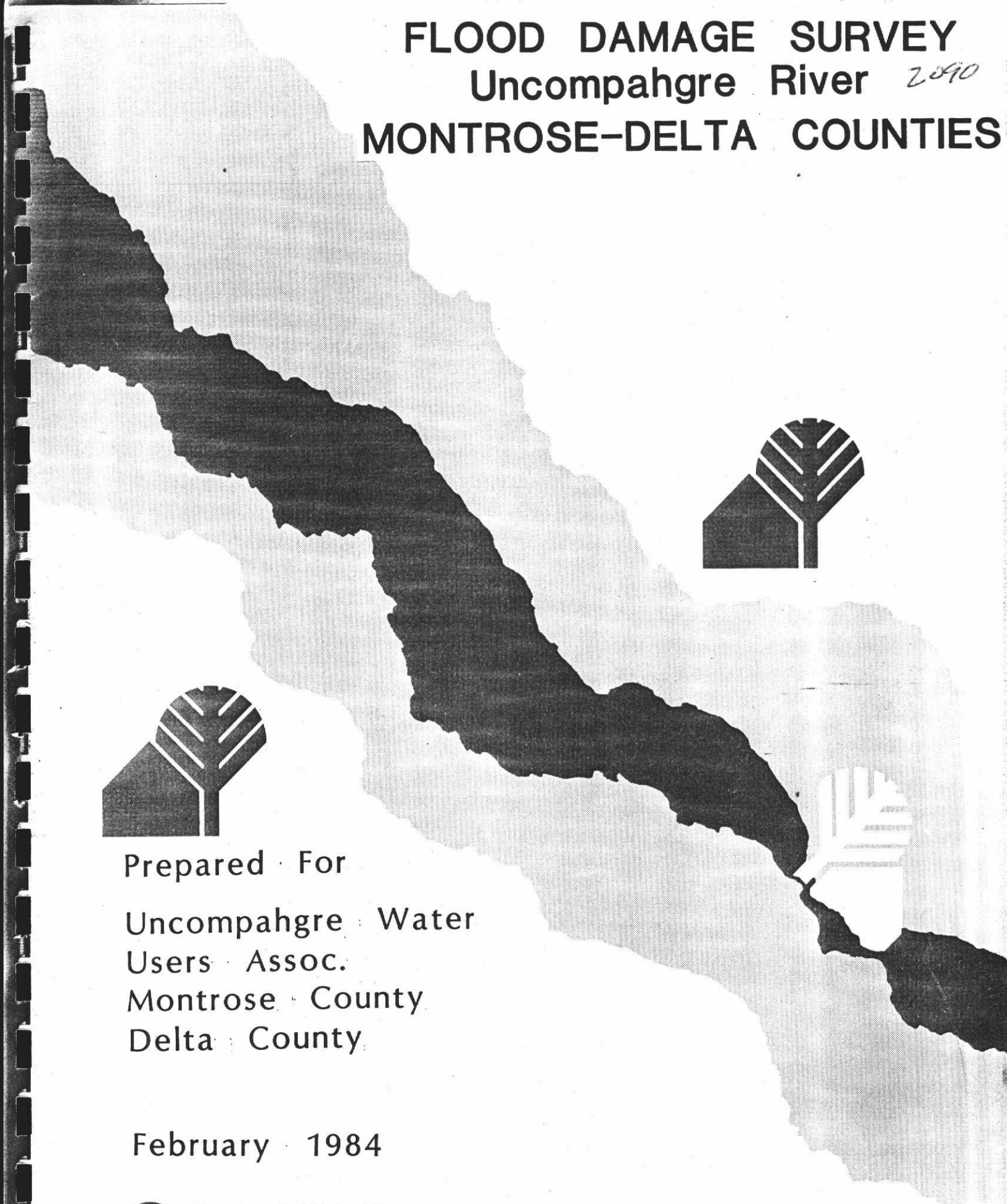
FLOOD DAMAGE SURVEY
Uncompahgre River
MONTROSE-DELTA COUNTIES

2490



Prepared For

Uncompahgre Water Users Assoc.
Montrose County
Delta County

February 1984

Department of Natural Resources
Colorado Water Conservation Board
J. William McDonald, Director

PURPOSE AND SCOPE OF REPORT

The purpose of this report is to describe and illustrate erosion, sedimentation, debris depositions, and flood problems along the Uncompahgre River in Montrose and Delta counties. The report is intended to aid Federal, State, and Local government officials, water users, and land owners to better understand these flood-related concerns. Through this understanding, institutional barriers may be overcome to achieve interim and permanent solutions to the many flood-related flood problems and hazards.

LIMITS OF STUDY

The study reach for this report extends from the confluence of the Uncompahgre River with the Gunnison River upstream to the Montrose-Ouray county line a distance of 44 river miles.

DESCRIPTION OF THE STUDY AREA

The Ute Indians occupied various parts of the Uncompahgre Valley for hundreds of years prior to the advent of the Spanish expeditions which explored the region beginning in the 1541. The Uncompahgre River was named by the Indians because of its reddish-muddy color.

The Uncompahgre Valley begins at the base of the Uncompahgre Plateau a few miles south of Colona. It continues northward about 40 miles, terminating at the Gunnison River. The Valley, which is about 20 miles wide in its middle and lower portions, slopes gently northward between foothills and steep sided mesas and plateaus. Approximately 85,000 acres are rich, fertile irrigated agricultural lands which are supplied waters from the

Uncompahgre River and supplemental waters through the Uncompahgre - Gunnison Tunnel Project. The West, Montrose and Delta, and Ironstone Canals carry irrigation water to the West, and Loutzenhizer, Selig, South, and East Canals carry water to the east. In addition, there are a number of small irrigation canal systems within the Valley.

FLOOD HISTORY

The Uncompahgre River has a long history of flooding. Flooding along the lower Uncompahgre River usually results from rapid snowmelt of an above average snowpack from mid-May through early July, but may also result from runoff of general rain, particularly in the Delta area.

Historically, floods on the Uncompahgre River have disrupted highway and rail traffic, damaged and destroyed irrigation diversion structures, eroded farmlands, damaged and destroyed crops, eroded channel banks and roadway embankments, deposited sand, silt, and debris on croplands, inundated structures, and destroyed natural vegetation.

PEAK FLOWS OF HISTORICAL FLOODS
(In cubic feet per second)

Year	Colona Gage	Date
1921	5,140 cfs	June 13-14
1927	3,400 cfs	June 28
1938	3,390 cfs	June 22
1957	3,300 cfs	June 29
1975	3,360 cfs	July 4
1983	3,260 cfs	June 26

FLOODING CHARACTERISTICS

During a flood, the velocity of flow in the channel of the river averages 6-10 feet per second throughout the study reach. Flood waters in the overbank may flow as slowly as 1 foot per

second. Given these floodwater flow rates a number of phenomena will occur. Water flowing at a rate of 7-8 feet per second or greater will cause severe erosion of streambanks and lands and is capable of transporting rocks and large trees. Water flowing at about 2 feet per second or less will deposit sand, silt and other floodborne debris.

The floodplain has a number of natural and man-made obstructions to streamflow including trees, brush, gravels, rocks, and various structures. Without stabilization structures or natural streambank armament, the river will migrate across the floodplain during periods of flood, as was experienced in many locations during the 1983 flood.

THE 1983 FLOOD

The 1983 flood was equivalent in magnitude to the past floods of 1927, 1938, 1957, and 1975. The flood was of a lesser magnitude than the flood-of-record which was recorded on June 13-14, 1921. The resultant damage to floodplain lands and structures are presented by on site pictures and field inspections on pages _____ through _____. The pictures will illustrate many of the concerns of the land owners and local government officials. It should be understood that not all of the critical flood damaged areas have been identified. The entire 44 mile study reach experienced flood-related losses and damages.

FLOOD DAMAGED AREA

Plates 1-5 form an index detailing the 45 sites where flood damages have been identified or illustrating where improvements should be/have been implemented. The pictorial illustrations will demonstrate the concerns and needs of local officials for mitigating flood-related losses and damages throughout the Uncompahgre River Valley.

PROBLEMS AND CONCERNS

Physical

Channel Clearing - Because of permitting requirements, no channel clearing has occurrd over the past 5 years. One result is formation of sand and gravel bars, and there are aggradation problems throughout the study reach. Those effects increase hazards in future flooding by reducing channel capacity.

Erosion Problems - Flooding has caused channel and streambank erosion throughout the study reach. As a result, significant losses of irrigated cropland and pastureland have occurred. Further, erosion damage to roadway and railroad embankments has occurred also. In addition to land losses, maintenance cost of irrigation diversion structure have increased. Erosion has increased because previous practices of streambank protection and restoration are no longer accomplished.

Institutional

Federal - Section 404 of the Clean Water Act (33 USC 1344) The U.S. Army Corps of Engineer interpretation of this authority has restricted any flood mitigation activities within the nation's river system without a Corps approved permit.

The Corps' criteria for the issuance of permits in many cases pose undue hardship or expense on the applicant. In particular, the

restricting of track crawl equipment greatly hinders the working of a major stream which annually has a great sediment load.

State - Section 401 of the Clean Water Act

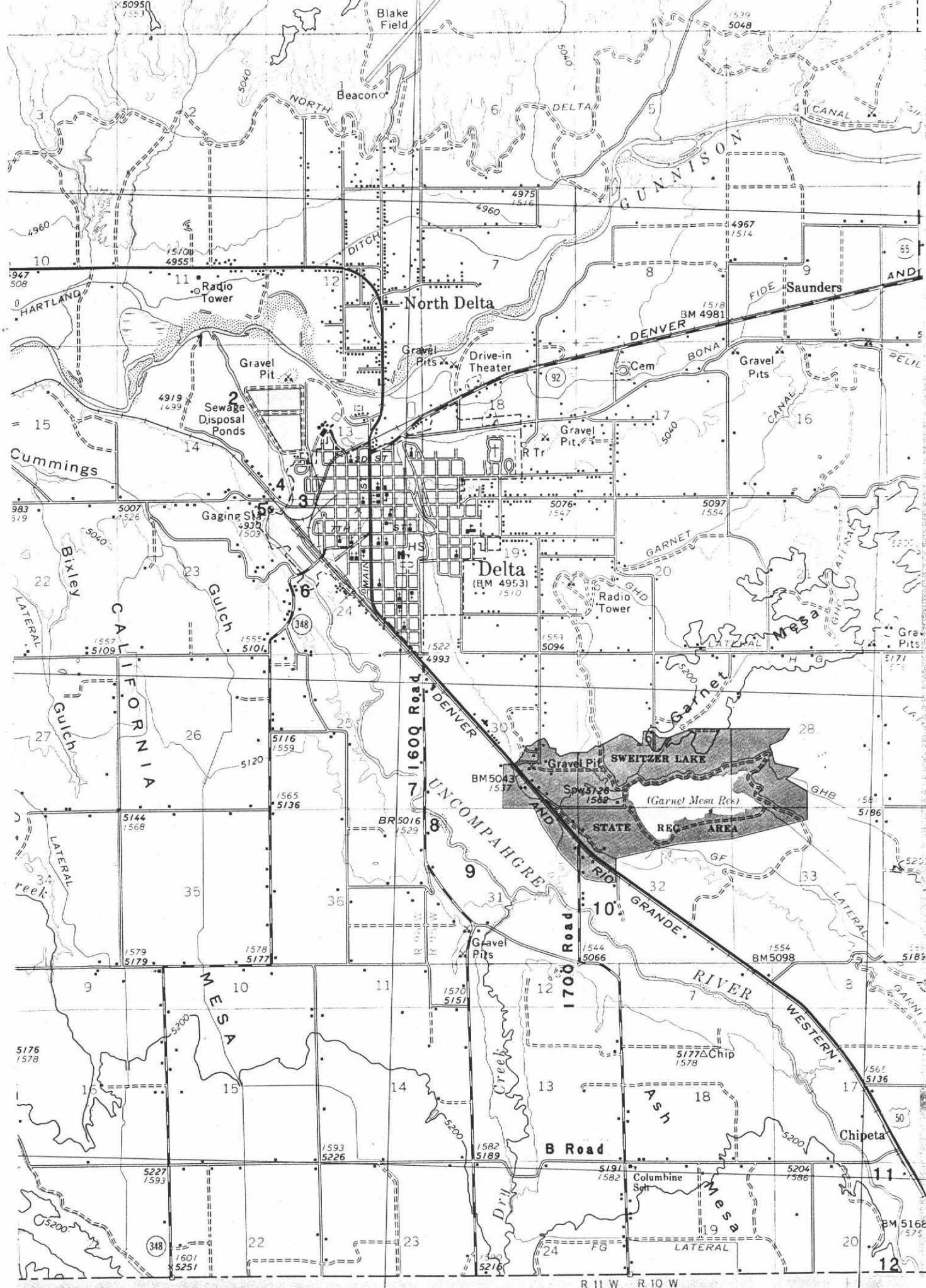
The State of Colorado, Department of Health requires that a water quality certification be obtained prior to the commencement of any work within the State's river systems.

