

# CHAMPION FLOOD PREVENTION RC & D MEASURE

Property of  
Flood Control District of Maricopa County  
Please Return to  
2801 W. Durango  
Phoenix, AZ 85009

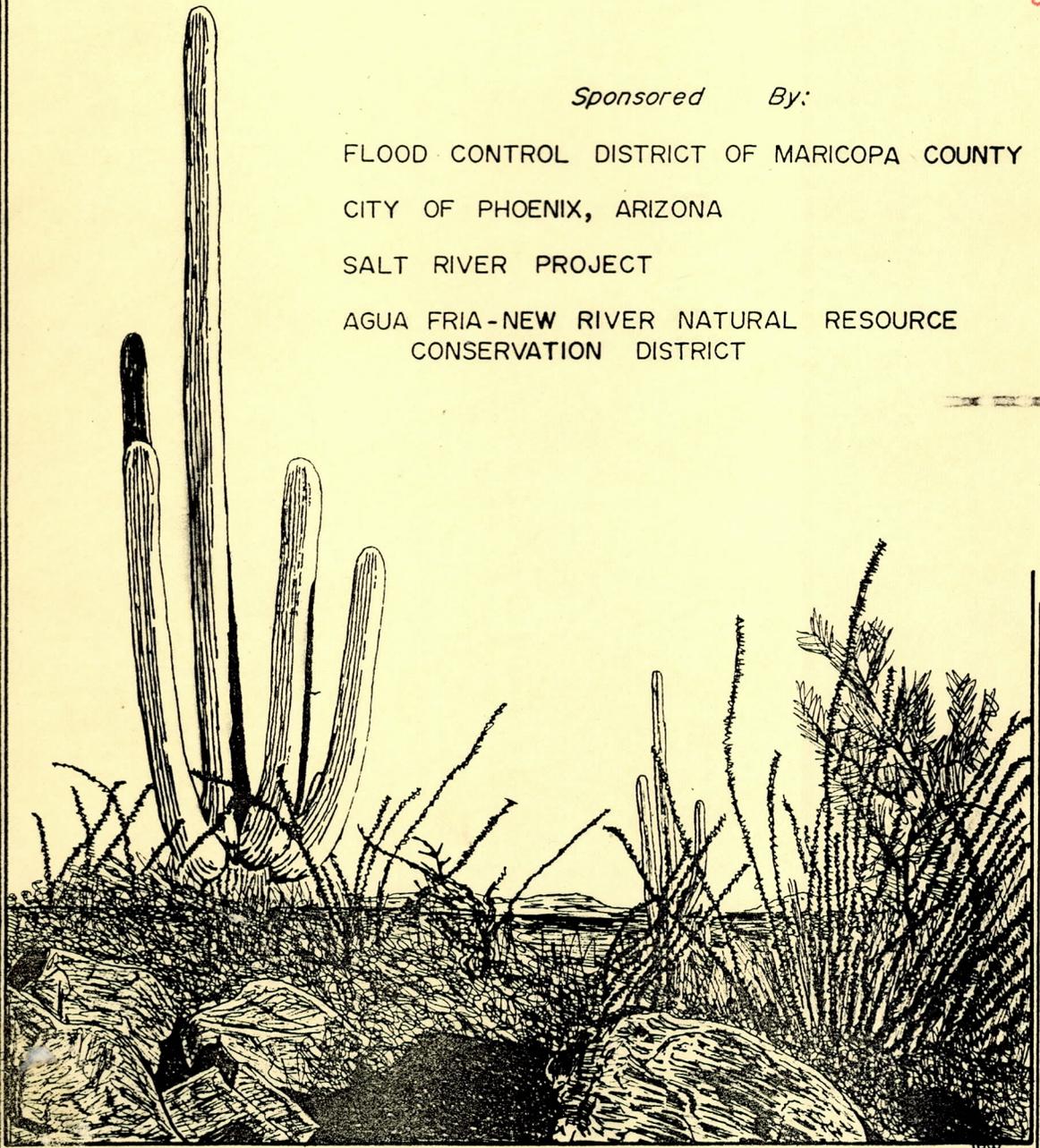
*Sponsored By:*

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CITY OF PHOENIX, ARIZONA

SALT RIVER PROJECT

AGUA FRIA-NEW RIVER NATURAL RESOURCE  
CONSERVATION DISTRICT



Phoenix, Arizona

A109.936

# CHAMPION FLOOD PREVENTION RC & D MEASURE

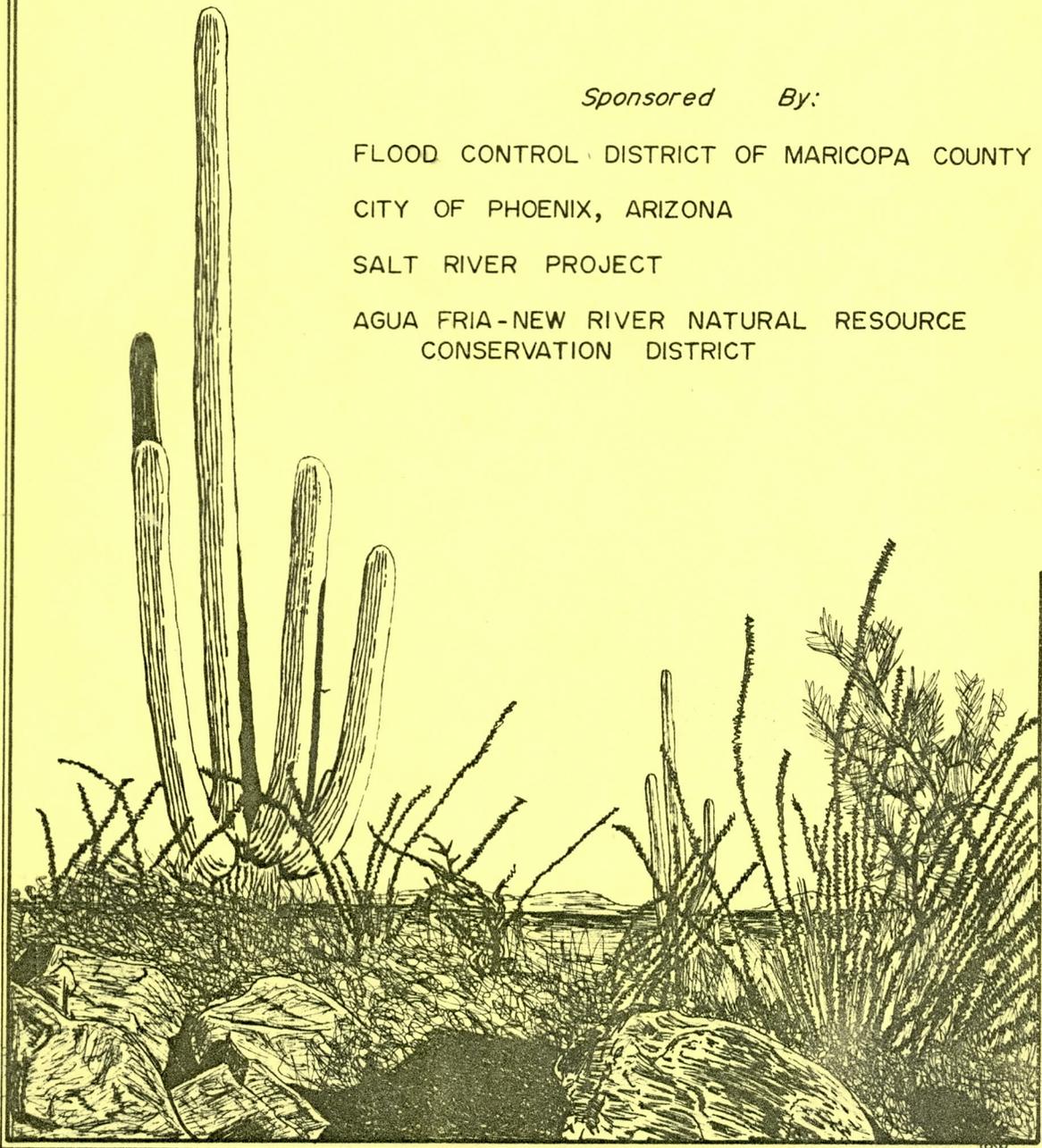
*Sponsored By:*

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CITY OF PHOENIX, ARIZONA

SALT RIVER PROJECT

AGUA FRIA-NEW RIVER NATURAL RESOURCE  
CONSERVATION DISTRICT



Phoenix, Arizona  
June 1976

CHAMPION FLOOD PREVENTION RC&D MEASURE

MARICOPA COUNTY, ARIZONA

Sponsored By:

Flood Control District of Maricopa County, Arizona  
City of Phoenix, Arizona  
Salt River Project, Phoenix, Arizona  
Agua Fria-New River Natural Resource Conservation District

Prepared by the Flood Control District of Maricopa County  
with Assistance from  
U. S. Department of Agriculture  
Soil Conservation Service  
Phoenix, Arizona

June 1976

Prepared under the authority of Section 102 of the Food and Agricultural Act of 1962 (Public Law 87-703) and of the Soil Conservation Act of April 27, 1935 (16 U.S.C. 590 a-f)

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	PLANNING AREA AND RESOURCES	2
	A. THE PLANNING AREA	2
	1. Natural Features	2
	2. Urbanization	3
	3. Climate	4
	4. Rainfall and Floods	5
	5. Description of the Planning Area	6
	B. RESOURCE CAPABILITIES	7
III.	PLANNING OBJECTIVES AND ALTERNATIVES	9
	A. SPONSOR OBJECTIVES	9
	B. ALTERNATIVE PLANNING CONSIDERATIONS	9
IV.	INSTALLATION OF THE SELECTED PLAN	14
	A. METHOD OF FINANCING	14
	B. LAND AND WATER RIGHTS	14
	C. CONTRACTING AND PROCUREMENT	14
V.	OPERATION AND MAINTENANCE	14
VI.	UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION ACT	15
VII.	PLATES	
	A. HYDROLOGY AND DRAINAGE AREA MAP	Plate 1
	B. ALTERNATE OPTIONS MAP	Plate 2
	C. ARIZONA REPUBLIC ARTICLE, JULY 18, 1972	Plate 3

CHAMPION FLOOD PREVENTION RC&D MEASURE

MARICOPA COUNTY, ARIZONA

I. INTRODUCTION

The Flood Control District of Maricopa County, the City of Phoenix, the Salt River Project and the Agua Fria-New River Natural Resource Conservation District are sponsoring this Project as a flood prevention measure due to periodic and repeated flooding which has occurred in this area. The preliminary objective of this Project will be to determine if a flood control project is warranted and then to provide for water relief to the area of study.

This Measure proposal will study the flooding problem and suggest various solutions, if justified, toward alleviation of the problem.

## II. PLANNING AREA AND RESOURCES

### A. THE PLANNING AREA

The project area is located within the Gila River Basin, which is the largest drainage area tributary to the Lower Colorado River. About 70% of this drainage area is mountainous with the remainder being alluvial valley. The mountains are characterized by rugged terrain and steep gradients, while the valleys are fairly flat with regular slopes.

The area pertinent to the flood problem being discussed in this Measure is in Maricopa County in the central part of Arizona (See location map on plates 1 and 2) and comprises approximately 23 square miles. The area is roughly oval with a maximum length and width of approximately 9 and 5 miles respectively.

#### 1. Natural Features (1)

About 90% of the area consists of Quaternary and Tertiary alluvial deposits. Valley floor elevations range from 980 feet in the Salt River bottom at approximately 79th Avenue between Southern Avenue and Baseline Road to 1150 feet at the base of South Mountain. Ground slopes are gentle, varying from 10 to 15 feet per mile to approximately 50 feet per mile in the South Mountain foothills.

Rock outcrops of the Precambrian era, predominantly granite gneiss, occur in the South Mountains (also known as the Salt River Mountains). The mountain slopes are steep, with the tops rising approximately 1250 feet above the valley floor. Because the mountain washes are steep and have a short collection time, the runoff rates can be relatively high.

(1) Extracted in part from: Storm Drainage Report for Maricopa Association of Governments 1970, Yost and Gardner Engineers, Phoenix, Arizona, 1970

Native vegetation is that of the Sonoran Zone, with creosote bush and saguaro the predominant plants on the flats. Palo verde and ironwood line the washes. Mesquite is also prevalent along the water courses, especially in the lower floodplain where it forms dense thickets. Relatively little of the study area is still in its native state. Approximately 20% of the area is urbanized at this time, with the majority of the remaining area being cultivated lands.

