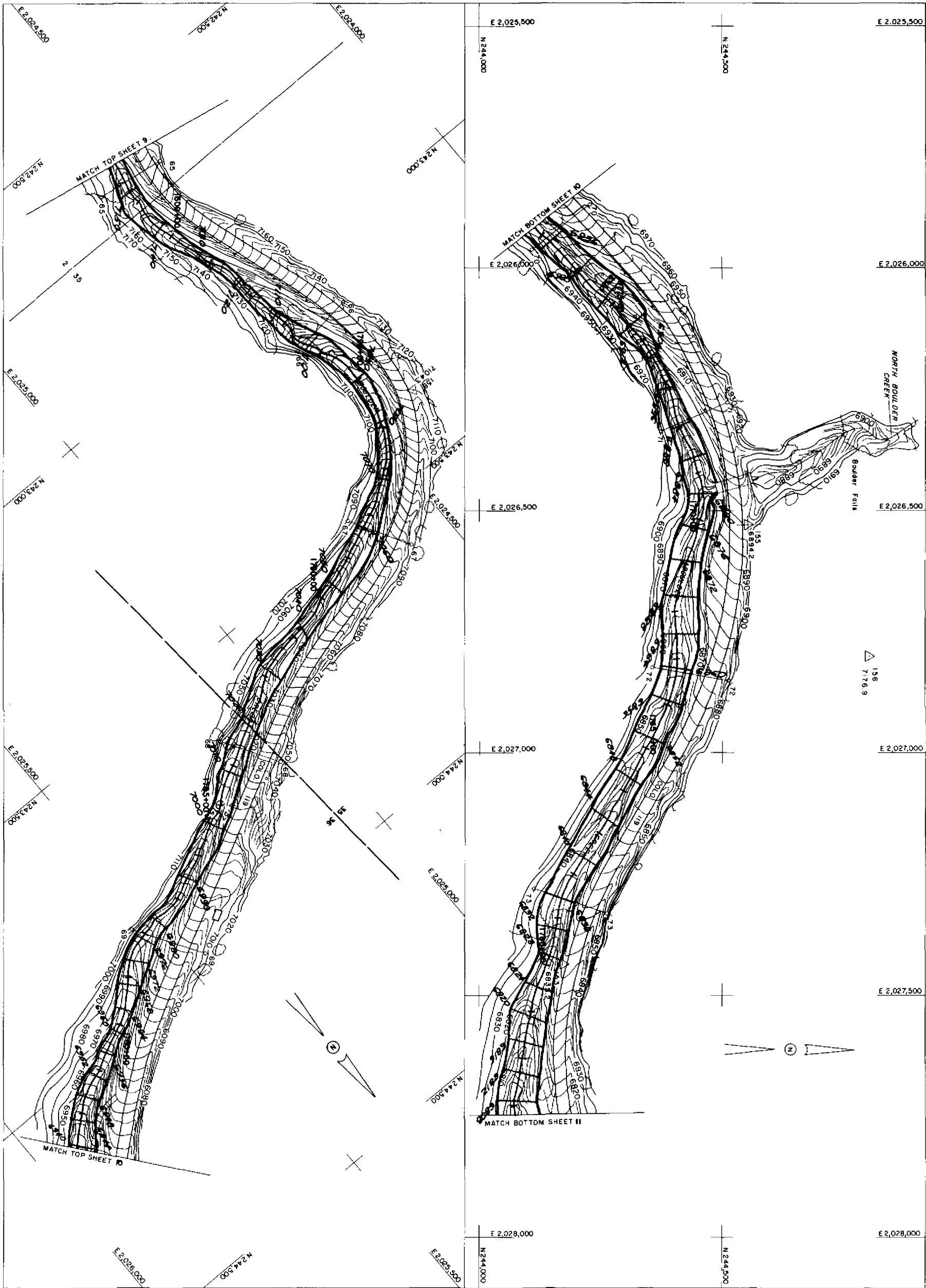
1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE SEE PLATES: 31 THRU 37
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
FLOOD CONTOUR
CHANNEL STATIONING
REFERENCE POINT

200 100 0 200 400
150 50 100
SCALE IN FEET
CONTOUR INTERVAL = 2'



COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

NOTES

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2. FOR PROFILE SEE PLATES: 31 THRU 37
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
FLOOD CONTOUR
CHANNEL STATIONING
REFERENCE POINT

200 100 0 200
150 50 100 400
SCALE IN FEET
CONTOUR INTERVAL = 2'

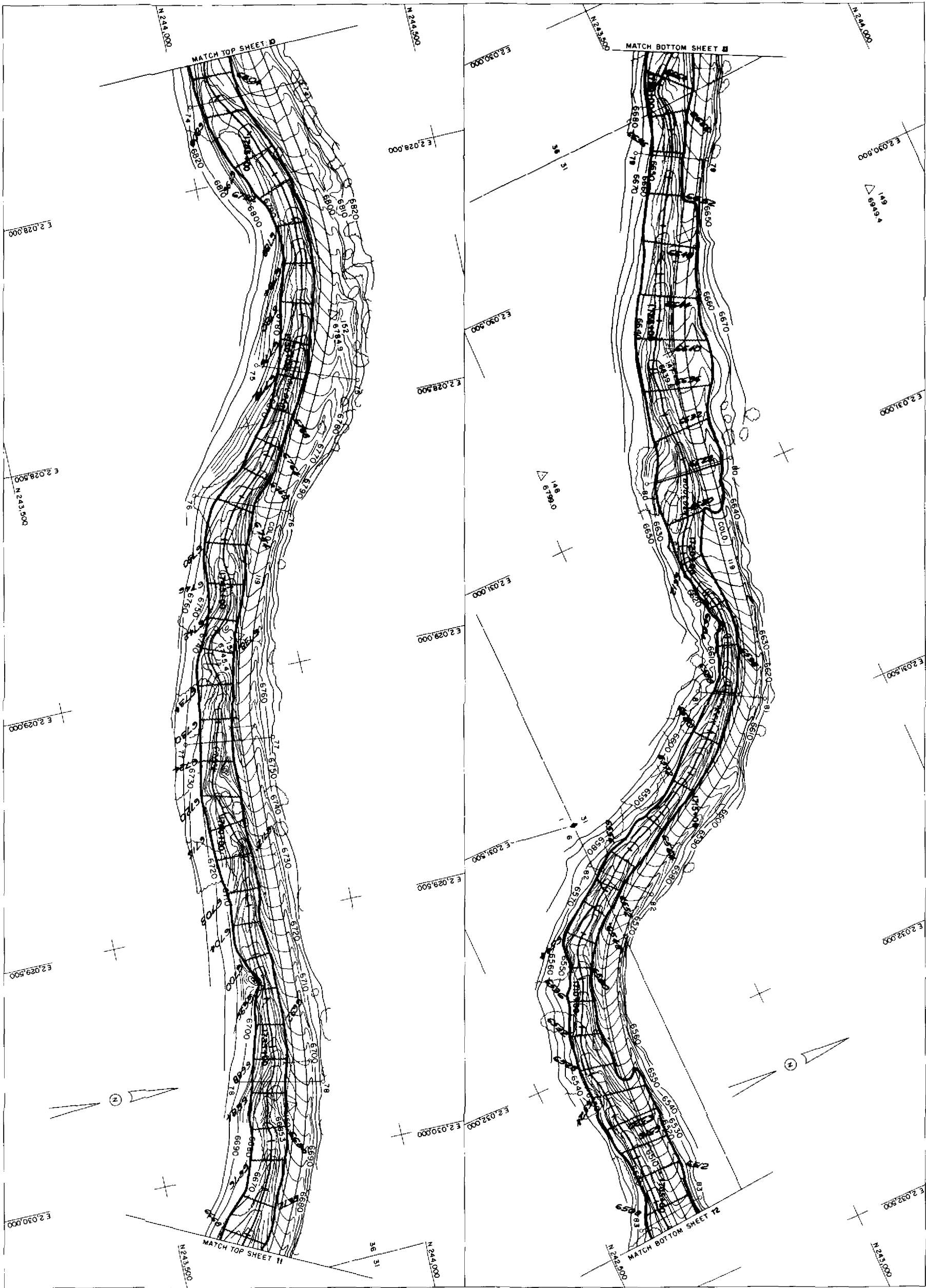


PLATE II

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

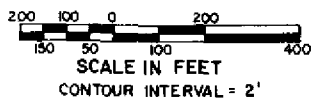
NOTES

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2. FOR PROFILE SEE PLATES: 31 THRU 37
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT



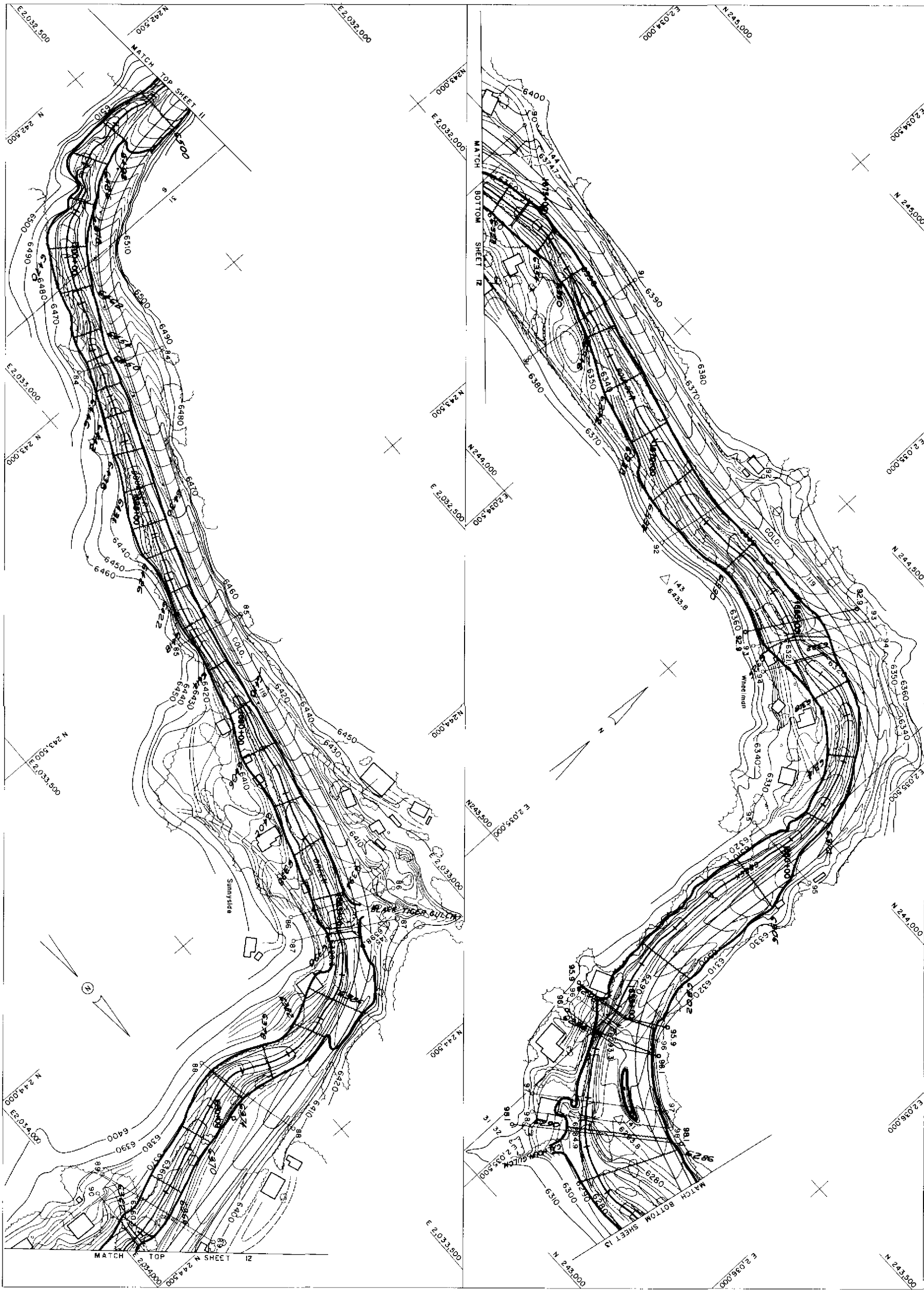


PLATE 12

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE SEE PLATES: 31 THRU 37
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT

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150 50 100 400
SCALE IN FEET
CONTOUR INTERVAL = 2'

