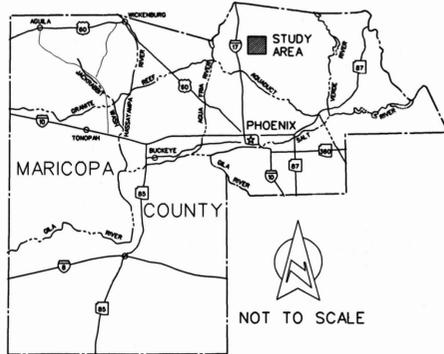
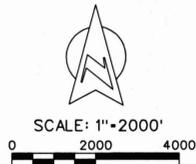


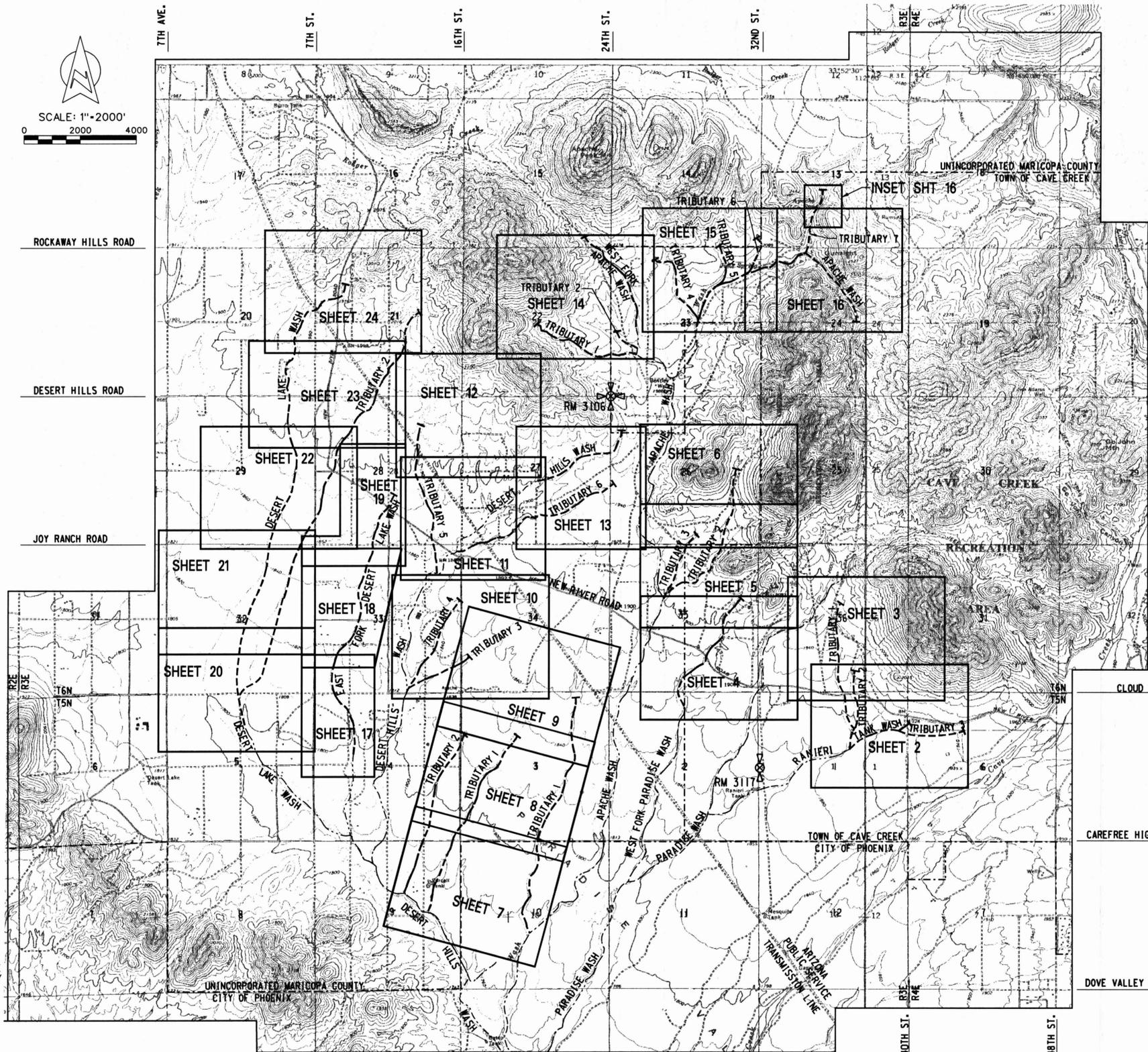
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY FLOODPLAIN DELINEATION AND TOPOGRAPHIC MAPPING FOR THE DESERT HILLS AREA FCD 96-06



LOCATION MAP



ROCKAWAY HILLS ROAD
DESERT HILLS ROAD
JOY RANCH ROAD



LEGEND:

- DELINEATED WASH (JRJ APACHE WASH STUDY)
- DELINEATED WASH (DESERT HILLS STUDY)
- SECTION CORNER (FOUND)
- QUARTER CORNER (FOUND)
- SECTION CORNER (APPROXIMATE)
- QUARTER CORNER (APPROXIMATE)
- ELEVATION REFERENCE MARK
- CITY/TOWN LIMIT

AERIAL MAPPING:

COOPER AERIAL OF PHOENIX, INC.
11402 N. CAVE CREEK ROAD
PHOENIX, ARIZONA 85020 PHONE-(602)678-5111
FLIGHT DATE: MARCH 20, 1997
CONTOUR INTERVAL: 2 FEET

GROUND CONTROL:

PROJECT ENGINEERING CONSULTANTS, LTD
2320 W. PEORIA AVENUE SUITE C-122
PHOENIX, ARIZONA 85029 PHONE-(602)906-1901

HYDROLOGY:

JERRY R. JONES APACHE WASH FLOODPLAIN
DELINEATION STUDY (FCD 89-66) AS AMENDED
BY STANLEY CONSULTANTS.

DELINEATION:

STANLEY CONSULTANTS, INC.
2929 EAST CAMELBACK ROAD
SUITE 130
PHOENIX, ARIZONA 85016 PHONE-(602)912-6500

NOTE

THE DESERT HILLS FLOODPLAIN DELINEATION STUDY UTILIZES HYDROLOGIC AND HYDRAULIC DATA FROM THE APACHE WASH (AND TRIBUTARIES) FLOODPLAIN DELINEATION STUDY PREPARED BY JERRY R. JONES (FCD 89-66) FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY. REFER TO THAT STUDY FOR FLOODPLAIN DELINEATIONS DOWNSTREAM FROM THE DESERT HILLS STUDY.

DATUM

HORIZONTAL: NORTH AMERICAN DATUM OF 1983
VERTICAL: NATIONAL GEODETIC VERTICAL DATUM OF 1929

BENCHMARK

RM 2045 - CHISELED SQUARE ON WEST END CONCRETE HEADWALL AT NORTHWEST CORNER 16TH STREET AND JOY RANCH ROAD.

ELEVATION 1861.040

SUPPLEMENTAL RM'S (SEE THIS SHEET FOR LOCATION)

ID NUMBER	ELEVATION	DESCRIPTION/LOCATION
RM 3106	2010.531	FOUND UNITED STATES GENERAL LAND OFFICE BRASS CAP ON 2 INCH IRON PIPE APPROXIMATELY 1.2 FEET ABOVE GROUND, ON DESERT HILLS ROAD, APPROXIMATELY 1320 FEET WEST OF 26TH STREET, SOUTHWEST CORNER OF SECTION 23, 16N, R3E G&SRB&M
RM 3117	1867.553	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE ON 32ND STREET APPROXIMATELY 2640 FEET NORTH OF CAREFREE HIGHWAY, EAST QUARTER NORTH OF CAREFREE HIGHWAY, EAST QUARTER CORNER OF SECTION 2, 15N, R3E, G&SRB&M.

CENTRAL FILE
DRAWER # **318**

CERTIFICATION

THIS IS TO CERTIFY THAT ALL WORK PERFORMED IN ASSOCIATION WITH THE FLOODPLAIN DELINEATION AND TOPOGRAPHIC MAPPING FOR THE DESERT HILLS AREA WAS DONE IN ACCORDANCE WITH FEMA DOCUMENT 37, "FLOOD INSURANCE STUDY GUIDELINES AND SPECIFICATIONS FOR STUDY CONTRACTORS", FEDERAL INSURANCE ADMINISTRATION, JANUARY 1995, AND THE GENERAL PROVISIONS OF FCD CONTRACT 96-06 AND ALL AMENDMENTS THERE TO, TOGETHER WITH ALL SUCH MODIFICATIONS, EITHER WRITTEN OR ORAL AS THE FCD CONTRACTING OFFICER OR THEIR REPRESENTATIVES HAVE DIRECTED, AS SUCH MODIFICATIONS AFFECT THIS CONTRACT, AND THAT ALL SUCH WORK HAS BEEN ACCOMPLISHED IN ACCORDANCE WITH SOUND AND ACCEPTED ENGINEERING PRACTICE WITHIN THE CONTRACT PROVISIONS FOR RESPECTIVE PHASES OF THE WORK.



EXHIBIT 1



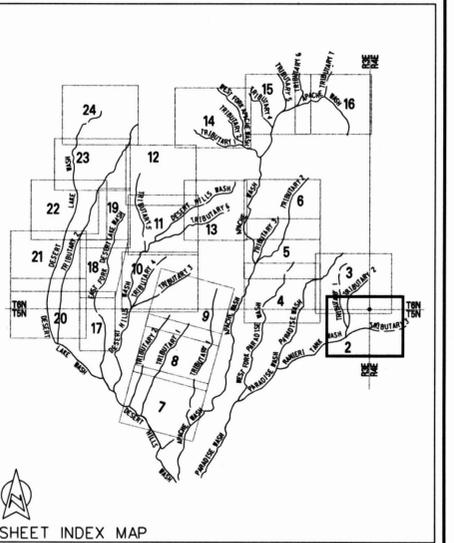
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
FLOODPLAIN DELINEATION AND TOPOGRAPHIC MAPPING FOR THE DESERT HILLS AREA (FCD 96-06)**

LEGEND

100-YR FLOODPLAIN BOUNDARY ———
 NOTE: WHERE THE FLOODPLAIN AND FLOODWAY BOUNDARIES COINCIDE, THE FLOODPLAIN BOUNDARY IS ILLUSTRATED AS A DASHED FLOODWAY BOUNDARY.
 FLOODWAY BOUNDARY - - - - -
 HYDRAULIC BASE LINE WITH RIVER MILE ——— 1.0 1.5
 CROSS SECTION A 0.10 FP=1888.74 FW=1888.74 Q=948CFS ENCRoACHED WATER SURFACE ELEVATION 100-YEAR DISCHARGE
 FEMA CROSS SECTION DESIGNATION CROSS SECTION RIVER MILE DESIGNATION
 ELEVATION REFERENCE MARK RM 3111
 BASE FLOOD ELEVATION ~~~~~ 1925
 FLOOD INSURANCE ZONE ZONE AE

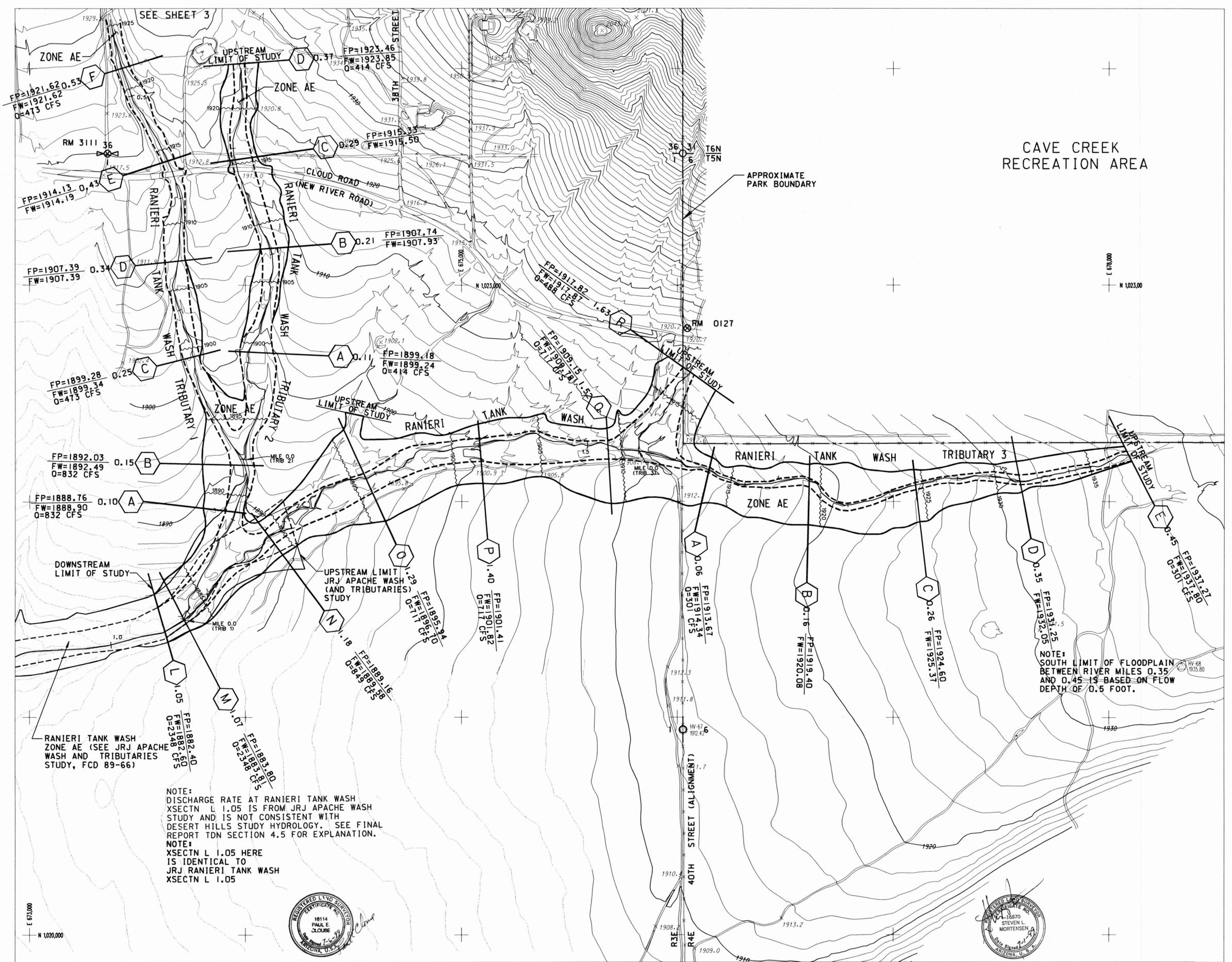
ELEVATION REFERENCE MARKS (NATIONAL GEODETIC VERTICAL DATUM OF 1929)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM 0127	1923.60	U.S. GEOLOGICAL SURVEY BRASS CAP IN CONCRETE POST PROJECTING 0.5 FEET ABOVE GROUND 2.3 MILES WEST OF THE JUNCTION OF CAVE CREEK ROAD AND NEW RIVER ROAD, 39 FEET NORTH OF NEW RIVER AND 2 FEET EAST OF FENCE AT NORTH END OF CATTLE GUARD, MARKED 8 HRP 1963.
RM 3111	1919.395	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE APPROXIMATELY 2640 FEET EAST OF 32ND STREET, APPROXIMATELY 100 FEET NORTH OF CLOUD ROAD, NORTH QUARTER CORNER OF SECTION 1, T5N, R3E, 68SR&M.