None of the natural water courses in the area has a permanent flow. Even the Salt River, the major river in this area, has been dried up by dams and diversions. In the mountainous areas washes are distinct, clearly defined water courses capable of carrying the sizeable flows resulting from intense summer storms. In the middle reaches where land has been farmed or urbanized, the washes tend to disappear and the flows are spread out over the land. These intermediate areas are subject to flooding when exceptionally heavy rainfall occurs. In the urbanized areas the economic losses due to flooding can be severe. The lower washes and river channel have been fairly well preserved because the flood hazards have forestalled permanent construction in these areas.

2. Urbanization (1)

The performance of the ground surface as a conductor of storm water has undergone profound changes in the study area as a result of human activities. Clearing and leveling the ground for flood irrigation of farm lands has obliterated most of the natural washes. The cultivated, more nearly level, bermed fields reduce the amount and rate of runoff

(1) Extracted in part from: Storm Drainage Report for Maricopa Association of Governments 1970, Yost and Gardner Engineers, Phoenix, Arizona, 1970

appreciably. The major agricultural canals generally intersect natural washes at right angles and intercept storm runoff for use in irrigation, or they discharge at wasteways or emergency spillways. The watercourses below these spillways have generally been obliterated.

Urbanization provides a new set of artificial channels in the streets and drains. It affects infiltration into the subsoil by rendering large areas impervious with buildings and pavements. It makes the soil areas that do remain less pervious than they were in their natural state. Urbanization within this Measure area is expected to go from 20% density to 80% density (Medium Density Residential, 3 to 5 units per acre) by 1995. <sup>(1)</sup> Population and land use are of direct interest in planning flood prevention projects as they affect both the amount of runoff to be accommodated and the priority under which drainage works are built.

3. Climate <sup>(2)</sup>

The arid and subtropical climate is characterized by short, mild winters with clear days and cool nights; long hot summers with daytime temperatures usually exceeding 100 degrees Fahrenheit; low annual rainfall; low relative humidity; and a high water evaporation rate. The 90-year mean annual precipitation is approximately 7.8 inches per year. The rainfall is divided about equally between the summer and winter seasons. Mean maximum and minimum January temperatures range from approximately 65 to 35 degrees Fahrenheit in the valley. Mean daily temperatures during July vary from 105 to 70 degrees Fahrenheit within the region. Although prevailing winds are generally rather

- (1) This estimated figure has been compiled from the City of Phoenix 1990 Land Use Study, the Maricopa County Planning Department, Future Land Use - 1980 Study and the VATTs 1995 Residential Projections.
- (2) Indian Bend Wash - Design Memorandum No. 2 (Los Angeles District, U.S.C.E. May, 1975)

light, moderate winds often occur in conjunction with general winter storms. Summer thunderstorms often produce strong gusty winds over local areas.

4. Rainfall and Floods

Three types of storms produce precipitation in this study area - general winter storms, general summer storms and local thunderstorms.

- a. General winter storms, which usually occur during the months of December to March, originate over the Pacific Ocean as a result of the interaction between polar Pacific and tropical Pacific air masses and move eastward over the basin. These storms are accompanied by widespread rainfall and often last for several days.
- b. General summer storms, which occur during the months of July to September, are associated with the influx of tropical maritime air originating over the Gulf of Mexico or South Pacific Ocean and are often accompanied by relatively heavy rainfall over large areas for periods up to 24 hours, with light showers continuing for as long as 3 days.
- c. Local thunderstorms can occur at anytime of the year, even during a general storm. However, they are most common from July to September and cover relatively small areas and result in high-intensity rainfall for durations of 3 hours or less. Severe local storms and floods have occurred in the Phoenix area in the following years: 1921, 1935, 1936, 1939, 1943, 1951, 1954, 1956, 1957, 1967, 1970 and 1972. One of the more severe storms and flood of record for the Measure area occurred June 21-22, 1972. Thus summer thunderstorm had a maximum intensity of 5.25 inches during an estimated two hours in the vicinity of 24th Street and Camelback

Road in Phoenix. Total damages due to flooding (1972 price level) were estimated at \$10.6 million.<sup>(1)</sup> A flood such as this resulting from this type of thunderstorm has a high peak discharge and a relatively short duration.

5. Description of the Planning Area

This alignment of the existing irrigation waste water ditch (shown on plate 1) is generally east-west along the low points of a large swale that runs south of and parallel to the Salt River from about 19th Avenue to the Salt-Gila River junction.

This existing ditch more or less follows the historical alignment of an irrigation ditch dug in the last half of the 19th Century by ranchers in the Salt River Channel area to provide needed water for their ranches and farming endeavors. They named this ditch the "Champion Irrigation Ditch". In the early 1930's this ditch became known as the Maricopa County Drainage District No. 5 Ditch with its' primary usage remaining to provide irrigation waters. As irrigation wells were dug in this area and with the dry up of the Salt River, usage of the ditch changed from providing irrigation waters to providing an irrigation waste water channel for the disposal of excess irrigation waters from the adjoining fields. In the late 1960's the Salt River Project obtained management of this waste water ditch.

The drainage area at the upper end of the proposed Measure (43rd Avenue) is approximately 12 square miles, extending into the Phoenix South Mountains. The total drainage area contributing to the present outlet at 79th Avenue and the Salt River is approximately 23 square miles (see plate 1). Slopes range from gentle in the lower elevation agricultural areas to steep, rocky terrain in the mountains.

(1) Report on Flood of 22 June 1972 Phoenix Metropolitan Area Arizona, U. S. Army Corps of Engineers, Los Angeles District, Oct. 1972.

Land use is generally agricultural with numerous canals and irrigation ditches traversing the area. There are some scattered residential and commercial developments along with some livestock operations and light industry in the area. Natural land conditions prevail in the mountains.

The drainage area includes portions of the City of Phoenix, the community of Laveen and unincorporated areas of Maricopa County and borders on the Gila River Indian Community.

B. Resource Capabilities

At the present time urban development has encroached into an old channel of the Salt River from which storm flows can only drain in the southwesterly direction, parallel to the main channel of the Salt River. Because the area has historically been agricultural land with low runoff potential, there is no existing drainageway for storm flows. It is anticipated that as urban development increases in a southwesterly direction from the present city limits of Phoenix, storm water runoff will continue to increase since much of the permeable lands will be lost to concrete, asphalt and buildings. Runoff will become a more serious problem within the foreseeable future.

Because much of the land in this Measure area is currently undeveloped, an opportunity exists to solve the existing drainage problems and to preclude future drainage problems before they develop at a minimal cost and with reasonable effort.

At the present time the majority of the land within the study area west of 43rd Avenue is agricultural land. Some small subdivisions and individual homesites exist; however, they occupy no more than 10% of the area involved.

Most of the upper watershed has been urbanized or is mountainous terrain within the City of Phoenix's South Mountain Park and presents a potential for high runoff. Soil varies from exposed bedrock within the mountainous area to granular alluvial fan material extending downstream from the foot of the mountains to fine grained silt in the agricultural areas. Steep slopes exist only within the mountains and alluvial fan areas and the potential for soil erosion is confined to these areas. In general, the agricultural areas are naturally of very minimal slope and have been further leveled, where necessary, to make gravity irrigation possible.

The surface water resource, i.e., runoff, generated within the watershed has only very minor possibilities of being captured and utilized for any beneficial purpose. Because of the lack of suitable reservoir locations, the small size of the watershed and the proximity to the Salt River, reclamation of surface water for beneficial use does not appear feasible. Some opportunity exists to allow recharge of the groundwater table by retention or release into the normally dry Salt River bed. This is the best place for groundwater recharging because the dry river bed has the greatest permeable soils and the highest percolation rates in the Measure area.

Opportunities for enhancement of fish and wildlife in the area are minimal because most of the land has either been urbanized or cleared of natural habitat to permit more efficient agricultural practices. Increasing flows into the Salt River bed could encourage and increase riparian habitat. Because the area is mostly undeveloped, a potential exists for development of recreation which will be needed as the area urbanizes. Certain of the alternatives to be presented may possess the potential for recreational

development in conjunction with the main purpose of providing storm drainage.

Although the western portion of the study area borders the Gila River Indian Reservation, it is not anticipated that there will be any areas of great archeological interest.

### III. PLANNING OBJECTIVES AND ALTERNATIVES

#### A. SPONSOR OBJECTIVES

Two of the major objectives of this proposed RC&D Measure are:

1. To study and determine if storm water relief for the entire area or portions of the area is warranted on a cost benefit ratio of better than 1.1 to 1.
2. If the above determination is made, then a total design and construction of a method of relief will be formulated.

Provision for 100-year runoff capacity will be an objective if economic and technical feasibility warrant. Secondary benefits may result from one or more of the alternatives under consideration. These benefits could include recreation, wildlife enhancement and conservation of storm water through groundwater recharge.

#### B. ALTERNATIVE PLANNING CONSIDERATIONS

##### Alternative No. 1 (See Plate 2)

Alternative No. 1 follows the alignment of an existing irrigation and waste water ditch running generally westerly beginning at a point approximately 1/4 mile south of Southern Avenue on the west side of 43rd Avenue. From this point it proceeds westerly and southerly through Section 33, T1N, R2E to the north side of Baseline Road where it proceeds west to 59th Avenue where it crosses Baseline Road and proceeds west along the south side of Baseline Road to approximately 65th Avenue

where it proceeds south and west through Section 6, T1S, R2E and Sections 1 and 2, T1S, R1E to the boundary line of the Gila River Indian Reservation where it proceeds northwesterly to its termination point in the Salt River Channel at approximately 79th Avenue. The length of this ditch is approximately 6 miles.

The existing waste water ditch is an unlined trapezoidal channel 12 feet wide across the top, 5 to 6 feet wide at the bottom, 4 and 5 feet deep with variable side slopes. The channel becomes larger along Baseline Road to its termination at the Salt River, 24 feet wide at the top, 8 to 9 feet wide at the bottom and 10 feet deep with variable side slopes. The existing waste water ditch along this route passes through 2 livestock operations. The longitudinal slopes of the adjacent lands are gentle to almost flat throughout the length of the ditch.

A comparison study of both an unlined and a lined trapezoidal channel will be done to determine the most economical solution. In addition to developing the existing ditch as a flood water relief channel, the present use as an irrigation waste water ditch will be continued as long as required by the adjacent agricultural development.

Alternative No. 2 (See Plate 2)

Alternative No. 2 is the construction of a trapezoidal channel along the east side of 43rd Avenue from Burgess Lane north to the Salt River Channel, approximately 1.25 miles in length. This channel will follow the existing right-of-way of 43rd Avenue from Burgess Lane north to Wier Avenue then continue north across private lands to the Salt River where it will turn west and follow the river channel to approximately

51st Avenue. Land usage along 43rd Avenue is mostly residential with scattered small agricultural areas along the route, and a commercial gravel pit operation located in the Salt River Channel area. The proposed channel will cross two small concrete lined irrigation ditches, one located at approximately Roeser Road and the other along the north side of Wier Avenue. The general slope north toward the Salt River is relatively flat with the Salt River Channel being about 2 to 3 feet lower in elevation than the center line intersection of 43rd Avenue and Burgess Lane. This alternative ditch would follow 43rd Avenue existing right-of-way up to Wier Avenue and may entail acquisition of additional right-of-way to provide for the ditch. From Wier Avenue north to the Salt River, an easement across private lands or fee title to the required right-of-way will have to be obtained as there is no existing right-of-way at this time. As in Alternative No. 1, both a lined and unlined trapezoidal channel will be studied to provide the most economical channel.