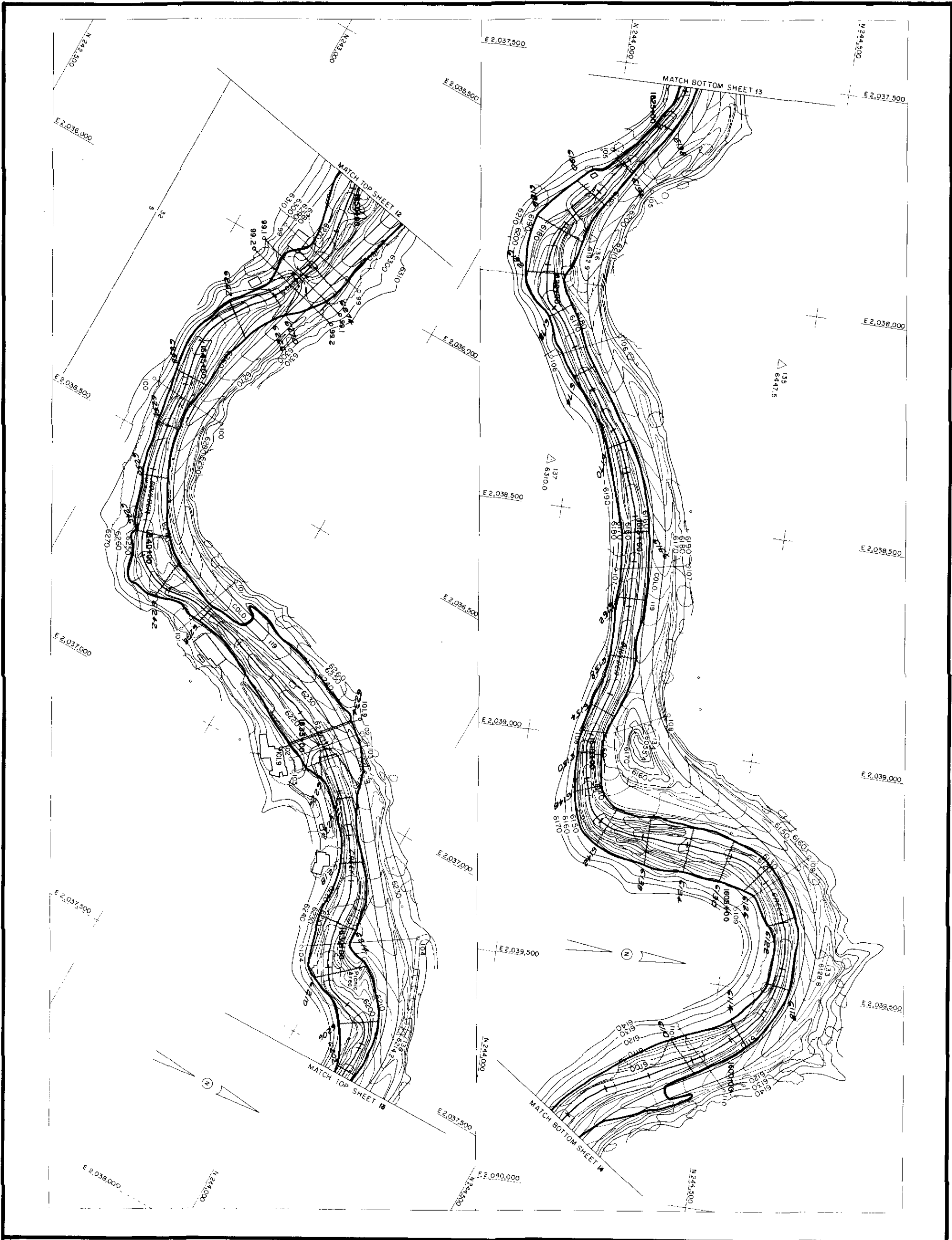


PLATE 13

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

NOTES

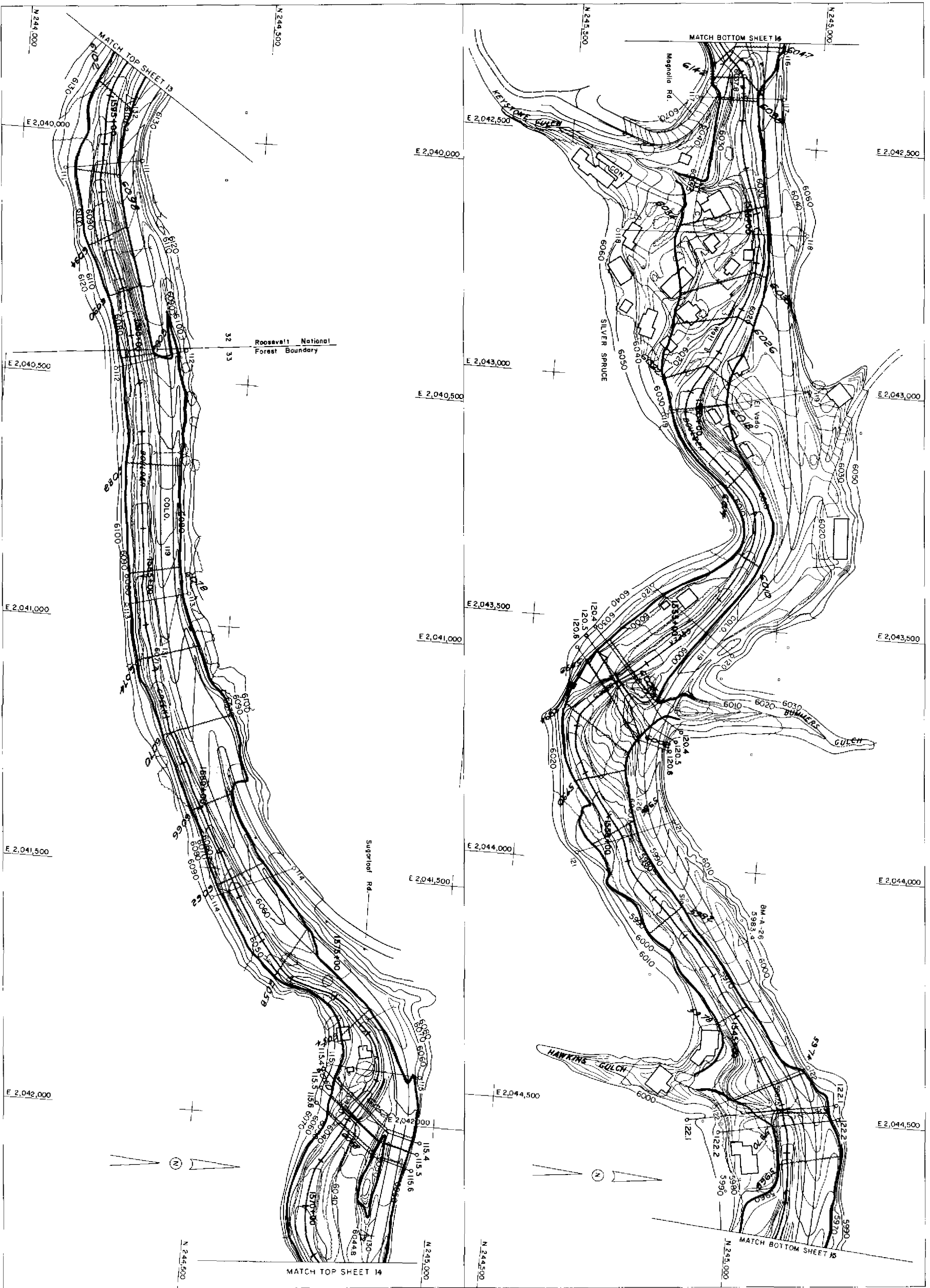
1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE SEE PLATES: 31 THRU 37
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT





COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

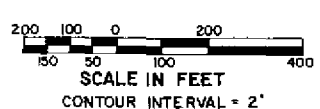
NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE SEE PLATES 31 THRU 37
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT



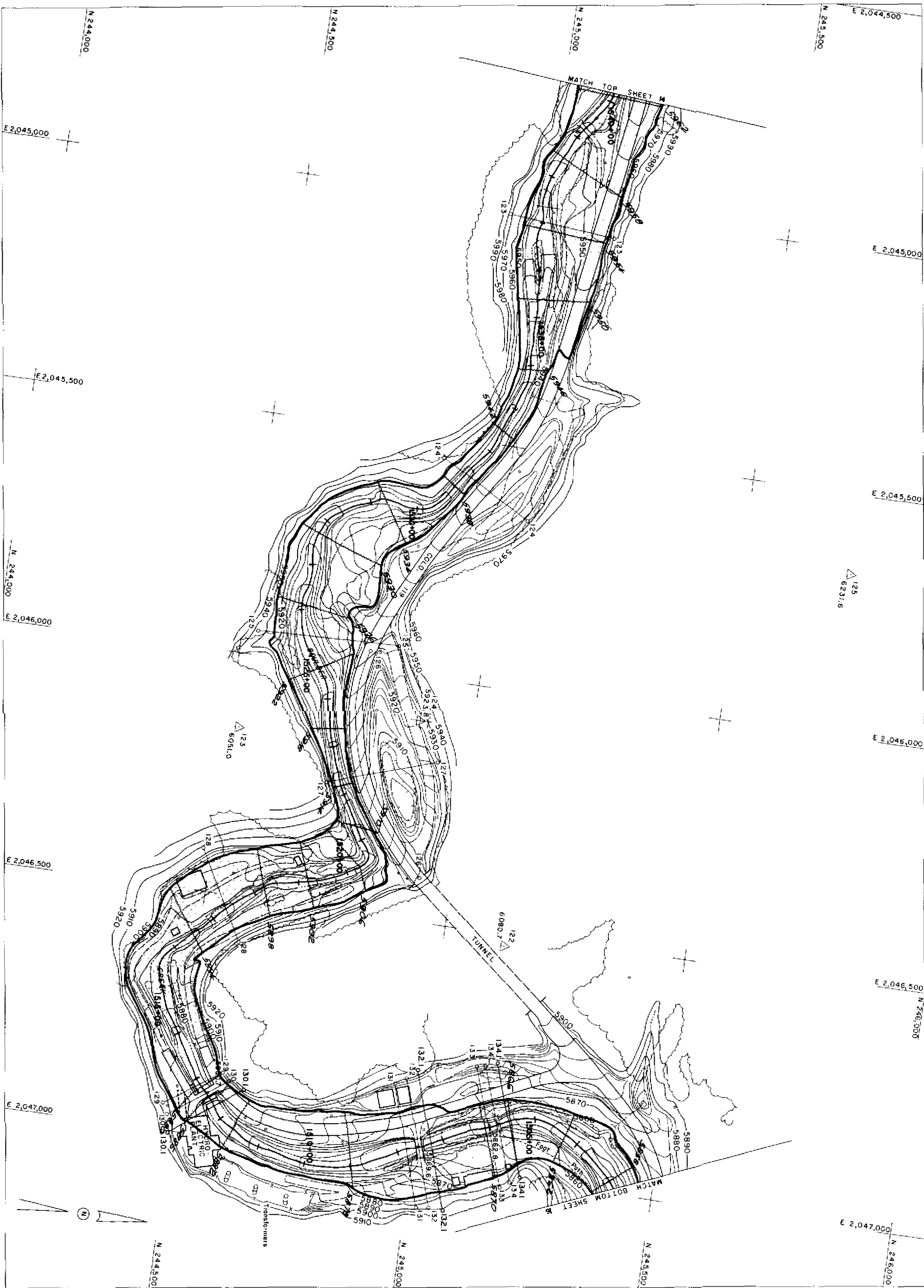


PLATE 15

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE SEE PLATES: 31 THRU 37
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
 FLOOD CONTOUR
 CHANNEL STATIONING
 REFERENCE POINT

200 100 0 200 400
 150 50 100
 SCALE IN FEET
 CONTOUR INTERVAL = 2'

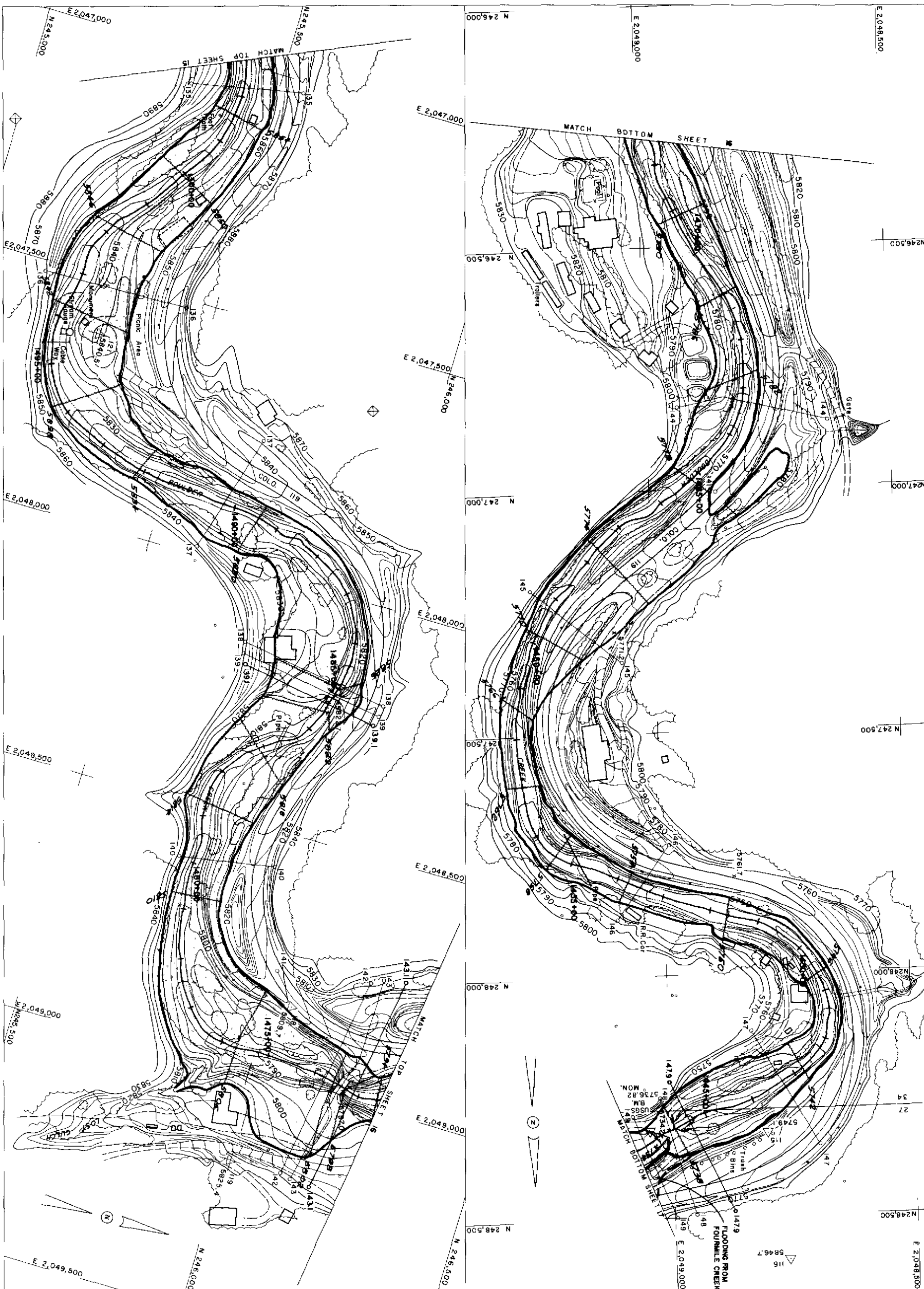


PLATE 16

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

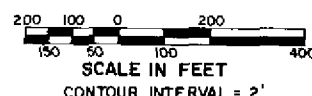
NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE SEE PLATES 31 THRU 37
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT



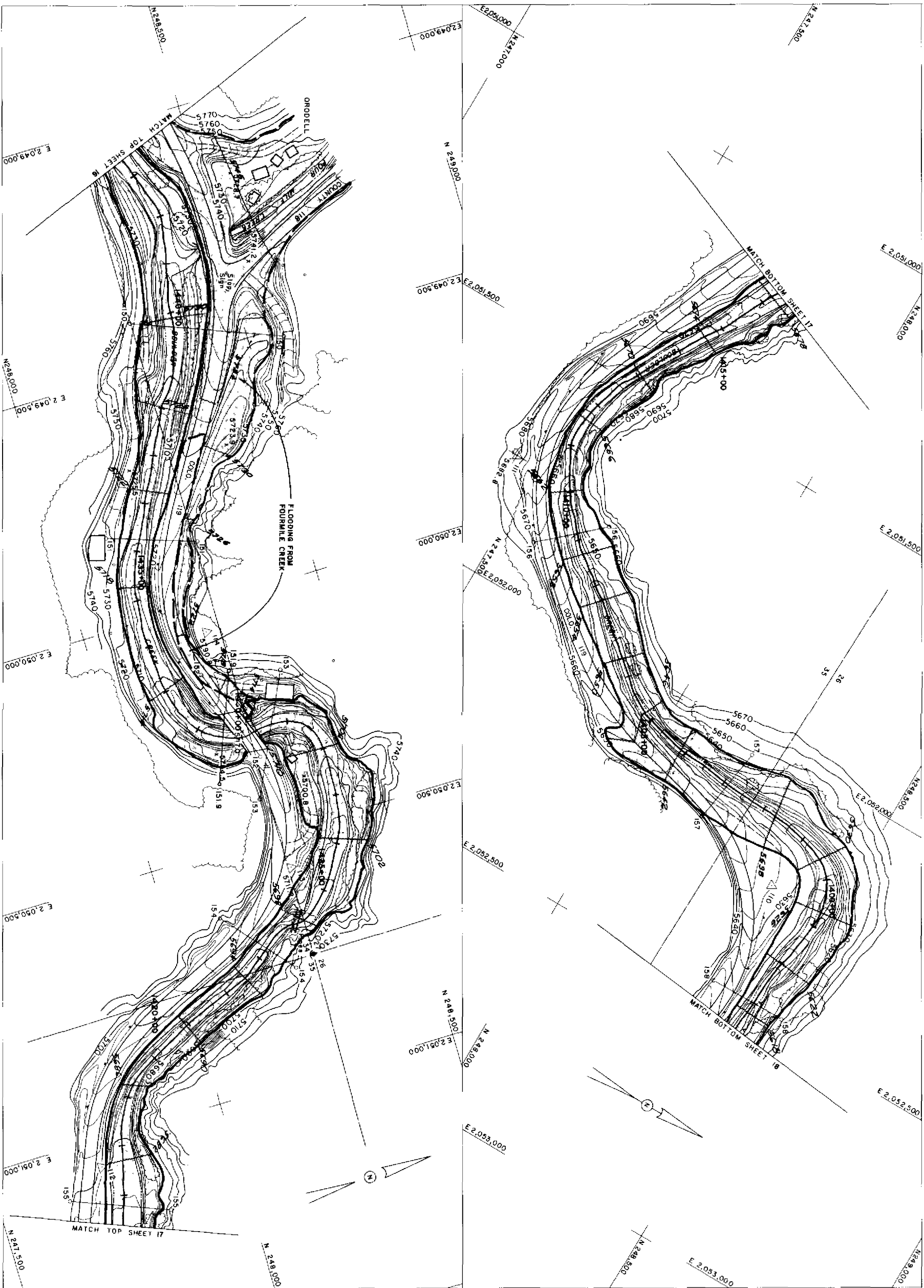


PLATE 17

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

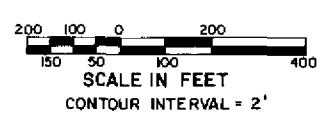
NOTES

- 1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
- 2. FOR PROFILE SEE PLATES: 31 THRU 37
- 3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT



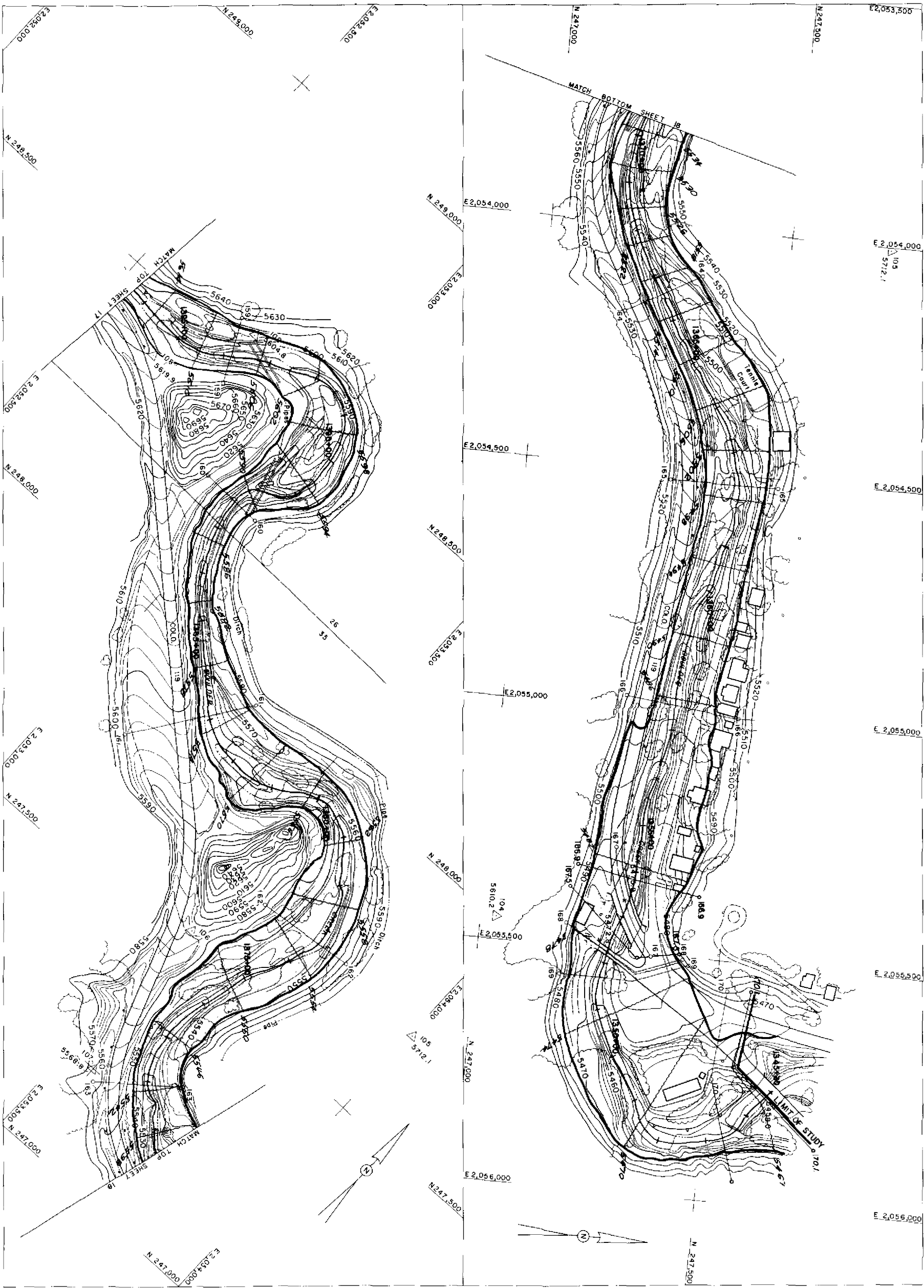


PLATE 18

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
BOULDER CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE SEE PLATES: 31 THRU 37
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT





PLATE 19

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
FOURMILE CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

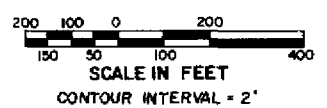
NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE, SEE PLATES: 38 THRU 42
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- HISTORICAL FLOOD BOUNDARY
- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT



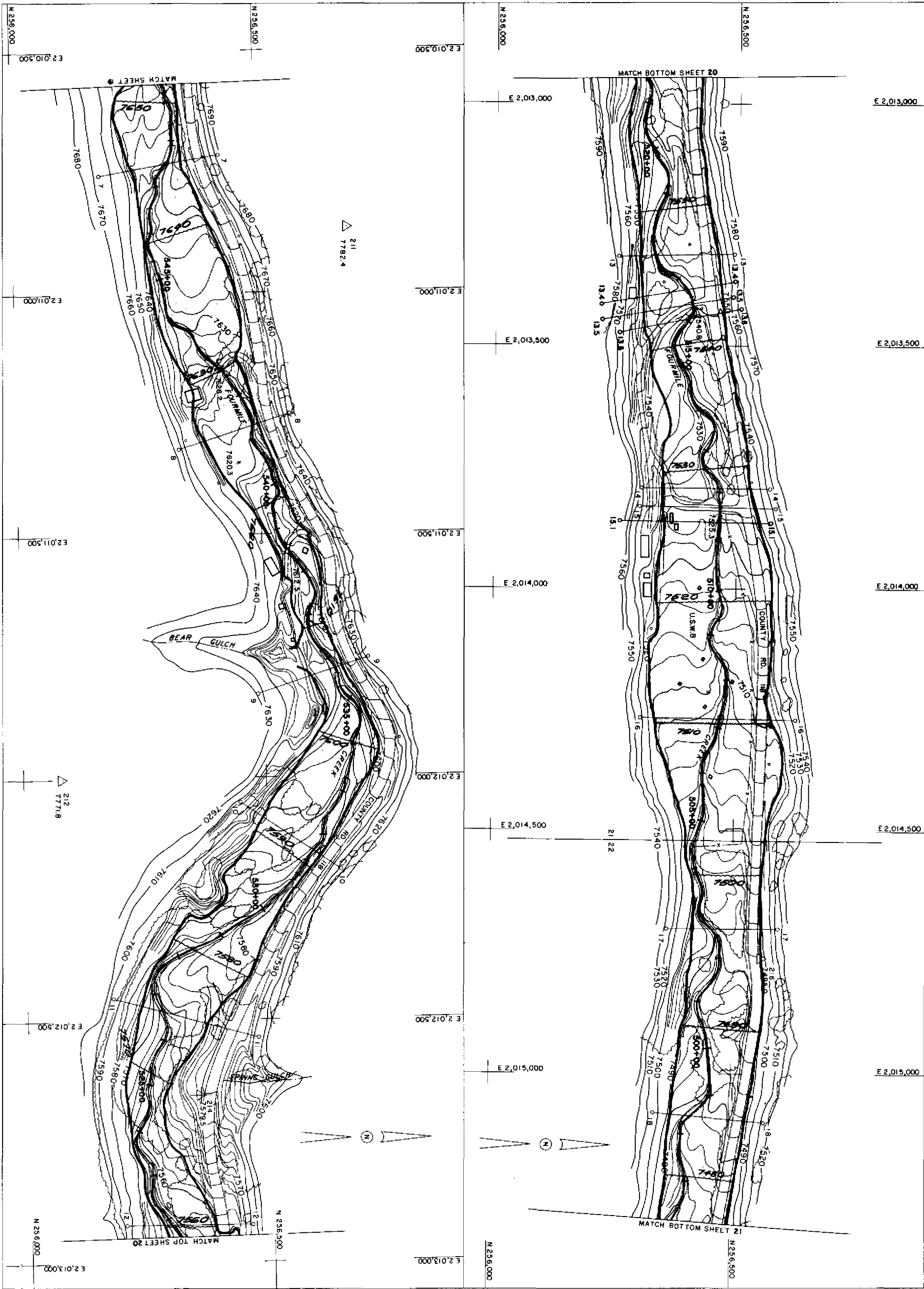


PLATE 20

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
FOURMILE CREEK
FLOODED AREAS

JANUARY, 1961

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

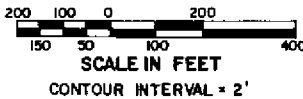
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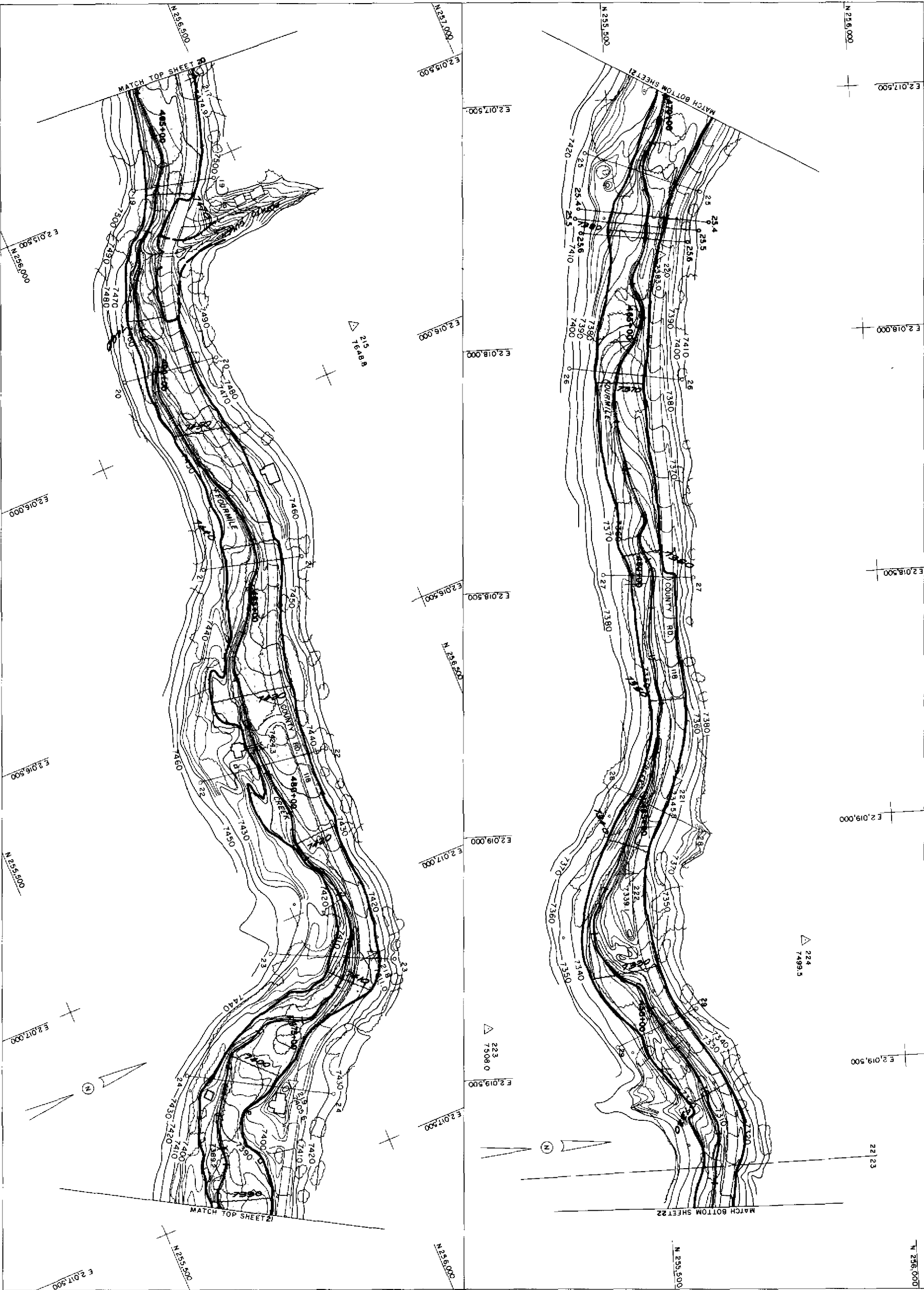
1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE, SEE PLATES: 38 THRU 42
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- HISTORICAL FLOOD BOUNDARY
- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT





COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
FOURMILE CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE, SEE PLATES: 38 THRU 42
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- HISTORICAL FLOOD BOUNDARY
- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT

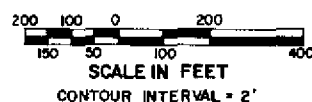




PLATE 23

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
FOURMILE CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

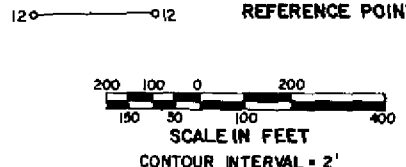
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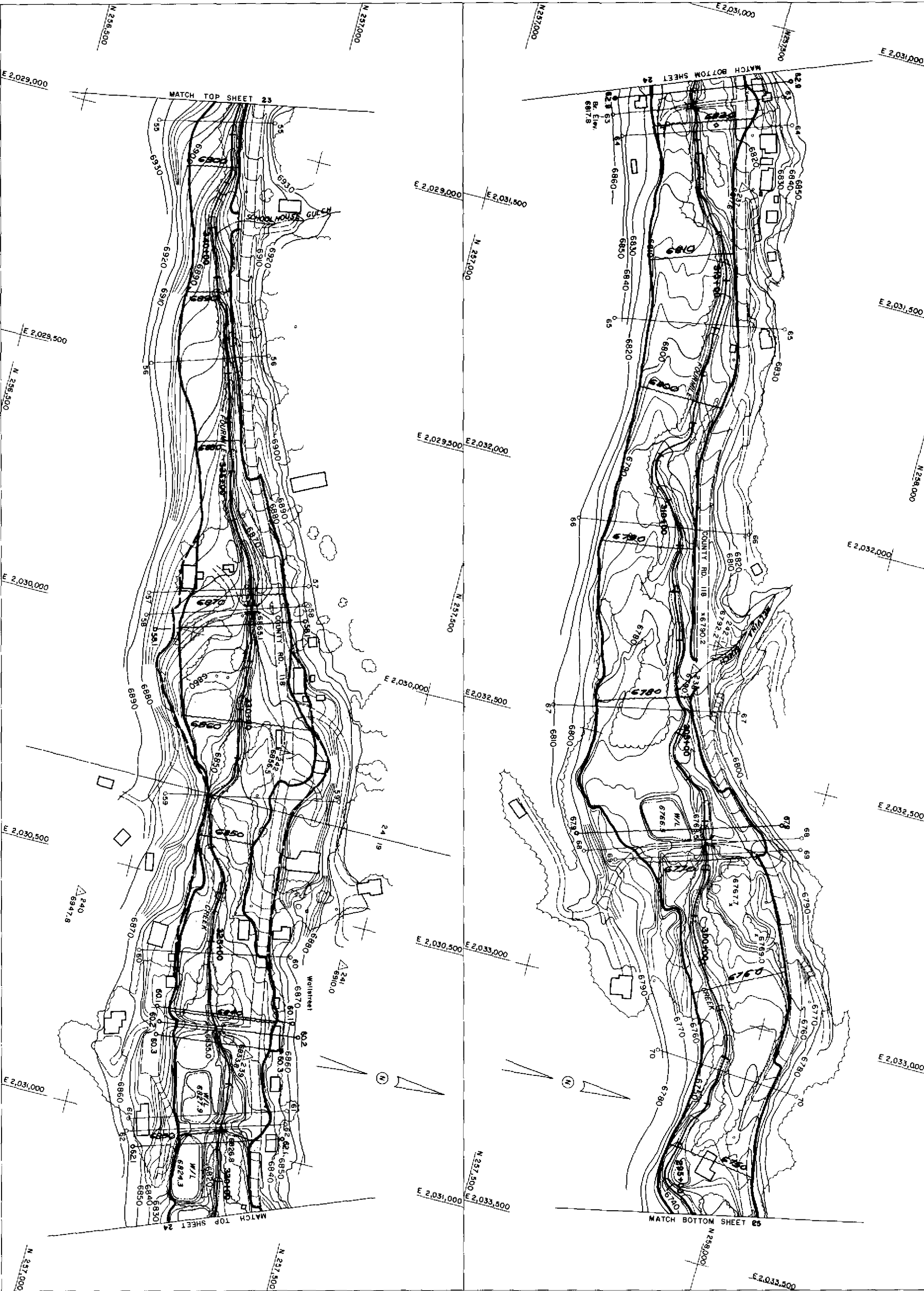
1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE, SEE PLATES 38 THRU 42
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- HISTORICAL FLOOD BOUNDARY
- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT





COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
FOURMILE CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE, SEE PLATES 38 THRU 42
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- HISTORICAL FLOOD BOUNDARY
- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT

200 100 0 100 200
150 50 100 400
SCALE IN FEET
CONTOUR INTERVAL = 2'



PLATE 25

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
FOURMILE CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

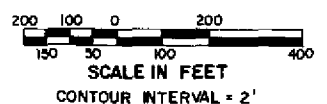
NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE, SEE PLATES: 38 THRU 42
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- HISTORICAL FLOOD BOUNDARY
- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT



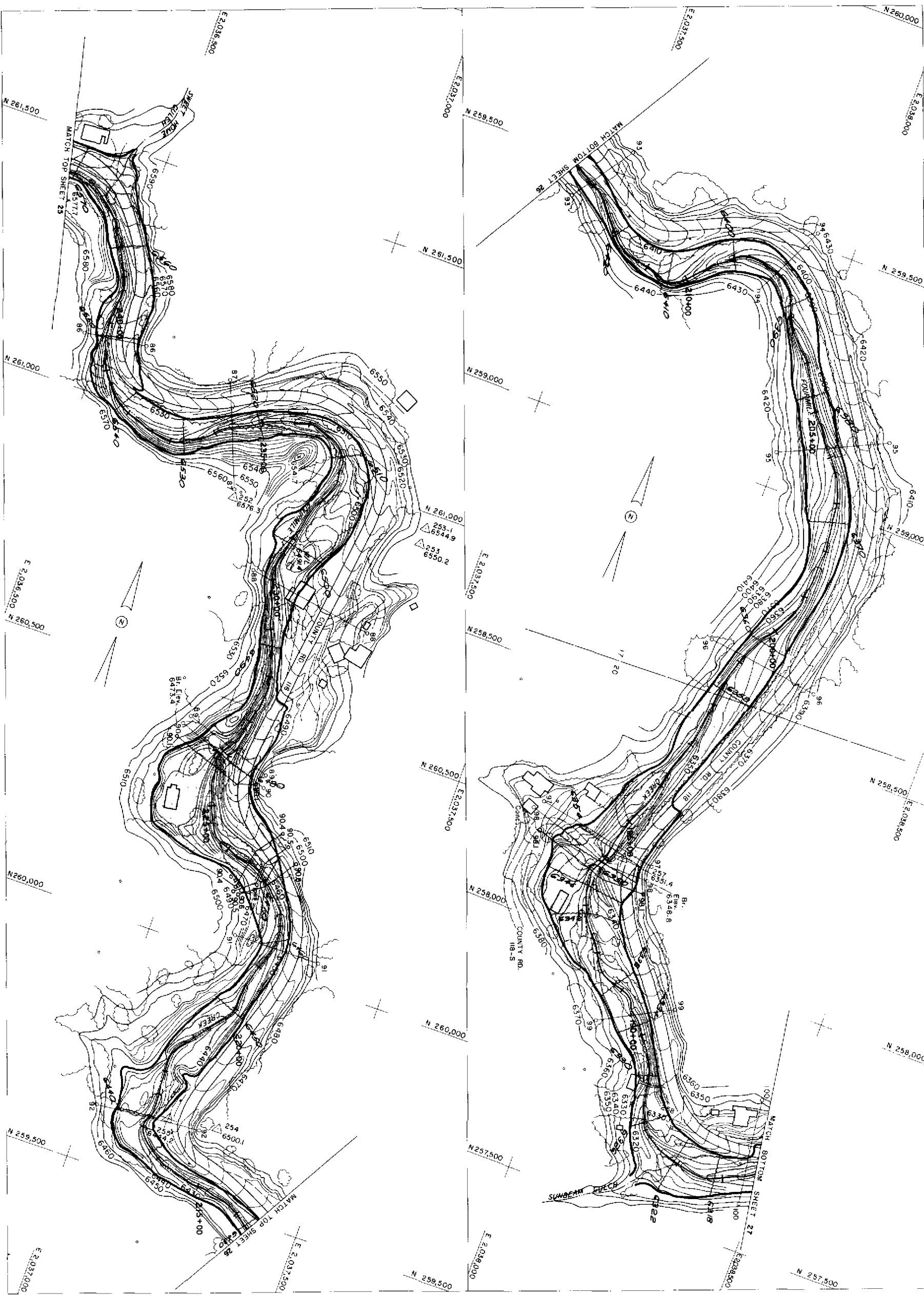


PLATE 26

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
FOURMILE CREEK
FLOODED AREAS

JANUARY, 1961

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE, SEE PLATES 38 THRU 42
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- HISTORICAL FLOOD BOUNDARY
- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT

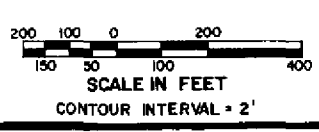




PLATE 27

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
FOURMILE CREEK
FLOODED AREAS

JANUARY, 1981

FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

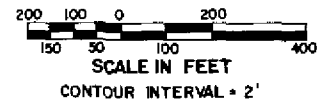
NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE, SEE PLATES: 38 THRU 42
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

- HISTORICAL FLOOD BOUNDARY
- 100 YEAR FLOOD BOUNDARY
- FLOOD CONTOUR
- CHANNEL STATIONING
- REFERENCE POINT



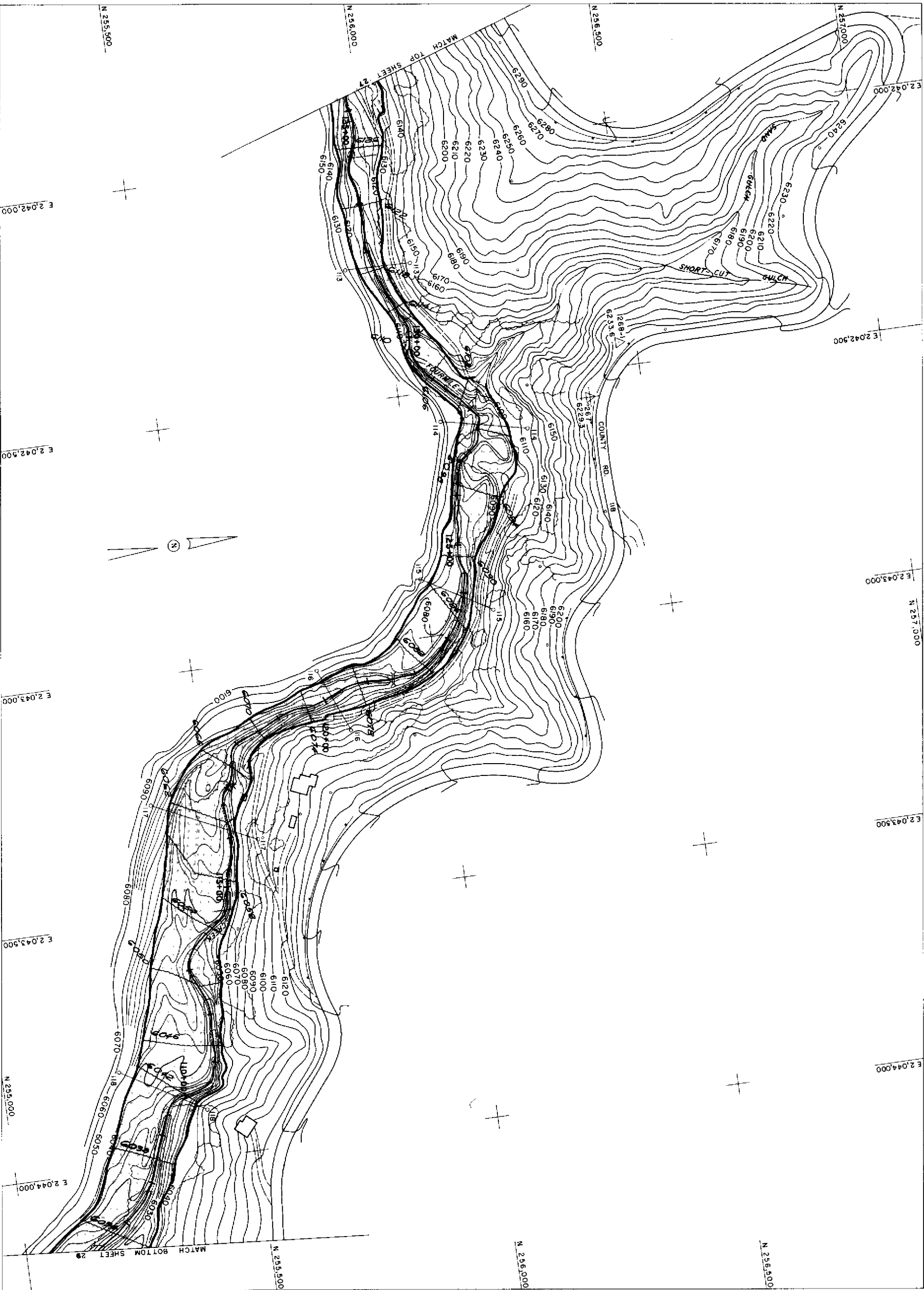


PLATE 28

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
FOURMILE CREEK
FLOODED AREAS

JANUARY, 1981


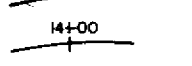
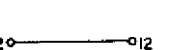

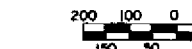
FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

NOTES

1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE, SEE PLATES 38 THRU 42
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND

-  HISTORICAL FLOOD BOUNDARY
 100 YEAR FLOOD BOUNDARY
 FLOOD CONTOUR
 CHANNEL STATIONING
 REFERENCE POINT

200 100 0 100 200
150 50 100 400
SCALE IN FEET
CONTOUR INTERVAL = 2'

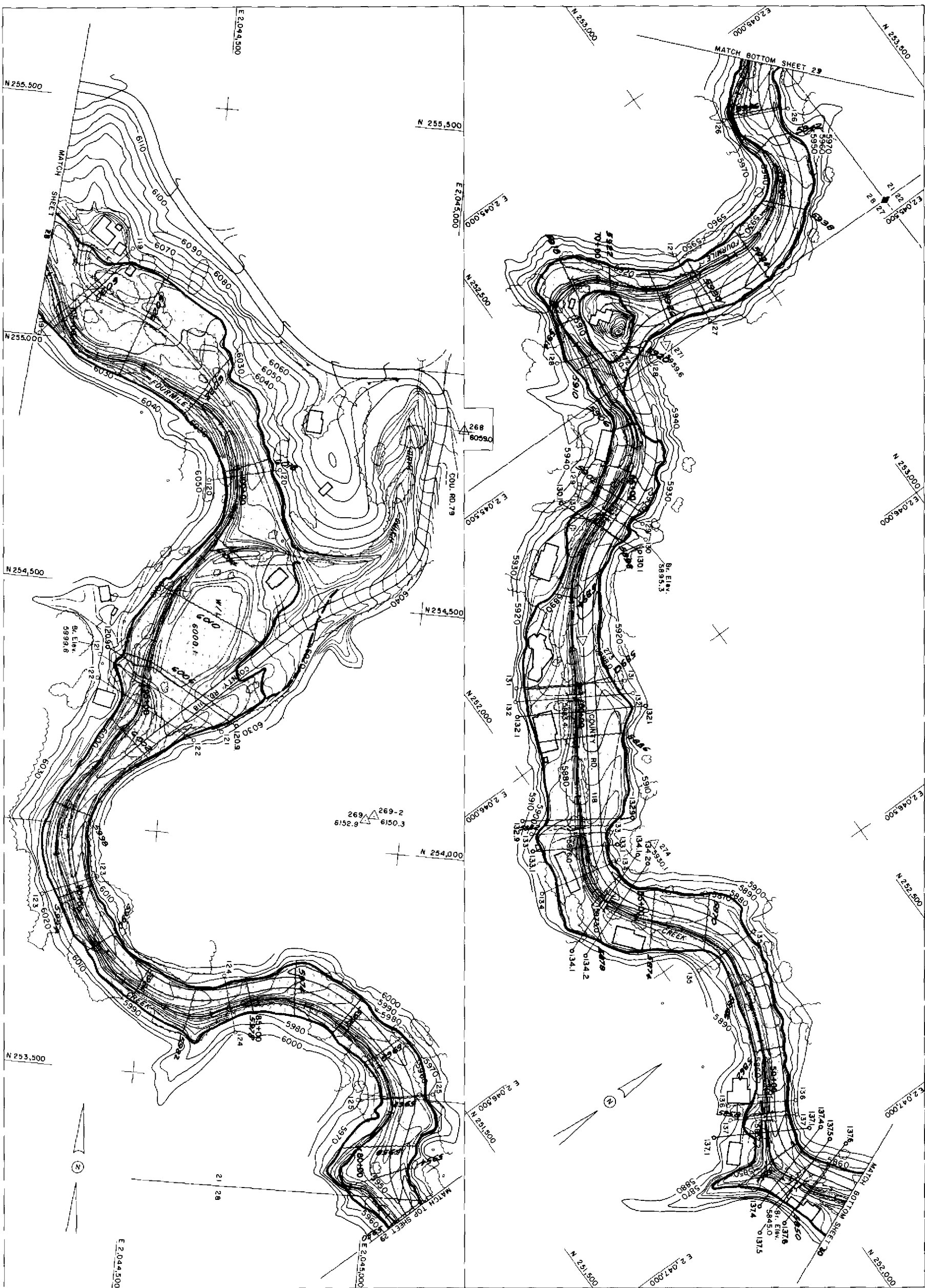


PLATE 29

COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY, COLORADO
FOURMILE CREEK
FLOODED AREAS

JANUARY, 1981

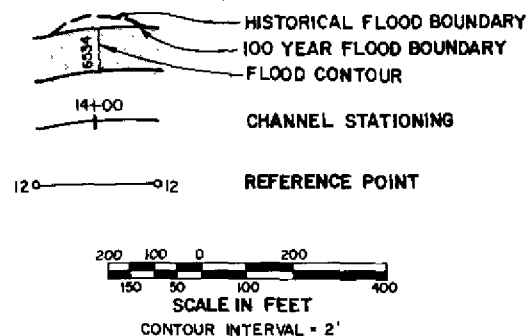
FLOODPLAIN BY:
U.S. ARMY CORP OF ENGINEERS, OMAHA DISTRICT
REPORT BY:
GINGERY ASSOCIATES INC.