SHEET INDEX MAP
 SCALE: 1"=200FT
 0 200 400
 CONTOUR INTERVAL: 2'
 FLIGHT DATE: 3-20-97

Stanley Consultants Inc. A Stanley Group Company Engineering, Environmental and Construction Services - Worldwide			FLOOD CONTROL DISTRICT OF MARICOPA COUNTY	
			DESIGN BY GGC 6/99 DESIGN CHK. GSB 6/99 DRAWN RM/SB 6/99	RECOMMENDED BY: _____ DATE _____ APPROVED BY: _____ DATE _____ CHIEF ENGINEER AND GENERAL MANAGER
SUBMITTED BY: _____ DATE _____			SHEET 2 OF 24	



NOTE: DISCHARGE RATE AT RANIERI TANK WASH XSECTN L 1.05 IS FROM JRJ APACHE WASH STUDY AND IS NOT CONSISTENT WITH DESERT HILLS STUDY HYDROLOGY. SEE FINAL REPORT TDN SECTION 4.5 FOR EXPLANATION.
 NOTE: XSECTN L 1.05 HERE IS IDENTICAL TO JRJ RANIERI TANK WASH XSECTN L 1.05



COOPER AERIAL OF PHOENIX, INC. I HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.
 PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #18870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
FLOODPLAIN DELINEATION AND TOPOGRAPHIC MAPPING FOR THE DESERT HILLS AREA (FCD 96-06)**

LEGEND

100-YR FLOODPLAIN BOUNDARY _____
NOTE: WHERE THE FLOODPLAIN AND FLOODWAY BOUNDARIES COINCIDE, THE FLOODPLAIN BOUNDARY IS ILLUSTRATED AS A DASHED FLOODWAY BOUNDARY

FLOODWAY BOUNDARY - - - - -
HYDRAULIC BASE LINE WITH RIVER MILE 1.0 1.5

CROSS SECTION A 0.10
FLOODPLAIN WATER SURFACE ELEVATION: FP=1888.74
FLOODWAY WATER SURFACE ELEVATION: FW=1888.74
ENCROACHED WATER SURFACE ELEVATION: Q=948CFS
FEMA CROSS SECTION DESIGNATION: CROSS SECTION RIVER MILE DESIGNATION

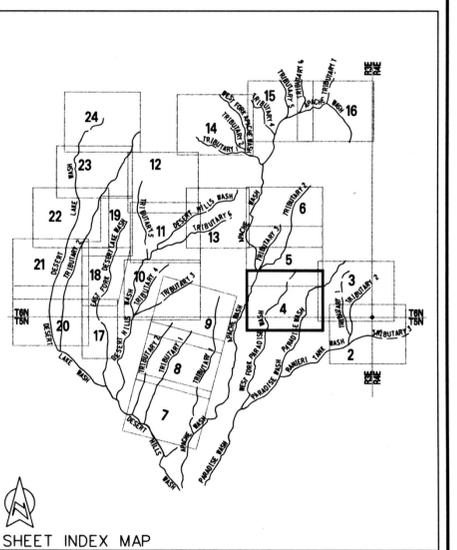
ELEVATION REFERENCE MARK RM 3111

BASE FLOOD ELEVATION 1925

FLOOD INSURANCE ZONE ZONE AE

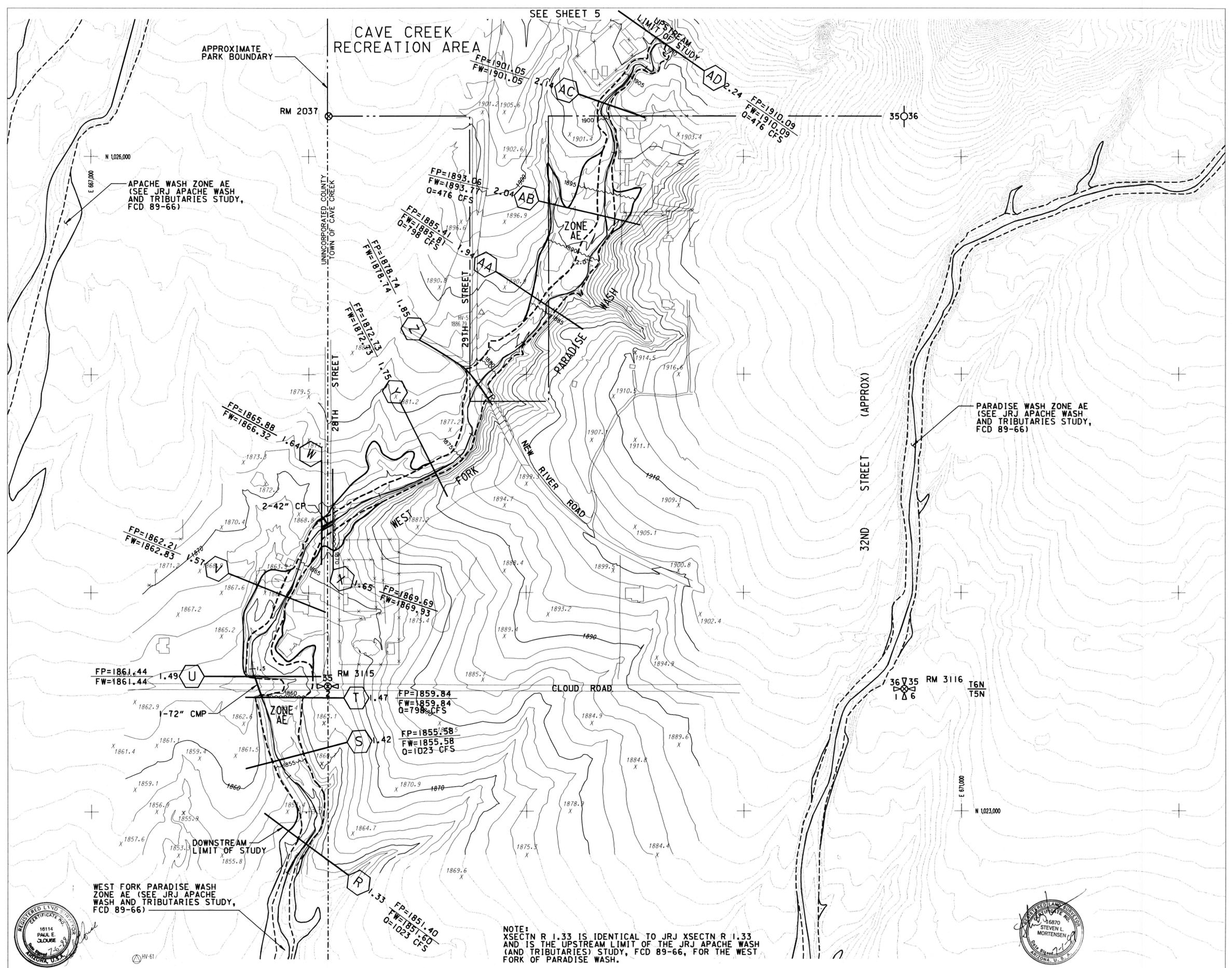
ELEVATION REFERENCE MARKS (NATIONAL GEODETIC VERTICAL DATUM OF 1929)

ID NUMBER	ELEVATION (FT)	DESCRIPTION	LOCATION
RM 2037	1906.10	TOP OF HALF INCH IRON REBAR (FLUSH) POSSIBLY CENTER SECTION 35 TOWNSHIP 6 NORTH, RANGE 3 EAST.	
RM 3115	1864.193	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE AT INTERSECTION OF 28TH STREET AND CLOUD ROAD.	
RM 3116	1900.167	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE APPROXIMATELY 200 FEET EAST OF INTERSECTION OF 32ND STREET AND CLOUD ROAD.	



SHEET INDEX MAP
SCALE: 1IN=200FT
0 200 400
CONTOUR INTERVAL: 2'
FLIGHT DATE: 3-20-97

Stanley Consultants Inc.		A Stanley Group Company Engineering, Environmental and Construction Services - Worldwide	
DESIGN	BY: GGC	DATE: 6/99	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
DESIGN CHK.	BY: GSB	DATE: 6/99	
DRAWN	BY: RM/SB	DATE: 6/99	RECOMMENDED BY: _____ DATE: _____
SUBMITTED BY: _____			APPROVED BY: _____ DATE: _____
DATE: _____			CHIEF ENGINEER AND GENERAL MANAGER
SHEET 4 OF 24			



NOTE: XSECTN R 1.33 IS IDENTICAL TO JRJ XSECTN R 1.33 AND IS THE UPSTREAM LIMIT OF THE JRJ APACHE WASH (AND TRIBUTARIES) STUDY, FCD 89-66, FOR THE WEST FORK OF PARADISE WASH.

COOPER AERIAL OF PHOENIX, INC. I HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #16870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
FLOODPLAIN DELINEATION AND
TOPOGRAPHIC MAPPING FOR THE
DESERT HILLS AREA
(FCD 96-06)**

LEGEND

100-YR FLOODPLAIN BOUNDARY _____
 NOTE:
 WHERE THE FLOODPLAIN AND FLOODWAY
 BOUNDARIES COINCIDE, THE FLOODPLAIN
 BOUNDARY IS ILLUSTRATED AS A DASHED
 FLOODWAY BOUNDARY

FLOODWAY BOUNDARY - - - - -
 HYDRAULIC BASE LINE WITH RIVER MILE _____

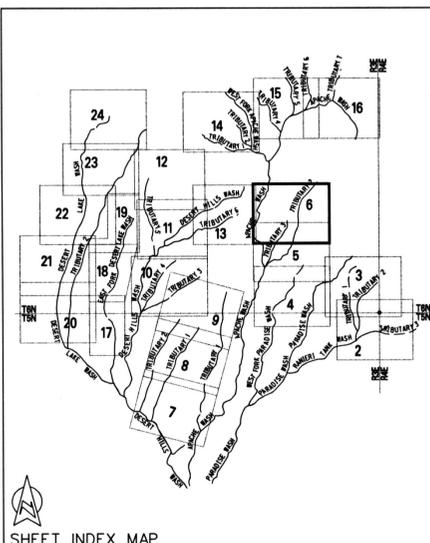
CROSS SECTION A 0.10
 FLOODPLAIN WATER SURFACE ELEVATION: FP= 1888.74
 FWA= 1888.74
 Q= 948CFS
 ENCROACHED WATER SURFACE ELEVATION
 100-YEAR DISCHARGE

FEMA CROSS SECTION DESIGNATION
 CROSS SECTION RIVER MILE DESIGNATION

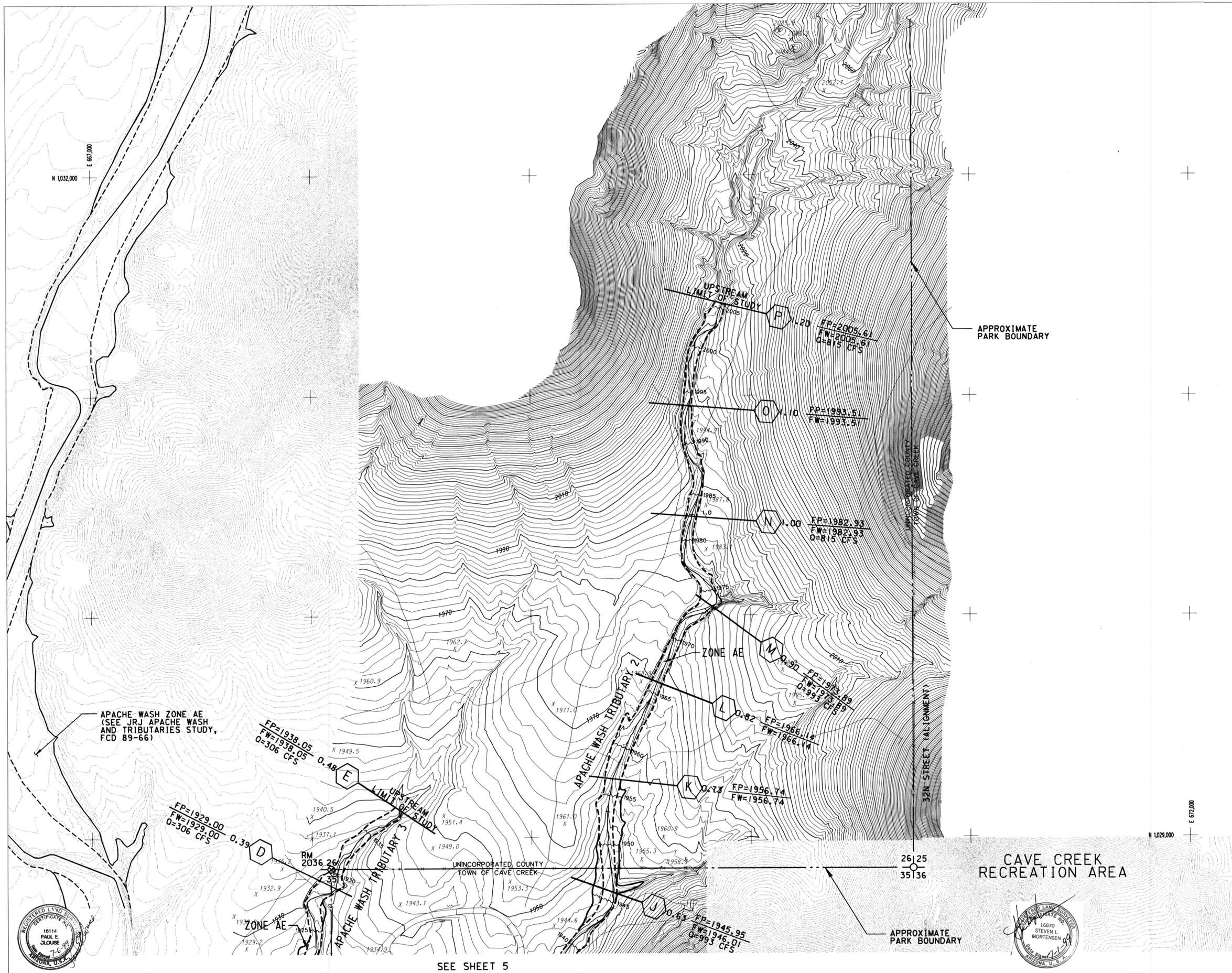
ELEVATION REFERENCE MARK RM 3111
 BASE FLOOD ELEVATION 1925
 FLOOD INSURANCE ZONE ZONE AE

ELEVATION REFERENCE MARKS
 (NATIONAL GEODETIC VERTICAL DATUM OF 1929)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM 2036	1931.56	TOP OF 6LO BRASS CAP, 1922, QUARTER SECTION 26 AND 35, TOWNSHIP 6 NORTH RANGE 3 EAST.



DESIGN		GCC	6/99	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
		BY	DATE	
DESIGN CHK.		GSB	6/99	RECOMMENDED BY:
DRAWN		RM/SB	6/99	APPROVED BY:
SUBMITTED BY:		DATE		CHIEF ENGINEER AND GENERAL MANAGER
		DATE		SHEET 6 OF 24



Q:\3484\PLAN\PAW_SHT6.DGN

COOPER AERIAL OF PHOENIX, INC. I HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #16870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.



SEE SHEET 5

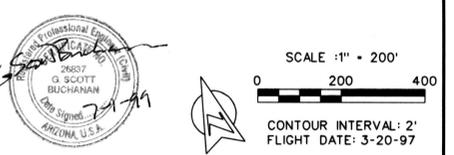
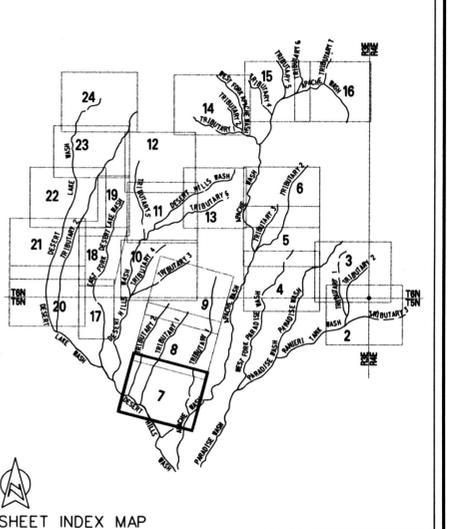
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY FLOODPLAIN DELINEATION AND TOPOGRAPHIC MAPPING FOR THE DESERT HILLS AREA (FCD 96-06)

LEGEND

- 100-YR FLOODPLAIN BOUNDARY
- NOTE: WHERE THE FLOODPLAIN AND FLOODWAY BOUNDARIES COINCIDE, THE FLOODPLAIN BOUNDARY IS ILLUSTRATED AS A DASHED FLOODWAY BOUNDARY
- FLOODWAY BOUNDARY
- HYDRAULIC BASE LINE WITH RIVER MILE
- CROSS SECTION A 0.10 FP= 1888.74 FW= 1888.74 Q= 948CFS
- FEMA CROSS SECTION DESIGNATION
- CROSS SECTION RIVER MILE DESIGNATION
- ELEVATION REFERENCE MARK RM 3111
- BASE FLOOD ELEVATION 1925
- FLOOD INSURANCE ZONE ZONE AE

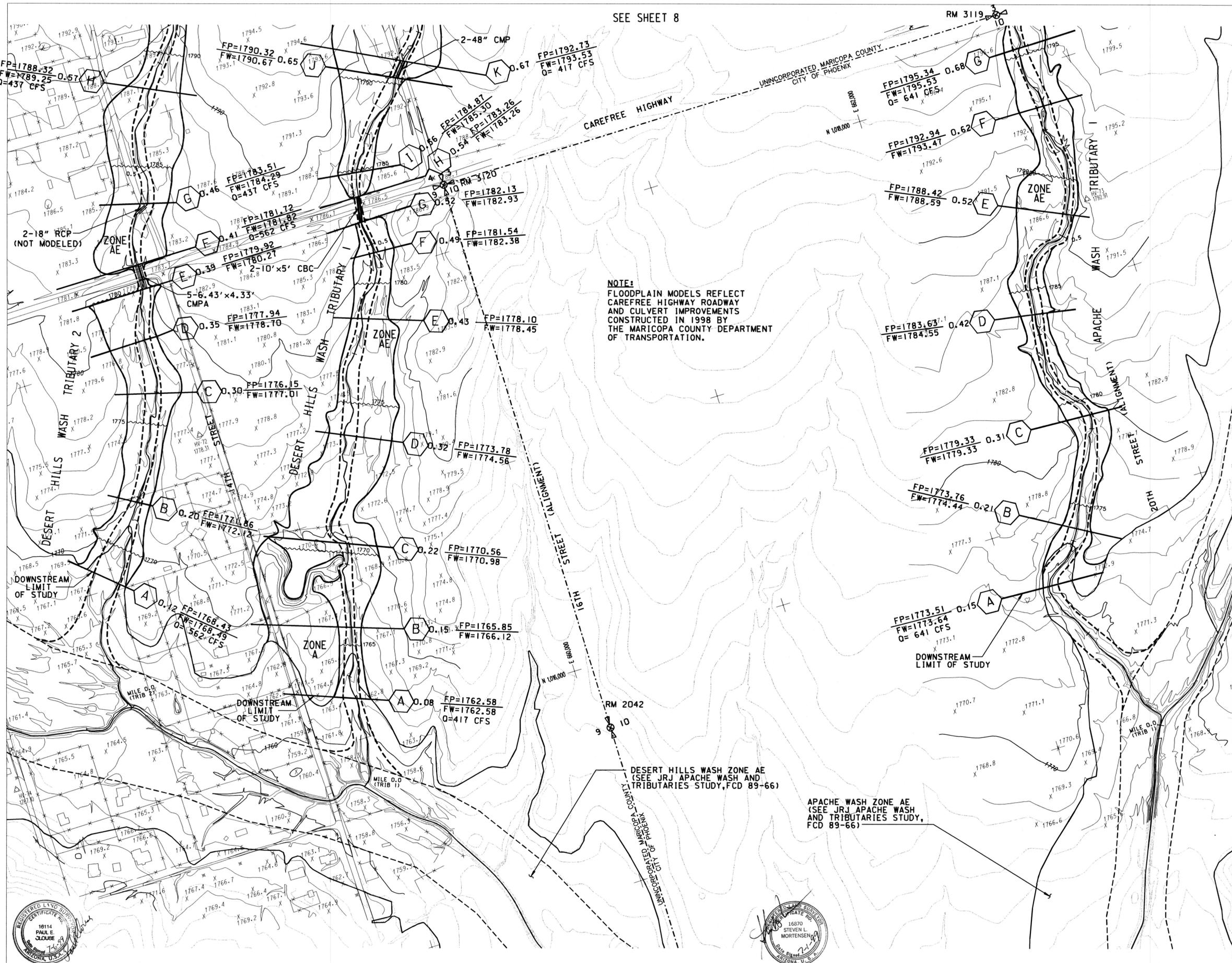
ELEVATION REFERENCE MARKS (NATIONAL GEODETIC VERTICAL DATUM OF 1929)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM 2042	1764.74	TOP OF STONE EAST QUARTER SECTION 9, TOWNSHIP 5, NORTH, RANGE 3 EAST
RM 3119	1798.390	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE APPROXIMATELY 2640 FEET EAST OF 16TH STREET, APPROXIMATELY 10 FEET SOUTH OF SOUTH EDGE OF PAVEMENT ON CAREFREE HIGHWAY, SOUTH QUARTER CORNER OF SECTION 3, T5N, R3E, G&SR&M.
RM 3120	1787.090	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE APPROXIMATELY 50 FEET EAST OF 16TH STREET, APPROXIMATELY 10 FEET SOUTH OF SOUTH EDGE OF PAVEMENT ON CAREFREE HIGHWAY.



