

DESERT WELL

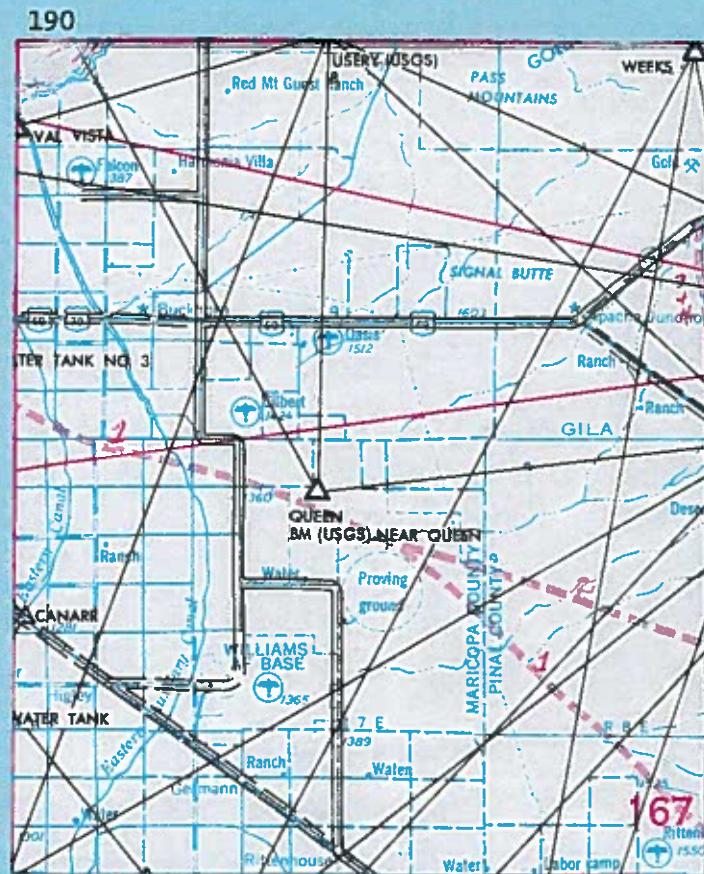
Lat. 33°15'  
Long. 111°30'

ARIZONA 167

C&GS 33 111 31

See Ariz. Hwy. - Job 269

(1)	T. Winsor	1899	8498
(2)	"	"	"
(3)	"	"	"
(4)	R. Philips	1905	6624



144

33 111 3

33°15'  
111°30'

ARIZONA 167

<u>NAME</u>	<u>STATION</u>
✓ Canarr	1062
✓ Queen	1069
✓ Bench Mark 1407 Phnx	
✓ USGS	1069
Weeks	1075

**NAD 83 VALUES AVAILABLE**

*IN Mesa*

*8*

JULY 1966  
 PUBLISHED AND PRINTED BY:  
 U.S. DEPARTMENT OF COMMERCE  
 COAST AND GEODETIC SURVEY  
 WASHINGTON D.C.

# HORIZONTAL CONTROL DATA

by the  
 Coast and Geodetic Survey  
 NORTH AMERICAN 1927 DATUM

ARIZONA 167  
 QUAD 331113 STATION 1062  
 ARIZ  
 LATITUDE 33°00' TO 33°30'  
 LONGITUDE 111°30' TO 112°00'  
 DIAGRAM NI 12-8 MESA

Canarr (Maricopa County, J. Bowle, Jr., 1936).—At the intersection of High-land or Eastern Canal with the Southern Pacific Railroad, 7.1 meters north-west of the northwest bank of the canal, 2.1 meters southeast of a wire fence at a point where it makes a jog, 16.5 meters southwest of a concrete water gate, and 32.8 meters southwest of the southwest rail of the railroad tracks. There is a road between the station and the canal. (The canal runs ap-proximately northeast and southwest, and the railroad runs approximately northwest and southeast.) The station and reference marks are standard disks in the top of pipes which are set in concrete. The concrete is a circular mass, the top of which is about 8 inches below the ground surface. The disk projects about 8 inches above the ground surface and about 11 inches above the top of the concrete. Reference mark No. 1 is 40 paces southwest of the southwest rail of the railroad tracks, 5 paces southwest of a wire fence, about 1 meter southeast of the southeast bank of the concrete canal and 17.269 meters (56.66 feet) from station in azimuth 313°12'. Reference mark No. 2 is about 51 meters southwest of the southwest rail (mentioned above), 13.8 meters northwest of the northwest bank of the canal, 6 inches east of a wire fence line and 19.059 meters (62.53 feet) from station in azimuth 59°22'. The azi-muth mark, a standard bronze disk, note 11a, is about one-fourth mile south-west of the railroad, on the northwest side of the canal about halfway between the road and the right-of-way fence and 0.2 mile from station in azimuth 38°19'03".

CANARR (Maricopa Co., Ariz., J.B., Jr., 1936; U.S.B.R., 1942)  
 —Bronze disk broken,  
 supporting pipe bent over, reference marks intact.

U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY  
 RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION: CANARR  
 ESTABLISHED BY: J.B.Jr. YEAR: 1936 STATE: Arizona  
 RECOVERED BY: A.M.S. YEAR: 1956 COUNTY: Maricopa

Detailed statement as to the status of the original description, including marks found, stampings, changes made, and other pertinent facts:

Station not found - indicated measurement would place mark on a field drive and as it projected above ground it is believed to be de-stroyed.

Reference mark 2 was found badly bent over.  
 Reference mark 1 not found.  
 Azimuth mark found destroyed.

\* Name of chief of party should be inserted here. The officer to be actually visited the station should sign his name at the end of the recovery note.  
 Note.—One of these forms must be used for every station recovery.

## ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: CANARR YEAR: 1936  
 STATE: Ariz LOCALITY: Papago Indian Reservation  
 Second -ORDER Triangulation SOURCE: G-3083 FIELD SKETCH: ARIZ 14

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH & ION ANG ANGLE	MARK
STATE: Ariz ZONE: C CODE: 0202	X 551,640.47 Y 846,403.84	38°13'29" + 0 05 34	AZIMUTH MARK
STATE: ZONE: CODE:	X Y		

GEODETTIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:	NORTH WEST	METERS FEET
	33°19'36".075	111 44 51.363		

TO STATION	GEODETTIC AZIMUTH (From center)	DISTANCE	
		LOGARITHM (Meters)	METERS
AZIMUTH MARK	THIRD-ORDER 38°19'03".1		

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JAN 1967

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# HORIZONTAL CONTROL DATA

by the  
 Coast and Geodetic Survey  
 NORTH AMERICAN 1927 DATUM

QUAD 331113 STATION 1063  
 ARIZ  
 LATITUDE 33°00' TO 33°30'  
 LONGITUDE 111°30' TO 112°00'  
 DIAGRAM NI 12-8 MESA

**Falfa (Maricopa County, J. Bowie, Jr., 1936).**—On the east side of State Highway No. 87, 4.6 miles south of Mesa. Station marks are bronze disks as described in notes 1a and 7a. Reference mark No. 1, a standard bronze reference disk, is cemented in culvert bulkhead at cross roads and is 29.405 meters (96.47 feet) from station in azimuth 0°02'. Reference mark No. 2, a standard bronze reference disk, is cemented in concrete highway opposite the station and is 11.980 meters (39.30 feet) from station in azimuth 90°18'. The azimuth mark is along the west side of Highway No. 87 near the west right-of-way boundary fence and about 0.3 mile from station in azimuth 177°41'14".

**FALFA (Maricopa Co., Ariz., J.B., Jr., 1936; N.B.A., 1942)**  
 --The station was found  
 in good condition as described.

## ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: FALFA YEAR: 1936  
 STATE: Ariz LOCALITY: Papago Indian Reservation  
 Second-ORDER Triangulation SOURCE: G-3083 FIELD SKETCH: ARIZ 14

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH & (ORDIN) ANGLE	MARK	
STATE: Ariz ZONE: C CODE: 0202	x 523,109.13 y 854,851.78	177°38'44" + 0 02 30	AZIMUTH MARK	
STATE: ZONE: CODE:	x y			
GEODETTIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE: 33°20'59".996 LONGITUDE: 111 50 27.562	NORTH WEST		METERS FEET
TO STATION	GEODETTIC AZIMUTH (From omith)	DISTANCE		
AZIMUTH MARK	THIRD-ORDER 177°41'14"0	LOGARITHM (Meters)	METERS	

# HORIZONTAL CONTROL DATA

by the  
 Coast and Geodetic Survey  
 NORTH AMERICAN 1927 DATUM

QUAD 331113 STATION 1068  
 ARIZ  
 LATITUDE 33°00' TO 33°30'  
 LONGITUDE 111°30' TO 112°00'  
 DIAGRAM NI 12-8 MESA

**MINERAL BUTTE** (Pinal County, Ariz., E.B.L., 1935)--Station is located about 13 miles airline NW of Florence; about 4 miles airline N of Gila River; on western and slightly higher of two reddish buttes.