Alternative No. 3 (See Plate 2)

Alternative No. 3 consists of enlarging a portion of the existing waste water ditch from 43rd Avenue and Burgess Lane west to the center line of Section 33, T1N, R2E, which is the alignment of 47th Avenue, and constructing a new channel north from this point to the Salt River Channel at the Broadway alignment. This would consist of enlarging about 1/2 mile of the existing ditch, and constructing approximately 1.25 miles of new channel for a total length of 1.75 miles. The general slope of the proposed alignment is relatively flat as most of the route has been graded to provide adequate drainage for irrigated farm lands. The land usage along this proposed route is all

agricultural with only 3 or 4 farm buildings close to the new ditch alignment. At this time almost no existing right-of-way exists along the new ditch alignment and this would require acquiring easements or fee title to all required right-of-way. The proposed route of the new ditch will cross Southern Avenue and 1 or 2 small concrete lined irrigation ditches serving the adjacent farm lands. There is one short portion of 47th Avenue right-of-way approximately 600 feet long connecting Larson Road with Roeser Road which could possibly be utilized for channel right-of-way.

Studies will be done in regards to constructing a lined or unlined trapezoidal channel to provide the most economical and environmentally compatible channel through this area.

Alternative No. 4 (See Plate 2)

Alternative No. 4 consists of enlarging a portion of the existing waste water ditch beginning at 43rd Avenue and Burgess Lane west to the center line of Section 33, T1N, R2E, a length of 1/2 mile and continuing west by constructing a new channel to the east right-of-way of 51st Avenue then proceeding north along the east side of 51st Avenue, across Southern Avenue to the Salt River Channel. The total distance of new channel would be 1.5 miles with a total channel length of 2 miles. The general slope of the canal along the proposed route is generally gentle with the first mile being in irrigated farm lands. The land use for this area is mostly agricultural with light industry along 51st Avenue. No residential buildings are located along the channel route. New right-of-way will be needed for the portion of the new channel from the center line of Section 33 to 51st Avenue and possibly additional right-of-way along the east side of 51st Avenue.

As with the other alternatives, studies will consider both an unlined or a lined trapezoidal channel.

Alternative No. 5 (See Plate 2)

Alternative No. 5 is to be either a lined or unlined trapezoidal channel following the existing route of the waste water ditch through Section 33, T1N, R2E, southerly and westerly to its intersection with 59th Avenue and Baseline Road, a distance of approximately 2.5 miles, and continuing north with the construction of a new lined or unlined trapezoidal channel to the Salt River Channel, a distance of about 1.5 miles for a total of 4 miles. The general slope characteristic of this route is relatively gentle slope with 10 to 12 feet of fall from point of origin to point of termination. The land use along this route is generally agricultural with a small cattle operation and undisturbed lands adjacent to the Salt River Channel. Full width right-of-way will have to be acquired for that portion between the Salt River Channel and Southern Avenue as 59th Avenue ends at Southern Avenue.

Alternative No. 6 (See Plate 2)

Alternative No. 6 consists of the construction of a flood water detention facility located in the NW $\frac{1}{4}$ , NW $\frac{1}{4}$ , Section 34, T1N, R2E. This facility will be sized to detain flood waters generated in that portion of the design watershed located generally east of 43rd Avenue extending south into South Mountain. Studies will be made to determine the size of the detention facility; method of disposal of the flood waters will be either by percolation or controlled discharge into either the existing waste water ditch west of 43rd Avenue or into one of the new flood channels proposed in the other alternatives or a combination of percolation and controlled discharge.

An extensive study will be made into developing the area required for this facility into a public park or a public recreation area, and as a small "short nine" golf course. At the present time there are few public facilities in most of the design watershed and these areas are extremely beneficial and needed for the enhancement of the area and the upgrading of living conditions for the residents of the area.

#### IV. INSTALLATION OF THE SELECTED PLAN

##### A. METHOD OF FINANCING

The Hohokam RC&D Project may provide financing for up to 100% of the actual construction costs of this storm drainage project from appropriations to the Resource Conservation and Development Program. The local sponsors will be responsible for relocating all affected utilities; obtaining all rights-of-way, easements and land rights; administrative costs; and will share in any relocation assistance costs in accordance with Public Law 91-646, 84 Stat. 1894.

##### B. LAND AND WATER RIGHTS

All rights-of-way for construction, operating and maintenance will be secured by drainage easement, construction easement or fee title. There are agreements and permits existing involving the use of the Champion Drainage Ditch. These agreements and permits will be included in the research on land status.

##### C. CONTRACTING AND PROCUREMENT

The approved measure will be installed by contract administered by the Flood Control District of Maricopa County.

#### V. OPERATION AND MAINTENANCE

The Flood Control District of Maricopa County will be responsible for the operation and maintenance of the improvements installed. An operations and maintenance agreement will be entered into between the Flood Control District of Maricopa County and the Soil Conservation Service setting forth operation

and maintenance requirements prior to execution of a project or service agreement. If Alternative No. 6 becomes the approved project and a public park or recreation area is developed, the City of Phoenix Parks and Recreation Department could be responsible for the operation and maintenance of the improvements installed and could enter into the operation and maintenance agreement with the Soil Conservation Service (providing necessary Park and Recreation funds are available). Operation and maintenance work will normally include such actions as clearing and grubbing channels, maintaining and repairing structures, patching street crossings and routine channel or detention basin maintenance.

Inspection of the improvements will be made annually by the Flood Control District of Maricopa County or the City of Phoenix Park and Recreation Department and the Soil Conservation Service for a period of three years. Annual inspections after the third year will be made by the Flood Control District of Maricopa County or the City of Phoenix Park and Recreation Department. Inspection reports will be supplied to the Soil Conservation Service following each inspection. Upon request, the Hohokam Resource Conservation and Development Project will provide technical assistance for needed maintenance work.

#### VI. UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION ACT

Investigation has shown that under present conditions, this RC&D Measure will not result in the displacement of any person, business or farm operation. However, if relocations become necessary, relocation payments will be cost shared in accordance with mutually acceptable percentages.

# CHAMPION FLOOD PREVENTION R C & D MEASURE

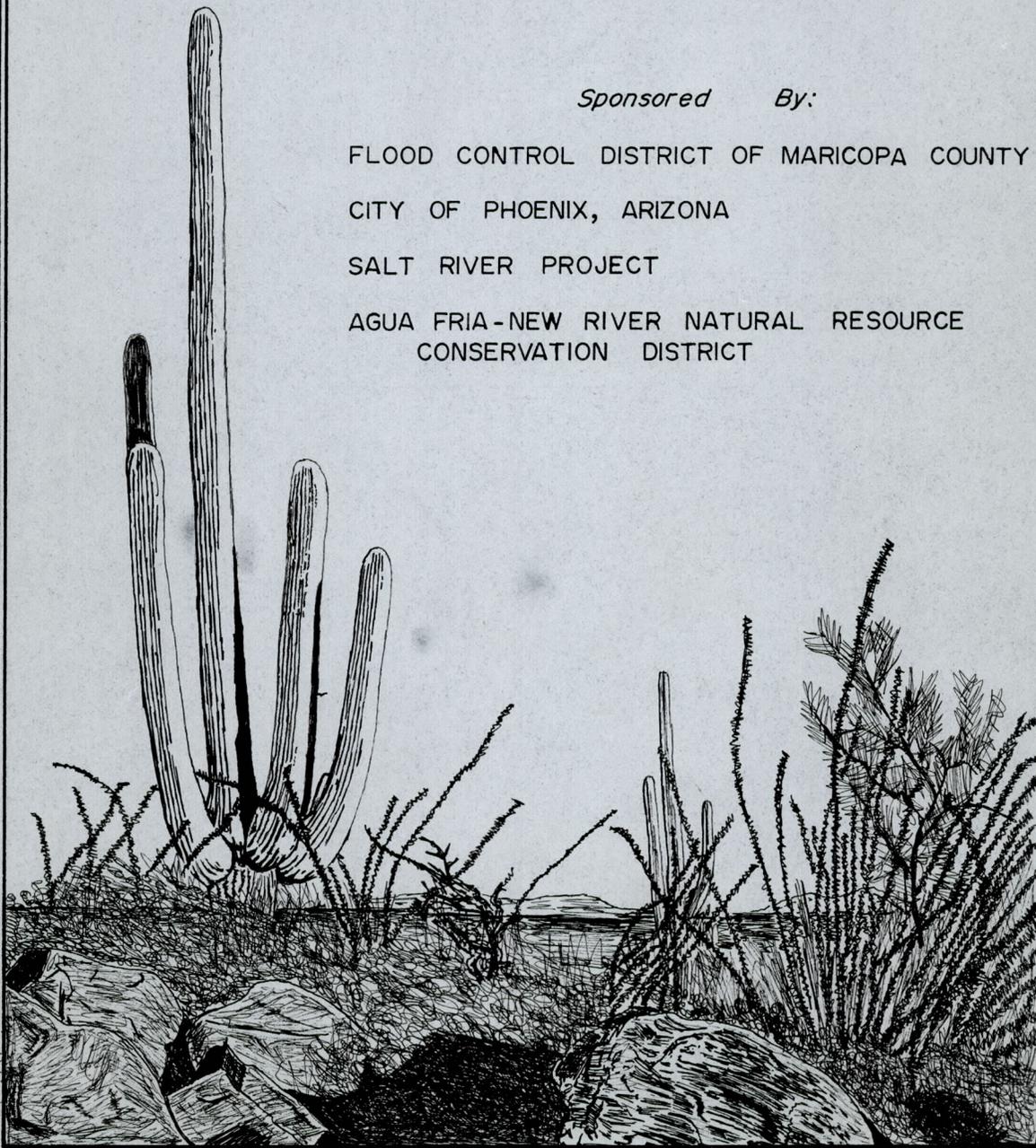
*Sponsored By:*

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CITY OF PHOENIX, ARIZONA

SALT RIVER PROJECT

AGUA FRIA-NEW RIVER NATURAL RESOURCE  
CONSERVATION DISTRICT



Phoenix, Arizona

CHAMPION FLOOD PREVENTION RC&D MEASURE

MARICOPA COUNTY, ARIZONA

Sponsored By:

Flood Control District of Maricopa County, Arizona  
City of Phoenix, Arizona  
Salt River Project, Phoenix, Arizona  
Agua Fria-New River Natural Resource Conservation District

Prepared by the Flood Control District of Maricopa County  
with Assistance from  
U. S. Department of Agriculture  
Soil Conservation Service  
Phoenix, Arizona

September 1976

Prepared under the authority of Section 102 of the Food and Agricultural  
Act of 1962 (Public Law 87-703) and of the Soil Conservation Act of April 27,  
1935 (16 U.S.C. 590 a-f)

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	PLANNING AREA AND RESOURCES	2
	A. THE PLANNING AREA	2
	1. Natural Features	2
	2. Urbanization	3
	3. Climate	4
	4. Rainfall and Floods	5
	5. Description of the Planning Area	6
	B. RESOURCE CAPABILITIES	7
III.	PLANNING OBJECTIVES AND ALTERNATIVES	9
	A. SPONSOR OBJECTIVES	9
	B. ALTERNATIVE PLANNING CONSIDERATIONS	9
IV.	INSTALLATION OF THE SELECTED PLAN	14
	A. METHOD OF FINANCING	14
	B. LAND AND WATER RIGHTS	14
	C. CONTRACTING AND PROCUREMENT	14
V.	OPERATION AND MAINTENANCE	14
VI.	UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION ACT	15
VII.	PLATES	
	A. HYDROLOGY AND DRAINAGE AREA MAP	Plate 1
	B. ALTERNATE OPTIONS MAP	Plate 2
	C. ARIZONA REPUBLIC ARTICLE, JULY 18, 1972	Plate 3

CHAMPION FLOOD PREVENTION RC&D MEASURE

MARICOPA COUNTY, ARIZONA

I. INTRODUCTION

The Flood Control District of Maricopa County, the City of Phoenix, the Salt River Project and the Agua Fria-New River Natural Resource Conservation District are sponsoring this Project as a flood prevention measure due to periodic and repeated flooding which has occurred in this area. The preliminary objective of this Project will be to determine if a flood control project is warranted and then to provide for water relief to the area of study.

This Measure proposal will study the flooding problem and suggest various solutions, if justified, toward alleviation of the problem.

## II. PLANNING AREA AND RESOURCES

### A. THE PLANNING AREA

The project area is located within the Gila River Basin, which is the largest drainage area tributary to the Lower Colorado River. About 70% of this drainage area is mountainous with the remainder being alluvial valley. The mountains are characterized by rugged terrain and steep gradients, while the valleys are fairly flat with regular slopes.