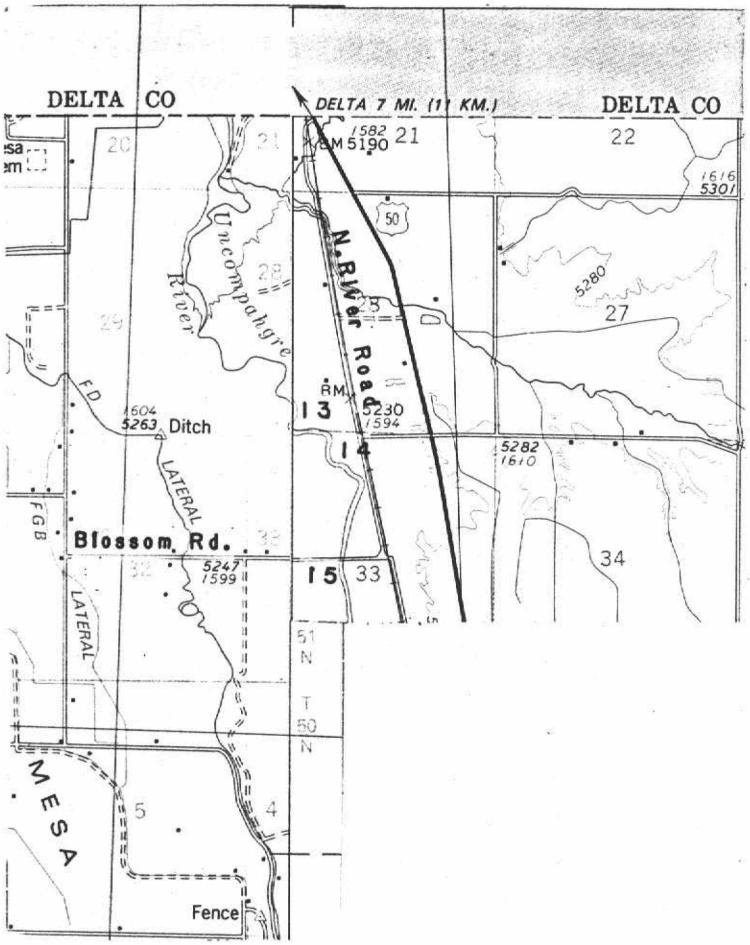
Permitting Time and Schedules - Colorado's mountains and plains streams have certain low flow time schedules when work can be economically and effectively achieved; therefore, lengthy processing of applications may result in additional flood losses and damages to lands and structures located within the floodplain.

CONCLUSION

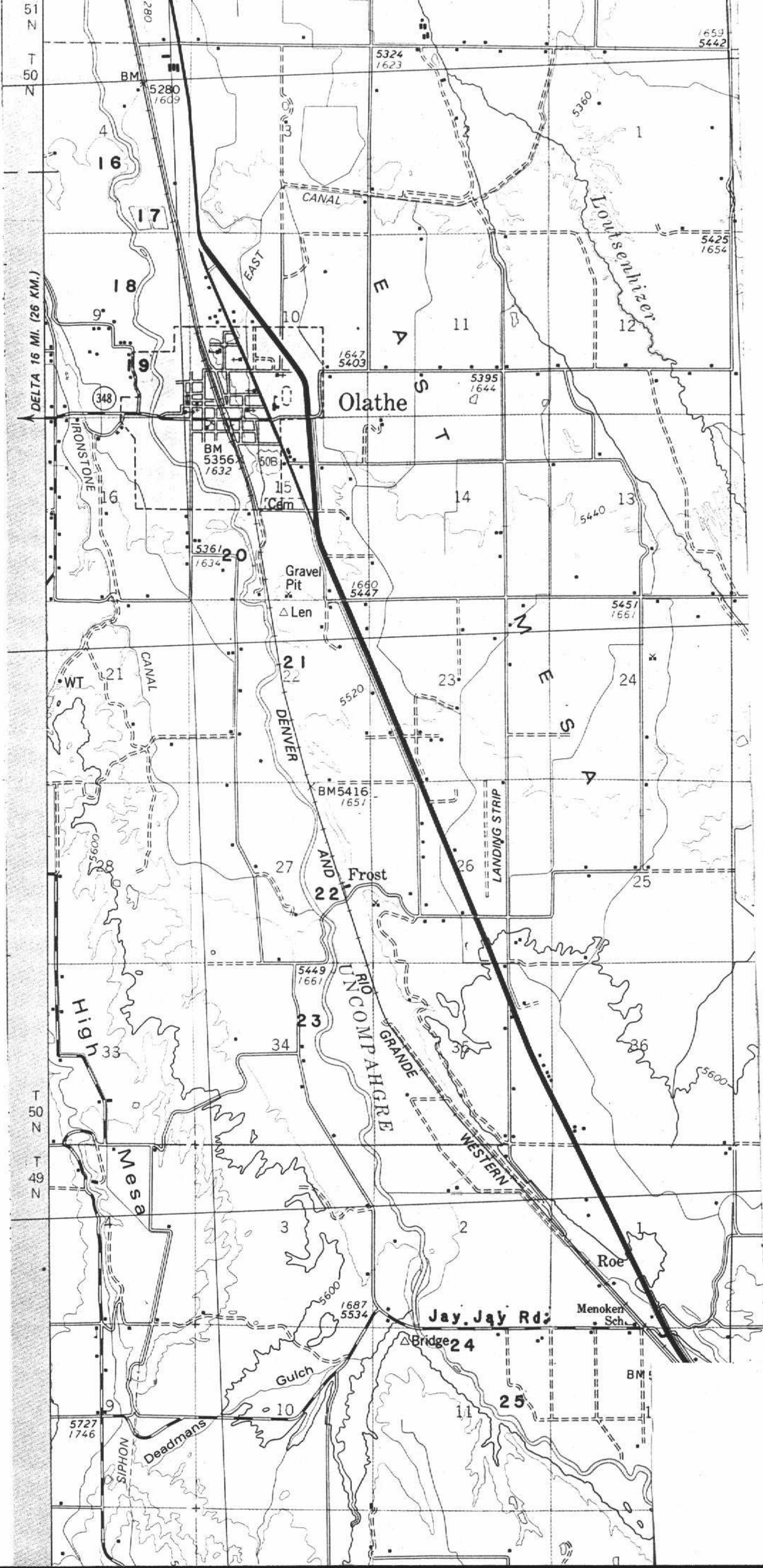
Because of current permit requirements, flooding and erosion problems have increased along the Uncompahgre River. The historic practices of removing deposition in the channel and the filling along eroded streambanks are viewed as impractical under Corps permit requirements. As a consequence, spring flooding now intensifies the loss of agricutural lands and the aggradation and deposition further reduce channel capacity. The regulatory impasse may result in further losses.