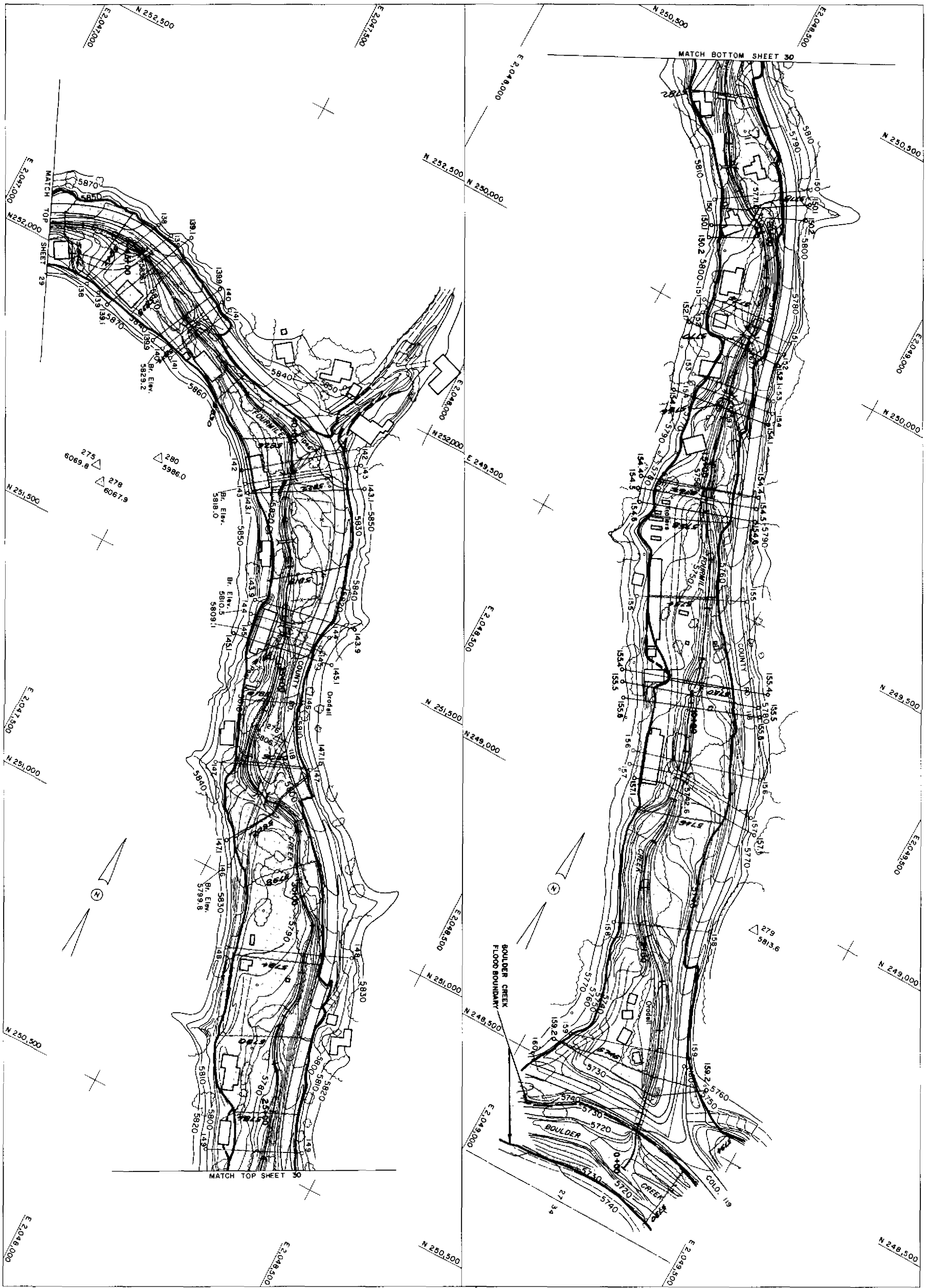
NOTES

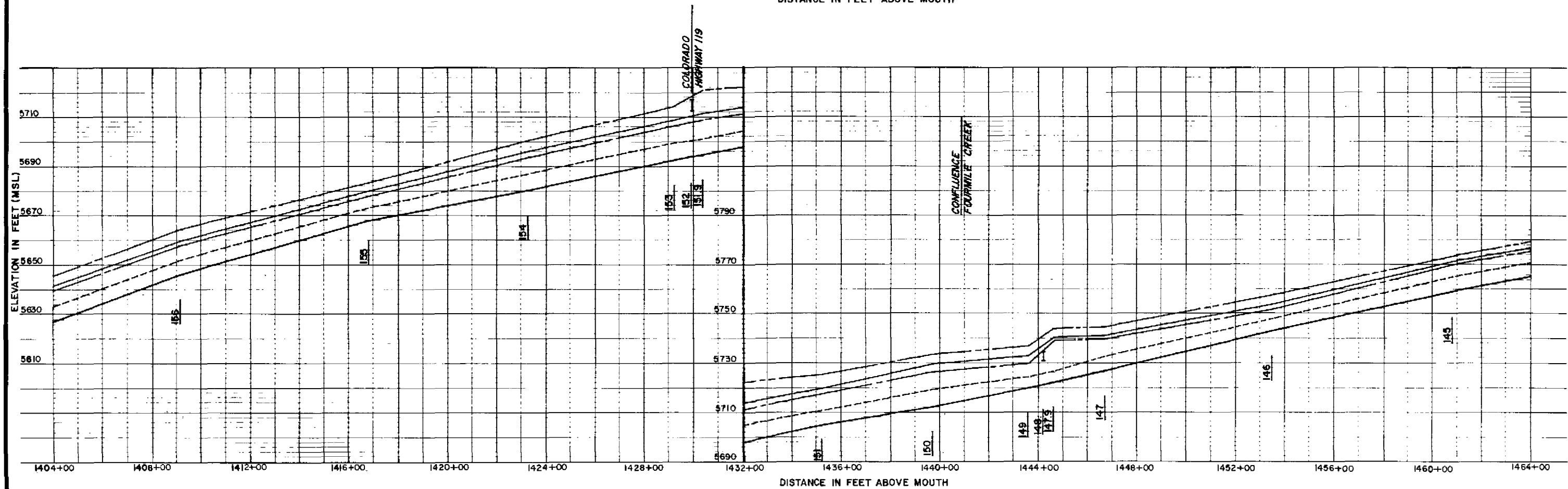
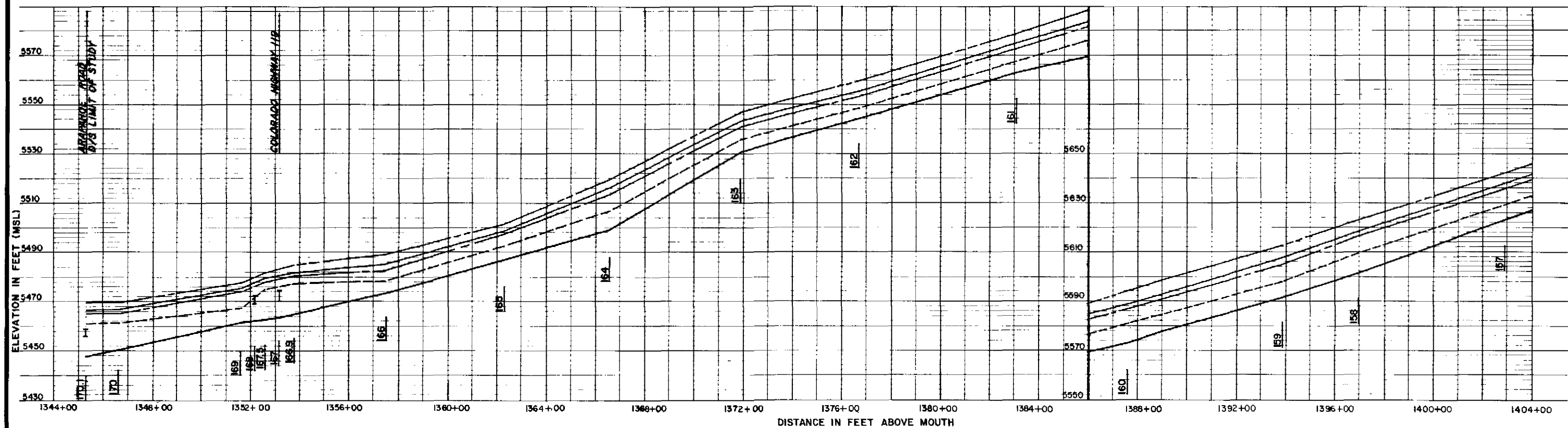
1. FOR LOCATION OF PLATE, SEE PLATE INDEX MAP (PLATE 2)
2. FOR PROFILE, SEE PLATES 38 THRU 42
3. FOR FLOOD ELEVATIONS AT REFERENCE POINTS, SEE TABLE 2

REVISION	DATE	BY

LEGEND







COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY

PROFILES BY: U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
REPORT BY: GINGERY ASSOCIATES INC.

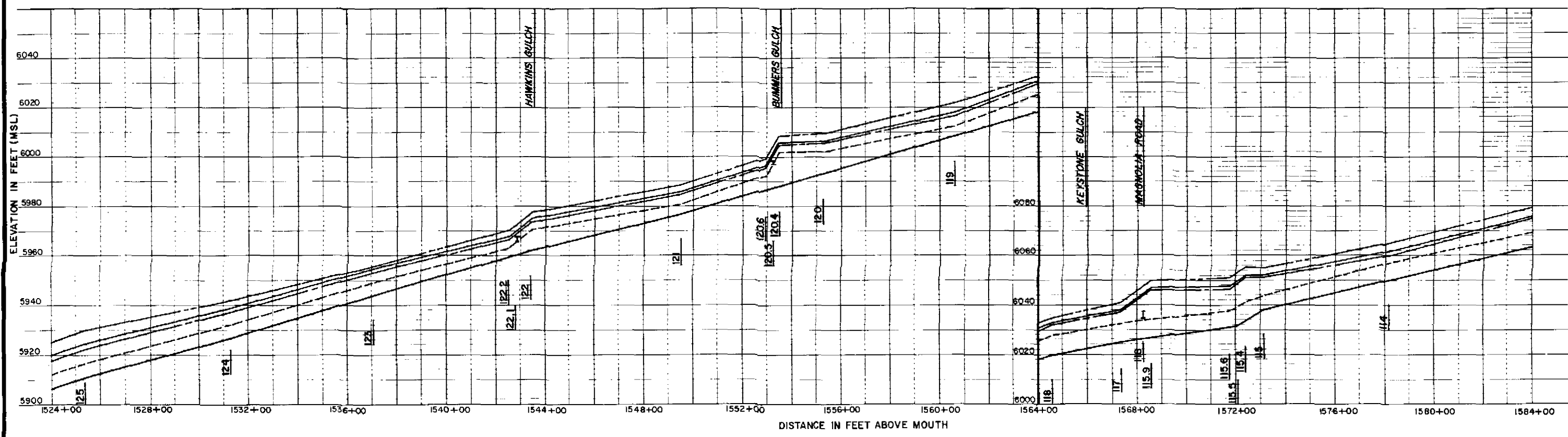
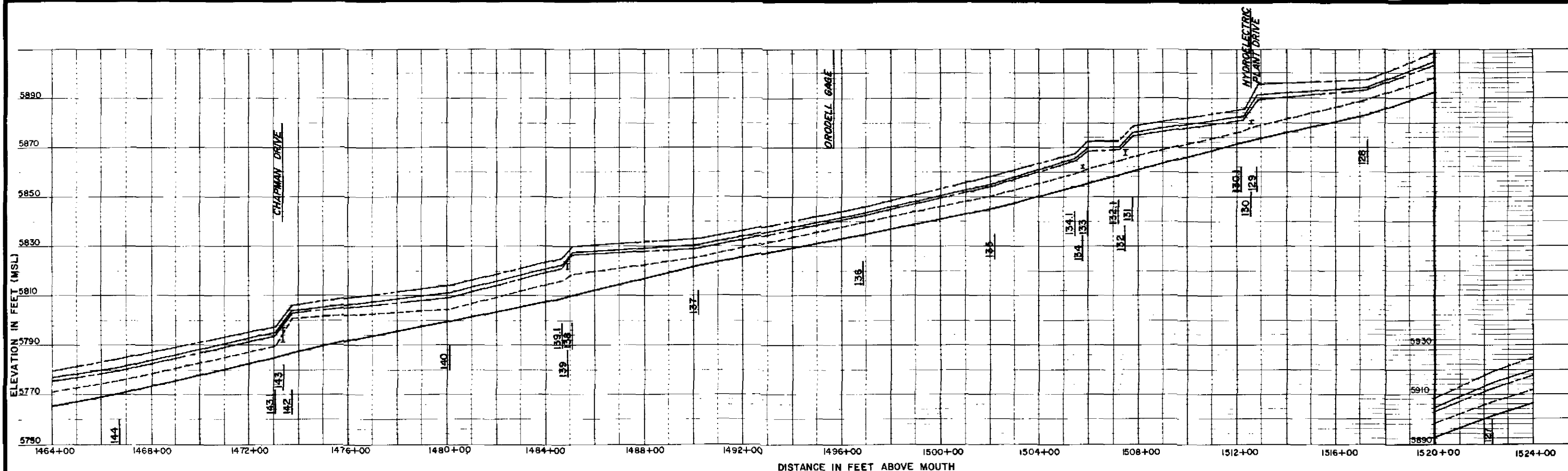
BOULDER CREEK

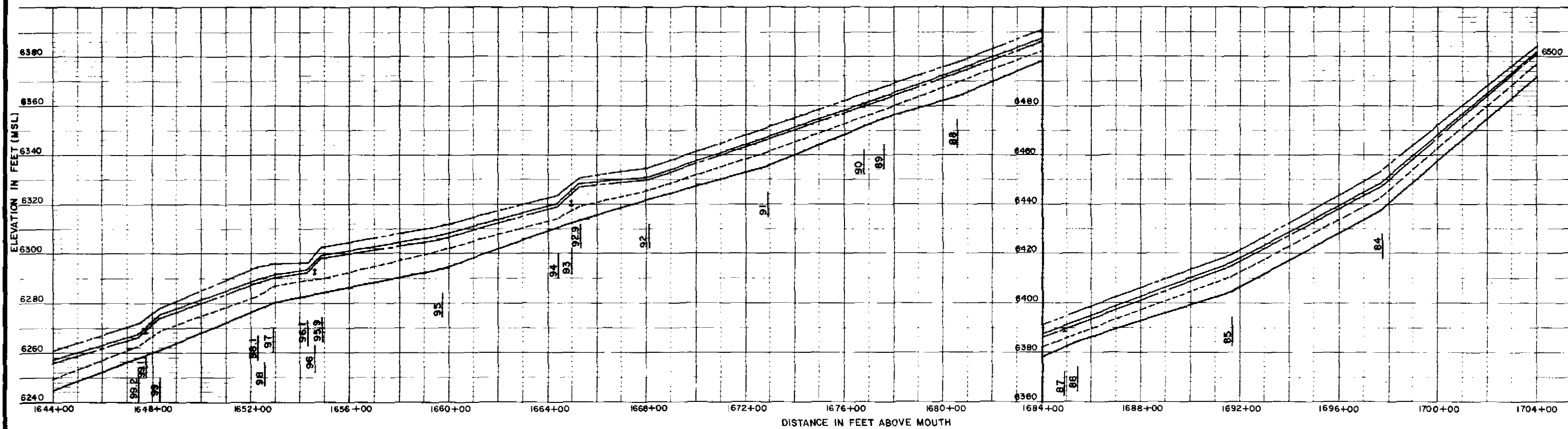
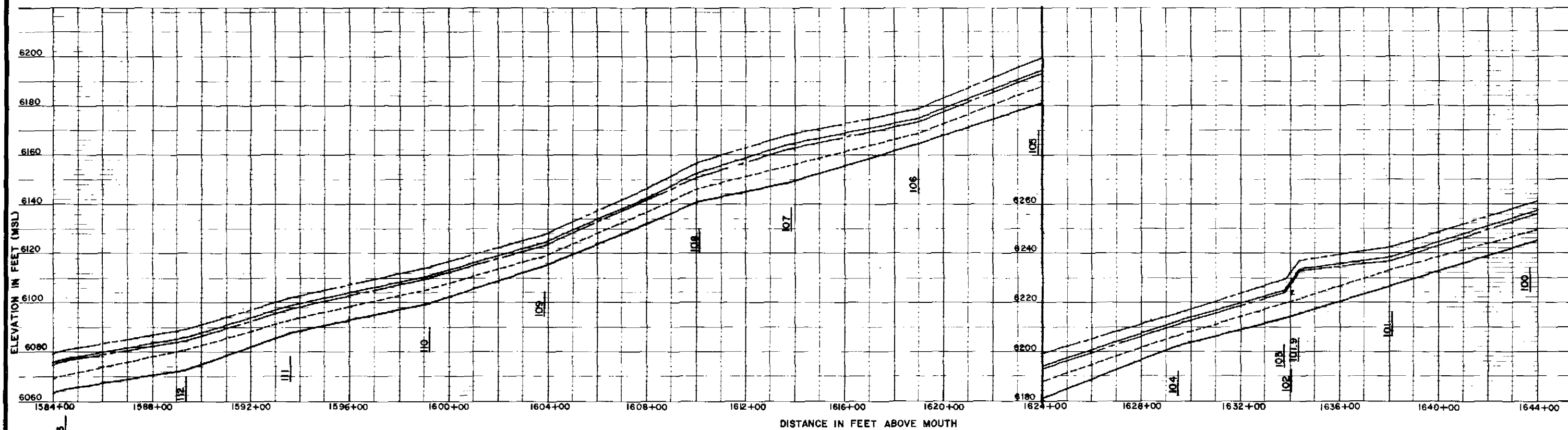
1. FOR ELEVATIONS AT REFERENCE POINTS
NOTE: SEE TABLE 4
2. FOR FLOODED AREAS SEE PLATES 3 THRU 18

