

Final

# Southeast Mesa Area Drainage Master Plan Data Collection Report FCD #95-32

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May 13, 1997

*Prepared for:*

**Flood Control District of Maricopa County**

*Prepared by:*



in association with  
**Hoskin Engineering Consultants**



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**Southeast Mesa Area Drainage Master Plan  
Data Collection Report**

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Inventory of Existing Facilities
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# 1 Introduction

Dibble & Associates, in association with Hoskin Engineering Consultants, have been contracted by the Flood Control District of Maricopa County (District) to prepare an Area Drainage Master Plan (ADMP) for the Southeast Mesa area. The study limits are depicted on Figure 1. The study effort includes Data Collection, Alternatives Formulation, Alternatives Analysis, Aerial Mapping and Survey, and Preliminary Design tasks.

## 1.1 Purpose

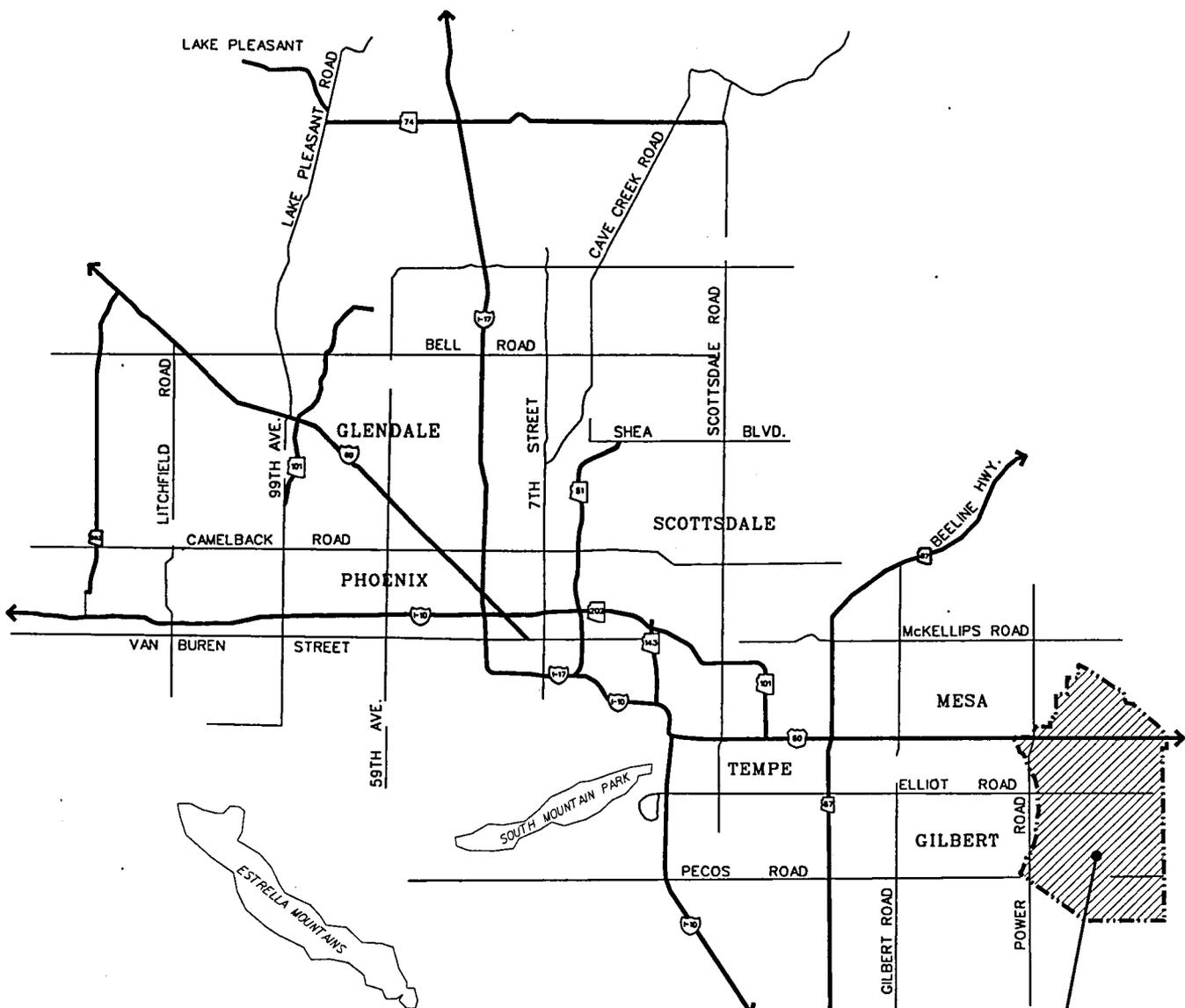
The purpose of the ADMP is to identify drainage problems within the entire study area and to master plan cost effective solutions to those problems. The study area covers eastern Maricopa County including portions of the City of Mesa, the Town of Gilbert, the Town of Queen Creek, and unincorporated Maricopa County. The jurisdictional boundaries are depicted on Figure 2.

The Data Collection Phase of the ADMP includes identifying known flooding locations and collecting data regarding existing and proposed drainage facilities, major natural washes, and existing utilities. The purpose of this Data Collection Report is to describe the data gathering process and to present the findings. Results from this report will be used in later phases of the study.

## 1.2 Description of Study Area

The study area is approximately bounded by the Maricopa County/Pinal County line (Meridian Road) to the east, the East Maricopa Floodway (EMF) to the west, the Rittenhouse channel and Queen Creek Road to the south, the Central Arizona Project (CAP) canal to the northeast, extending north to Brown Road near Hawes Road, and an approximate diagonal line from Hawes Road and the CAP south to Power Road and the Superstition Freeway.

The Superstition Freeway (State Route 60) bisects the study area from east to west and forms a physical barrier to the natural drainage patterns, except for those locations where structures have been designed to convey drainage from the north side to the south side of the freeway. The freeway has also formed a demarcation line for the current and future development patterns in the area. A majority of the existing and older developments lie on the north side of the freeway. A great deal of the



STUDY AREA



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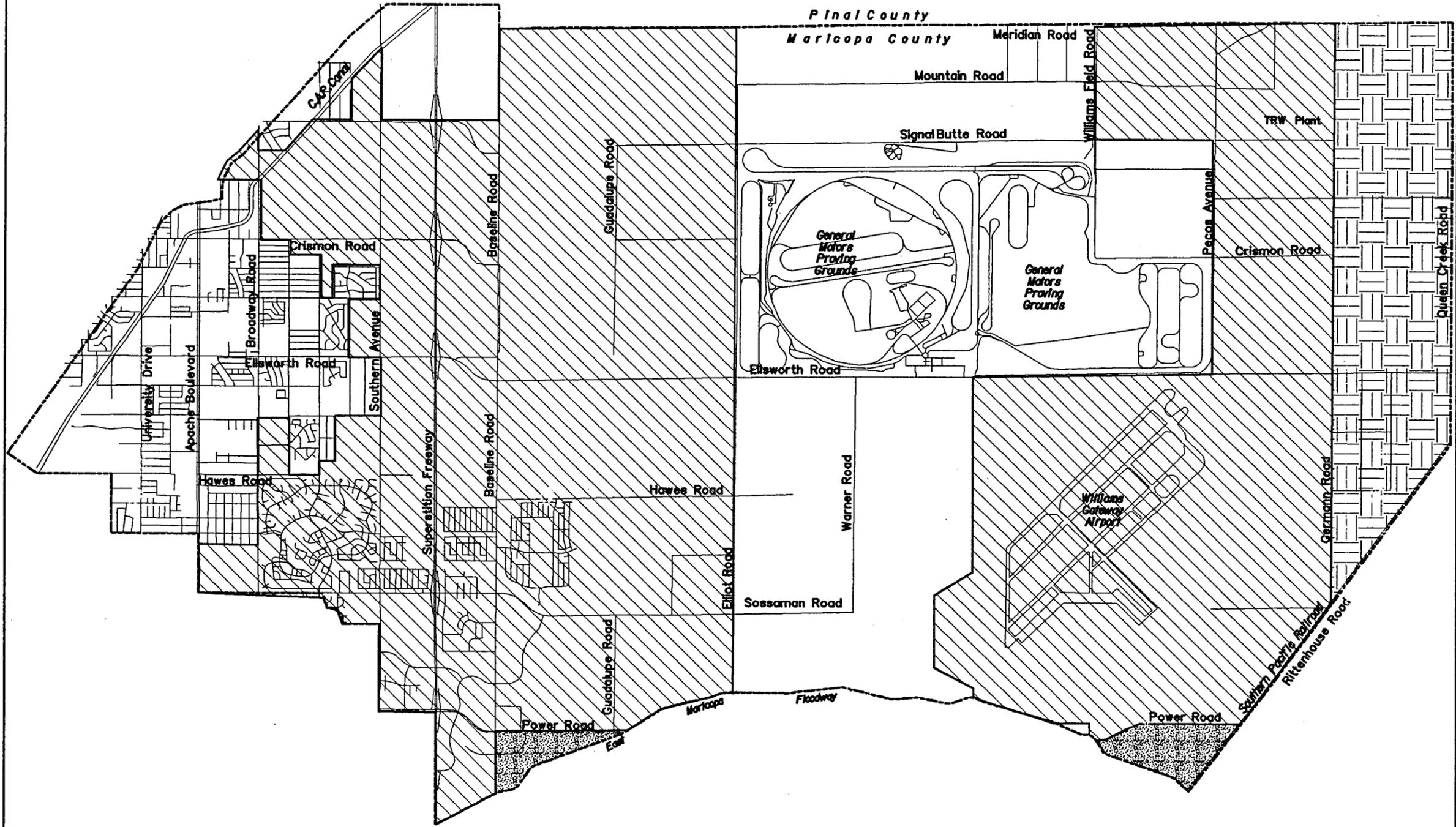


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Southeast Mesa  
Area Drainage Master Plan

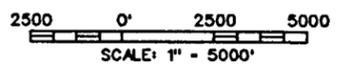
FIGURE 1  
STUDY LOCATION MAP

FLOOD CONTROL DISTRICT  
OF MARICOPA COUNTY  
Southeast Mesa  
Area Drainage Master Plan  
F.C.D. CONTRACT NO. 95-32



LEGEND

MESA	
MARICOPA UNINCORPORATED	
GILBERT	
QUEEN CREEK	



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JURISDICTIONAL BOUNDARIES  
FIGURE 2

current development is occurring within large tracts of land on the south side of the freeway.

City of Mesa staff has provided information regarding developments within the City which are currently in the site planning, engineering, or review stages. These are illustrated on Figure 3. The size and number of these developments are indicators of the pace at which this area is developing. Early adoption of a drainage master plan may present opportunities to allow the incorporation of these developments into an overall master planning process.

## **2 Areas of Known Flooding Problems**

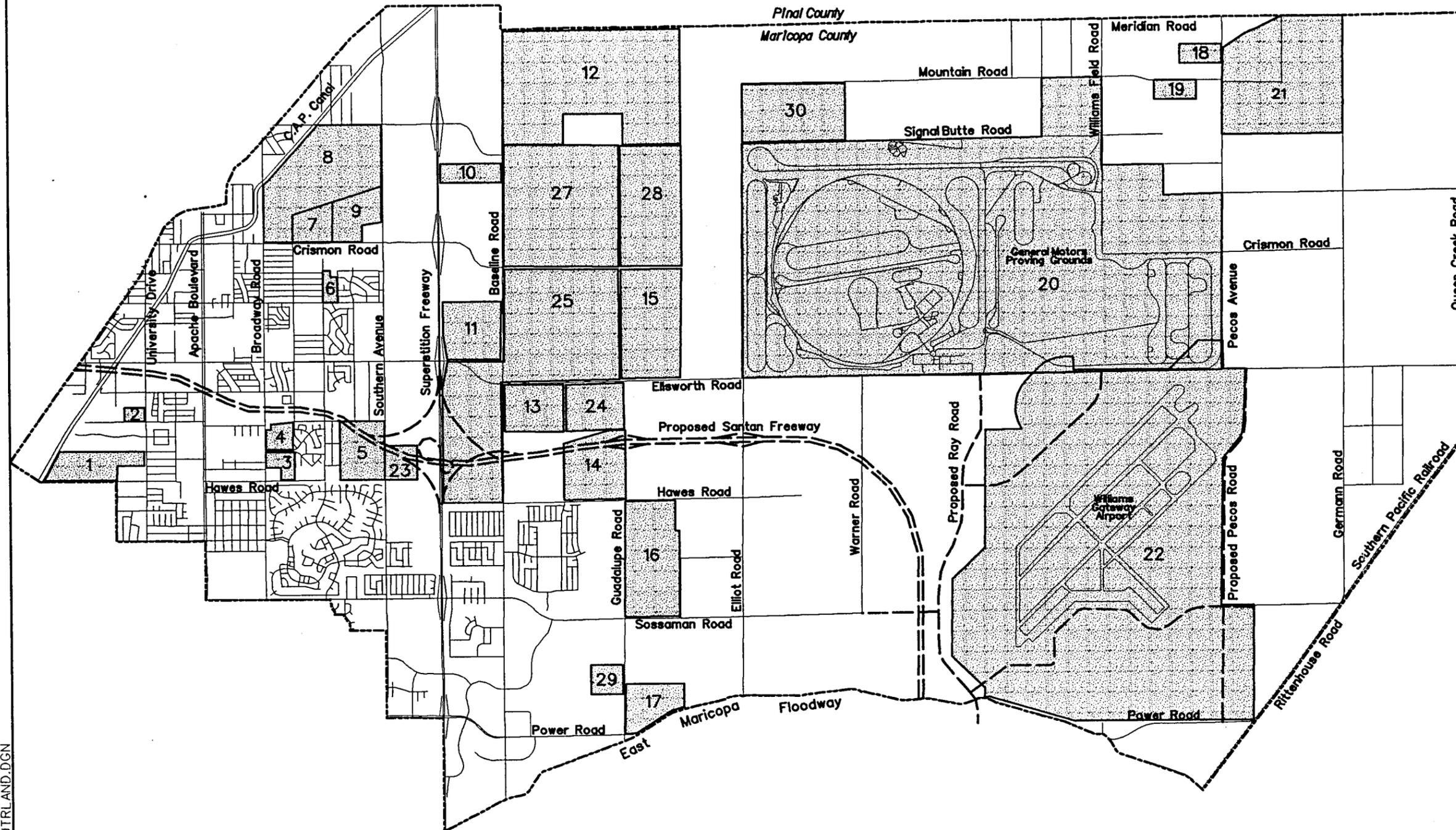
The City of Mesa, Maricopa County Department of Transportation (MCDOT), and the District have reported severe flooding along several major transportation corridors in the area. The worst affected areas include Elliot Road, Warner Road, Ellsworth Road, Mountain Road, and Germann Road (Figure 4). In addition, flooding is experienced near the CAP overchutes at their point of discharge, within the GM Proving Grounds, around the perimeter of the Williams Gateway Airport, and within property owned by TRW. The problems identified in these areas are summarized as follows:

### **2.1 Elliot Road**

Elliot Road is currently owned and maintained by MCDOT and consists of an "at grade" pavement with dip crossings at points of major drainage concentration. Drainage crosses Elliot Road within low flow crossings at 196<sup>th</sup> Street, at one-quarter mile west of Hawes Road and at Hawes Road. The flow from the 196<sup>th</sup> Street crossing continues southerly in a man-made channel for approximately one-quarter mile, then is conveyed southwesterly for an additional one-quarter mile until the channel daylight to existing terrain. The flows from the other two crossings are combined in a channel, conveyed southerly for approximately one-half mile and outlet to an existing wash.