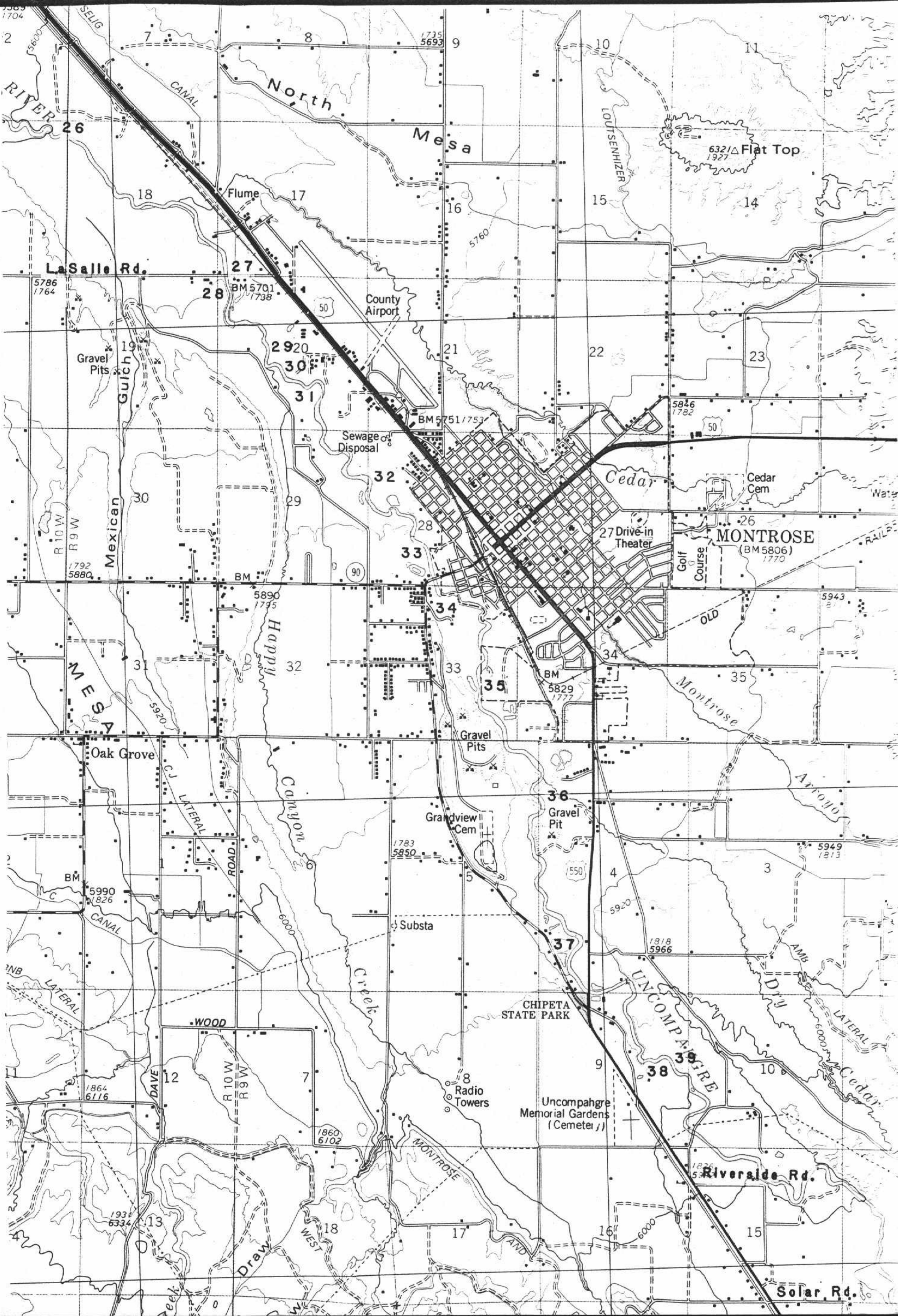
gl


Blake Field
Beacon
NORTH DELTA CANAL
GUNNISON
DITCH
HARTLAND
Radio Tower
North Delta
Saunders
DENVER
BM 4981
Gravel Pit
Sewage Disposal Ponds
Gravel Pits
Drive-in Theater
Cem
BONA CANAL
Cummings
Gaging Sta
Delta
(BM 4953)
Radio Tower
GARNET MESA LATERAL
Bixley Gulch
CALIFORNIA Gulch
160Q Road
DENVER
Gravel Pit
SWEITZER LAKE
(Garnet Mesa Res)
STATE REC AREA
BM5043
Spw5126
UNCOMPAHGRE RIVER
GRANDE RIVER WESTERN
1700 Road
Gravel Pits
BM5098
MESA LATERAL
Chip
Chipeta
Ash Creek
B Road
Columbine Sch
Dry Mesa
LATERAL
R 11 W
R 10 W

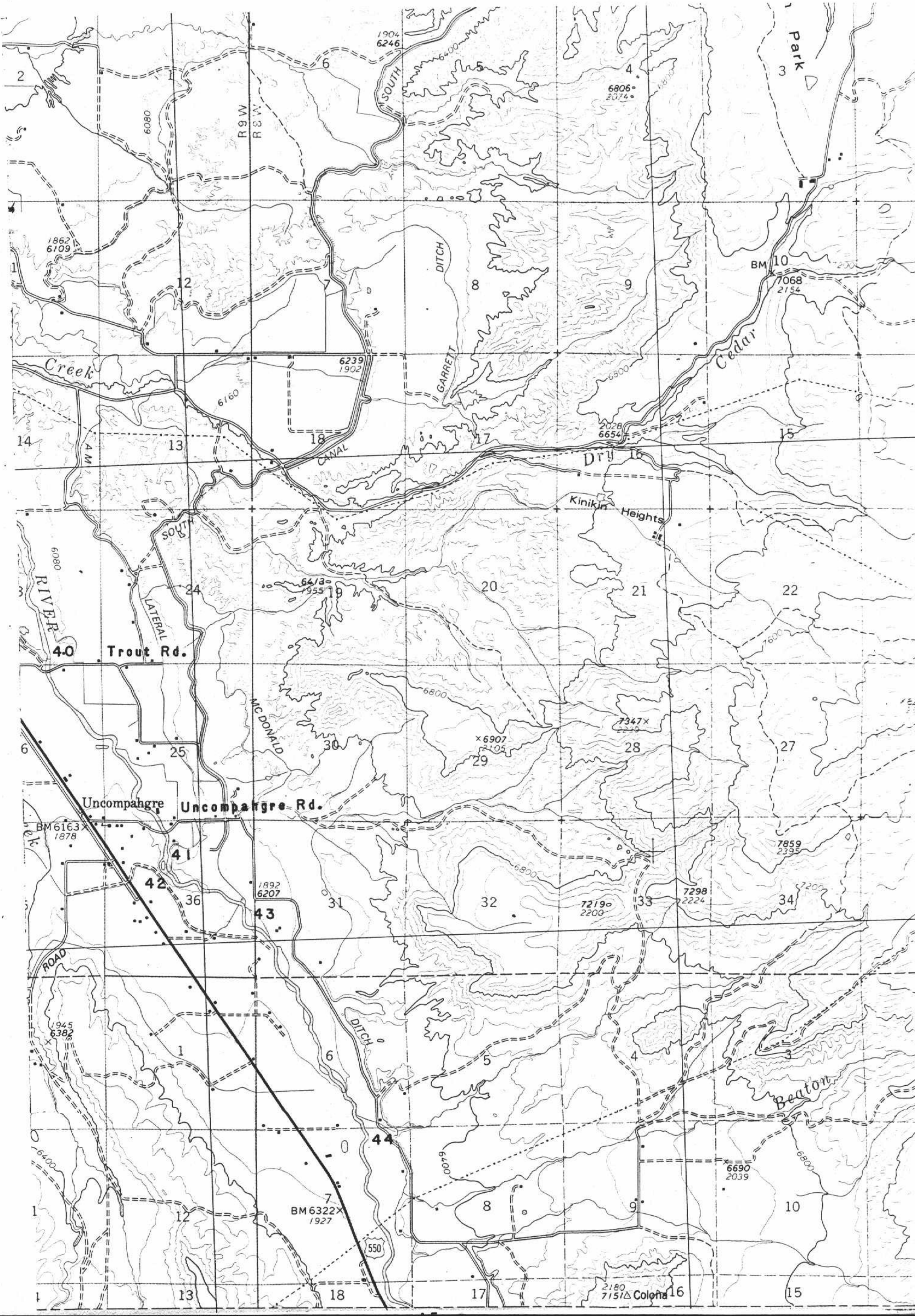


DELTA CO
DELTA 7 MI. (11 KM.)
DELTA CO
Uncompahgre River
N.River Road
50
Ditch
LATERAL
Blossom Rd.
LATERAL
MESA
Fence


Olathe
EAST MESA
High Mesa
UNCOMPAHGRE
DENVER AND RIO GRANDE WESTERN
Loutsenhizer
CANAL
EAST
IRONSTONE
CANAL
LANDING STRIP
Gravel Pit
Len
Frost
Roe
Menoken Sch.
Jay Jay Rd
Bridge
Gulch
Deadmans
SIPHON
DELTA 16 MI. (26 KM.)
348
50B
Cem
WT
T 50 N
T 49 N
BM 5280
BM 5356
BM 5416
5324
5395
5425
5440
5447
5451
5449
5520
5600
5727
5534
5403
5442
5360



North Mesa
Flat Top
LOUTSENHIZER
CANAL
RIVER
Flume
LaSalle Rd.
County Airport
Gravel Pits
Mexican Gulch
Sewage Disposal
Cedar
Cedar Cem
MONTROSE
(BM 5806)
Drive-in Theater
Golf Course
OLD
RAILROAD
Happy Canyon Creek
MESA
Oak Grove
CJ LATERAL ROAD
Montrose Arroyo
Gravel Pits
Grandview Cem
Gravel Pit
Substa
CANAL
LATERAL
WOOD
CHIPETA STATE PARK
UNCOMPAHGRE
Dry Cedar
Radio Towers
Uncompahgre Memorial Gardens (Cemetery)
DAVE
MONTROSE AND
WEST
Draw
Riverside Rd.
Solar Rd.
R 10 W
R 9 W


Park
South
Ditch
Garrett
Creek
Canal
Dry
Cedar
Kinikin Heights
South
River
Lateral
A M
McDonald
40
Trout Rd.
Uncompahgre
Uncompahgre Rd.
41
42
43
44
Road
Ditch
Beaton
R9W
R8W
550
Colona
BM 6163
1878
BM 6322
1927
BM
7068
2154
1904
6246
6806
2074
1862
6109
6239
1902
2028
6654
6413
1955
7347
6907
7859
2395
1892
6207
7219
2200
7298
2224
1945
6382
6690
2039
2180
7151
6080
6160
6400
6800
7600
7200
6600

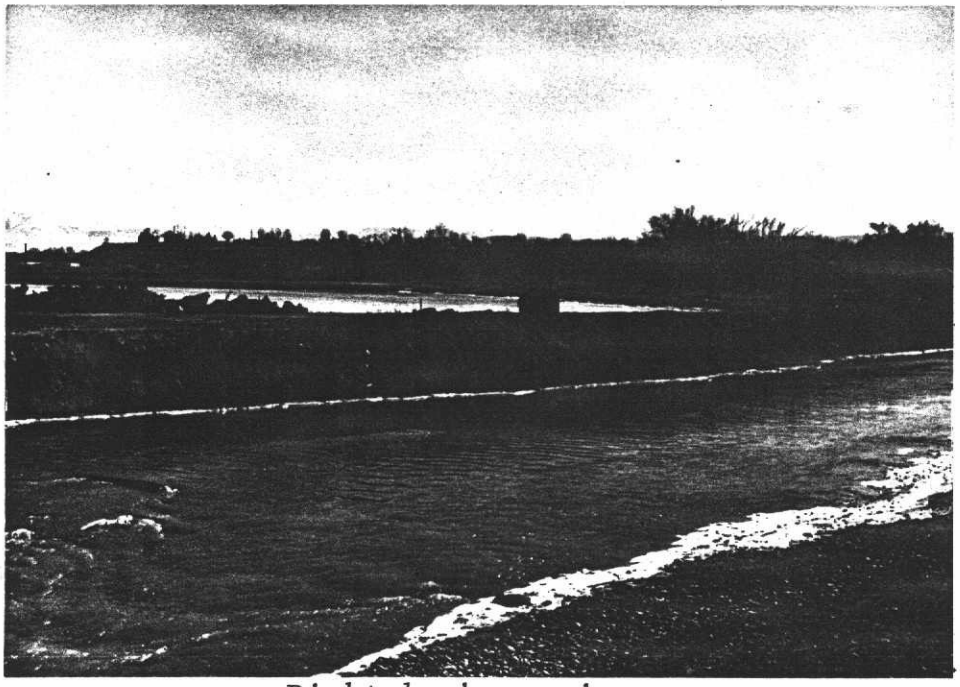
SITE # 1

Uncompahgre River confluence with the Gunnison River - Levee repair on left bank looking upstream.