SCALE 1" = 200'
0 200 400
CONTOUR INTERVAL: 2'
FLIGHT DATE: 3-20-97

			A Stanley Group Company Engineering, Environmental and Construction Services - Worldwide	
DESIGN	BY GGC	DATE 6/99	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY	
DESIGN CHK.	GSB	6/99	RECOMMENDED BY:	DATE
DRAWN	RM/SB	6/99	APPROVED BY:	DATE
SUBMITTED BY:			CHIEF ENGINEER AND GENERAL MANAGER	
DATE	7		OF	24



NOTE: FLOODPLAIN MODELS REFLECT CAREFREE HIGHWAY ROADWAY AND CULVERT IMPROVEMENTS CONSTRUCTED IN 1998 BY THE MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION.

DESERT HILLS WASH ZONE AE (SEE JRJ APACHE WASH AND TRIBUTARIES STUDY, FCD 89-66)

APACHE WASH ZONE AE (SEE JRJ APACHE WASH AND TRIBUTARIES STUDY, FCD 89-66)

SEE SHEET 8



COOPER AERIAL OF PHOENIX, INC. I HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY N. MALDONADO, PROJECT ENGINEERING CONSULTANTS, L.P.

PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #16870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

SEE SHEET II

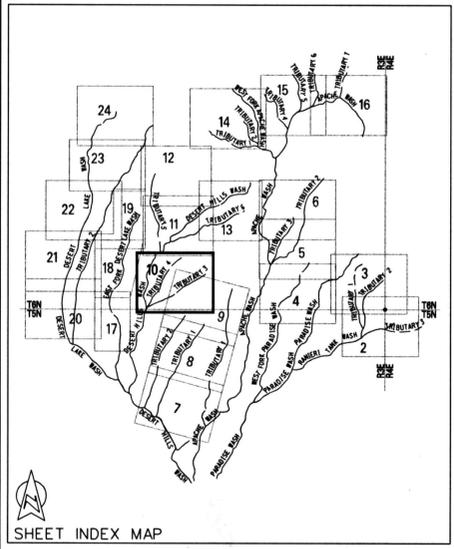
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY FLOODPLAIN DELINEATION AND TOPOGRAPHIC MAPPING FOR THE DESERT HILLS AREA (FCD 96-06)

LEGEND

- 100-YR FLOODPLAIN BOUNDARY
- NOTE: WHERE THE FLOODPLAIN AND FLOODWAY BOUNDARIES COINCIDE, THE FLOODPLAIN BOUNDARY IS ILLUSTRATED AS A DASHED FLOODWAY BOUNDARY
- FLOODWAY BOUNDARY
- HYDRAULIC BASE LINE WITH RIVER MILE
- CROSS SECTION A 0.10 $\frac{FP=1888.74}{FW=1888.74}$ $\frac{Q=948CFS}{Q=948CFS}$
- ELEVATION REFERENCE MARK RM 311
- BASE FLOOD ELEVATION 1925
- FLOOD INSURANCE ZONE ZONE AE

ELEVATION REFERENCE MARKS
(NATIONAL GEODETIC VERTICAL DATUM OF 1929)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM3049	1862.815	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE APPROXIMATELY 2640 FEET NORTH OF CLOUD ROAD ON 16TH STREET, EAST QUARTER CORNER OF SECTION 33, 16N, R3E, G8SR&M.
RM3110	1837.224	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE AT INTERSECTION OF 16TH STREET AND CLOUD ROAD.



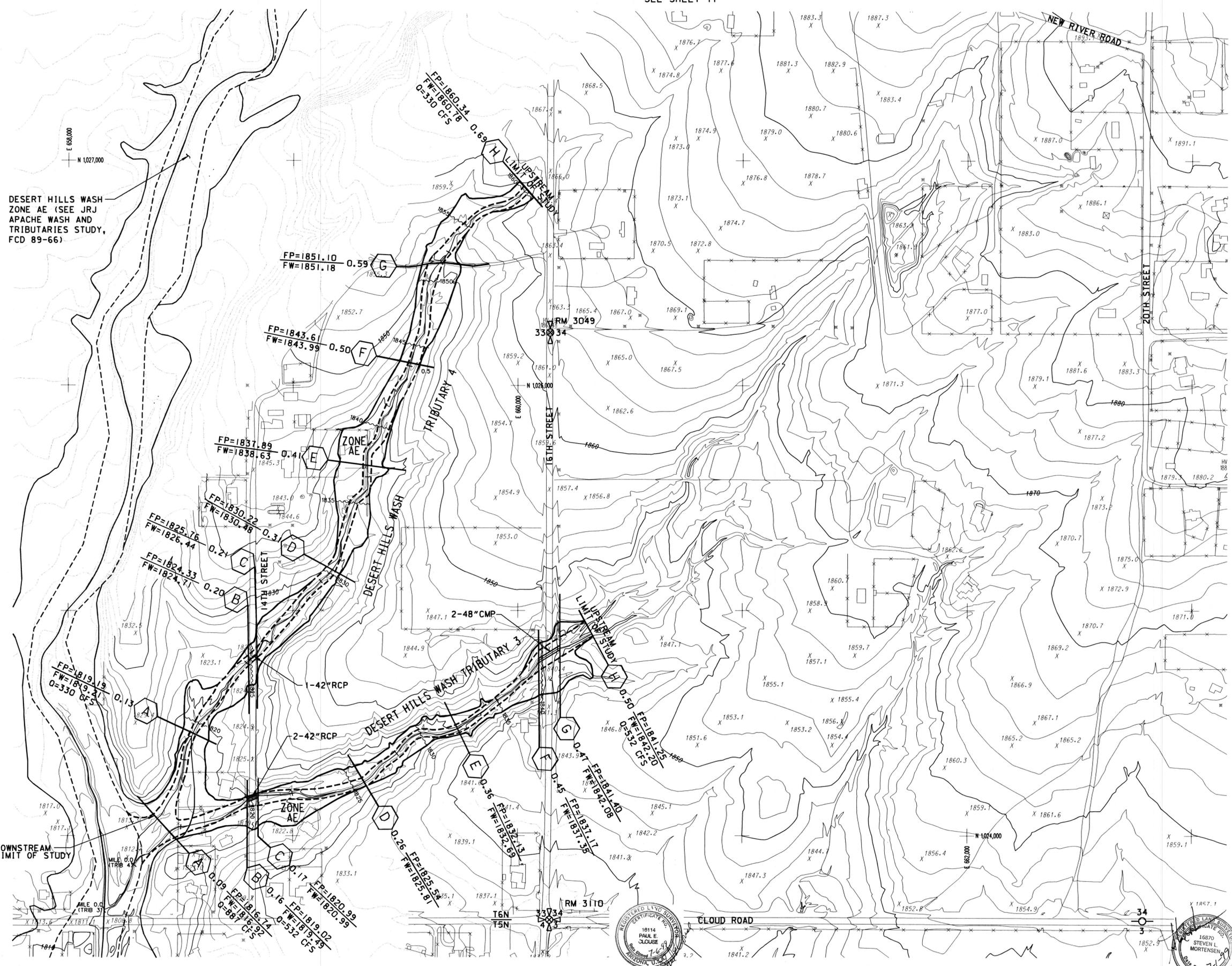
SCALE: 1IN = 200FT

0 200 400

CONTOUR INTERVAL: 2'

FLIGHT DATE: 3-20-97

DESIGN		BY	DATE	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
DESIGN CHK.		CSB	6/99	
DRAWN		RM/SB	6/99	RECOMMENDED BY: _____ DATE _____
SUBMITTED BY:		APPROVED BY: _____ DATE _____		CHIEF ENGINEER AND GENERAL MANAGER
DATE		SHEET		10 OF 24



COOPER AERIAL OF PHOENIX, INC. (HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.)

PROJECT ENGINEERING CONSULTANTS, LTD. (REGISTERED LAND SURVEYOR 16870 STEVEN L. MORTENSEN, ARIZONA, U.S.A.)

SEE SHEET 9

I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #16870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

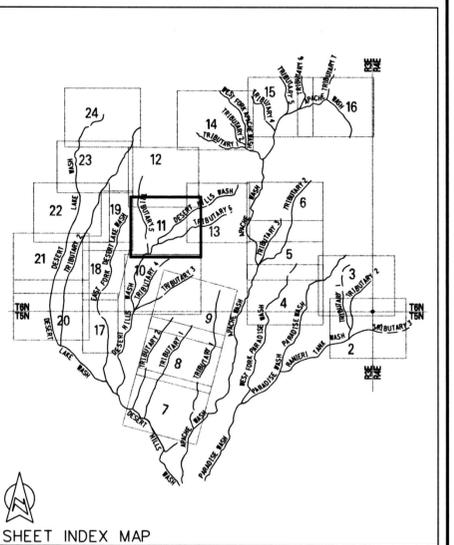
**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
FLOODPLAIN DELINEATION AND TOPOGRAPHIC MAPPING FOR THE DESERT HILLS AREA (FCD 96-06)**

LEGEND

- 100-YR FLOODPLAIN BOUNDARY
- NOTE: WHERE THE FLOODPLAIN AND FLOODWAY BOUNDARIES COINCIDE, THE FLOODPLAIN BOUNDARY IS ILLUSTRATED AS A DASHED FLOODWAY BOUNDARY
- FLOODWAY BOUNDARY
- HYDRAULIC BASE LINE WITH RIVER MILE
- CROSS SECTION 0.10 $\frac{FP=1888.74}{FW=1888.74}$ $\frac{Q=948CFS}{Q=948CFS}$
- FEMA CROSS SECTION DESIGNATION
- ELEVATION REFERENCE MARK RM 3111
- BASE FLOOD ELEVATION
- FLOOD INSURANCE ZONE **ZONE AE**

ELEVATION REFERENCE MARKS (NATIONAL GEODETIC VERTICAL DATUM OF 1929)

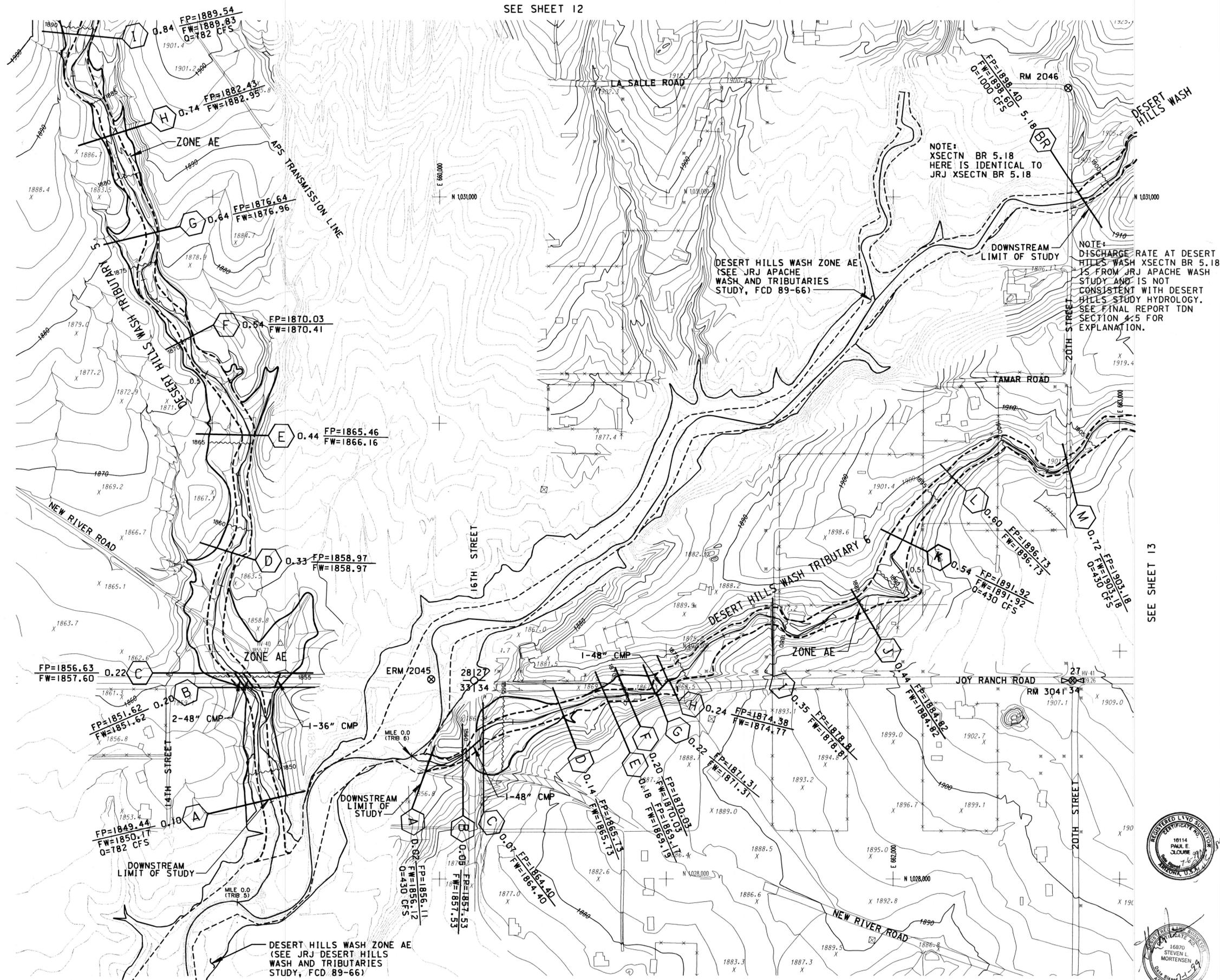
ID NUMBER	ELEVATION (FT)	DESCRIPTION	LOCATION
RM2045	1861.040	CHISELED SQUARE ON WEST END CONCRETE HEADWALL AT NORTHWEST CORNER 16TH STREET AND JOY RANCH ROAD.	
RM2046	1910.74	TOP OF 1-INCH IRON PIPE POSSIBLY CENTER SECTION 27 TOWNSHIP 6 NORTH, RANGE 3 EAST.	
RM3041	1908.655	FOUND MARICOPA COUNTY DEPARTMENT TRANSPORTATION BRASS CAP IN HANDHOLE AT INTERSECTION OF 20TH STREET AND JOY RANCH ROAD.	