East of Ellsworth Road, Siphon Draw Wash concentrates flow at two major crossings of Elliot Road. After crossing Elliot Road, Siphon Draw Wash remains

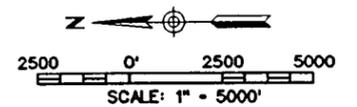
FLOOD CONTROL DISTRICT  
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Southeast Mesa  
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LEGEND

VIEWPOINT R.V. RESORT	1
UNIVERSITY PLACE	2
SUPERSTITION POINT-MESA	3
WYNSTONE	4
CRESCENT RUN	5
GRIFFITH ESTATES	6
CITY PARK (FUTURE)	7
SIGNAL BUTTE RANCH (SOUTH)	8
MESA HIGH SCHOOL & JUNIOR HIGH SCHOOL	9
MESA MARKETPLACE	10
SIERRA RANCH I	11
SUNLAND SPRINGS VILLAGE	12
MONTE VISTA TRAVEL TRAILER RESORT EXPANSION	13
SUNLAND SPRINGS VILLAGE	14
MESQUITE CANYON	15
BOULDER CREEK	16
GILBERT JUNIOR HIGH SCHOOL	17
BAKER RECYCLING	18
OLIN MITSUBISHI	19
GENERAL MOTORS PROVING GROUNDS	20
TRW PLANT	21
WILLIAMS GATEWAY AIRPORT	22
RV PARK	23
RYLAND HOMES DEVELOPMENT*	24
AUGUSTA RANCH	25
SIERRA RANCH II*	26
STATE LAND TRUST	27
SANTA RITA RANCH*	28
MONTEREY ELEMENTARY SCHOOL	29
UNKNOWN	30

\*Zoning Pending



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PLANNED MAJOR  
DEVELOPMENTS  
FIGURE 3



within an earthen channel located on the south side of the road, and within property owned by the GM Proving Grounds. This channel flows in an east-to-west direction before crossing Ellsworth Road through a dip south of Elliot Road, and then continuing in a natural southwesterly flow direction.

## **2.2 Ellsworth Road**

The principal flooding problems along Ellsworth Road result from channels along the west and south perimeter of the GM Proving Grounds. These channels intercept natural runoff from east of the GM Proving Grounds and convey it to a channel on the east side of Ellsworth Road, north of Pecos Road. This channel is an earth lined graded channel which diminishes in depth and hydraulic capacity as it continues north. Flow from within the channel is directed across Ellsworth Road through several dip crossings. The Northern Perimeter Channel of the Williams Gateway Airport collects the flow which crosses Ellsworth Road and conveys it across the Williams Gateway Airport property to the Powerline Floodway.

Severe flooding can result along Ellsworth Road in the area from Germann Road to one-half mile north of Elliot Road. Flooding also occurs south of Elliot, where the intercepted flow from the Siphon Draw Wash, is directed across Ellsworth. Often MCDOT maintenance crews must close sections of the road to traffic. After the water subsides, the crews must clear sand and silt from the road and shoulder areas.

## **2.3 Mountain Road**

Mountain Road was built without the benefit of design plans by MCDOT work forces. The road consists of an asphalt strip pavement which closely follows existing grades. Natural washes cross Mountain Road from east to west through a series of shallow dip crossings. The washes in this area have very little relief and much of the flow occurs as sheet flow. Heavy precipitation is reported to cause access problems for the employees of several manufacturing facilities in the area.

## **2.4 Germann Road**

The natural drainage patterns in the area south of Pecos Road and north of Queen Creek Road are from east to west. Much of the area is currently agricultural.

Runoff from fields to the south collects within Germann Road and is then carried within the road cross-section to the west. As a result, the road experiences frequent flooding.

## **2.5 Warner Road**

Warner Road extends in an east-west direction from Ellsworth Road to Sossaman Road. Natural drainage patterns tend to direct flow to the north side of the road. Since the overlying flow direction is to the west, and in the absence of any graded channels, Warner Road tends to be the conveyance corridor for drainage.

## **2.6 TRW Diversion Dike**

The TRW manufacturing plant is located south of Pecos Road and west of the Meridian Road alignment. The dike, which was constructed originally to protect the downstream agricultural lands, intercepts runoff from the natural desert areas east of the TRW Plant between Pecos Road and Queen Creek Road. The dike has been breached in the past, causing downstream flooding.

# **3 Methods of Data Collection**

Three methods were used for data collection. These included: (1) agency contact for information regarding future facilities and for copies of available reports and as-built plans of existing facilities and. The Plan Set Bibliography and Report Bibliography contain lists of the plans and reports which were collected. Contacted agencies include the District, MCDOT, the City of Mesa, Arizona Department of Transportation (ADOT), United States Bureau of Reclamation, and various utility companies; (2) field reconnaissance to identify existing facilities; and (3) field survey to gather cross-sectional and longitudinal slope information regarding existing facilities, road dip sections and major natural washes.

## **3.1 Previously Completed Studies**

Several previous studies have been completed for portions of the Southeast Mesa ADMP study area. The pertinent reports are the *Eastern Maricopa County Area Drainage Master Study*, the *Queen Creek Area Drainage Master Study*, the *South East Mesa Area Drainage Master Study*, and the *Williams Gateway Airport Master Drainage Plan*. All of these studies include proposals for regional-type

drainage facilities. Some of these facilities have been constructed or are under design for later construction. These facilities include the Guadalupe Channel and the Rittenhouse Channel. Other facilities proposed by these reports will be included in the final alternative drainage solution for the Southeast Mesa ADMP.

#### **4 Existing Facilities**

Major existing regional drainage features within the master plan area include the overchutes of the CAP canal, the ADOT collection channels and retention basins along the north side of the Superstition Freeway, the Sossaman Channel, the Guadalupe Channel, the Powerline Floodway, Phase 1 of the Rittenhouse Channel, and the EMF. Many other local drainage structures are also located within the study boundary. Those structures with flow capacities of less than 100 cfs were considered insignificant and therefore were not included in the existing facilities inventory.

The type, size, capacity, and ownership of existing man-made structures, and the capacities of road crossings of natural washes are summarized in tables within the Appendix. The Manning's formula was used to determine the capacities of the channels and the culverts. The capacities of weir inlets into the EMF and the Powerline Floodway were computed using the weir equation. The sizes of the culverts, channels or storm drains were determined using field survey data or as-built plans. In some cases, the capacities of existing structures have not been included because as-built plans were not available. The locations of each of the listed existing facilities are illustrated on Figures 6A through 6F. Generally, the conditions of the existing man-made structures are good. If these facilities become a part of a design alternative, additional field work will be required in order to better evaluate their capacity and condition. Brief descriptions of the major existing regional drainage facilities follow:

##### **4.1 The Central Arizona Project Canal**

The CAP canal forms the northeastern boundary for the study and acts as a barrier to upstream storm runoff. Data collected for the CAP canal include construction plans for Reaches 1a and 1b and hydrology data which was provided by the US Bureau of Reclamation (BOR). The CAP acts as a barrier to upstream storm

runoff. Its design includes overchutes to convey stormwater across the canal to the downstream side.

#### **4.2 ADOT Collection Channels and Retention Basins**

ADOT has constructed a series of collection channels and detention basins along the north side of the Superstition Freeway which serve as regional drainage facilities for storm runoff from north of the freeway.

#### **4.3 The Sossaman Channel and Guadalupe Channel**

Data collected for the Sossaman and Guadalupe channels include various construction plans provided by the District and field survey information. The Sossaman Channel is a north-south collection channel that intercepts storm runoff at about the Sossaman Road alignment and conveys it southerly to the Guadalupe Channel. The Guadalupe Channel then conveys the runoff westerly to the EMF.

#### **4.4 The Powerline Floodway**

Data collected for the Powerline Floodway include construction plans provided by the District and field survey information. The Floodway lies along the Ray Road alignment from the EMF easterly into Pinal County. It intercepts runoff and conveys it to the EMF.

#### **4.5 Phase 1 of the Rittenhouse Channel**

The Rittenhouse Channel lies along the upstream side of the Southern Pacific Railroad and parallel to Rittenhouse Road. Phase 1 is constructed between Power Road and the EMF. The channel serves as an outfall for drainage from the Williams Gateway Airport. When Phase 2 is completed in approximately December, 1997, it will provide an outfall for the southern portion of Maricopa County.

#### **4.6 The East Maricopa Floodway (EMF)**

The EMF forms the western study area boundary south of the Superstition Freeway. The EMF lies on the east side of the Roosevelt Water Conservation District Canal and serves as a regional outfall for eastern Maricopa County. It intercepts storm runoff from east of the Roosevelt Water Conservation District (RWCD) canal, south of the Southern Canal near Thomas Road and Val Vista Drive. It parallels the RWCD canal and crosses the Maricopa County southern boundary

into Pinal County to its outfall at the Gila River. Data collected for the EMF include the construction plans for several of the reaches. This data was provided by the District.

## **5 Utilities**

The locations of existing and proposed utilities are indicated on Figure 5, Existing and Planned Utilities. The existing and proposed water and sewer lines information was collected from the City of Mesa. The map also shows the locations of a Western Area Power Authority transmission line easement, a Salt River Project transmission line easement, U. S. West fiber optic cable, and cable TV lines. Only water and sewer mains 12 inches and larger in diameter are reflected. The telephone and cable TV companies have provided the locations of their main line locations. These existing and proposed utilities will be considered during the design and development of the final alternative drainage solution.

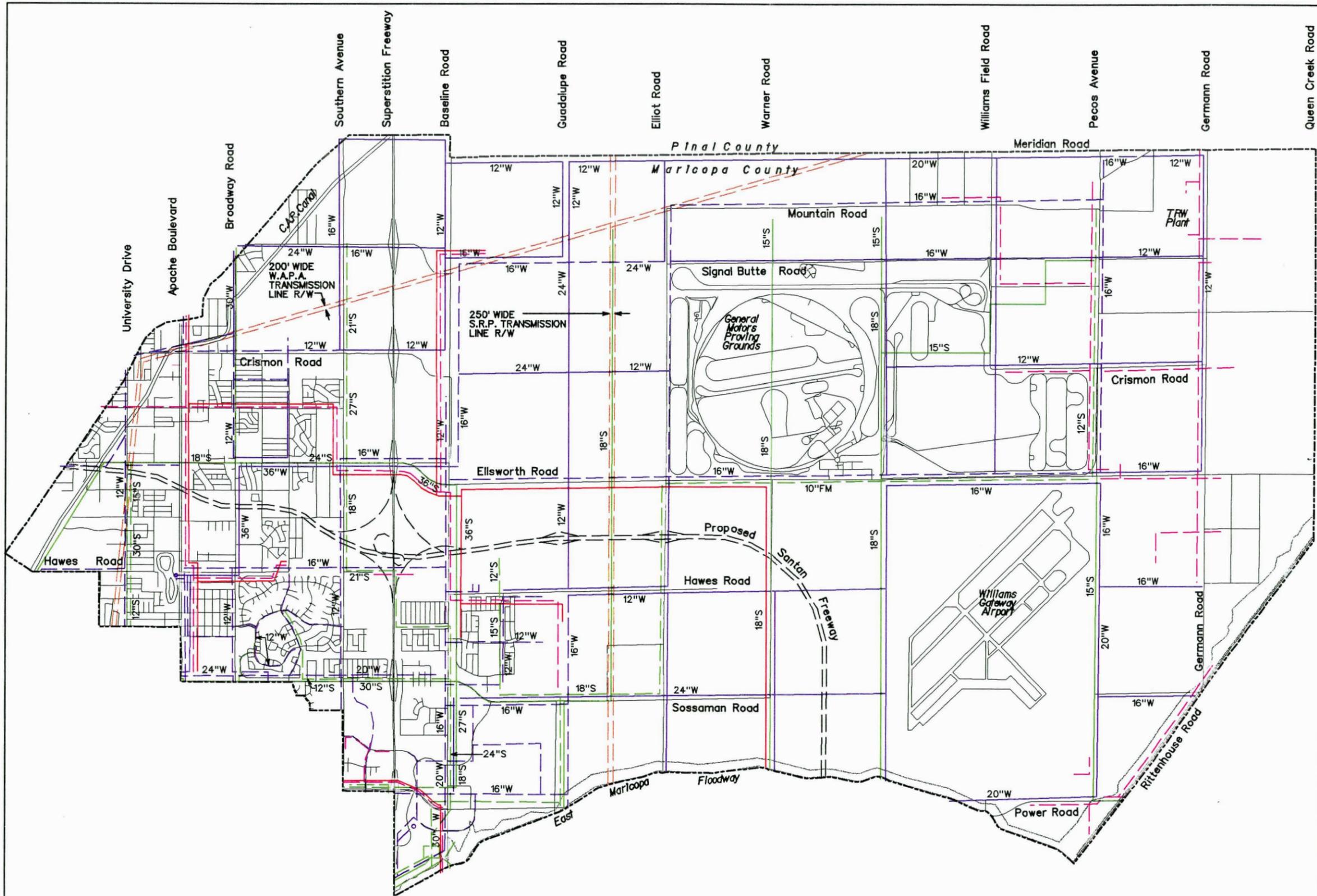
## **6 Proposed Facilities**

Several proposed facilities within the study boundaries may have considerable impact on the selection of the final drainage master plan. The District is currently conducting a study to evaluate the need for detention basins along the EMF. This study was initiated because the District believes that the EMF may be undersized for the current runoff conditions. Any proposal to provide detention along the EMF will not have a direct impact on the selection of the final drainage master plan alternative; however, the results of the Southeast Mesa ADMP may affect the basins' sizes and locations.

The second phase of construction of the Rittenhouse Channel is currently underway and the design of Phase 3 is beginning. The completed Rittenhouse Channel will serve as an outfall for the southern portion of this study. It also may be incorporated as one of the outfalls for drainage from the southern portion of the Southeast Mesa ADMP.

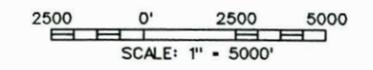
The proposed Santan Freeway will block westerly drainage within the study area from the CAP canal to approximately one-half mile south of Warner Road (Figure 4). The preliminary design for the freeway includes pass-through drainage culverts at existing wash locations. The potential may exist to include a freeway conveyance system, rather than a pass-through drainage system. A freeway conveyance system could be incorporated into the final drainage master plan.

FLOOD CONTROL DISTRICT  
OF MARICOPA COUNTY  
Southeast Mesa  
Area Drainage Master Plan  
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LEGEND

- STUDY BOUNDARY ---
- EXISTING SEWER LINE ---
- PROPOSED SEWER LINE ---
- EXISTING WATER LINE ---
- PROPOSED WATER LINE ---
- EXISTING TELEPHONE CONDUIT/CABLE ---
- EXISTING TELEPHONE FIBER OPTIC CABLE ---
- EXISTING TRANSMISSION LINE R/W ---
- PROPOSED SANTAN FREEWAY ---



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CONSULTING ENGINEERS

**Hoskin Engineering Consultants**

EXISTING & PLANNED UTILITIES  
FIGURE 5

## 7 Conclusions

The Southeast Mesa ADMP study area includes several major regional drainage facilities including the CAP canal overchutes, the Superstition Freeway channels and basins, the Sossaman and Guadalupe Channels, the Powerline Floodway, the Rittenhouse Channel, and the EMF. Where possible, these regional facilities, in conjunction with existing local facilities, will be incorporated into any proposed drainage solutions within the study area. At this time, the only known proposed major drainage structures within the study boundary are various detention basins along the EMF, and the completion of the Rittenhouse Channel which will be designed and constructed by the District. The sizes and exact locations of the EMF basins have not yet been determined. In addition, the proposed Santan Freeway may have a major impact upon the future drainage conditions within the study area.

Currently identified problem areas include Elliot Road, Warner Road, Ellsworth Road, Mountain Road, Germann Road, areas downstream of the CAP canal overchutes, and in the vicinity of the GM Proving Grounds, Williams Gateway Airport and TRW.