Surface and reference marks are standard bronze disks in out-cropping bedrock as described in notes 2 and 12a.

Station reached as follows from Florence: from post office follow Ariz. 187 and 87 W and N 22 miles. Turn R after crossing Gila River on Sacaton bridge, and follow main-traveled road, which passes along S side of tin shed 0.2 mile to RR tracks. Cross tracks and follow main-traveled road, winding thru foothills 2.9 miles to a forke. Here take R fork and follow main road about 5 miles. At this point station can be seen about 1/2 mile to S. Turn off road and drive towards butte about 0.3 mile. From here climb to top and station. It is about a 20-minute pack.

OBJECT	DISTANCE	DIRECTION
POSTEN	meters	0°00'00"0
R.M.No.1	N 4.375	225 07 51.8
R.M.No.2	WSW 10.476	120 32 24.0
Water tank at Sacaton		140 45 13.6
Height of telescope above station mark	- 1.7 meters.	

**MINERAL BUTTE** (Pinal County, Ariz., E.B.L., 1935; recovered, J.B., 1936)--Station was recovered as described by E.B.L. All marks were found in good condition. An azimuth mark was set about 1/4 mile N of station 35 feet N of road at a curve, being a standard tablet set in a 6-inch concrete post, projecting about 4 inches above ground.

Station description is as follows: station is located about 13 miles NW airline from Florence and about 4 miles N airline from Gila River on western and slightly higher of two reddish buttes.

Station is reached from Florence as follows: from post office follow Ariz. 187 and 87 W and N 22 miles. Turn R just after crossing Gila River on Sacaton bridge, passing to R of a large tin building and go 0.2 mile to RR tracks. Cross tracks and follow main road thru foothills 3.3 miles. Keep R fork, main-traveled road, and go E over divide 4.7 miles to azimuth mark at L of road on a small hill and a curve. From here station is about 1/2 mile S. Drive cross-country about 1/2 mile to N base of butte. Then pack SE about 200 yards to top of butte and station.

OBJECT	DISTANCE	DIRECTION
RANDOLPH		0°00'00"0
Azimuth (1936)	N 1/4 mile	167 30 18.6

**MINERAL BUTTE** (Pinal County, Ariz., E.B.L., 1935; recovered, F.G.J., 1938)--Station was recovered as described.

All marks were found to be in very good condition. Station is located about 13 miles NW of Florence, Ariz., and about 4 miles N of Gila River on most westerly and highest of two, reddish, rocky buttes.

Station is reached from Chandler, Ariz., by going S on Ariz. 87, 18.5 miles to Olberg, Ariz., where Sacaton bridge crosses Gila River. Just before crossing bridge, leave highway, turn L on a graded, dirt road, and go 0.2 mile to RR tracks. Thence cross tracks and follow main-traveled road thru foothills 3.3 miles to a fork. Thence take R fork and continue easterly 0.6 mile to another fork. Thence take R fork, main-traveled road, and continue 4.1 miles to a curve in road on top of a slight hill. Azimuth mark is about 12 paces N of road at this point. At this point leave road and drive across country southerly toward butte, which is about 1/2 mile distant. Drive to base of butte and end of truck travel. From here pack up butte to highest point and station site.

Reference mark No.1 is NNW of station and about 6 feet lower in elevation. Reference mark No.2 is WSW of station and about 4 feet lower in elevation. Azimuth mark is NNW of station and about 250 feet lower in elevation.

OBJECT	DISTANCE	DIRECTION
SANTAN	feet meters	0°00'00"0
R.M.No.1	NNW 14.438 4.401	40 16 39
R.M.No.2	WSW 34.362 10.474	295 41 51
Azimuth mark NNW	approx. 1/2 mile	34 59 04.0

Note: direction to azimuth mark and distance to reference mark No.1 given in previous descriptions are in error. Above direction and measurement are correct.

## ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: **MINERAL BUTTE** YEAR: 1935  
 STATE: Ariz LOCALITY: Ajo to Tucson to Phoenix to Winkelman  
 First-order Triangulation SOURCE: G-3058 FIELD SKETCH: ARIZ 9

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (FOR ANG. C)	MARK
STATE: Ariz ZONE: C CODE: 0202	x 601,570.40 y 770,814.77	73°37'54" - + 0 10 52.	AZIMUTH MARK (SACATON WATER TANK)
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE: LONGITUDE:	33°07'06"955 111 35 05.719	NORTH WEST	

TO STATION	GEODETIC AZIMUTH (From south)	DISTANCE	
		LOGARITHM (Meters)	METERS
AZIMUTH MARK (SACATON WATER TANK)	73°48'46"7	4.177 508	15,049.0

Form 328  
(11-8-55)

U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY  
 RECOVERY NOTE, TRIANGULATION STATION

**R**

NAME OF STATION: **MINERAL BUTTE**  
 ESTABLISHED BY: E.B.L. YEAR: 1935 STATE: Arizona  
 RECOVERED BY: A.N.S. YEAR: 1956 COUNTY: Pinal

Detailed statement as to the status of the original description; including marks found, stampings, changes made, and other pertinent facts:

Station recovered in good condition.  
 Reference marks recovered as described.  
 The station is 26 feet S of center bush; 10 feet W of center bush;  
 67 feet E of center bush; 30 feet ESE of center bush.  
 Azimuth mark found as described.

## RECOVERY OF SURVEY STATION

331113-1068

AREA	DESIGNATION OF STA:	TYPE OF MARK:
PINAL COUNTY, ARIZ	MINERAL BUTTE	DISK
QUAD:	STAMPS ON MARK:	CONDITION:
33-1068 (USCLES)	MINERAL BUTTE 1935	GOOD
TOWN:	AGENCY (ASST IN MARK):	POS. BY (AGENCY):
FLORENCE, ARIZONA	USCLES	USCLES

ADDITIONS AND/OR REVISIONS TO DESCRIPTION OR SKETCH:

10/24/66

THE STATION MARK, REFERENCE MARKS 1, 2 AND  
 THE AZIMUTH MARK WERE RECOVERED AS DESCRIBED  
 IN GOOD CONDITION.

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 COAST AND GEODETIC SURVEY  
 WASHINGTON D.C.  
 Revised NOV 1975

# HORIZONTAL CONTROL DATA

by the  
 Coast and Geodetic Survey  
 NORTH AMERICAN 1927 DATUM

ARIZONA 167

QUAD 331113 STATION 1069  
 ARIZ  
 LATITUDE 33°00' TO 33°30'  
 LONGITUDE 111°30' TO 112°00'  
 DIAGRAM NI 12-8 MESA

33° 15'  
 111 30

QUEEN (Maricopa County, Ariz., F.G.J., 1938)--Located about 3.5 miles S of U.S. 60 and about 2.3 miles NW of Desert Wells. Reached from Mesa by going W on U.S. 60, 8.0 miles to Buckhorn Shell Station (gasoline station combined with a curio shop and bar); thence continue E on U.S. 60, 1.0 mile to a graded, dirt road R; here turn R and go S 2.5 miles to a T-cross road; here turn L thru a wire gate and go 0.3 mile to a corner of a field on R; here turn R and go S about 100 yards to a track road SE which follows a telephone line; thence follow track road SE along telephone line 1.1 miles to a wire gate in a N-S fence line; here turn R before going thru gate and follow a track road S along fence 0.5 mile to another wire gate in same fence; thence turn L thru gate and go E 1.0 mile thru a lane and to a fence corner on L at station.

Station sets inside fence corner, 4.2 feet N of E-W fence, and 5.2 feet W of N-S fence.

Azimuth mark is 0.3 mile SE of station, at telephone line. It is about 12 feet E of a telephone pole.

