

AVONDALE

Lat. 33°15'
Long. 112°15'

ARIZONA 170

O&GS 33 112 2 109

(1)	E. E. Harris	1946	PV 234
(2)	"	"	"
(3)	"	"	"
(4)	"	"	"
(5)	"	"	"
(6)	"	"	"
(7)	B.O. Richardson	1973	PV 874

193



147

Conversion from state plane to geodetic coordinates

1	Station = T T EEM 1956	State Plane Zone = 202
	Lat = 33 29 36.6564	Lon = 112 17 22.6486
	X = 386,298.8300	Y = 907,264.2500
2	Station = T T 2 EEM 1956	State Plane Zone = 202
	Lat = 33 28 45.6764	Lon = 112 15 48.1970
	X = 394,280.2300	Y = 902,084.1100
3	Station = THOMAS RD & 107	State Plane Zone = 202
	Lat = 33 28 44.0105	Lon = 112 17 21.0656
	X = 386,413.8000	Y = 901,942.9700
4	Station = THOMAS RD& 91ST	State Plane Zone = 202
	Lat = 33 28 46.0953	Lon = 112 18 48.5697
	X = 379,003.1000	Y = 902,181.1300

NAD 83 VALUES AVAILABLE

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

AZ170

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

Station name: BM H 26 USGS

	Latitude	Longitude
NAD 27 datum values:	33 15 41.308	112 20 23.894
NAD 83 datum values:	33 15 41.472	112 20 26.452
NAD 83 - NAD 27 shift values:	.164	2.558(secs.)
	5.047	66.215(meters)
Magnitude of total shift:		66.407(meters)

Transformation #: 2 Region: Conus

Station name: GOODYEAR

	Latitude	Longitude
NAD 27 datum values:	33 22 58.693	112 21 56.627
NAD 83 datum values:	33 22 58.848	112 21 59.194
NAD 83 - NAD 27 shift values:	.155	2.567(secs.)
	4.768	66.355(meters)
Magnitude of total shift:		66.526(meters)

Transformation #: 3 Region: Conus

Station name: LIBERTY 2

	Latitude	Longitude
NAD 27 datum values:	33 22 50.680	112 29 10.200
NAD 83 datum values:	33 22 50.831	112 29 12.783
NAD 83 - NAD 27 shift values:	.151	2.583(secs.)
	4.665	66.773(meters)
Magnitude of total shift:		66.935(meters)

Transformation #: 4 Region: Conus

Station name: PERRY

	Latitude	Longitude
NAD 27 datum values:	33 29 36.818	112 25 .223
NAD 83 datum values:	33 29 36.964	112 25 2.802
NAD 83 - NAD 27 shift values:	.146	2.579(secs.)
	4.500	66.580(meters)
Magnitude of total shift:		66.732(meters)

Transformation #: 5 Region: Conus

Station name: T T EEM 1956

	Latitude	Longitude
NAD 27 datum values:	33 29 36.656	112 17 22.649
NAD 83 datum values:	33 29 36.806	112 17 25.211
NAD 83 - NAD 27 shift values:	.149	2.562(secs.)
	4.595	66.133(meters)
Magnitude of total shift:		66.293(meters)

Transformation #: 6 Region: Conus

Station name: T T 2 EEM 1956

	Latitude	Longitude
NAD 27 datum values:	33 28 45.676	112 15 48.197
NAD 83 datum values:	33 28 45.827	112 15 50.755
NAD 83 - NAD 27 shift values:	.151	2.558(secs.)
	4.646	66.035(meters)
Magnitude of total shift:		66.199(meters)

Transformation #: 7 Region: Conus

Station name: THOMAS RODA AND 107 th AVE.

	Latitude	Longitude
NAD 27 datum values:	33 28 44.011	112 17 21.066
NAD 83 datum values:	33 28 44.161	112 17 23.627
NAD 83 - NAD 27 shift values:	.150	2.561(secs.)
	4.627	66.126(meters)
Magnitude of total shift:		66.288(meters)

Transformation #: 8 Region: Conus

Station name: THOMAS ROAD AND 91th. AVE.

	Latitude	Longitude
NAD 27 datum values:	33 28 46.095	112 18 48.570
NAD 83 datum values:	33 28 46.245	112 18 51.134
NAD 83 - NAD 27 shift values:	.150	2.565(secs.)
	4.607	66.212(meters)
Magnitude of total shift:		66.372(meters)

NAD 27 to NAD 83 Conversion

Statistics for Region

```

=====
                Latitude                Longitude
                MIN      MAX            MIN      MAX
Range of shift (meters)    4.500    5.047    66.035    66.773
Range of shift (seconds)   .146     .164     2.558     2.583

Mean shift (meters)                4.682                66.304
Variance of mean shift                .027                .064
Std. Dev. of mean shift                .165                .253

Mean shift (seconds)                .152                2.567
Variance of mean shift                .000                .000
Std. Dev. of mean shift                .005                .010
    
```

The total number of conversions: 8

Region of Conversions

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NAD 27
Longitude:    112 29 10.200                112 15 48.197
Latitude:    33 29 36.818 ***** 33 29 36.818
            *
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            *
            *
Latitude:    33 15 41.308 ***** 33 15 41.308
Longitude:    112 29 10.200                112 15 48.197
    
