GILA DRAIN PROJECT

REPORT SUBMITTED BY:

CITY OF TEMPE
PUBLIC WORKS DEPARTMENT
31 E. FIFTH STREET
TEMPE, AZ 85281
(602) 731-8371

MARCH 6, 1986

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CITY OF TEMPE
Home of Arizona State University
P.O. Box 5002 Tempe, Arizona 85281 (602) 967-2001

March 6, 1986

Mr. Dan Sagramoso, PE
Chief Engineer & General Manager
Flood Control District of Maricopa County
3335 W. Durango Street
Phoenix, AZ 85009

Dear Mr. Sagramoso:

Thank you for meeting with us to discuss Tempe's plans for improvement of the Gila Drain south of the Western Canal. We appreciate the assistance and advice of your staff as this program was being prepared. The Gila Drain project is one on which we have all worked many years toward a solution. We are asking that the City of Tempe's improvement project for the Gila Drain be presented to the Board at their March 19th meeting for consideration of possible funding. The attached report briefly describes our work program and identifies the anticipated expense. We believe that the project qualifies for 50% participation by the Flood Control District.

We appreciate your assistance with our application and look forward to our formal presentation on March 19th.

Sincerely,

Jim Jones
Director of Public Works

jc

WILLIAM J. REAM, Vice Mayor
DON CASSANO, Councilman
PATRICIA A. HATTON, Councilman

HARRY E. MITCHELL, Mayor
JAMES L. ALEXANDER, City Manager

WILLIAM J. LOPIANO, Councilman
ROWLAND G. OONK, Councilman
FRANK PLENCNER, Councilman

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Introduction

The Gila Drain is a natural drainage way reaching from the Western Canal southward through the Cities of Tempe and Chandler as well as the Gila Indian Reservation until it empties into the Gila River. Runoff from the Salt River Project Canal System, the Cities of Tempe, Mesa, Chandler, Gilbert, and Phoenix as well as Maricopa County and State of Arizona lands drain from east and west to this natural low point and then drain southward. Development of the agricultural lands in this drainage area over the last twenty years has caused the existing Gila Drain (open ditch) to be inadequate as an outlet, and an improved Gila Drain system must be installed to prevent flooding of the developed area.

History

Prior to the 1960's the Gila Drain was used as an agricultural drain only as controlled by a Salt River Project irrigation agreement with the U.S. Government-Gila Indian Community since the 1920's. Salt River Project inherited the situation from a private irrigation company agreement (1917) that designated the drain for runoff from irrigation tailwater and certain county road drainage.

During the late sixties, the Army Corps of Engineers first studied an enlarged "Gila Drain Project" but rejected it based on an insufficient cost/benefit ratio at that time. A Soil Conservation Service "Gila Drain Project" study in 1972-73 also resulted in an unfunded effort. By the mid-seventies the involved cities realized the imminent flooding problem caused by this insufficient outlet and asked the Maricopa County Flood Control District to take the lead to develop a "Gila Drain Project" that could be constructed as soon as possible.

The group hired a consultant to produce the 1979 Coe and Van Loo report that identified an enlarged "Gila Drain Project" at a cost of more than $11 million. Although funds were allotted, this project never reached the final design stage because the Flood Control District's efforts were unsuccessful in getting the Gila Indian Community's cooperation.

A task force of the cities involved first developed a 1983 "Western Canal Alternate" plan to utilize pumpouts to the Western Canal and Gila Drain along with a storm drain outlet to the Salt River in Phoenix to replace the need for the enlarged Gila Drain. The Dibble-Boyle report prepared for the Flood Control District in 1985 confirmed this alternate, but replaced the Phoenix outlet to the Salt River with the Price Road outfall to the Salt. Out of this plan Tempe now has developed the "Gila Drain Storm Drain and Detention System" project for the portion of the regional solution that is within Tempe.