SCALE: 1" = 200 FT
0 200 400
CONTOUR INTERVAL: 2'
FLIGHT DATE: 3-20-97

 A Stanley Group Company Engineering, Environmental and Construction Services Worldwide		DESIGN	BY GGC	DATE 6/99	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
		DESIGN CHK.	GSB	6/99	
DRAWN	RM/SB	6/99	RECOMMENDED BY:	DATE	
SUBMITTED BY:			APPROVED BY:	DATE	
			CHIEF ENGINEER AND GENERAL MANAGER	DATE	
			SHEET	11	OF 24
			DATE		

SEE SHEET 12



SEE SHEET 10

HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #16870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

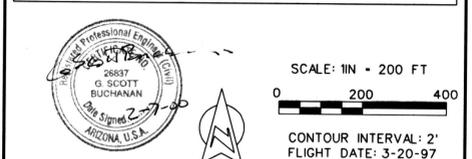
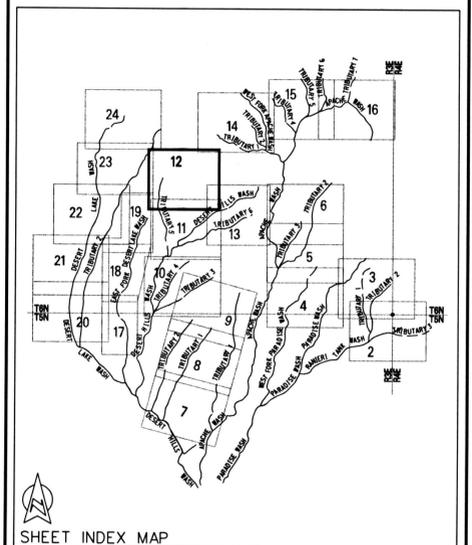
**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY**
**FLOODPLAIN DELINEATION AND
TOPOGRAPHIC MAPPING FOR THE
DESERT HILLS AREA
(FCD 96-06)**

LEGEND

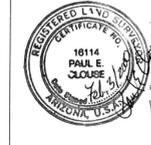
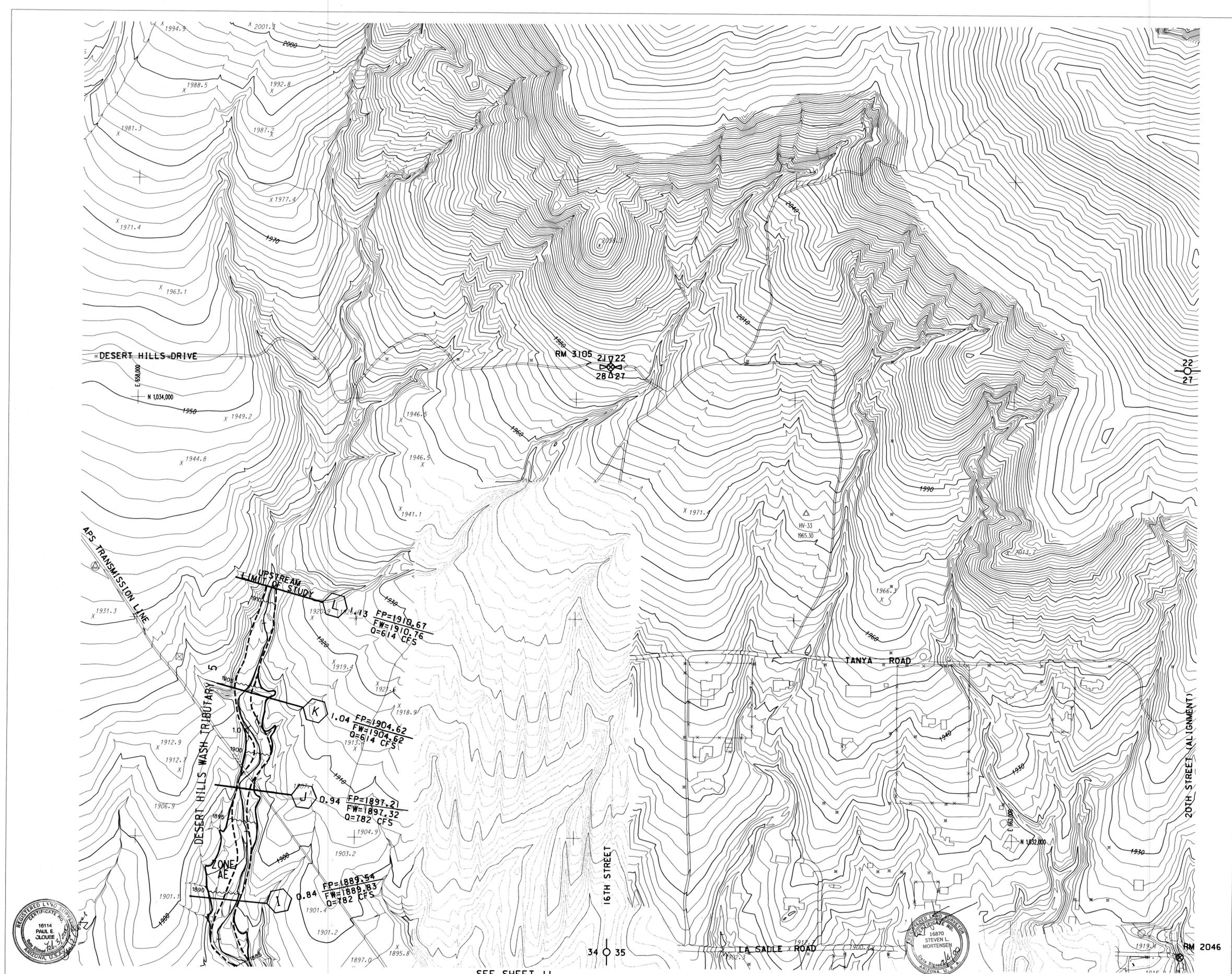
- 100-YR FLOODPLAIN BOUNDARY _____
NOTE: WHERE THE FLOODPLAIN AND FLOODWAY BOUNDARIES COINCIDE, THE FLOODPLAIN BOUNDARY IS ILLUSTRATED AS A DASHED FLOODWAY BOUNDARY
- FLOODWAY BOUNDARY - - - - -
- HYDRAULIC BASE LINE WITH RIVER MILE
- CROSS SECTION 0.10 $FP=1888.74$ $FW=1888.74$ $Q=948CFS$ ENCROACHED WATER SURFACE ELEVATION 100-YEAR DISCHARGE
- ELEVATION REFERENCE MARK RM 3111
- BASE FLOOD ELEVATION 1925
- FLOOD INSURANCE ZONE **ZONE AE**

**ELEVATION REFERENCE MARKS
(NATIONAL GEODETIC VERTICAL DATUM OF 1929)**

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM2046	1910.74	TOP OF 1-INCH IRON PIPE POSSIBLY CENTER SECTION 27, TOWNSHIP 6 NORTH, RANGE 3 EAST.
RM3105	1981.969	FOUND UNITED STATES GENERAL LAND OFFICE BRASS CAP ON 2 INCH IRON PIPE APPROXIMATELY 1 FOOT ABOVE GROUND, BENT 15 DEGREES TO SOUTHWEST, CORNER OF SECTIONS 21, 22, 27, 28, 16N, R3E, G&SR&B&M.



Stanley Consultants Inc.		A Stanley Group Company Engineering, Environmental and Construction Services - Worldwide	
DESIGN	GCC	DATE	11/99
DESIGN CHK.	GSB	DATE	11/99
DRAWN	RM/SB	DATE	11/99
SUBMITTED BY:		DATE	
RECOMMENDED BY:		DATE	
APPROVED BY:		DATE	
CHIEF ENGINEER AND GENERAL MANAGER		DATE	
SHEET		12 OF 24	



HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR *16870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
FLOODPLAIN DELINEATION AND
TOPOGRAPHIC MAPPING FOR THE
DESERT HILLS AREA
(FCD 96-06)**

LEGEND

100-YR FLOODPLAIN BOUNDARY
NOTE:
WHERE THE FLOODPLAIN AND FLOODWAY
BOUNDARIES COINCIDE, THE FLOODPLAIN
BOUNDARY IS ILLUSTRATED AS A DASHED
FLOODWAY BOUNDARY

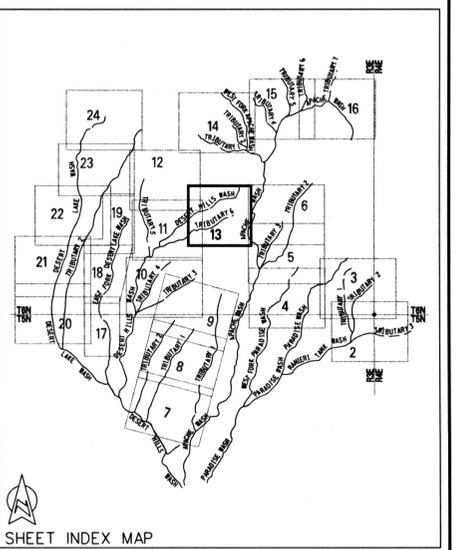
FLOODWAY BOUNDARY
HYDRAULIC BASE LINE
WITH RIVER MILE

CROSS SECTION A
FLOODPLAIN WATER SURFACE ELEVATION
FEMA CROSS SECTION DESIGNATION
CROSS SECTION RIVER MILE DESIGNATION
ENCROACHED WATER SURFACE ELEVATION
100-YEAR DISCHARGE

ELEVATION REFERENCE MARK RM 3111
BASE FLOOD ELEVATION
FLOOD INSURANCE ZONE ZONE AE

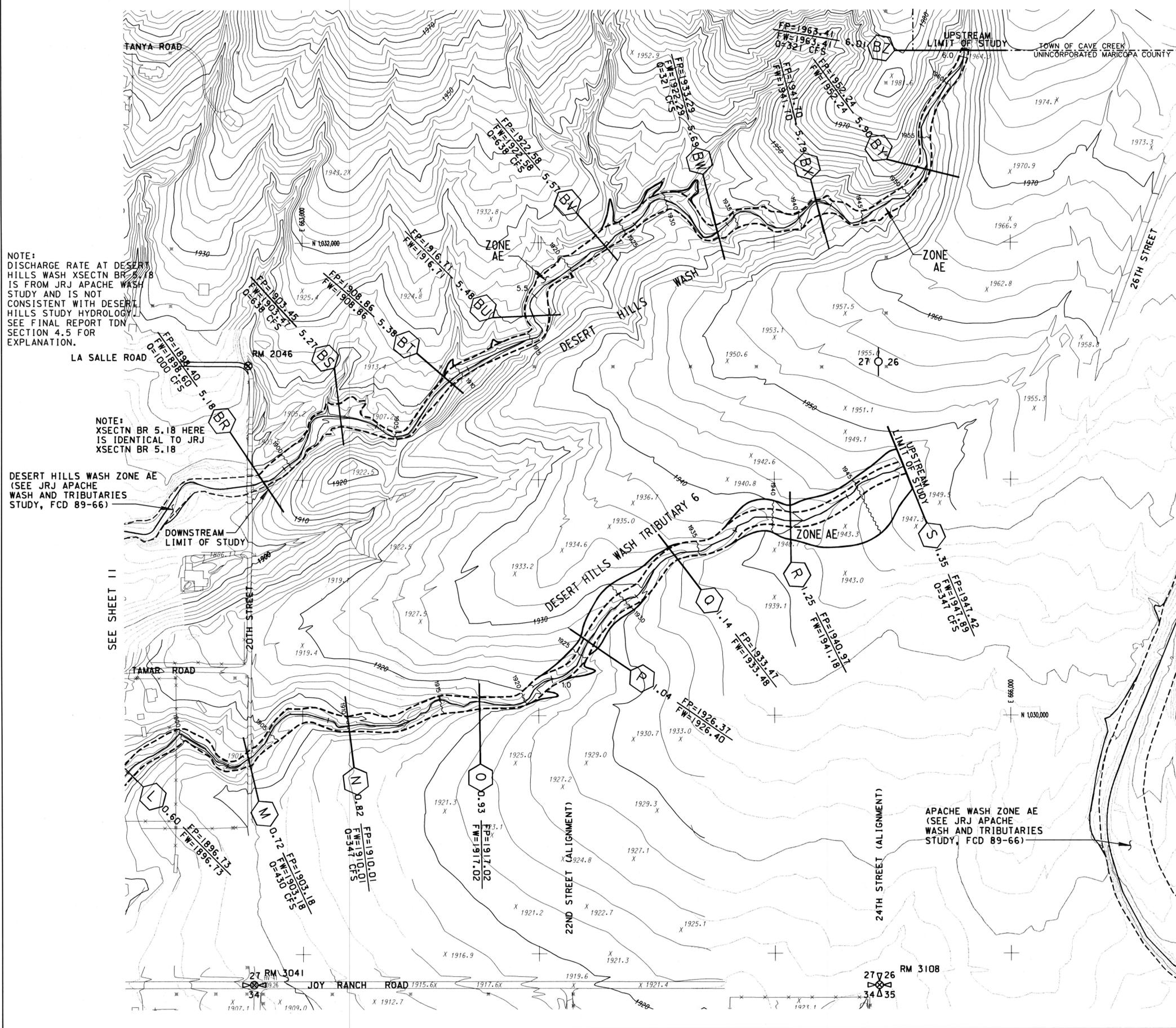
ELEVATION REFERENCE MARKS
(NATIONAL GEODETIC VERTICAL DATUM OF 1929)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM2046	1910.74	TOP OF 1-INCH IRON PIPE POSSIBLY CENTER SECTION 27, TOWNSHIP 6 NORTH, RANGE 3 EAST.
RM3041	1908.655	FOUND MARICOPA COUNTY DEPARTMENT TRANSPORTATION BRASS CAP IN HANDHOLE AT INTERSECTION OF 20TH STREET AND JOY RANCH ROAD.
RM3108	1922.034	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE AT INTERSECTION OF 24TH STREET AND JOY RANCH ROAD.



SCALE: 1" = 200 FT
0 200 400
CONTOUR INTERVAL: 2'
FLIGHT DATE: 3-20-97

Stanley Consultants inc.		A Stanley Group Company Engineering, Environmental and Construction Services - Worldwide	
DESIGN	GCC	DATE	6/99
DESIGN CHK.	CSB	DATE	6/99
DRAWN	RM/SB	DATE	6/99
SUBMITTED BY:		RECOMMENDED BY:	
DATE		DATE	
		CHIEF ENGINEER AND GENERAL MANAGER	
		SHEET 13 OF 24	



NOTE:
DISCHARGE RATE AT DESERT
HILLS WASH XSECTN BR 5.18
IS FROM JRJ APACHE WASH
STUDY AND IS NOT
CONSISTENT WITH DESERT
HILLS STUDY HYDROLOGY
SEE FINAL REPORT TDM
SECTION 4.5 FOR
EXPLANATION.

NOTE:
XSECTN BR 5.18 HERE
IS IDENTICAL TO JRJ
XSECTN BR 5.18

DESERT HILLS WASH ZONE AE
(SEE JRJ APACHE
WASH AND TRIBUTARIES
STUDY, FCD 89-66)

APACHE WASH ZONE AE
(SEE JRJ APACHE
WASH AND TRIBUTARIES
STUDY, FCD 89-66)

HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #16870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
FLOODPLAIN DELINEATION AND
TOPOGRAPHIC MAPPING FOR THE
DESERT HILLS AREA
(FCD 96-06)**

LEGEND

100-YR FLOODPLAIN BOUNDARY
NOTE:
WHERE THE FLOODPLAIN AND FLOODWAY
BOUNDARIES COINCIDE THE FLOODPLAIN
BOUNDARY IS ILLUSTRATED AS A DASHED
FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

HYDRAULIC BASE LINE
WITH RIVER MILE

CROSS SECTION A 0.10
FP=1888.74
FW=1888.74
Q=948CFS

FEMA CROSS SECTION DESIGNATION
CROSS SECTION RIVER MILE DESIGNATION
ENCROACHED WATER SURFACE ELEVATION
100-YEAR DISCHARGE

ELEVATION REFERENCE MARK RM 3111

BASE FLOOD ELEVATION 1925

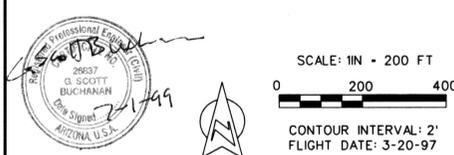
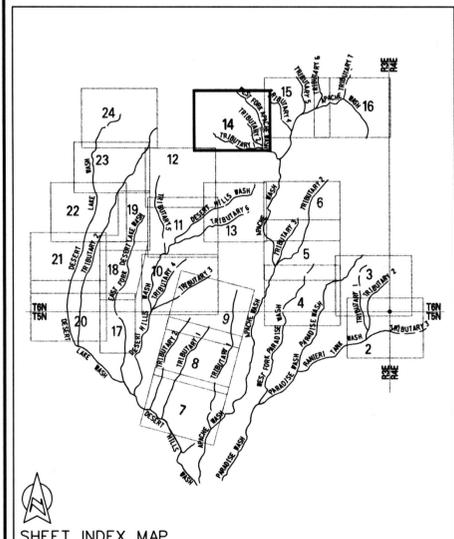
FLOOD INSURANCE ZONE ZONE AE

ELEVATION REFERENCE MARKS
(NATIONAL GEODETIC VERTICAL DATUM OF 1929)

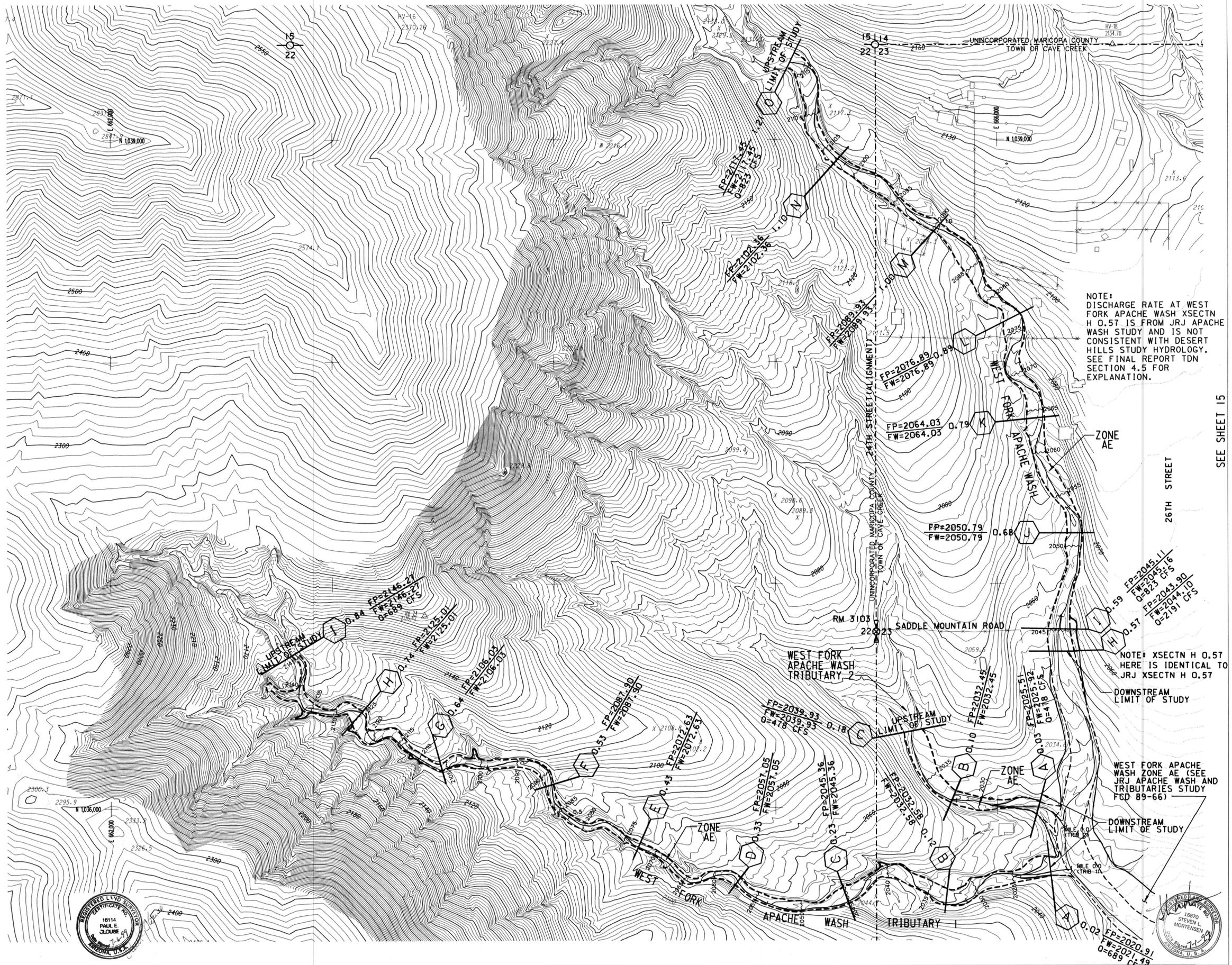
ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM3103	2063.533	FOUND UNITED STATES GENERAL LAND OFFICE BRASS CAP ON 2 INCH IRON PIPE, APPROXIMATELY 2 FEET ABOVE GROUND, APPROXIMATELY 1320 FEET WEST OF 26TH STREET ON SADDLE MOUNTAIN ROAD, WEST QUARTER CORNER OF SECTION 23, T6N R3E, G6S&B&M.