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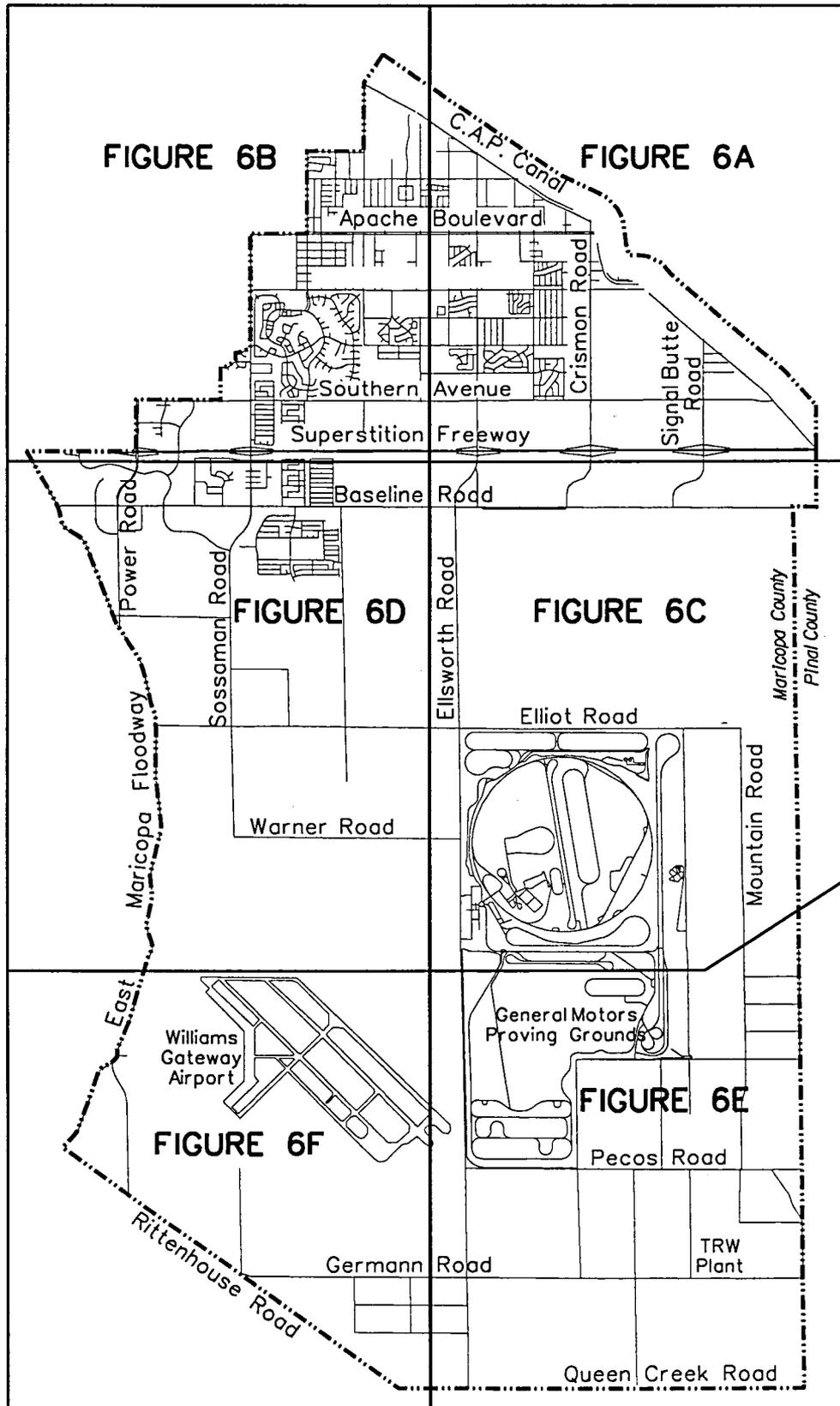
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## **Appendix**



**DIBBLE & ASSOCIATES**  
CONSULTING ENGINEERS



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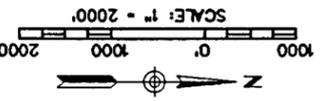
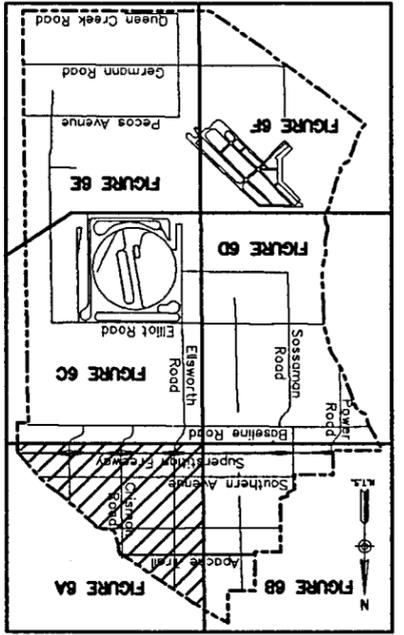
**Southeast Mesa  
Area Drainage Master Plan**  
**FIGURE 6  
EXISTING FACILITIES  
INDEX MAP**

FLOOD CONTROL DISTRICT  
OF MARICOPA COUNTY  
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LEGEND

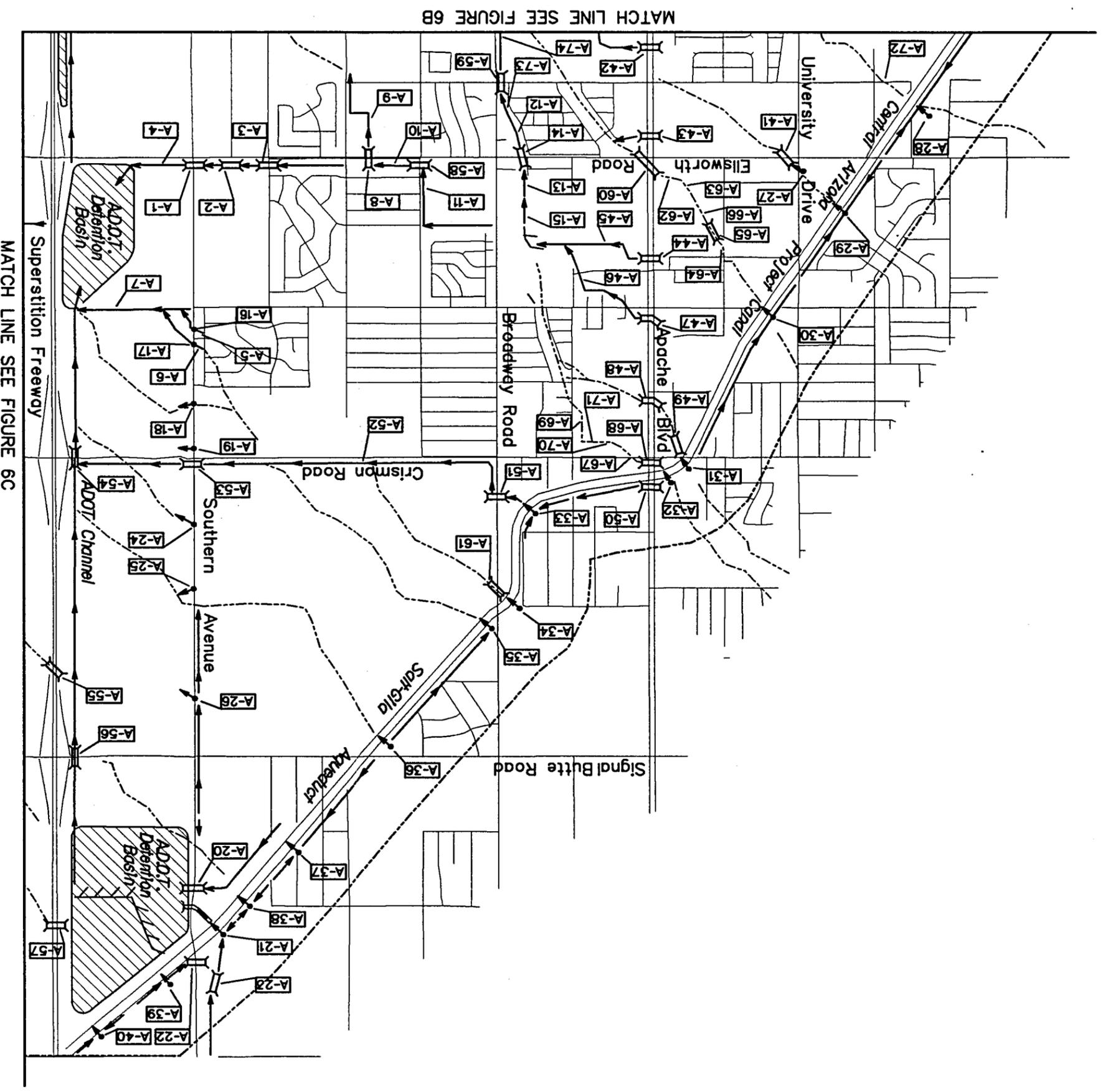
- STUDY BOUNDARY
- IDENTIFICATION LABEL
- EXISTING CHANNEL/DITCH
- EXISTING BRIDGE/CULVERT
- EXISTING STORAGE DRAIN
- EXISTING ROADWAY DRP SECTION/  
WEP/OVER-CHUTE
- EXISTING DIVERSION DIKE
- EXISTING WASH
- EXISTING DETENTION BASIN

INDEX MAP



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**Hoskin Engineering Consultants**

EXISTING FACILITIES  
FIGURE 6A



**Table 1 - Southeast Mesa Area Drainage Master Plan  
Inventory of Existing Drainage Facilities**

Facility I.D.	Abbreviation <sup>(1)</sup> , Size, and Type of Facility	Location	Ownership <sup>(1)</sup>	Reference Plan Set	Computed Flow <sup>(2)</sup> (cfs)
A-1	C 10'x3' CBC, S=0.005	E side of Ellsworth Rd. at Southern Ave.	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	220
A-2	C 10'x3' CBC, S=0.005	Florian Ave. E side of Ellsworth Rd.	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	320
A-3	C 10'x3' CBC	Sunland Ave. E side of Ellsworth Rd.	MCDOT	Field observation	92
A-4	D Concrete lined ditch, BW=8', D=3' side slope=1:1 S=0.0057	E side of Ellsworth from Pueblo Ave. S to ADOT detention basin	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	223
A-5	D Concrete lined vee ditch, L=21', S=0.007, D=1.7', W=20'	Outlet from subdivision NE corner 96th St. and Southern	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	2
A-6	D Concrete lined vee ditch, L=21', S=0.004, D=1.7', W=24'	Outlet from subdivision NE corner 96th St. and Southern	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	1
A-7	D Dirt channel	96th St. alignment between Southern Ave. and ADOT channel	FCDMC	Aerial photo	
A-8	C 4-35"X24" CMP, L=111', S=0.005	Ellsworth Rd. N of Pueblo Ave.	MCDOT	Field Observation	92
A-9	D Gunite channel BW=2.5', D=1.5' S=0.005, 5:1	W from Ellsworth Rd. at A-8	COM	Field Survey	108
A-10	D Gunite channel BW=2.5', D=1.5' S=0.005, 2:1	E side of Ellsworth Rd. from Corabell Ave. to Culvert A-8	COM	Field Observation	62

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Facility I.D.	Abbreviation <sup>(1)</sup> , Size, and Type of Facility	Location	Ownership <sup>(1)</sup>	Reference Plan Set	Computed Flow <sup>(2)</sup> (cfs)
A-11	D Concrete lined ditch	N side of Corabell Ave. E from Ellsworth Rd. To 96 <sup>th</sup> St. & N along W side of 96th	COM	Field Observation	
A-12	D Dirt channel, BW=11', D=3.95' S=0.0134, 2.5:1	W of Ellsworth Rd. South of Myrtle	COM	Field Survey	557
A-13	D Gunite channel BW=9', D=3.43' S=0.0059, 1.5:1 & 2.1	E of Ellsworth Rd. South of Myrtle	COM	Field Survey	379
A-14	C 4-8'x3' CBC, L=108', S=0.008	Across Ellsworth Rd. South of Myrtle	COM	Field Survey	550
A-15	D Gunite channel BW=6.4', D=1.4' S=0.0059, 0.72:1 & 2.5:1	E side of Ellsworth Rd. E of A-13	COM	Field Survey	11
A-16	R Road dip section 200' sag curve	220' E of the 96th St. and Southern Ave. intersection	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	
A-17	R Road dip section 150' sag curve	630' E of the 96th St. and Southern Ave. intersection	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	
A-18	R Road dip section 200' sag curve	275' E of the 98th St. and Southern Ave. intersection	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	
A-19	R Road dip section 300' sag curve	55' W of the Crismon Rd. and Southern Ave. intersection	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	
A-20	C 4-10'x6' CBC, S=0.028	Southern Ave. W of CAP	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	4400

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A-21	C 5-72" RGRCP CAP Overchute	Southern Ave. W of CAP	BOR	Southern Ave.-Ellsworth Rd. to Meridian Rd.	1200
A-22	C 3-6' 1" x 4' 7" CMP arch	North-South crossing of Southern Ave. E of CAP	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	525
A-23	C 3-6' x 5' CBC, S=0.0113	Across 114th St. N of Southern Ave.	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	690
A-24	R Road dip section 300' sag curve	1145' E of the Crismon Rd. and Southern Ave. intersection	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	
A-25	R Road dip section 300' sag curve	8315' E of the Crismon Rd. and Southern Ave. intersection	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	
A-26	R Road dip section 300' sag curve	4250' E of the Crismon Rd. and Southern Ave. intersection	MCDOT	Southern Ave.-Ellsworth Rd. to Meridian Rd.	
A-27	R Road dip section 280' sag curve	300' E of the University Dr. and Ellsworth Rd. intersection	MCDOT	University Dr.-Ellsworth Rd. to Meridian Rd.	
A-28	C 3-54" steel pipe overchutes	CAP overchute west of Ellsworth Rd.	BOR	Salt-Gila Aquaduct Reach 1B	250
A-29	D 40'-10" flume overchute	CAP overchute north of University Drive	BOR	Salt-Gila Aquaduct Reach 1B	3304
A-30	D 40'-10" flume overchute	CAP overchute south of University Drive	BOR	Salt-Gila Aquaduct Reach 1B	3304
A-31	C Three 72" steel pipe overchute	CAP overchute north of Apache Trail	BOR	Salt-Gila Aquaduct Reach 1B	600

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A-32	C Three 72" steel pipe overchute	CAP overchute north of Apache Trail	BOR	Salt-Gila Aquaduct Reach 1B	650
A-33	C Two 60" steel pipe overchute	CAP overchute north of Broadway Road, east of Crismon Road	BOR	Salt-Gila Aquaduct Reach 1B	300
A-34	C Three 72" steel pipe overchute	CAP overchute north of Broadway Road, west of 104 <sup>th</sup> Street	BOR	Salt-Gila Aquaduct Reach 1B	600
A-35	C Five 72" steel pipe overchute	CAP overchute south of Broadway	BOR	Salt-Gila Aquaduct Reach 1B	1000
A-36	C Five 72" steel pipe overchute	CAP overchute west of Signal Butte Road	BOR	Salt-Gila Aquaduct Reach 1B	1000
A-37	C Five 72" steel pipe overchute	CAP overchute east of Signal Butte Road	BOR	Salt-Gila Aquaduct Reach 1B	1000
A-38	C Five 72" steel pipe overchute	CAP overchute at 110th Street	BOR	Salt-Gila Aquaduct Reach 1B	1000
A-39	C Five 72" steel pipe overchute	CAP overchute south of Southern Avenue	BOR	Salt-Gila Aquaduct Reach 1B	1000
A-40	C Three 54" steel pipe overchute	CAP overchute west of Meridian Road	BOR	Salt-Gila Aquaduct Reach 1B	300
A-41	C Four 3'x10' CBC, L=131', S=0.003	Across Ellsworth south of University	MCDOT	Field survey	700
A-42	C N: 6'X3' CBC, L=52' S: 6'X3' CBC, L=41' S=0.005	N-S crossing of divided Apache Blvd. approx. 1/4 mi. W of Ellsworth Rd.	MCDOT	COM Storm Drain Quarter-Section Maps	100

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A-43	C N: 8'X4' CBC, L=64' S: 8'X4' CBC, L=41' S=0.005	N-S crossing of divided Apache Blvd. W of Ellsworth Rd.	MCDOT	COM Storm Drain Quarter-Section Maps	200
A-44	C N: 6'X3' CBC, L=50' S: 6'X3' CBC, L=42' S=0.005	N-S crossing of divided Apache Blvd. approx. 1/4 mi. E of Ellsworth Rd.	MCDOT	COM Storm Drain Quarter-Section Maps	100
A-45	D Earthen channel	South of Apache Blvd. from A-44 to existing E-W wash	COM	COM Storm Drain Quarter-Section Maps	
A-46	D Earthen channel	South of Apache Blvd. from A-47 to exist. E-W wash	COM	COM Storm Drain Quarter-Section Maps	
A-47	C N: 2-10'X4' CBC, L=72' S: 2-10'X4' CBC, L=42' S=0.005	N-S crossing of divided Apache Blvd. E of 96 <sup>th</sup> St.	MCDOT	COM Storm Drain Quarter-Section Maps	500
A-48	C N: 2-10'X4' CBC, L=72' S: 2-10'X4' CBC, L=42' S=0.005	N-S crossing of divided Apache Blvd. W of Crismon Rd.	MCDOT	COM Storm Drain Quarter-Section Maps	500
A-49	C 3-63"X87" CMP, L=113' S=0.005	E-W crossing of Crismon Rd. W from CAP overchute A-31	MCDOT	COM Storm Drain Quarter-Section Maps	600
A-50	C 3-63"X87" CMP, L=200' S=0.005	N-S crossing of divided Apache Blvd. E of CAP Canal	MCDOT	COM Storm Drain Quarter-Section Maps	600
A-51	C 2-6'X3' CBC, L=95', S=0.005	N-S crossing of Broadway Rd. W of CAP Canal	MCDOT	COM Storm Drain Quarter-Section Maps	250