Station, azimuth, and reference mark No. 1 project about 3 inches from ground. Reference mark No. 2 is a U.S.G.S. bench mark welded into top of a 2.5-inch iron pipe which projects about 6 inches. Its distance from reference mark No. 1 is 79.680 feet (24.288 meters).

Surface (station), underground, reference No. 1, and azimuth marks are standard bronze disks set in concrete as described in notes 1a, 7a, and 11a.

OBJECT		DISTANCE	DIRECTION
VERDE		feet meters	0°00'00"0
Azimuth mark	SE	approx. 0.3 mile	174 11 44.5
R.M. No. 1	W	35.677 10.876	295 34 23.8
U.S.G.S. BM	NW	93.089 28.370	352 52 12.0

### RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: QUEEN  
 ESTABLISHED BY: F.G.J. YEAR: 1938 STATE: ARIZONA BENCH MARK ALSO   
 RECOVERED BY: T. TAYLOR YEAR: 1974 COUNTY: MARICOPA  
 AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: 7 miles southwest Apache Jct.  
 HEIGHT OF TELESCOPE ABOVE STATION MARK 5 FEET. HEIGHT OF LIGHT ABOVE STATION MARK 5 FEET.

OBJECT	BEARING	DISTANCE		DIRECTION
		FEET	METERS	
ROADSIDE 1938				00 00 00.0
RM 4	W	48.30	14.721	183 21 07.1
RM 3	NE	46.94	14.309	283 22 17.8

The underground station mark and Azimuth mark were recovered and found in good condition. The surface station mark, reference mark 1 and 2 had been destroyed. The station was re-monumented on the original position at this time and reference marks 3 and 4 were established.

The station mark is a standard disk stamped Queen 1938-1974 and is set in a 12 inch diameter concrete monument. The station is 4.5 feet north of an east-west barb-wire fence and 6 feet west of north-south barb-wire fence.

Reference Mark 3 is a standard disk stamped QUEEN RM 3 1938 1974 and is set in a 12 inch diameter concrete monument. The mark is 1 foot west of a north-south fence line, 37 feet east of a north-south concrete irrigation ditch and 1 foot north-west of a witness post which is located in north-south fence line.

Reference Mark 4 is a standard disk stamped QUEEN RM 4 1938 1974 and is set in a 12 inch diameter concrete monument. The mark is 27 feet southwest of the south end of a concrete irrigation ditch and 1 foot north of witness post which is located in east-west fence.

To reach the station from US 60, 80 and 89 (Apache Trail) and Ellsworth Rd., go south on Ellsworth Rd. to Baseline Rd. and turn right (west) on Baseline Rd. for 1 mile to an irrigation pump on the left. Turn left and go to the end of the field to the station in the field corner marked by witness post.

(R.L.E., DMAAC Det 1 GSS, 1975)--Station and RM 3 and RM 4 were found in good condition.

### ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: QUEEN YEAR: 1938  
 STATE: Ariz LOCALITY: Queen Creek Area  
 Second-order Triangulation SOURCE: G-4029 FIELD SKETCH: ARIZ 17

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH # (OR $\Delta$ ANGLE)	MARK	
STATE: Ariz ZONE: C CODE: 0202	x 583,265.12 y 860,325.69	325°44'25" + 0 09 00	AZIMUTH MARK	
STATE: ZONE: CODE:	x y			
GEODEIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE: LONGITUDE:	33°21'53"163 111 38 38.207	NORTH WEST	METERS FEET
TO STATION		GEODEIC AZIMUTH (From south)	DISTANCE LOGARITHM (Meters) METERS	
AZIMUTH MARK		THIRD-ORDER 325°53'24"6		

33° 15'  
 111 30

### ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: BENCH MARK 1407 PHNX USGS YEAR: 1938  
 STATE: Ariz LOCALITY: Queen Creek Area  
 Second-order Traverse SOURCE: G-4029 FIELD SKETCH: ARIZ 17  
 (No check on this position)

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH # (OR $\Delta$ ANGLE)	MARK	
STATE: Ariz ZONE: C CODE: 0202	x 583,210.98 y 860,401.35	+ 0 09 00		
STATE: ZONE: CODE:	x y			
GEODEIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE: LONGITUDE:	33°21'53"913 111 38 38.843	NORTH WEST	METERS FEET
TO STATION		GEODEIC AZIMUTH (From south)	DISTANCE LOGARITHM (Meters) METERS	
Computed from station QUEEN				

B. M. 1407 PHNX (U. S. G. S.) (Maricopa County, F. G. Johnson, 1938);  
 See description of Queen.

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MAY 26 1976

JULY 1966  
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# HORIZONTAL CONTROL DATA

by the  
 Coast and Geodetic Survey  
 NORTH AMERICAN 1927 DATUM

ARIZONA 167

QUAD 331113 STATION 1074  
 ARIZ  
 LATITUDE 33°00' TO 33°30'  
 LONGITUDE 111°30' TO 112°00'  
 DIAGRAM NI 12-8 MESA

**TOWER** (Maricopa County, Ariz., F.G.J., 1938)--Station is located 5 miles E and 4 miles S of Chandler, in SW 1/4 of Sec.16, T 2 S, R 6 E, on S bank of an irrigation ditch which runs E and W, and 1/4 mile E of road.

Surface, underground, and reference marks are standard bronze disks in concrete as described in notes 1a, 7a, and 11a.

Azimuth mark is located 1/4 mile W and 0.7 mile N of station, set in concrete abutment of irrigation ditch, 5 feet S of a power pole, 33 feet W of center line of road, and 24 feet E of a pump house.

Station is reached from Chandler High School by going S 0.15 mile to E. Cleveland Street; thence L, E, on E. Cleveland Street 3.0 miles to cross road; turn R, N, and go 3.0 miles to cross road; turn L, E, and go 2.0 miles to cross road; turn R, S, and go 1.0 mile to a side road on R just after crossing an irrigation ditch; turn L, E, on track road and go 0.25 mile to station.

OBJECT	DISTANCE	DIRECTION
VERDE 1935	feet meters	0°00'00"0
R.M.No.1	ENE 60.970 18.584	72 30 03
R.M.No.2	W 61.435 18.725	273 27 32
Azimuth mark	NW 0.8 mile	247 45 09.2

Height of telescope above station mark - 3.6 meters.

U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY  
 RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: TOWER  
 ESTABLISHED BY: F.G.J. Year: 1938 STATE: Arizona  
 RECOVERED BY: A.M.S. Year: 1956 COUNTY: Maricopa

Detailed statement as to the status of the original description; including marks found, stampings, changes made, and other pertinent facts:

Station found destroyed.  
 Reference mark 1 found in good condition.  
 Reference mark 2 not found.  
 Azimuth mark found in good condition.

\* Name of chief of party should be inserted here. The officer who actually visited the station should sign his name at the end of the recovery note.  
 Note.—One of these forms must be used for every station recovered.

## ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: TOWER YEAR: 1938  
 STATE: Ariz LOCALITY: Queen Creek Area  
 Second-order Triangulation SOURCE: G-4029 FIELD SKETCH: ARIZ 17

GRID DATA	COORDINATES (Foot)	PLANE AZIMUTH ± IONOSPHERIC ANGLE	MARK
STATE: Ariz ZONE: C CODE: 0202	x 550,558.51 y 817,906.84	163°35'06" + 0 05 26	AZIMUTH MARK
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:	NORTH WEST	METERS FEET
	33°14'54"122	111 45 04.647		

TO STATION	GEODETIC AZIMUTH (From zenith)	DISTANCE	
		LOGARITHM (Meters)	METERS
AZIMUTH MARK	THIRD-ORDER 163°40'32"4		

167

ARIZONA

JULY 1966  
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 COAST AND GEODETIC SURVEY  
 WASHINGTON D.C.

33 75'  
 111° 30'

HORIZONTAL CONTROL DATA

by the  
 Coast and Geodetic Survey  
 NORTH AMERICAN 1927 DATUM

QUAD 331113 STATION 1075  
 ARIZ  
 LATITUDE 33°00' TO 33°30'  
 LONGITUDE 111°30' TO 112°00'  
 DIAGRAM NI 12-8 MESA

**WEEKS** (Maricopa County, Ariz., F.G.J., 1938)--Station is located about 6 miles airline NNE of Apache Junction and 0.6 mile SW of Cottonwood Springs on highest point on W end of first ridge W of Cottonwood Springs. It is on a rough, rocky, flat-top butte with cliffs to S and W and steep but gradual slope to N and E. Top of hill runs E and W and is about 100 feet long in other direction N and S it is about 25 feet wide.