NOTE:
DISCHARGE RATE AT WEST FORK APACHE WASH XSECTN H 0.57 IS FROM JRJ APACHE WASH STUDY AND IS NOT CONSISTENT WITH DESERT HILLS STUDY HYDROLOGY. SEE FINAL REPORT TDN SECTION 4.5 FOR EXPLANATION.

SEE SHEET 15



Stanley Consultants inc.		A Stanley Group Company Engineering, Environmental and Construction Services - Worldwide	
DESIGN	BY GGC	DATE 6/99	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
DESIGN CHK.	GSB	6/99	
DRAWN	RM/SB	6/99	RECOMMENDED BY: DATE
SUBMITTED BY:			APPROVED BY: DATE
DATE			CHIEF ENGINEER AND GENERAL MANAGER
SHEET 14			OF 24



HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #18870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY**
FLOODPLAIN DELINEATION AND
TOPOGRAPHIC MAPPING FOR THE
DESERT HILLS AREA
(FCD 96-06)

LEGEND

100-YR FLOODPLAIN BOUNDARY
NOTE:
WHERE THE FLOODPLAIN AND FLOODWAY
BOUNDARIES COINCIDE, THE FLOODPLAIN
BOUNDARY IS ILLUSTRATED AS A DASHED
FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

HYDRAULIC BASE LINE
WITH RIVER MILE

CROSS SECTION A 0.10
FP= 1888.74
FW= 1888.74
Q= 948CFS

FEMA CROSS SECTION
DESIGNATION

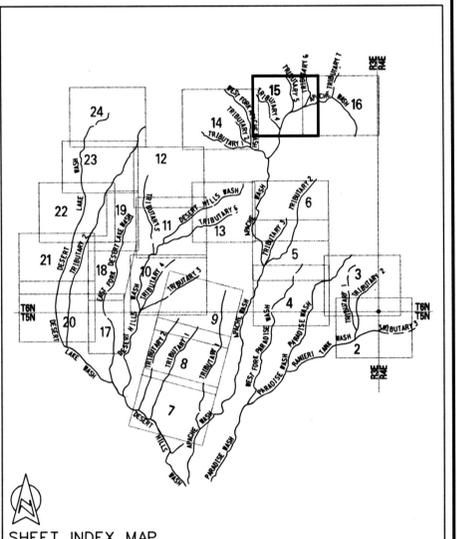
ELEVATION REFERENCE MARK RM 3111

BASE FLOOD ELEVATION 1925

FLOOD INSURANCE ZONE ZONE AE

ELEVATION REFERENCE MARKS
(NATIONAL GEODETIC VERTICAL DATUM OF 1929)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM2038	2030.59	TOP OF 1 INCH IRON PIPE POSSIBLY CENTER OF QUARTER SECTION 23, TOWNSHIP 6 NORTH, RANGE 3 EAST.
RM3100	2165.200	FOUND UNITED STATES GENERAL LAND OFFICE BRASS CAP ON 2 INCH IRON PIPE, APPROXIMATELY 1.7 FEET ABOVE GROUND, AT INTERSECTION OF 32ND STREET AND SADDLE MOUNTAIN ROAD, EAST QUARTER CORNER OF SECTION 23, T6N R3E, G&SR&M.
RM3101	2088.917	FOUND UNITED STATES GENERAL LAND OFFICE BRASS CAP ON 2 INCH IRON PIPE, APPROXIMATELY .9 FEET ABOVE GROUND, APPROXIMATELY 2640 FEET NORTH OF SADDLE MOUNTAIN ROAD ON 32ND STREET EXTENDED, NORTH-EAST CORNER OF SECTION 23, T6N R3E, G&SR&M.



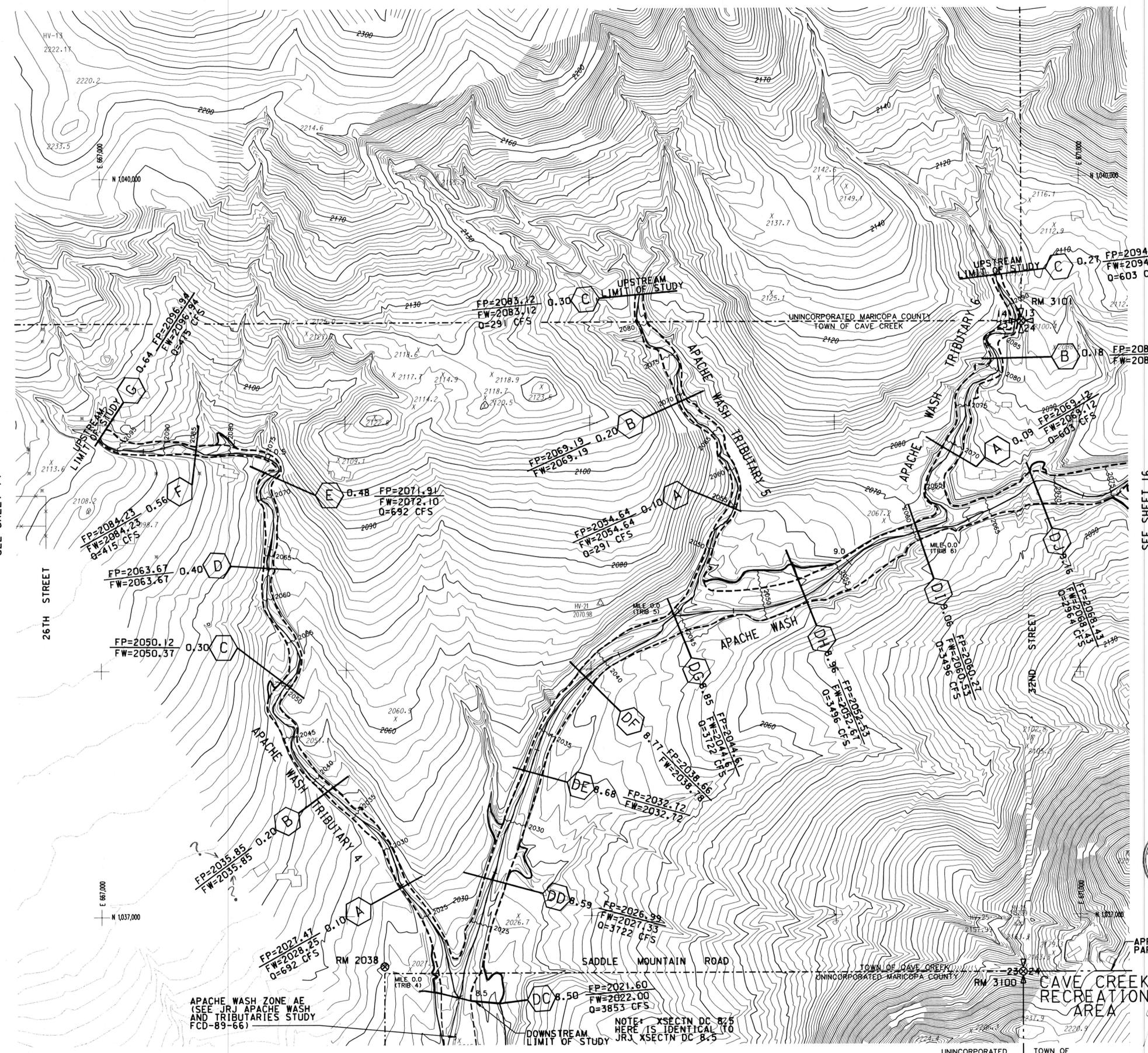
SHEET INDEX MAP

SCALE: 1IN = 200 FT

0 200 400

CONTOUR INTERVAL: 2'
FLIGHT DATE: 3-20-97

Stanley Consultants inc.		A Stanley Group Company Engineering, Environmental and Construction Services - Worldwide	
DESIGN	GCC	DATE	6/99
DESIGN CHK.	GSB	DATE	6/99
DRAWN	RM/SB	DATE	6/99
SUBMITTED BY:		DATE	
RECOMMENDED BY:		DATE	
APPROVED BY:		DATE	
CHIEF ENGINEER AND GENERAL MANAGER		DATE	
SHEET		15 OF 24	



SEE SHEET 14

SEE SHEET 16

HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #18870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY**
FLOODPLAIN DELINEATION AND
TOPOGRAPHIC MAPPING FOR THE
DESERT HILLS AREA
(FCD 96-06)

LEGEND

100-YR FLOODPLAIN BOUNDARY ———
NOTE:
WHERE THE FLOODPLAIN AND FLOODWAY
BOUNDARIES COINCIDE, THE FLOODPLAIN
BOUNDARY IS ILLUSTRATED AS A DASHED
FLOODWAY BOUNDARY

FLOODWAY BOUNDARY - - - - -
HYDRAULIC BASE LINE WITH RIVER MILE
1.0 1.5

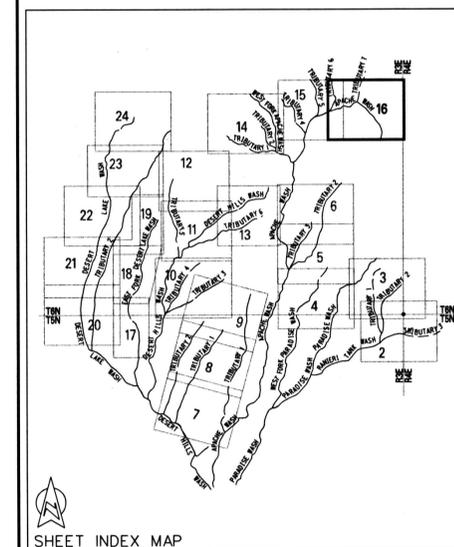
CROSS SECTION A 0.10 FP=1888.74
FW=1888.74
Q=948CFS

FEMA CROSS SECTION ———
DESIGNATION CROSS SECTION RIVER MILE DESIGNATION ENCROACHED WATER SURFACE ELEVATION 100-YEAR DISCHARGE

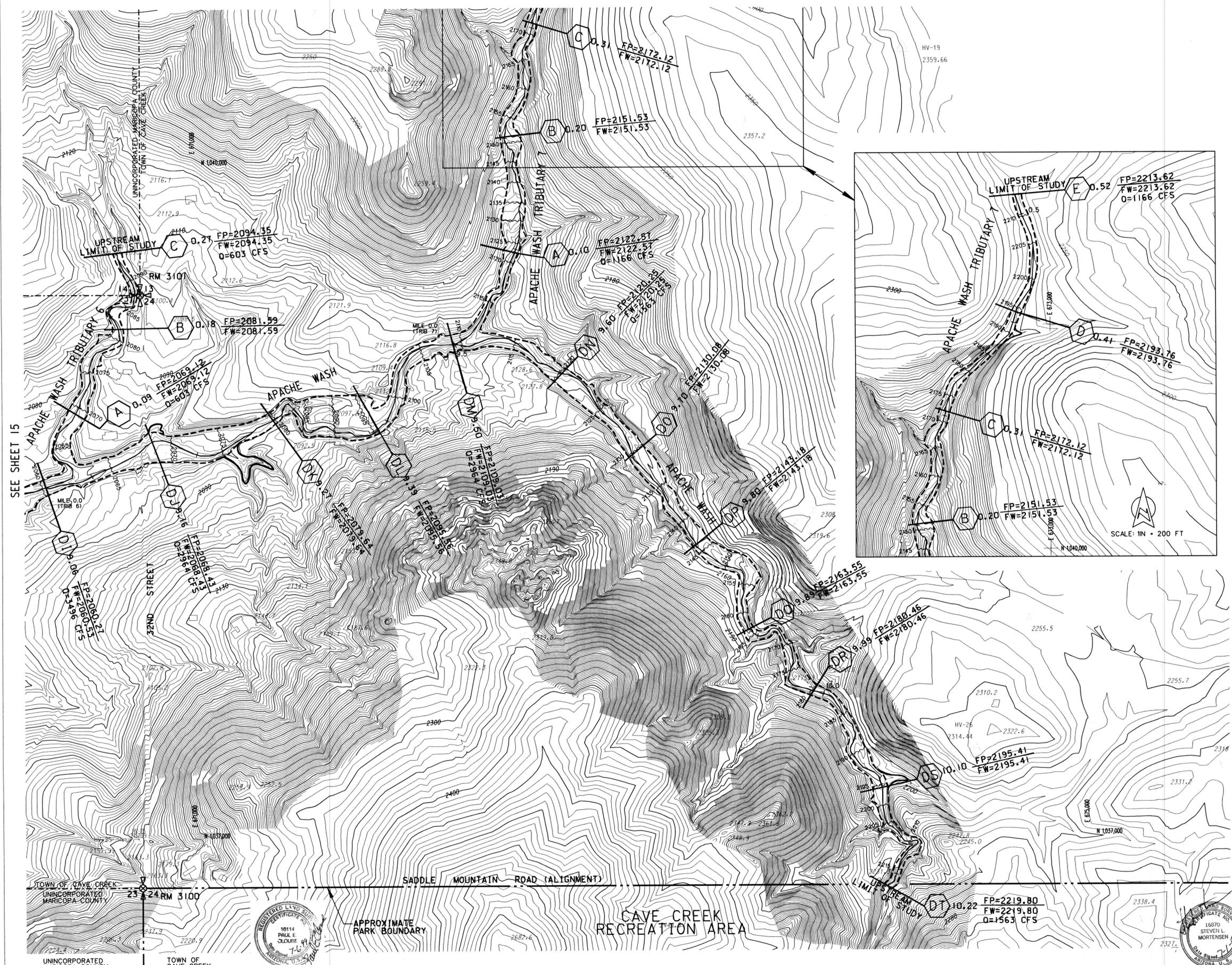
ELEVATION REFERENCE MARK RM 3111
BASE FLOOD ELEVATION 1925
FLOOD INSURANCE ZONE ZONE AE

**ELEVATION REFERENCE MARKS
(NATIONAL GEODETIC VERTICAL DATUM OF 1929)**

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM3100	2165.200	FOUND UNITED STATES GENERAL LAND OFFICE BRASS CAP ON 2 INCH IRON PIPE, APPROXIMATELY 1.7 FEET ABOVE GROUND, AT INTERSECTION OF 32ND STREET AND SADDLE MOUNTAIN ROAD, EAST QUARTER CORNER OF SECTION 23, 16N R3E, G&SRB&M.
RM3101	2088.917	FOUND UNITED STATES GENERAL LAND OFFICE BRASS CAP ON 2 INCH IRON PIPE, APPROXIMATELY .9 FEET ABOVE GROUND, APPROXIMATELY 2640 FEET NORTH OF SADDLE MOUNTAIN ROAD ON 32ND STREET EXTENDED, NORTH-EAST CORNER OF SECTION 23, 16N R3E, G&SRB&M.