The area pertinent to the flood problem being discussed in this Measure is in Maricopa County in the central part of Arizona (See location map on plates 1 and 2) and comprises approximately 23 square miles. The area is roughly oval with a maximum length and width of approximately 9 and 5 miles respectively.

#### 1. Natural Features (1)

About 90% of the area consists of Quaternary and Tertiary alluvial deposits. Valley floor elevations range from 980 feet in the Salt River bottom at approximately 79th Avenue between Southern Avenue and Baseline Road to 1150 feet at the base of South Mountain. Ground slopes are gentle, varying from 10 to 15 feet per mile to approximately 50 feet per mile in the South Mountain foothills.

Rock outcrops of the Precambrian era, predominantly granite gneiss, occur in the South Mountains (also known as the Salt River Mountains). The mountain slopes are steep, with the tops rising approximately 1250 feet above the valley floor. Because the mountain washes are steep and have a short collection time, the runoff rates can be relatively high.

(1) Extracted in part from: Storm Drainage Report for Maricopa Association of Governments 1970, Yost and Gardner Engineers, Phoenix, Arizona, 1970

Native vegetation is that of the Sonoran Zone, with creosote bush and saguaro the predominant plants on the flats. Palo verde and ironwood line the washes. Mesquite is also prevalent along the water courses, especially in the lower floodplain where it forms dense thickets. Relatively little of the study area is still in its native state. Approximately 20% of the area is urbanized at this time, with the majority of the remaining area being cultivated lands.

None of the natural water courses in the area has a permanent flow. Even the Salt River, the major river in this area, has been dried up by dams and diversions. In the mountainous areas washes are distinct, clearly defined water courses capable of carrying the sizeable flows resulting from intense summer storms. In the middle reaches where land has been farmed or urbanized, the washes tend to disappear and the flows are spread out over the land. These intermediate areas are subject to flooding when exceptionally heavy rainfall occurs. In the urbanized areas the economic losses due to flooding can be severe. The lower washes and river channel have been fairly well preserved because the flood hazards have forestalled permanent construction in these areas.

## 2. Urbanization (1)

The performance of the ground surface as a conductor of storm water has undergone profound changes in the study area as a result of human activities. Clearing and leveling the ground for flood irrigation of farm lands has obliterated most of the natural washes. The cultivated, more nearly level, bermed fields reduce the amount and rate of runoff

(1) Extracted in part from: Storm Drainage Report for Maricopa Association of Governments 1970, Yost and Gardner Engineers, Phoenix, Arizona, 1970

appreciably. The major agricultural canals generally intersect natural washes at right angles and intercept storm runoff for use in irrigation, or they discharge at wasteways or emergency spillways. The watercourses below these spillways have generally been obliterated.

Urbanization provides a new set of artificial channels in the streets and drains. It affects infiltration into the subsoil by rendering large areas impervious with buildings and pavements. It makes the soil areas that do remain less pervious than they were in their natural state. Urbanization within this Measure area is expected to go from 20% density to 80% density (Medium Density Residential, 3 to 5 units per acre) by 1995. <sup>(1)</sup> Population and land use are of direct interest in planning flood prevention projects as they affect both the amount of runoff to be accommodated and the priority under which drainage works are built.

### 3. Climate <sup>(2)</sup>

The arid and subtropical climate is characterized by short, mild winters with clear days and cool nights; long hot summers with daytime temperatures usually exceeding 100 degrees Fahrenheit; low annual rainfall; low relative humidity; and a high water evaporation rate. The 90-year mean annual precipitation is approximately 7.8 inches per year. The rainfall is divided about equally between the summer and winter seasons. Mean maximum and minimum January temperatures range from approximately 65 to 35 degrees Fahrenheit in the valley. Mean daily temperatures during July vary from 105 to 70 degrees Fahrenheit within the region. Although prevailing winds are generally rather

- (1) This estimated figure has been compiled from the City of Phoenix 1990 Land Use Study, the Maricopa County Planning Department, Future Land Use - 1980 Study and the VATTS 1995 Residential Projections.
- (2) Indian Bend Wash - Design Memorandum No. 2 (Los Angeles District, U.S.C.E. May, 1975)

light, moderate winds often occur in conjunction with general winter storms. Summer thunderstorms often produce strong gusty winds over local areas.

#### 4. Rainfall and Floods

Three types of storms produce precipitation in this study area - general winter storms, general summer storms and local thunderstorms.

- a. General winter storms, which usually occur during the months of December to March, originate over the Pacific Ocean as a result of the interaction between polar Pacific and tropical Pacific air masses and move eastward over the basin. These storms are accompanied by widespread rainfall and often last for several days.
- b. General summer storms, which occur during the months of July to September, are associated with the influx of tropical maritime air originating over the Gulf of Mexico or South Pacific Ocean and are often accompanied by relatively heavy rainfall over large areas for periods up to 24 hours, with light showers continuing for as long as 3 days.
- c. Local thunderstorms can occur at anytime of the year, even during a general storm. However, they are most common from July to September and cover relatively small areas and result in high-intensity rainfall for durations of 3 hours or less. Severe local storms and floods have occurred in the Phoenix area in the following years: 1921, 1935, 1936, 1939, 1943, 1951, 1954, 1956, 1957, 1967, 1970 and 1972. One of the more severe storms and flood of record for the Measure area occurred June 21-22, 1972. This summer thunderstorm had a maximum intensity of 5.25 inches during an estimated two hours in the vicinity of 24th Street and Camelback

Road in Phoenix. Total damages due to flooding (1972 price level) were estimated at \$10.6 million.<sup>(1)</sup> A flood such as this resulting from this type of thunderstorm has a high peak discharge and a relatively short duration.

5. Description of the Planning Area

This alignment of the existing irrigation waste water ditch (shown on plate 1) is generally east-west along the low points of a large swale that runs south of and parallel to the Salt River from about 19th Avenue to the Salt-Gila River junction.

This existing ditch more or less follows the historical alignment of an irrigation ditch dug in the last half of the 19th Century by ranchers in the Salt River Channel area to provide needed water for their ranches and farming endeavors. They named this ditch the "Champion Irrigation Ditch". In the early 1930's this ditch became known as the Maricopa County Drainage District No. 5 Ditch with its' primary usage remaining to provide irrigation waters. As irrigation wells were dug in this area and with the dry up of the Salt River, usage of the ditch changed from providing irrigation waters to providing an irrigation waste water channel for the disposal of excess irrigation waters from the adjoining fields. In the late 1960's the Salt River Project obtained management of this waste water ditch.

The drainage area at the upper end of the proposed Measure (43rd Avenue) is approximately 12 square miles, extending into the Phoenix South Mountains. The total drainage area contributing to the present outlet at 79th Avenue and the Salt River is approximately 23 square miles (see plate 1). Slopes range from gentle in the lower elevation agricultural areas to steep, rocky terrain in the mountains.

(1) Report on Flood of 22 June 1972 Phoenix Metropolitan Area Arizona, U. S. Army Corps of Engineers, Los Angeles District, Oct. 1972.

Land use is generally agricultural with numerous canals and irrigation ditches traversing the area. There are some scattered residential and commercial developments along with some livestock operations and light industry in the area. Natural land conditions prevail in the mountains.

The drainage area includes portions of the City of Phoenix, the community of Laveen and unincorporated areas of Maricopa County and borders on the Gila River Indian Community.

B. Resource Capabilities

At the present time urban development has encroached into an old channel of the Salt River from which storm flows can only drain in the southwesterly direction, parallel to the main channel of the Salt River. Because the area has historically been agricultural land with low runoff potential, there is no existing drainageway for storm flows. It is anticipated that as urban development increases in a southwesterly direction from the present city limits of Phoenix, storm water runoff will continue to increase since much of the permeable lands will be lost to concrete, asphalt and buildings. Runoff will become a more serious problem within the foreseeable future.

Because much of the land in this Measure area is currently undeveloped, an opportunity exists to solve the existing drainage problems and to preclude future drainage problems before they develop at a minimal cost and with reasonable effort.

At the present time the majority of the land within the study area west of 43rd Avenue is agricultural land. Some small subdivisions and individual homesites exist; however, they occupy no more than 10% of the area involved.

Most of the upper watershed has been urbanized or is mountainous terrain within the City of Phoenix's South Mountain Park and presents a potential for high runoff. Soil varies from exposed bedrock within the mountainous area to granular alluvial fan material extending downstream from the foot of the mountains to fine grained silt in the agricultural areas. Steep slopes exist only within the mountains and alluvial fan areas and the potential for soil erosion is confined to these areas. In general, the agricultural areas are naturally of very minimal slope and have been further leveled, where necessary, to make gravity irrigation possible.

The surface water resource, i.e., runoff, generated within the watershed has only very minor possibilities of being captured and utilized for any beneficial purpose. Because of the lack of suitable reservoir locations, the small size of the watershed and the proximity to the Salt River, reclamation of surface water for beneficial use does not appear feasible. Some opportunity exists to allow recharge of the groundwater table by retention or release into the normally dry Salt River bed. This is the best place for groundwater recharging because the dry river bed has the greatest permeable soils and the highest percolation rates in the Measure area.

Opportunities for enhancement of fish and wildlife in the area are minimal because most of the land has either been urbanized or cleared of natural habitat to permit more efficient agricultural practices. Increasing flows into the Salt River bed could encourage and increase riparian habitat. Because the area is mostly undeveloped, a potential exists for development of recreation which will be needed as the area urbanizes. Certain of the alternatives to be presented may possess the potential for recreational

development in conjunction with the main purpose of providing storm drainage.

Although the western portion of the study area borders the Gila River Indian Reservation, it is not anticipated that there will be any areas of great archeological interest.

### III. PLANNING OBJECTIVES AND ALTERNATIVES

#### A. SPONSOR OBJECTIVES

Two of the major objectives of this proposed RC&D Measure are:

1. To study and determine if storm water relief for the entire area or portions of the area is warranted on a cost benefit ratio of better than 1.1 to 1.
2. If the above determination is made, then a total design and construction of a method of relief will be formulated.

Provision for 100-year runoff capacity will be an objective if economic and technical feasibility warrant. Secondary benefits may result from one or more of the alternatives under consideration. These benefits could include recreation, wildlife enhancement and conservation of storm water through groundwater recharge.

#### B. ALTERNATIVE PLANNING CONSIDERATIONS

##### Alternative No. 1 (See Plate 2)

Alternative No. 1 follows the alignment of an existing irrigation and waste water ditch running generally westerly beginning at a point approximately 1/4 mile south of Southern Avenue on the west side of 43rd Avenue. From this point it proceeds westerly and southerly through Section 33, T1N, R2E to the north side of Baseline Road where it proceeds west to 59th Avenue where it crosses Baseline Road and proceeds west along the south side of Baseline Road to approximately 65th Avenue

where it proceeds south and west through Section 6, T1S, R2E and Sections 1 and 2, T1S, R1E to the boundary line of the Gila River Indian Reservation where it proceeds northwesterly to its termination point in the Salt River Channel at approximately 79th Avenue. The length of this ditch is approximately 6 miles.

The existing waste water ditch is an unlined trapezoidal channel 12 feet wide across the top, 5 to 6 feet wide at the bottom, 4 and 5 feet deep with variable side slopes. The channel becomes larger along Baseline Road to its termination at the Salt River, 24 feet wide at the top, 8 to 9 feet wide at the bottom and 10 feet deep with variable side slopes. The existing waste water ditch along this route passes through 2 livestock operations. The longitudinal slopes of the adjacent lands are gentle to almost flat throughout the length of the ditch.

A comparison study of both an unlined and a lined trapezoidal channel will be done to determine the most economical solution. In addition to developing the existing ditch as a flood water relief channel, the present use as an irrigation waste water ditch will be continued as long as required by the adjacent agricultural development.

Alternative No. 2 (See Plate 2)

Alternative No. 2 is the construction of a trapezoidal channel along the east side of 43rd Avenue from Burgess Lane north to the Salt River Channel, approximately 1.25 miles in length. This channel will follow the existing right-of-way of 43rd Avenue from Burgess Lane north to Wier Avenue then continue north across private lands to the Salt River where it will turn west and follow the river channel to approximately

51st Avenue. Land usage along 43rd Avenue is mostly residential with scattered small agricultural areas along the route, and a commercial gravel pit operation located in the Salt River Channel area. The proposed channel will cross two small concrete lined irrigation ditches, one located at approximately Roeser Road and the other along the north side of Wier Avenue. The general slope north toward the Salt River is relatively flat with the Salt River Channel being about 2 to 3 feet lower in elevation than the center line intersection of 43rd Avenue and Burgess Lane. This alternative ditch would follow 43rd Avenue existing right-of-way up to Wier Avenue and may entail acquisition of additional right-of-way to provide for the ditch. From Wier Avenue north to the Salt River, an easement across private lands or fee title to the required right-of-way will have to be obtained as there is no existing right-of-way at this time. As in Alternative No. 1, both a lined and unlined trapezoidal channel will be studied to provide the most economical channel.