--- 500 YEAR FLOOD
--- 100 YEAR FLOOD
--- 50 YEAR FLOOD
--- 10 YEAR FLOOD
--- STREAM BED

REFERENCE
POINT

PLATE NO.31





COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY

PROFILES BY: U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
REPORT BY: GINGERY ASSOCIATES INC.

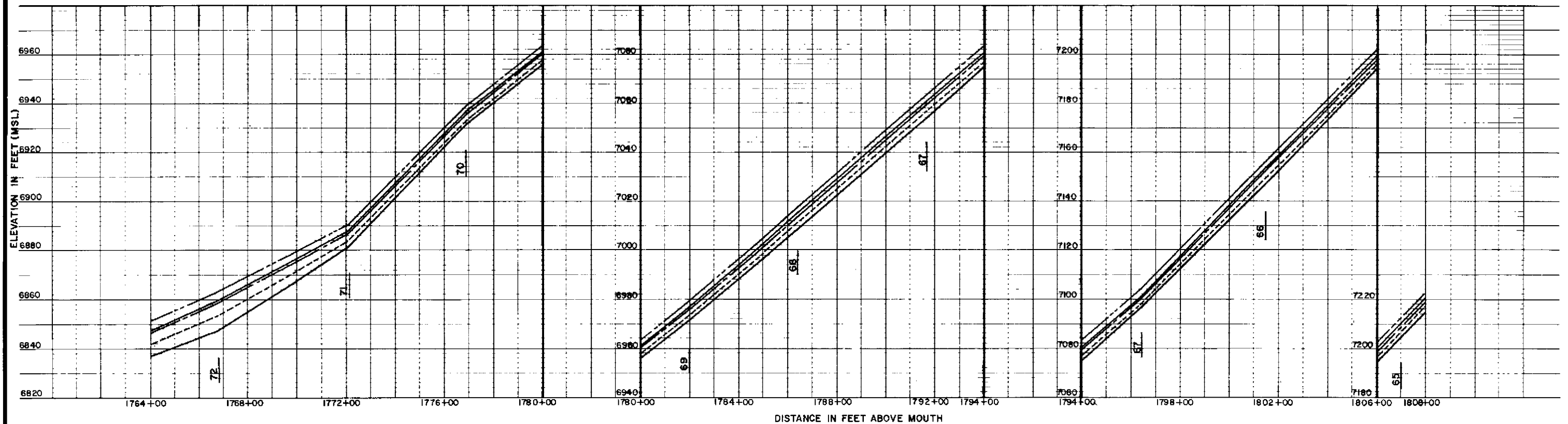
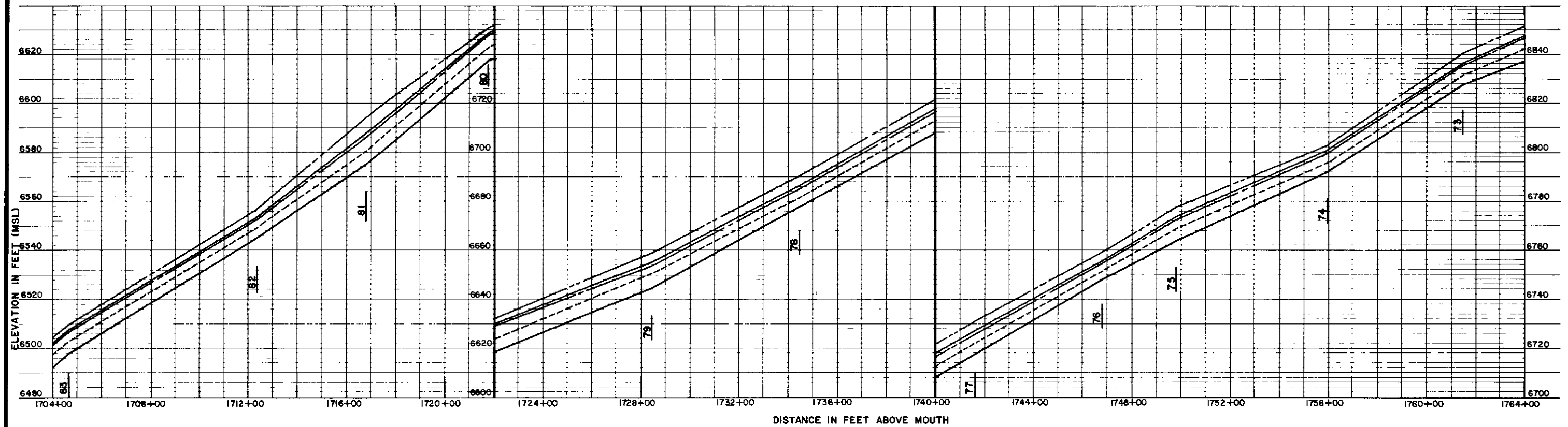
BOULDER CREEK

NOTE: 1. FOR ELEVATIONS AT REFERENCE POINTS
SEE TABLE 4
2. FOR FLOODED AREAS SEE PLATES 3 THRU 18

--- 500 YEAR FLOOD
— 100 YEAR FLOOD
... 50 YEAR FLOOD
- . - 10 YEAR FLOOD
— STREAM BED

2
REFERENCE
POINT

PLATE NO. 33



COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY

PROFILES BY: U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
REPORT BY: GINGERY ASSOCIATES INC.

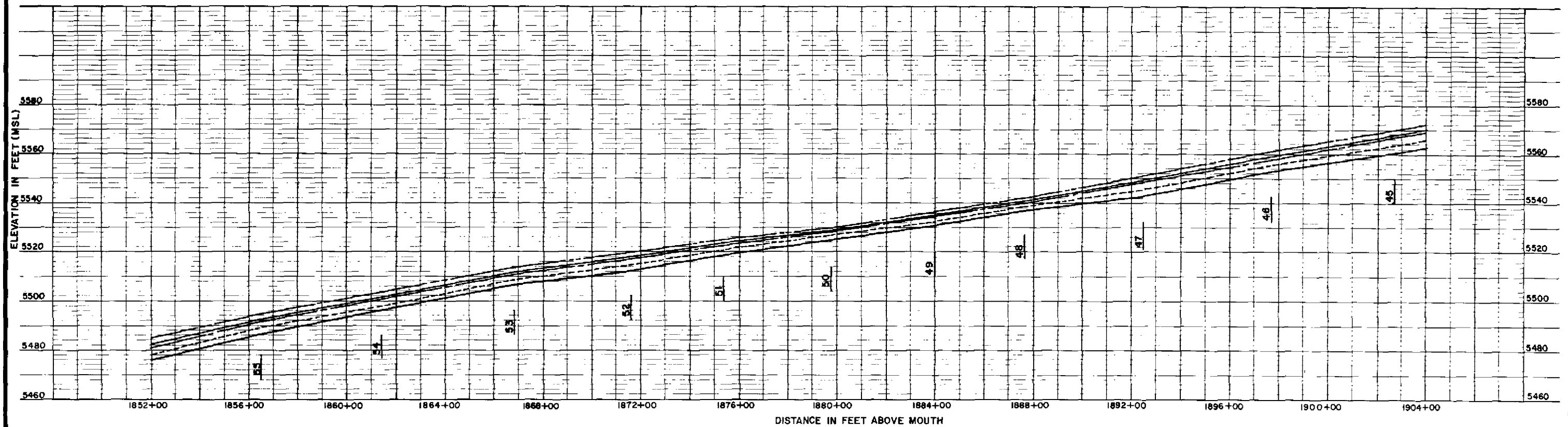
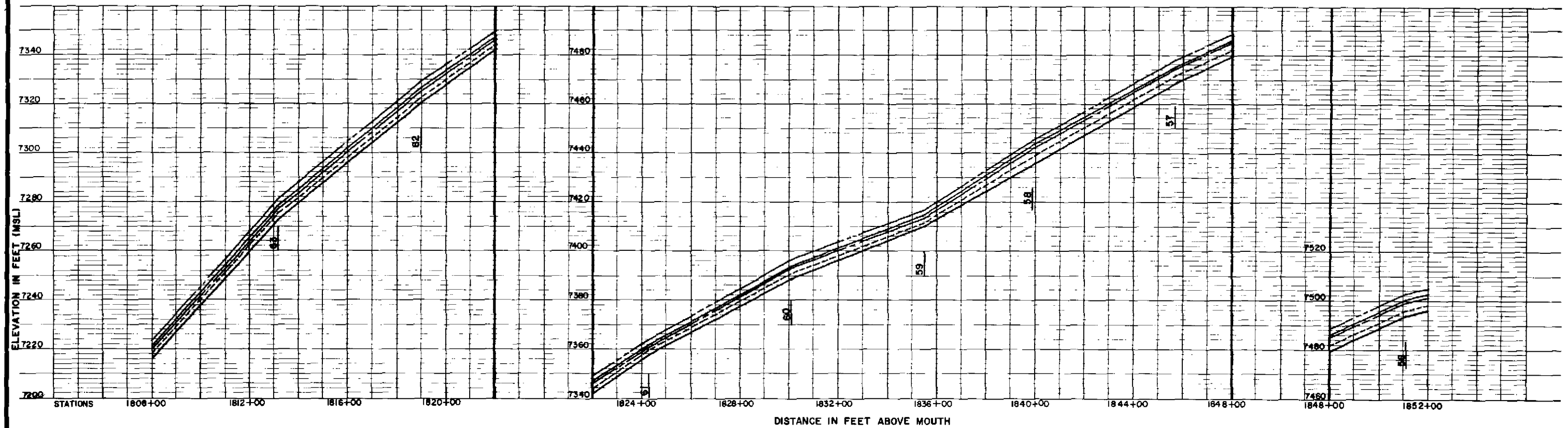
BOULDER CREEK

NOTE: 1. FOR ELEVATIONS AT REFERENCE POINTS
SEE TABLE 4
2. FOR FLOODED AREAS SEE PLATES 3 THRU 18

--- 500 YEAR FLOOD
— 100 YEAR FLOOD
... 50 YEAR FLOOD
- . - 10 YEAR FLOOD
— STREAM BED

REFERENCE
POINT

PLATE NO.34



COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY

PROFILES BY: U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
REPORT BY: GINGERY ASSOCIATES INC.

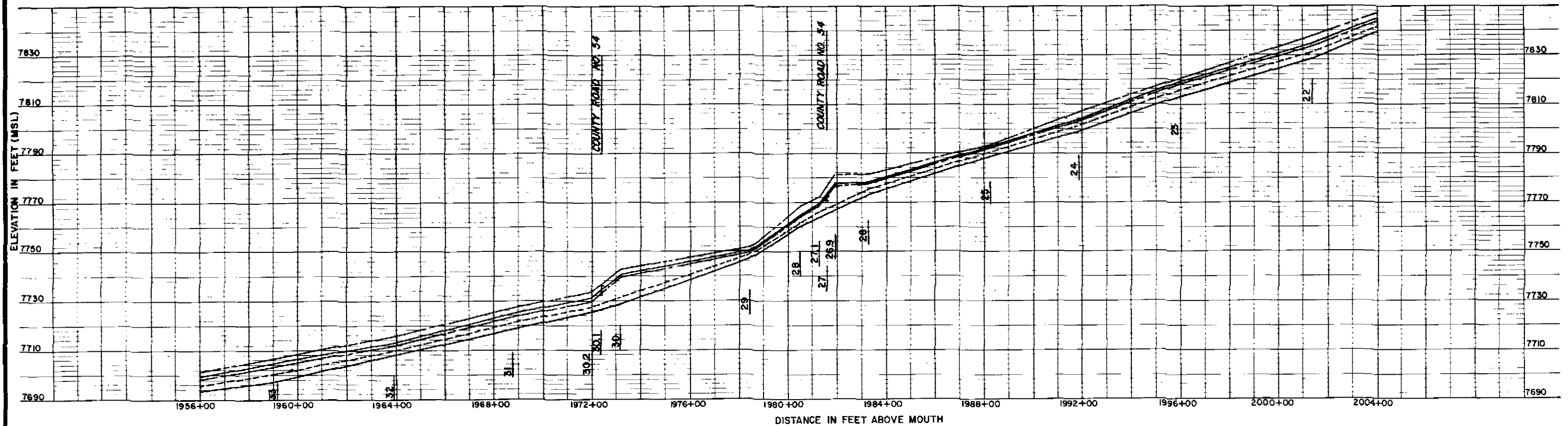
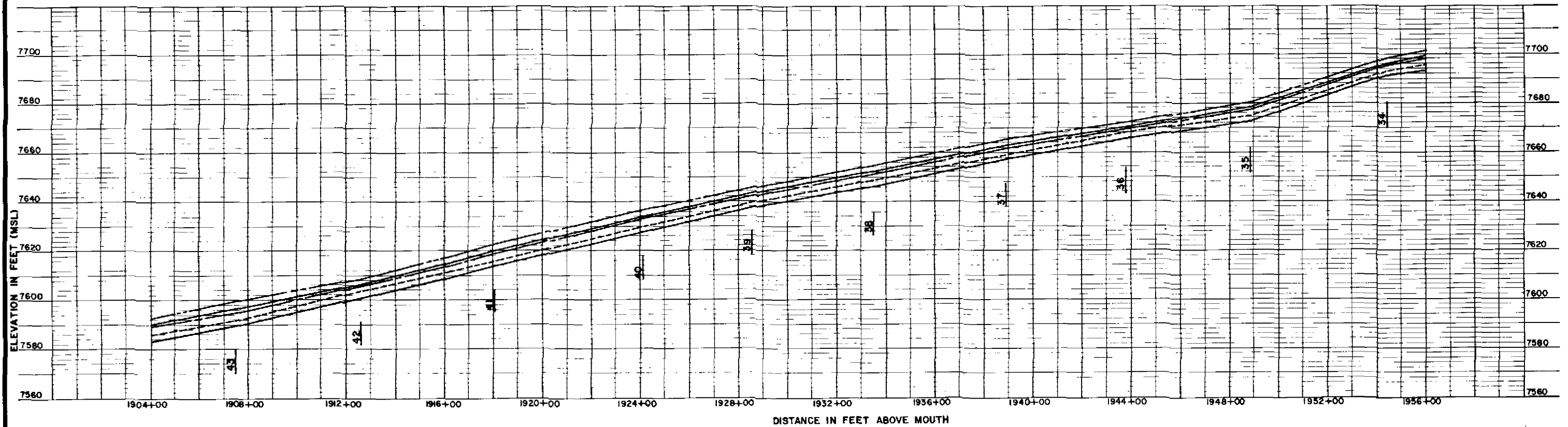
BOULDER CREEK

1. FOR ELEVATIONS AT REFERENCE POINTS
NOTE: SEE TABLE 4
2. FOR FLOODED AREAS SEE PLATES 3 THRU 18

--- 500 YEAR FLOOD
--- 100 YEAR FLOOD
--- 50 YEAR FLOOD
--- 10 YEAR FLOOD
— STREAM BED

2
REFERENCE
POINT

PLATE NO.35



COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY

PROFILES BY: U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
REPORT BY: GINGERY ASSOCIATES INC.