Current Project Description

Exhibits A through C in the Appendix of this report show the evolution of the Gila Drain Project from the original project in the seventies through the current project. That plan includes the Price Road Outlet to the Salt River, the 48th Street outlet from the Western Canal to the Salt River, the ADOT Pit Detention Basin and Diversion Channel, and the Gila Drain Storm Drain and Detention System. Exhibit D focuses on the Gila Drain Storm Drain and Detention System that is now the last portion of the Gila Drain Project that is within Tempe.

The Gila Drain Storm Drain and Detention System is made up of

(1) A storm drain conduit within the historical Gila Drain alignment between the Western Canal and Knox Road and

(2) A 13 1/2 acre detention basin and pumpout facility at Knox Road.

The City of Tempe has recently completed design of the Knox Road Detention Basin and will be bidding the work within the month. The Gila Drain facility along Rural Road is currently under design and will be constructed in the fall of 1986 (see Exhibit D). The Gila Drain is designed for a capacity of 245 cfs and carries arterial street drainage and overflow from the Western Canal. The Drain will consist of 84" and 96" pipe conduit thereby eliminating the present open ditch between the Western Canal and Knox Road along Rural Road. All waters in excess of 75 cfs will be diverted to the 13 1/2 acre detention basin and then pumped back at a restricted rate to the Gila Drain, south of the basin. A key to this as well as other portions of the current Gila Drain Project - Western Canal Alternatives plan is the pumpout outlet into the Salt River Project's facility after the storm. A 10 cfs outlet has been approved by Salt River Project as noted in their letter that is attached at the end of this report.

Project Cost Summary

A. Land Acquisition

Detention Basin Land-purchased 6/17/85.	Actual cost	$ 525,000.00

B. Construction Cost Estimate

1. Phase I- Spring 1986 construction basin and pump out facility	Final Estimate	$1,737,400.00
2. Phase II- Fall 1986 construction. Gila Drain Storm Drain and diversion structure.	Prelim. Estimate	$2,588,813.00
3. Engineering	Engineering	$ 164,600.00
Gila Drain and Detention Basin	Total Cost	$5,015,813.00

The above costs are for only the principal Gila Drain and the Flood control cost associated with construction of the Knox Road Detention Basin. Local drainage systems and park enhancement of the detention basin have been excluded.

Summary

The Gila Drain Project that accommodates runoff from several jurisdictions has a twenty year history with the Maricopa County Flood Control District playing the primary role in finally precipitating the current solution. The City of Tempe has consistently participated and assisted in each step of development of this project. We now ask for your financial assistance in finally completing the "Gila Drain Project" solution.

#84058 CM

Salt River Project
WATER ◆ POWER

BOX 52025 PHOENIX, AZ 85072-2025

TELEPHONE (602) 236-5900

January 8, 1986

RECEIVED
JAN 13 1986
CITY OF TEMPE
ENGINEERING DIVISION

Mr. Lee Quaas
City Engineer
City of Tempe
P. O. Box 5002
Tempe, Arizona 85281

RE: Request to Discharge - Knox Road Detention Basin

Dear Lee:

SRP has reviewed the City of Tempe's drawings and request for interim discharge capability from the Knox Road Basin into the Gila Drain. The interim discharge is to allow for drainage of the basin from storm water transported from west Tempe through the Kyrene Storm Drain.

Your request for discharge is conceptually approved under the following conditions:

1. Upon completion of the diversion structure, the outfall will be tied into the structure upstream of the radial gate regulating continuation flows in the Gila Drain south of Ray Road.

2. The maximum discharge rate is to be 10 cfs.

3. Discharge of the water would be only post-storm.

The facility identified in your plans for the outfall tie are, however, not acceptable. SRP would require the discharge pipe to be underneath the maintenance road and cut flush with the bank. The maintenance road needs to remain clear to allow operation and maintenance of the ditch. The discharge facility designed for the City of Tempe ADOT Borrow Pit Outfall is acceptable.

With receipt of your final plans, an interim discharge agreement defining the operation of the pumps and outfall will be drafted and forwarded for the City of Tempe's execution.