Alternative No. 3 (See Plate 2)

Alternative No. 3 consists of enlarging a portion of the existing waste water ditch from 43rd Avenue and Burgess Lane west to the center line of Section 33, T1N, R2E, which is the alignment of 47th Avenue, and constructing a new channel north from this point to the Salt River Channel at the Broadway alignment. This would consist of enlarging about 1/2 mile of the existing ditch, and constructing approximately 1.25 miles of new channel for a total length of 1.75 miles. The general slope of the proposed alignment is relatively flat as most of the route has been graded to provide adequate drainage for irrigated farm lands. The land usage along this proposed route is all

agricultural with only 3 or 4 farm buildings close to the new ditch alignment. At this time almost no existing right-of-way exists along the new ditch alignment and this would require acquiring easements or fee title to all required right-of-way. The proposed route of the new ditch will cross Southern Avenue and 1 or 2 small concrete lined irrigation ditches serving the adjacent farm lands. There is one short portion of 47th Avenue right-of-way approximately 600 feet long connecting Larson Road with Roeser Road which could possibly be utilized for channel right-of-way.

Studies will be done in regards to constructing a lined or unlined trapezoidal channel to provide the most economical and environmentally compatible channel through this area.

Alternative No. 4 (See Plate 2)

Alternative No. 4 consists of enlarging a portion of the existing waste water ditch beginning at 43rd Avenue and Burgess Lane west to the center line of Section 33, T1N, R2E, a length of 1/2 mile and continuing west by constructing a new channel to the east right-of-way of 51st Avenue then proceeding north along the east side of 51st Avenue, across Southern Avenue to the Salt River Channel. The total distance of new channel would be 1.5 miles with a total channel length of 2 miles. The general slope of the canal along the proposed route is generally gentle with the first mile being in irrigated farm lands. The land use for this area is mostly agricultural with light industry along 51st Avenue. No residential buildings are located along the channel route. New right-of-way will be needed for the portion of the new channel from the center line of Section 33 to 51st Avenue and possibly additional right-of-way along the east side of 51st Avenue.

As with the other alternatives, studies will consider both an unlined or a lined trapezoidal channel.

Alternative No. 5 (See Plate 2)

Alternative No. 5 is to be either a lined or unlined trapezoidal channel following the existing route of the waste water ditch through Section 33, T1N, R2E, southerly and westerly to its intersection with 59th Avenue and Baseline Road, a distance of approximately 2.5 miles, and continuing north with the construction of a new lined or unlined trapezoidal channel to the Salt River Channel, a distance of about 1.5 miles for a total of 4 miles. The general slope characteristic of this route is relatively gentle slope with 10 to 12 feet of fall from point of origin to point of termination. The land use along this route is generally agricultural with a small cattle operation and undisturbed lands adjacent to the Salt River Channel. Full width right-of-way will have to be acquired for that portion between the Salt River Channel and Southern Avenue as 59th Avenue ends at Southern Avenue.

Alternative No. 6 (See Plate 2)

Alternative No. 6 consists of the construction of a flood water detention facility located in the NW $\frac{1}{4}$ , NW $\frac{1}{4}$ , Section 34, T1N, R2E. This facility will be sized to detain flood waters generated in that portion of the design watershed located generally east of 43rd Avenue extending south into South Mountain. Studies will be made to determine the size of the detention facility; method of disposal of the flood waters will be either by percolation or controlled discharge into either the existing waste water ditch west of 43rd Avenue or into one of the new flood channels proposed in the other alternatives or a combination of percolation and controlled discharge.

An extensive study will be made into developing the area required for this facility into a public park or a public recreation area, and as a small "short nine" golf course. At the present time there are few public facilities in most of the design watershed and these areas are extremely beneficial and needed for the enhancement of the area and the upgrading of living conditions for the residents of the area.

IV. INSTALLATION OF THE SELECTED PLAN

A. METHOD OF FINANCING

The Hohokam RC&D Project may provide financing for up to 100% of the actual construction costs of this storm drainage project from appropriations to the Resource Conservation and Development Program. The local sponsors will be responsible for relocating all affected utilities; obtaining all rights-of-way, easements and land rights; administrative costs; and will share in any relocation assistance costs in accordance with Public Law 91-646, 84 Stat. 1894.

B. LAND AND WATER RIGHTS

All rights-of-way for construction, operating and maintenance will be secured by drainage easement, construction easement or fee title. There are agreements and permits existing involving the use of the Champion Drainage Ditch. These agreements and permits will be included in the research on land status.

C. CONTRACTING AND PROCUREMENT

The approved measure will be installed by contract administered by the Flood Control District of Maricopa County.

V. OPERATION AND MAINTENANCE

The Flood Control District of Maricopa County will be responsible for the operation and maintenance of the improvements installed. An operations and maintenance agreement will be entered into between the Flood Control District of Maricopa County and the Soil Conservation Service setting forth operation

and maintenance requirements prior to execution of a project or service agreement. If Alternative No. 6 becomes the approved project and a public park or recreation area is developed, the City of Phoenix Parks and Recreation Department could be responsible for the operation and maintenance of the improvements installed and could enter into the operation and maintenance agreement with the Soil Conservation Service (providing necessary Park and Recreation funds are available). Operation and maintenance work will normally include such actions as clearing and grubbing channels, maintaining and repairing structures, patching street crossings and routine channel or detention basin maintenance.

Inspection of the improvements will be made annually by the Flood Control District of Maricopa County or the City of Phoenix Parks and Recreation Department and the Soil Conservation Service for a period of three years. Annual inspections after the third year will be made by the Flood Control District of Maricopa County or the City of Phoenix Park and Recreation Department. Inspection reports will be supplied to the Soil Conservation Service following each inspection. Upon request, the Hohokam Resource Conservation and Development Project will provide technical assistance for needed maintenance work.

VI. UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION ACT

Investigation has shown that under present conditions, this RC&D Measure will not result in the displacement of any person, business, or farm operation. However, if relocations become necessary, relocation payments will be cost shared in accordance with mutually acceptable percentages.

# Home buyers allege building defects

(LAS CASAS GRANDES)

A southwest Phoenix homeowners' group last night vowed to complain to the local Federal Housing Administration office concerning alleged shoddy workmanship by the builder of their homes, Saturn Builders, Inc., 4117 Alta Vista Road.

The group lead by Mrs. Nancy McClary, 4027 W. Alta Vista Road, met at the South Meadows Teen Center, 3943 W. Southern.

Mrs. McClary, a candidate for the Arizona House of Representatives from District 6, told the 20 persons in attendance that a survey of several of about 30 Saturn-built houses had revealed "bad quality, leaking roofs, cracks in walls, drains that don't work, backyards that sink, ceilings that fall down, faults in bathtubs, floors and carports in almost every house."

Jo Jo Armstrong, owner of Saturn Builders, refused to respond to the charges when contacted by The Arizona Republic last night.

"You print anything you want to baby," he said.

The development is bounded by 41st and 43rd Avenues, Southern Avenue and Alta Vista Road, she said.

She said Saturn has 20 homes under construction there and plans to build 75 more in addition to the 30 or so already built.

Mrs. McCleary said the development is in the middle of an old river bed, a fact that buyers were not told before they purchased homes. About 20 homes were flooded during the June 21-22 floods, she said.

"Nobody knew they had bought homes in what used to be a duckpond," she said.

Complaints about this and about poor workmanship will go into letters from homeowners to the local FHA office, she said, since most of the homes are being purchased with FHA loans.

The group hopes the FHA will force the builders to make repairs after an inspection is made, Mrs. McCleary said.

She said Phoenix city officials have told Saturn that no more building permits for the development will be issued

until the builders provide for flood control for the houses to be built.

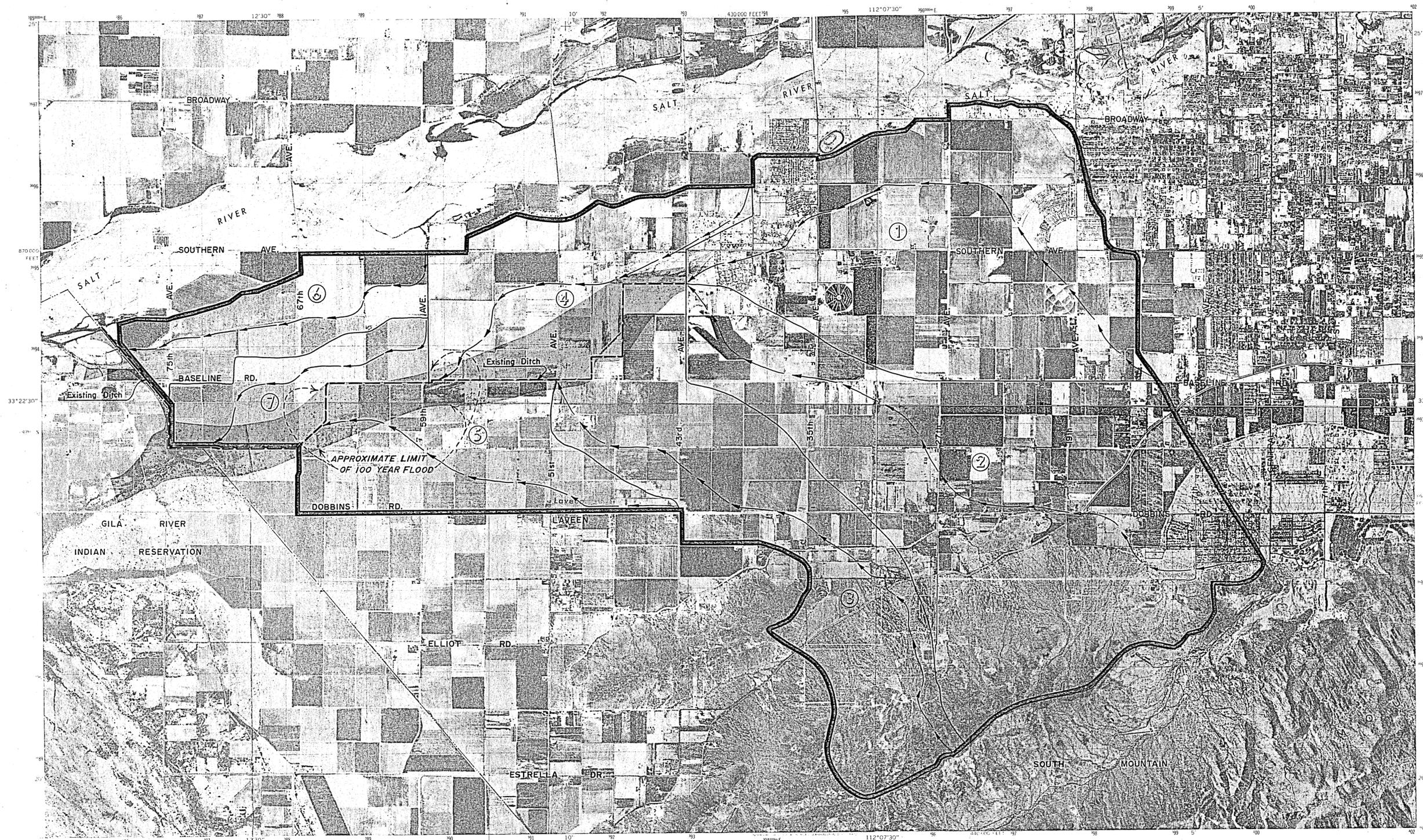
Building permits for the first houses were issued by the county before the city annexed the area in February, she said.

Mrs. Robert Clay, 4137 W. Vineyard, told the group that talks with suppliers and contractors about the defects in the Saturn homes had indicated the builders used substandard materials.