```

33°15'
112°15'

ARIZONA 170

Index



<u>STATION</u>	<u>PROJECT</u>
BM "H 26 1946"	Luke
Bradley (C&GS)	Luke
Estrella Mountains, Highest Summit <i>INACTIVE FILE</i>	- - - -
Goodyear	Luke
Initial Monument (C&GS)	Luke
Liberty 2	Luke
Perry	Luke
Spur (C&GS)	Luke
"TT 1 EEM 1956"	Luke (TT)
"TT 2 EEM 1956"	Luke (TT)

Luke Master in Ariz. 170 - Book: PH 442

Luke (Transit Traverse) Master in Ariz. 169 - Book: PH 440

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 Geological Survey
 Form No. 9-3223 Rev. 1968
 3rd Order

DESCRIPTION

HORIZONTAL CONTROL STATION

DIAGRAM Phoenix
 USGS QUAD NO 170

Triangulation Electronic - Distance Traverse Intersected Object

Station BM H 26 USGS County Maricopa State Arizona
 Established by USGS Year 1949 Project PH 74

Check one:

New Station: Write full description below
 Recovery of Old Station: Recovered by USGS Year 1956 Project PH 442

Object	Bearing	Distance		Azimuth
		Feet	Meters	
ORA				50°46'01.0"

Described in level line by E.E. Harris, 1946, Book V 235 as follows:

T2S, RLW, near southeast corner sec 10, 53 ft N. and 13 ft W. of center of T-rd. W.; 33 ft N. and 3 ft E. of fence corner; in conc. post; standard tablet stamped "H 26 1949 1305".

Station mark: Standard bench mark tablet stamped "H 26 1946 1305" set in conc. post.

USGS Adjusted 1951 Coordinates

ARIZONA CENTRAL ZONE ELEV 1305.568 F
 X= 370606.9
 Y= 822897.7
 MAPPING ANGLE=-0 13 56

BM H 26 USGS LAT 33 15 41.308 LONG 112 20 23.894

NAD 83 VALUES AVAILABLE

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MAY 25 1973

Arizona (170)

Maricopa County

GOODYEAR

1927 N.A.D. (Adj., 1957)

W. F. McIntosh, 1956

Books: PH 441-442

Located about 8 mi. S. of Litchfield, on the E. edge of a public park, on top of a low hill.

To reach from Litchfield Post Office, drive S. along Litchfield Road for 4.6 mi. to U.S. Highway 80; continue straight ahead (S.) for 2.6 mi.; take right fork 0.6 mi.; take left fork 0.1 mi. and end of rd. Pack E. to top and station. A 10-min. pack.

Station mark: Standard tablet stamped "GOODYEAR 1956" set in top of boulder.

Reference mark No. 1: Copper nail and washer set in top of rock, 24.68 ft. from station mark in azimuth 177°33'.

Reference mark No. 2: Standard tablet stamped " 2 GOODYEAR 1956" set in top of boulder, 24.55 ft. from station mark, in azimuth 287°22'.

ARIZONA ZONE CENTRAL

X=362,923.4

V.A. elevation 1199. ft.

Y=867,134.8

Latitude: 33°22'58.693"

Longitude: 112°21'56.627"

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
Bradley (C&GS)	75°56'23.1"	255°54'50.9"	14,659.6
Perry	158 52 30.6	338 50 49.4	43,144.1
Initial Monument(C&GS)	276 33 19.1	96 35 18.5	18,525.5

NAD 83 VALUES AVAILABLE

9/18/57 ew

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Arizona (170)

Maricopa County

LIBERTY 2

1927 N.A.D. (Adj., 1957)

W. F. McIntosh, 1956

Books: PH 441-442

Located about 1,000 ft. N. of Liberty School in Liberty, 110 ft. S. of an E-W. ditch, and 29 ft. W. of center of N-S. rd.

Station mark: Standard tablet stamped "LIBERTY 2 1956" set in top of concrete post.

Reference mark No. 1: Standard reference mark tablet stamped "1 LIBERTY 2 1956" set in top of concrete post, 32.86 ft. from station mark in azimuth 5°23'. (Tablet is 29 ft. W. of center of N-S. rd.)

Reference mark No. 2: Standard reference mark tablet stamped "2 LIBERTY 2 1956" set in top of concrete post, 50.78 ft. from station mark in azimuth 271°40'. (Tablet is 23 ft. E. of center of N-S. rd.)

ARIZONA ZONE CENTRAL

X=326,154.8

Y=866,504.7

V.A. elevation 873. ft.

Latitude: 33°22'50.680"

Longitude: 112°29'10.200"

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
Mica (C&GS)	18°55'43.6"	198°54'36.8"	31,828.7
White (C&GS)	138 51 32.2	318 48 21.8	44,496.9
Bradley	276 56 40.2	96 59 06.5	22,717.3

NAD 83 VALUES AVAILABLE

9/18/57 ew

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Arizona (170)

Maricopa County

FERRY

1927 N.A.D. (Adj., 1957)

W. F. McIntosh, 1956

Books: PH 441-442

Located about 3.5 mi. W. of Litchfield, 228 ft. E. of center intersection of X-rds. and 37 ft. S. of center of Indian School rd.

To reach from Litchfield Post Office, drive W. along Indian School Road for 3.3 mi. to X-rds., and station.

Station mark: Standard tablet stamped "FERRY 1956" set in top of concrete post.

Reference mark No. 1: Standard reference mark tablet stamped "1 FERRY 1956" set in top of concrete post, 85.65 ft. from station mark in azimuth 89°56'. (Tablet is 37 ft. S. of center of Indian School Road.)

Reference mark No. 2: Standard reference mark tablet stamped "2 FERRY 1956" set in top of concrete post, 80.60 ft. from station mark in azimuth 272°10'. (Tablet is 37 ft. S. of center of Indian School Road.)

ARIZONA ZONE CENTRAL

X=347,549.5

V.A. elevation 1057. ft.

Y=907,443.2

Latitude: 33°29'36.818"

Longitude: 112°25'00.223"

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
White (C&GS)	81°31'44.5"	261°26'16.0"	51,007.8
White Tank(C&GS)	121 58 32.4	301 53 52.2	50,604.3
Litchfield (C&GS)	240 06 17.4	60 08 07.7	19,498.8
Initial Monument (C&GS)	321 15 27.8	141 19 08.5	54,283.1
Goodyear	338 50 49.4	158 52 30.6	43,144.1
Bradley (C&GS)	358 14 04.1	178 14 12.9	43,826.3

NAD 83 VALUES AVAILABLE

9/19/57 ew

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Arizona (170)

Maricopa County

SPUR (C&GS)

1927 N.A.D.

USC&GS, 1936

W. L. Settlemyer, 1949

W. F. McIntosh, 1956

Books: PH 73-74 PH 441-442

Described by U.S. Coast and Geodetic Survey in ~~Special Publication~~
No. 224, p. 157. 331122 - ~~1101~~

Note by W.L.S., 1949: Found as described in good condition with the following exception: Reference mark No. 1 is 18.45 ft. from station mark instead of 18.36 ft., reference mark No. 2 is 2154 ft. from station mark instead of 21.61 ft.

Recovered by W.F.M., 1956:

ARIZONA ZONE CENTRAL

*X=372,674.25

*Y=832,636.95

V.A. elevation 2968.ft.

*Latitude: 33°17'17.755"

*Longitude: 112°20'00.005"

<u>TO STATION</u>	<u>AZIMUTH</u>	<u>BACK AZIMUTH</u>	<u>FEET</u>
BM "28 WF 1948 RM"	11°50'44.79"	191°49'29.27"	57,116.5
*Ora (C&GS)	44 27 15.6	224 22 58.3	56,975.
*Section: (C&GS)	348 18 30.2	168 19 25.5	42,291.

*=Values by USC&GS

9/9/57 ew

NAD 83 VALUES AVAILABLE

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Arizona (170)

Maricopa County

BRADLEY (C&GS)

1927 N.A.D.

USC&GS, 1934

W. F. McIntosh, 1956

Books: PH 441-442

Described by U.S. Coast and Geodetic Survey in Special Publication No. 224, p. 98.

35 112 2 - 1008

Note by W.F.M., 1956: Recovered as described. All marks in good condition.

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ARIZONA ZONE CENTRAL

*X=348,688.74

*Y=863,635.25

V.A. elevation 1282. ft.

*Latitude: 33°22'23.426"

*Longitude: 112°24'44.302"

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
*Mica (C&GS)	50°16'18.2"	230°12'45.2"	42,772.
Beloat	84 20 31.1	264 16 21.8	38,625.2
Liberty 2	96 59 06.5	276 57 40.2	22,717.3
*White (C&GS)	125 01 01.20	304 55 24.38	63,249.4
Perry	178 14 12.9	358 14 04.1	43,826.4
*Litchfield (C&GS)	196 12 22.46	16 14 03.73	55,738.1
Goodyear	255 54 50.9	75 56 23.1	14,659.6
*Initial Monument (C&GS)	267 26 08.42	87 29 40.05	32,656.9

*=values by USC&GS

NAD 83 VALUES AVAILABLE

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Arizona (170)

Maricopa County

INITIAL MONUMENT (C&GS)

1927 N.A.D.

USC&GS, 1935

W. F. McIntosh, 1956

Books: PH441-442

Described by U.S. Coast and Geodetic Survey in Special Publication No. 224, p. 98 and ~~description list 837, p. 1. 33 112 2 - 1011~~

Note by W.F.M., 1956: Recovered as described. All marks in good condition.

FILE COPY

ARIZONA ZONE CENTRAL

*X=381,316.94

V.A. elevation 1159. ft.

*Y=814,940.97

*Latitude: 33°22'37.716"

*Longitude: 112°18'19.608"

<u>To Station</u>	<u>Azimuth</u>	<u>Back Azimuth</u>	<u>Feet</u>
*Bradley (C&GS)	87°29'40.05"	267°26'08.42"	32,656.9
Goodyear	96 35 18.5	276 33 19.1	18,525.5
Perry	141 19 08.5	321 15 27.8	54,288.1
*Litchfield (C&GS)	161 54 28.07"	341 52 37.30	54,788.5

*=Values by USC&GS

NAD 83 VALUES AVAILABLE

9/18/57 ew

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AVONDALE (170)

Arizona

E. E. Moe, 1956

Book: PH 439

Latitude 33°15' Longitude 112°15'

FROM USGS "T T 1 EEM 1956" NEW RIVER NO. 3 QUADRANGLE
(193) TO INTERSECTION OF THOMAS ROAD AND 91ST AVENUE,
GLENDALE, ARIZONA

Note: Line continues from New River No. 3 quadrangle (193)

	(Y)	(X)
8 = "T T EEM 1956" - Glendale P.O., 3.1 mi. S. of along 59th Ave., thence 5.7 mi. W. along Indian School Road, 30 ft. S. of center of Indian School Road, 46 ft. W. of center of 107th Ave., on SW. corner of concrete irrigation structure; standard tablet stamped "T T 1 EEM 1956"	907,264.25	386,298.83✓
13. Center of intersection of Thomas Road and 107th Ave.	901,942.97	386,413.80
19 = "T T 2 EEM 1956" - Glendale P.O., 4.1 mi. S. of along 59th Ave., thence 4.3 mi. W. along Thomas Road, 46 ft. W. of a field rd. S., 30 ft. S. of center of Thomas Road, 5 ft. N. of center of concrete ditch, in concrete post; standard tablet stamped "T T 2 EEM 1956"	902,084.11	394,280.23

Note: This station was originally
established for a triangulation
station, and two reference marks
were set.

22+a. Center of intersection of Thomas Road and 91st Avenue	902,181.13	397,003.10
--	------------	------------

LINE ENTERS PHOENIX QUADRANGLE (169)

NAD 83 VALUES AVAILABLE

<u>NAME</u>	<u>STATION</u>
✓KING	1005
✓BENCH MARK Y 264	1005
✓COTTON	1006
✓GIN	1007
✓BRADLEY	1008
✓CANAL	1009
✓SHOT	1010
✓INITIAL MONUMENT	1011
✓TT ZW 9 (AMS)	1012
✓PIN & TIS RLE & RIW SECS 1,6,31,36	1012
✓PUMP	1013
✓GOODYEAR, GOODYEAR AIRCRAFT CORP WATER TANK	1075
✓LITCHFIELD PARK NAF CONTROL TOWER	1076
✓LITCHFIELD PARK NAF BEACON	1077
✓ELRAZ	1078
✓LITCHFIELD PARK NAF UHF ANTENNA	1079
✓LITCH	1080
✓BROWN	1083
✓CASHION	1084
✓LANE	1089
✓SPUR	1101
✓ESTRELLA MOUNTAINS HIGHEST SUMMIT	1102
✓MARE	1103

NAD 83 VALUES AVAILABLE
PHOENIX

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HORIZONTAL CONTROL DATA

by the
 Coast and Geodetic Survey
 NORTH AMERICAN 1927 DATUM

ARIZONA

170

QUAD 331122 STATION 1005
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

33° 15'
 112° 15'

U.S. DEPARTMENT OF COMMERCE
 COAST AND GEODETIC SURVEY
DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: **KING** STATE: **Arizona** COUNTY: **Maricopa**
 CHIEF OF PARTY: **C.A. Annis** YEAR: **1962** DESCRIBED BY: **R.P.K.**

NOTE*	HEIGHT OF TELESCOPE ABOVE STATION MARK	HEIGHT OF LIGHT ABOVE STATION MARK	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION		
1b	SURFACE-STATION MARK	26 METERS.			
7a	UNDERGROUND-STATION MARK				
	OBJECT	BEARING	DISTANCE		DIRECTION
			FEET	METERS	
	COTTON 1935				00 00 00.0
	Goodyear, Goodyear Aircraft Corp. Motor Tank	ENE	approx. 8 miles	07 54	02.4
desc.	R.M. No. 1	SSE	102.43	31.225	84 03 16
16b	Azimuth Mark	S	approx. 0.35 mile	105 29	20.7
desc.	R.M. No. 2 (BM Y 264)	SW	135.26	41.226	155 26 46.4

Detailed description:

Station is located about 9 miles west of Avondale, about 7 miles northeast of Buckeye and about 1 1/4 miles southwest of Perryville. To reach from the city hall in Avondale, go west on Western Ave. for 0.9 mile to crossroad at stoplite, continue west on Yuma Road for 6.5 miles to Perryville Road at Perryville, continue west on Yuma Road for 1.0 mile to crossroad (Jack Rabbit Road and S.195th Avenue), turn left and go south on Jack Rabbit Road and S.195th Avenue for 1.0 mile to W. Lower Buckeye Road and station in the northeast corner of crossroads as described.

Station mark, a standard traverse disk stamped **KING 1962**, is set in the top of a concrete cylinder which projects about 5 inches above the ground. The mark is 66 feet east of the center of Jack Rabbit Road, 45 feet north of center of W. Lower Buckeye Road, 28 feet west of center of road, 27 feet south of the south one of a row of trees and 4.5 feet north of the witness post.

Reference mark 1, a standard reference disk stamped **KING NO 1 1962**, is cemented in a drill hole in the northeast corner of a 5 feet square concrete irrigation pump foundation which projects about 5 inches above the ground. The mark is 49 feet south of the center of W. Lower Buckeye Road.

Reference mark 2, a Geodetic Bench Mark disk stamped **Y 264 1948**, is set in top of a 5 inch square concrete post which is set flush with the surface of the ground. The mark is 40 feet west of the center of Jack Rabbit Road, 39 feet south of the center of W. Lower Buckeye Road, 1.4 feet east of a witness post and 1 foot north of the fence.

Azimuth mark, a standard azimuth disk stamped **KING 1962**, is set in the top of a concrete cylinder which projects about 8 inches above the surface of the ground. The mark is 25 feet east of center of Jack Rabbit Road, 2.8 feet southwest of the witness post, 2.2 feet west of the fence and 2 feet north of a telephone pole.

To reach the azimuth mark from station, continue south on Jack Rabbit Road for 0.35 mile to mark on left as described.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: **KING** YEAR: **1962**
 STATE: **Arizona** LOCALITY: **Arizona Hwy. Survey Ehrenberg to Phoenix to Casa Grande**
Second -order Triangulation and Traverse SOURCE: **G-12917** FIELD SKETCH: **ARIZ. 49-II**

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (HOR) ANGLE	MARK
STATE: ARIZ. ZONE: C CODE: 0202	x 328,764.34 y 881,217.07	1° 42' 22" - 0 18 33	AZIMUTH MARK
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:		
	33° 25' 16".3828	112° 28' 40".3643		
				BENCH MARK METERS FEET
TO STATION		GEODETIC AZIMUTH (From south)	DISTANCE (Meters)	
BM Y 264	(Taped length)	51° 21' "	SECOND-ORDER	41.226
ROAM		88 28 51.49		5,621.939*
COTTON		255 54 21.38		6,500.173*
GIN		277 44 30.88		6,488.155*
BRADLEY		311 07 01.69		8,099.914*
AZIMUTH MARK		1 23 49.0	THIRD-ORDER	
GOODYEAR GOODYEAR AIRCRAFT CORP WATER TANK		263 48 23.0		10,903.45
NAP BEACON LITCHFIELD PARK		265 50 52.7		10,468.94
NAP CONTROL TOWER LITCHFIELD PARK		266 31 26.1		10,234.38
* Tellurometer length				