SITE # 2

Levee repair

SITE # 2



Right bank erosion

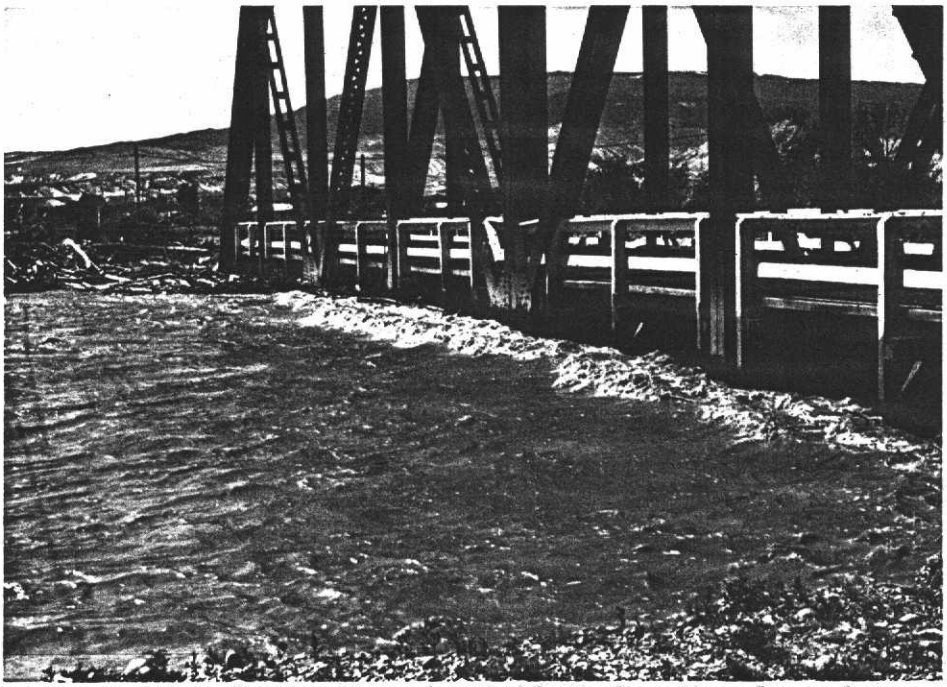
SITE # 3

Right bank erosion - emergency repair during flood.

SITE # 4

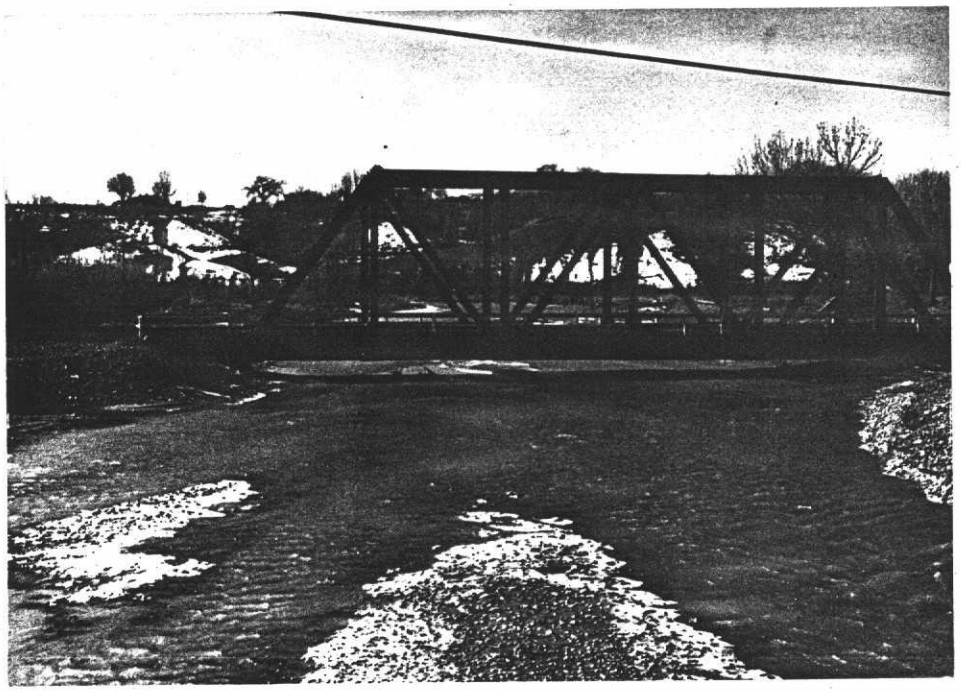
Irrigation diversion structure washed out.

SITE # 5



Denver and Rio Grande Railroad - Trash and debris build-up during June 19, 1983 flooding.

SITE # 5



Sedimentation build-up

SITE # 6

Flooding upstream of Colorado Highway 348 bridge - June 19, 1983.

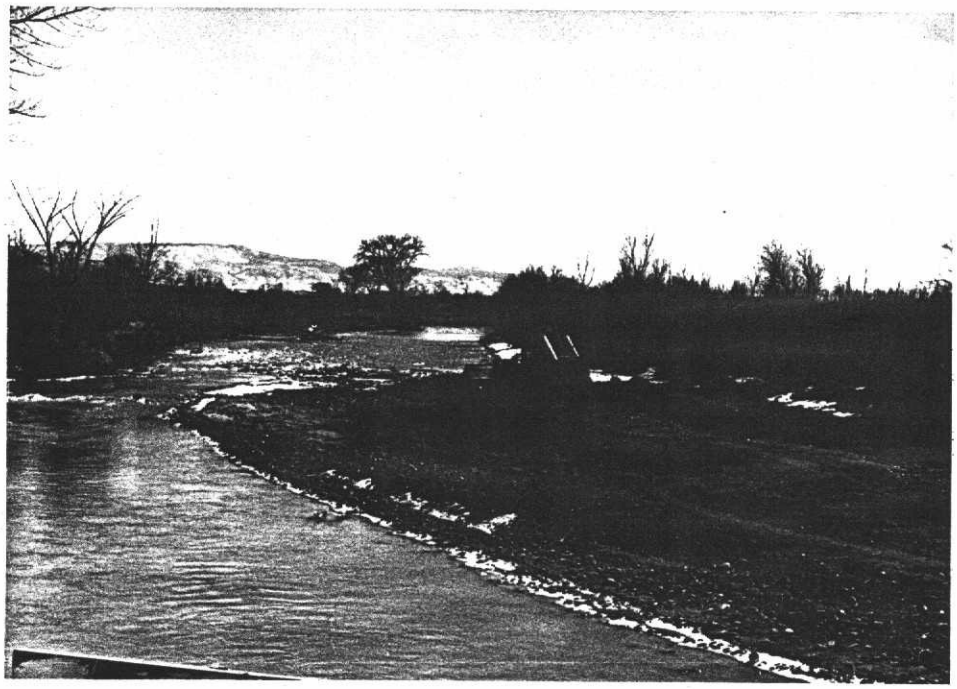
SITE # 7

Road repair to County Road 1600 - A cease and desist order was issued by Corps.

SITE # 7

County Road 1600 repair. Channel alignment work required.

SITE # 8

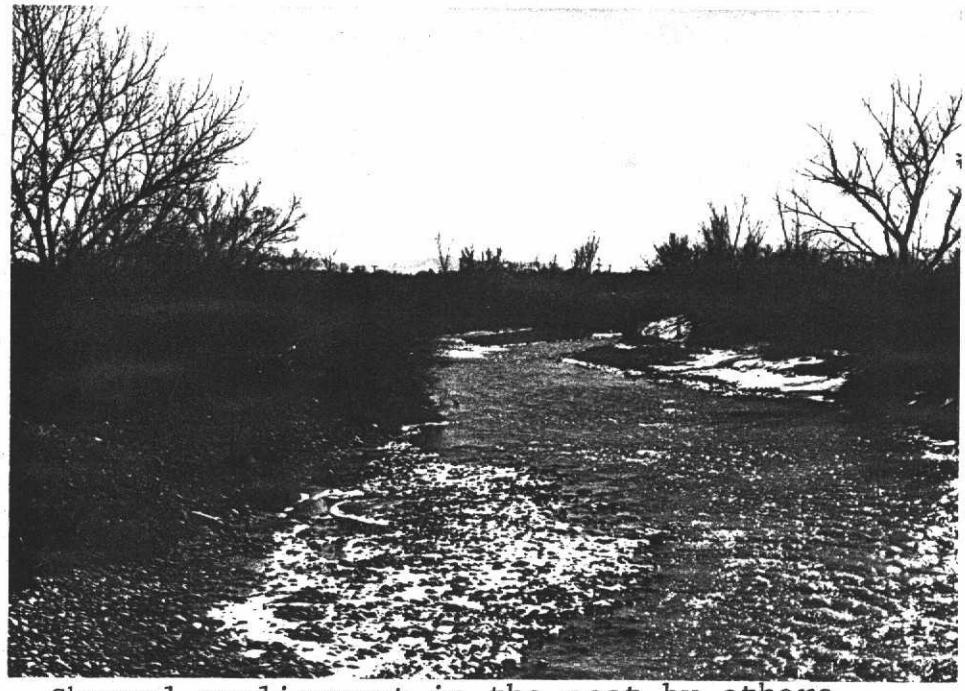


Removal of sand bar with rubber tire equipment.

SITE # 8

Sand bar causing bank and roadway abutment erosion.

SITE # 9

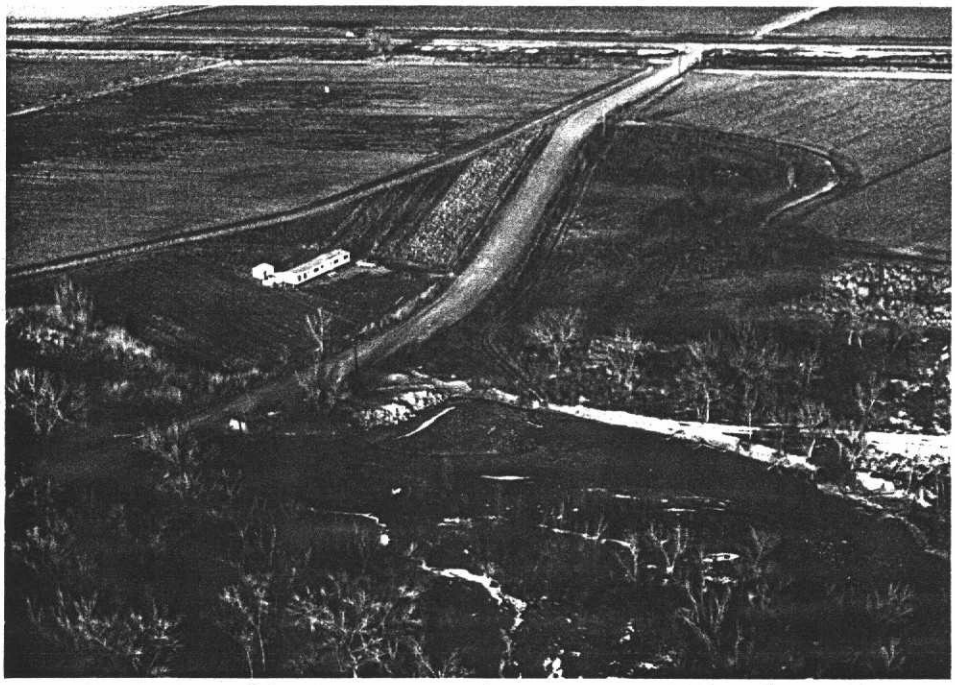


Channel realignment in the past by others.
Channel cleaning needed.

SITE # 10

Upstream of County Road 1700 - A large sand bar that needs to be removed because the river is eroding roadway abutment.

SITE # 11



Upstream of County Road B - Erosion of roadway embankment. Riprapping needed.