Among defects noted were a 15-foot crack in a bedroom wall "big enough to see the neighbors through," an uncapped septic tank that collapsed, and floor tile which was worn out in a few months by normal use, she said.

Those attending the meeting included the group's attorney, Kenneth Skiff, and the Rev. Kenneth Kilian of Peace Lutheran Church, 306 E. Monte Way. Kilian, chairman of the South of the Salt Planning Association, pledged the support of SOS to the homeowners.

From the July 18, 1972 issue of the Arizona Republic Newspaper.

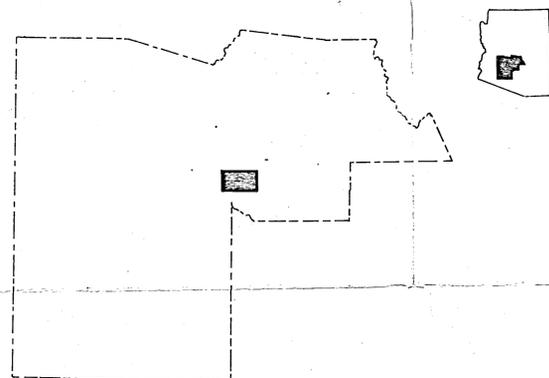


# CHAMPION DRAIN DITCH

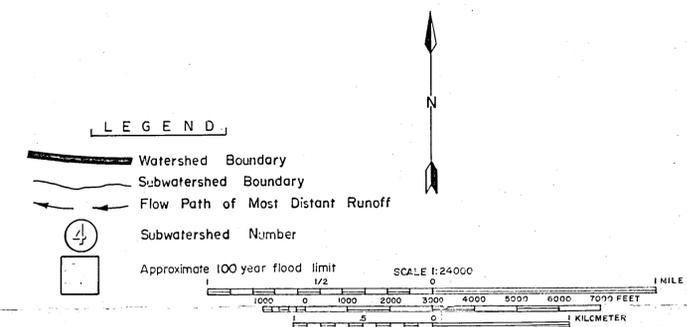
## STORM DRAINAGE AND FLOOD PROTECTION PROJECT

### HYDROLOGY and DRAINAGE AREA

SPONSORS: Flood Control District of Maricopa County  
 City of Phoenix  
 Salt River Project  
 and  
 Agua Fria - New River Natural Resource Conservation District



LOCATION MAP



Presented to MEASURES COMMITTEE, \_\_\_\_\_, 1976



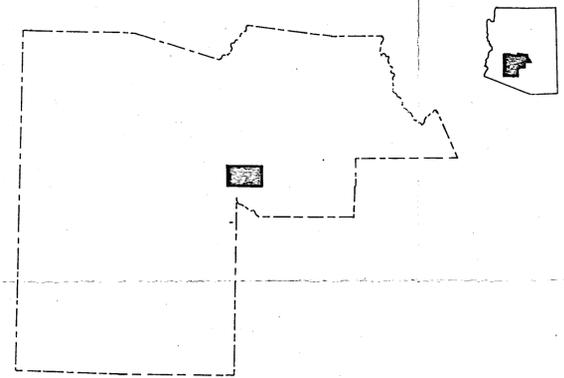
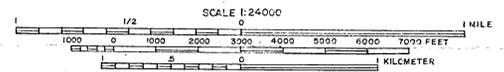
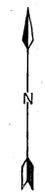
# CHAMPION DRAIN DITCH

## STORM DRAINAGE AND FLOOD PROTECTION PROJECT

### ALTERNATE OPTIONS

**SPONSORS:** Flood Control District of Maricopa County  
 City of Phoenix  
 Salt River Project  
 and  
 Agua Fria - New River Natural Resource Conservation District

- LEGEND**
- ① ALTERNATE NUMBER
  - 33 SECTION NUMBER



LOCATION MAP

Presented to MEASURES COMMITTEE, \_\_\_\_\_, 1976

# Home buyers allege building defects

(LAS CASAS GRANDES)

A southwest Phoenix homeowners' group last night vowed to complain to the local Federal Housing Administration office concerning alleged shoddy workmanship by the builder of their homes, Saturn Builders, Inc., 4117 Alta Vista Road.

The group lead by Mrs. Nancy McClary, 4027 W. Alta Vista Road, met at the South Meadows Teen Center, 3943 W. Southern.

Mrs. McClary, a candidate for the Arizona House of Representatives from District 6, told the 20 persons in attendance that a survey of several of about 30 Saturn-built houses had revealed "bad quality, leaking roofs, cracks in walls, drains that don't work, backyards that sink, ceilings that fall down, faults in bathtubs, floors and carports in almost every house."

Jo Jo Armstrong, owner of Saturn Builders, refused to respond to the charges when contacted by The Arizona Republic last night.

"You print anything you want to baby," he said.

The development is bounded by 41st and 43rd Avenues, Southern Avenue and Alta Vista Road, she said.

She said Saturn has 20 homes under construction there and plans to build 75 more in addition to the 30 or so already built.

Mrs. McCleary said the development is in the middle of an old river bed, a fact that buyers were not told before they purchased homes. About 20 homes were flooded during the June 21-22 floods, she said.

"Nobody knew they had bought homes in what used to be a duckpond," she said.

Complaints about this and about poor workmanship will go into letters from homeowners to the local FHA office, she said, since most of the homes are being purchased with FHA loans.

The group hopes the FHA will force the builders to make repairs after an inspection is made, Mrs. McCleary said.

She said Phoenix city officials have told Saturn that no more building permits for the development will be issued

until the builders provide for flood control for the houses to be built.

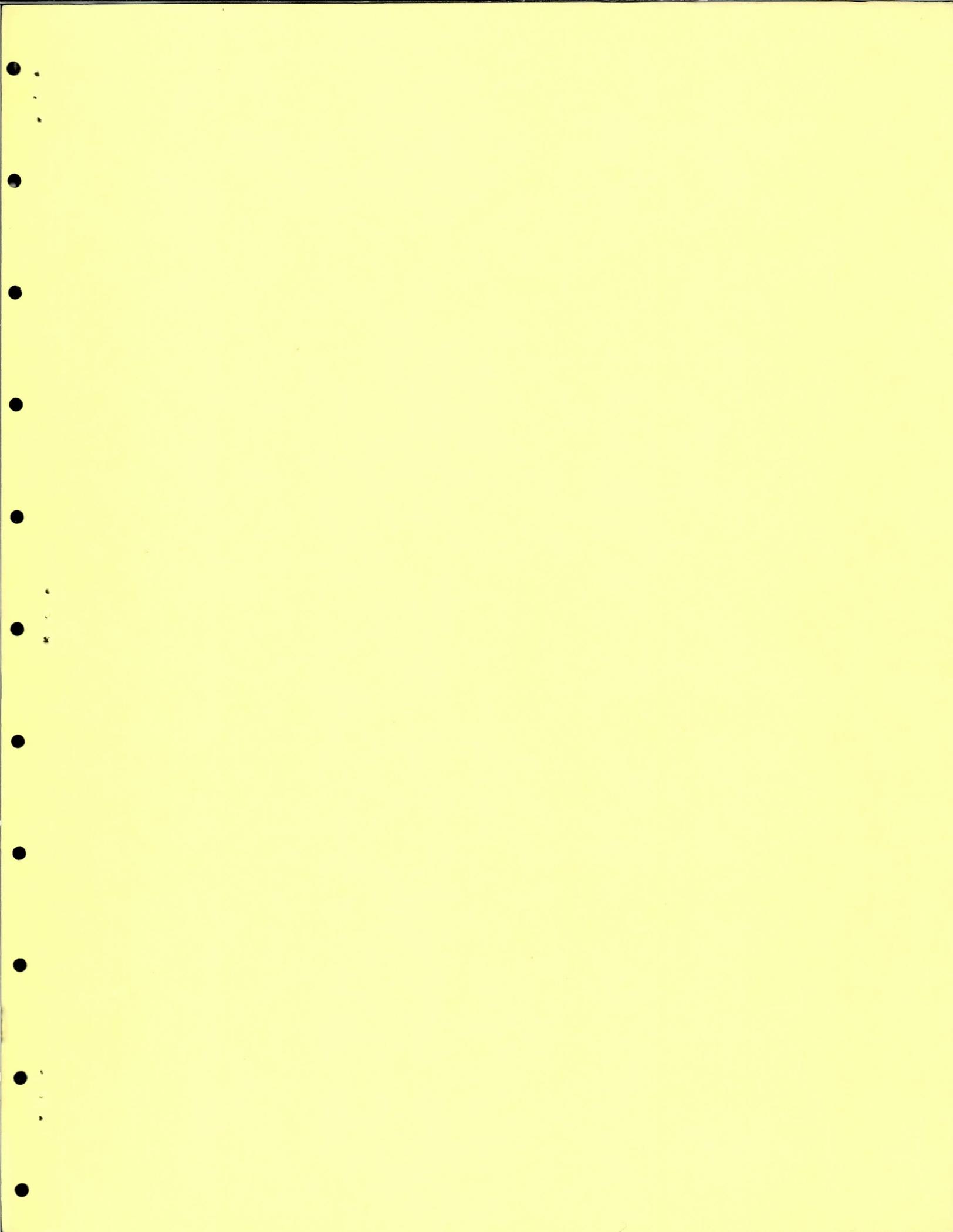
Building permits for the first houses were issued by the county before the city annexed the area in February, she said.

Mrs. Robert Clay, 4137 W. Vineyard, told the group that talks with suppliers and contractors about the defects in the Saturn homes had indicated the builders used substandard materials.

Among defects noted were a 15-foot crack in a bedroom wall "big enough to see the neighbors through," an uncapped septic tank that collapsed, and floor tile which was worn out in a few months by normal use, she said.

Those attending the meeting included the group's attorney, Kenneth Skiff, and the Rev. Kenneth Kilian of Peace Lutheran Church, 306 E. Monte Way. Kilian, chairman of the South of the Salt Planning Association, pledged the support of SOS to the homeowners.

From the July 18, 1972 issue of the Arizona Republic Newspaper.



CHAMPION FLOOD PREVENTION RC&D MEASURE

MARICOPA COUNTY, ARIZONA

Sponsored By:

Flood Control District of Maricopa County, Arizona  
City of Phoenix, Arizona  
Salt River Project, Phoenix, Arizona  
Agua Fria-New River Natural Resource Conservation District

Prepared by the Flood Control District of Maricopa County  
with Assistance from  
U. S. Department of Agriculture  
Soil Conservation Service  
Phoenix, Arizona

September 1976

Prepared under the authority of Section 102 of the Food and Agricultural Act of 1962 (Public Law 87-703) and of the Soil Conservation Act of April 27, 1935 (16 U.S.C. 590 a-f)

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	PLANNING AREA AND RESOURCES	2
	A. THE PLANNING AREA	2
	1. Natural Features	2
	2. Urbanization	3
	3. Climate	4
	4. Rainfall and Floods	5
	5. Description of the Planning Area	6
	B. RESOURCE CAPABILITIES	7
III.	PLANNING OBJECTIVES AND ALTERNATIVES	9
	A. SPONSOR OBJECTIVES	9
	B. ALTERNATIVE PLANNING CONSIDERATIONS	9
IV.	INSTALLATION OF THE SELECTED PLAN	14
	A. METHOD OF FINANCING	14
	B. LAND AND WATER RIGHTS	14
	C. CONTRACTING AND PROCUREMENT	14
V.	OPERATION AND MAINTENANCE	14
VI.	UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION ACT	15
VII.	PLATES	
	A. HYDROLOGY AND DRAINAGE AREA MAP	Plate 1
	B. ALTERNATE OPTIONS MAP	Plate 2
	C. ARIZONA REPUBLIC ARTICLE, JULY 18, 1972	Plate 3

CHAMPION FLOOD PREVENTION RC&D MEASURE

MARICOPA COUNTY, ARIZONA

I. INTRODUCTION

The Flood Control District of Maricopa County, the City of Phoenix, the Salt River Project and the Agua Fria-New River Natural Resource Conservation District are sponsoring this Project as a flood prevention measure due to periodic and repeated flooding which has occurred in this area. The preliminary objective of this Project will be to determine if a flood control project is warranted and then to provide for water relief to the area of study.

This Measure proposal will study the flooding problem and suggest various solutions, if justified, toward alleviation of the problem.