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A-52	D Earthen channel, BW=7', S=0.007, D=2', 1.5:1	E side of Crismon Rd. from Broadway to the ADOT channel	MCDOT	COM Storm Drain Quarter-Section Maps	36
A-53	C 2-6'X2' CBC, L=59', S=0.005	N-S crossing of Southern Avenue at Crismon Rd.	MCDOT	COM Storm Drain Quarter-Section Maps	150
A-54	C 2-10'X6' CBC, L=154', S=0.005	ADOT channel crossing of Crismon Rd.	ADOT	COM Storm Drain Quarter-Section Maps	1000
A-55	C 2-8'X6' CBC, L=280', S=0.005	Southwest crossing of Superstition Freeway W of Signal Butte Rd.	ADOT	COM Storm Drain Quarter-Section Maps	750
A-56	C 2-8'X6' CBC, L=99', S=0.005	ADOT channel crossing of Signal Butte Rd.	ADOT	COM Storm Drain Quarter-Section Maps	800
A-57	C 2-8'X6' CBC, L=209', S=0.005	Southwesterly crossing of Superstition Freeway W of CAP canal	MCDOT	COM Storm Drain Quarter-Section Maps	600
A-58	C 6'X3' CBC, L=108, S=0.005	Crossing of Coralbell Ave. E side of Ellsworth Rd.	COM	COM Storm Drain Quarter-Section Maps	125
A-59	C 2-10'X3' CBC, L=99', S=0.005	90 <sup>th</sup> St. crossing N side of Broadway Rd.	MCDOT	COM Storm Drain Quarter-Section Maps	390
A-60	C 2-10'X3' CBC, L=98', S=0.0136	Southwesterly crossing of Ellsworth Rd. and Apache Blvd.	MCDOT	Field Survey	390
A-61	C 2-10'X8' CBC, L=120', S=0.005	Broadway crossing downstream of CAP overchute A-34	MCDOT	COM Storm Drain Quarter-Section Maps	1300

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A-62	D Earthen channel, BW=10', D=1.5', SS=2:1	Northeast of Ellsworth Rd. and Apache Blvd. intersection	COM	Field Survey	23
A-63	D Earthen vee ditch, TW=16', D=1'	North of Channel A-62	COM	Field Survey	35
A-64	D Concrete channel, BW=12', D=2.7', SS=1:1	Upstream of Channel A-63	COM	Field Survey	83
A-65	C 3-36" Spiral-ribbed plastic pipe	Upstream of Channel A-64	COM	Field Survey	75
A-66	D Earthen channel, BW=10', D=2.5'	North-South channel section upstream of Channel A-64	COM	Field Survey	116
A-67	D Earthen channel, BW=11', D=3.5', SS=1:1	Southwest corner Apache Blvd. and Crismon Rd.	COM	Field Survey	304
A-68	C 4-48" RCP	Southeast corner Apache Blvd. and Crismon Rd.	COM	Field Survey	380
A-69	D Earthen channel, BW=7', D=4', SS=2:1	Southwest of Apache Blvd. And Crismon Rd. through mobile home park	COM	Field Survey	345
A-70	D Earthen channel, BW=9', D=4', SS=2:1	Parallel to Crismon Rd. downstream of Channel A-69 in mobile home park	COM	Field Survey	407
A-71	D Earthen channel, BW=10', D=4', SS=4:1	Further downstream of Channel A-70 through another mobile home park	COM	Field Survey	581
A-72	D Earthen channel, BW=6', D=4'	Channel downstream of CAP overchute A-29	COM	Field Survey	66

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A-73	D Earthen channel, BW=11', D=4', SS=1:1	Ellsworth north of Broadway through mobile home park	COM	Field Survey	364
A-74	D Earthen channel, BW=15', D=3', SS=1:1	Along Broadway east of Ellsworth	COM	Field Survey	252

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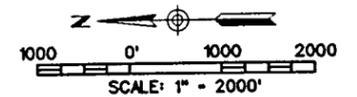
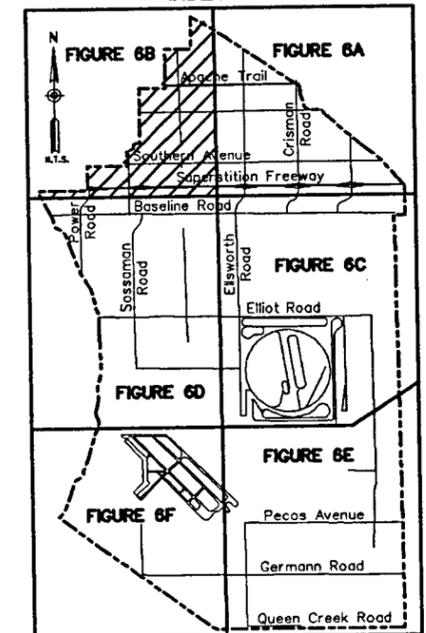
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FLOOD CONTROL DISTRICT  
OF MARICOPA COUNTY  
Southeast Mesa  
Area Drainage Master Plan  
F.C.D. CONTRACT NO. 95-32

LEGEND

STUDY BOUNDARY	---
IDENTIFICATION LABEL	D-14
EXISTING CHANNEL/DITCH	— —
EXISTING BRIDGE/CULVERT	— —
EXISTING STORM DRAIN	— —
EXISTING ROADWAY DIP SECTION/ WEIR/OVER-CHUTE	— —
EXISTING DIVERSION DIKE	— —
EXISTING WASH	— —
EXISTING DETENTION BASIN	▨

INDEX MAP

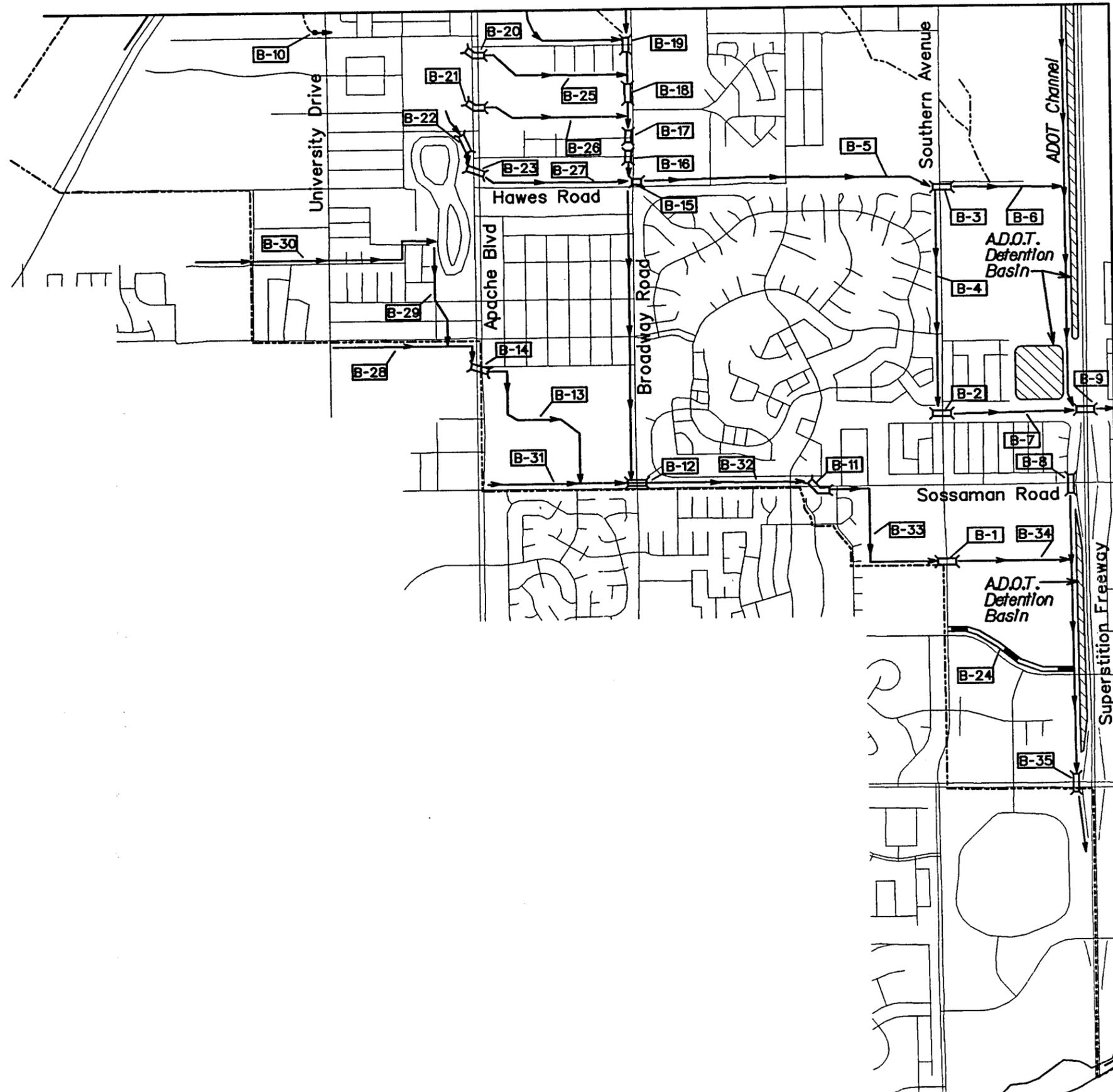


**DIBBLE & ASSOCIATES**  
CONSULTING ENGINEERS

**Hoskin Engineering Consultants**

EXISTING FACILITIES  
FIGURE 6B

MATCH LINE SEE FIGURE 6A



MATCH LINE SEE FIGURE 6D

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B-1	C 3-10'x3' CBC	Southern Ave. between Power Rd. and Sossaman Rd.	MCDOT	Southern-Power Rd. to Ellsworth Rd.	690
B-2	C 3-10'x6' CBC	Southern Ave. E of Sossaman Rd.	MCDOT	Southern Ave. concrete box culvert	1500
B-3	C 2-8'x4' CBC	Southern Ave. at Hawes alignment	MCDOT	Southern- Power Rd. to Ellsworth Rd.	480
B-4	D Gunite channel S=0.0064, BW=9', D=5', 1:1 side slope	N side of Southern from Culvert B-2 to Culvert B-3	COM	Southern-Power Rd. to Ellsworth Rd.	614
B-5	D Dirt channel, S=0.0038, BW=28', D=3', 3:1 side slope	Hawes alignment N from Culvert B-3	MCDOT	Field survey	430
B-6	D Gunite channel BW=25', D=5' 2½:1 side slope, S=0.0004	W side of Hawes S from Culvert B-3 to ADOT detention basin	MCDOT	Southern-Power Rd. to Ellsworth Rd.	612
B-7	D Concrete channel	Sossaman Channel S of Southern from Culvert B-2 to ADOT detention basin	FCDMC	Aerial photo	
B-8	C 2-10'X6' CBC, L=168', S=0.0067	ADOT channel crossing of Sossaman Rd.	ADOT	Superstition Freeway, Power Rd. To U.S. 60 - Phase IA	1100
B-9	C 6-12'X6' CBC, L=222', S=0.002	Sossaman channel crossing of Superstition Freeway	MCDOT	Superstition Freeway, Power Rd. To U.S. 60 - Phase II	4000
B-10	R Road dip section 400' sag curve	East of 88th Street across University	MCDOT	University Drive-Bush Highway (Power Road) to Ellsworth Road	

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B-11	C 2-10'X3' CBC, L=290', S=0.005	Sossaman Rd. crossing north of Southern Ave.	COM	COM Storm Drain Quarter-Section Maps	500
B-12	C 8'X3' CBC, L=84', S=0.005	Broadway Rd. crossing E side of Sossaman Rd.	COM	COM Storm Drain Quarter-Section Maps	200
B-13	D Earthen channel	S of Apache Blvd. and W to Sossaman Rd.	COM	COM Storm Drain Quarter-Section Maps	
B-14	C 2-10'X4' CBC, L=48', S=0.005	Apache Blvd. crossing W of 80 <sup>th</sup> St.	MCDOT	COM Storm Drain Quarter-Section Maps	750
B-15	C 2-10'X6' CBC, L=132', S=0.005	Broadway crossing E side of Hawes Rd.	COM	COM Storm Drain Quarter-Section Maps	1100
B-16	C 2-4'X8' CBC, L=50', S=0.005	84 <sup>th</sup> Way crossing N side of E. Broadway Rd.	MCDOT	COM Storm Drain Quarter-Section Maps	500
B-17	C 2-4'X8' CBC, L=50', S=0.005	85 <sup>th</sup> St. crossing N side of E. Broadway Rd.	MCDOT	COM Storm Drain Quarter-Section Maps	500
B-18	C 2-4'X8' CBC, L=62', S=0.005	Mobile home park entrance N side of E. Broadway Rd.	MCDOT	COM Storm Drain Quarter-Section Maps	500
B-19	C 2-4'X8' CBC, L=98', S=0.005	S. Glenmar Rd. crossing N side of E. Broadway Rd.	MCDOT	COM Storm Drain Quarter-Section Maps	500
B-20	C N: 6'X3' CBC, L=75' S: 6'X3' CBC, L=33' S=0.005	N-S crossing of divided Apache Blvd. W of 88 <sup>th</sup> St.	MCDOT	COM Storm Drain Quarter-Section Maps	130

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B-21	C N: 2-6'X3' CBC, L=73' S: 2-6'X3' CBC, L=41' S=0.005	N-S crossing of divided Apache Blvd. E of 85 <sup>th</sup> Pl.	MCDOT	COM Storm Drain Quarter-Section Maps	260
B-22	C 10'X4' CBC, L=72', S=0.005	N-S crossing of north lanes of divided Apache Blvd. at 85 <sup>th</sup> Pl.	MCDOT	COM Storm Drain Quarter-Section Maps	310
B-23	C 8'X5' CBC, L=38', S=0.005	N-S crossing of south lanes of divided Apache Blvd. W of 85 <sup>th</sup> Pl.	MCDOT	COM Storm Drain Quarter-Section Maps	330
B-24	S 84" RGRCP, L=2,285 lf, S=0.003	Storm drain on E side of Clearview Ave. S from Southern to the ADOT channel	COM	COM Storm Drain Quarter-Section Maps	
B-25	D Earthen channel	East of Hawes Rd. downstream of culvert B-20	COM	COM Storm Drain Quarter-Section Maps	
B-26	D Earthen channel	East of Hawes Rd. downstream of culvert B-21	COM	COM Storm Drain Quarter-Section Maps	
B-27	D Earthen channel	East side of Hawes Rd. between culvert B-23 across Apache Blvd. and Broadway Rd.	COM	COM Storm Drain Quarter-Section Maps	
B-28	D Earthen channel	West side of 80 <sup>th</sup> St. south from University Blvd. to culvert B-12	COM	COM Storm Drain Quarter-Section Maps	
B-29	D Earthen channel	North side of Twin Buttes westerly to 80 <sup>th</sup> St.	COM	COM Storm Drain Quarter-Section Maps	
B-30	D Earthen channel	N-S channel from south of the CAP Canal to channel B-29	COM	COM Storm Drain Quarter-Section Maps	

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B-31	D Concrete drainage ditch	East side of Sossaman Rd. from Apache Blvd. to culvert B-12 at Broadway Rd.	COM	COM Storm Drain Quarter-Section Maps	
B-32	D Concrete drainage ditch	East side of Sossaman Rd. from Broadway Rd. to culvert B-11	COM	COM Storm Drain Quarter-Section Maps	
B-33	D Concrete drainage ditch	South along W side of Sossaman Rd. from culvert B-11 to 1/4 mile north of Southern then westerly for 1/4 mile then southerly to culvert B-1	COM	COM Storm Drain Quarter-Section Maps	
B-34	D Earthen drainage ditch	72 <sup>nd</sup> St. storm drain channel southerly from culvert B-1 to ADOT detention basin	COM	Superstition Freeway, Power Rd. To U.S. 60 - Ph. II	
B-35	C 2-10'X6' RCBC, L=186', S=0.0053	ADOT channel crossing at Power Rd.	ADOT	Superstition Freeway, Higley Rd. - Power Rd.	1100

(1) **Abbreviations:** C - Culvert D - Channel/Ditch R - Roadway Cross-Section S - Storm Drain FCDMC - Flood Control District of Maricopa County MCDOT - Maricopa County Department of Transportation  
BOR - U.S. Department of Interior Bureau of Reclamation COM - City of Mesa WGAA - Williams Gateway Airport Authority

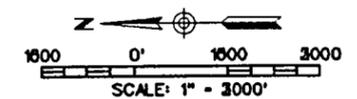
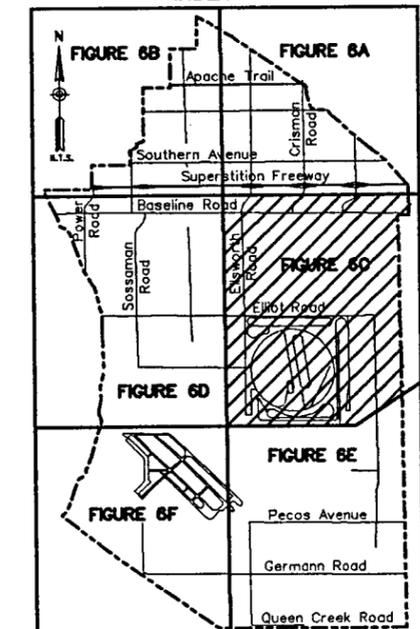
(2) Because of missing computational data, such as slopes, inverts, or cross-sectional geometry, it may not have been possible to compute flowrates.