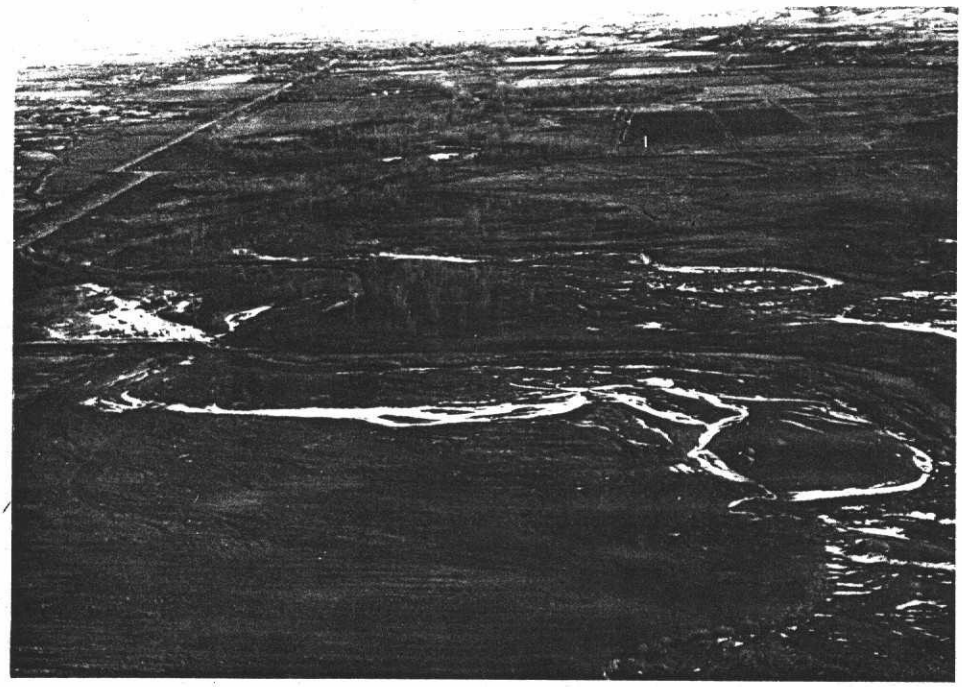
SITE # 11

Upstream of County Road B. Three types of riprap materials - Sandstone, car body and volcanic rock.

SITE # 12

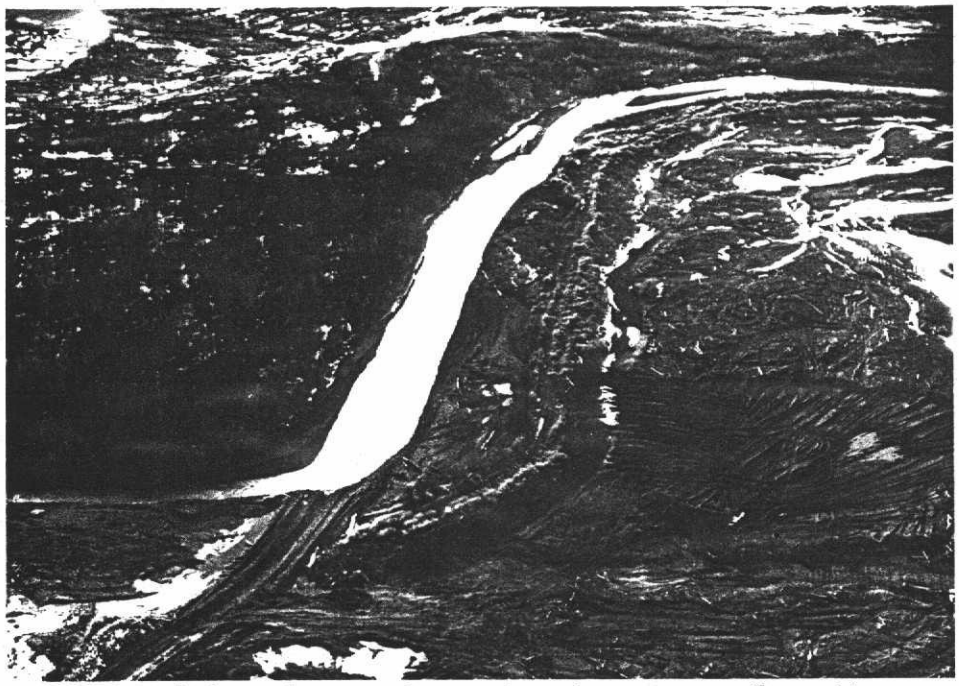
Delta-Montrose County Line. Bank erosion and meandering stream.

SITE # 13



Irrigated farmland damaged by debris and trash.

SITE # 13

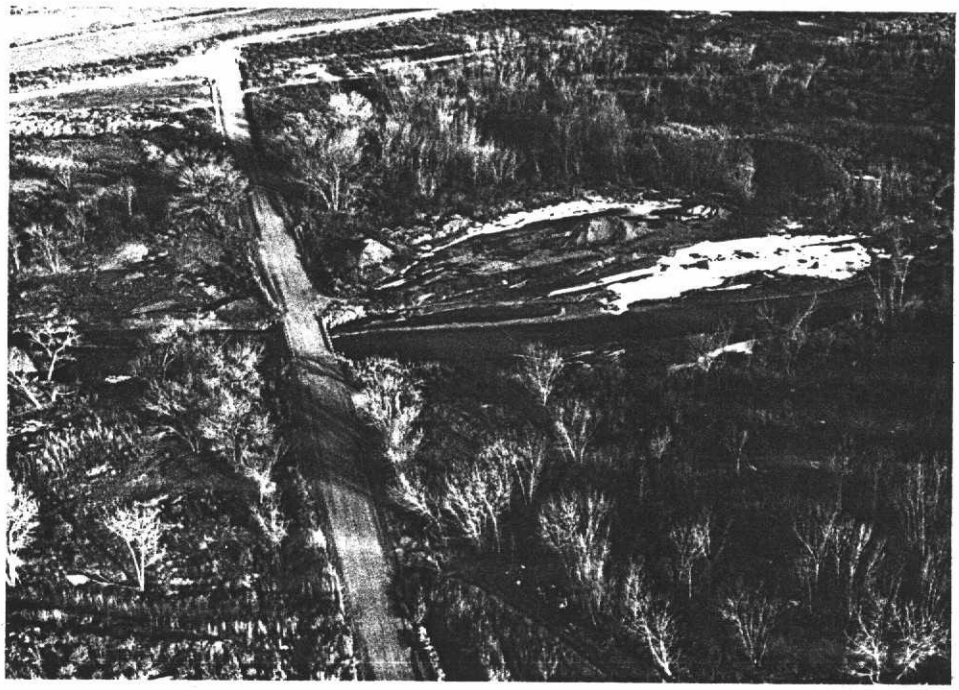


Channel break-out location because of sediment build-up.

SITE # 14

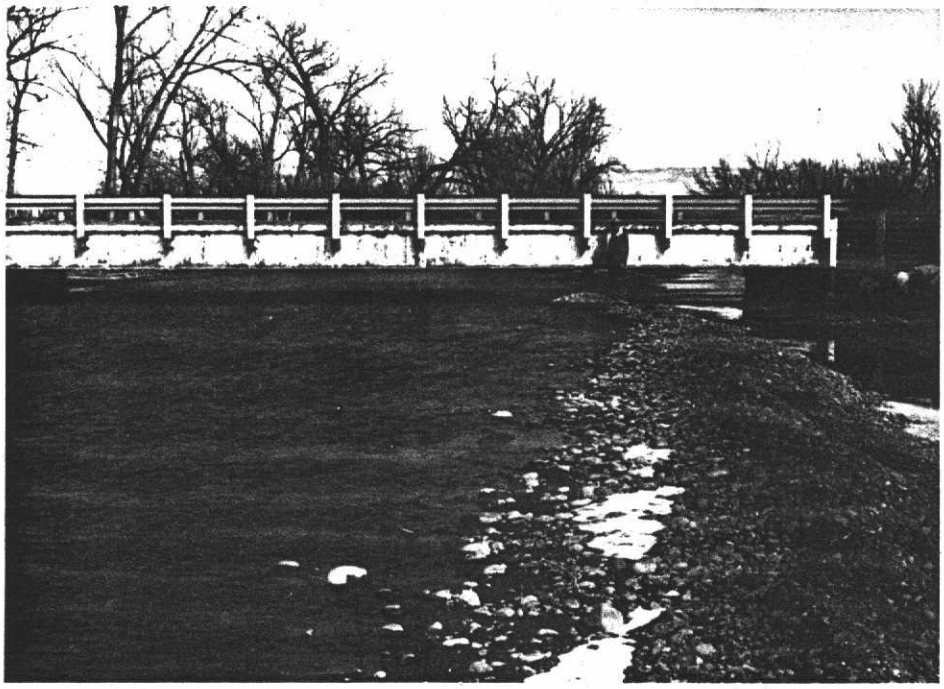
4 - 6 feet of sediment build-up completely clogging channel. Cobble size ½" to 6".

SITE # 15



Upstream of Blossom Road.

SITE # 15

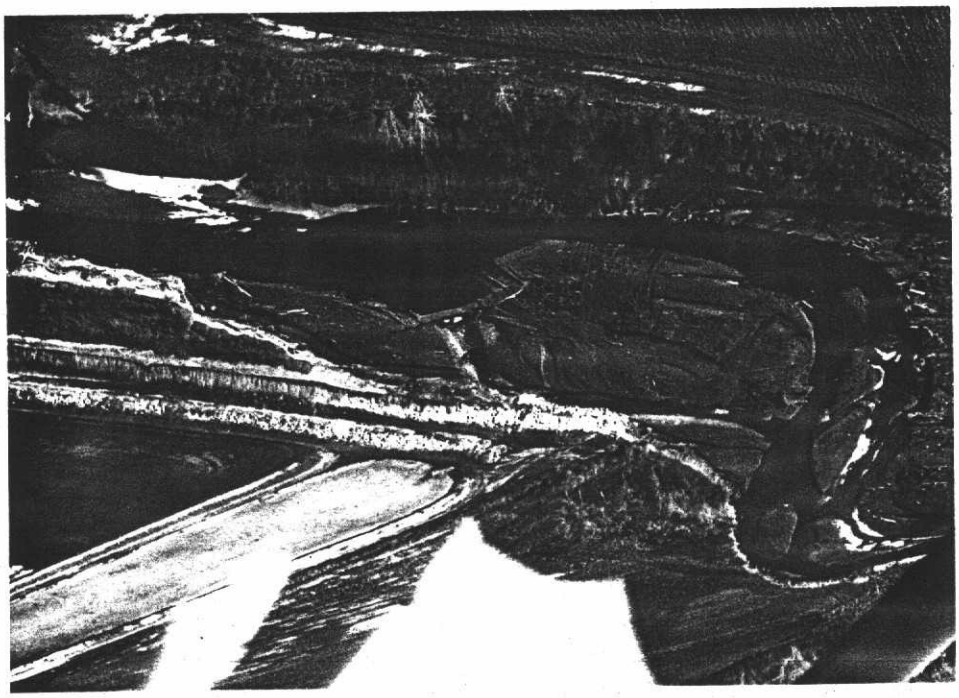


Upstream of Blossom Road. Sediment build-up 6 feet deep.