*Refers to notes in manuals of triangulation and state publications of triangulation. †Direction-angle measured clockwise, referred to initial station.
 ‡To nearest meter only, when on trigonometric leveling is being done.

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JAN 1967

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ARIZONA

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

KING (Continued)

33°15'
 112°15'

HORIZONTAL CONTROL DATA

by the
 Coast and Geodetic Survey
 NORTH AMERICAN 1927 DATUM

QUAD 331122 STATION 1005
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: BENCH MARK Y 264 YEAR: 1962
 STATE: Arizona LOCALITY: Arizona Hwy. Survey
 Ehrenberg to Phoenix to Casa Grande
 Second-order Traverse SOURCE: G-12917 FIELD SKETCH: Ariz. 49-II

(No check on this position)

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (HOR. ANGLE)	MARK
STATE: Ariz. ZONE: C CODE: 0202	x 328,658.26 y 881,133.17	-0 18 34	
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION	
	LATITUDE:	LONGITUDE:		BENCH MARK	METERS FEET
	33° 25' 15" 5471	NORTH 112 28 41.6106 WEST			
TO STATION			GEODETIC AZIMUTH (From south)	DISTANCE (Meters)	
KING	(TAPED LENGTH)		SECOND-ORDER (231°21')	41.226	

FORM 251 (7-29-65)

USCGM-DC 16251-P1

FILE COPY

JAN 1967

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 170

QUAD 331122 STATION 1006
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

Cotton (Maricopa County, E. B. Latham, 1935).—About 3.8 miles west of the town of Cold Water, on the south side of the road and 0.1 mile west of a cross road. The surface mark is stamped 1934 but was not occupied until 1935. Marked by standard bronze disks as described in notes 1a and 7a. Reference mark No. 1, a standard bronze reference disk, note 11a, is 18.044 meters (59.20 feet) from station in azimuth 182°07'. Reference mark No. 2, a standard bronze reference disk, note 11a, is 11.353 meters (37.25 feet) from station in azimuth 272°00'. Azimuth mark (reference mark No. 3) is set in a cement culvert of an irrigation ditch, 0.4 mile east of the station and on the south side of the highway in azimuth 270°04'03".

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

NAME OF STATION: COTTON
 ESTABLISHED BY: E. B. L. YEAR: 1935 STATE: Arizona
 RECOVERED BY: C. A. Annis YEAR: 1962 COUNTY: Maricopa

HEIGHT OF TELESCOPE ABOVE STATION MARK 1.6 METERS. HEIGHT OF LIGHT ABOVE STATION MARK 1.3 METERS.

OBJECT	BEARING	DISTANCE		DIRECTION
		FEET	METERS	
TT ZW 9 (AMS)				00 00 00
Reference mark No. 1	N	58.19	17.735	238 33 34
Reference mark No. 4	NE	83.22	25.366	283 48 45
Azimuth mark	E	approx.	0.4 mile	326 29 21.9
Goodyear, Goodyear Aircraft Corp., Water Tank	E	approx.	3 miles	331 34 52.8

Station was recovered as described. Azimuth mark and reference mark No. 1 were found to be in good condition, station mark had been pulled out of ground, underground mark was found in good condition, new station mark was set over the underground mark. Reference mark No. 2 had been knocked loose and cracked, reference mark No. 4 was established. The direction to the azimuth mark checked, the distance to reference mark 1 checked and difference in the direction was found.

To reach the station from the City Hall in Avondale, go west on Western Avenue for 0.8 mile to cross road and traffic light at Goodyear, continue west on Yuma Road for 2.6 miles to the Azimuth mark on left,

continue west on Yuma Road for 0.35 mile to cross road (Yuma Road and North Sarival), continue west for 0.05 mile to the station on the left.

Station mark, a standard triangulation station disk set in top of a round concrete post which projects about 3 inches and is stamped COTTON 1934 1962. The mark is 147 feet east of power line pole, 117.5 feet west of power line pole, 29 feet south of center of road and 5 feet east-southeast of witness post.

Reference mark 1, a standard reference disk set in concrete in the center of the top of tile and is stamped COTTON NO 1 1934. The mark is 57.6 feet north of witness post, 30 feet north of center of road and 1 foot south of fence.

Reference mark 4, a standard reference disk set in top of a round concrete post which projects about 3 inches and is stamped COTTON NO 4 1934 1962. The mark is 86 feet northeast of witness post, 29.5 feet north of center of road and 1 foot south of fence.

Azimuth mark, a standard reference disk set in a drill hole in the east end of the south concrete headwall of small culvert and is stamped COTTON AZIMUTH NO 3 1934. The mark is 16 feet north-northwest of a power pole and 13 feet south of center of road.

NOTE: The underground mark was lowered and restamped, COTTON 1934 1962.

R. D. Svoun

*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: COTTON
 STATE: Arizona LOCALITY: Yuma to Stewart Dam
 Second-ORDER Triangulation SOURCE: G-3022 FIELD SKETCH: Ariz. 8-II, 49-II
 G-12917
 YEAR: 1935, 1962

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH BICENTRAL ANGLE	MARK
STATE: Ariz. ZONE: C CODE: 0202	x 349,474.62 y 886,298.21	270° 20' 22" - 0 16 19	AZIMUTH MARK RM 3
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:		
	33° 26' 07".6952	112° 24' 36".3021		296.8 METERS 974 FEET
	TO STATION		GEODETIC AZIMUTH (From south)	DISTANCE (Meters)
	AZIMUTH MARK RM 3		270° 04' 02".6	THIRD-ORDER

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: COTTON
 ESTABLISHED BY: E.B.L. YEAR: 1935 STATE: Arizona BENCH MARK ALSO
 RECOVERED BY: D.J. Florwick YEAR: 1965 COUNTY: Maricopa
 AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: 3.8 miles west of Avondale
 HEIGHT OF TELESCOPE ABOVE STATION MARK FEET. HEIGHT OF LIGHT ABOVE STATION MARK FEET.

OBJECT	BEARING	DISTANCE		DIRECTION
		FEET	METERS	

The station mark, reference mark No. 1, reference mark No. 2 and the azimuth mark were recovered and found to be in good condition. The station was not occupied at this time.

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

33° 15'
112° 15'

HORIZONTAL CONTROL DATA

by the
Coast and Geodetic Survey
NORTH AMERICAN 1927 DATUM

QUAD 331122 STATION 1007
ARIZ
LATITUDE 33°00' TO 33°30'
LONGITUDE 112°00' TO 112°30'
DIAGRAM NI 12-7 PHOENIX

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: GIN STATE: Arizona COUNTY: Maricopa
CHIEF OF PARTY: C. A. Annis YEAR: 1962 DESCRIBED BY: H. D. Ellis

NOTE*	HEIGHT OF TELESCOPE ABOVE STATION MARK METERS.†	HEIGHT OF LIGHT ABOVE STATION MARK METERS.		DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION		
		FEET	METERS	BEARING	DIRECTION‡	
1b	SURFACE-STATION MARK,					
7a	UNDERGROUND-STATION MARK					
	OBJECT					
	BRADLEY 1934					0 00 00.0
11b	R. H. No. 1	W	124.74	38.023	62 03 32	
11b	R. H. No. 2	WNW	79.09	24.289	165 57 54	
	Goodyear, Goodyear Aircraft Corp., Water Tank	WNW	approx.	3 miles	240 52 16.0	
	COTTON 1935				172 54 03.39	

The station is located about 4 miles west-southwest of Avondale, about 3 miles southeast of Perryville and 0.5 mile north of U. S. Highway 80.

To reach the station from the City Hall in Avondale, go west on Western Avenue for 0.85 mile to crossroad and stoplight in Goodyear, turn left, go south for 0.75 mile to U. S. Highway 80, turn right, go southwest on U. S. Highway 80 for 3.3 miles to a side road right, turn right, go north on gravel road for 0.5 mile to station on left.

Station, a standard traverse disk set in the top of a round concrete post which is flush with the surface of the ground and stamped GIN 1962. The mark is 112 feet east of the northeast corner of house, 74 feet southeast of a irrigation pump, 14.5 feet south of power pole with transformer and 30 feet west of center of road.

Reference mark 1, a standard reference disk set in a drill hole in the southeast corner of a concrete foundation of scales and stamped GIN NO 1 1962. The mark is 144 feet west of center of road and 23 feet south-southwest of the southeast corner of house.

Reference mark 2, a standard reference disk set in the top of a round concrete post which is flush with the surface of the ground and stamped GIN NO 2 1962. The mark is 44 feet west of center of road, 28 feet northeast of a irrigation pump and 2.5 feet south of power pole with three transformers.

Station COTTON 1935 to be used for azimuth mark.

*Refer to notes in manuals of triangulation and state publications of triangulation. †Direction-angle measured clockwise, referred to initial station. ‡To nearest meter only, when no trigonometric leveling is being done.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: GIN YEAR: 1962
STATE: Arizona LOCALITY: Arizona Hwy. Survey
Ehrenberg to Phoenix to Casa Grande
Second-Order Triangulation and Traverse SOURCE: 0-12917 FIELD SKETCH: Ariz. 49-II

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (HOR. DJ.) ANGLE	MARK
STATE: Ariz. ZONE: C CODE: 0202	X 349,839.61 Y 878,236.00	177° 24' 29" - 0 16 16	AZIMUTH MARK STATION COTTON
STATE: ZONE: CODE:	X Y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:		
	33° 24' 47.9433	NORTH		BENCH METERS
	112 24 31.5450	WEST		MARK FEET
TO STATION		GEODETIC AZIMUTH (From south)	DISTANCE (Meters)	
			SECOND-ORDER	
BRADLEY		4° 14' 09.56"	4,464.459	
KING		97 46 47.91	6,488.155*	
COTTON		177 08 12.59	2,460.065*	
CANAL		302 58 57.45	3,805.583*	
			THIRD-ORDER	
GOODYEAR	GOODYEAR AIRCRAFT CORP WATER TANK	245 06 23.2	4,864.06	
NAF BEACON	LITCHFIELD PARK	247 54 16.9	4,331.65	
NAF CONTROL TOWER	LITCHFIELD PARK	248 29 55.7	4,070.81	
* Tellurometer length				

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HORIZONTAL CONTROL DATA

by the
 Coast and Geodetic Survey
 NORTH AMERICAN 1927 DATUM

ARIZONA 170
 QUAD 331122 STATION 1008
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

Bradley (Maricopa County, E. B. Latham, 1884; 1038).—About 10½ miles east of the village of Buckeye, in sec. 1, T. 1 S., R. 2 W., on the highest and most northerly one of a group of low hills lying just south of the Gila River and about 1 mile southeast of the J. L. Bradley ranch, near the south end of the summit, on ridge line, about 50 feet south-southeast of the high point. Marked by a standard bronze disk as described in note 2. Reference mark No. 1, a standard bronze reference disk, note 12a, is on high point of summit, in sharp rock outcrop, 12.262 meters (40.23 feet) from station in azimuth 171°19'. Reference mark No. 2, a standard bronze reference disk, note 12a, is down the west slope of the summit, in ledge, 9.758 meters (32.01 feet) from station in azimuth 60°86'. Station *Cotton* may be used as the azimuth mark.

U.S. DEPARTMENT OF COMMERCE
 COAST AND GEODETIC SURVEY

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: BRADLEY
 ESTABLISHED BY: E. B. L. YEAR: 1934 STATE: Arizona
 RECOVERED BY: C. A. Annis YEAR: 1962 COUNTY: Maricopa

HEIGHT OF TELESCOPE ABOVE STATION MARK 1 METERS. HEIGHT OF LIGHT ABOVE STATION MARK 1 METERS.

OBJECT	BEARING	DISTANCE		DIRECTION
		FEET	METERS	
		DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION		
KING				08 00' 00.00 -
R.H. No. 1	N	40.21	12.257	40 10 54 -
Goodyear, Goodyear Aircraft Corp., Water Tank	NE	approx. 6 miles		84 57 27.6 -
R.H. No. 2	SW	32.03	9.762	289 24 51 -
Azimuth Mark	E	approx. 0.5 mile		323 15 46.7 -

The station mark, reference mark number 1 and reference mark number 2 were recovered and found to be in good condition. The distance and directions to the reference marks checked. An azimuth mark was established at this time.

A new and complete description follows.

The station is located about 10 miles east of Buckeye, 8 miles southwest of Avondale and just south of the Gila River near the south end of a summit, about 50 feet south-southeast of the highest point of summit.

To reach the station from the Avondale City Hall, go west on Western Avenue for 0.85 mile to traffic light and crossroad in Goodyear, turn left and go south for 0.75 mile to U.S. Highway 80, turn right and go west-southwest on U.S. Highway 80 for 4.4 miles to Cotton Lane, turn left on Cotton Lane for 1.0 mile to house on right, continue south for 0.2 mile to fork, keep left fork for 0.1 mile to fork, keep right fork for 0.6 mile to a track crossroad, continue south between fences for 0.5 mile to three small yellow houses and fork, turn left and go east passing between the first and second house and continue east and northeast following track road to a reverse fork for 0.5 mile, keep right for 0.1 mile to a white iron gate on right, turn right through gate and go southerly on gas line road for 0.65 mile to a track road left, turn left off gas line road and go 0.1 mile to a dim fork, keep left fork and go east-northeast for 0.25 mile to the Azimuth Mark on the left and end of truck travel. From here pack easterly up trail to top of hill and station. This is about 20 minute pack.

Station mark, a standard triangulation station disk set in a drill hole in outcropping bedrock and is stamped BRADLEY 1934. The mark is 50 feet south-southeast of the highest part of hill.

Reference mark 1, a standard reference disk set in a drill hole in outcropping bedrock and is stamped BRADLEY NO 1 1934. The mark is on the highest point of hill and projects about 18 inches.

Reference mark 2, a standard reference disk set in a drill hole in outcropping bedrock which is about 12 feet lower in elevation than the station and is stamped BRADLEY NO 2 1934. The mark is on a ledge on the west side of hill.

Azimuth mark, a standard azimuth disk set in a drill hole in outcropping bedrock and is stamped BRADLEY 1934. The mark is 54 feet north of a track road, 10 feet north-west of a cairn and 5 feet northeast of a witness post.

B. P. Brunetti

*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: BRADLEY

STATE: Arizona

LOCALITY: Yuma to Stewart Dam

First -order Triangulation SOURCE: G-3022, G-3083 FIELD SKETCH: Ariz. 8-II, 14, G-12917, G-11620
 YEAR: 1934, 1936, 1962

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (FOR 2nd ANGLE)	MARK
STATE: Ariz ZONE: G CODE: 0202	x 348,688.75 y 863,635.23	94° 41' 20" - 0 16 21"	AZIMUTH MARK 1962