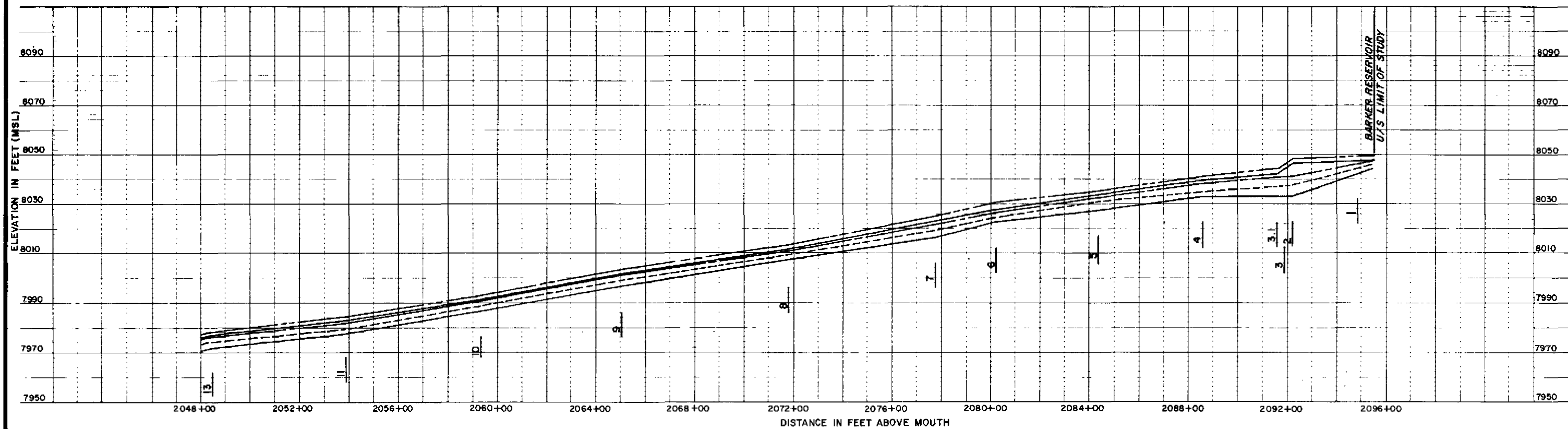
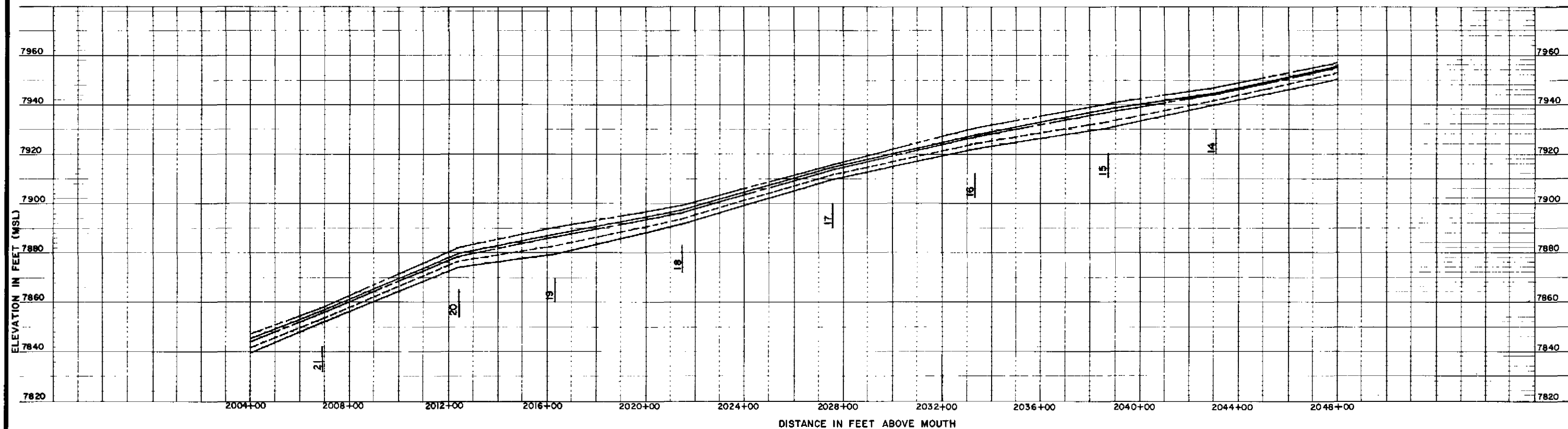
BOULDER CREEK

1. FOR ELEVATIONS AT REFERENCE POINTS
NOTE: SEE TABLE 4
2. FOR FLOODED AREAS SEE PLATES 3 THRU 18

--- 500 YEAR FLOOD
— 100 YEAR FLOOD
... 50 YEAR FLOOD
- . - 10 YEAR FLOOD
— STREAM BED

□
REFERENCE
POINT

PLATE NO. 36



COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY

PROFILES BY: U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
REPORT BY: GINGERY ASSOCIATES INC.

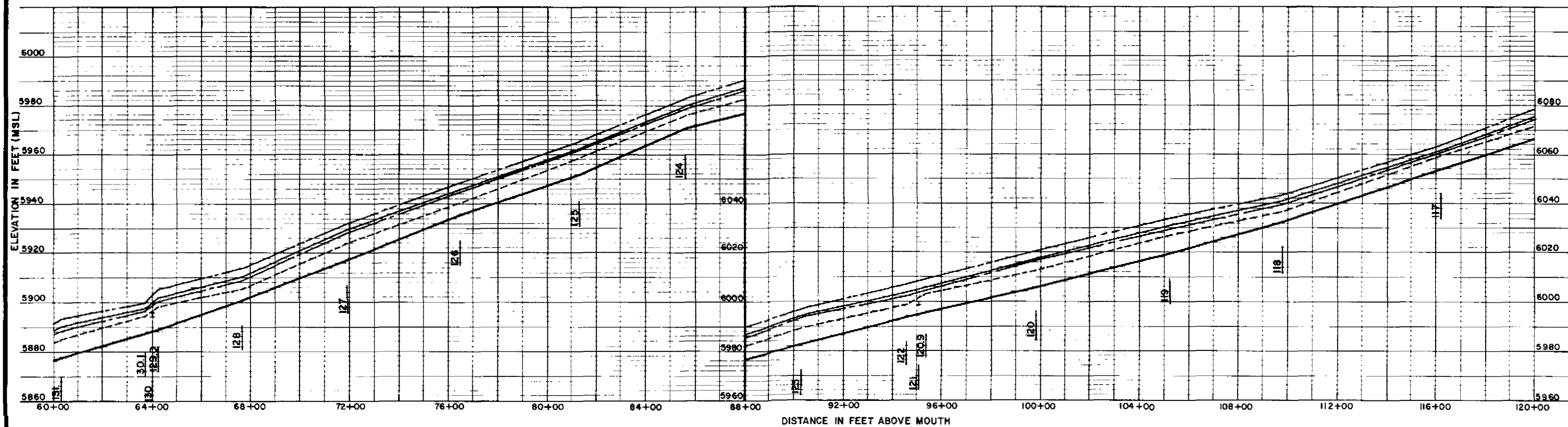
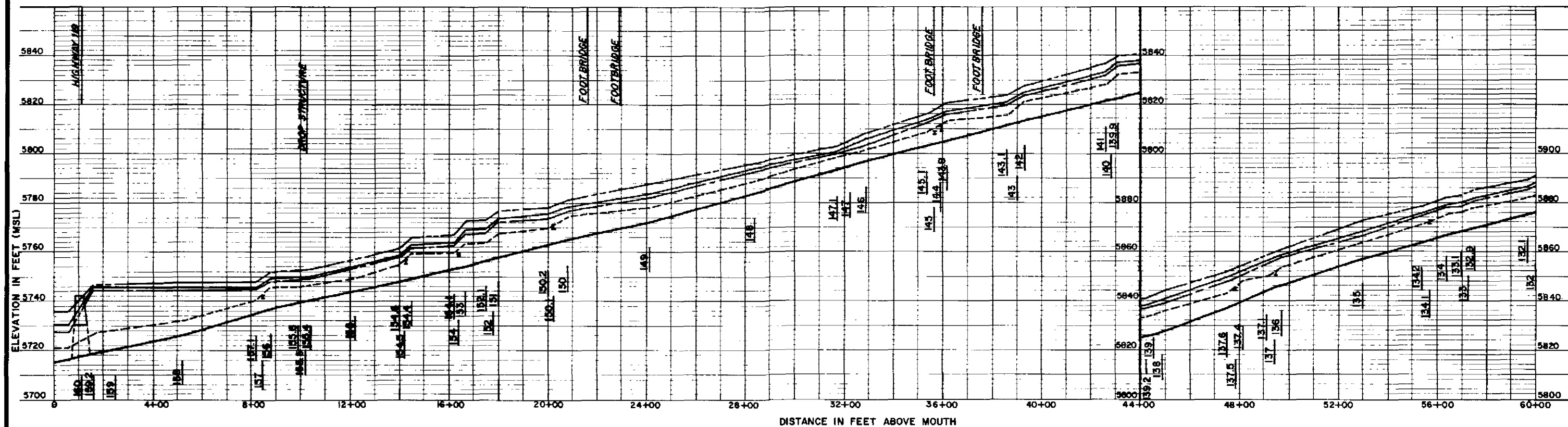
BOULDER CREEK

1. FOR ELEVATIONS AT REFERENCE POINTS
NOTE: SEE TABLE 4
2. FOR FLOODED AREAS SEE PLATES 3 THRU 18

--- 500 YEAR FLOOD
— 100 YEAR FLOOD
... 50 YEAR FLOOD
- . - 10 YEAR FLOOD
— STREAM BED

2
REFERENCE
POINT

PLATE NO.37



COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY

PROFILES BY: U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
REPORT BY: GINGERY ASSOCIATES INC.

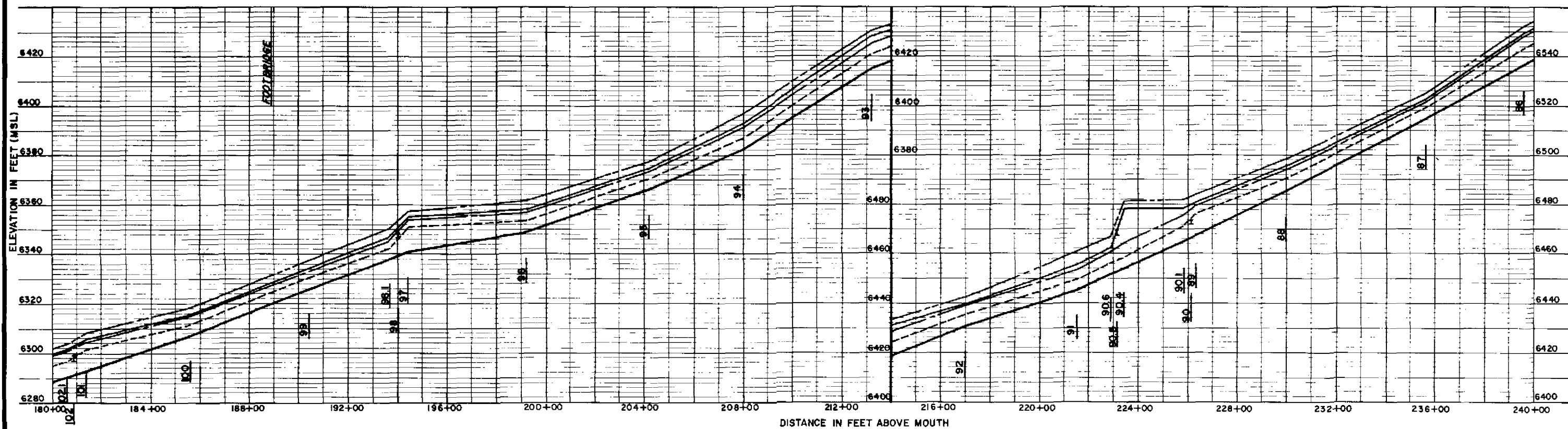
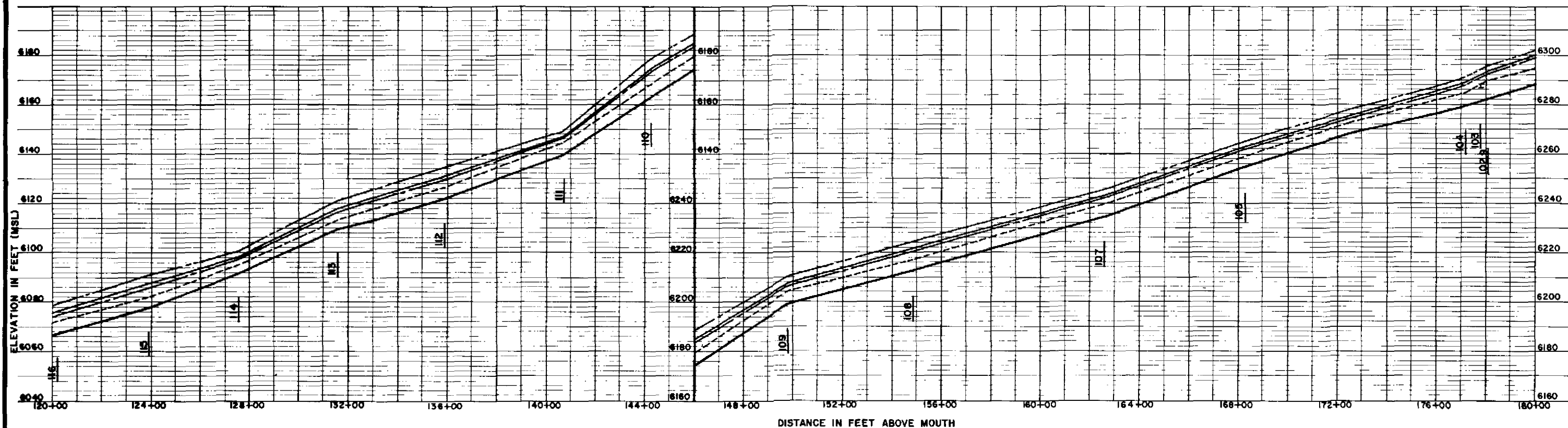
FOURMILE CREEK

1. FOR ELEVATIONS AT REFERENCE POINTS
NOTE: SEE TABLE 4
2. FOR FLOODED AREAS SEE PLATES 19 THRU 30

--- 500 YEAR FLOOD
--- 100 YEAR FLOOD
--- 50 YEAR FLOOD
--- 10 YEAR FLOOD
--- STREAM BED

REFERENCE
POINT

PLATE NO. 38



COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY

PROFILES BY: U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
REPORT BY: GINGERY ASSOCIATES INC.