SITE # 16

11 acres of irrigated farmland destroyed.
Valued at $3000 per acre.

SITE # 17



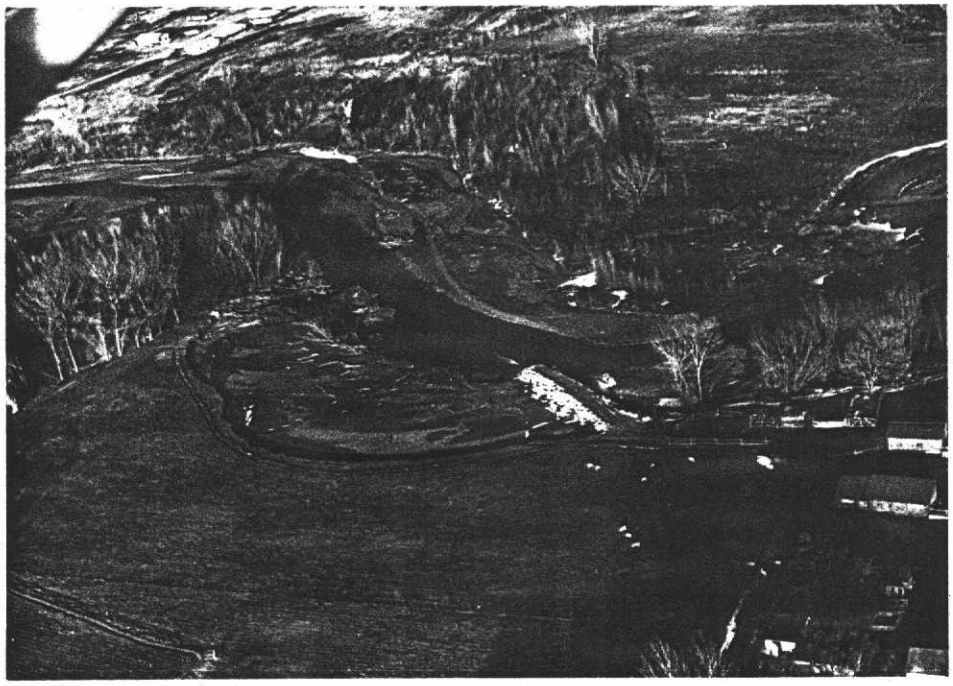
Erosion of lagoon dikes and channel aggradation.

5 acres of irrigated farmland destroyed. Value $3000 per acre.

SITE # 18

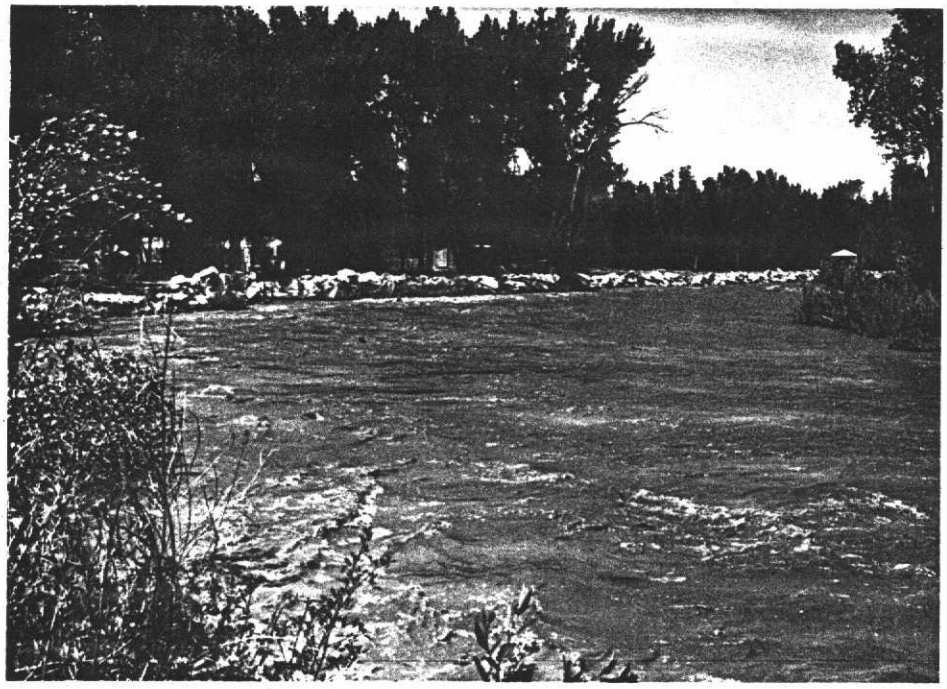
Looking upstream - 6 to 8 feet of land eroded away.

SITE # 19



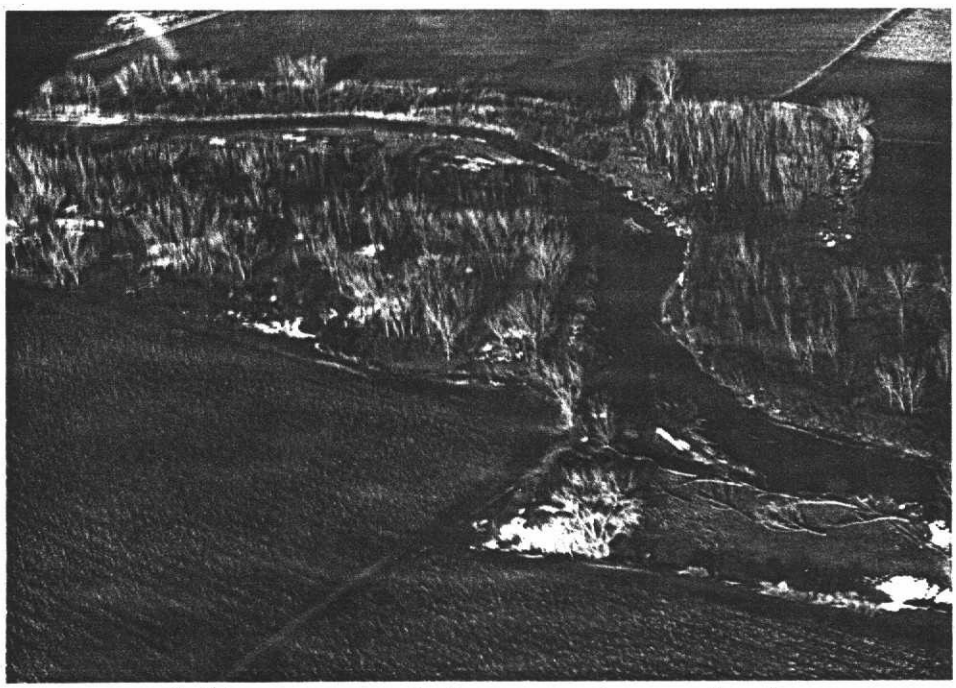
A rock jetty constructed to place channel in pre-flood alignment.

SITE # 20



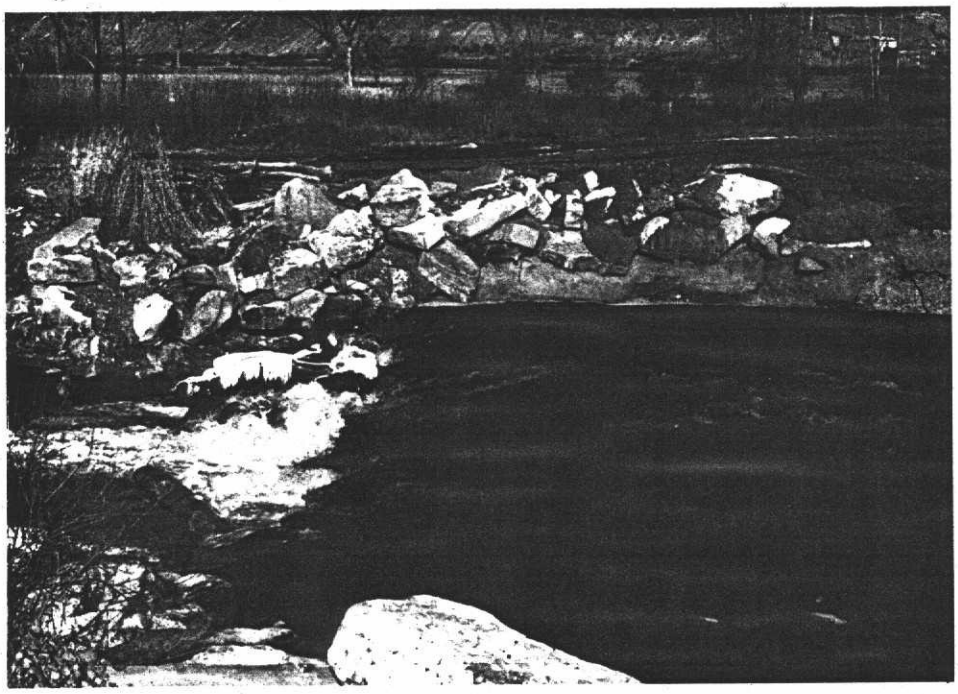
Left bank stabilization.

SITE # 21



Note fallen trees lying on stream bank.

SITE # 22

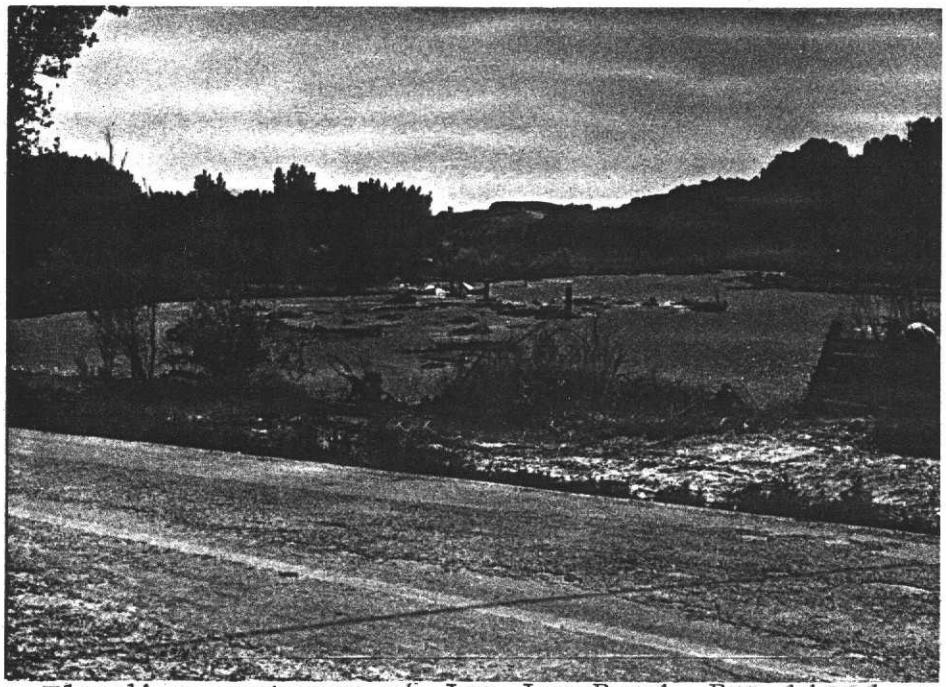


Ironstone irrigation diversion structure and associated erosion. 6-8 feet of large rock placed below structure.