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:		
	33° 22' 23.4258" NORTH	112° 24' 44.3019" WEST		390.6' METERS 1281' FEET
TO STATION			GEODETIC AZIMUTH (From south)	DISTANCE (Meters)
AZIMUTH MARK 1962			THIRD-ORDER 94° 24' 58.9"	

FORM 251 (7-54)

U.S. GOVERNMENT PRINTING OFFICE

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JAN 1967

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JULY 1966
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 U.S. DEPARTMENT OF COMMERCE
 COAST AND GEODETIC SURVEY
 WASHINGTON D.C.

ARIZONA

HORIZONTAL CONTROL DATA

by the
 Coast and Geodetic Survey
 NORTH AMERICAN 1927 DATUM

QUAD 331122 STATION 1008
 AP12
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

BRADLEY (Continued)

RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION: BRADLEY
 ESTABLISHED BY: E.B.L. YEAR: 1934 STATE: Arizona BENCH MARK ALSO
 RECOVERED BY: D.J. Florwick YEAR: 1965 COUNTY: Maricopa
 AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN:
 HEIGHT OF TELESCOPE ABOVE STATION MARK 5 FEET. HEIGHT OF LIGHT ABOVE STATION MARK 4 FEET.

OBJECT	BEARING	DISTANCE		DIRECTION
		FEET	METERS	
WHITE 1934				00 00 00.00
Reference Mark No. 1	N	40.179	12.247	46 18 21
Reference Mark No. 2	SW	32.040	9.767	295 33 38
Azimuth Mark	W	(approx. 0.3 mi.)	329 23 57.5	

The station mark, reference mark No. 1, reference mark No. 2 and the azimuth mark were recovered and found to be in good condition. The directions to both reference marks and the azimuth mark were checked, but a slight discrepancy was noted in the distances to the reference marks. The measurement to reference mark No. 1 is 10 mm. shorter than the 1962 measurement, and that to reference mark No. 2 5 mm. longer. A new and complete description follows:

The station is located on the summit of a low, rocky hill about 10 miles east of Buckeye, 8 miles southwest of Avondale and just

south of the Gila River.

To reach the station from the City Hall in Avondale, go west on Western Avenue for 0.85 mile to Litchfield Road. Turn left and go south on Litchfield Road for 0.75 mile to U.S. Highway 80. Turn right and go westerly on U.S. Highway 80 for 4.4 miles to Cotton Lane. Turn left and go southerly on Cotton Lane for 1.2 miles to a fork. Take the left fork and continue south along a bladed road for 0.45 mile to an intersection of 5 bladed roads. Take the extreme left road and go northeast for 0.35 mile to the north end of a concrete irrigation ditch. Turn right and follow bladed road south for 0.25 mile to a "T" intersection. Turn left and go east for 0.15 mile to another "T" intersection and a white-painted metal gate on the right. Turn right, through gate, and go southerly for 0.65 mile to a track road on the left. Turn left and follow track road for 0.1 mile to a fork. Take the left fork and follow dim track road for 0.25 mile to the azimuth mark on the left and the end of track travel. Pack easterly up steep hill for about 0.3 mile to the summit and the station mark. Packing time is about 20 minutes.

The station mark is a standard disk, stamped BRADLEY 1934, cemented in a drill hole in outcropping bedrock. It is about 50 feet south of the highest point of the hill.

Reference mark No. 1 is a standard disk, stamped BRADLEY NO 1 1934, cemented in a drill hole in outcropping bedrock that projects 18 inches. It is on the highest point of the hill.

Reference mark No. 2 is a standard disk, stamped BRADLEY NO 2 1934, cemented in a drill hole in outcropping bedrock about 12 feet below the elevation of the station mark.

The azimuth mark is a standard disk, stamped BRADLEY 1934, cemented in a drill hole in outcropping bedrock. It is 54 feet north of the center of a track road, 10 feet northwest of a cairn and 5 feet northeast of a metal witness post.

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JAN 1967

JULY 1966
 U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SURVEY
 REV: MAR 1973

HORIZONTAL CONTROL DATA

by the
 Coast and Geodetic Survey
 NORTH AMERICAN 1927 DATUM

ARIZONA 170
 QUAD 331122 STATION 1009
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

DESCRIPTION OF ~~HORIZONTAL CONTROL~~ STATION TRAVERSE

NAME OF STATION: CANAL STATE: Arizona COUNTY: Maricopa
 CHIEF OF PARTY: C. A. Aznis YEAR: 1962 DESCRIBED BY: R. D. S.

NOTE	HEIGHT OF TELESCOPE ABOVE STATION MARK	HEIGHT OF LIGHT ABOVE STATION MARK	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION			
			BEARING	DISTANCE		DIRECTION
1b	SURFACE-STATION MARK	UNDERGROUND-STATION MARK		FEET	METERS	
7a						00 00 00
11b			BRADLEY 1934 Goodyear, Goodyear Aircraft Corp., Water Tank	NE'	approx. 3 miles	140 33 03.4
			R. M. No. 1	ESE'	82.80	25.24 0 225 06 04
			R. M. No. 2	SE'	62.02	18.90 4 262 56 22
			Azimuth Mark (Corps. of Eng. BM)	S'	approx. 0.2 mile	298 06 57.7

Station is located about 3 miles southwest of Avondale, about 1 1/4 mile south of U. S. Highway 80 and is just northwest of a small concrete bridge over a canal.

To reach the station from the city hall in Avondale, go west on Western Avenue for 0.85 mile to a crossroad and traffic light in Goodyear, turn left, go south for 0.75 mile to U. S. Highway 80, turn right, go southwest on U. S. Highway 80 for 1.2 mile to a side road left, turn left, go south on Bullard Avenue for 0.6 mile to a crossroad (W Bullard-W Broadway), continue south on Bullard Avenue for 0.8 mile to bridge over canal and the station on the right.

Station mark, a standard traverse disk set in top of a round concrete post which projects about 2 inches and is stamped CANAL 1962. The mark is 38 feet north-northwest of the northwest corner of concrete bridge, 38 feet north of the north edge of canal, 26 feet west of center of road, 6.5 feet north of power line pole and 3.7 feet south of witness post.

Reference mark 1, a standard reference disk set in top of a round concrete post which projects about 8 inches and is stamped CANAL NO 1 1962. The mark is 83.8 feet east of witness post, 56 feet east of center of road, 55 feet north of the north edge of canal and 50 feet north-northeast of the northeast corner of bridge.

Reference mark 2, a standard reference disk set in a drill hole in the northeast corner of concrete bridge and is stamped CANAL NO 2 1962. The mark is 65.2 feet southeast of witness post and 14 feet east of center of road.

Azimuth mark, a U. S. Army Corps of Engineers bronze disk set in top of a round concrete post which projects about 4 inches and is stamped T L ZS 8 1960. The mark is encircled by black painted rocks, is 79 feet east of center of road and 7.3 feet west of witness post.

To reach the azimuth mark from the station, go south for 0.2 mile to the mark on the left.

Distance from R. M. No. 1 to R. M. No. 2 is 50.91 feet or 15.517 meters.

REPORT ON CONDITION OF SURVEY MARK

Form Approved
 Budget Bureau No. 41-R1923

Name or Designation: CANAL Year Established: 1962
 State: ARIZONA County: MARICOPA Organization Established by: USCIGS
 Distance and direction from nearest town: 3 mi. southwest of Avondale
 Description published in: (Line, book, or quadrangle number) Quad 331122 Station 1009
 Mark searched for or recovered by: Name - Earl M. Bratcher
 Organization - U.S. Army Engineer District Los Angeles
 Date of report: 24 Jan 1972 Address: P.O. Box 2711, Los Angeles, Cal.
 Condition of marks: List letters and numbers found stamped in (not cast in) each mark.

Mark stamped:	Condition:
CANAL, 1962	Good
CANAL NO 1, 1962	Good
CANAL NO 2, 1962	Good

Marks accessible? Yes No Property owner contacted? Yes No
 Please report on the thoroughness of the search in case a mark was not recovered, suggested changes in description, need for repairing or moving the mark, or other pertinent facts:

Description is adequate

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: CANAL YEAR: 1962
 STATE: Arizona LOCALITY: Arizona Hwy. Survey Ehrenberg to Phoenix to Casa Grande
 Second-ORDER Triangulation SOURCE: G-12917 FIELD SKETCH: Ariz. 49-II

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (HOR. ANGLE)	MARK
STATE: ARIZ. ZONE: C CODE: 0202	X 360,279.82 Y 871,390.17	354° 19' 54" - 0 15 07	AZIMUTH MARK TL ZS 8 USE
STATE: ZONE: CODE:	Z Y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:		
	33° 23' 40".6804	112 22 28.0229		
				BENCH MARK METERS FEET
	TO STATION		GEODETIC AZIMUTH (From south)	DISTANCE (Meters)
	BRADLEY		SECOND-ORDER	
	GIN		55° 57' 49".80	4,251.086
	SHOT		123 00 05.45	3,805.583*
	TT ZW9 AMS		266 18 49.78	3,245.559*
			286 47 28.48	6,707.308*
	NAF CONTROL TOWER LITCHFIELD PARK		THIRD-ORDER	
	NAF BEACON LITCHFIELD PARK		189 30 06.0	3,613.11
	GOODYEAR GOODYEAR AIRCRAFT CORP WATER TANK		192 31 48.9	3,791.07
	AZIMUTH MARK TL ZS 8 USE		196 30 56.3	4,295.99
			354 04 47.0	
	* Tellurometer length			

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ARIZONA

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JULY 1966
U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY
REV: MAR 1973

HORIZONTAL CONTROL DATA

by the
Coast and Geodetic Survey
NORTH AMERICAN 1927 DATUM

QUAD 331122 STATION 1010
ARIZ
LATITUDE 33°00' TO 33°30'
LONGITUDE 112°00' TO 112°30'
DIAGRAM NI 12-7 PHOENIX

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: SHOT STATE: Arizona COUNTY: Maricopa
CHIEF OF PARTY: C. A. Annis YEAR: 1962 DESCRIBED BY: B. P. B.

NOTE*	HEIGHT OF TELESCOPE ABOVE STATION MARK 1 METERS	HEIGHT OF LIGHT ABOVE STATION MARK 1 METERS	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION			
			BEARING	DISTANCE		DIRECTION
			FEET	METERS		
11b	R. M. No. 2		NW 77.50	23.621	00 00 00.00	
	Litchfield, NAF Beacon		NW approx. 3.0 miles		59 00 24.8	
16b	Azimuth Mark		N approx. 0.15 mile		88 47 50.8	
11b	R. M. No. 1		SW 82.96	25.286	331 51 04	

The station is located about 2 1/2 miles south of Avondale, about 4 miles southwest of Cashion and on the east side of a north and south road in the road right-of-way line.

To reach the station from the post office in Cashion, go west on U.S. Highway 80 for 1.5 miles to a side road left (El Mirage Road) turn left and go south on El Mirage road for 1.0 mile to a crossroad (Lower Buckeye Road), turn right on Lower Buckeye road and go west and southwest for 1.6 miles to the Lakin Cattle Co. on right, continue south on blacktop road for 0.7 mile to a house on the left and azimuth mark on the right at a driveway, continue south for 0.15 mile to the station on the left side of road as described.

Station mark, a standard traverse disk set in the top of a round concrete post which projects about 3 inches and stamped SHOT 1962. The mark is 31 feet east of the center of road, 4 feet north-northwest of the witness post and 2 feet west of fence. Reference mark 1, a standard reference disk set in the top of a round concrete post which projects about 6 inches and stamped SHOT NO 1 1962. The mark is 40 feet west of the center of road and 1.3 feet east of fence. Reference mark 2, a standard reference disk set in the top of a round concrete post which projects about 6 inches and stamped SHOT NO 2 1962. The mark is 40 feet west of the center of road and 1.3 feet east of fence. Azimuth mark, a standard azimuth disk set in the top of a round concrete post which projects about 3 inches and stamped SHOT 1962. The mark is 39 feet west of the center of road, 11 feet north of the center of a driveway, 2.2 feet south of the witness post and 2 feet northeast of a gate post.

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: SHOT
ESTABLISHED BY: C.A. Annis YEAR: 1962 STATE: Arizona
RECOVERED BY: C. Andreasen YEAR: 1966 COUNTY: Maricopa

Detailed statement as to the fitness of the original description including marks found, stampings, changes made, and other pertinent facts:
The station mark, reference mark number 2 and the azimuth mark were recovered and found in good condition. Reference mark number 1 has been destroyed.

The original description to reach the station is adequate.

REPORT ON CONDITION OF SURVEY MARK

Name or Designation: SHOT Year Established: 1962
State: Arizona County: Maricopa Organization Established by: USFCS
Distance and direction from nearest town: 2 1/2 miles south of Avondale
Description published in: (Line, book, or quadrangle number) Quad 331122 Station 1010
Mark searched for or recovered by: Name - Earl M. Bratcher
Organization - U.S. Army Engineer District, Los Angeles
Date of report: 24 Jan 1972 Address: P.O. Box 5711, Los Angeles, Cal.
Condition of marks: List letters and numbers found stamped in (not case in) each mark.

Mark stamped:	Condition:
SHOT, 1962	Good
SHOT NO 1, 1962	Has been disturbed
SHOT NO 2, 1962	Good

Marks accessible? Yes No Property owner contacted? Yes No

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: SHOT YEAR: 1962
STATE: Arizona LOCALITY: Arizona Hwy. Survey
Shrenberg to Phoenix to Casa Grande
Second -order Triangulation and Traverse SOURCE: G-12917 FIELD SKETCH: Ariz. 49-II

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (from 2nd) ANGLE	MARK
STATE: ARIZ. ZONE: C CODE: 0202	X 370,907.99 Y 872,027.96	175° 21' 47" - 0 13 58	AZIMUTH MARK
STATE: ZONE: CODE:	X Y		

GEODEIC DATA	POSITION				SECONDS IN METERS	ELEVATION BENCH MARK METERS FEET
	LATITUDE:	33° 23' 47".4358	NORTH	WEST		
	LONGITUDE:	112° 20' 22".6955				
	TO STATION				GEODEIC AZIMUTH (From 2nd)	DISTANCE (Meters)
CANAL PUMP TT 2W9 AMS					SECOND-ORDER 86°19'58".76 258 49 31.75 304 00 55.15	3,245.559* 5,600.542* 3,838.602*
NAF BEACON LITCHFIELD PARK AZIMUTH MARK					THIRD-ORDER 145 20 16.9 175 07 49.4	4,246.60
* Tellurometer length						

RECOVERY NOTE, TRIANGULATION STATION TRAVERSE

NAME OF STATION: SHOT
ESTABLISHED BY: C.A.A. YEAR: 1962 STATE: Arizona BENCH MARK ALSO
RECOVERED BY: L.F. Smith YEAR: 1972 COUNTY: Maricopa
AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: 2 1/2 miles south of Avondale
HEIGHT OF TELESCOPE ABOVE STATION MARK 5 FEET. HEIGHT OF LIGHT ABOVE STATION MARK 5 FEET.

OBJECT	BEARING	DISTANCE		DIRECTION