Surface and reference marks are standard bronze disks in out-cropping bedrock as described in notes 2 and 12a; azimuth mark is a standard bronze disk in a boulder as described in note 12c.

Reached from Mesa as follows: go E on U.S. 60, 18 miles to Apache Junction; turn L, NE on Ariz. 88 and go 3.2 miles to a power line crossing road; turn L on track just before crossing power line and go 0.3 mile to road coming in from R; continue 0.2 mile to junction of power lines and E-W fence about 100 yards beyond; pass thru gate and follow main track road northerly 0.35 mile to fork; take R fork, still northerly, keeping to R of old mine, and go 0.55 mile to National Forest fence and gate; pass thru gate and continue 2.3 miles to a sharp dip in road; just on N side of this dip in road which is a wash or draw, turn L, westerly, and follow along side hill keeping just N of wash 0.15 mile to end of truck travel and azimuth mark in large boulder. Here pack westerly continuing along R or N side of wash to a saddle about 0.2 mile distant; then pack to NW about 0.2 mile to smaller saddle; thence W around N side of rock backbone up short steep climb about 200 yards to station.

Azimuth as noted is at end of truck travel, in a large boulder about 3 feet high, 4 feet long, and 2 1/2 feet thick, about 30 yards N of wash or draw that goes up towards first saddle on way to station.

OBJECT	DISTANCE		DIRECTION
	feet	meters	
ROADSIDE			0°00'00"0
R.M.No.2	SSW 14.080	4.294	34 49 11.9
R.M.No.1	ExS 9.756	2.972	285 30 08.6
Azimuth mark	E approx. 0.35 mile		295 03 07.6
Height of telescope above station mark - 1.4 meters.			

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: WEEKS  
 STATE: Ariz LOCALITY: Queen Creek Area  
 Second-ORDER Triangulation SOURCE: G-4029  
 YEAR: 1938  
 FIELD SKETCH: ARIZ 17

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH § TORSON ANGLE	MARK
STATE: Ariz ZONE: C CODE: 0202	x 624,319.52 y 908,096.02	284°04'21" + 0 13 30	AZIMUTH MARK
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:	NORTH WEST	METERS FEET
	33°29'44"491	111 30 31.928		

TO STATION	GEODETIC AZIMUTH (From south)	DISTANCE	
		LOGARITHM (Meters)	METERS
AZIMUTH MARK	THIRD-ORDER 284°17'51"6		

FILE COPY

JAN 1967



33°15'  
111°30'

ARIZONA 167

Index

Station

Project

EM "A 107"

Florence "B"

Number Three

--

Number Four

--

Florence "B" Project Master in ARIZONA 119 - Book: PH 1100

Arizona (167)

Pinal County

BM "A 107"

1927 N.A.D. (Unadj.)

R.W. Hendrickson, 1965

Book: PH 1100

Described in U.S. Coast and Geodetic Survey level line, Arizona 331113, line 117 as follows:

"A 107.-- 3.2 mi. SE. along U.S. Highway 60 from Apache Junction, Pinal County, 0.4 mi. W. of a concrete bridge, 0.1 mi. E. of a concrete culvert, near an old dirt rd. intersection, 61 ft. S. of the centerline of the highway, and 55 ft. N. of the centerline of the dirt rd. A standard disk, stamped "A 107 1935" and set in the top of a concrete post."

Located about 15 mi. NW. of Florence Junction; about 3.5 mi. SE. of Apache Junction on the S. side of U.S. Highways 60, 70, 80, and 89.

Station mark: Standard USC&GS bench mark stamped "A 107 1935" and set in concrete post projecting 0.6 ft. above ground.

Signal: White flag over red cross-target on 2 x 2 pole centered over station mark.

Signal Data:	TWF	8.4 ft.
	BWF	7.3
	TRXT	6.2
	BRXT	2.9

Photo No.: No photo coverage

ARIZONA ZONE CENTRAL

X=625,831.1

Y=869,074.2

$\Delta \alpha = +0^{\circ}13'37''$

Elevation: 1697.818 ft. ✓  
(Second order leveling by USC&GS, Arizona, 331113)

	LAT. 33° 23' 18.339"	LONG. 111° 30' 15.906"
STATION	AZIMUTH	BACK AZIMUTH. DISTANCE
Superstition (USGS) (C&GS)	255° 31' 47.361"	75° 35' 14.133" 32885.63
Roadside (C&GS)	293° 7' 6.585"	113° 7' 49.339" 7164.30

NAD 83 VALUES AVAILABLE

FILE COPY

4/8/65 slh *slh*

✓

33 15  
111 30

Station: NUMBER THREE

County: Maricopa

State: Ariz. (167)

Observer: T. M. Bannon

Year: 1904-5 Datum: 1927 N.A.D. (unadjusted) (Revised 1953)

Description:

Books: 3776-3779

Described in U.S.G.S. Bulletin No. 276, page 173, as follows:

"A three-point station on a small isolated knob on the north side of the Mesa-Goldfield road, 17 miles east of Mesa and 5 miles west of Goldfield.

"Station mark: A bronze tablet cemented into solid rock under a small rock monument."

*Not plotted on CD  
gax  
3-Point  
NO check*

FILE COPY

### NAD 83 VALUES AVAILABLE

[Latitude 33 26 19.326 Longitude 111 38 23.478 ]

To Station—	Azimuth			Back Azimuth			Distance	
	°	'	"	°	'	"	Log. Meters	Feet
Usery	179	55	54	359	55	53	3.83499	22,438
Number Four	288	09	48	108	11	10	3.61165	13,416
							3/19/53 cg ✓	

Station: NUMBER FOUR (Not Occupied)

County: Maricopa

State: Ariz. (167)

Observer: T. M. Bannon

Year: 1904-5

Datum: 1927 N.A.D. (unadjusted) (Revised 1953)

Description:

Books: 3776-3779

Described in U.S.G.S. Bulletin 276, page 174, as follows:

"On a long malpais hill 12 miles northeast of Mesa, 2 miles northwest of the crossing of Usery Pass--Desert Well and the Mesa--Goldfield roads.

"Station mark: A bronze tablet centered under a small rock monument."

*Not plotted used  
with checked position  
JES*

**FILE COPY**

**NAD 83 VALUES AVAILABLE**

[Latitude 33 25 37.924

Longitude 111 35 53.074 ]

To Station—	Azimuth ° ' "	Back Azimuth ° ' "	Distance	
			Log. Meters	<del>Feet</del> Feet
Usery	154 23 14	334 21 50	3.95423	29,526
Superstition	275 31 47	95 38 19	4.26726	60,708
			3/19/53 cg ✓	

# ARIZONA TEST AREA

(MARKED OR MONUMENTED STATIONS)

STATION

AJ-1, AMS 1960

167  
B

TYPE OF MARK Disk	STAMPING ON MARK See Description	AGENCY (CAST IN MARK) C. of E.
LATITUDE 33°29'43." 107 ✓	LONGITUDE 111°41'00."401 ✓	DATUM 1927 NORTH AMERICAN DATUM
NORTHING 3,706,215.13 ✓ M.	EASTING 436,512.56 ✓ M.	GRID AND ZONE U.T.M. 12
NORTHING (Y) 907,791.84 ✓ Ft.	EASTING (X) 571,099.22 ✓ Ft.	GRID AND ZONE ARIZONA STATE PLANE-CENTRAL

ELEVATION 1538.87 FEET 469.05 METERS
ORDER THIRD
DATUM SEA LEVEL DATUM OF 1929
ESTABLISHED BY-AGENCY-DATE

TO OBTAIN UNIVERSAL TRANSVERSE MERCATOR	GRID AZIMUTH, ADD 180° 22' 37.86" ✓	TO THE GEODETIC AZIMUTH
TO OBTAIN ARIZONA STATE PLANE (CENTRAL ZONE)	GRID AZIMUTH, ADD 359° 52' 16.65" ✓	TO THE GEODETIC AZIMUTH

OBJECT	GEODETIC AZIMUTH	BACK AZIMUTH	GEODETIC DISTANCE METERS	U.T.M. GRID DIST. METERS	S.P.C. GRID DIST. FEET
NAD 83 VALUES AVAILABLE					