SITE # 23

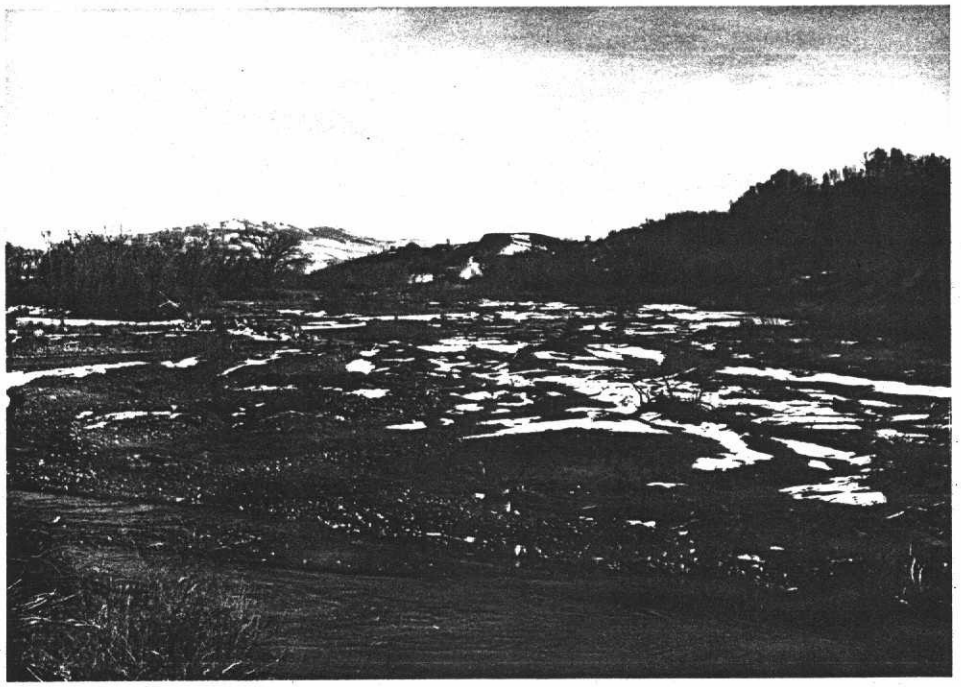
Left bank failure by erosion. Result will be a major channel realignment and flooding of Ironstone canal.

SITE # 24



Flooding upstream of Jay Jay Road. Pre-flood channel alignment to the right of the piling in the center of the photo.

SITE # 24



Looking upstream of Jay Jay Road.

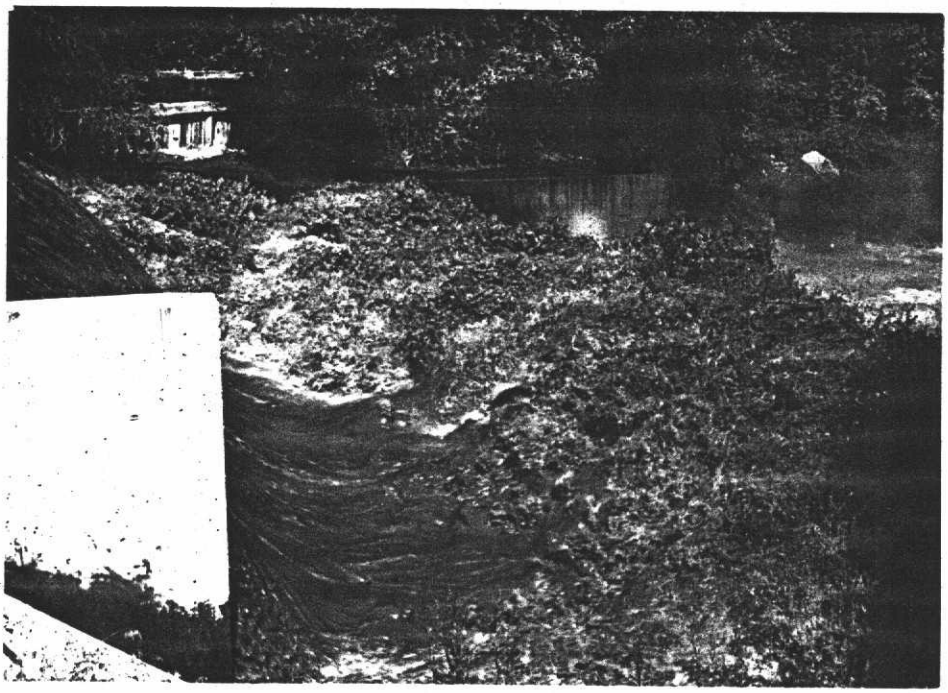
SITE # 25

Channel migration upstream of Jay Jay Rd.

SITE # 26

Left bank stabilization required for erosion protection.

SITE # 27

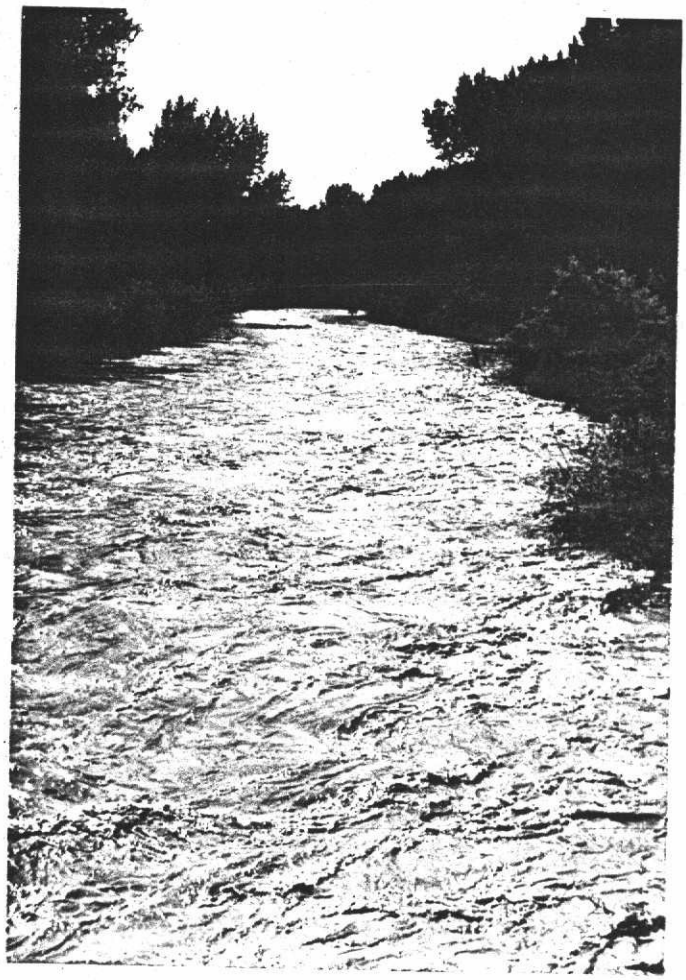


Selig Canal diversion structure. During high flows, the Uncompahgre River waters are very muddy and turbid.

SITE # 28

Looking upstream of LaSalle Road. Stream was stabilized by CC Camp project in the 1930's.

SITE # 29

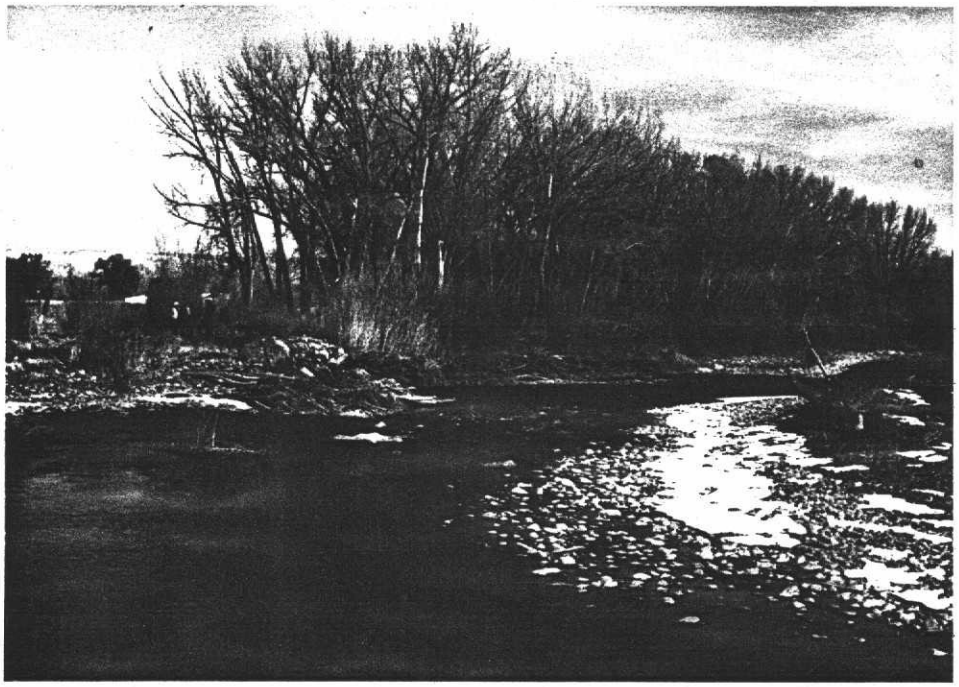


Looking upstream of LaSalle Rd.

SITE # 28

Rock jetties placed at 100 foot intervals in the 1930's.

SITE # 28

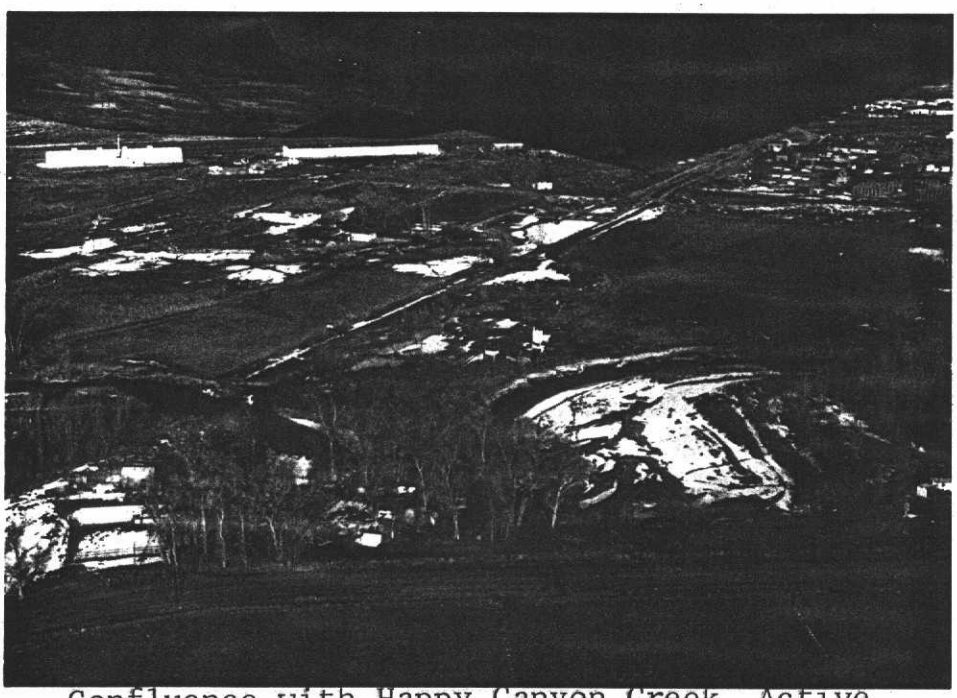


Upstream end of CC Camp project. Channel is eroding around the project.