		FEET	METERS	
Azimuth mark 1962	N			0 00 00.0
RM 3	SW	83.04	25.310	242 57 14
RM 2	NW	77.57	23.641	298 54 56

The station mark, reference mark 2 and the azimuth mark were recovered as described and found in good condition. Reference mark 1 had been graded out and was laying on the surface. The monument was reset and stamped, SHOT 1962 NO 3 1972 and reestablished. A witness post and sign was placed by the mark. The route to the station is adequate.

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SEP 24 1974

ARIZONA 170

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

QUAD 331122 STATION 1011
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

Initial Monument (Maricopa County, E. B. Latham, 1835).—On a low butte, near the General Land Office corner marking the corner of T. 1 N., and T. 1 S., R. 1 E., and R. 1 W., just south of the confluence of the Gila and Salt Rivers and about one-half mile west and 4 miles south of Cashion. (This butte is known locally as Monument Hill.) Marked by a standard bronze disk as described in note 2. Reference mark No. 1, a standard bronze reference disk, note 12a, is 5.878 meters (18.61 feet) from station in azimuth 834°58'. Reference mark No. 2, a standard bronze reference disk, note 12a, is 10.080 meters (33.02 feet) from station in azimuth 119°39'. No azimuth mark established. Other stations visible from the ground.

INITIAL MONUMENT (Maricopa County, Ariz., E.B.L., 1935; G.L.O., 1944)
 --Letter from R.R. Lukens, Southwestern District, Los Angeles, California, dated December 7, 1944:

A connection was made by a party of General Land Office to the U.S. G.L.O. Initial Monument.

The G.L.O. station is 14.78 feet, in azimuth 292°, from the C. & G.S. station INITIAL MONUMENT.

There seems to be some discrepancy in the distance to reference mark 2.

Form 538
 (11-8-58)

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

ARS

R

NAME OF STATION: INITIAL MONUMENT

ESTABLISHED BY: E. B. Latham Year: 1935 State: Arizona

RECOVERED BY: C. A. Annis Year: 1962 County: Maricopa

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

The station INITIAL MONUMENT 1935 is declared lost after a thorough search was made for same. The Corps of Engineers established a new station TZW 9 (AMS), in 1961 after being unable to locate our original station. Reference mark 2 was the only U.S.C. & G.S. mark that was recovered and now serves as a reference to TZW 9 (AMS).

* 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.

RCH

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: INITIAL MONUMENT

YEAR: 1935

STATE: Ariz

LOCALITY: Yuma to Stewart Dam

First-order Triangulation SOURCE: G-3022

FIELD SKETCH: ARIZ 9, 8-II

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH θ (OR Δθ) ANGLE	MARK
STATE: Ariz ZONE: C CODE: 0202	x 381,316.94 y 864,940.97	192°12'12" - 0 12 50	AZIMUTH MARK (CASHION)
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:		
	33°22'37".716	112 18 19.608		

TO STATION	GEODETIC AZIMUTH (From center)	DISTANCE	
		LOGARITHM (Meters)	METERS
AZIMUTH MARK (CASHION)	191°59'22".1	3.820 760	6,618.5

U.A. Elev. 1159 ft - (21885 - 1956)

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JAN 1967

JULY 1966
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 COAST AND GEODETIC SURVEY
 WASHINGTON D.C.

HORIZONTAL CONTROL DATA

by the
 Coast and Geodetic Survey
 NORTH AMERICAN 1927 DATUM

ARIZONA 170

QUAD 331122 STATION 1012
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

33°15'
 112°15'

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: TT ZW 9 (AMS) STATE: Arizona COUNTY: Maricopa
 CHIEF OF PARTY: C.A. Annis YEAR: 1962 DESCRIBED BY: R.P.K.

NOTE:	HEIGHT OF TELESCOPE ABOVE STATION MARK	METERS	HEIGHT OF LIGHT ABOVE STATION MARK	METERS
desc.	SURFACE-STATION MARK, UNDERGROUND-STATION MARK	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION		
	OBJECT	BEARING	DISTANCE	
			FEET	METERS
12a	BRADLEY 1934 R.M. No. 2 (INITIAL MON. RM 2) Goodyear, Goodyear Aircraft Corp. Water Tank	NW	35.65	10.866
16b	Azimuth Mark desc. R.M. No. 3 (T1N-T1S, R1E-R1W, Secs. 1,6,31,36)	N E	approx. 5 miles approx. 0.5 mile	51 53 42.7 91 49 21.0
			14.69	4.479
			203 09	16.4

Station is located about 15 miles west-southwest of Phoenix, about 5 miles south-southeast of Avondale and about 4 miles south of Cashion. To reach from the post office in Cashion, go west on U.S. Highway 80 for 0.4 mile to S. 115th Avenue, turn left and go south on S. 115th Avenue for 3.1 miles to crossroad W. Southern Avenue, continue south for 0.5 mile to the Azimuth Mark on right where road curves right, turn right and follow dirt road westerly for 0.95 mile to the Gila River, ford river and continue westerly on main dirt road for 0.15 mile to fork, keep left and go southerly 0.1 mile to fork, keep left and follow main road easterly 0.15 mile to track road right, continue straight ahead at all crossroads and go 0.3 mile to fork, keep left and follow main track road easterly for 0.6 mile to two abandon buildings on right, continue east on main track road along the south edge of field for 0.15 mile to "T" road, turn right and go south then east for 0.45 mile to rock quarry, keep to left of rock quarry and go easterly up hill for 0.1 mile to fence, turn left and go north 0.05 mile to end of truck travel. From here pack north to top of hill and station. (5 minute pack)

Station mark, a Corps of Engineers Survey disk stamped TT-ZW-9 Army Map Service 1961, is set in top of a 8 inch square concrete cylinder which is set flush with the surface of the ground. The mark is surrounded by a circle of white painted rocks, is 4.5 feet east of fence and 20 feet west-northwest of a outcropping bedrock formation which projects about 2 feet above the ground.

Reference mark 2, a standard reference disk stamped INITIAL NO 2 1934, is set in a drill hole in outcropping bedrock which projects about 4 inches above the ground. The mark is 30 feet northwest of the north-west edge of rock circle and 27 feet west of the fence.

Reference mark 3, a U.S. Dept. of Interior Cadastral Survey Monument which has a bronze cap which is stamped T1N-R1W-R1E-T1S, S36-S31-S1-S6 1962. The mark is 18 feet east of fence and 6 feet west of a outcropping bedrock formation which projects about 2 feet above the ground.

Azimuth mark, is a standard azimuth disk stamped TT ZW9 AMS 1962, is set in the top of a concrete cylinder which projects about 3 inches above the ground. The mark is 31 feet west of center of road, 6.5 feet south of a east-west irrigation ditch, 5 feet west of a north-south irrigation ditch and 2 feet southwest of the witness post.

*Refers to notes in manuals of triangulation and more publications of triangulation. †Direction-angle measured clockwise, referred to lateral of ground.
 ‡To nearest meter only, when no trigonometric leveling is being done.

(Continued on next page)

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: TT ZW9 AMS YEAR: 1962, 1963
 STATE: Arizona LOCALITY: Arizona Hwy. Survey
 Ehrenberg to Phoenix to Casa Grande
 First-order Triangulation SOURCE: G-12917
 G-13304
 G-13620 FIELD SKETCH: Ariz. 49-II, 50,54

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (HOR Δ) ANGLE	MARK
STATE: Ariz. ZONE: C CODE: 0202	x 381,317.29 y 864,941.04	179° 31' 50" - 0 12 50	AZIMUTH MARK
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:		
	33° 22' 37" 7167	112 18 19.6038		353.4 METERS 1159 FEET
	TO STATION		GEODETIC AZIMUTH (From south)	DISTANCE (Meters)
AZIMUTH MARK			THIRD-ORDER 179°18'59"5	

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: T1N & T1S R1E & R1W SECS 1,6,31,36 YEAR: 1962
 STATE: Arizona LOCALITY: Arizona Hwy. Survey
 Ehrenberg to Phoenix to Casa Grande
 First-order Traverse SOURCE: G-12917
 FIELD SKETCH: Ariz. 49-II

(No check on this position)

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (HOR Δ) ANGLE	MARK
STATE: Ariz ZONE: C CODE: 0202	x 381,331.02 y 864,935.80	-0 12 50	
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:		
	33°22'37"6654	112 18 19.4416		METERS FEET
	TO STATION		GEODETIC AZIMUTH (From south)	DISTANCE (Meters)
TT ZW9 AMS	(TAPED LENGTH)		FIRST-ORDER (110°39')	4.479

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JAN 1967

JULY 1966
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 COAST AND GEODETIC SURVEY
 WASHINGTON D.C.

HORIZONTAL CONTROL DATA

by the
 Coast and Geodetic Survey
 NORTH AMERICAN 1927 DATUM

QUAD 331122 STATION 1012
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

TT ZW 9 (AMS) (Continued)

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

A.F.S.

R

Reference mark No. 3 is a U.S. Department of Interior, Bureau of Land Management disk, stamped T1N R1W R1E T1S S36 S31 S1 S6 1962, set in the top of a 6-inch square concrete post that projects 1 foot above the surface of the ground. It is 18 feet east of the wire fence and on the highest point of the hill.

The azimuth mark is a standard disk, stamped TT ZW 9 AMS 1962, set in the top of a 12-inch diameter concrete post that projects 3 inches above the surface of the ground. It is 41 feet west of the painted centerline of 115th Avenue, 8.6 feet north of a Maricopa County Engineering Department disk, 3.5 feet south of a concrete irrigation ditch, 5 feet west of another concrete irrigation ditch and 2 feet southwest of a metal witness post.

NAME OF STATION: TT ZW 9 (AMS)

ESTABLISHED BY: C.A. Annis YEAR: 1962 STATE: Arizona

RECOVERED BY: C.A. Annis YEAR: 1963 COUNTY: Maricopa

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

Station was recovered as described in the 1962 description and all marks were found to be in good condition. Because this station was occupied less than a year ago, the direction was not taken to the reference marks. The distance was measured to the reference marks and checked. The direction to the azimuth mark checked.

The to reach is adequate.

1963 Observations Follow:

OBJECT EDGE	BEARING	DISTANCE		DIRECTION		
		feet	meters	00	00	00.0
Phoenix, Western Cotton Products Co. Water Tank	NE	approx. 10 miles		19	36	07.2
Phoenix, KPHO Relay Tower	NE	approx. 14 miles		25	31	35.0
Azimuth Mark	N	approx. 0.5 mile		316	43	36.5
R.M. No. 2	WNW	35.65	10.869			
R.M. No. 3	E	14.69	4.479			

RECOVERY NOTE, TRIANGULATION STATION

R

NAME OF STATION: TT ZW 9 (AMS)

ESTABLISHED BY: C.A.A.

YEAR: 1962

STATE: Arizona

BENCH MARK ALSO

RECOVERED BY: D.J. Florwick

YEAR: 1965

COUNTY: Maricopa

AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN: 4 miles south of Cashion

HEIGHT OF TELESCOPE ABOVE STATION MARK 5 FEET.

HEIGHT OF LIGHT ABOVE STATION MARK 4 FEET.

DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION

OBJECT	BEARING	DISTANCE		DIRECTION
		FEET	METERS	
BRADLEY 1934				00 00' 00.00
Reference Mark No. 2	WNW	35.646	10.864	32 05 24
Azimuth Mark	N	(approx. 0.5 ml.)		91 49 19.8
Reference Mark No. 3	ESE	14.699	4.480	203 09 30

The station mark, reference mark No. 2, reference mark No. 3 and the azimuth mark were recovered and found to be in good condition. The distances and directions to both reference marks and the direction to the azimuth mark were verified, but a new road has been built in the vicinity of the station. A new and complete description follows:

The station is located on the summit of a low, rocky hill that overlooks Phoenix International Raceway to the west-southwest, about 15 miles west-southwest of Phoenix, 5 miles south-southeast of Avon-

dalo and 4 miles south of Cashion.

To reach the station from the U.S. Post Office at Cashion, go west on U.S. Highway 80 for 0.4 mile to 115th Avenue. Turn left and go south on 115th Avenue for 3.1 miles to the intersection with West Southern Avenue. Continue straight ahead, south, on 115th Avenue for 0.5 mile to the azimuth mark on the right. Continue straight ahead, south, on 115th Avenue for 0.25 mile to a track road on the left. Turn left and go easterly on track road for 0.05 mile to the end of truck travel. Pack south and west up hill for about 0.2 mile to the summit and the station mark. Packing time is about 10 minutes.

The station mark is an Army Map Service disk, stamped TT-Z-W-9 1961, cemented in a drill hole in outcropping bedrock that is flush with the surface of the ground. It is 3-1/2 feet east of a wire fence and inside a ring of white rocks.

Reference mark No. 2 is a standard disk, stamped INITIAL NO 2 1934, cemented in a drill hole in outcropping bedrock that projects 3 inches above the surface of the ground. It is 27 feet west of the wire fence and 1 foot east of a cairn.

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 COAST AND GEODETIC SURVEY
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HORIZONTAL CONTROL DATA

by the
 Coast and Geodetic Survey
 NORTH AMERICAN 1927 DATUM

ARIZONA 170

QUAD 331122 STATION 1013
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

33° 15'
 112° 15'

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: PUMP
 CHIEF OF PARTY: C. A. Annis
 STATE: Arizona COUNTY: Maricopa
 YEAR: 1962 DESCRIBED BY: H. D. Ellis

NOTE*	HEIGHT OF TELESCOPE ABOVE STATION MARK	HEIGHT OF LIGHT ABOVE STATION MARK	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION			
			BEARING	FEET	METERS	DIRECTION†
1b	3.9 METERS	1.2 METERS				
7a	SURFACE-STATION MARK, UNDERGROUND-STATION MARK					
11b			TT Z W 9 (AMS)			0 00' 00.0
			R. M. No. 2	W	34.71	10.580
			Azimuth Mark (AHD)	W	approx. 0.5 mile	55 24 55.0
			Goodyear, Goodyear Aircraft Corp. Water Tank	WNW	approx. 1/2 mile	75 02 18.2
11b			R. M. No. 1	E	39.34	11.991

The station is located about 2 1/2 miles south-southeast of Cashion, about 2 miles south of U. S. Highway 80 on the south right-of-way of West Broadway.

To reach the station from the post office in Cashion, go east on U. S. Highway 80 for 0.55 mile to crossroad (107th Ave.), turn right, go south on 107th Avenue for 2.0 miles to crossroad (W. Broadway) and azimuth mark on right, turn left, go east on West Broadway for 0.5 mile to station on right.