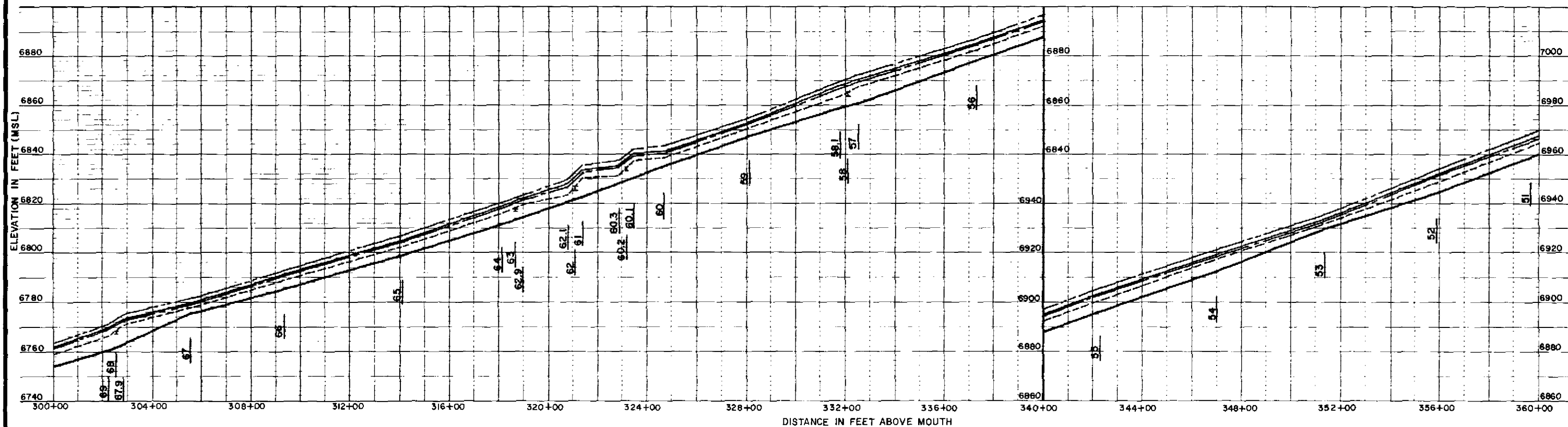
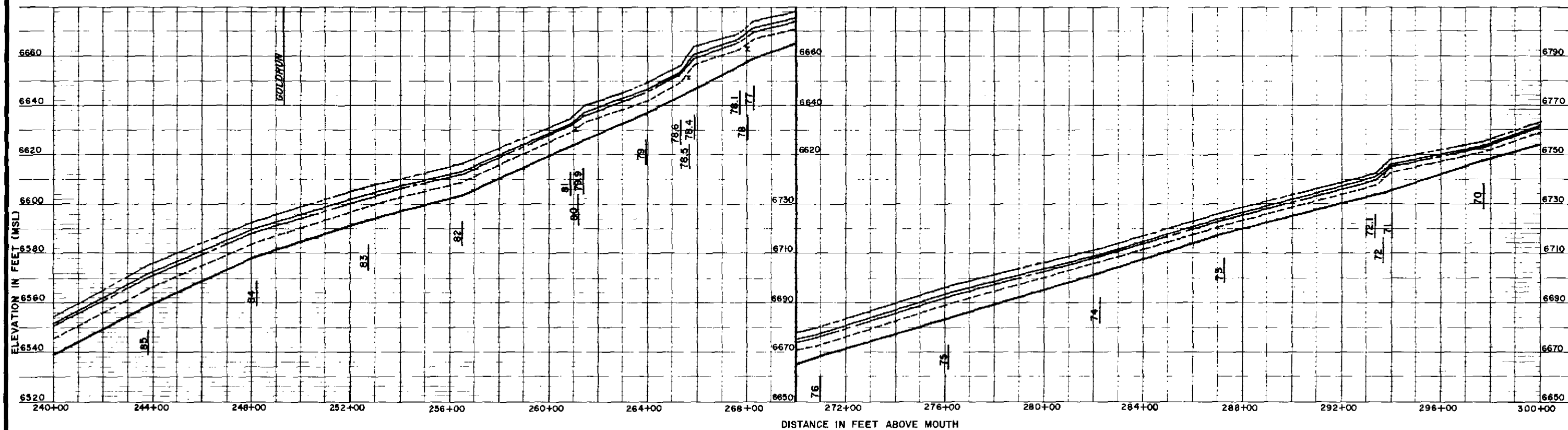
FOURMILE CREEK

1. FOR ELEVATIONS AT REFERENCE POINTS
SEE TABLE 4
NOTE:
2. FOR FLOODED AREAS SEE PLATES 19 THRU 30

--- 500 YEAR FLOOD
— 100 YEAR FLOOD
... 50 YEAR FLOOD
- . - 10 YEAR FLOOD
— STREAM BED

REFERENCE
POINT

PLATE NO. 39



COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY

PROFILES BY: U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
REPORT BY: GINGERY ASSOCIATES INC.

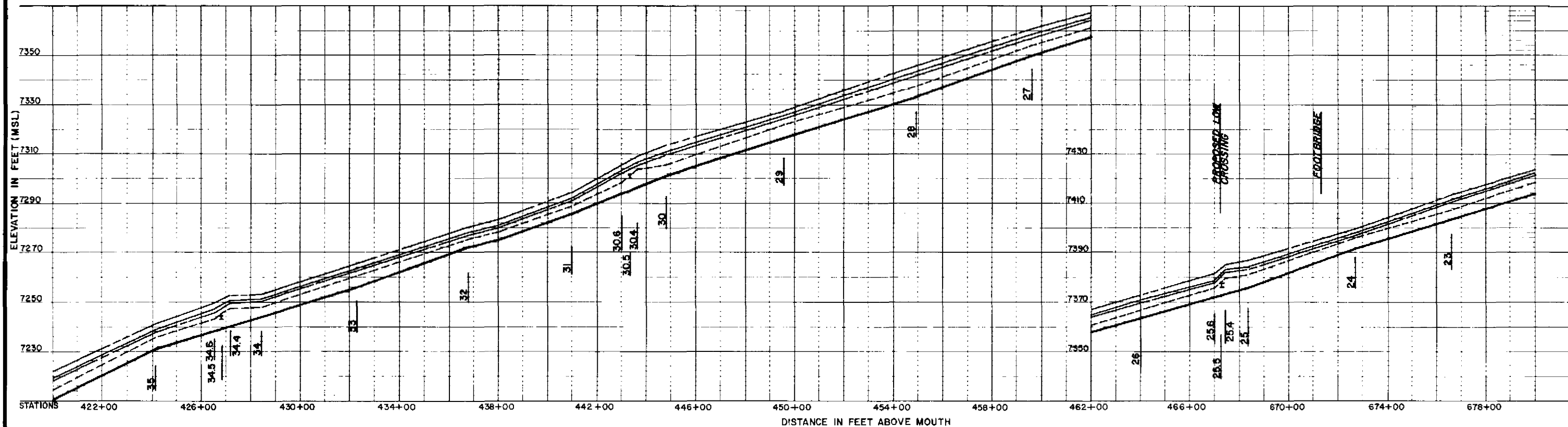
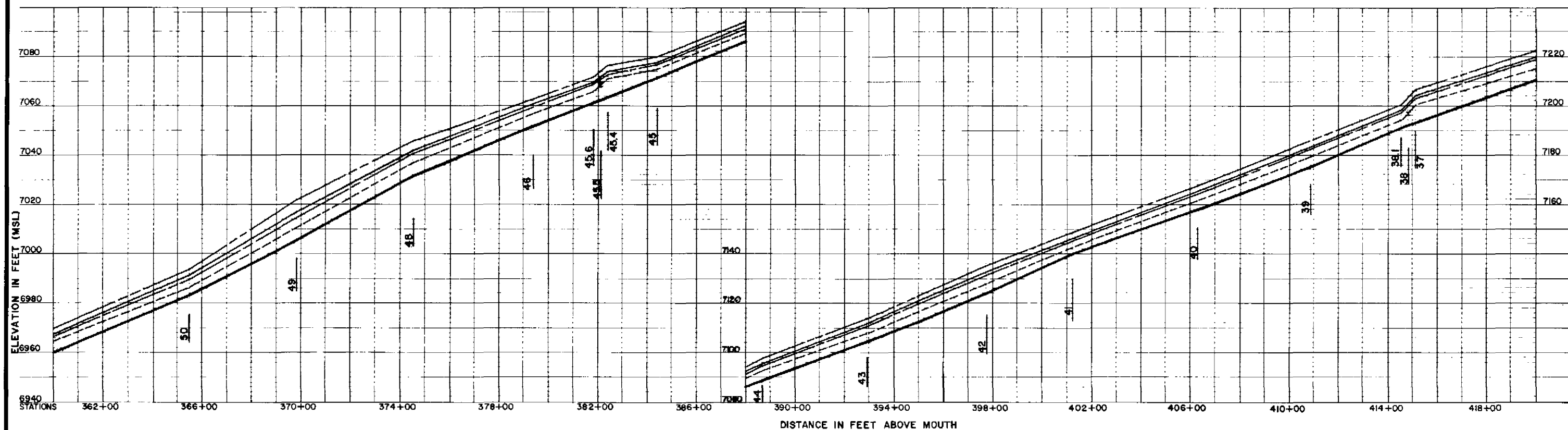
FOURMILE CREEK

NOTE: 1. FOR ELEVATIONS AT REFERENCE POINTS SEE TABLE 4
2. FOR FLOODED AREAS SEE PLATES 19 THRU 30

--- 500 YEAR FLOOD
— 100 YEAR FLOOD
... 50 YEAR FLOOD
- . - 10 YEAR FLOOD
— STREAM BED

REFERENCE POINT

PLATE NO. 40



COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY

PROFILES BY: U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
REPORT BY: GINGERY ASSOCIATES INC.

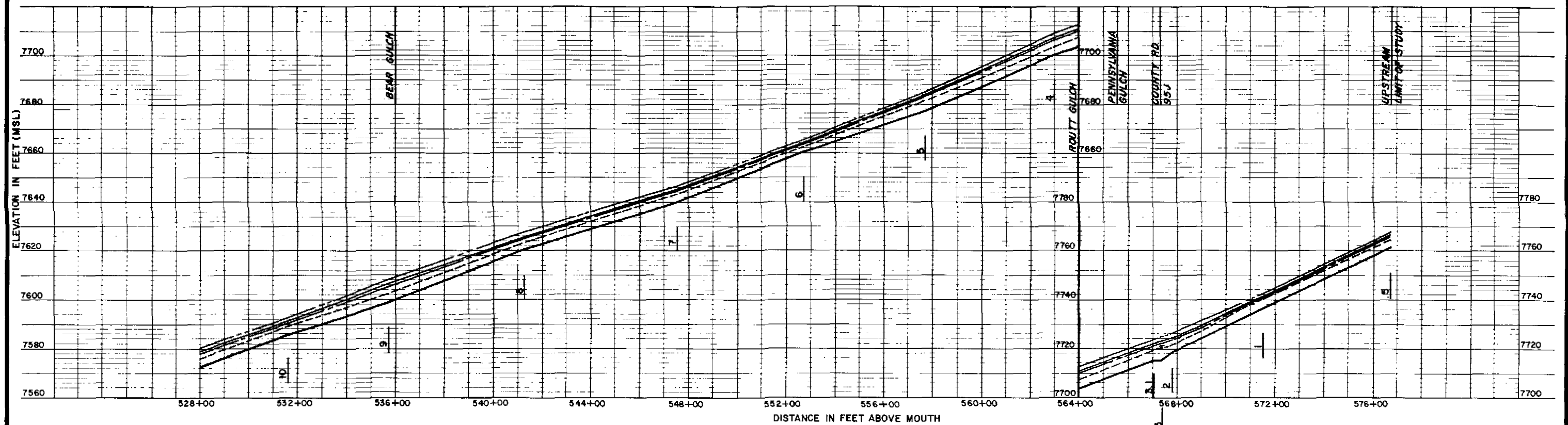
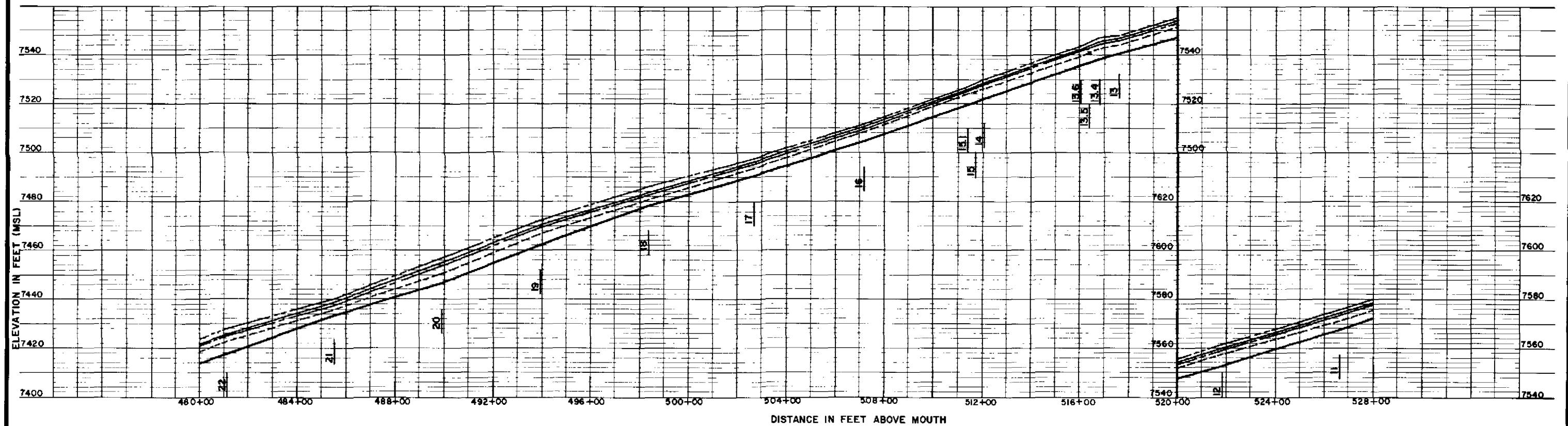
FOURMILE CREEK

NOTE: 1. FOR ELEVATIONS AT REFERENCE POINTS
SEE TABLE 4
2. FOR FLOODED AREAS SEE PLATES 19 THRU 30

--- 500 YEAR FLOOD
— 100 YEAR FLOOD
... 50 YEAR FLOOD
- . - 10 YEAR FLOOD
— STREAM BED

2
REFERENCE
POINT

PLATE NO. 41



COLORADO WATER CONSERVATION BOARD
BOULDER COUNTY

PROFILES BY: U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
REPORT BY: GINGERY ASSOCIATES INC.

FOURMILE CREEK

NOTE: 1. FOR ELEVATIONS AT REFERENCE POINTS
SEE TABLE 4
2. FOR FLOODED AREAS SEE PLATES 19 THRU 30

--- 500 YEAR FLOOD
--- 100 YEAR FLOOD
--- 50 YEAR FLOOD
--- 10 YEAR FLOOD
--- STREAM BED

~ REFERENCE
POINT

PLATE NO.42