

ORIGINAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FIELD NOTES

OF THE

DEPENDENT RESURVEY

OF A PORTION OF THE

SUBDIVISIONAL LINES,

WHICH IS IDENTICAL TO THE BOUNDARY BETWEEN THE NAVAJO INDIAN RESERVATION

AND THE GRAND CANYON NATIONAL PARK,

TOWNSHIP 32 NORTH, RANGE 6 EAST,

OF THE GILA AND SALT RIVER MERIDIAN,

IN THE STATE OF ARIZONA

EXECUTED BY

Jones Curtiss, Cadastral Surveyor

Under Special Instructions dated and approved February 10, 2009, which provided for the surveys included under Group No. 1059, and assignment instructions dated February 10, 2009.

Survey commenced May 27, 2009

Survey completed June 16, 2009

INDEX DIAGRAM

TOWNSHIP 32 NORTH RANGE 6 EAST
GILA AND SALT RIVER MERIDIAN, ARIZONA

6	5	8 4	3	2	1
7	8	7 9	10	11	12
18	17	7 16	15	14	13
19	20	6 21	22	23	24
30	29	5 28	27	26	25
31	32	4 33	34	35	36

T. 32 N., R. 6 E., Gila and Salt River Meridian, Arizona

CHAINS

The following field notes describe the dependent resurvey of a portion of the subdivisional lines, which is identical to the boundary between the Navajo Indian Reservation and the Grand Canyon National Park, Township 32 North, Range 6 East, Gila and Salt River Meridian, Arizona.

The history of surveys pertaining to this survey is as follows: Benjamin J. Kinsey surveyed a portion of the subdivisional lines (The Grand Canyon National Park Boundary) in Townships 30, 31 and 32 North, Range 6 East, in 1927. Jones Curtiss dependently resurveyed a portion of the subdivisional lines, which is identical to the boundary between the Navajo Indian Reservation and the Grand Canyon National Park, Township 31 North, Range 6 East, concurrently under this same group.

The survey was executed in accordance with the specifications as set forth in the Manual of Instructions for the Survey of the Public Lands of the United States, 1973, and the Special Instructions dated February 10, 2009, for Group Number 1059, Arizona.

The true meridian direction and length of all lines were determined by real time kinematic global positioning system observations using Trimble Navigation 5700 model receivers.

Preliminary to the resurvey, the lines of the prior surveys were retraced and search was made for all corners and other calls of record. Identified corners were remonumented in their original positions. Lost corners were reestablished and remonumented at proportionate positions based on the official record. The retracement data were thoroughly verified and only the true line field notes are given herein.

During this resurvey, monuments were recovered consisting of brass tablets or aluminum posts, set in concrete collars, established at corner positions or at points on the lines between corners on the boundary between the Navajo Indian Reservation and the Grand canyon National Park. The monuments are dated 1975. No record of their origin could be found.

Geodetic control was derived from Global Positioning System (GPS) static observations post processed by National Geodetic Survey, Online Positioning User Service (OPUS), utilizing Continuously Operating Reference Stations (CORS) CITY OF PAGE CORS ARP, Flagstaff 5 CORS ARP and NAU FLAGSTAFF CORS ARP. The NAD 83 (COR96) (EPOCH:2002) (EPOCH:2009.4350), geographic position of the corner of sections 4, 5, 32 and 33 on the south boundary is as follows:

Latitude: 36°06'28.99" N. Longitude: 111°45'44.54" W.

The mean magnetic declination is 11 1/2° E.

**Dependent Resurvey of a Portion of the Subdivisional Lines,
which is identical to the boundary between the Navajo Indian Reservation
and the Grand Canyon National Park,
T. 32 N., R. 6 E., Gila and Salt River Meridian, Arizona**

CHAINS	
	Restoring the survey executed by Benjamin J. Kinsey, in 1927
	Beginning at the cor. of secs. 4, 5, 32 and 33, on the S. bdy. of the Tp., monumented with an iron post, 2 ins. diam., with brass cap set and mkd. as described in the field notes of the dependent resurvey of a portion of the subdivisional lines, which is identical to the boundary between the Navajo Indian Reservation and Grand Canyon National Park, T. 31 N., R. 6 E., executed concurrently under this same group.
	N. 0°03' W., bet. secs. 32 and 33.
	Over broken and rugged land.
14.00	A brass tablet, 3 ins. diam., set in a concrete collar, 6 ins. square, firmly set, projecting 6 ins. above ground, with top mkd. U.S. DEPT. OF INTERIOR A34 NPS 1975.
	Cor. is located 2 lks. E. of a barbed wire fence, 4 strand, bears N. 30° W. and South.
40.03	The 1/4 sec. cor. of secs. 32 and 33, monumented with an aluminum post, 2 1/2 ins. diam., firmly set, projecting 18 ins. above ground and in a concrete collar, 6 ins. square, projecting 8 ins. above ground, in a support mound of stone, 3 ft. base, to top, of unknown record, and is accepted as the best available evidence of the orig. cor. position, with aluminum cap mkd. U.S. DEPT. OF INTERIOR T32N LS7909 S32 S33 A35 R6E NPS 1975.
	Cor. is located 2 lks. E. of a barbed wire fence, 4 strand, bears North and South.