Station mark, a standard traverse disk set in the top of a round concrete post which projects 4 inches and stamped PUMP 1962. The mark is 32 feet south of center of West Broadway, 9 feet southwest of a power pole, 5.6 feet north of north edge of canal and 3.8 feet south of witness post.

Reference mark 1, a standard reference disk set in the top of a round concrete post which projects 4 inches and stamped PUMP NO 1 1962. The mark is 39.5 feet east-southeast of witness post, 32 feet east-southeast of a power pole, 31 feet south of center of West Broadway and 6 feet north of north edge of canal.

Reference mark 2, a standard reference disk set in the top of a round concrete post which projects 2 inches and stamped PUMP NO 2 1962. The mark is 43 feet west-southwest of a power pole, 34.9 feet west of witness post, 32 feet south of center of West Broadway and 5.6 feet north of north edge of canal.

Azimuth mark, a Arizona Highway Department bronze traverse disk set in the top of a 6 inch square concrete post which is flush with the surface of the ground and stamped 101 Z 1962. The mark is 38 feet north of center of West Broadway, 36 feet west of center of South 107th Avenue, 19 feet northwest of a brace pole and 1.7 feet east of witness post.

*Refers to notes in manuals of triangulation and state publications of triangulation. †Direction-angle measured clockwise, referred to initial station.
 ‡To nearest meter only, when no trigonometric leveling is being done.

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ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: PUMP
 STATE: Arizona LOCALITY: Arizona Hwy. Survey
 Second-order Traverse SOURCE: G-12917, G-13304
 FIELD SKETCH: Ariz. 49-II
 YEAR: 1962

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (Nor Az) ANGLE	MARK
STATE: Ariz. ZONE: C CODE: 0202	x 388,946.90 y 875,515.32	91° 13' 36" - 0 12 01"	AZIMUTH MARK 101 Z AHD †
STATE: ZONE: CODE:	x y		

GEODETTIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:		
	33° 24' 22.6156" NORTH	112 16 50.0667" WEST		BENCH MARK METERS FEET
TO STATION			GEODETTIC AZIMUTH (From south)	DISTANCE (Meters)
AZIMUTH MARK 101 Z AHD †			THIRD-ORDER 91°01'34"5	

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HORIZONTAL CONTROL DATA

by the
 Coast and Geodetic Survey
 NORTH AMERICAN 1927 DATUM

QUAD 331122 STATION 1014
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

U.S. DEPARTMENT OF COMMERCE
 COAST AND GEODETIC SURVEY

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: TWIN STATE: Arizona COUNTY: Maricopa
 CHIEF OF PARTY: C. A. Annis YEAR: 1962 DESCRIBED BY: E. P. B.

NOTE*	HEIGHT OF TELESCOPE ABOVE STATION MARK 1 METERS,†	HEIGHT OF LIGHT ABOVE STATION MARK 1 METERS.	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION			
1b	SURFACE-STATION MARK		DISTANCE		DIRECTION‡	
7a	UNDERGROUND-STATION MARK		FEET	METERS		
11b	PUMP					
	R. M. No. 1	N	21.94	6.683	00 00 00.00	75 31 07
11b	Phoenix, Ariz. Pub. Serv. Co. Water Tank				138 47 35.8	
	R. M. No. 2	E	21.32	6.497	182 39 49	
desc	Azimuth mark (TL 8 (USE))	S	approx. 0.6 mile		261 54 48.6	

Detailed description:

The station is located about 4 1/2 miles southeast of Cashion, about 10 miles west-southwest of Phoenix, and on the east side of a north and south road at a fence corner and irrigation ditch.

To reach the station from the post office in Cashion, go east on U.S. Highway 80 for 3.5 miles to South 83 rd. Ave., turn right and go south on South 83 rd. Ave. for 2 miles to West Broadway, turn left and go east for 0.05 mile to a side road right, turn right and go south on dirt road for 0.55 mile to a track road left and irrigation ditch and station on left. Continue south for 0.6 mile to azimuth mark on right.

Station mark, a standard traverse disk set in the top of a 12 inch round concrete post which projects about 2 inches and stamped TWIN 1962. The mark is 29 feet east of the center of road, 27 feet north of the center of irrigation road, 3.5 feet north-northeast of witness post and 2.8 feet east of fence.

Reference mark 1, a standard reference disk set in the top of a 12 inch round concrete post which projects about 3 inches and stamped TWIN NO 1 1962. The mark is 27 feet east of the center of road, 25 feet north of the witness post and 1 foot east of fence.

Reference mark 2, a standard reference disk set in the top of a 12 inch round concrete post which projects about 3 inches and stamped TWIN NO 2 1962. The mark is 23 feet east of fence, 22.6 feet east of the witness post and 22 feet north of the center of irrigation road.

Azimuth mark, a Corps of Engineers Survey disk set in the top of a 10 inch round concrete post which is about flush with the ground and stamped TL-8 1960 RMY M'P SERVICE. The mark is 24 feet west of the center of road, 13 feet east of fence, 6.6 feet northeast of center of gate in irrigation ditch and 1 foot east of witness post.

*Refers to notes in manuals of triangulation and more publications of triangulation. †Direction-angle measured clockwise, referred to station.
 ‡To nearest meter only, when no trigonometric leveling is being done.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: TWIN YEAR: 1962
 STATE: Arizona LOCALITY: Arizona Hwy. Survey
 Ehrenberg to Phoenix to Casa Grande
 Second-order Traverse SOURCE: G-12917 FIELD SKETCH: Ariz. 49-II
 G-13304

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (For Az) ANGLE	MARK
STATE: Ariz. ZONE: C CODE: 0202	X 402,481.63 Y 873,236.30	1° 28' 17" - 0 10 33	AZIMUTH MARK TL-8 USE
STATE: ZONE: CODE:			

GEODETTIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE: 33° 24' 00.5058 NORTH	LONGITUDE: 112 14 10.3206 WEST		BENCH MARK METERS FEET
	TO STATION		GEODETTIC AZIMUTH (From south)	DISTANCE (Meters)
	AZIMUTH MARK TL-8 USE		THIRD-ORDER 1°17'43.6	

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COAST AND GEODETIC SURVEY
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HORIZONTAL CONTROL DATA

by the
Coast and Geodetic Survey
NORTH AMERICAN 1927 DATUM

QUAD 331122 STATION 1073
ARIZ
LATITUDE 33°00' TO 33°30'
LONGITUDE 112°00' TO 112°30'
DIAGRAM NI 12-7 PHOENIX

Power plant west of Phoenix, chimney (Maricopa County, E. B. Latham,
1934).

RECOVERY NOTE, TRIANGULATION STATION

Power plant west of Phoenix, chimney (Maricopa County, Arizona, E. B. Latham, 1934; 1941).—This intersection position is tall white concrete stack at power plant of Central Arizona Light & Power Company, situated about 4.5 miles west of business section of Phoenix. Plant may be reached by several highways. Chimney is conspicuous landmark and is about 100 feet north of elevated steel tank.

Detailed statement as to the fitness of the original description:

Good point, excellent condition in summer of 1941.
Not described in Spl. Pub.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 538
(Rev. Feb. 1945)

RECOVERY NOTE, INTERSECTION STATION

Power Plant West of Phoenix, Chimney (Maricopa County, Arizona, E. B. Latham, 1934; 1941).—This intersection position is tall white concrete stack at power plant of Central Arizona Light & Power Company, situated about 4.5 miles west of business section of Phoenix. Plant may be reached by several highways. Chimney is conspicuous landmark and is about 100 feet north of elevated steel tank.

Detailed statement as to the fitness of the original description:

About 4 miles west of Phoenix, on the 16th Lateral Road, 0.5 mile south of West Van Buren Street, 50 feet west of power plant, a metal stack about 150 feet high and painted white. Center of top of stack was point observed on.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 538
(Rev. Feb. 1945)

RECOVERY NOTE, TRIANGULATION STATION

Power Plant West of Phoenix, Chimney (Maricopa County, Arizona, E. B. Latham, 1934; 1941).—This intersection position is tall white concrete stack at power plant of Central Arizona Light & Power Company, situated about 4.5 miles west of business section of Phoenix. Plant may be reached by several highways. Chimney is conspicuous landmark and is about 100 feet north of elevated steel tank.

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

The station was recovered in good condition. Description adequate.

RECOVERY NOTE, TRIANGULATION STATION

Power Plant West of Phoenix, Chimney (Maricopa County, Arizona, E. B. Latham, 1934; 1941).—This intersection position is tall white concrete stack at power plant of Central Arizona Light & Power Company, situated about 4.5 miles west of business section of Phoenix. Plant may be reached by several highways. Chimney is conspicuous landmark and is about 100 feet north of elevated steel tank.

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

Station was found in good condition. At this time the chimney is painted a green color.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: POWER PLANT WEST OF PHOENIX CHIMNEY YEAR: 1934
STATE: Ariz LOCALITY: Phoenix to Parker
Third-Order Triangulation SOURCE: G-8347 FIELD SKETCH: ARIZ 26

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH & COR. ANG. ANGLE	MARK
STATE: Ariz ZONE: C CODE: 0202	x 427,509.36 y 888,840.02	- 0 07 51	
STATE: ZONE: CODE:	x y		

GEODETTIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	NORTH WEST		METERS FEET
	33°26'35"559			381
	112°09'15"518			1,250

TO STATION	GEODETTIC AZIMUTH (From south)	DISTANCE	
		LOGARITHM (Meters)	METERS
Computed from stations GLENDALE 2, CAMELS BACK 2, PHOENIX BASELINE WEST			

170 ARIZONA

JULY 1966
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 COAST AND GEODETIC SURVEY
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33° 15'
 112° 15'

HORIZONTAL CONTROL DATA

by the
 Coast and Geodetic Survey
 NORTH AMERICAN 1927 DATUM

QUAD 331122 STATION 1074,1075
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: PHOENIX WESTERN COTTON PROD CO WATER TANK YEAR: 1962, 1963

STATE: ARIZONA LOCALITY: Arizona Hwy. Survey, Papago Freeway
 (Ehrenberg to Phoenix to Casa Grande)
 Third-Order Triangulation SOURCE: G-12917 FIELD SKETCH: Ariz. 49-II, 50
 G-13304

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (SICR S&I ANGLE)	MARK
STATE: ARIZ. ZONE: C CODE: 0202	X 423,474.46 Y 886,976.39	- 0 08 18	
STATE: ZONE: CODE:	X Y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION METERS FEET
	LATITUDE:	LONGITUDE:		
	33° 26' 17".026 NORTH	112° 10' 03".084 WEST		
TO STATION		GEODETIC AZIMUTH (From south)	DISTANCE (Meters)	
STATION COMPUTED FROM: HAUL, TWIN, TT ZW 9 AMS, EVANS, VAN, MACK, HOPS, EATON, COOL, LOWER				

U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: Phoenix, Western Cotton Products Co., Water Tank

CHIEF OF PARTY: C. A. Annis YEAR: 1962 STATE: Arizona COUNTY: Maricopa

Description, including sketch of object: Station is located at the southwest part of Phoenix, approximately 200 yards northeast of the junction of West Buckeye Road and 51 st. Avenue. Station has 4 legs is painted silver and is approximately 140 feet high. The point intersected was the top and center of tank.

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

NAME OF STATION: Phoenix, Western Products Co., Water Tank 1962

ESTABLISHED BY: C. A. Annis YEAR: 1962 STATE: Arizona

RECOVERED BY: C. A. Annis YEAR: 1963 COUNTY: Maricopa

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

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: GOODYEAR GOODYEAR AIRCRAFT CORP WATER TANK YEAR: 1962

STATE: Arizona LOCALITY: Arizona Hwy. Survey
 Ehrenberg to Phoenix to Casa Grande
 Third-Order Triangulation SOURCE: G-12917 FIELD SKETCH: Ariz. 49-II

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (SICR S&I ANGLE)	MARK
STATE: Ariz. ZONE: C CODE: 0202	X 364,345.65 Y 884,884.28	-0 14 42	
STATE: ZONE: CODE:	X Y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION METERS FEET
	LATITUDE:	LONGITUDE:		
	33° 25' 54".369 NORTH	112° 21' 40".747 WEST		
TO STATION		GEODETIC AZIMUTH (From south)	DISTANCE (Meters)	
CANAL		THIRD-ORDER		
BRADLEY		{ 16° 31' 22".3	4,295.99	
GIN		{ 36 08 20.5	8,045.62	
KING		{ 65 07 57.3	4,864.06	
COTTON		{ 83 52 14.2	10,903.45	
PUMP		{ 95 11 10.8	4,553.49	
TT ZW 9 AMS		{ 290 36 12.8	8,024.50	
		{ 319 21 27.0	7,982.53	

U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: Goodyear, Goodyear Aircraft Corp., Water Tank

CHIEF OF PARTY: C. A. Annis YEAR: 1962 STATE: Arizona COUNTY: Maricopa

Description, including sketch of object: Station is located in the west edge of the town of Goodyear, 0.25 mile south of Western Ave., 0.2 mile west of Litchfield Rd., and west of the main buildings of the Goodyear Aircraft Corp. The station has 4 legs and is painted white with GOODYEAR printed on it, and is approximately 100 feet high. The point intersected was the top and center of tank.

FILE COPY

Described by: *[Signature]*

JAN 1967

JULY 1966
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HORIZONTAL CONTROL DATA

by the
 Coast and Geodetic Survey
 NORTH AMERICAN 1927 DATUM

ARIZONA 170
 QUAD 331122 STATION 1076,1077
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: LITCHFIELD PARK NAF CONTROL TOWER YEAR: 1962
 STATE: Arizona LOCALITY: Arizona Hwy. Survey
 Ehrenberg to Phoenix to Casa Grande
 Third-Order Triangulation SOURCE: G-12917 FIELD SKETCH: Ariz. 49-11

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH HOR & V ANGLE	MARK
STATE: ARIZ. ZONE: C CODE: 0202	x 362,287.90 y 883,071.92	-0 14 55	
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION METERS FEET
	LATITUDE: 33°25'36".350	NORTH WEST		
	LONGITUDE: 112 22 04.936	WEST		
TO STATION		GEODETIC AZIMUTH (From south)	DISTANCE (Meters)	
		THIRD-ORDER		
CANAL		{ 9°30'18".7	3,613.11	
BRADLEY		{ 34 43 50.3	7,230.96	
GIN		{ 68 31 16.4	4,070.81	
KING		{ 86 35 03.9	10,234.38	
COTTON		{ 103 53 03.0	4,027.71	
TT ZW9 AMS		{ 313 21 59.1	8,012.02	

U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: Litchfield Park N.A.P., Control Tower
 CHIEF OF PARTY: C.A. Annis YEAR: 1962 STATE: Arizona COUNTY: Maricopa