FLOOD CONTROL DISTRICT  
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Southeast Mesa  
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F.C.D. CONTRACT NO. 95-32

LEGEND

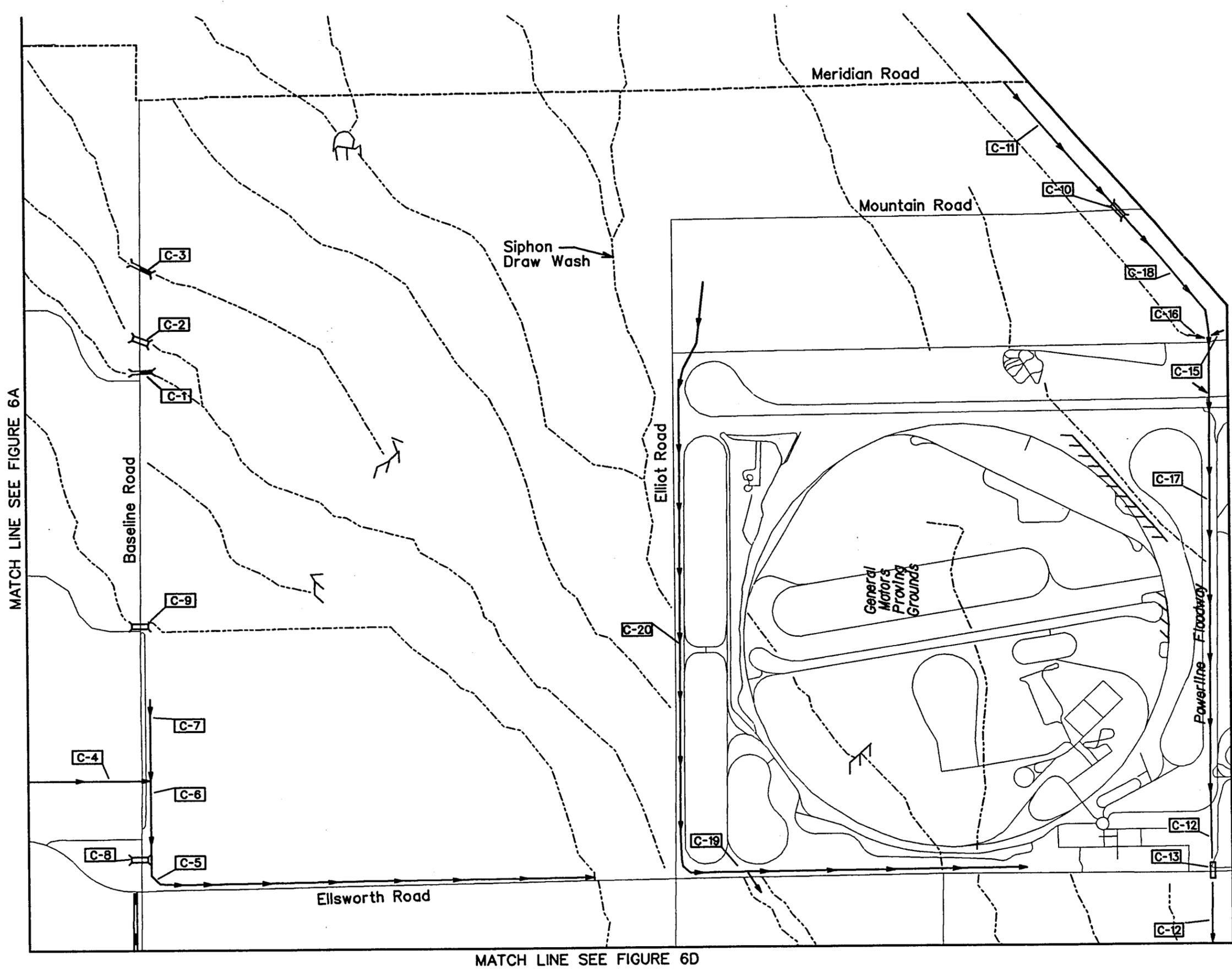
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EXISTING BRIDGE/CULVERT	⌈
EXISTING STORM DRAIN	⌈
EXISTING ROADWAY DIP SECTION/ WEIR/OVER-CHUTE	↘
EXISTING DIVERSION DIKE	⌈
EXISTING WASH	---
EXISTING DETENTION BASIN	▨

INDEX MAP



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EXISTING FACILITIES  
FIGURE 6C



**Table 1 - Southeast Mesa Area Drainage Master Plan  
Inventory of Existing Drainage Facilities**

Facility I.D.	Abbreviation <sup>(1)</sup> , Size, and Type of Facility	Location	Ownership <sup>(1)</sup>	Reference Plan Set	Computed Flow <sup>(2)</sup> (cfs)
C-1	C Three 30"x19" ellipse x96' RCP, inv. in=1509.0, inv. out=1508.5	100' E of Signal Butte Rd. on Baseline Rd.	MCDOT	Baseline Rd-Ellsworth Rd. to Meridian Rd.	75
C-2	C Three 3'x10'x162' CBC in=1513.60, out 1512.50	±100' E of Signal Butte Rd. on Baseline Rd.	MCDOT	Baseline Rd-Ellsworth Rd. to Meridian Rd.	700
C-3	C Three 30"x175' RGRCP in=1521.1, out=1519.20	±Half way between Signal Butte Rd. and Meridian Rd. on Baseline Rd.	MCDOT	Baseline Rd-Ellsworth Rd. to Meridian Rd.	125
C-4	D Dirt channel	South from Superstition Fwy. to Baseline Rd.	ADOT	COM Storm Drain Quarter-Section Maps	
C-5	D Dirt channel, S=0.0006, D=3', BW=11', Side slope=2:1	South side of Baseline Rd. east from Ellsworth Rd.	MCDOT	Baseline Rd.-Ellsworth Rd. to Meridian Rd.	57
C-6	D Dirt channel, S=0.0007, D=3', BW=6', Side slope=2:1	South side of Baseline Rd. east from C-5	MCDOT	Baseline Rd.-Ellsworth Rd. to Meridian Rd.	121
C-7	D Dirt channel, BW=4', S=0.0006, D=3', Side slope=2:1	South side of Baseline Rd. east from C-6	MCDOT	Baseline Rd.-Ellsworth Rd. to Meridian Rd.	27
C-8	C Four 30"x19" RGRCP	Baseline Rd. east of Ellsworth Rd.	MCDOT	Baseline Rd.-Ellsworth Rd. to Meridian Rd.	70
C-9	C Three 3'x10' CBC	Baseline Rd. east of Crismon Rd.	MCDOT	Baseline Rd.-Ellsworth Rd. to Meridian Rd.	675
C-10	C Concrete, L=16', BW=6', S=0.006, 1½ :1, D=4.5'	Bridge across Power Floodway at Mountain Road	FCDMC	Powerline Floodway	180

(1) **Abbreviations:** C - Culvert D - Channel/Ditch R - Roadway Cross-Section S - Storm Drain FCDMC - Flood Control District of Maricopa County MCDOT - Maricopa County Department of Transportation  
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(2) Because of missing computational data, such as slopes, inverts, or cross-sectional geometry, it may not have been possible to compute flowrates.

**Table 1 - Southeast Mesa Area Drainage Master Plan  
Inventory of Existing Drainage Facilities**

Facility I.D.	Abbreviation <sup>(1)</sup> , Size, and Type of Facility	Location	Ownership <sup>(1)</sup>	Reference Plan Set	Computed Flow <sup>(2)</sup> (cfs)
C-11	D Concrete channel, BW=6', S=0.006, 1½ :1, D=5', FB=0.5'	Power Floodway E of Mountain Road	FCDMC	Powerline Floodway	642
C-12	D Concrete channel BW=8', S=0.004, 1½ :1, D=6.25', FB=1.5'	Power Floodway west and east of Ellsworth Rd.	FCDMC	Powerline Floodway	1381
C-13	C 14'x6.5' CBC	Power Floodway crossing Ellsworth Rd.	FCDMC	Powerline Floodway	475
C-15	D Weir channel, BW=35.5'	North into Power Floodway at section corner 13-14-23-24, W of Mountain Rd.	FCDMC	Powerline Floodway	270
C-16	D Weir channel, BW=15'	South into Power Floodway at section corner 13-14-23-24, W of Mountain Rd.	FCDMC	Powerline Floodway	124
C-17	D Concrete channel, BW=8', S=0.004, 1½ :1, D=5.75', FB=1'	Power Floodway through GM Proving Grounds	FCDMC	Powerline Floodway	1068
C-18	D Concrete channel, BW=6', S=0.006, 1½ :1, D=5', FB=0.5'	Power Floodway from weir channels to Mountain Rd.	FCDMC	Powerline Floodway	790
C-19	D Earthen channel, BW=31.5', S=0.004, D=6', 4.5:1	Perimeter channel along the west side of the GM Proving Grounds	General Motors	Field Survey, General Motors Desert Proving Grounds, As-Built Area Drainage Study	2151

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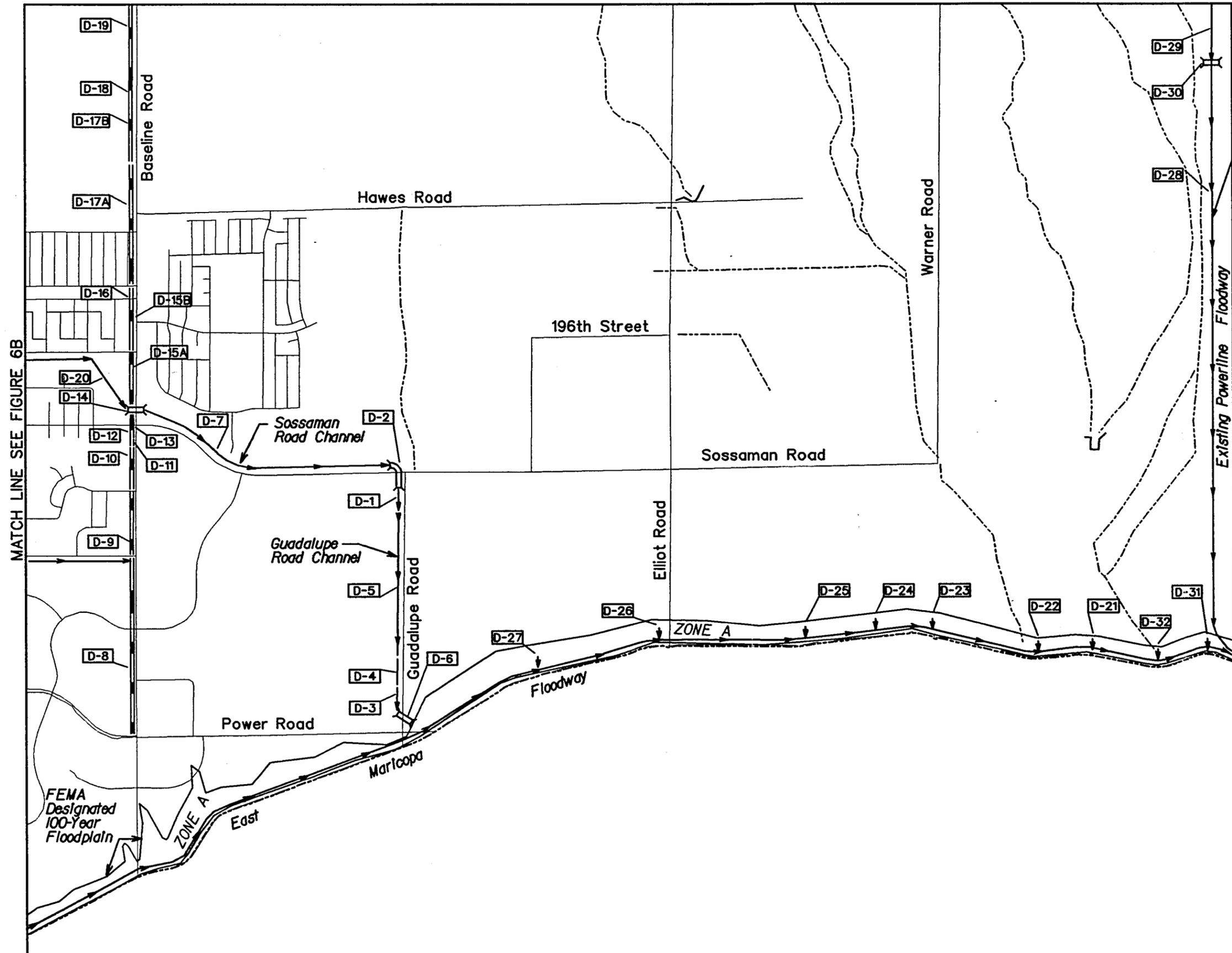
**Table 1 - Southeast Mesa Area Drainage Master Plan  
Inventory of Existing Drainage Facilities**

Facility I.D.	Abbreviation <sup>(1)</sup> , Size, and Type of Facility	Location	Ownership <sup>(1)</sup>	Reference Plan Set	Computed Flow <sup>(2)</sup> (cfs)
C-20	D Earthen channel, BW=13', S=0.004, D=4', 2.5:1	Perimeter channel along the north side of the GM Proving Grounds	General Motors	Field Survey, General Motors Desert Proving Grounds, As-Built Area Drainage Study	380

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(2) Because of missing computational data, such as slopes, inverts, or cross-sectional geometry, it may not have been possible to compute flowrates.