Stanley Consultants inc.		A Stanley Group Company Engineering, Environmental and Construction Services - Worldwide	
DESIGN	BY GGC	DATE 6/99	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
DESIGN CHK.	BY GSB	DATE 6/99	
DRAWN	BY RM/SB	DATE 6/99	RECOMMENDED BY: _____ DATE _____
SUBMITTED BY:	DATE _____		APPROVED BY: _____ DATE _____
			CHIEF ENGINEER AND GENERAL MANAGER
DATE _____			SHEET 16 OF 24



I HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #18870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

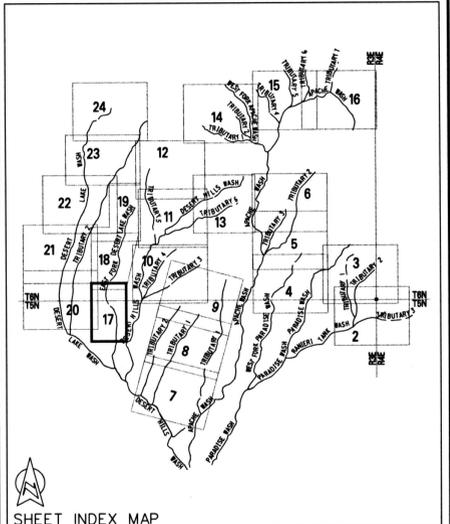
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
FLOODPLAIN DELINEATION AND
TOPOGRAPHIC MAPPING FOR THE
DESERT HILLS AREA
(FCD 96-06)

LEGEND

100-YR FLOODPLAIN BOUNDARY _____
 NOTE: WHERE THE FLOODPLAIN AND FLOODWAY BOUNDARIES COINCIDE, THE FLOODPLAIN BOUNDARY IS ILLUSTRATED AS A DASHED FLOODWAY BOUNDARY
 FLOODWAY BOUNDARY - - - - -
 HYDRAULIC BASE LINE WITH RIVER MILE _____
 CROSS SECTION A 0.10 FP=1888.74 FW=1888.74 Q=948CFS ENCROACHED WATER SURFACE ELEVATION
 FEMA CROSS SECTION DESIGNATION CROSS SECTION RIVER MILE DESIGNATION 100-YEAR DISCHARGE
 ELEVATION REFERENCE MARK RM 3111
 BASE FLOOD ELEVATION 1925
 FLOOD INSURANCE ZONE ZONE AE

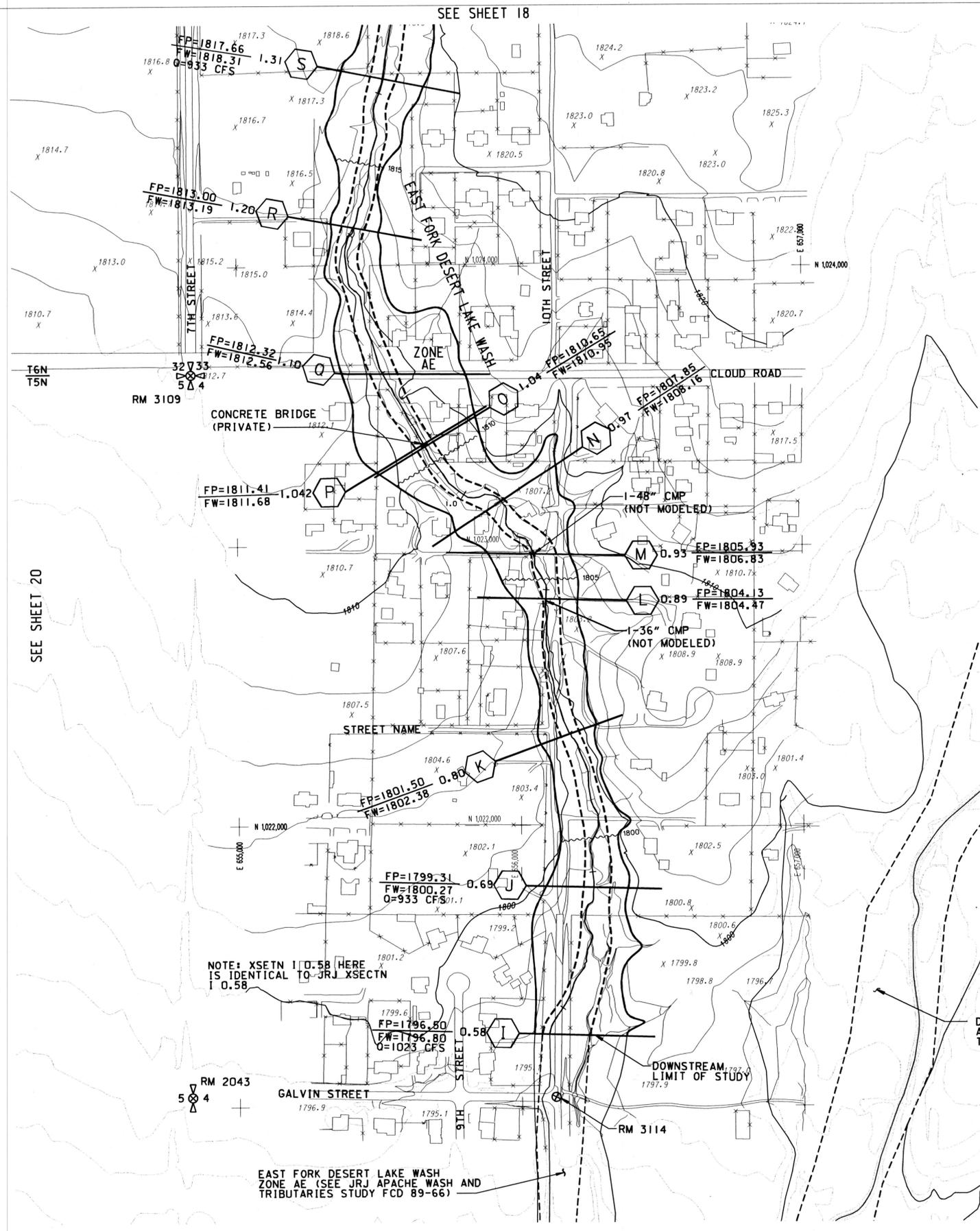
ELEVATION REFERENCE MARKS
(NATIONAL GEODETIC VERTICAL DATUM OF 1929)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM2043	1797.59	MARICOPA COUNTY HIGHWAY DEPARTMENT BRASS CAP FLUSH 7TH STREET AND GALVIN STREET
RM3109	1812.510	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE AT INTERSECTION OF 7TH STREET AND CLOUD ROAD
RM3114	1794.181	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP FLUSH WITH PAVEMENT AT 10TH STREET AND GALVIN STREET



SCALE: 1" = 200 FT
 0 200 400
 CONTOUR INTERVAL: 2'
 FLIGHT DATE: 3-20-97

DESIGN		BY	DATE	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
		GCC	6/99	
DESIGN CHK.		BY	DATE	RECOMMENDED BY: _____ DATE _____
		GSB	6/99	
DRAWN		BY	DATE	APPROVED BY: _____ DATE _____
		RM/SB	6/99	
SUBMITTED BY:		CHIEF ENGINEER AND GENERAL MANAGER		
		DATE	SHEET	OF
			17	24



NOTE: XSECTN I 0.58 HERE IS IDENTICAL TO JRJ XSECTN I 0.58

DESERT HILLS WASH ZONE AE (SEE JRJ APACHE WASH AND TRIBUTARIES STUDY FCD 89-66)

EAST FORK DESERT LAKE WASH ZONE AE (SEE JRJ APACHE WASH AND TRIBUTARIES STUDY FCD 89-66)

HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

PROJECT ENGINEERING CONSULTANTS, LTD. STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR *16870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

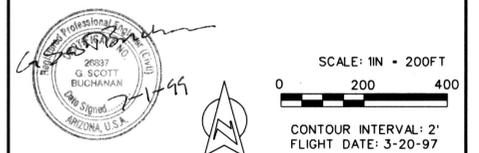
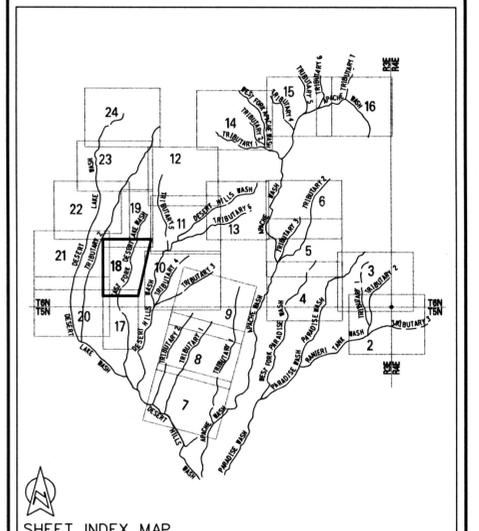
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
FLOODPLAIN DELINEATION AND
TOPOGRAPHIC MAPPING FOR THE
DESERT HILLS AREA
(FCD 96-06)

LEGEND

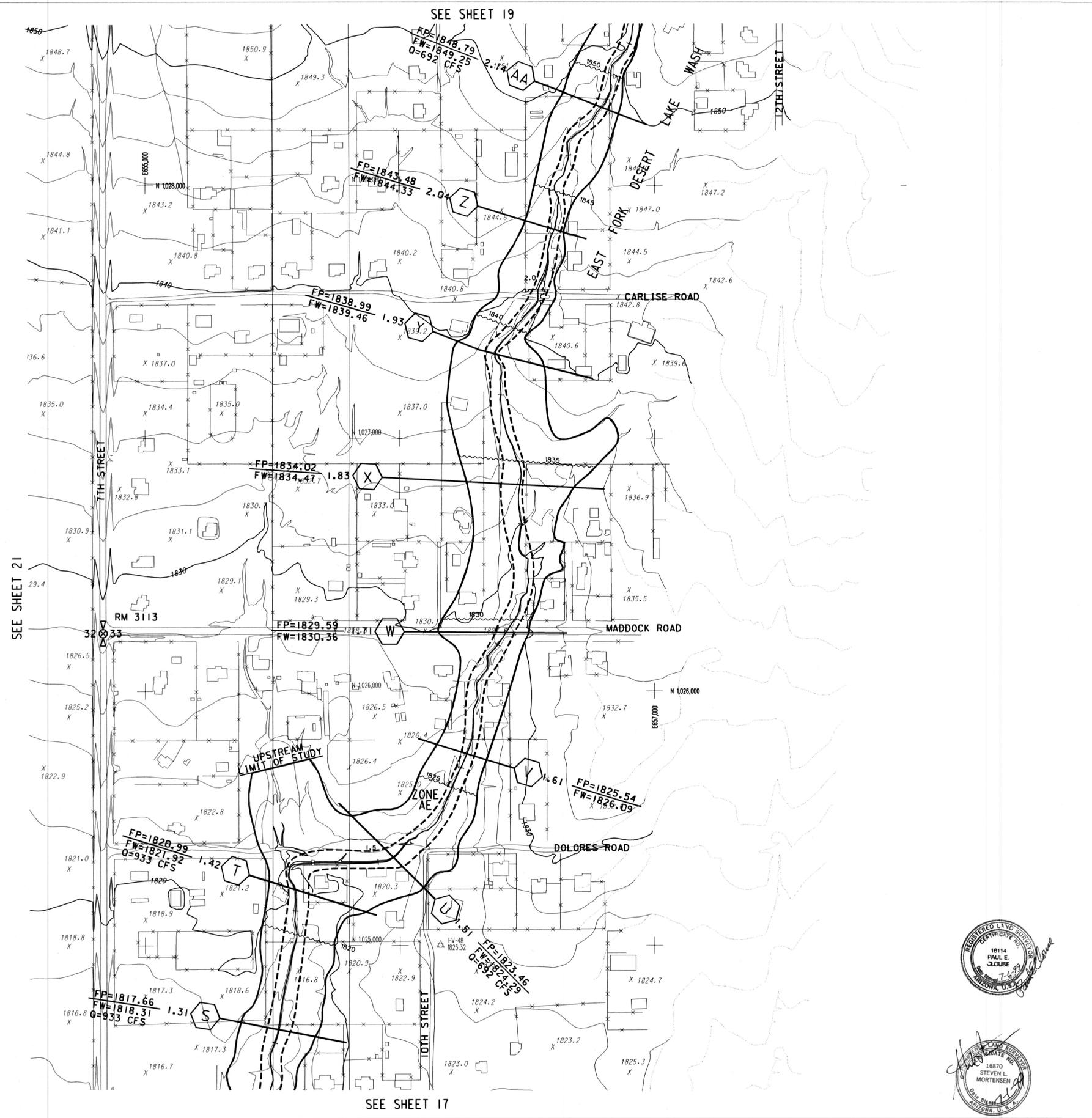
- 100-YR FLOODPLAIN BOUNDARY
- NOTE:
WHERE THE FLOODPLAIN AND FLOODWAY
BOUNDARIES COINCIDE, THE FLOODPLAIN
BOUNDARY IS ILLUSTRATED AS A DASHED
FLOODWAY BOUNDARY
- FLOODWAY BOUNDARY
- HYDRAULIC BASE LINE
WITH RIVER MILE
- CROSS SECTION
FEMA CROSS SECTION DESIGNATION: A
CROSS SECTION RIVER MILE DESIGNATION: 0.10
FLOODPLAIN WATER SURFACE ELEVATION: FP = 1888.74
ENCROACHED WATER SURFACE ELEVATION: FW = 1888.74
100-YEAR DISCHARGE: Q = 948CFS
- ELEVATION REFERENCE MARK RM 3111
- BASE FLOOD ELEVATION 1925
- FLOOD INSURANCE ZONE ZONE AE

ELEVATION REFERENCE MARKS
(NATIONAL GEODETIC VERTICAL DATUM OF 1929)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM3113	1829.213	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP FLUSH WITH PAVEMENT AT INTERSECTION OF 7TH STREET AND MADDOCK ROAD



DESIGN		BY GGC	DATE 6/99	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
DESIGN CHK.		GSB	6/99	
DRAWN		RM/SB	6/99	RECOMMENDED BY: _____ DATE _____
SUBMITTED BY:		APPROVED BY: _____ DATE _____		CHIEF ENGINEER AND GENERAL MANAGER
DATE		SHEET 18 OF 24		



COOPER AERIAL OF PHOENIX, INC. I HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MADDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #16870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
 FLOODPLAIN DELINEATION AND TOPOGRAPHIC MAPPING FOR THE DESERT HILLS AREA (FCD 96-06)

LEGEND

100-YR FLOODPLAIN BOUNDARY
 NOTE: WHERE THE FLOODPLAIN AND FLOODWAY BOUNDARIES COINCIDE, THE FLOODPLAIN BOUNDARY IS ILLUSTRATED AS A DASHED FLOODWAY BOUNDARY

FLOODWAY BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE

CROSS SECTION A 0.10
 FP= 1888.74
 FW= 1888.74
 Q= 94BCFS
 ENCROACHED WATER SURFACE ELEVATION
 FEMA CROSS SECTION DESIGNATION
 CROSS SECTION RIVER MILE DESIGNATION
 100-YEAR DISCHARGE

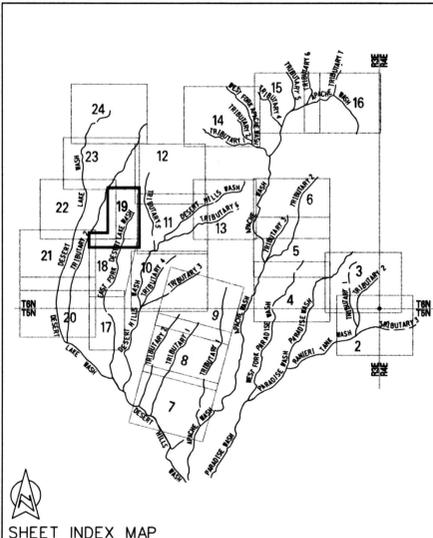
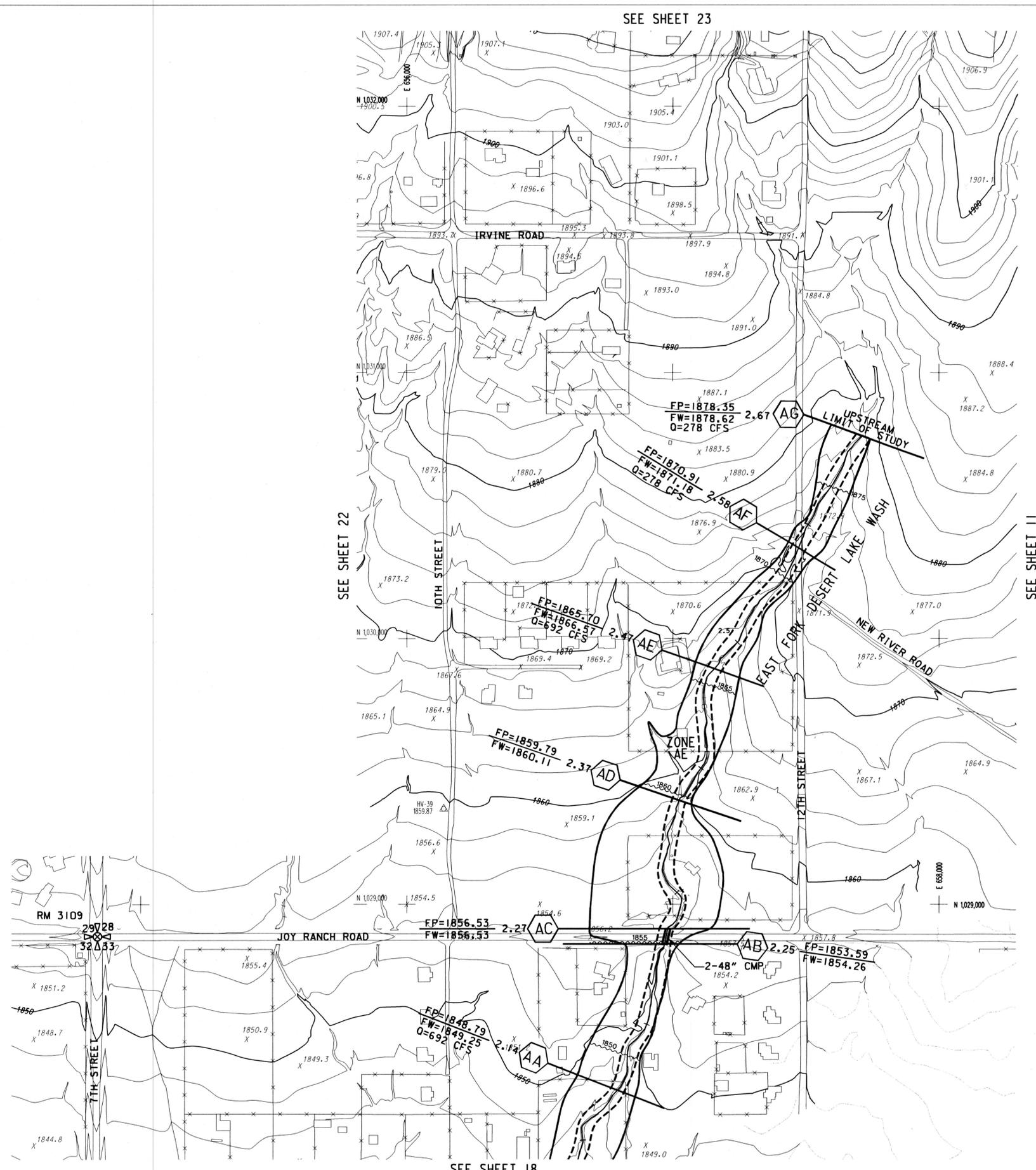
ELEVATION REFERENCE MARK RM 3111