If you have any questions or comments regarding the detention basin discharge, feel free to call me or Tim Phillips at 236-2956.

Sincerely,

E. C. Friar
Manager - Water Operations

TSP/lc

cc: Chet Andrews
Steve Tanis
Don Womack

tsp126

ORIGINAL GILA DRAIN PROJECT
(1979 REPORT)
SCALE
STATUTE MILES
DIVERSION CHANNEL
ADOT BORROW PIT
ALTERNATIVE-2
DETENTION WITH UPSTREAM GILA DRAIN ENLARGEMENT
ALTERNATIVE-1
TOTAL GILA DRAIN ENLARGEMENT
GILA RIVER INDIAN RESERVATION
SOUTH MOUNTAINS PROJECT
PHOENIX
SOUTH MOUNTAIN PARK
INTERNATIONAL HARVESTER PROVING GROUNDS
LONE BUTTE
TEMPE
Guadalupe
Peterson
HELENA
WEST CHANDLER
SUPERSTITION INTERCHANGE
GILA RIVER
T. 2 S.
R. 2 E.
EXHIBIT-A

PROPOSED GILA DRAIN PROJECT
WESTERN CANAL ALTERNATIVE
1983 TASK FORCE REPORT

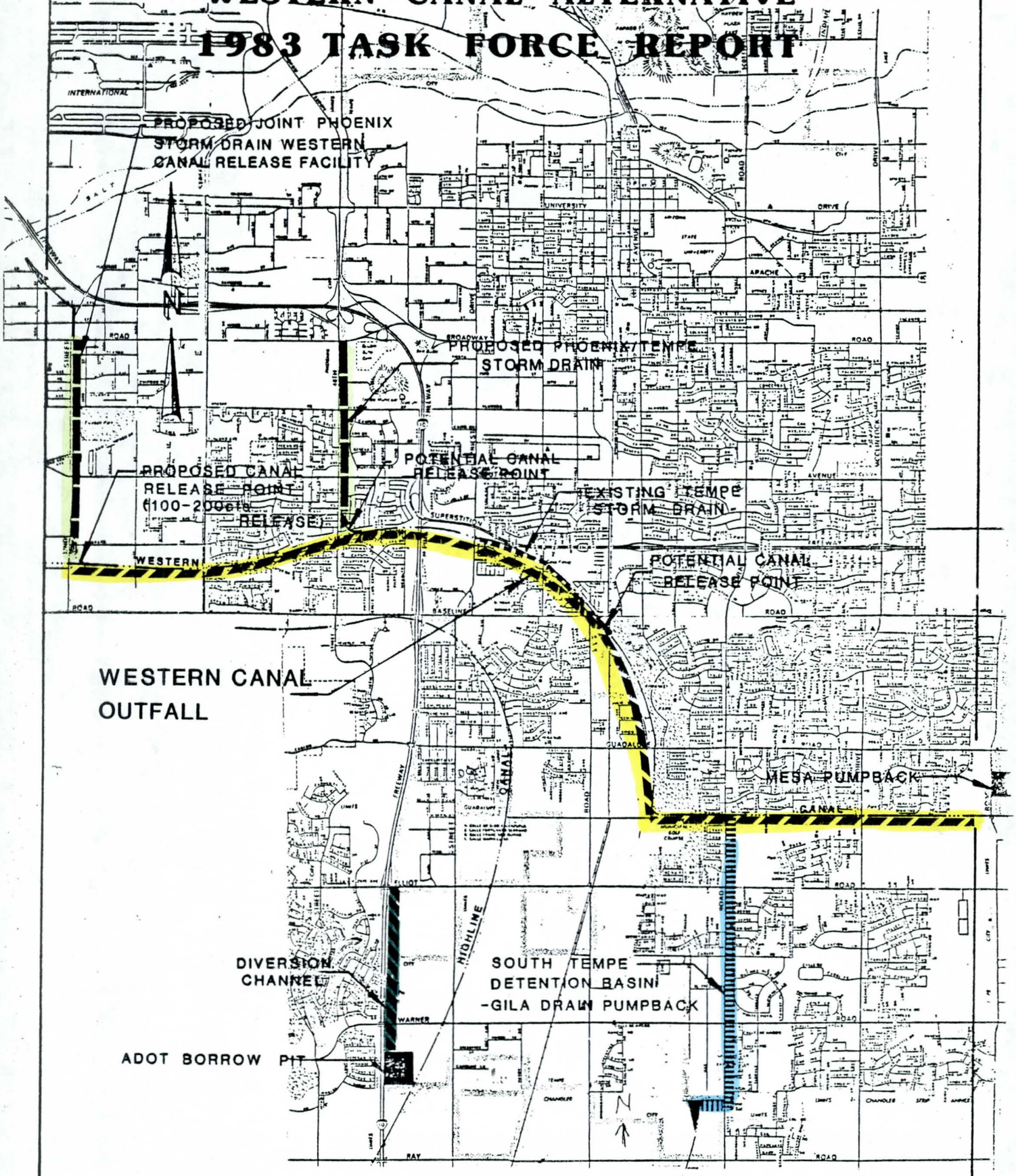

EXHIBIT-B

WESTERN CANAL ALTERNATIVE STUDY
GILA DRAIN PROJECT
(1985 DIBBLE - BOYLE REPORT, ALTERNATIVE 6)