## II. PLANNING AREA AND RESOURCES

### A. THE PLANNING AREA

The project area is located within the Gila River Basin, which is the largest drainage area tributary to the Lower Colorado River. About 70% of this drainage area is mountainous with the remainder being alluvial valley. The mountains are characterized by rugged terrain and steep gradients, while the valleys are fairly flat with regular slopes.

The area pertinent to the flood problem being discussed in this Measure is in Maricopa County in the central part of Arizona (See location map on plates 1 and 2) and comprises approximately 23 square miles. The area is roughly oval with a maximum length and width of approximately 9 and 5 miles respectively.

#### 1. Natural Features (1)

About 90% of the area consists of Quaternary and Tertiary alluvial deposits. Valley floor elevations range from 980 feet in the Salt River bottom at approximately 79th Avenue between Southern Avenue and Baseline Road to 1150 feet at the base of South Mountain. Ground slopes are gentle, varying from 10 to 15 feet per mile to approximately 50 feet per mile in the South Mountain foothills.

Rock outcrops of the Precambrian era, predominantly granite gneiss, occur in the South Mountains (also known as the Salt River Mountains). The mountain slopes are steep, with the tops rising approximately 1250 feet above the valley floor. Because the mountain washes are steep and have a short collection time, the runoff rates can be relatively high.

(1) Extracted in part from: Storm Drainage Report for Maricopa Association of Governments 1970, Yost and Gardner Engineers, Phoenix, Arizona, 1970

Native vegetation is that of the Sonoran Zone, with creosote bush and saguaro the predominant plants on the flats. Palo verde and ironwood line the washes. Mesquite is also prevalent along the water courses, especially in the lower floodplain where it forms dense thickets. Relatively little of the study area is still in its native state. Approximately 20% of the area is urbanized at this time, with the majority of the remaining area being cultivated lands.

None of the natural water courses in the area has a permanent flow. Even the Salt River, the major river in this area, has been dried up by dams and diversions. In the mountainous areas washes are distinct, clearly defined water courses capable of carrying the sizeable flows resulting from intense summer storms. In the middle reaches where land has been farmed or urbanized, the washes tend to disappear and the flows are spread out over the land. These intermediate areas are subject to flooding when exceptionally heavy rainfall occurs. In the urbanized areas the economic losses due to flooding can be severe. The lower washes and river channel have been fairly well preserved because the flood hazards have forestalled permanent construction in these areas.

## 2. Urbanization (1)

The performance of the ground surface as a conductor of storm water has undergone profound changes in the study area as a result of human activities. Clearing and leveling the ground for flood irrigation of farm lands has obliterated most of the natural washes. The cultivated, more nearly level, bermed fields reduce the amount and rate of runoff

(1) Extracted in part from: Storm Drainage Report for Maricopa Association of Governments 1970, Yost and Gardner Engineers, Phoenix, Arizona, 1970

appreciably. The major agricultural canals generally intersect natural washes at right angles and intercept storm runoff for use in irrigation, or they discharge at wasteways or emergency spillways. The watercourses below these spillways have generally been obliterated.

Urbanization provides a new set of artificial channels in the streets and drains. It affects infiltration into the subsoil by rendering large areas impervious with buildings and pavements. It makes the soil areas that do remain less pervious than they were in their natural state. Urbanization within this Measure area is expected to go from 20% density to 80% density (Medium Density Residential, 3 to 5 units per acre) by 1995. <sup>(1)</sup> Population and land use are of direct interest in planning flood prevention projects as they affect both the amount of runoff to be accommodated and the priority under which drainage works are built.

3. Climate <sup>(2)</sup>

The arid and subtropical climate is characterized by short, mild winters with clear days and cool nights; long hot summers with daytime temperatures usually exceeding 100 degrees Fahrenheit; low annual rainfall; low relative humidity; and a high water evaporation rate. The 90-year mean annual precipitation is approximately 7.8 inches per year. The rainfall is divided about equally between the summer and winter seasons. Mean maximum and minimum January temperatures range from approximately 65 to 35 degrees Fahrenheit in the valley. Mean daily temperatures during July vary from 105 to 70 degrees Fahrenheit within the region. Although prevailing winds are generally rather

- (1) This estimated figure has been compiled from the City of Phoenix 1990 Land Use Study, the Maricopa County Planning Department, Future Land Use - 1980 Study and the VATTs 1995 Residential Projections.
- (2) Indian Bend Wash - Design Memorandum No. 2 (Los Angeles District, U.S.C.E. May, 1975)

light, moderate winds often occur in conjunction with general winter storms. Summer thunderstorms often produce strong gusty winds over local areas.

4. Rainfall and Floods

Three types of storms produce precipitation in this study area - general winter storms, general summer storms and local thunderstorms.

- a. General winter storms, which usually occur during the months of December to March, originate over the Pacific Ocean as a result of the interaction between polar Pacific and tropical Pacific air masses and move eastward over the basin. These storms are accompanied by widespread rainfall and often last for several days.
- b. General summer storms, which occur during the months of July to September, are associated with the influx of tropical maritime air originating over the Gulf of Mexico or South Pacific Ocean and are often accompanied by relatively heavy rainfall over large areas for periods up to 24 hours, with light showers continuing for as long as 3 days.
- c. Local thunderstorms can occur at anytime of the year, even during a general storm. However, they are most common from July to September and cover relatively small areas and result in high-intensity rainfall for durations of 3 hours or less. Severe local storms and floods have occurred in the Phoenix area in the following years: 1921, 1935, 1936, 1939, 1943, 1951, 1954, 1956, 1957, 1967, 1970 and 1972. One of the more severe storms and flood of record for the Measure area occurred June 21-22, 1972. This summer thunderstorm had a maximum intensity of 5.25 inches during an estimated two hours in the vicinity of 24th Street and Camelback

Road in Phoenix. Total damages due to flooding (1972 price level) were estimated at \$10.6 million.<sup>(1)</sup> A flood such as this resulting from this type of thunderstorm has a high peak discharge and a relatively short duration.

5. Description of the Planning Area

This alignment of the existing irrigation waste water ditch (shown on plate 1) is generally east-west along the low points of a large swale that runs south of and parallel to the Salt River from about 19th Avenue to the Salt-Gila River junction.

This existing ditch more or less follows the historical alignment of an irrigation ditch dug in the last half of the 19th Century by ranchers in the Salt River Channel area to provide needed water for their ranches and farming endeavors. They named this ditch the "Champion Irrigation Ditch". In the early 1930's this ditch became known as the Maricopa County Drainage District No. 5 Ditch with its' primary usage remaining to provide irrigation waters. As irrigation wells were dug in this area and with the dry up of the Salt River, usage of the ditch changed from providing irrigation waters to providing an irrigation waste water channel for the disposal of excess irrigation waters from the adjoining fields. In the late 1960's the Salt River Project obtained management of this waste water ditch.

The drainage area at the upper end of the proposed Measure (43rd Avenue) is approximately 12 square miles, extending into the Phoenix South Mountains. The total drainage area contributing to the present outlet at 79th Avenue and the Salt River is approximately 23 square miles (see plate 1). Slopes range from gentle in the lower elevation agricultural areas to steep, rocky terrain in the mountains.

(1) Report on Flood of 22 June 1972 Phoenix Metropolitan Area Arizona, U. S. Army Corps of Engineers, Los Angeles District, Oct. 1972.

Land use is generally agricultural with numerous canals and irrigation ditches traversing the area. There are some scattered residential and commercial developments along with some livestock operations and light industry in the area. Natural land conditions prevail in the mountains.

The drainage area includes portions of the City of Phoenix, the community of Laveen and unincorporated areas of Maricopa County and borders on the Gila River Indian Community.

B. Resource Capabilities

At the present time urban development has encroached into an old channel of the Salt River from which storm flows can only drain in the southwesterly direction, parallel to the main channel of the Salt River. Because the area has historically been agricultural land with low runoff potential, there is no existing drainageway for storm flows. It is anticipated that as urban development increases in a southwesterly direction from the present city limits of Phoenix, storm water runoff will continue to increase since much of the permeable lands will be lost to concrete, asphalt and buildings. Runoff will become a more serious problem within the foreseeable future.

Because much of the land in this Measure area is currently undeveloped, an opportunity exists to solve the existing drainage problems and to preclude future drainage problems before they develop at a minimal cost and with reasonable effort.

At the present time the majority of the land within the study area west of 43rd Avenue is agricultural land. Some small subdivisions and individual homesites exist; however, they occupy no more than 10% of the area involved.

Most of the upper watershed has been urbanized or is mountainous terrain within the City of Phoenix's South Mountain Park and presents a potential for high runoff. Soil varies from exposed bedrock within the mountainous area to granular alluvial fan material extending downstream from the foot of the mountains to fine grained silt in the agricultural areas. Steep slopes exist only within the mountains and alluvial fan areas and the potential for soil erosion is confined to these areas. In general, the agricultural areas are naturally of very minimal slope and have been further leveled, where necessary, to make gravity irrigation possible.

The surface water resource, i.e., runoff, generated within the watershed has only very minor possibilities of being captured and utilized for any beneficial purpose. Because of the lack of suitable reservoir locations, the small size of the watershed and the proximity to the Salt River, reclamation of surface water for beneficial use does not appear feasible. Some opportunity exists to allow recharge of the groundwater table by retention or release into the normally dry Salt River bed. This is the best place for groundwater recharging because the dry river bed has the greatest permeable soils and the highest percolation rates in the Measure area.

Opportunities for enhancement of fish and wildlife in the area are minimal because most of the land has either been urbanized or cleared of natural habitat to permit more efficient agricultural practices. Increasing flows into the Salt River bed could encourage and increase riparian habitat. Because the area is mostly undeveloped, a potential exists for development of recreation which will be needed as the area urbanizes. Certain of the alternatives to be presented may possess the potential for recreational

development in conjunction with the main purpose of providing storm drainage.

Although the western portion of the study area borders the Gila River Indian Reservation, it is not anticipated that there will be any areas of great archeological interest.

### III. PLANNING OBJECTIVES AND ALTERNATIVES

#### A. SPONSOR OBJECTIVES

Two of the major objectives of this proposed RC&D Measure are:

1. To study and determine if storm water relief for the entire area or portions of the area is warranted on a cost benefit ratio of better than 1.1 to 1.
2. If the above determination is made, then a total design and construction of a method of relief will be formulated.

Provision for 100-year runoff capacity will be an objective if economic and technical feasibility warrant. Secondary benefits may result from one or more of the alternatives under consideration. These benefits could include recreation, wildlife enhancement and conservation of storm water through groundwater recharge.

#### B. ALTERNATIVE PLANNING CONSIDERATIONS

##### Alternative No. 1 (See Plate 2)

Alternative No. 1 follows the alignment of an existing irrigation and waste water ditch running generally westerly beginning at a point approximately 1/4 mile south of Southern Avenue on the west side of 43rd Avenue. From this point it proceeds westerly and southerly through Section 33, T1N, R2E to the north side of Baseline Road where it proceeds west to 59th Avenue where it crosses Baseline Road and proceeds west along the south side of Baseline Road to approximately 65th Avenue

where it proceeds south and west through Section 6, T1S, R2E and Sections 1 and 2, T1S, R1E to the boundary line of the Gila River Indian Reservation where it proceeds northwesterly to its termination point in the Salt River Channel at approximately 79th Avenue. The length of this ditch is approximately 6 miles.

The existing waste water ditch is an unlined trapezoidal channel 12 feet wide across the top, 5 to 6 feet wide at the bottom, 4 and 5 feet deep with variable side slopes. The channel becomes larger along Baseline Road to its termination at the Salt River, 24 feet wide at the top, 8 to 9 feet wide at the bottom and 10 feet deep with variable side slopes. The existing waste water ditch along this route passes through 2 livestock operations. The longitudinal slopes of the adjacent lands are gentle to almost flat throughout the length of the ditch.

A comparison study of both an unlined and a lined trapezoidal channel will be done to determine the most economical solution. In addition to developing the existing ditch as a flood water relief channel, the present use as an irrigation waste water ditch will be continued as long as required by the adjacent agricultural development.