BASE FLOOD ELEVATION

FLOOD INSURANCE ZONE ZONE AE

ELEVATION REFERENCE MARKS (NATIONAL GEODETIC VERTICAL DATUM OF 1929)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM3109	1812.510	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE AT INTERSECTION OF 7TH STREET AND CLOUD ROAD



SCALE: 1" = 200 FT

0 200 400

CONTOUR INTERVAL: 2'
 FLIGHT DATE: 3-20-97



HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY COOPER AERIAL OF PHOENIX, INC. STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #16870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

DESIGN		GGC	6/99	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
DESIGN CHK.		GSB	6/99	
DRAWN		RM/SB	6/99	RECOMMENDED BY: DATE
SUBMITTED BY:		DATE		APPROVED BY: DATE
				CHIEF ENGINEER AND GENERAL MANAGER
				SHEET 19 OF 24

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
FLOODPLAIN DELINEATION AND
TOPOGRAPHIC MAPPING FOR THE
DESERT HILLS AREA
(FCD 96-06)

LEGEND

100-YR FLOODPLAIN BOUNDARY
NOTE:
WHERE THE FLOODPLAIN AND FLOODWAY
BOUNDARIES COINCIDE, THE FLOODPLAIN
BOUNDARY IS ILLUSTRATED AS A DASHED
FLOODWAY BOUNDARY

FLOODWAY BOUNDARY
HYDRAULIC BASE LINE
WITH RIVER MILE

CROSS SECTION
FEMA CROSS SECTION
DESIGNATION
RIVER MILE
DESIGNATION
FLOODPLAIN
WATER SURFACE
ELEVATION
ENCROACHED
WATER SURFACE
ELEVATION
100-YEAR DISCHARGE

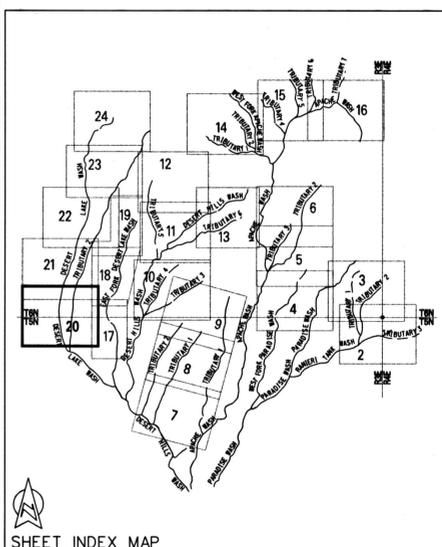
ELEVATION REFERENCE MARK RM 3111

BASE FLOOD ELEVATION

FLOOD INSURANCE ZONE ZONE AE

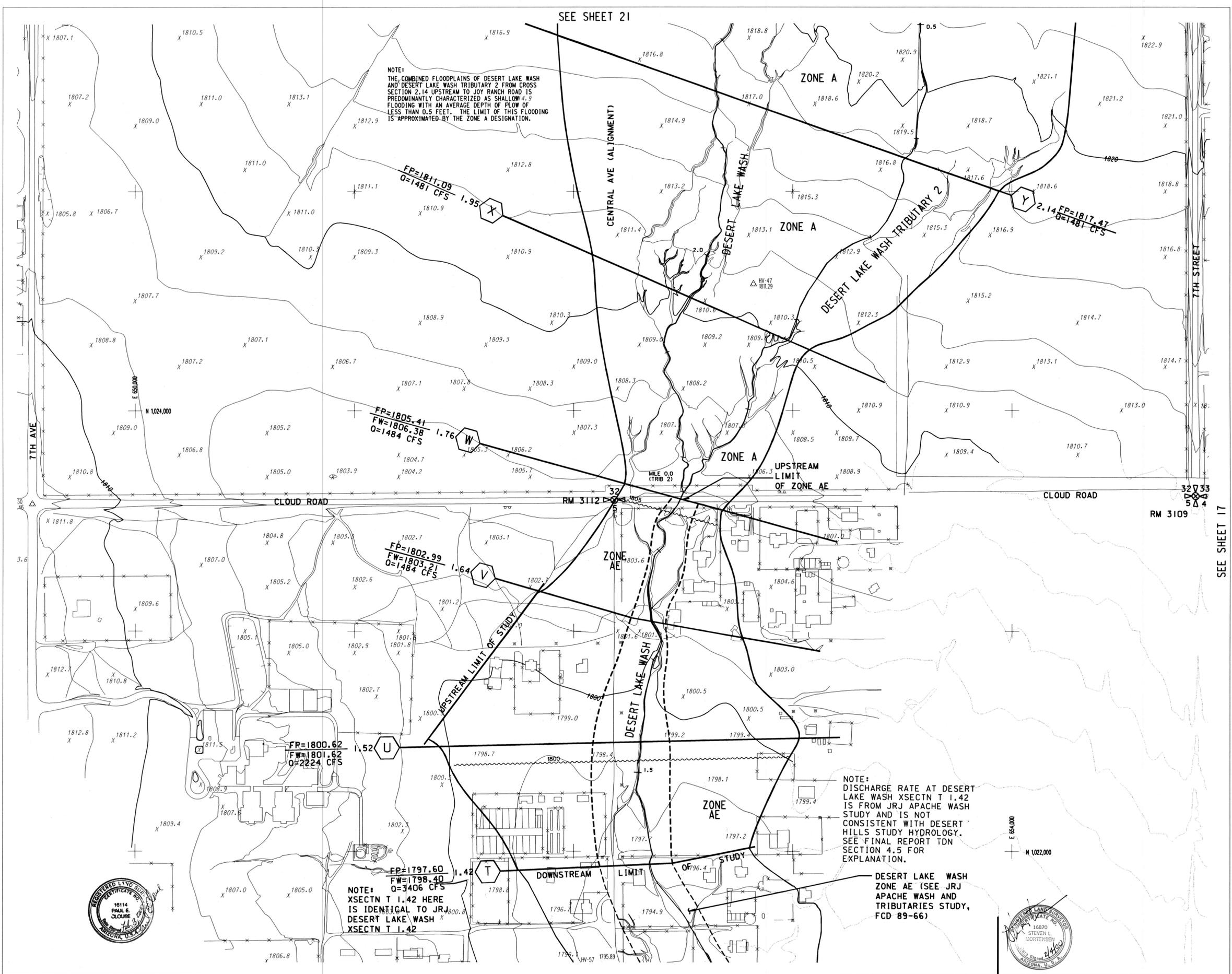
ELEVATION REFERENCE MARKS
(NATIONAL GEODETIC VERTICAL DATUM OF 1929)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM3109	1812.510	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE AT INTERSECTION OF 7TH STREET AND CLOUD ROAD
RM3112	1804.342	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE AT INTERSECTION OF CENTRAL AVENUE AND CLOUD ROAD



SCALE: 1" = 200 FT
0 200 400
CONTOUR INTERVAL: 2'
FLIGHT DATE: 3-20-97

DESIGN		GCC	DATE	11/99	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
DESIGN CHK.		GSB	DATE	11/99	
DRAWN		RM/SB	DATE	11/99	RECOMMENDED BY: _____ DATE _____
SUBMITTED BY:		DATE			APPROVED BY: _____ DATE _____
					CHEF ENGINEER AND GENERAL MANAGER
					SHEET 20 OF 24



NOTE:
THE COMBINED FLOODPLAINS OF DESERT LAKE WASH
AND DESERT LAKE WASH TRIBUTARY 2 FROM CROSS
SECTION 2.14 UPSTREAM TO JOY RANCH ROAD IS
PREDOMINANTLY CHARACTERIZED AS SHALLOW 4.9
FLOODING WITH AN AVERAGE DEPTH OF FLOW OF
LESS THAN 0.5 FEET. THE LIMIT OF THIS FLOODING
IS APPROXIMATED BY THE ZONE A DESIGNATION.

NOTE:
DISCHARGE RATE AT DESERT
LAKE WASH XSECTN T 1.42
IS FROM JRJ APACHE WASH
STUDY AND IS NOT
CONSISTENT WITH DESERT
HILLS STUDY HYDROLOGY.
SEE FINAL REPORT TDN
SECTION 4.5 FOR
EXPLANATION.

DESERT LAKE WASH
ZONE AE (SEE JRJ
APACHE WASH AND
TRIBUTARIES STUDY,
FCD 89-66)

NOTE:
XSECTN T 1.42 HERE
IS IDENTICAL TO JRJ
DESERT LAKE WASH
XSECTN T 1.42

COOPER AERIAL OF PHOENIX, INC. I HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEER CONSULTANTS, LTD.

PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #18870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
FLOODPLAIN DELINEATION AND
TOPOGRAPHIC MAPPING FOR THE
DESERT HILLS AREA
(FCD 96-06)**

LEGEND

100-YR FLOODPLAIN BOUNDARY
NOTE:
WHERE THE FLOODPLAIN AND FLOODWAY
BOUNDARIES COINCIDE, THE FLOODPLAIN
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FLOODWAY BOUNDARY

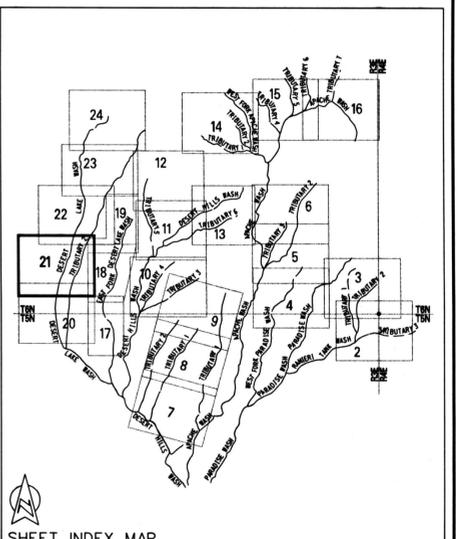
FLOODWAY BOUNDARY
HYDRAULIC BASE LINE
WITH RIVER MILE

CROSS SECTION
FEMA CROSS SECTION
DESIGNATION
RIVER MILE
DESIGNATION
100-YEAR DISCHARGE

ELEVATION REFERENCE MARK RM 3111
BASE FLOOD ELEVATION
FLOOD INSURANCE ZONE ZONE AE

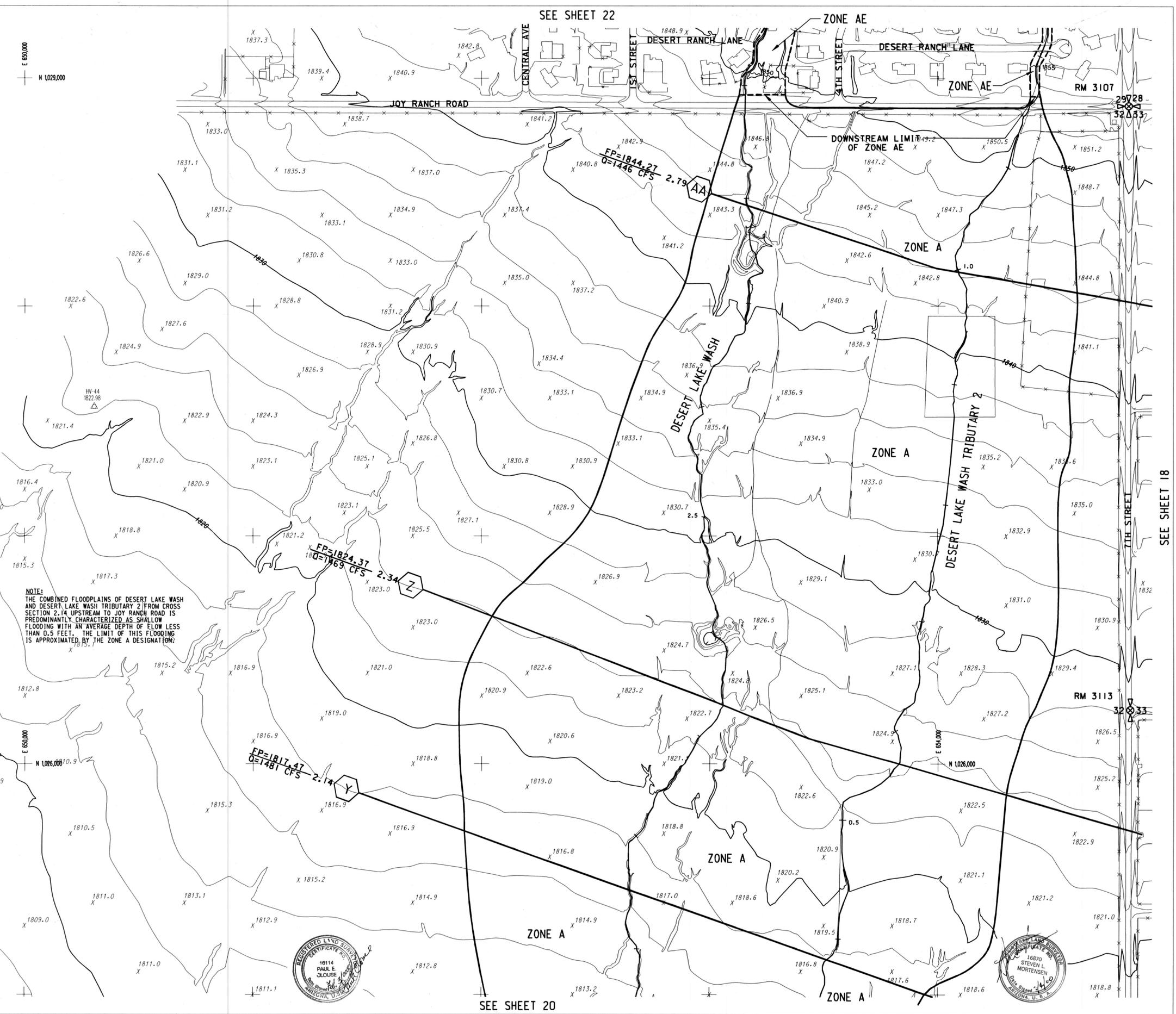
ELEVATION REFERENCE MARKS
(NATIONAL GEODETIC VERTICAL DATUM OF 1929)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM3113	1829.213	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP FLUSH WITH PAVEMENT AT INTERSECTION OF 7TH STREET AND MADDOCK ROAD
RM3107	1854.613	FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE AT INTERSECTION OF 7TH STREET AND JOY RANCH ROAD



SCALE: 1" = 200 FT
CONTOUR INTERVAL: 2'
FLIGHT DATE: 3-20-97

DESIGN BY GGC DATE 11/99		FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
DESIGN CHK. GSB DATE 11/99	RECOMMENDED BY: DATE	
DRAWN RM/SB DATE 11/99	APPROVED BY: DATE	CHIEF ENGINEER AND GENERAL MANAGER
SUBMITTED BY: DATE	SHEET 21 OF 24	



NOTE:
THE COMBINED FLOODPLAINS OF DESERT LAKE WASH AND DESERT LAKE WASH TRIBUTARY 2 FROM CROSS SECTION 2.14 UPSTREAM TO JOY RANCH ROAD IS PREDOMINANTLY CHARACTERIZED AS SHALLOW FLOODING WITH AN AVERAGE DEPTH OF FLOW LESS THAN 0.5 FEET. THE LIMIT OF THIS FLOODING IS APPROXIMATED BY THE ZONE A DESIGNATION.

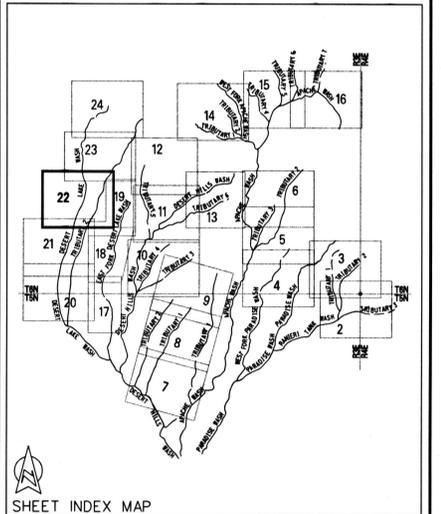
COOPER AERIAL OF PHOENIX, INC. I HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

PROJECT ENGINEERING CONSULTANTS, LTD. I, STEVEN L. MORTENSEN, ARIZONA REGISTERED LAND SURVEYOR #16870, CERTIFY THAT THE HORIZONTAL AND VERTICAL SURVEY CONTROL USED TO PRODUCE PHOTOGRAMMETRIC MAPPING FOR THIS STUDY IS CORRECT AND ACCURATE WITHIN CONTRACT SPECIFICATIONS.