SITE # 29

Upstream of LaSalle Road, a large trash pile in the middle of the channel. A number of large trees were uprooted by the flood.

SITE # 30

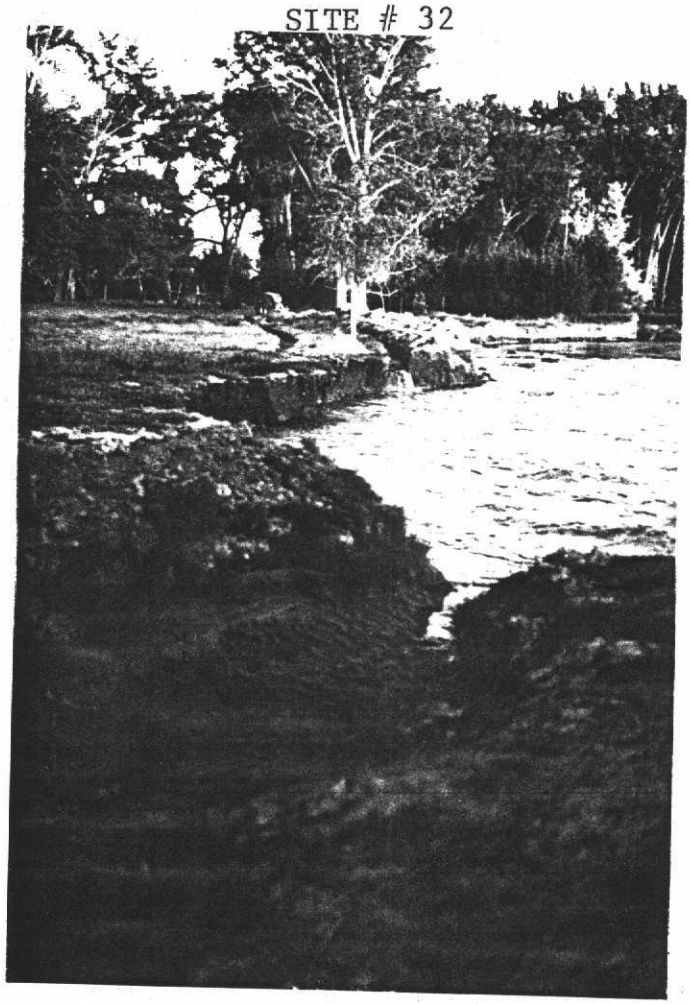


Confluence with Happy Canyon Creek. Active right bank erosion is occurring over 75 feet of the bank.

SITE # 31

A Corps approved concrete jetty (man standing on the 6 foot jetty). River has completely rerouted away from the 6 foot stabilization structure. Erosion has resulted from Corps no maintenance policy.

SITE # 32



Private irrigation ditch and diversion structure destroyed on June 20, 1983

Sedimentation and debris deposition.

SITE # 34

Left bank severely eroded. 75 feet was eroded during the 1983 flood.

SITE # 34

A rock jetty was constructed during the flood to lessen erosion on June 24, 1983.

SITE # 35

Trash and debris build-up near River Bottom Park.

SITE # 35

Channel stabilization by rip-rapping.

SITE # 36

Large deposition area Sediment deposition could be mined.

SITE # 37

Lake No. 1 of the Chipeta State Park was destroyed on June 26, 1983

SITE # 37

Dike of Lake No. 2 in Chipeta State Park severely eroded.

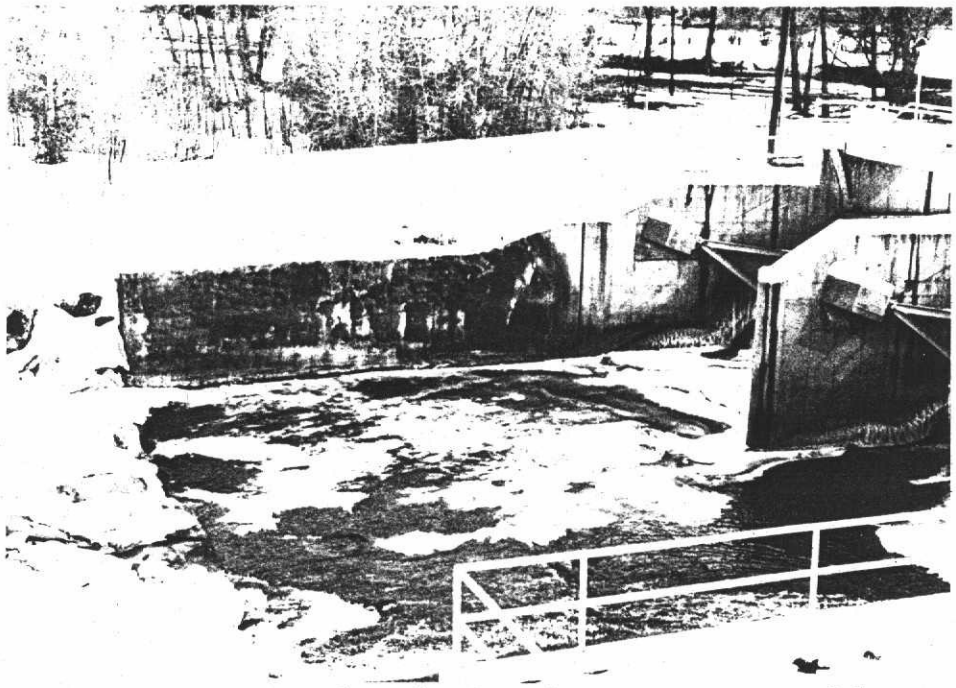
SITE # 38

Private dike constructed in 1957.

SITE # 39

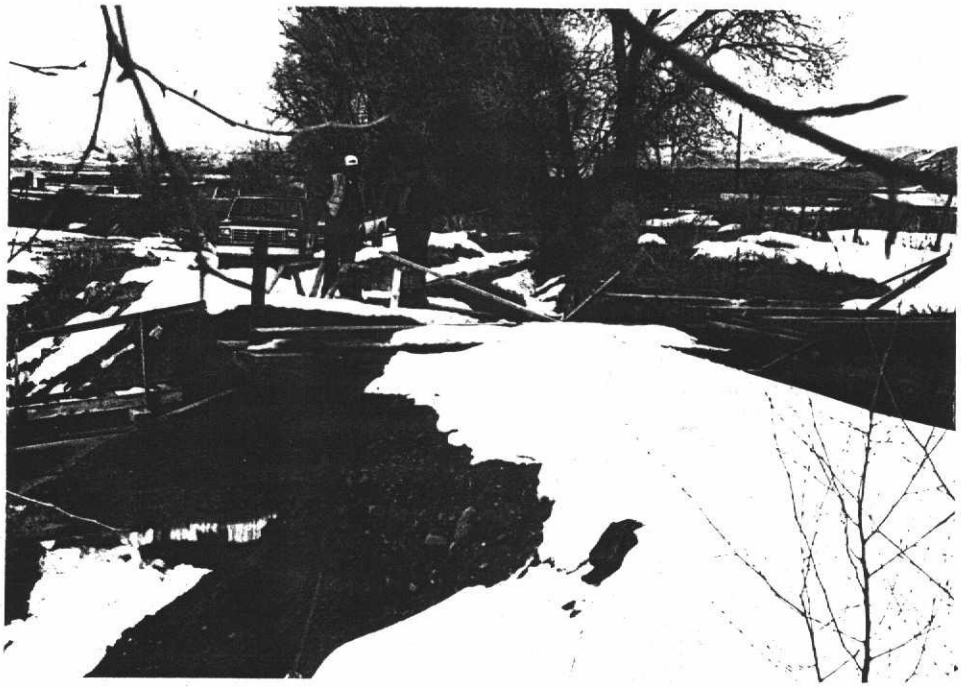
Right bank stabilization. Rock jetties placed in 100 foot intervals.

SITE # 40



Montrose and Delta irrigation structure. After spring run-off (flooding) the spillway apron was severely undercut. 700 yards of concrete was pumped into the cavity. 200 yards of sediment is dredged daily.

SITE # 41

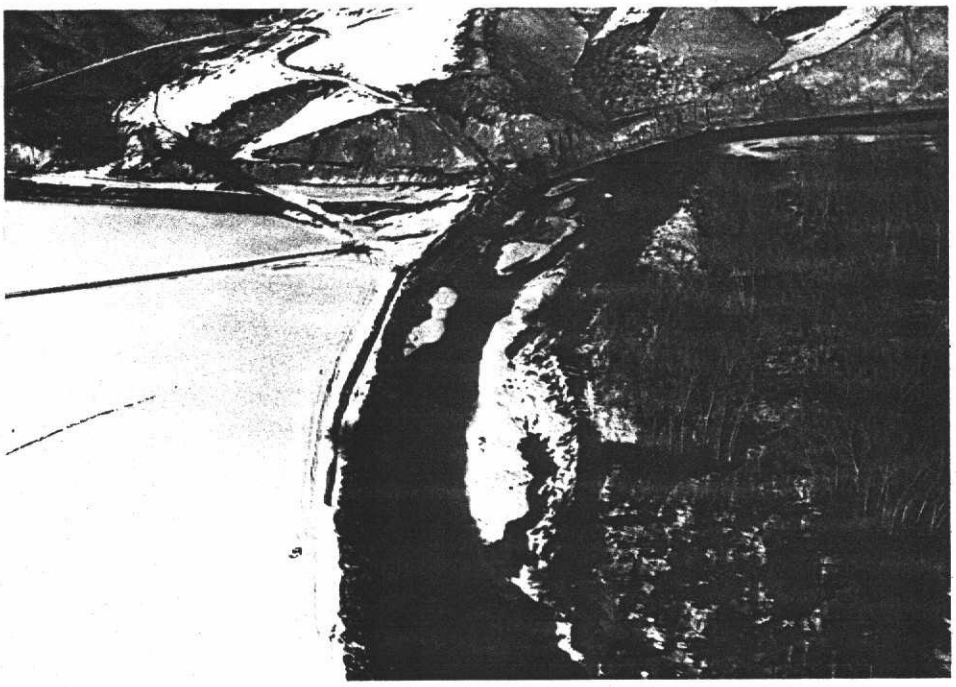


AM lateral irrigation canal spillway severely eroded.

SITE # 42

75 feet of Mesa land was eroded in 1983. The embankment is 40 feet high.

SITE # 43



Annual maintenance of dikes and channel banks are required to protect downstream irrigated farmland.

SITE # 44

Sedimentation and debris build-up.

SITE # 45

Left bank severely eroded adjacent to Colorado Highway 550.

SITE # 45

Near Montrose-Ouray County line.