Description, including sketch of object:

Station is about 2 miles west-southwest of Avondale, about 1 mile southwest of Goodyear and in Litchfield Park Air Base.
 The station is on the west side of Aircraft Hangers, in a glassed in control station atop a square concrete foundation which is painted red and white and is approximately 65 feet high.
 Point intersected was top and center of control tower.

Described by *Robert P. Kowalsky*
 C. 24313

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: LITCHFIELD PARK NAF BEACON YEAR: 1962
 STATE: Arizona LOCALITY: Arizona Hwy. Survey
 Ehrenberg to Phoenix to Casa Grande
 Third-Order Triangulation SOURCE: G-12917 FIELD SKETCH: Ariz. 49-II

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH HOR & V ANGLE	MARK
STATE: ARIZ. ZONE: C CODE: 0202	x 363,031.46 y 883,518.85	-0 14 50	
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION METERS FEET
	LATITUDE: 33°25'40".803	NORTH WEST		
	LONGITUDE: 112 21 56.185	WEST		
TO STATION		GEODETIC AZIMUTH (From south)	DISTANCE (Meters)	
		THIRD-ORDER		
CANAL		{ 12°32'06".4	3,791.07	
BRADLEY		{ 35 33 25.2	7,473.30	
GIN		{ 67 55 42.5	4,331.65	
KING		{ 85 54 35.3	10,468.94	
COTTON		{ 101 20 19.0	4,218.40	
SHOT		{ 325 19 25.4	4,246.60	

U.S. DEPARTMENT OF COMMERCE - COAST AND GEODETIC SURVEY

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: Litchfield Park N.A.P., Beacon
 CHIEF OF PARTY: C.A. Annis YEAR: 1962 STATE: Arizona COUNTY: Maricopa

Description, including sketch of object:

Station is about 2 miles west-southwest of Avondale, about 3/4 mile southwest of Goodyear and in Litchfield Park Air Base.
 Station is a beacon on east end of roof of aircraft hanger and the total height of beacon light above the ground is approximately 75 feet.
 Point intersected was center of light.

Described by *Robert P. Kowalsky*
 C. 24313

FILE COPY

JAN 1967

170

ARIZONA

JULY 1966

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HORIZONTAL CONTROL DATA

by the
Coast and Geodetic Survey
NORTH AMERICAN 1927 DATUM

QUAD 331122 STATION 1078
ARIZ
LATITUDE 33°00' TO 33°30'
LONGITUDE 112°00' TO 112°30'
DIAGRAM NT 12-7 PHOENIX

33°15'
112°15'

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: ELRAZ STATE: Arizona COUNTY: Maricopa
CHIEF OF PARTY: D.J. Florwick YEAR: 1965 DESCRIBED BY: R.M.M.

NOTE	HEIGHT OF TELESCOPE ABOVE STATION MARK	METERS	HEIGHT OF LIGHT ABOVE STATION MARK	METERS	
	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION				
	OBJECT	BEARING	DISTANCE		DIRECTION
			FEET	METERS	
	TT ZW9 (AMS) 1962				00 00 00.0
	Litchfield Park UHF Antenna	SE	(0.6 mile)		07 18 26.2

Detailed description:

The station is located 1.4 miles northeast of the southwest end of the runway, 0.9 mile northwest of the main gate, 0.5 mile west of the northeast end of the runway, at the Litchfield Park U.S. Naval Air Facility.

To reach the station from the main gate at the Litchfield Park U.S. Naval Air Facility, go northwest on Central Avenue for 0.15 mile to the intersection of 2nd Street. Turn right and go northeast on 2nd Street for 0.15 mile to the intersection of A Avenue. Continue straight ahead following a gravelled road which parallels the security fence for 1.15 miles to the station as described in a fence corner.

The station mark, a punch mark on a plain bronze disk stamped ELRAZ 1965, set in the top of a 10-inch round concrete monument which projects 1 inch above the surface of the ground. It is 8 feet east of the security fence, 7 feet south of a fence which encloses an electric transformer and 1.8 feet southeast of a power pole with a witness sign nailed to it. The mark is set directly under the center of a screw which is located in the closed end of a small triangular shaped metal box which is mounted on the power pole.

* Refers to notes in manuals of triangulation and state publications of triangulation. † Direction-angle measured clockwise, referred to initial station.
‡ To nearest meter only, when no trigonometric leveling is being done.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: ELRAZ STATE: ARIZONA YEAR: 1965 FIRST -ORDER
LOCALITY: LITCHFIELD PARK
SOURCE: G-13620 FIELD SKETCH: ARIZ. 54

GEODETIC LATITUDE:	33 26 01.52064	ELEVATION:	BENCH MARK	METERS
GEODETIC LONGITUDE:	112 22 28.91506			FEET

STATE COORDINATES (Ft)				
STATE & ZONE	CODE	X	Y	θ (OR Δ α) ANGLE
ARIZ. C	202	360,266.85	885,624.78	- 0 15 08

TO STATION OR OBJECT	GEODETIC AZIMUTH (From mark)	PLANE AZIMUTH (From mark)	CODE
TT ZW9 AMS	314 14 39.8	314 29 48	202

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HORIZONTAL CONTROL DATA

by the
Coast and Geodetic Survey
NORTH AMERICAN 1927 DATUM

ARIZONA 170

QUAD 331122 STATION 1079
ARIZ
LATITUDE 33°00' TO 33°30'
LONGITUDE 112°00' TO 112°30'
DIAGRAM NI 12-7 PHOENIX

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 635 b

DESCRIPTION OF TRIANGULATION INTERSECTION STATION

NAME OF STATION: Litchfield Park NAP, UHF Antenna

CHIEF OF PARTY: D.J. Florwick YEAR: 1965 STATE: Arizona COUNTY: Maricopa

Description, including sketch of object: The station is located on the control tower at the Litchfield Naval Air Facility. It is a steel pole mounted at the south corner of the tower with a cylindrical can at the top that is painted gray. It is the tallest structure on the tower. Point observed was the center of the can.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: LITCHFIELD PARK NAP UHF ANTENNA

YEAR: 1965

STATE: Arizona

LOCALITY: Litchfield Park

Third -order Triangulation SOURCE: G-13620

FIELD SKETCH: Ariz. 54

33° 15'
112° 15'

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH (NORMAL ANGLE)	MARK
STATE: Ariz. ZONE: C CODE: 202	x 362,285.50 y 883,059.16	- 0 14 55	
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:	NORTH WEST	METERS FEET
	33° 25' 36.2232	112 22 04.9633		
TO STATION			GEODETIC AZIMUTH (From south)	DISTANCE (Meters)
Station computed from TT ZW 9 AMS, BRADLEY,			LITCH, ELRAZ	

Described by K.H.A. Ly

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JAN 1967

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ARIZONA

JULY 1966

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COAST AND GEODETIC SURVEY
WASHINGTON D.C.

33015'
112015'

HORIZONTAL CONTROL DATA

by the
Coast and Geodetic Survey
NORTH AMERICAN 1927 DATUM

QUAD 331122 STATION 1080
ARIZ
LATITUDE 33°00' TO 33°30'
LONGITUDE 112°00' TO 112°30'
DIAGRAM NI 12-7 PHOENIX

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: LITCH STATE: Arizona COUNTY: Maricopa
CHIEF OF PARTY: D.J. Florwick YEAR: 1965 DESCRIBED BY: J.E.S.

NOTE	HEIGHT OF TELESCOPE ABOVE STATION MARK	SURFACE-STATION MARK, UNDERGROUND-STATION MARK	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION	HEIGHT OF LIGHT ABOVE STATION MARK		DIRECTION	
				3 METERS	3 METERS	FEET	METERS
1b							
7b							
		OBJECT	BEARING				
11b		TT ZW9 (AMS) 1962	S	71.000	21.639	00 00 00.00	
11b		Reference Mark No. 2		50.867	15.504	56 41 16	
		Reference Mark No. 1	E	89.561	27.299	323 34 09	
		R.M. 1 to R.M. 2					

The station is 1.3 miles southwest of the main gate at Litchfield Park U.S. Naval Air Facility, 0.5 mile northwest of U.S. Highway 80, 0.35 mile north of the southwest end of the runway, 0.2 mile northwest of the center of the runway and on the property of the Litchfield Park U.S. Naval Air Facility.

To reach the station from the Main Gate at the Litchfield Park U.S. Naval Air Facility, go northwest on Central Avenue for 0.15 mile to the intersection of 2nd Street. Turn right, northeast, on 2nd Street for 0.15 mile to the intersection of A Avenue. Continue straight ahead following a gravelled road which parallels the security fence for 1.75 miles to a yellow guard tower. Continue southwest and west on a paved road that parallels the security fence for 0.65 mile to a point just before a curve in the road. Turn left, south, across a bladed area for 0.05 mile to the station.

The station mark is a standard disk, stamped LITCH 1965, set in the top of a 12-inch round monument that is flush with the surface of the ground. It is 214 feet south of a security fence and 142 feet east of the center of an oiled road.

Reference mark No. 1 is a standard disk, stamped LITCH NO 1 1965, set in the top of a 12-inch round concrete monument that projects 4 inches above the surface of the ground. It is 214 feet south of a security fence and 3.6 feet west of a metal witness post and sign.

Reference mark No. 2 is a standard disk, stamped LITCH NO 2 1965, set in the top of a 12-inch round concrete monument that projects 4 inches above the surface of the ground. It is 142 feet east of the center of an oiled road and 2.6 feet north of a metal witness post and sign.

*Refers to notes in manuals of triangulation and state publications of triangulation. †Direction-angle measured clockwise, referred to signal station.
‡To nearest meter only, when no trigonometric leveling is being done.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: LITCH STATE: ARIZONA YEAR: 1965 FIRST ORDER
LOCALITY: LITCHFIELD PARK SOURCE: G-13620 FIELD SKETCH: ARIZ. 54

GEODETIC LATITUDE:	33 25 13.28204	ELEVATION:	BENCH	METERS
GEODETIC LONGITUDE:	112 22 56.40188		MARK	FEET

STATE COORDINATES (Fm)				
STATE & ZONE	CODE	X	Y	θ (OR Δ α) ANGLE
ARIZ. C	202	357,915.70	880,759.79	- 0 15 23

TO STATION OR OBJECT	GEODETIC AZIMUTH (From north)	PLANE AZIMUTH (From north)	CODE
TT ZW9 AMS	303 48 04.1	304 03 27	202

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HORIZONTAL CONTROL DATA

by the
 Coast and Geodetic Survey
 NORTH AMERICAN 1927 DATUM

ARIZONA 170
 QUAD 331122 STATION 1083
 ARIZ 1083
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

Brown (Maricopa County, E. B. Latham, 1884; 1886).—About 5¼ miles west-southwest of the village of Litchfield, 7¼ miles north-northeast of Liberty, 1.1 miles east of the main canal of the Maricopa County Municipal Water Conservation District No. 1, 1 mile south of the county road west from Litchfield, 0.4 mile west of T-road intersection at section corner, 50 feet north of lateral No. 15 of district No. 1 and 14.5 feet south of the center of the section line road. Marked by a standard bronze disk set in top of a concrete post, as described in note 1a. Reference mark No. 1, a standard bronze reference disk, note 11a, is 18.672 meters (44.86 feet) from station in azimuth 230°51'. Reference mark No. 2, a standard bronze reference disk, note 11a, is 11.122 meters (33.49 feet) from station in azimuth 188°38'. The original azimuth mark set in 1884 having been destroyed, a new one was set in 1886. It is a standard bronze disk, note 11a, in the southwest angle of the intersection of the county road west from Litchfield and a section line road 100 feet south of the county road, 90 feet west of the section road, and about 1 mile from station in azimuth 208°18'17".

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: BROWN
 STATE: Ariz LOCALITY: Yuma to Stewart Dam
 First-order Triangulation SOURCE: G-3022 FIELD SKETCH: ARIZ 8-II
 YEAR: 1934

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH @ IONOSP. ANGLE	MARK
STATE: Ariz ZONE: C CODE: 0202	x 337,059.69 y 902,261.18	269°55'02" - 0 17 41 \	AZIMUTH MARK
STATE: ZONE: CODE:	x y		

DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY FORM 200

RECOVERY NOTE, TRIANGULATION STATION

NAME OF STATION: BROWN 1934 STATE: Arizona COUNTY: Maricopa
 ESTABLISHED BY: E.B.L. YEAR: 1934 LOCALITY: Litchfield Park
 RECOVERED BY: D.H.K. YEAR: 1947

Detailed statement as to the fitness of the original description:

The surface station mark and azimuth mark has been destroyed. A new azimuth mark and a reference mark No.3 was set and the underground station mark was used.
 The station is located about 7 miles northwest of Litchfield and about 5.5 miles west-southwest of Litchfield Park in the right of way of a section line road. The station mark is bronze disk as described in note 7a, set 20 inches below ground level, 8 paces north of center line of road, 12 paces south of a fence line. It is stamped, "BROWN 1934".
 Reference mark No.1 is a bronze disk as described in note 11a, set flush 8 inches south of a fence line, is 4 feet higher than the station mark and is stamped, "BROWN NO 1 1934".
 Reference mark No.2 is a bronze disk as described in note 11a, set flush 18 inches south of a fence line, is 4 feet higher than the station mark and is stamped, "BROWN NO 2 1934".
 Reference mark No.3 is a bronze disk as described in note 11a, projects 4 inches, is 18 inches south of a fence line, 4 feet higher than the station mark and is stamped, "BROWN NO 3 1947".
 The azimuth mark is a bronze disk set in the concrete base of a pump, 13 paces north of the center line of road. It is stamped, "BROWN 1947". Mark is reached from station by going west on road 0.6 mile to mark on right.
 To reach the station from Litchfield Park; go west 5.0 mile to crossroad at the floating W ranch; turn left, go 1.0 mile to road right; turn right, go 0.4 mile to station.

OBJECT	HOR. DISTANCE	DIRECTION
LITCHFIELD 1935		
Azi.Mk. 1947 W	0.6 Mi.	0 00 00
R.M.No.2 1934 N.W.	11.119m	209 29 14.0
R.M.No.3 1947 N	8.337m	257 14 14
R.M.No.1 1934 NE	13.665m	301 35 49
		349 30 51

Observations made from a 1.2 m tripod.

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

NAME OF STATION: BROWN
 ESTABLISHED BY: E.B.L. YEAR: 1934 STATE: Arizona
 RECOVERED BY: U.S.G.S. YEAR: 1956 COUNTY: Maricopa

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

Station has either been destroyed or is buried.
 Three reference marks were found uprooted and laying on the ground.

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION METERS FEET
	LATITUDE:	LONGITUDE:		
	33°28'45".027	112 27 03.770		
TO STATION		GEODETIC AZIMUTH (From south)	DISTANCE	
AZIMUTH MARK		THIRD-ORDER 269°37'21".1	LOGARITHM (Meters)	METERS

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JULY 1966

ARIZONA

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33°15'
112°15'

HORIZONTAL CONTROL DATA