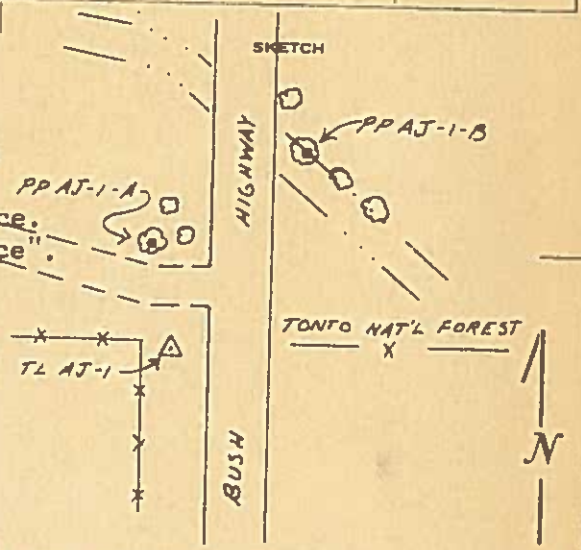
DESCRIPTION

T-2-N; R-G-E; Section 25; Near N.E. corner

The mark is a Corps of Engineers, U.S. Army disk set in the top of a concrete post 10 inches in diameter and projecting 0.3 foot above the surface. The mark is stamped "TL-AJ-1 1960 Army Map Service".

The station is located 55.5 feet west of the centerline of Bush Highway; 3.8 feet east of the fence corner; 69 feet south of the centerline of a driveway to the west.

To reach from the intersection of North Country Club Drive and U.S. Highways 60, 70, 80 and 89 (also West Main Street) in Mesa, Manicopa County, Arizona, go east on West Main Street for about 9.0 miles to the intersection of Bush Highway. Turn left and go north for 5.5 miles to an east-west fence-line just south of a driveway to the west and the station site.



FILE COPY

DATE

USERS OF THIS STATION ARE REQUESTED TO COMPLETE A RECOVERY OF SURVEY STATION CARD AND FORWARD TO COMMANDING OFFICER, ARMY MAP SERVICE, CORPS OF ENGINEERS, U.S. ARMY, WASHINGTON 25, D. C.

ARMY MAP SERVICE, CORPS OF ENGINEERS, U. S. ARMY

# ARIZONA TEST AREA

(MARKED OR MONUMENTED STATIONS)

STATION

AN-1, AMS 1960

167  
A

TYPE OF MARK Disk	STAMPING ON MARK See Description	AGENCY (CAST IN MARK) C. of E.	ELEVATION 2131.85 FEET - 649.79 METERS
LATITUDE 33°29'41."015	LONGITUDE 111°37'03."992	DATUM 1927 NORTH AMERICAN DATUM	ORDER THIRD
NORTHING 3,706,112.49	EASTING 442,612.50	GRID AND ZONE U.T.M. 12	DATUM SEA LEVEL DATUM OF 1928
NORTHING (Y) 907,631.71	EASTING (X) 591,119.56	GRID AND ZONE ARIZONA STATE PLANE-CENTRAL	ESTABLISHED BY-AGENCY-DATE AMS DEC 1959

TO OBTAIN UNIVERSAL TRANSVERSE MERCATOR GRID AZIMUTH, ADD 180° 20' 27.37" TO THE GEODETIC AZIMUTH

TO OBTAIN ARIZONA STATE PLANE (CENTRAL ZONE) GRID AZIMUTH, ADD 359° 50' 06.19" TO THE GEODETIC AZIMUTH

OBJECT	GEODETIC AZIMUTH	BACK AZIMUTH	GEODETIC DISTANCE METERS	U.T.M. GRID DIST. METERS	S.P.C. GRID DIST. FEET
CRISMAN	04-06-33.20	184-06-24.82	5480.1638	5478.1964	17978.4720
NAD 83 VALUES AVAILABLE					

DESCRIPTION

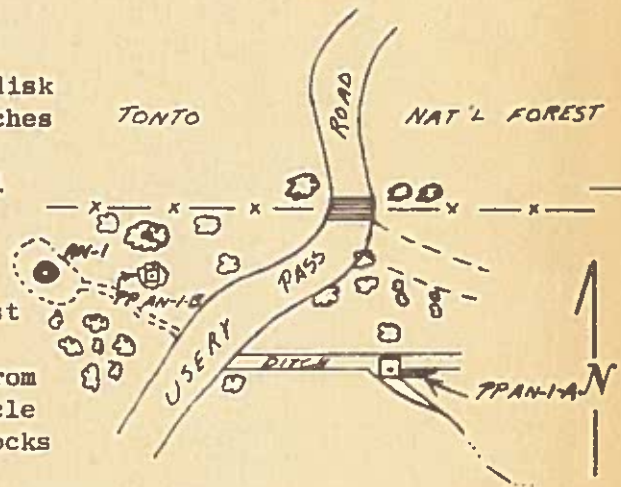
T-2-N; R-7-E; Section 27; near N.E. corner

The mark is a Corps of Engineers, U.S. Army disk centered in the top of a concrete post 10 inches in diameter, projecting 0.3 foot above the ground surface. The mark is stamped "TL AN-1 1960 Army Map Service."

The station is located 97 feet south of the east-west fenceline; 48.6 feet south southeast of the base of a large Sahuaro Cactus; about 450 feet west along an east-west fenceline from the north-south road; in the center of a circle 6 feet in diameter, encircled by a band of rocks 4 feet wide, painted black.

To reach from the intersection of North Country Club Drive and U.S. Highways 60, 70, 80 and 89 (also West Main Street) in Mesa, Maricopa County, Arizona, go east for 9.0 miles to the intersection of Bush Highway. Turn left and go north on Bush Highway for 0.5 mile to Usery Pass Road, turn right and go northeast on Usery Pass Road for 6.7 miles to a steel cattle guard and an east-west fenceline at the boundary of the Tonto National Forest, then west along east-west fenceline to the station site.

SKETCH



FILE COPY

DATE

USERS OF THIS STATION ARE REQUESTED TO COMPLETE A RECOVERY OF SURVEY STATION CARD AND FORWARD TO COMMANDING OFFICER, ARMY MAP SERVICE, CORPS OF ENGINEERS, U.S. ARMY, WASHINGTON 25, D. C.

ARMY MAP SERVICE, CORPS OF ENGINEERS, U. S. ARMY

# ARIZONA TEST AREA

(PHOTO-IDENTIFICATION INFORMATION)

STATION

AN-1, AMS 1960

LATITUDE

33° 29' 41.015"

LONGITUDE

111° 37' 03.992"

DATUM

1927 NORTH AMERICAN DATUM

ELEVATION 2131.85 FEET

649.79 METERS

NORTHING

3,706,112.49 M.

EASTING

442,612.50 M.

GRID AND ZONE

U.T.M. 12

ORDER

THIRD

DATE ESTABLISHED

DEC. 1959

NORTHING (Y)

907,631.71 FT.

EASTING (X)

591,119.56 FT.

GRID AND ZONE

ARIZONA STATE PLANE-CENTRAL

DATUM

SEA LEVEL DATUM OF 1929

DESCRIPTION

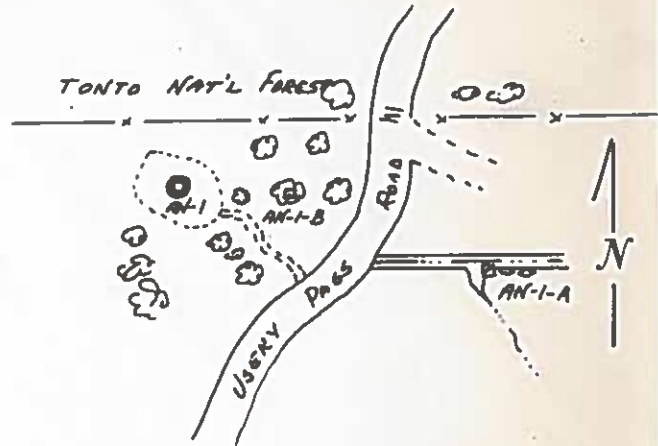
Center of circular panel.

The mark is the center of a circle 6 feet in diameter encircled by a band of rocks 4 feet wide and painted black.