MATCH LINE SEE FIGURE 6C

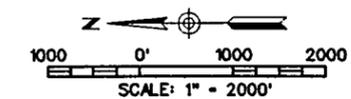
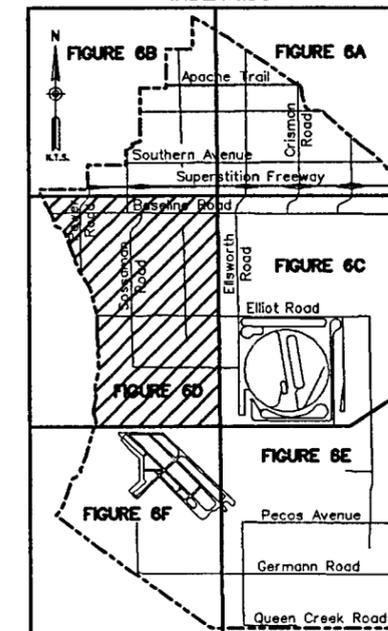


FLOOD CONTROL DISTRICT  
OF MARICOPA COUNTY  
Southeast Mesa  
Area Drainage Master Plan  
F.C.D. CONTRACT NO. 95-32

LEGEND

STUDY BOUNDARY	---
IDENTIFICATION LABEL	D-14
EXISTING CHANNEL/DITCH	←→
EXISTING BRIDGE/CULVERT	⌈⌋
EXISTING STORM DRAIN	—
EXISTING ROADWAY DIP SECTION/ WEIR/OVER-CHUTE	⌒
EXISTING DIVERSION DIKE	///
EXISTING WASH	- - -
EXISTING DETENTION BASIN	▨

INDEX MAP



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CONSULTING ENGINEERS  
**Hoskin Engineering Consultants**

EXISTING FACILITIES  
FIGURE 6D

**Table 1 - Southeast Mesa Area Drainage Master Plan  
Inventory of Existing Drainage Facilities**

Facility I.D.	Abbreviation <sup>(1)</sup> , Size, and Type of Facility	Location	Ownership <sup>(1)</sup>	Reference Plan Set	Computed Flow <sup>(2)</sup> (cfs)
D-1	D 38'x8' concrete channel	North side of Guadalupe Rd. west of Sossaman Rd.	FCDMC	Guadalupe Road Channel and Sossaman Road Box Culvert	3489
D-2	C Four 10'x6' and One 6'x6' CBC	Intersection Sossaman Rd. and Guadalupe Rd.	FCDMC	Guadalupe Road Channel and Sossaman Road Box Culvert	2945
D-3	D 38'x12' concrete channel	North side of Guadalupe Rd. east of Power Rd.	FCDMC	Guadalupe Road Channel	5560
D-4	D Concrete channel transition 38'x12' to 38'x8'	North side of Guadalupe Rd. east of Power Rd.	FCDMC	Guadalupe Road Channel	4103
D-5	D 38'x8' concrete channel	North side of Guadalupe Rd. east of Power Rd.	FCDMC	Guadalupe Road Channel	3684
D-6	C Three 12'x10' CBC	Guadalupe Rd. crossing, east of Power Rd./Guadalupe Rd. intersection	FCDMC	Guadalupe Road Channel	3800
D-7	D Dirt channel	Approx. 100' E of Sossaman Rd. north from Guadalupe Rd.	FCDMC	Sossaman Rd.-Guadalupe Rd. to Baseline Rd.	
D-8	S Two 54" CIPP or RCP	North of Baseline Rd. from Power Rd. to 72nd St.	MCDOT	Baseline Rd.-Power Rd. to Ellsworth Rd.	325
D-9	S One 48" and One 36" CIPP or RCP	North of Baseline Rd. from 72nd St. to 74th St.	MCDOT	Baseline Rd.-Power Rd. to Ellsworth Rd.	191
D-10	S One 42" and One 36" CIPP or RCP	North of Baseline Rd. east of 74th St. for 850 ft.	MCDOT	Baseline Rd.-Power Rd. to Ellsworth Rd.	137

(1) **Abbreviations:** C - Culvert D - Channel/Ditch R - Roadway Cross-Section S - Storm Drain FCDMC - Flood Control District of Maricopa County MCDOT - Maricopa County Department of Transportation  
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(2) Because of missing computational data, such as slopes, inverts, or cross-sectional geometry, it may not have been possible to compute flowrates.

**Table 1 - Southeast Mesa Area Drainage Master Plan  
Inventory of Existing Drainage Facilities**

Facility I.D.	Abbreviation <sup>(1)</sup> , Size, and Type of Facility	Location	Ownership <sup>(1)</sup>	Reference Plan Set	Computed Flow <sup>(2)</sup> (cfs)
D-11	S One 42" and one 24" CIPP or RCP	North of Baseline Rd. east from D-10 for 150 ft.	MCDOT	Baseline Rd.-Power Rd. to Ellsworth Rd.	84
D-12	S One 42" CIPP or RCP	North of Baseline Rd. east from D-11 for 334 ft.	MCDOT	Baseline Rd.-Power Rd. to Ellsworth Rd.	124
D-13	S One 24" CIPP or RCP	North of Baseline Rd. east from D-11 for 255 ft.	MCDOT	Baseline Rd.-Power Rd. to Ellsworth Rd.	28
D-14	C Four 10'x8' CBC, S=0.007	Sossaman channel crossing of Baseline Rd.	FCDMC	Baseline Rd.-Power Rd. to Ellsworth Rd.	3800
D-15a	S Two 54" CIPP or RGRCP, L=850 lf, S=0.002	North side of Baseline Rd. east of Sossaman channel to 78th St.	MCDOT	Baseline Rd.-Power Rd. to Ellsworth Rd.	191
D-15b	S Two 54" CIPP or RGRCP, L=273 lf, S=0.0083	North side of Baseline Rd. east of Sossaman channel to 78th St.	MCDOT	Baseline Rd.-Power Rd. to Ellsworth Rd.	388
D-16	S Two 48" CIPP or RGRCP	North side of Baseline Rd., 78th St. to 80th Pl.	MCDOT	Baseline Rd.-Power Rd. to Ellsworth Rd.	278
D-17a	S One 42" CIPP or RGRCP, L=2439 lf, S=0.007	North side of Baseline Rd., east of 80th Pl. for 2439'	MCDOT	Baseline Rd.-Power Rd. to Ellsworth Rd.	91
D-17b	S One 42" CIPP or RGRCP, L=555 lf, S=0.005	North side of Baseline Rd., east from D-17a	MCDOT	Baseline Rd.-Power Rd. to Ellsworth Rd.	77
D-18	S One 36" CIPP or RGRCP	North side of Baseline Rd. for 1655' east of D-17	FCDMC	Baseline Rd.-Power Rd. to Ellsworth Rd.	51

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Inventory of Existing Drainage Facilities**

Facility I.D.	Abbreviation <sup>(1)</sup> , Size, and Type of Facility	Location	Ownership <sup>(1)</sup>	Reference Plan Set	Computed Flow <sup>(2)</sup> (cfs)
D-19	S One 30" CIPP or RGRCP	North side of Baseline Rd. from D-18 to Ellsworth Rd.	FCDMC	Baseline Rd.-Power Rd. to Ellsworth Rd.	31
D-20	D Channel	East of Sossaman Rd. from Superstition Freeway south to Guadalupe Rd.	FCDMC	Baseline Rd.-Power Rd. to Ellsworth Rd.	
D-21	D Weir inlet, BW=53', D=2.9', 3:1	EMF side inlet north of inlet D-32	FCDMC	E. Maricopa Floodway, Reach 5	792
D-22	D Weir inlet, BW=229', D=2.8', 3:1	EMF side inlet north of inlet D-21	FCDMC	E. Maricopa Floodway, Reach 5	2892
D-23	D Weir inlet, BW=208', D=2.9', 3:1	EMF side inlet north of inlet D-22	FCDMC	E. Maricopa Floodway, Reach 5	2782
D-24	D Weir inlet, BW=60', D=2.9', 3:1	EMF side inlet north of inlet D-23	FCDMC	E. Maricopa Floodway, Reach 5	882
D-25	D Weir inlet, BW=10', D=2.9', 3:1	EMF side inlet north of inlet D-24, south of Elliot Rd.	FCDMC	E. Maricopa Floodway, Reach 5	240
D-26	D Weir inlet, BW=204', D=3', 3:1	EMF side inlet north of inlet D-25, north of Elliot Rd.	FCDMC	E. Maricopa Floodway, Reach 5	2878
D-27	D Weir inlet, BW=50', D=2.9', 3:1	EMF side inlet north of inlet D-26, between Elliot Rd. and Guadalupe Rd.	FCDMC	E. Maricopa Floodway, Reach 5	758
D-28	D Rip-rap channel, BW=60', S=0.003, side slope 2:1, D=6', FB=1.5'	Powerline Floodway east of East Maricopa Floodway	FCDMC	Powerline Floodway	2452

(1) **Abbreviations:** C - Culvert D - Channel/Ditch R - Roadway Cross-Section S - Storm Drain FCDMC - Flood Control District of Maricopa County MCDOT - Maricopa County Department of Transportation  
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**Table 1 - Southeast Mesa Area Drainage Master Plan  
Inventory of Existing Drainage Facilities**

Facility I.D.	Abbreviation <sup>(1)</sup> , Size, and Type of Facility	Location	Ownership <sup>(1)</sup>	Reference Plan Set	Computed Flow <sup>(2)</sup> (cfs)
D-29	D Concrete channel, BW=8', S=0.004, D=6.5', FB=1.5', 1½ :1	Powerline Floodway west of Ellsworth Rd.	FCDMC	Powerline Floodway	2181
D-30	C Concrete bridge similar to D-29	Powerline Floodway west of Ellsworth Rd.	FCDMC	Powerline Floodway	400
D-31	D Concrete weir inlet, BW=20', D=2.8', 3:1	EMF side inlet N of Powerline Floodway	FCDMC	East Maricopa Floodway, Reach 5	346
D-32	D Concrete Weir inlet, BW=62', D=2.9', 3:1	EMF side inlet north of inlet F-4	FCDMC	East Maricopa Floodway, Reach 5	908

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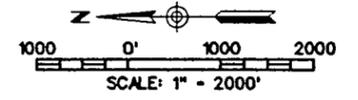
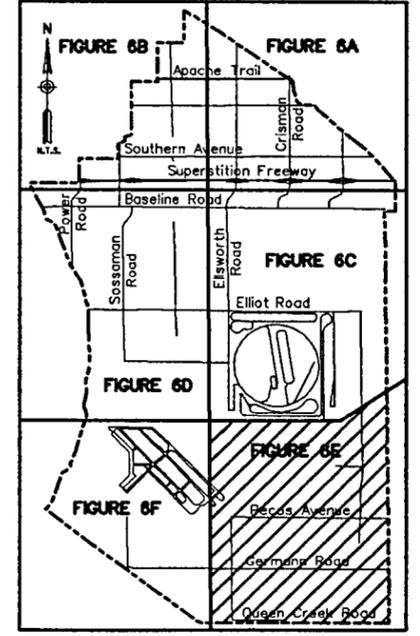
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FLOOD CONTROL DISTRICT  
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Southeast Mesa  
Area Drainage Master Plan  
F.C.D. CONTRACT NO. 95-32

LEGEND

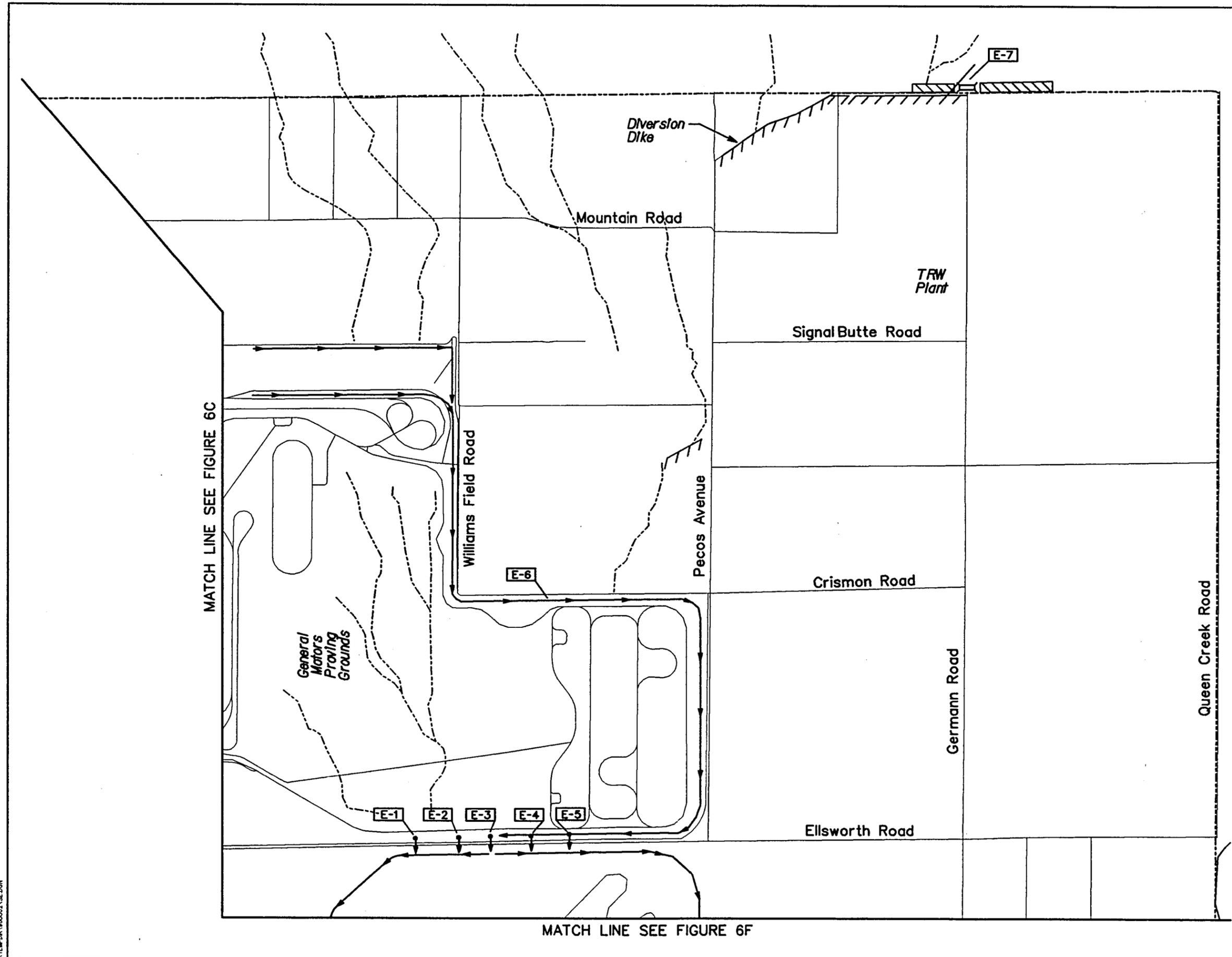
STUDY BOUNDARY	---
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EXISTING BRIDGE/CULVERT	⌈⌋
EXISTING STORM DRAIN	══
EXISTING ROADWAY DIP SECTION/ WEIR/OVER-CHUTE	↘
EXISTING DIVERSION DIKE	////
EXISTING WASH	- - - -
EXISTING DETENTION BASIN	▨

INDEX MAP



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**Hoskin Engineering Consultants**

EXISTING FACILITIES  
FIGURE 6E



C:\TEMP\9502\ASE.DGN

**Table 1 - Southeast Mesa Area Drainage Master Plan  
Inventory of Existing Drainage Facilities**

Facility I.D.	Abbreviation <sup>(1)</sup> , Size, and Type of Facility	Location	Ownership <sup>(1)</sup>	Reference Plan Set	Computed Flow <sup>(2)</sup> (cfs)
E-1	R Road dip section 220' sag curve	Ellsworth Rd. N of Williams Field Rd. alignment	MCDOT	Ellsworth Rd.-Queen Creek Rd. to 1½ miles south of Elliot Rd.	
E-2	R Road dip section 220' sag curve	Ellsworth at Williams Field Rd. alignment	MCDOT	Ellsworth Rd.-Queen Creek Rd. to 1½ miles south of Elliot Rd.	
E-3	R Road dip section 220' sag curve	Ellsworth Rd. approx. 460' south of Williams Field Rd. alignment	MCDOT	Ellsworth Rd.-Queen Creek Rd. to 1½ miles south of Elliot Rd.	
E-4	R Road dip section 220' sag curve	Ellsworth Rd. approx. 1500' south of Williams Field Rd. alignment	MCDOT	Ellsworth Rd.-Queen Creek Rd. to 1½ miles south of Elliot Rd.	
E-5	R Road dip section 240' sag curve	Ellsworth Rd. approx. 2300' south of Williams Field Rd. alignment	MCDOT	Ellsworth Rd.-Queen Creek Rd. to 1½ miles south of Elliot Rd.	
E-6	D Earthen channel	Perimeter channel around the eastern and southern boundaries of GM Proving Grounds to Ellsworth Rd.	General Motors	Field Survey, Aerial Photos	

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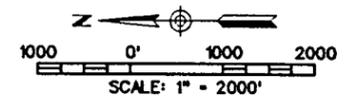
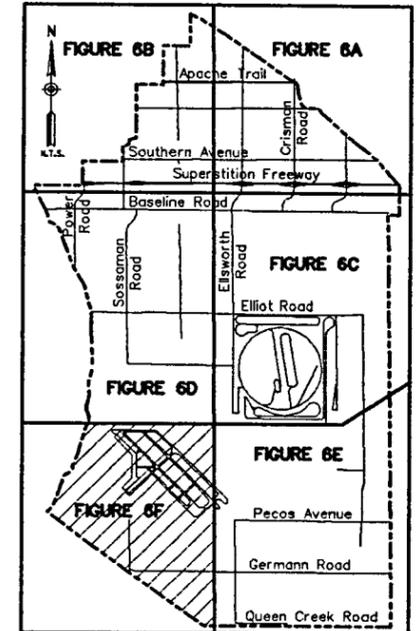
(2) Because of missing computational data, such as slopes, inverts, or cross-sectional geometry, it may not have been possible to compute flowrates.