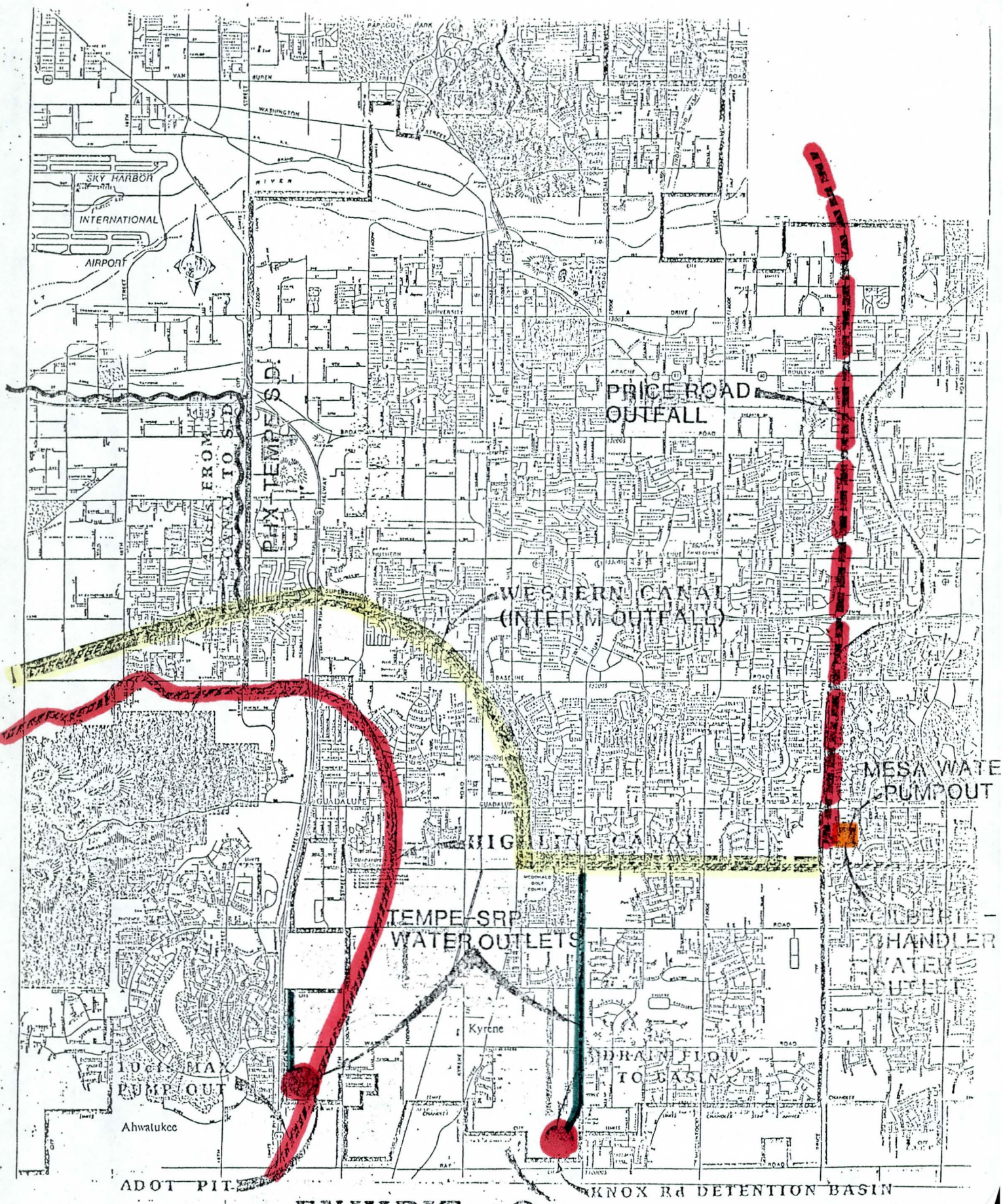

EXHIBIT - C

WESTERN CANAL

STORM DRAIN PHASE
(FALL 1986)

PROJECT NO 83108

PROJECT NO. 83109

PROJECT NO. 84058 B
PHASE - II

RETENTION BASIN
AND PUMPOUT PHASE
(SPRING 1986)

PROJECT NO.
84058A
PHASE -I

STORM DRAIN PHASE
(FALL 1986)

SRP NO. FILE B-112-40.7

City of Tempe-SRP Combination
Storm Drain/Irrigation Waste

DETENTION
BASIN

RETENTION BASIN

ADOT
Pit

Main Street
Hardy
Kyrene Road
Rural Road
Lafayette Drive
McClintock Drive
Kenwood Lane
Price Road
Western Canal
Ellict Road
Corner Road
Warner Road
Knox Road
Roy Road

30"-898'
S=0.0064'/'

24"-1486'
S=0.0064'/'

36"-312'
S=0.00161'/'

24"-840'
S=0.0016'/'

48"-5310'
S=0.0016'/'

35"-1340'
S=0.00181'/'

36"-680'
S=0.0016'/'

84"-5280'
S=0.00068'/'

18"-77', S=0.0696'/'
18"-300', S=0.0024'/'

36"-2590'
S=0.0014'/'