	N. 0°01' W., beginning new measurement.
26.64	A brass tablet, 3 ins. diam., set in a concrete collar, 6 ins. square, firmly set, projecting 3 ins. above ground, with top mkd. U.S. DEPT. OF INTERIOR A36 NPS 1975, with a steel fence post set nearby.
	Cor. is located 2 lks. E. of a barbed wire fence, 4 strand, bears North and South.
39.97	The cor. of secs. 28, 29, 32 and 33, monumented with an iron post, 2 ins. diam., firmly set, projecting 16 ins. above ground, encircled with a collar of stone, with brass cap mkd. T32N R6E S29 S28 S32 S33 1927.

Dependent Resurvey of a Portion of the Subdivisional Lines,
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 T. 32 N., R. 6 E., Gila and Salt River Meridian, Arizona

CHAINS							
	<p>Add the marks 2009 to the brass cap.</p> <hr/>						
	<p>N. 0°02' W., bet. secs. 28 and 29.</p>						
	<p>Over rolling land.</p>						
9.39	<p>An aluminum post, 2 1/2 ins. diam., firmly set, projecting 11 ins. above ground and in a concrete collar, 6 ins. square, projecting 6 ins. above ground, of unknown record, with aluminum cap mkd. U.S. DEPT. OF INTERIOR A37 NPS 1975, with a steel fence post set nearby.</p>						
	<p>Cor. is located 1.5 lks. E. of a barbed wire fence, 4 strand, bears North and South.</p>						
40.00	<p>The 1/4 sec. cor. of secs. 28 and 29, monumented with an iron post, 1 in. diam., firmly set, projecting 15 ins. above ground, encircled with a collar of stone, with brass cap mkd. 1/4 S29 S28 1927.</p>						
	<p>Add the marks T32N R6E 2009 to the brass cap.</p>						
	<p>Cor. is located 2 lks. E. of a barbed wire fence, 4 strand, bears North and South.</p> <hr/>						
	<p>N. 0°01' W., beginning new measurement.</p>						
6.70	<p>A brass tablet, 3 ins. diam., set in a concrete collar, 6 ins. square, firmly set, projecting 7 ins. above ground, of unknown record, with top mkd. U.S. DEPT. OF INTERIOR A38 NPS 1975.</p>						
	<p>Cor. is located 2 lks. E. of a barbed wire fence, 4 strand, bears North and South.</p>						
40.02	<p>Point for the cor. of secs. 20, 21, 28 and 29, at proportionate dist.; there is no remaining evidence of the orig. cor.</p>						
	<p>Set a stainless steel post, 28 ins. long, 2 1/2 ins. diam., 24 ins. in the ground, encircled with a collar of stone, with brass cap mkd.</p>						
	<table style="margin-left: auto; margin-right: auto;"> <tr> <td>T 32 N</td> <td>R 6 E</td> </tr> <tr> <td>S 20</td> <td>S 21</td> </tr> <tr> <td>S 29</td> <td>S 28</td> </tr> </table>	T 32 N	R 6 E	S 20	S 21	S 29	S 28
T 32 N	R 6 E						
S 20	S 21						
S 29	S 28						
	<p style="text-align: center;">2009</p>						
	<p>Deposit a magnet, in a white plastic case, at the base of the stainless steel post.</p>						