FLOOD CONTROL DISTRICT  
OF MARICOPA COUNTY  
Southeast Mesa  
Area Drainage Master Plan  
F.C.D. CONTRACT NO. 95-32

LEGEND

STUDY BOUNDARY	---
IDENTIFICATION LABEL	D-14
EXISTING CHANNEL/DITCH	←→
EXISTING BRIDGE/CULVERT	⌈⌋
EXISTING STORM DRAIN	==
EXISTING ROADWAY DIP SECTION/ WEIR/OVER-CHUTE	⌒
EXISTING DIVERSION DIKE	///
EXISTING WASH	- - -
EXISTING DETENTION BASIN	▨

INDEX MAP

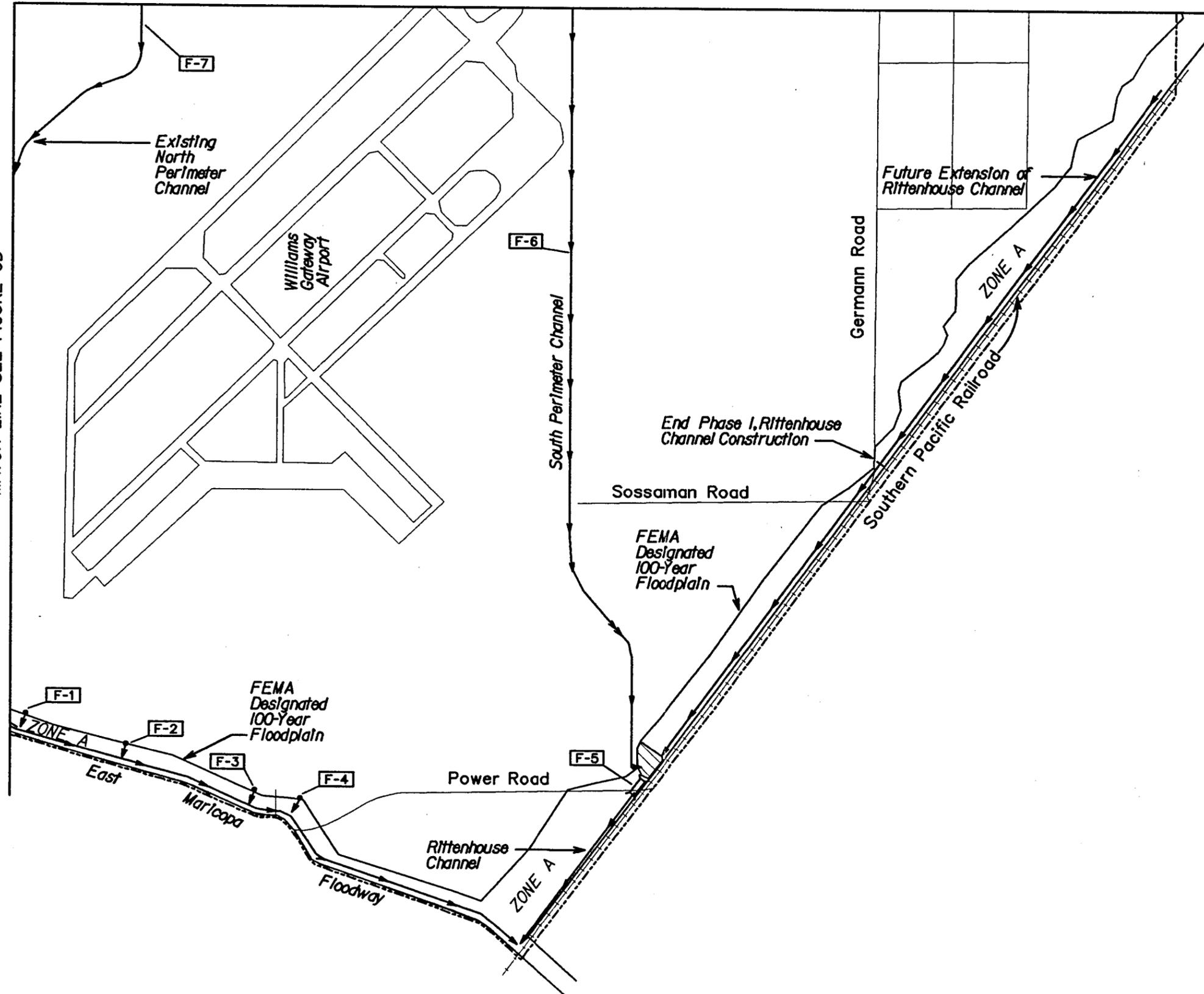


**DIBBLE & ASSOCIATES**  
CONSULTING ENGINEERS  
**Hoskin Engineering Consultants**

EXISTING FACILITIES  
FIGURE 6F

MATCH LINE SEE FIGURE 6E

MATCH LINE SEE FIGURE 6D



**Table 1 - Southeast Mesa Area Drainage Master Plan  
Inventory of Existing Drainage Facilities**

Facility I.D.	Abbreviation <sup>(1)</sup> , Size, and Type of Facility	Location	Ownership <sup>(1)</sup>	Reference Plan Set	Computed Flow <sup>(2)</sup> (cfs)
F-1	D Concrete Weir inlet, BW=10', D=1.5', 6:1	EMF side inlet south of Powerline Floodway	FCDMC	RWCD floodway, Reach 4	91
F-2	D Concrete Weir inlet, BW=40', D=1.5', 6:1	EMF side inlet south of inlet F-6	FCDMC	RWCD floodway, Reach 4	234
F-3	D Concrete Weir inlet, BW=10', D=1.5', 6:1	EMF side inlet south of inlet F-7, north of Williams Field Rd.	FCDMC	RWCD floodway, Reach 4	91
F-4	D Concrete Weir inlet, BW=40', D=1.5', 6:1	EMF side inlet south of inlet F-8, south of Williams Field Rd.	FCDMC	RWCD floodway, Reach 4	234
F-5	C 3-4'X6' RCBC, S=0.005	Rittenhouse Channel crossing at Power Rd.	FCDMC	Field survey	600
F-6	D Earthen channel, BW=13', S=0.004, D=4.1', 3:1	South perimeter channel, Williams Gateway Airport	WGAA	Williams Gate Airport Master Drainage Plan Report	402
F-7	D Earthen channel, BW=7', S=0.006, D=5.1', 4.5:1	South perimeter channel, Williams Gateway Airport	WGAA	Williams Gate Airport Master Drainage Plan Report	752

(1) **Abbreviations:** C - Culvert D - Channel/Ditch R - Roadway Cross-Section S - Storm Drain FCDMC - Flood Control District of Maricopa County MCDOT - Maricopa County Department of Transportation  
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(2) Because of missing computational data, such as slopes, inverts, or cross-sectional geometry, it may not have been possible to compute flowrates.

## Southeast Mesa ADMP Channel Capacities

**Channel Properties**

Concrete	Manning's 'n' =	0.013
Earth	Manning's 'n' =	0.025
Grass	Ret. Class =	34.6
Riprap	Manning's 'n' =	0.04

Channel ID	Slope [ft/ft]	Mat'l Type	SS H:V	B [ft]	Depth [ft]	Area [ft^2]	Perimeter [ft]	Qcalc [cfs]	Vel. [fps]	Froude #	Type of Flow	Optimal	
												Freeboard [ft]	Topwidth [ft]
A-4	0.0057	C	1.0	8	3.0	33	16	452	13.7	1.39	Sup	1.5	17.0
A-4	0.0057	C	1.0	8	2.0	20	14	223	11.1	1.39	Sup	1.0	14.0
A-5	0.0110	C	0.2	0	1.7	0	3	2	3.3	0.44	Sub	1.0	0.9
A-6	0.0110	C	0.1	0	1.7	0	3	1	2.9	0.39	Sub	1.0	0.8
A-7*	unknown	E											
A-9	0.0050	C	2.2	2.5	1.5	9	10	65	7.5	1.08	Trans	1.0	13.5
A-9	0.0050	C	5.0	2.5	1.5	15	18	108	7.2	1.04	Trans	1.0	27.5
A-10	0.0050	C	2.0	2.5	1.5	8	9	62	7.5	1.08	Trans	1.0	12.5
A-11*	unknown	C											
A-12	0.0134	E	2.5	11	4.0	82	32	1060	12.9	1.14	Trans	1.6	38.9
A-12	0.0134	E	2.5	11	2.9	52	26	557	10.8	1.13	Trans	1.2	31.1
A-13	0.0059	C	1.5	9	3.4	49	21	736	15.2	1.44	Sup	1.8	24.5
A-13	0.0059	C	1.5	9	2.3	29	17	352	12.3	1.43	Sup	1.2	19.4
A-13	0.0059	C	2.0	9	3.4	54	24	817	15.0	1.43	Sup	1.7	29.6
A-13	0.0059	C	2.0	9	2.3	31	19	379	12.1	1.41	Sup	1.1	22.8
A-15	0.0059	C	0.7	6	1.4	10	9	88	9.0	1.34	Sup	1.0	9.5
A-15	0.0059	C	0.7	6	0.4	3	7	11	4.4	1.24	Trans	1.0	8.0
A-15	0.0059	C	2.5	6	1.4	13	14	115	8.7	1.29	Sup	1.0	18.0
A-15	0.0059	C	2.5	6	0.4	3	8	12	4.3	1.20	Trans	1.0	13.0
A-29	0.0050	C	0.0	40.833	6.8	276	54	6577	23.9	1.62	Sup	3.9	40.8
A-29	0.0050	C	0.0	40.833	4.3	176	49	3304	18.8	1.60	Sup	2.4	40.8
A-30	0.0050	C	0.0	40.833	6.8	276	54	6577	23.9	1.62	Sup	3.9	40.8
A-30	0.0050	C	0.0	40.833	4.3	176	49	3304	18.8	1.60	Sup	2.4	40.8
A-45*	unknown	E											
A-46*	unknown	E											
A-52	0.0070	E	1.5	7	2.0	20	14	125	6.2	0.78	Sub	1.0	16.0
A-52	0.0070	E	1.5	7	1.0	9	11	36	4.3	0.76	Sub	1.0	13.0
A-62	0.0140	E	2.0	10	1.5	20	17	152	7.8	1.12	Trans	1.0	20.0
A-62	0.0140	E	2.0	10	0.5	6	12	23	4.1	1.03	Trans	1.0	16.0
A-63	0.0140	E	8.0	0	1.0	8	16	35	4.4	0.78	Sub	1.0	32.0
A-64	0.0140	C	1.0	12	1.7	23	17	380	16.6	2.27	Sup	1.5	18.3
A-64	0.0140	C	1.0	12	0.7	8	14	83	9.7	2.10	Sup	1.0	15.3
A-66	0.0140	E	0.0	10	2.5	25	15	247	9.9	1.10	Trans	1.0	10.0
A-66	0.0140	E	0.0	10	1.5	15	13	116	7.7	1.11	Trans	1.0	10.0
A-67	0.0100	E	1.0	11	3.5	51	21	545	10.7	1.01	Trans	1.3	20.6
A-67	0.0100	E	1.0	11	2.5	34	18	304	9.0	1.00	Trans	1.0	18.0
A-69	0.0100	E	2.0	7	4.0	60	25	641	10.7	0.94	Trans	1.4	28.8
A-69	0.0100	E	2.0	7	3.0	38	20	345	9.1	0.93	Trans	1.1	23.0
A-70	0.0100	E	2.0	9	4.0	68	27	750	11.0	0.97	Trans	1.5	30.9
A-70	0.0100	E	2.0	9	2.9	44	22	407	9.3	0.96	Trans	1.1	25.0
A-71	0.0100	E	4.0	10	4.0	104	43	1114	10.7	0.94	Trans	1.4	53.6
A-71	0.0100	E	4.0	10	3.0	64	34	581	9.0	0.93	Trans	1.1	42.0
A-72	0.0002	E	4.0	6	4.0	88	39	127	1.4	0.13	Sub	1.0	46.1

\*Denotes missing computational data. Flowrates could not be calculated  
DIBBLE & ASSOCIATES/HOSKIN ENGINEERING CONSULTANTS

## Southeast Mesa ADMP Channel Capacities

### Channel Properties

Concrete	Manning's 'n' =	0.013
Earth	Manning's 'n' =	0.025
Grass	Ret. Class =	34.6
Riprap	Manning's 'n' =	0.04

Channel ID	Slope [ft/ft]	Mat'l Type	SS H:V	B [ft]	Depth [ft]	Area [ft^2]	Perimeter [ft]	Qcalc [cfs]	Vel. [fps]	Froude #	Type of Flow	Optimal	
												Freeboard [ft]	Topwidth [ft]
A-72	0.0002	E	4.0	6	3.0	54	31	66	1.2	0.12	Sub	1.0	38.0
A-73	0.0080	E	1.0	11	4.0	60	22	617	10.3	0.91	Trans	1.4	21.8
A-73	0.0080	E	1.0	11	3.0	41	19	364	8.8	0.90	Trans	1.0	19.0
A-74	0.0080	E	1.0	15	3.0	54	23	500	9.3	0.94	Trans	1.1	23.2
A-74	0.0080	E	1.0	15	2.0	34	21	252	7.4	0.92	Trans	1.0	21.0
B-4	0.0064	C	1.0	9	5.0	70	23	1339	19.1	1.51	Sup	2.7	24.3
B-4	0.0064	C	1.0	9	3.3	40	18	614	15.4	1.51	Sup	1.7	19.0
B-5	0.0057	E	3.0	28	3.0	111	47	884	8.0	0.81	Trans	1.0	52.0
B-5	0.0057	E	3.0	28	2.0	68	41	430	6.3	0.79	Sub	1.0	46.0
B-6	0.0004	C	2.5	25	5.0	188	52	970	5.2	0.41	Sub	1.4	56.8
B-6	0.0004	C	2.5	25	3.9	136	46	612	4.5	0.40	Sub	1.1	49.8
B-7*	0.0060	C											
B-13*	unknown	E											
B-25*	unknown	E											
B-26*	unknown	E											
B-27*	unknown	E											
B-28*	unknown	E											
B-29*	unknown	E											
B-30*	unknown	E											
B-31*	unknown	C											
B-32*	unknown	C											
B-33*	unknown	C											
B-34*	unknown	E											
C-4*	unknown	E											
C-5	0.0006	E	2.0	11	3.0	51	24	121	2.4	0.24	Sub	1.0	27.0
C-5	0.0006	E	2.0	11	2.0	30	20	57	1.9	0.24	Sub	1.0	23.0
C-6	0.0070	E	2.0	6	3.0	36	19	270	7.5	0.76	Sub	1.0	22.0
C-6	0.0070	E	2.0	6	2.0	20	15	121	6.0	0.75	Sub	1.0	18.0
C-7	0.0006	E	2.0	4	3.0	30	17	63	2.1	0.21	Sub	1.0	20.0
C-7	0.0006	E	2.0	4	2.0	16	13	27	1.7	0.21	Sub	1.0	16.0
C-11	0.0060	C	1.5	6	5.5	78	26	1454	18.6	1.39	Sup	2.7	30.6
C-11	0.0060	C	1.5	6	3.7	43	19	642	15.0	1.38	Sup	1.8	22.5
C-12	0.0040	C	1.5	8	7.8	152	36	2877	18.9	1.20	Trans	3.3	41.2
C-12	0.0040	C	1.5	8	5.5	88	28	1381	15.7	1.18	Trans	2.3	31.3
C-15	0.0040	C	5.0	35.5	2.0	91	56	910	10.0	1.25	Trans	1.0	65.5
C-15	0.0040	C	5.0	35.5	1.0	41	46	270	6.7	1.18	Trans	1.0	55.5
C-16	0.0040	C	5.0	15	2.0	50	35	455	9.1	1.13	Trans	1.0	45.0
C-16	0.0040	C	5.0	15	1.0	20	25	124	6.2	1.09	Trans	1.0	35.0
C-17	0.0040	C	1.5	8	6.8	122	32	2148	17.6	1.19	Trans	2.9	36.9
C-17	0.0040	C	1.5	8	4.8	73	25	1068	14.6	1.18	Trans	2.0	28.5
C-18	0.0060	C	1.5	6	5.5	78	26	1454	18.6	1.39	Sup	2.7	30.6
C-18	0.0060	C	1.5	6	4.1	50	21	790	15.9	1.38	Sup	2.0	24.3

\*Denotes missing computational data. Flowrates could not be calculated  
DIBBLE & ASSOCIATES/HOSKIN ENGINEERING CONSULTANTS

## Southeast Mesa ADMP Channel Capacities

**Channel Properties**

Concrete	Manning's 'n' =	0.013
Earth	Manning's 'n' =	0.025
Grass	Ret. Class =	34.6
Riprap	Manning's 'n' =	0.04