**NAD 83 VALUES AVAILABLE**

**FILE COPY**

SKETCH



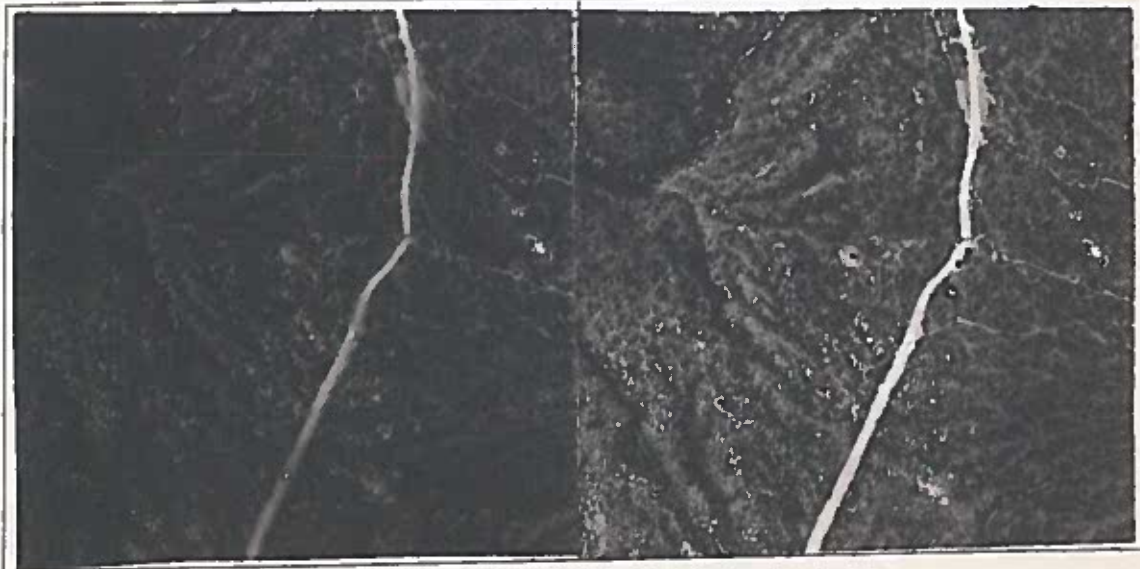
APPROX. SCALE OF PHOTOS

1 : 10,000

DATE OF PHOTOGRAPHY

16 SEPT. 1961

STEREO-GRAM



DISTANCE

100 FT. N.

100 FT. S.

ELEVATION

2125.8 FT.

2127.3 FT.

DISTANCE

100 FT. E.

100 FT. W.

ELEVATION

2126.7 FT.

2136.1 FT.

DATE

# ARIZONA TEST AREA

(PHOTO-IDENTIFICATION INFORMATION)

STATION

PP AJ-1-A, AMS 1960

LATITUDE <b>33° 29' 43.972"</b>	LONGITUDE <b>111° 41' 00.428"</b>
NORTHING <b>3,706,241.78 M.</b>	EASTING <b>436,512.03 M.</b>
NORTHING (Y) <b>907,879.25 FT.</b>	EASTING (X) <b>571,096.73 FT.</b>

DATUM 1927 NORTH AMERICAN DATUM	ELEVATION <b>1536.4 FEET</b> <b>468.3 METERS</b>
GRID AND ZONE U.T.M. 12	ORDER <b>FOURTH</b>
GRID AND ZONE ARIZONA STATE PLANE-CENTRAL	DATE ESTABLISHED <b>1960</b>
	DATUM SEA LEVEL DATUM OF 1929

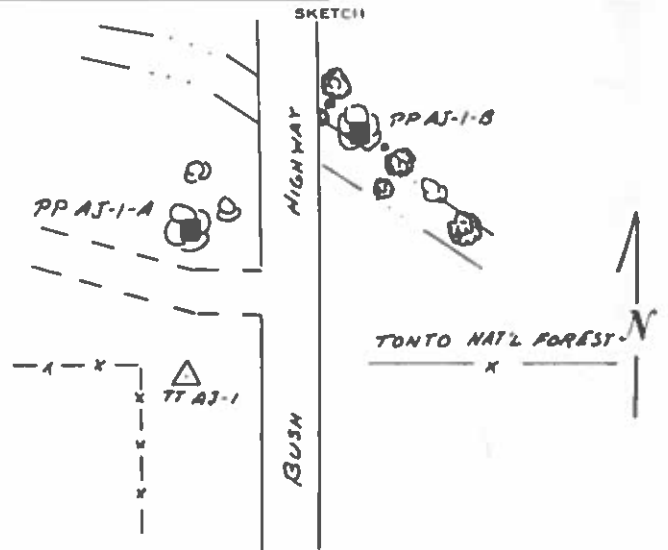
DESCRIPTION

Center of small 6 foot high creosote bush.

PP is 87.5 feet in geodetic azimuth 178°31'20" from AJ-1.

**NAD 83 VALUES AVAILABLE**

**FILE COPY**



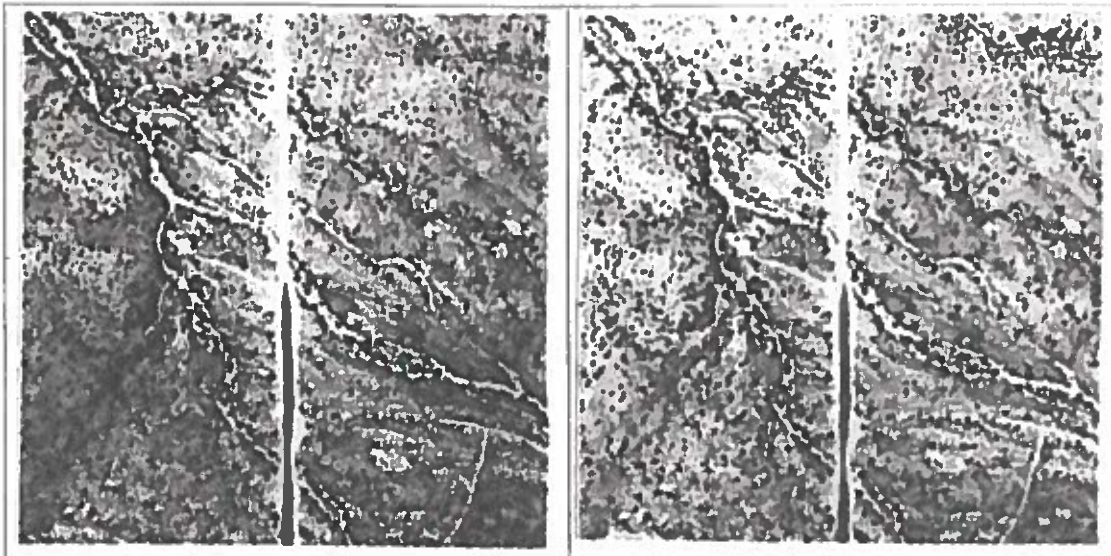
APPROX. SCALE OF PHOTOS

**1:10,000**

DATE OF PHOTOGRAPHY

**16 SEPT. 1961**

STEREO GRAM



DISTANCE  
25 FT. N.  
18 FT. S. & E. OF LAWS HILL 1537.4 FT.

ELEVATION  
**1534.9 FT.**

DISTANCE  
47 FT. E. & NS RD.  
100 FT. W.

ELEVATION  
**1535.4 FT.**  
**1534.1 FT.**

DATE



# ARIZONA TEST AREA

(PHOTO-IDENTIFICATION INFORMATION)

STATION

PP AJ-1-B, AMS 1960

LATITUDE <b>33° 29' 45." 115'</b>	LONGITUDE <b>111° 40' 59." 414'</b>	DATUM 1927 NORTH AMERICAN DATUM	ELEVATION <b>NO ELEV.</b>	FEET METERS
NORTHING <b>3, 706, 276. 81' M.</b>	EASTING <b>436, 538. 43' M.</b>	GRID AND ZONE U.T.M. 12	ORDER	DATE ESTABLISHED
NORTHING (Y) <b>907, 994. 97' FT.</b>	EASTING (X) <b>571, 182. 34' FT.</b>	GRID AND ZONE ARIZONA STATE PLANE-CENTRAL	DATUM SEA LEVEL DATUM OF 1929	

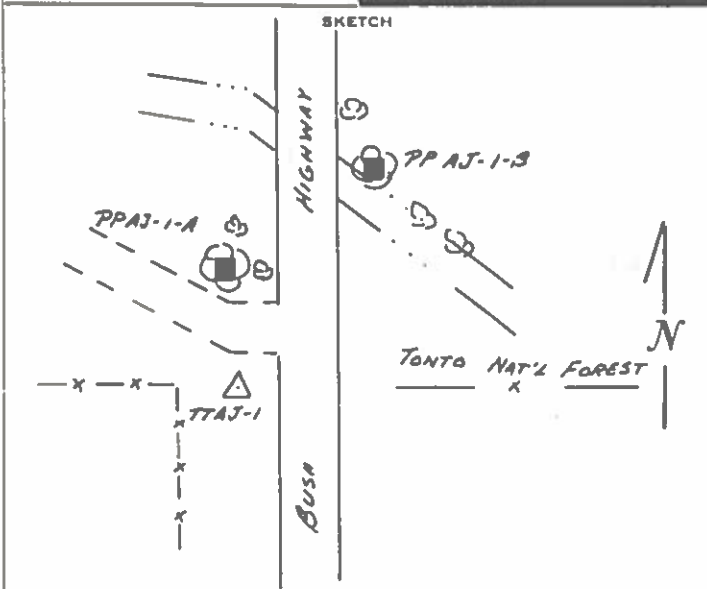
DESCRIPTION

Center of large ironwood tree at N.E. edge of large drain and just east of road.