**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
FLOODPLAIN DELINEATION AND
TOPOGRAPHIC MAPPING FOR THE
DESERT HILLS AREA
(FCD 96-06)**

LEGEND

- 100-YR FLOODPLAIN BOUNDARY
- NOTE: WHERE THE FLOODPLAIN AND FLOODWAY BOUNDARIES COINCIDE, THE FLOODPLAIN BOUNDARY IS ILLUSTRATED AS A DASHED FLOODWAY BOUNDARY
- FLOODWAY BOUNDARY
- HYDRAULIC BASE LINE WITH RIVER MILE
- CROSS SECTION A 0.10 FP=1888.74 FW=1888.74 Q=948 CFS
- FEMA CROSS SECTION DESIGNATION
- RIVER MILE DESIGNATION
- ELEVATION REFERENCE MARK RM 3111
- BASE FLOOD ELEVATION 1925
- FLOOD INSURANCE ZONE ZONE AE
- ELEVATION REFERENCE MARKS (NATIONAL GEODETIC VERTICAL DATUM OF 1929)
- ID NUMBER RM3107
- ELEVATION (FT) 1854.613
- DESCRIPTION FOUND MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION BRASS CAP IN HANDHOLE AT INTERSECTION OF 7TH STREET AND JOY RANCH ROAD



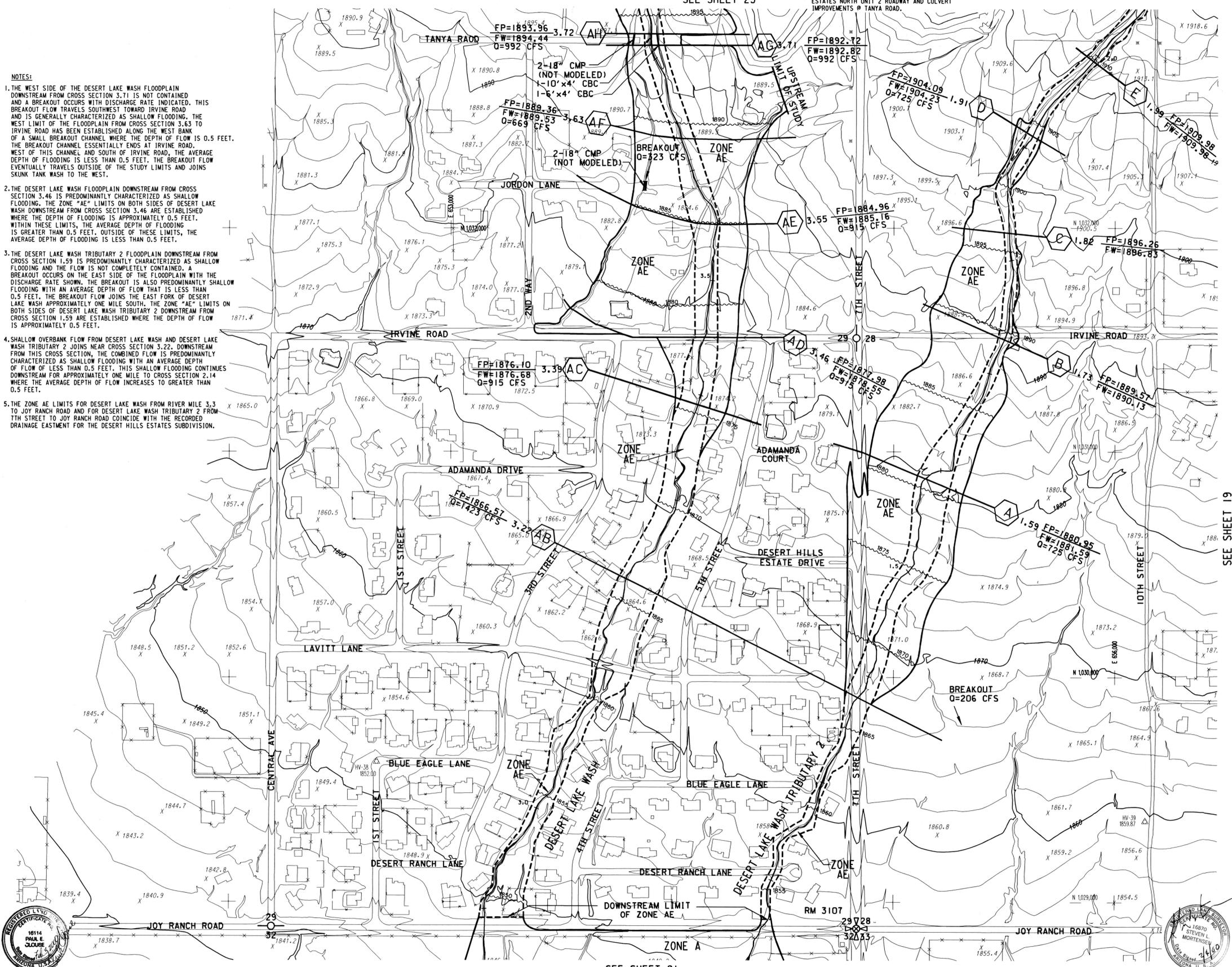
SCALE: 1" = 200 FT
0 200 400
CONTOUR INTERVAL: 2'
FLIGHT DATE: 3-20-97

		A Stanley Group Company Engineering, Environmental and Construction Services - Worldwide	
DESIGN	BY GGC	DATE 11/99	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY RECOMMENDED BY: _____ DATE _____ APPROVED BY: _____ DATE _____ CHIEF ENGINEER AND GENERAL MANAGER
DESIGN CHK.	GSB	11/99	
DRAWN	RM/SB	11/99	
SUBMITTED BY:			
		SHEET 22	OF 24

SEE SHEET 23

NOTE: HYDRAULIC MODEL AND FLOODPLAIN LIMITS REFLECT ESTATES NORTH UNIT 2 ROADWAY AND CULVERT IMPROVEMENTS @ TANYA ROAD.

- NOTES:**
1. THE WEST SIDE OF THE DESERT LAKE WASH FLOODPLAIN DOWNSTREAM FROM CROSS SECTION 3.71 IS NOT CONTAINED AND A BREAKOUT OCCURS WITH DISCHARGE RATE INDICATED. THIS BREAKOUT FLOW TRAVELS SOUTHWEST TOWARD IRVINE ROAD AND IS GENERALLY CHARACTERIZED AS SHALLOW FLOODING. THE WEST LIMIT OF THE FLOODPLAIN FROM CROSS SECTION 3.63 TO IRVINE ROAD HAS BEEN ESTABLISHED ALONG THE WEST BANK OF A SMALL BREAKOUT CHANNEL WHERE THE DEPTH OF FLOW IS 0.5 FEET. THE BREAKOUT CHANNEL ESSENTIALLY ENDS AT IRVINE ROAD. WEST OF THIS CHANNEL AND SOUTH OF IRVINE ROAD, THE AVERAGE DEPTH OF FLOODING IS LESS THAN 0.5 FEET. THE BREAKOUT FLOW EVENTUALLY TRAVELS OUTSIDE OF THE STUDY LIMITS AND JOINS SKUNK TANK WASH TO THE WEST.
 2. THE DESERT LAKE WASH FLOODPLAIN DOWNSTREAM FROM CROSS SECTION 3.46 IS PREDOMINANTLY CHARACTERIZED AS SHALLOW FLOODING. THE ZONE "AE" LIMITS ON BOTH SIDES OF DESERT LAKE WASH DOWNSTREAM FROM CROSS SECTION 3.46 ARE ESTABLISHED WHERE THE DEPTH OF FLOODING IS APPROXIMATELY 0.5 FEET. WITHIN THESE LIMITS, THE AVERAGE DEPTH OF FLOODING IS GREATER THAN 0.5 FEET. OUTSIDE OF THESE LIMITS, THE AVERAGE DEPTH OF FLOODING IS LESS THAN 0.5 FEET.
 3. THE DESERT LAKE WASH TRIBUTARY 2 FLOODPLAIN DOWNSTREAM FROM CROSS SECTION 1.59 IS PREDOMINANTLY CHARACTERIZED AS SHALLOW FLOODING AND THE FLOW IS NOT COMPLETELY CONTAINED. A BREAKOUT OCCURS ON THE EAST SIDE OF THE FLOODPLAIN WITH THE DISCHARGE RATE SHOWN. THE BREAKOUT IS ALSO PREDOMINANTLY SHALLOW FLOODING WITH AN AVERAGE DEPTH OF FLOW THAT IS LESS THAN 0.5 FEET. THE BREAKOUT FLOW JOINS THE EAST FORK OF DESERT LAKE WASH APPROXIMATELY ONE MILE SOUTH. THE ZONE "AE" LIMITS ON BOTH SIDES OF DESERT LAKE WASH TRIBUTARY 2 DOWNSTREAM FROM CROSS SECTION 1.59 ARE ESTABLISHED WHERE THE DEPTH OF FLOW IS APPROXIMATELY 0.5 FEET.
 4. SHALLOW OVERBANK FLOW FROM DESERT LAKE WASH AND DESERT LAKE WASH TRIBUTARY 2 JOINS NEAR CROSS SECTION 3.22. DOWNSTREAM FROM THIS CROSS SECTION, THE COMBINED FLOW IS PREDOMINANTLY CHARACTERIZED AS SHALLOW FLOODING WITH AN AVERAGE DEPTH OF FLOW OF LESS THAN 0.5 FEET. THIS SHALLOW FLOODING CONTINUES DOWNSTREAM FOR APPROXIMATELY ONE MILE TO CROSS SECTION 2.14 WHERE THE AVERAGE DEPTH OF FLOW INCREASES TO GREATER THAN 0.5 FEET.
 5. THE ZONE AE LIMITS FOR DESERT LAKE WASH FROM RIVER MILE 3.3 TO JOY RANCH ROAD AND FOR DESERT LAKE WASH TRIBUTARY 2 FROM 7TH STREET TO JOY RANCH ROAD COINCIDE WITH THE RECORDED DRAINAGE EASTMENT FOR THE DESERT HILLS ESTATES SUBDIVISION.



SEE SHEET 21



COOPER AERIAL OF PHOENIX, INC. I HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

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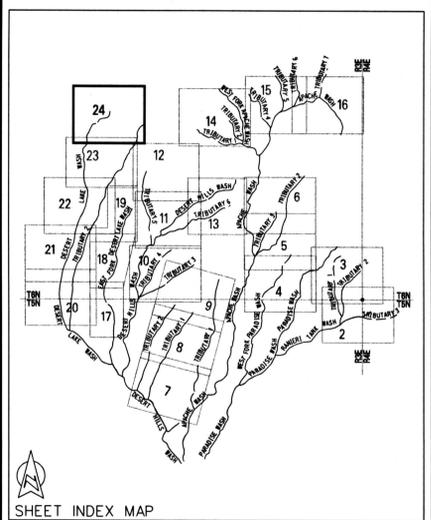
**FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
FLOODPLAIN DELINEATION AND
TOPOGRAPHIC MAPPING FOR THE
DESERT HILLS AREA
(FCD 96-06)**

LEGEND

- 100-YR FLOODPLAIN BOUNDARY
- NOTE: WHERE THE FLOODPLAIN AND FLOODWAY BOUNDARIES COINCIDE, THE FLOODPLAIN BOUNDARY IS ILLUSTRATED AS A DASHED FLOODWAY BOUNDARY
- FLOODWAY BOUNDARY
- HYDRAULIC BASE LINE WITH RIVER MILE
- CROSS SECTION
 - FLOODPLAIN WATER SURFACE ELEVATION
 - FEMA CROSS SECTION RIVER MILE DESIGNATION
 - CROSS SECTION RIVER MILE DESIGNATION
 - ENCROACHED WATER SURFACE ELEVATION
 - 100-YEAR DISCHARGE
- ELEVATION REFERENCE MARK RM 3111
- BASE FLOOD ELEVATION 1925.5
- FLOOD INSURANCE ZONE ZONE AE

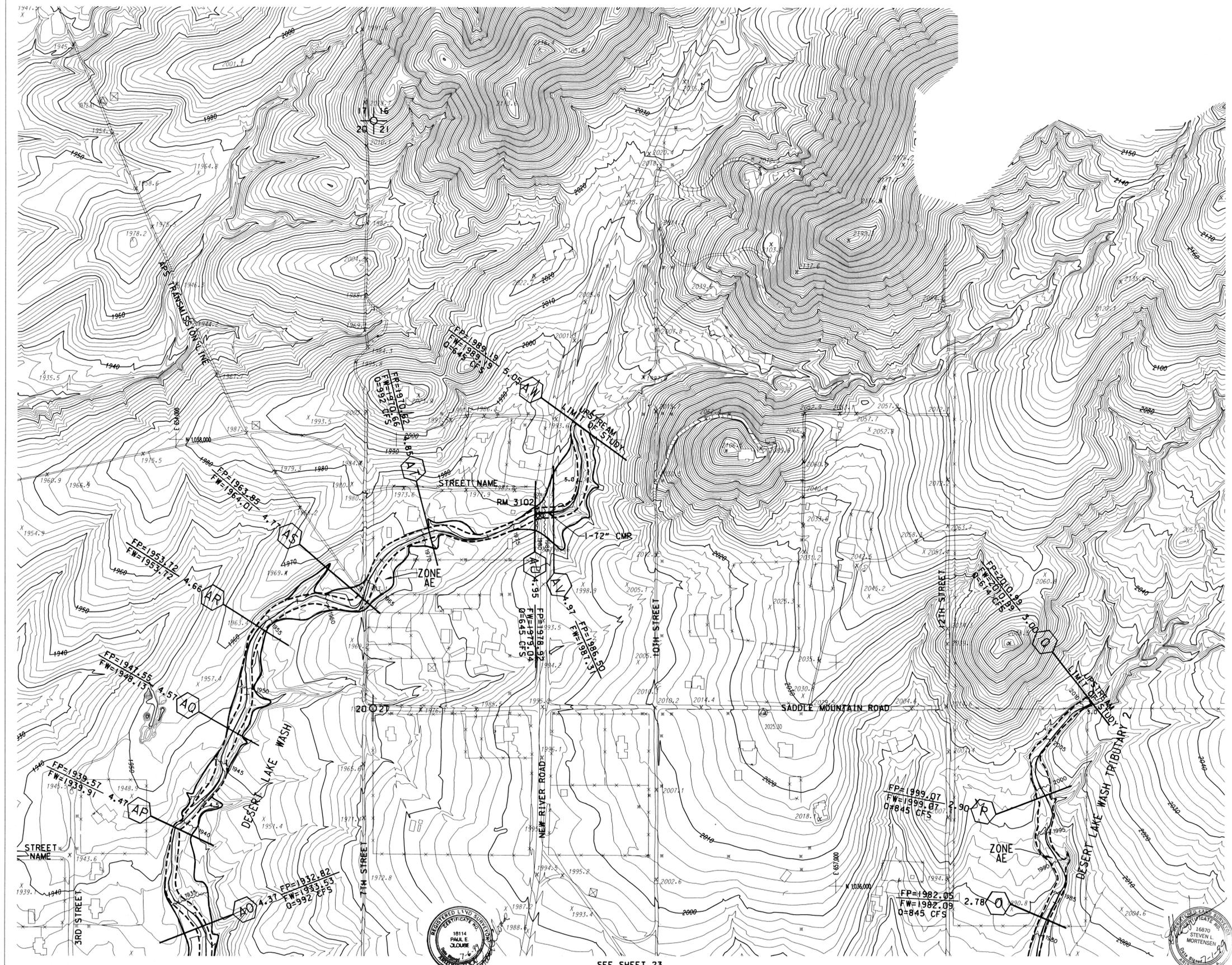
ELEVATION REFERENCE MARKS
(NATIONAL GEODETIC VERTICAL DATUM OF 1929)

ID NUMBER	ELEVATION (FT)	DESCRIPTION LOCATION
RM3102	1982.992	SET ALUMINUM CAP ON SOUTH CORNER OF WEST HEADWALL, APPROXIMATELY 1200 FEET NORTH OF SADDLE MOUNTAIN ROAD, APPROXIMATELY 20 FEET WEST OF NEW RIVER ROAD.



SCALE: 1" = 200 FT
0 200 400
CONTOUR INTERVAL: 2'
FLIGHT DATE: 3-20-97

 Stanley Consultants inc. <small>A Stanley Group Company Engineering, Environmental and Construction Services - Worldwide</small>		FLOOD CONTROL DISTRICT OF MARICOPA COUNTY			
		DESIGN	BY GGC	DATE 6/99	RECOMMENDED BY:
DESIGN CHK.	GSB	6/99	APPROVED BY:	DATE	
DRAWN	RM/SB	6/99	CHIEF ENGINEER AND GENERAL MANAGER		
SUBMITTED BY:		DATE	SHEET	24	OF 24



HEREBY CERTIFY THAT THIS MAP HAS BEEN PRODUCED BY PHOTOGRAMMETRIC METHODS AND MEETS NATIONAL MAPPING ACCURACY STANDARDS FOR A 2 FOOT CONTOUR INTERVAL MAP AT A SCALE OF 1"=200'. THE ABOVE IS SUBJECT TO THE FIELD CONTROL ACCURACY PROVIDED BY LARRY M. MALDONADO, PROJECT ENGINEERING CONSULTANTS, LTD.

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