Channel ID	Slope [ft/ft]	Mat'l Type	SS H:V	B [ft]	Depth [ft]	Area [ft^2]	Perimeter [ft]	Qcalc [cfs]	Vel. [fps]	Froude #	Type of Flow	Optimal	
												Freeboard [ft]	Topwidth [ft]
C-19	0.0040	E	4.5	31.5	6.0	351	87	3349	9.5	0.69	Sub	1.9	102.2
C-19	0.0040	E	4.5	31.5	4.8	255	76	2151	8.4	0.68	Sub	1.5	88.0
C-20	0.0040	E	2.5	13	4.0	92	35	665	7.2	0.64	Sub	1.2	39.0
C-20	0.0040	E	2.5	13	3.0	62	29	380	6.2	0.63	Sub	1.0	33.0
D-1	0.0030	C	0.0	38	8.0	304	54	6023	19.8	1.23	Trans	3.5	38.0
D-1	0.0030	C	0.0	38	5.6	211	49	3489	16.5	1.24	Trans	2.4	38.0
D-3	0.0020	C	0.0	38	12.0	456	62	8816	19.3	0.98	Trans	4.5	38.0
D-3	0.0020	C	0.0	38	8.7	331	55	5560	16.8	1.00	Trans	3.3	38.0
D-4	0.0188	C	0.0	38	8.0	304	54	15078	49.6	3.09	Sup	11.5	38.0
D-4	0.0188	C	0.0	38	3.4	129	45	4103	31.8	3.03	Sup	4.8	38.0
D-5	0.0036	C	0.0	38	8.0	304	54	6630	21.8	1.36	Sup	3.8	38.0
D-5	0.0036	C	0.0	38	5.4	205	49	3684	18.0	1.36	Sup	2.6	38.0
D-7*	0.0036	E											
D-20*	unknown	E											
D-28	0.0030	R	2.0	60	7.5	563	94	3785	6.7	0.43	Sub	2.1	98.2
D-28	0.0030	R	2.0	60	5.9	419	86	2452	5.8	0.43	Sub	1.6	89.8
D-29	0.0040	C	1.5	8	8.0	160	37	3079	19.2	1.20	Trans	3.4	42.3
D-29	0.0040	C	1.5	8	6.8	124	33	2181	17.6	1.19	Trans	2.9	37.1
E-6*	unknown	E											
F-6	0.0040	E	3.0	13	4.1	104	39	749	7.2	0.63	Sub	1.2	45.0
F-6	0.0040	E	3.0	13	3.0	66	32	402	6.1	0.62	Sub	1.0	37.0
F-7	0.0060	E	4.5	7	5.1	153	54	1406	9.2	0.72	Sub	1.6	67.3
F-7	0.0060	E	4.5	7	3.9	96	43	752	7.9	0.70	Sub	1.2	53.0

\*Denotes missing computational data. Flowrates could not be calculated  
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## Southeast Mesa ADMP Culvert Capacities

Structure ID	Capacity (cfs)	No. bbl	Culvert		Box/		Entrance	Length (ft)	Inlet (ft)	Outlet (ft)	Barrel Slope (%)	TW Depth (ft)	Allowable HW (ft)	Allowable HW/D	Computed HW/D	Control
			Diam./ Height	Unit	Arch/ Width	Barrel/ Material										
A-1	220	1	3	ft.	10	RCBC	wingwall	124	78.59	77.97	0.50%	3	82.97	1.46	1.50	IC
A-2	320	1	3	ft.	10	RCBC	wingwall	90	82.38	81.93	0.50%	3	90	2.54	2.27	IC
A-3	92	1	3	ft.	10	RCBC	wingwall	60	0.29	0	0.48%	3	3.29	1.00	0.98	TW
A-8	92	4	2	ft.	3	CMP	headwall	111	0.55	0	0.50%	3		N/A	3.79	TW
A-14	550	4	3	ft.	8	RCBC	wingwall	108	0.86	0	0.80%	3	4.26	1.13	1.13	IC
A-20	4400	4	6	ft.	10	RCBC	wingwall	397	50.39	39.43	2.76%	6	67.99	2.93	2.94	IC
A-21	1200	5	72	in.		SSP	headwall	669	65.49	60.54	0.74%	6	71.74	1.04	1.01	IC
A-22	450	3	4.6	ft.	6	CMPA	headwall	212	66.3	65.88	0.20%	4.6	70.9	1.00		
A-23	690	3	5	ft.	6	RCBC	wingwall	90	69.92	68.9	1.13%	5	75.42	13.20	13.16	TW
A-28	250	3	54	in.		SSP	headwall	212	66.3	65.88	0.20%	4.5	70.9	1.02	1.09	TW
A-31	600	3	72	in.		SSP	headwall	140	68.32	67.62	0.50%	6	74.82	1.08	1.08	TW
A-32	650	3	72	in.		SSP	headwall	167	68.32	67.48	0.50%	6	74.82	1.08	1.10	TW
A-33	300	2	60	in.		SSP	headwall	83	56.16	55.74	0.51%	5	61.66	1.10	1.18	TW
A-34	600	3	72	in.		SSP	headwall	125	60.68	60.05	0.50%	6	67.18	1.08	1.09	TW
A-35	1000	5	72	in.		SSP	headwall	150	62.2	61.45	0.50%	6	68.7	1.08	1.08	TW
A-36	1000	5	72	in.		SSP	headwall	175	62.26	61.38	0.50%	6	68.76	1.08	1.06	TW
A-37	1000	5	72	in.		SSP	headwall	150	62.59	61.84	0.50%	6	69.09	1.08	1.08	TW
A-38	1000	5	72	in.		SSP	headwall	142	62.59	61.88	0.50%	6	69.09	1.08	1.08	TW
A-39	1000	5	72	in.		SSP	headwall	133	63.76	63.09	0.50%	6	70.26	1.08	1.09	TW
A-40	300	3	54	in.		SSP	headwall	116	66.08	65.5	0.50%	4.5	71.08	1.11	1.09	TW
A-41	700	4	3	ft.	10	RCBC	wingwall	131	0.39	0	0.30%	3	3.89	1.17	1.20	TW
A-42	100	1	3	ft.	6	RCBC	wingwall	93	0.46	0	0.49%	3	3.96	1.17	1.13	TW
A-43	200	1	4	ft.	8	RCBC	wingwall	105	0.52	0	0.50%	4	5.02	1.13	1.13	TW
A-44	100	1	3	ft.	6	RCBC	wingwall	92	0.46	0	0.50%	3	3.96	1.17	1.13	TW
A-47	500	2	4	ft.	10	RCBC	wingwall	114	0.57	0	0.50%	4	5.07	1.13	1.11	TW
A-48	500	2	4	ft.	10	RCBC	wingwall	114	0.57	0	0.50%	4	5.07	1.13	1.11	TW
A-49	600	3	63	in.	87	CMP	headwall	113	0.56	0	0.50%	5.25	6.06	1.05	1.60	TW
A-50	600	3	63	in.	87	CMP	headwall	200	1	0	0.50%	5.25	5.5	0.86	1.78	TW
A-51	250	2	3	ft.	6	RCBC	wingwall	95	0.47	0	0.49%	3	4.47	1.33	1.42	IC
A-53	150	2	2	ft.	6	RCBC	wingwall	59	0.29	0	0.49%	2	3.29	1.50	1.56	IC
A-54	1000	2	6	ft.	10	RCBC	wingwall	153	0.8	0	0.52%	6	7.8	1.17	1.17	TW
A-55	750	2	6	ft.	8	RCBC	wingwall	280	0.84	0	0.30%	6	7.84	1.17	1.17	TW
A-56	800	2	6	ft.	8	RCBC	wingwall	157	1.11	0	0.71%	6	8.11	1.17	1.15	IC
A-57	600	2	6	ft.	8	RCBC	wingwall	209	1.04	0	0.50%	6	7.04	1.00	1.01	TW
A-58	125	1	3	ft.	6	RCBC	wingwall	108	0.54	0	0.50%	3	4.54	1.33	1.42	IC
A-59	390	2	3	ft.	10	RCBC	wingwall	99	0.495	0	0.50%	3	4.49	1.33	1.35	IC
A-60	390	2	3	ft.	10	RCBC	wingwall	98	1.33	0	1.36%	3	5.33	1.33	1.34	IC
A-61	1300	2	8	ft.	10	RCBC	wingwall	120	0.6	0	0.50%	8	9.6	1.13	1.13	TW
A-65	75	3	36	in.		CMP	headwall	30	0.43	0	1.43%	3	3.43	1.00	1.00	TW
A-68	380	4	48	in.		RCP	headwall	200	1.54	0	0.77%	4	6.04	1.13	1.15	IC
B-1	690	3	3	ft.	10	RCBC	wingwall	90	95.97	95.7	0.30%	3	100.61	1.55	1.56	IC
B-2	1500	3	6	ft.	10	RCBC	wingwall	80	108.66	108.26	0.50%	6	116.3	1.27	1.21	TW
B-3	480	2	4	ft.	8	RCBC	wingwall	110	38.9	38.1	0.73%	4	44.2	1.33	1.23	IC
B-8	1100	2	6	ft.	10	RCBC	wingwall	168	65.9	64.77	0.67%	6	73.4	1.25	1.23	IC
B-9	4000	6	6	ft.	12	RCBC	wingwall	222	0.44	0	0.20%	6	8.44	1.33	1.36	IC
B-11	500	2	3	ft.	10	RCBC	wingwall	290	1.45	0	0.50%	3	6.45	1.67	1.70	IC
B-12	200	1	3	ft.	8	RCBC	wingwall	84	0.42	0	0.50%	3	5.42	1.67	1.70	IC
B-14	750	2	4	ft.	11	RCBC	wingwall	48	0.24	0	0.50%	4	6.24	1.50	1.50	IC
B-15	1100	2	6	ft.	10	RCBC	wingwall	132	0.66	0	0.50%	6	8.66	1.33	1.25	TW
B-16	500	2	4	ft.	8	RCBC	wingwall	50	0.25	0	0.50%	4	5.75	1.38	1.39	IC
B-17	500	2	4	ft.	8	RCBC	wingwall	50	0.25	0	0.50%	4	5.75	1.38	1.39	IC
B-18	500	2	4	ft.	8	RCBC	wingwall	62	0.31	0	0.50%	4	5.81	1.38	1.39	IC
B-19	500	2	4	ft.	8	RCBC	wingwall	98	0.49	0	0.50%	4	5.99	1.38	1.39	IC
B-20	130	1	3	ft.	6	RCBC	wingwall	108	0.54	0	0.50%	3	5.04	1.50	1.47	IC
B-21	260	2	3	ft.	6	RCBC	wingwall	114	0.57	0	0.50%	3	5.07	1.50	1.47	IC
B-22	310	1	4	ft.	10	RCBC	wingwall	72	0.36	0	0.50%	4	5.86	1.38	1.38	IC
B-23	330	1	5	ft.	8	RCBC	wingwall	38	0.19	0	0.50%	5	6.69	1.30	1.28	TW
B-35	1100	2	6	ft.	10	RCBC	wingwall	186	0.93	0	0.50%	6	8.43	1.25	1.23	IC
C-1	75	3	19	in.	30	RCPEll	headwall	96	109	108.5	0.52%	1.6	112.44	2.17		
C-2	700	3	3	ft.	10	RCBC	wingwall	162	13.6	12.5	0.68%	3	18.4	1.60	1.58	IC

## Southeast Mesa ADMP Culvert Capacities

Structure ID	Capacity (cfs)	Culvert No. bbl	Diam./Height Unit	Box/ Arch/ Width	Barrel/ Material	Entrance	Length (ft)	Inlet (ft)	Outlet (ft)	Barrel Slope (%)	TW Depth (ft)	Allowable HW (ft)	Allowable HW/D	Computed HW/D	Control
C-3	125	3	30 in.		RCP	headwall	175	21.1	19.2	1.09%	2.5	25.6	1.80	1.57	IC
C-8	70	4	19 in.	30	RCPEII	headwall	113	48	46.5	1.33%	2.5	50.19	1.38		
C-9	675	3	3 ft.	10	RCBC	wingwall	105	77.1	76.1	0.95%	3	81.7	1.53	1.52	IC
C-10	180	1	6 ft.	4.5	RCBC	wingwall	16	0.096	0	0.60%	4.5	6.096	1.00	0.99	IC
C-13	475	1	6.5 ft.	14	RCBC	wingwall	74	81.82	81.44	0.51%	6.5	88.59	1.04	1.04	TW
D-2	2560	4	6 ft.	10	RCBC	wingwall	210	50.69	50.36	0.16%	6	60	1.55	1.54	IC
D-2	385	1	6 ft.	6	RCBC	wingwall	210	50.69	50.36	0.16%	6	60	1.55	1.54	IC
D-6	3800	3	10 ft.	12	RCBC	wingwall	161	24.5	23.91	0.37%	10	36.68	1.22	1.21	TW
D-14	3800	4	8 ft.	10	RCBC	wingwall	96	8.74	8.26	0.50%	8	20.74	1.50	1.48	IC
D-30	400	1	8 ft.	6.5	RCBC	wingwall	74	0.296	0	0.40%	6.5	8.296	1.00	0.99	IC
F-5	600	3	4 ft.	6	RCBC	wingwall	100	0.5	0	0.50%	4	6.5	1.50	1.47	IC

NOTES: RCBC = Reinforced Concrete Box Culvert  
RCP = Reinforced Concrete Pipe  
SSP = Smooth Steel Pipe  
CMP = Corrugated Metal Pipe  
RCPEII= Reinforced Concrete Pipe, Elliptical

## Southeast Mesa ADMP Weir Overflow Capacity Summary

Weir Coeff.= 2.6

Structure ID	Base Width	Sideslope (H:V)	Depth 1			Depth 2			Depth 3		
			Flow Width (ft)	Average Flow Depth (ft)	Computed Capacity (cfs)	Flow Width (ft)	Average Flow Depth (ft)	Computed Capacity (cfs)	Flow Width (ft)	Average Flow Depth (ft)	Computed Capacity (cfs)
D-21	53	3	56	1.0	146	59	2.0	434	62	2.9	792
D-22	229	3	232	1.0	603	235	2.0	1728	237	2.8	2892
D-23	208	3	211	1.0	549	214	2.0	1574	217	2.9	2782
D-24	60	3	63	1.0	164	66	2.0	485	69	2.9	882
D-25	10	3	13	1.0	34	16	2.0	118	19	2.9	240
D-26	204	3	207	1.0	538	210	2.0	1544	213	3.0	2878
D-27	50	3	53	1.0	138	56	2.0	412	59	2.9	758
D-31	20	3	23	1.0	60	26	2.0	191	28	2.8	346
D-32	62	3	65	1.0	169	68	2.0	500	71	2.9	908
F-1	10	6	16	1.0	42	19	1.5	91			
F-2	40	6	46	1.0	120	49	1.5	234			
F-3	10	6	16	1.0	42	19	1.5	91			
F-4	40	6	46	1.0	120	49	1.5	234			

## South East Mesa ADMP Storm Drain Capacity Summary

Reach ID	No. Pipes	D (in.)	Manning's 'n' Value	From Sta Outlet	To Sta Inlet	Length (ft)	So (ft/ft)	Q full (cfs)
D-8	2	54	0.012	1000	2000	1000.00	0.0067	349
D-8	2	54	0.012	2000	3500	1500.00	0.0030	233
D-8	2	54	0.012	3500	4588	1088.00	0.0058	325
D-9	1	48	0.012	4588	5900	1312.00	0.0070	130
D-9	1	36	0.012	4588	5900	1312.00	0.0070	60
								191
D-10	1	42	0.012	5900	6100	200.00	0.0070	91
D-10	1	36	0.012	6100	6750	650.00	0.0040	46
								137
D-11	1	42	0.012	6750	6900	150.00	0.0040	69
D-11	1	24	0.012	6750	6900	150.00	0.0040	15
								84
D-12	1	42	0.012	6900	7234	334.00	0.0130	124
D-13	1	24	0.012	6900	7155	255.00	0.0130	28
								152
D-15a	2	54	0.012	7570	8420	850.00	0.0020	191
D-15b	2	54	0.012	8420	8693	273.00	0.0083	388
D-16	2	48	0.012	8693	10011	1318.00	0.0080	278
D-17a	1	42	0.012	10011	12450	2439.00	0.0070	91
D-17b	1	42	0.012	12450	13005	555.00	0.0050	77
D-18	1	36	0.012	13005	14660	1655.00	0.0050	51
D-19	1	30	0.012	14660	16705	2045.00	0.0050	31