PP is 219.5 feet in geodetic azimuth 202°22'45" from AJ-1.

**NAD 83 VALUES AVAILABLE**

**FILE COPY**



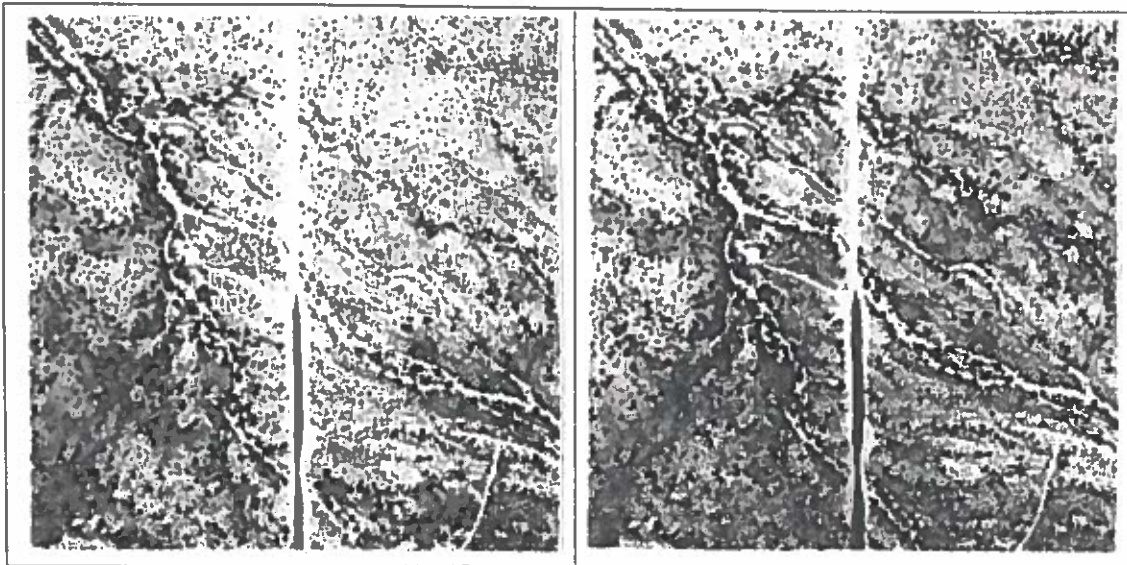
APPROX. SCALE OF PHOTOS

1 : 10,000

DATE OF PHOTOGRAPHY

16 SEPT. 1961

STEREO-GRAM



DISTANCE  
FT. N. \_\_\_\_\_ FT.  
FT. S. \_\_\_\_\_ FT.

ELEVATION  
\_\_\_\_\_ FT.  
\_\_\_\_\_ FT.

DISTANCE  
FT. E. \_\_\_\_\_ FT.  
FT. W. \_\_\_\_\_ FT.

ELEVATION  
\_\_\_\_\_ FT.  
\_\_\_\_\_ FT.

DATE

# ARIZONA TEST AREA

(PHOTO-IDENTIFICATION INFORMATION)

STATION

PP AN-1-A, AMS 1960

LATITUDE 33° 29' 40." 424 "	LONGITUDE 111° 36' 58." 328 "
NORTHING 3,706,093.41 M.	EASTING 442,758.54 M.
NORTHING (Y) 907,573.36 FT.	EASTING (X) 591,599.38 FT.

DATUM 1927 NORTH AMERICAN DATUM	ELEVATION NO ELEV.	FEET METERS
GRID AND ZONE U.T.M. 12	ORDER	DATE ESTABLISHED
GRID AND ZONE ARIZONA STATE PLANE-CENTRAL	DATUM SEA LEVEL DATUM OF 1929	

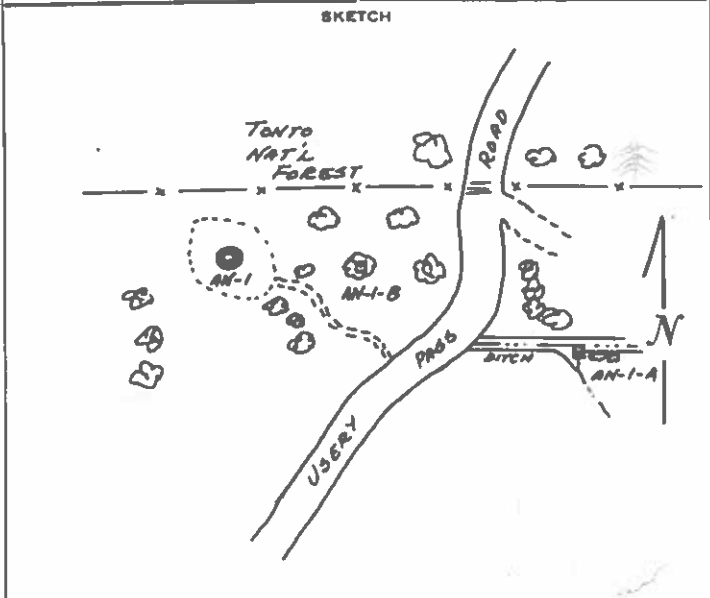
**DESCRIPTION**

Tip of brush formed by south edge of east-west ditch and east edge of small drain from the southeast.

PP is 483.4 feet in geodetic azimuth 277°06'10" V from AN-1.

NAD 83 VALUES AVAILABLE

FILE COPY



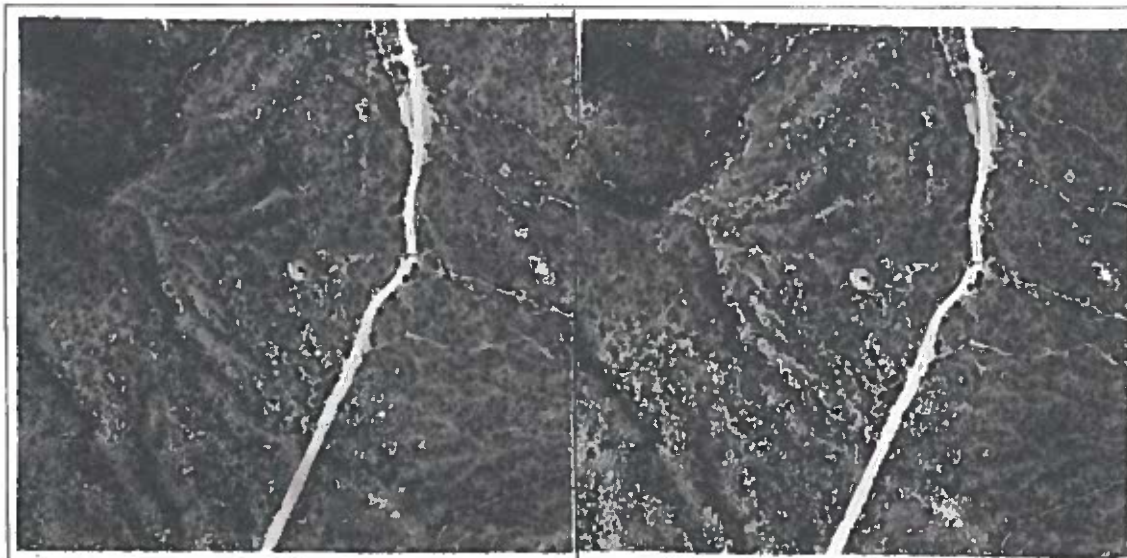
APPROX. SCALE OF PHOTOS

1:10,000

DATE OF PHOTOGRAPHY

16 SEPT. 1961

STEREO-GRAM



DISTANCE  
FT. N. \_\_\_\_\_ FT.  
FT. S. \_\_\_\_\_ FT.