Alternative No. 2 (See Plate 2)

Alternative No. 2 is the construction of a trapezoidal channel along the east side of 43rd Avenue from Burgess Lane north to the Salt River Channel, approximately 1.25 miles in length. This channel will follow the existing right-of-way of 43rd Avenue from Burgess Lane north to Wier Avenue then continue north across private lands to the Salt River where it will turn west and follow the river channel to approximately

51st Avenue. Land usage along 43rd Avenue is mostly residential with scattered small agricultural areas along the route, and a commercial gravel pit operation located in the Salt River Channel area. The proposed channel will cross two small concrete lined irrigation ditches, one located at approximately Roeser Road and the other along the north side of Wier Avenue. The general slope north toward the Salt River is relatively flat with the Salt River Channel being about 2 to 3 feet lower in elevation than the center line intersection of 43rd Avenue and Burgess Lane. This alternative ditch would follow 43rd Avenue existing right-of-way up to Wier Avenue and may entail acquisition of additional right-of-way to provide for the ditch. From Wier Avenue north to the Salt River, an easement across private lands or fee title to the required right-of-way will have to be obtained as there is no existing right-of-way at this time. As in Alternative No. 1, both a lined and unlined trapezoidal channel will be studied to provide the most economical channel.

Alternative No. 3 (See Plate 2)

Alternative No. 3 consists of enlarging a portion of the existing waste water ditch from 43rd Avenue and Burgess Lane west to the center line of Section 33, T1N, R2E, which is the alignment of 47th Avenue, and constructing a new channel north from this point to the Salt River Channel at the Broadway alignment. This would consist of enlarging about 1/2 mile of the existing ditch, and constructing approximately 1.25 miles of new channel for a total length of 1.75 miles. The general slope of the proposed alignment is relatively flat as most of the route has been graded to provide adequate drainage for irrigated farm lands. The land usage along this proposed route is all

agricultural with only 3 or 4 farm buildings close to the new ditch alignment. At this time almost no existing right-of-way exists along the new ditch alignment and this would require acquiring easements or fee title to all required right-of-way. The proposed route of the new ditch will cross Southern Avenue and 1 or 2 small concrete lined irrigation ditches serving the adjacent farm lands. There is one short portion of 47th Avenue right-of-way approximately 600 feet long connecting Larson Road with Roeser Road which could possibly be utilized for channel right-of-way.

Studies will be done in regards to constructing a lined or unlined trapezoidal channel to provide the most economical and environmentally compatible channel through this area.

Alternative No. 4 (See Plate 2)

Alternative No. 4 consists of enlarging a portion of the existing waste water ditch beginning at 43rd Avenue and Burgess Lane west to the center line of Section 33, T1N, R2E, a length of 1/2 mile and continuing west by constructing a new channel to the east right-of-way of 51st Avenue then proceeding north along the east side of 51st Avenue, across Southern Avenue to the Salt River Channel. The total distance of new channel would be 1.5 miles with a total channel length of 2 miles. The general slope of the canal along the proposed route is generally gentle with the first mile being in irrigated farm lands. The land use for this area is mostly agricultural with light industry along 51st Avenue. No residential buildings are located along the channel route. New right-of-way will be needed for the portion of the new channel from the center line of Section 33 to 51st Avenue and possibly additional right-of-way along the east side of 51st Avenue.

As with the other alternatives, studies will consider both an unlined or a lined trapezoidal channel.

Alternative No. 5 (See Plate 2)

Alternative No. 5 is to be either a lined or unlined trapezoidal channel following the existing route of the waste water ditch through Section 33, T1N, R2E, southerly and westerly to its intersection with 59th Avenue and Baseline Road, a distance of approximately 2.5 miles, and continuing north with the construction of a new lined or unlined trapezoidal channel to the Salt River Channel, a distance of about 1.5 miles for a total of 4 miles. The general slope characteristic of this route is relatively gentle slope with 10 to 12 feet of fall from point of origin to point of termination. The land use along this route is generally agricultural with a small cattle operation and undisturbed lands adjacent to the Salt River Channel. Full width right-of-way will have to be acquired for that portion between the Salt River Channel and Southern Avenue as 59th Avenue ends at Southern Avenue.

Alternative No. 6 (See Plate 2)

Alternative No. 6 consists of the construction of a flood water detention facility located in the NW $\frac{1}{4}$ , NW $\frac{1}{4}$ , Section 34, T1N, R2E. This facility will be sized to detain flood waters generated in that portion of the design watershed located generally east of 43rd Avenue extending south into South Mountain. Studies will be made to determine the size of the detention facility; method of disposal of the flood waters will be either by percolation or controlled discharge into either the existing waste water ditch west of 43rd Avenue or into one of the new flood channels proposed in the other alternatives or a combination of percolation and controlled discharge.

An extensive study will be made into developing the area required for this facility into a public park or a public recreation area, and as a small "short nine" golf course. At the present time there are few public facilities in most of the design watershed and these areas are extremely beneficial and needed for the enhancement of the area and the upgrading of living conditions for the residents of the area.

#### IV. INSTALLATION OF THE SELECTED PLAN

##### A. METHOD OF FINANCING

The Hohokam RC&D Project may provide financing for up to 100% of the actual construction costs of this storm drainage project from appropriations to the Resource Conservation and Development Program. The local sponsors will be responsible for relocating all affected utilities; obtaining all rights-of-way, easements and land rights; administrative costs; and will share in any relocation assistance costs in accordance with Public Law 91-646, 84 Stat. 1894.

##### B. LAND AND WATER RIGHTS

All rights-of-way for construction, operating and maintenance will be secured by drainage easement, construction easement or fee title. There are agreements and permits existing involving the use of the Champion Drainage Ditch. These agreements and permits will be included in the research on land status.

##### C. CONTRACTING AND PROCUREMENT

The approved measure will be installed by contract administered by the Flood Control District of Maricopa County.

#### V. OPERATION AND MAINTENANCE

The Flood Control District of Maricopa County will be responsible for the operation and maintenance of the improvements installed. An operations and maintenance agreement will be entered into between the Flood Control District of Maricopa County and the Soil Conservation Service setting forth operation

and maintenance requirements prior to execution of a project or service agreement. If Alternative No. 6 becomes the approved project and a public park or recreation area is developed, the City of Phoenix Parks and Recreation Department could be responsible for the operation and maintenance of the improvements installed and could enter into the operation and maintenance agreement with the Soil Conservation Service (providing necessary Park and Recreation funds are available). Operation and maintenance work will normally include such actions as clearing and grubbing channels, maintaining and repairing structures, patching street crossings and routine channel or detention basin maintenance.

Inspection of the improvements will be made annually by the Flood Control District of Maricopa County or the City of Phoenix Parks and Recreation Department and the Soil Conservation Service for a period of three years. Annual inspections after the third year will be made by the Flood Control District of Maricopa County or the City of Phoenix Park and Recreation Department. Inspection reports will be supplied to the Soil Conservation Service following each inspection. Upon request, the Hohokam Resource Conservation and Development Project will provide technical assistance for needed maintenance work.

VI. UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION ACT

Investigation has shown that under present conditions, this RC&D Measure will not result in the displacement of any person, business or farm operation. However, if relocations become necessary, relocation payments will be cost shared in accordance with mutually acceptable percentages.

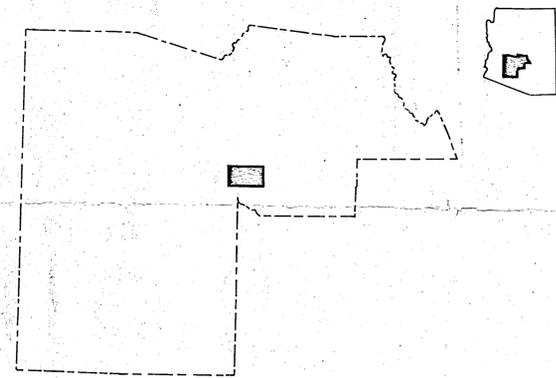


# CHAMPION DRAIN DITCH

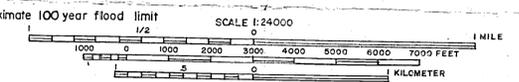
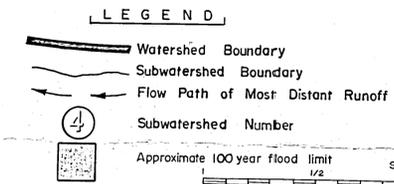
## STORM DRAINAGE AND FLOOD PROTECTION PROJECT

### HYDROLOGY and DRAINAGE AREA

**SPONSORS:** Flood Control District of Maricopa County  
 City of Phoenix  
 Salt River Project  
 and  
 Agua Fria - New River Natural Resource Conservation District



LOCATION MAP



Presented to MEASURES COMMITTEE, September, 1976



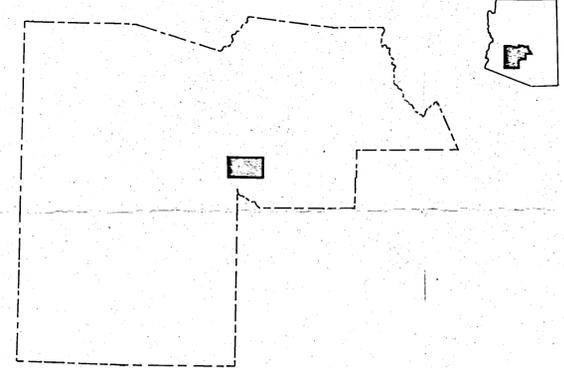
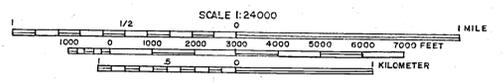
# CHAMPION DRAIN DITCH

## STORM DRAINAGE AND FLOOD PROTECTION PROJECT

### ALTERNATE OPTIONS

**SPONSORS:** Flood Control District of Maricopa County  
 City of Phoenix  
 Salt River Project  
 and  
 Agua Fria - New River Natural Resource Conservation District

- LEGEND**
- ① ALTERNATE NUMBER
  - 33 SECTION NUMBER



LOCATION MAP

Presented to MEASURES COMMITTEE, September, 1976

# Home buyers allege building defects

(LAS CASAS GRANDES)

A southwest Phoenix homeowners' group last night vowed to complain to the local Federal Housing Administration office concerning alleged shoddy workmanship by the builder of their homes, Saturn Builders, Inc., 4117 Alta Vista Road.

The group lead by Mrs. Nancy McClary, 4027 W. Alta Vista Road, met at the South Meadows Teen Center, 3943 W. Southern.

Mrs. McClary, a candidate for the Arizona House of Representatives from District 6, told the 20 persons in attendance that a survey of several of about 30 Saturn-built houses had revealed "bad quality, leaking roofs, cracks in walls, drains that don't work, backyards that sink, ceilings that fall down, faults in bathtubs, floors and carports in almost every house."

Jo Jo Armstrong, owner of Saturn Builders, refused to respond to the charges when contacted by The Arizona Republic last night.

"You print anything you want to baby," he said.

The development is bounded by 41st and 43rd Avenues, Southern Avenue and Alta Vista Road, she said.

She said Saturn has 20 homes under construction there and plans to build 75 more in addition to the 30 or so already built.

Mrs. McCleary said the development is in the middle of an old river bed, a fact that buyers were not told before they purchased homes. About 20 homes were flooded during the June 21-22 floods, she said.

"Nobody knew they had bought homes in what used to be a duckpond," she said.

Complaints about this and about poor workmanship will go into letters from homeowners to the local FHA office, she said, since most of the homes are being purchased with FHA loans.

The group hopes the FHA will force the builders to make repairs after an inspection is made, Mrs. McCleary said.

She said Phoenix city officials have told Saturn that no more building permits for the development will be issued

until the builders provide for flood control for the houses to be built.

Building permits for the first houses were issued by the county before the city annexed the area in February, she said.

Mrs. Robert Clay, 4137 W. Vineyard, told the group that talks with suppliers and contractors about the defects in the Saturn homes had indicated the builders used substandard materials.

Among defects noted were a 15-foot crack in a bedroom wall "big enough to see the neighbors through," an uncapped septic tank that collapsed, and floor tile which was worn out in a few months by normal use, she said.

Those attending the meeting included the group's attorney, Kenneth Skiff, and the Rev. Kenneth Kilian of Peace Lutheran Church, 306 E. Monte Way. Kilian, chairman of the South of the Salt Planning Association, pledged the support of SOS to the homeowners.

From the July 18, 1972 issue of the Arizona Republic Newspaper.