42"-2670'
S=0.0012'/'

18"-77'
S=0.0270'/'

18"-88'
S=0.0024'/'

30"-1320'
S=0.00049'/'

36"-1326'
S=0.00049'/'

36"-1254'
S=0.00064'/'

30"-1320'
S=0.0042'/'

24"-800'
S=0.0022'/'

27"-2640'
S=0.0015'/'

42"-1271'
S=0.00102'/'

36"-1269'
S=0.00136'/'

30"-480'
S=0.00095

18"-835'
S=0.00103'/'

30"-2580'
S=0.00091'/'

36"-2700'
S=0.00064'/'

30"-1320'
S=0.003'/'

54"-1320'
S=0.0040'/'

72"-1320'
S=0.00118

60"-1955'
S=0.00137'/'

54"-2610'
S=0.0017'/'

54"-775'
S=0.0040'/'

96"-2640'
S=0.0016'/'

30"-1320'
S=0.0015'/'

36"-1900'
S=0.001'/'

1000' 500' 0 1000'
SCALE

LEGEND

City of Tempe Corpora
PROPOSED SD P
PIPE SIZE or GM
Q IN PIPE & DIR
AVERAGE PIPE

SOUTH TEMPE
STORM DRAIN
DETENTION BA
ANALYSIS

ALTERNATIVE B

PROPOSED STORM MANAGEMENT FACILITIES

GILA DRAIN STORM DRAIN & DETENTION SYSTEM

EXHIBIT "D"