by the
Coast and Geodetic Survey
NORTH AMERICAN 1927 DATUM

QUAD 331122 STATION 1084
ARIZ
LATITUDE 33°00' TO 33°30'
LONGITUDE 112°00' TO 112°30'
DIAGRAM NI 12-7 PHOENIX

Cashion (Maricopa County, E. B. Latham, 1935).—About 13.0 miles west of Phoenix and 0.3 mile east of Cashion; about 30 feet north of U. S. Highway No. 80, midway between it and tracks of the Southern Pacific Railroad and about 150 paces west of railroad signals 8833 and 8834. Marked by standard bronze disks as described in notes 1a and 7a. Reference mark No. 1, a standard bronze reference disk, note 11a, is 18.780 meters (61.61 feet) from station in azimuth 90°44'. Reference mark No. 2, a standard bronze reference disk, note 11a, is 17.078 meters (56.03 feet) from station in azimuth 8°48'. Azimuth mark (reference mark No. 3), a standard bronze disk, note 11a, is located at Cashion, about 0.28 mile west from the station, on the south side of U. S. Highway No. 80 and in the fence line about 10 feet from the edge of the pavement in azimuth 88°13'22".

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

R

NAME OF STATION: CASHION
ESTABLISHED BY: E.B.L. Year: 1935 STATE: Arizona
RECOVERED BY: U.S.G.S. Year: 1956 COUNTY: Maricopa

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

Station has probably been destroyed by road widening.

* 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: CASHION YEAR: 1935
STATE: Ariz LOCALITY: Yuma to Stewart Dam
Second-order Triangulation SOURCE: G-3022 FIELD SKETCH: ARIZ 8-II

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH & IONOSPHERIC ANGLE	MARK	
STATE: Ariz ZONE: C CODE: 0202	X 385,906.63 Y 886,162.71	88°25'44" - 0 12 22	AZIMUTH MARK (RM NO 3)	
STATE: ZONE: CODE:	X Y			
GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE: LONGITUDE:	33°26'07"858 112 17 26.383	NORTH WEST	METERS FEET
TO STATION	GEODETIC AZIMUTH (From south)	DISTANCE		
		LOGARITHM (Meters)	METERS	
AZIMUTH MARK (RM NO 3)	THIRD-ORDER 88°13'22"2			

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JAN 1967

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 170
QUAD 3311E-STATION 1089
ARIZ
LATITUDE 33°00' TO 33°30'
LONGITUDE 112°00' TO 112°30'
DIAGRAM NI 12-7 PHOENIX

Lane (Maricopa County, E. B. Latham, 1834).—On the west side of a lane 0.1 mile south of U. S. Highway No. 80 and 4 feet east of the fence line running north and south. To reach from Buckeye: Follow the highway east for about 6.5 miles to the Blue Bonnet sign and turn right, going 0.1 mile to the station. Marked by standard bronze disks as described in notes 1a and 7a. Reference mark No. 1, a standard bronze reference disk, note 11a, is 15.730 meters (51.61 feet) from station in azimuth 94°59'. Reference mark No. 2, a standard bronze reference disk, note 11a, is 18.700 meters (61.67 feet) from station in azimuth 262°27'. Azimuth mark (reference mark No. 3), a standard bronze disk, note 11a, is on the north side of Highway No. 80 just at the head of the lane and about 0.15 mile from station in azimuth 100°37'32".

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

R

NAME OF STATION: LANE
ESTABLISHED BY: EBL
RECOVERED BY: U.S.G.S.
YEAR: 1934 STATE: Arizona
YEAR: 1957 COUNTY: Maricopa

Detailed statement as to the status of the original description, including marks found, stampings, changes made, and other pertinent facts:
Station has evidently been buried due to farm improvements.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: LANE
STATE: ARIZ LOCALITY: YUMA to Stewart Dam
Second-ORDER Triangulation SOURCE: G-3022
YEAR: 1934
FIELD SKETCH: ARIZ 8-II

33°15'
112°15'

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH & INTERIOR ANGLE	MARK
STATE: ARIZ ZONE: C CODE: 0202	x 330,160.13 y 864,686.97	100°55'53" - 0 18 22	AZIMUTH MARK (RM NO 3)
STATE: ZONE: CODE:	x y		

GEODETIC DATA	PORTION		SECONDS IN METERS	ELEVATION
	LATITUDE:	LONGITUDE:	NORTH WEST	METERS FEET
	33°22'32".906	112 28 22.854		

TO STATION	GEODETIC AZIMUTH (From south)	DISTANCE	
		LOGARITHM (Meters)	METERS
AZIMUTH MARK (RM NO 3)	THIRD-ORDER 100°37'31".5		

* 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.

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ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

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HORIZONTAL CONTROL DATA

by the
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NORTH AMERICAN 1927 DATUM

ARIZONA

QUAD 331122 STATION 1100
ARIZ
LATITUDE 33°00' TO 33°30'
LONGITUDE 112°00' TO 112°30'
DIAGRAM NI 12-7 PHOENIX

33° 15'
112° 15'

Section (Maricopa County, J. Bowie, Jr., 1936).—About 8½ miles north by west of the railroad station at Mobile and 7¼ miles southeast of the Rainbow Valley store, on the low brush-covered flat lying west of the Estrella Mountains and north of the Southern Pacific Railroad, 46 feet east of the center of the section road along the line between ranges 1 E. and 1 W. Station and reference marks are standard bronze disks welded to tops of 3-foot shanks, set in concrete. Reference mark No. 1 is about 100 feet east of the center of the section road and 21.402 meters (71.20 feet) from station in azimuth 323°09'. Reference mark No. 2 is 25 feet east of the center of the section road, 13.043 meters (42.79 feet) from station in azimuth 30°06'. T. 3 S., R. 1 W., sec. 12, southeast corner is 27.952 meters (91.71 feet) from station in azimuth 24°44'53". The azimuth mark, a standard bronze disk, note 11a, is 25 feet north of the center of the dim section line road between sections 12 and 13, T. 3 S., R. 1 W., about 300 yards south of an abandoned shack, 100 feet west of a dim trail leading north, and 0.35 mile from station in azimuth 87°59'42".

RECOVERY OF SURVEY STATION

AREA: MARICOPA COUNTY ARIZONA	DESIGNATION OF STA: Δ SECTION	TYPE OF MARK: DISK
QUAD: 331122 STA. 1100 MOBILE	STAMPING ON MARK: SECTION, 1936	CONDITION: GOOD
TOWN: MOBILE, ARIZONA	AGENCY (CAST IN MARK): USCGCS	POS. BY (AGENCY): USCGCS

ADDITIONS AND/OR REVISIONS TO DESCRIPTION OR SKETCH:

STA AND RM'S RECOVERED IN GOOD
CONDITION
AZ MK FOUND IN GOOD CONDITION BUT
LINE OF SIGHT BETWEEN STA. AND
AZ MK OBSTRUCTED BY TREES.
DIST. AND DIRECTION TO RM'S MEASURED.

61821-100

RECOVERED BY: H. G. KING
AGENCY: AMS
DATE: JAN 1968

RETURN TO ARMY MAP SERVICE, DEPARTMENT OF GEODESY, WASHINGTON 25, D. C.

AMS FORM 4401-3 REPLACES AND FORM 3-6226, 3 APR 61, WHICH IS OBSOLETE

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: SECTION
STATE: ARIZONA YEAR: 1936 SECOND ORDER
LOCALITY: PHOENIX TO CASA GRANDE
SOURCE: G-13957 FIELD SKETCH: ARIZ 14

GEODETIC LATITUDE:	33 10 28.00681	ELEVATION:	METERS
GEODETIC LONGITUDE:	112 19 19.18406		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ (OR Δ or) ANGLE
ARIZ. C.	0202	381,073.40	791,193.36	- 0 12 46

TO STATION OR OBJECT	GEODETIC AZIMUTH (From mark)	PLANE AZIMUTH (From mark)	CODE
AZIMUTH MARK	87 59 42.2	88 12 28	0202
THESE DATA OBTAINED FROM READJUSTMENT OF 12-67			

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: T3S R1W SEC 12 SE CORNER
STATE: ARIZONA YEAR: 1936 SECOND ORDER
LOCALITY: PHOENIX TO CASA GRANDE
SOURCE: G-13957 FIELD SKETCH: ARIZ 14

NO OBSERVATIONAL CHECK ON THIS POSITION

GEODETIC LATITUDE:	33 10 27.18282	ELEVATION:	METERS
GEODETIC LONGITUDE:	112 18 19.63968		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	θ (OR Δ or) ANGLE
ARIZ. C.	0202	381,039.71	791,110.23	- 0 12 46

TO STATION OR OBJECT	GEODETIC AZIMUTH (From mark)	PLANE AZIMUTH (From mark)	CODE
POSITION DETERMINED BY TRAVERSE FROM STATION SECTION.			
THESE DATA OBTAINED FROM READJUSTMENT OF 12-67.			

T. 3 S., R. 1 W., sec. 12, southeast corner (Pima County, J. Bowie, Jr., 1936).—
See description of Section. USCOMM—ESSA—ASHEVILLE

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ARIZONA

JULY 1966

U. S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

REVISED JUNE 1969

33° 15'
112° 15'

HORIZONTAL CONTROL DATA

by the
Coast and Geodetic Survey
NORTH AMERICAN 1927 DATUM

QUAD 331122 STATION 1101
ARIZ
LATITUDE 33°00' TO 33°30'
LONGITUDE 112°00' TO 112°30'
DIAGRAM NI 12-7 PHOENIX

Spur (Maricopa County, J. Bowie, Jr., 1030).—About 4½ miles east and 2¼ miles north of Rainbow Valley grocery store, in sec. 2, T. 2 S., R. 1 W., on the middle one of three peaks on a spur extending west from the Sierra Estrella Mountains. This peak appears to be very sharp and steep from the northwest or the southeast. Marked by a standard bronze disk as described in note 2. Reference mark No. 1, a standard bronze reference disk as described in note 2. Reference mark No. 1, a standard bronze reference disk, note 12a, is 5.595 meters (18.36 feet) from station in azimuth 237°54'. Reference mark No. 2, a standard bronze reference disk, note 12a, is 6.588 meters (21.61 feet) from station in azimuth 303°49'. The azimuth mark, a standard bronze disk, note 12a, is on the southwest side of the canyon and flats where the canyon emerges into the flats, on a small rocky knoll at the end of a ridge and 1 mile from station in azimuth 357°41'11".

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: SPUR
STATE: ARIZONA YEAR: 1936 SECOND ORDER
LOCALITY: PAPAGO INDIAN RESERVATION
SOURCE: G-3083 FIELD SKETCH: ARIZ 14

GEODETIC LATITUDE:	33 17 17.75536	ELEVATION:	METERS
GEODETIC LONGITUDE:	112 20 00.00399		FEET

STATE COORDINATES (Feet)				
STATE & ZONE	CODE	X	Y	# OF ANGLES
ARIZ. C.	0202	372,674.34	832,636.95	- 0 13 43

TO STATION OR OBJECT	GEODETIC AZIMUTH (From mark)	PLANE AZIMUTH (From mark)	CODE
AZIMUTH MARK	357 41 11.0	357 54 54	0202

V. A. ELEV. 2968.1 FT (1956 USGS)

36-921

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HORIZONTAL CONTROL DATA

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ARIZONA

170

QUAD 331122 STATIONS 1102, 1103
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

33°15'
 112°15'

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: ESTRELLA MOUNTAINS HIGHEST SUMMIT YEAR: 1924
 STATE: Ariz LOCALITY: Maricopa-Yavapai Co. Boundary
 Third-order Triangulation SOURCE: 81625 FIELD SKETCH: ARIZ 6

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH θ FOR Δαα ANGLE	MARK
STATE: Ariz ZONE: C CODE: 0202	x 388,941.95 y 827,163.61	- 0 11 58	
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	NORTH WEST		METERS FEET
	33°16'24"200			
	112 16 48.137			

TO STATION	GEODETIC AZIMUTH (From south)	DISTANCE	
		LOGARITHM (Meters)	METERS
Computed from stations WHITETANK, BUFORD, MAZATZAI			
Estrella Mountains, highest summit (Maricopa County, W. Mussetter, 1924).—			

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: MARE YEAR: 1910
 STATE: Ariz LOCALITY: TEXAS-California Arc
 Third-order Triangulation SOURCE: G-246 FIELD SKETCH: ARIZ 3-B

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH θ FOR Δαα ANGLE	MARK
STATE: Ariz ZONE: C CODE: 0202	x 388,948.37 y 827,155.50	- 0 11 58	
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION
	LATITUDE:	NORTH WEST		METERS FEET
	33°16'24"120			1,373.9
	112 16 48.061			4,508

TO STATION	GEODETIC AZIMUTH (From south)	DISTANCE	
		LOGARITHM (Meters)	METERS
Computed from stations WHITETANK, TABLE			
Mare (Maricopa County, J. S. Hill, 1910)			

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HORIZONTAL CONTROL DATA

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QUAD 331122 STATIONS 1104, 1105
 ARIZ
 LATITUDE 33°00' TO 33°30'
 LONGITUDE 112°00' TO 112°30'
 DIAGRAM NI 12-7 PHOENIX

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: PHOENIX EAST RADIO TOWER YEAR: 1934
 STATE: Ariz LOCALITY: Yuma to Stewart Dam
 Third ORDER Triangulation SOURCE: G-3022 FIELD SKETCH: ARIZ 8-II
 (No check on this position)

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH θ IOR Δαα ANGLE	MARK
STATE: Ariz ZONE: C CODE: 0202	x 452,325 y 890,925	- 0 05 10	
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION METERS FEET
	LATITUDE:	NORTH WEST		
	33°26'56".65			
	LONGITUDE: 112 04 22.69			

TO STATION	GEODETIC AZIMUTH (From south)	DISTANCE	
		LOGARITHM (Meters)	METERS
Computed from stations GLENDALE, RIVER			

Phoenix, east radio tower (Maricopa County, E. B. Latham, 1934)

PHOENIX, EAST RADIO TOWER (Maricopa County, Ariz., E.B.L., 1934; L.W.Q., 1953) (No previous description)--The station was recovered in good condition.
 This is an intersection station.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: PHOENIX WESTWARD HO HOTEL FLAGPOLE YEAR: 1934
 STATE: Ariz LOCALITY: Yuma to Stewart Dam
 Third ORDER Triangulation SOURCE: G-3022 FIELD SKETCH: ARIZ 8-II
 (No check on this position)

GRID DATA	COORDINATES (Feet)	PLANE AZIMUTH θ IOR Δαα ANGLE	MARK
STATE: Ariz ZONE: C CODE: 0202	x 452,159 y 893,096	- 0 05 11	
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION		SECONDS IN METERS	ELEVATION METERS FEET
	LATITUDE:	NORTH WEST		
	33°27'18".13			
	LONGITUDE: 112 04 24.69			

TO STATION	GEODETIC AZIMUTH (From south)	DISTANCE	
		LOGARITHM (Meters)	METERS
Computed from stations GLENDALE, RIVER			

Phoenix, Westward Ho Hotel, flagpole (Maricopa County, E. B. Latham, 1934)

PHOENIX HOTEL, WESTWARD HO FLAGPOLE (Maricopa Co., Ariz., E.B.L., 1934; L.A.W., 1941)
 --This intersection station is prominent metal pole at top of Hotel Westward Ho, situated at northwest corner of North Central Avenue and West Fillmore Street, Phoenix. Building is about 16 stories high and is very prominent. Pole lighted with vertical light at night. Should not be confused with small flagpole several stories lower, on south cornice of building.
 Name of building is Hotel Westward Ho, and not as printed in S.P. 224. Mast is not strictly a flagpole. Flagpole is much lower. Mast is undoubtedly what was sighted on, as flagpole not visible from station GLENDALE. It is possible that mast on top was a flagpole in 1934, and vertical light added later.

PHOENIX, WESTWARD HO HOTEL, FLAGPOLE (Maricopa County, Ariz., E.B.L., 1934; L.W.Q., 1953)
 The station has been destroyed. A television antenna for station KPHO is now atop Westward HO Hotel.
 This is an intersection station.