ELEVATION  
\_\_\_\_\_ FT.  
\_\_\_\_\_ FT.

DISTANCE  
FT. E. \_\_\_\_\_ FT.  
FT. W. \_\_\_\_\_ FT.

ELEVATION  
\_\_\_\_\_ FT.  
\_\_\_\_\_ FT.

DATE

# ARIZONA TEST AREA

(PHOTO-IDENTIFICATION INFORMATION)

STATION

PP AN-1-B, AMS 1960

LATITUDE 33° 29' 40." 976"	LONGITUDE 111° 37' 00." 853"	DATUM 1927 NORTH AMERICAN DATUM	ELEVATION NO ELEV.	FEET METERS
NORTHING 3,706,110.80' M.	EASTING 442,693.49' M.	GRID AND ZONE U.T.M. 12	ORDER	DATE ESTABLISHED
NORTHING (Y) 907,628.53' FT.	EASTING (X) 591,385.39' FT.	GRID AND ZONE ARIZONA STATE PLANE-CENTRAL	DATUM SEA LEVEL DATUM OF 1929	

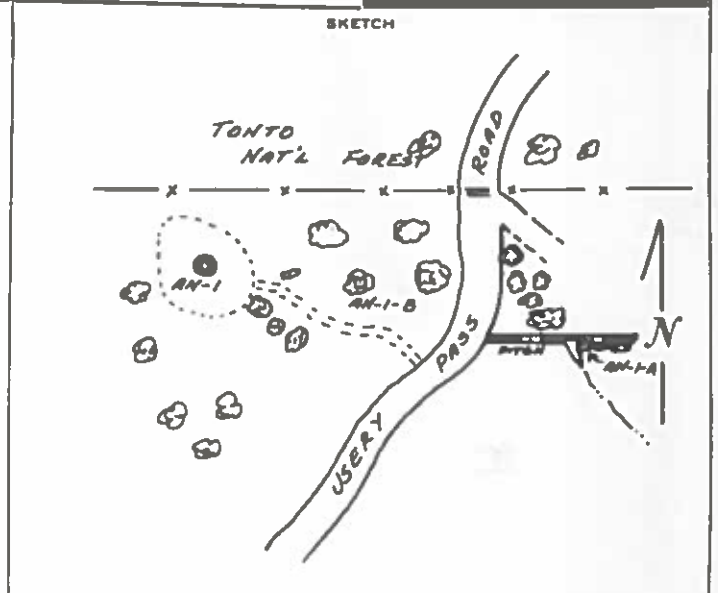
**DESCRIPTION**

Center of Palo Verde tree which is 14 feet high and 12 feet wide.

PP is 265.9 feet in geodetic azimuth 270°50'50" from AN-1.

**NAD 83 VALUES AVAILABLE**

**FILE COPY**



APPROX. SCALE OF PHOTOS  
1:10,000

DATE OF PHOTOGRAPHY  
16 SEPT. 1961

STEREO-GRAM



DISTANCE	ELEVATION	DISTANCE	ELEVATION
FT. N.	_____ FT.	FT. E.	_____ FT.
FT. S.	_____ FT.	FT. W.	_____ FT.
DATE _____			

North American Datum Conversion  
 NAD 27 to NAD 83  
 NADCON Program Version 1.01

AZ 167

=====  
 Transformation #: 1 Region: Conus

Station name: BM "A 107" (C&GS)

	Latitude	Longitude
NAD 27 datum values:	33 23 18.339	111 30 15.906
NAD 83 datum values:	33 23 18.517	111 30 18.381
NAD 83 - NAD 27 shift values:	.178	2.475(secs.)
	5.499	63.955(meters)
Magnitude of total shift:		64.191(meters)

Transformation #: 2 Region: Conus

Station name: NUMBER THREE

	Latitude	Longitude
NAD 27 datum values:	33 26 19.326	111 38 23.478
NAD 83 datum values:	33 26 19.496	111 38 25.967
NAD 83 - NAD 27 shift values:	.170	2.489(secs.)
	5.232	64.283(meters)
Magnitude of total shift:		64.496(meters)

Transformation #: 3 Region: Conus

Station name: NUMBER FOUR

	Latitude	Longitude
NAD 27 datum values:	33 25 37.924	111 35 53.074
NAD 83 datum values:	33 25 38.096	111 35 55.559
NAD 83 - NAD 27 shift values:	.172	2.485(secs.)
	5.302	64.184(meters)
Magnitude of total shift:		64.402(meters)

Transformation #: 4 Region: Conus

Station name: AJ-1, AMS 1960

	Latitude	Longitude
NAD 27 datum values:	33 29 43.107	111 41 .401
NAD 83 datum values:	33 29 43.270	111 41 2.897
NAD 83 - NAD 27 shift values:	.163	2.496(secs.)
	5.014	64.420(meters)
Magnitude of total shift:		64.615(meters)

Transformation #: 5 Region: Conus

Station name: AN-1, AMS 1960

	Latitude	Longitude
NAD 27 datum values:	33 29 41.015	111 37 3.992
NAD 83 datum values:	33 29 41.180	111 37 6.482
NAD 83 - NAD 27 shift values:	.165	2.490(secs.)
	5.068	64.273(meters)
Magnitude of total shift:		64.472(meters)

Transformation #: 6 Region: Conus

Station name: FP AJ-1-A, AMS 1960 (4th ORDER)

	Latitude	Longitude
NAD 27 datum values:	33 29 43.972	111 41 .428
NAD 83 datum values:	33 29 44.135	111 41 2.924
NAD 83 - NAD 27 shift values:	.163	2.496(secs.)
	5.014	64.420(meters)
Magnitude of total shift:		64.615(meters)

Transformation #: 7 Region: Conus

Station name: FP AJ-1-B, AMS 1960 (4th ORDER)

	Latitude	Longitude
NAD 27 datum values:	33 29 45.115	111 40 59.414
NAD 83 datum values:	33 29 45.278	111 41 1.910
NAD 83 - NAD 27 shift values:	.163	2.496(secs.)
	5.013	64.420(meters)
Magnitude of total shift:		64.614(meters)

Transformation #: 8 Region: Conus

Station name: FP AN-1-A, AMS 1960 (4th ORDER)

	Latitude	Longitude
NAD 27 datum values:	33 29 40.424	111 36 58.328
NAD 83 datum values:	33 29 40.589	111 37 .818
NAD 83 - NAD 27 shift values:	.165	2.490(secs.)
	5.070	64.269(meters)
Magnitude of total shift:		64.469(meters)

Transformation #: 9 Region: Conus

Station name: FP AN-1-B, AMS 1960 (4th ORDER)

	Latitude	Longitude
NAD 27 datum values:	33 29 40.976	111 37 .853
NAD 83 datum values:	33 29 41.141	111 37 3.343
NAD 83 - NAD 27 shift values:	.165	2.490(secs.)
	5.069	64.271(meters)
Magnitude of total shift:		64.471(meters)

## NAD 27 to NAD 83 Conversion

## Statistics for Region

```

=====
                                         Latitude                        Longitude
                                         MIN          MAX            MIN          MAX
Range of shift (meters)                5.013        5.499          63.955        64.420
Range of shift (seconds)                .163         .178            2.475         2.496

Mean shift (meters)                     5.142                                64.277
Variance of mean shift                    .028                                .022
Std. Dev. of mean shift                   .168                                .147

Mean shift (seconds)                     .167                                2.489
Variance of mean shift                    .000                                .000
Std. Dev. of mean shift                   .005                                .007

```

The total number of conversions: 9

## Region of Conversions

```

NAD 27
Longitude:      111 41   .428                111 30 15.906
Latitude:       33 29 45.115 *****          33 29 45.115
                *
                *
                *
                *
                *
                *
                *
                *
                *
                *
                *
                *
                *
                *
                *
                *
Latitude:       33 23 18.339 *****          33 23 18.339
Longitude:      111 41   .428                111 30 15.906

```