**Dependent Resurvey of a Portion of the Subdivisional Lines,
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CHAINS							
	<p>Cor. is located 38 lks. S. of a wash, 10 ft. wide, 1 ft. deep, drains S. 70° E and 3 lks. E. of a barbed wire fence, 4 strand, bears North and South.</p> <hr/> <p>N. 0°01' W., bet. secs. 20 and 21.</p> <p>Over rolling land.</p>						
35.92	<p>An aluminum post, 2 1/2 ins. diam., firmly set, projecting 18 ins. above ground and in a concrete collar, 6 ins. square, projecting 6 ins. above ground, of unknown record, with aluminum cap mkd. U.S. DEPT. OF INTERIOR A39 NPS 1975.</p> <p>Cor. is located 2 lks. E. of a barbed wire fence, 4 strand, bears North and South.</p>						
40.02	<p>The 1/4 sec. cor. of secs. 20 and 21, monumented with an iron post, 1 in. diam., firmly set, projecting 18 ins. above ground, encircled with a collar of stone, with brass cap mkd. 1/4 S20 S21 1927.</p> <p>Add the marks T32N R6E 2009 to the brass cap.</p> <p>Cor. is located 2.5 lks. E. of a barbed wire fence, 4 strand, bears North and South.</p> <hr/> <p>N. 0°05' W., beginning new measurement.</p>						
39.99	<p>The cor. of secs. 16, 17, 20 and 21, determined on the E. side of a embedded mound of stone, 3 ft. base, flush with the surface of the ground, and is accepted as the best available evidence of the position of the orig. cor. position.</p> <p>At the corner point</p> <p>Set a stainless steel post, 28 ins. long, 2 1/2 ins. diam., 24 ins. in the ground, with brass cap mkd.</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="padding: 0 10px;">T 32 N</td> <td style="padding: 0 10px;">R 6 E</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 0 5px;">S 17</td> <td style="padding: 0 5px;">S 16</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 0 5px;">S 20</td> <td style="padding: 0 5px;">S 21</td> </tr> </table> <p style="text-align: center;">2009</p> <p>Deposit a magnet, in a white plastic case, at the base of the stainless steel post.</p> <p>Rebuild the mound of stone, 2 ft. base, 2 ft. high, W. of cor.</p>	T 32 N	R 6 E	S 17	S 16	S 20	S 21
T 32 N	R 6 E						
S 17	S 16						
S 20	S 21						

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CHAINS

Cor. is located 2 lks. E. of a barbed wire fence, 4 strand,
 bears North and South.

N. 0°01' W., bet. secs. 16 and 17.

Over rolling land.

39.99 The 1/4 sec. cor. of secs. 16 and 17, monumented with an iron
 post, 1 in. diam., firmly set, projecting 28 ins. above ground,
 in a supporting mound of stone, 2 ft. base, 1 1/2 ft. high, with
 brass cap mkd. 1/4 S17 S16 1927.

Add the marks T32N R6E 2009 to the brass cap.

Cor. is located 2 lks. E. of a barbed wire fence, 4 strand,
 bears North and South.

N. 0°03' W., beginning new measurement.

40.02 The cor. of secs. 8, 9, 16 and 17, monumented with a sandstone,
 13 x 10 x 4 ins., firmly set, projecting 10 ins. above ground,
 in a embedded mound of stone, 3 ft. base, flush with the surface
 of the ground, mkd. 4 grooves on the S. face and 4 grooves on
 the E. face.

At the corner point

Set a stainless steel post, 28 ins. long, 2 1/2 ins. diam.,
 21 ins. in the ground, encircled with a collar of stone, with
 brass cap mkd.

T 32 N	R 6 E
S 8	S 9
S 17	S 16

2009

Deposit a magnet, in a white plastic case, at the base of the
 stainless steel post.

Bury the sandstone alongside the stainless steel post.

Cor. is located 3 lks. E. of a barbed wire fence, 4 strand,
 bears North and South.

N. 0°02' W., bet. secs. 8 and 9.

Over rolling land.

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CHAINS

40.02 The 1/4 sec. cor. of secs. 16 and 17, monumented with an iron post, 1 in. diam., firmly set, projecting 14 ins. above ground, with brass cap mkd. 1/4 S8 S9 1927.

Add the marks T32N R6E 2009 to the brass cap.

Cor. is located 2 lks. E. of a barbed wire fence, 4 strand, bears North and South.

N. 0°03' W., beginning new measurement.

40.02 The cor. of secs. 4, 5, 8, and 9, monumented with a sandstone, 18 x 12 x 8 ins., firmly set, projecting 12 ins. above ground, mkd. 5 grooves on the S. face and 4 grooves on the E. face.

At the corner point

Set a stainless steel post, 28 ins. long, 2 1/2 ins. diam., 24 ins. in the ground, with brass cap mkd.

T	32	N	R	6	E
S	5		S	4	
S	8		S	9	

2009

Deposit a magnet, in a white plastic case, at the base of the stainless steel post.

Bury the sandstone alongside the stainless steel post.

Raise a mound of stone, 2 ft. base, 2 ft. high, W. of cor.

Cor. is located along a barbed wire fence, 4 strand, bears North and South.

N. 0°02' E., bet. secs. 4 and 5.

Over rolling land.

40.02 The 1/4 sec. cor. of secs. 4 and 5, monumented with an iron post, 1 in. diam., firmly set, projecting 28 ins. above ground, in a supporting mound of stone, 3 ft. base, 1 1/2 high, with brass cap mkd. 1/4 S5 S4 1927.

Add the marks T32N R6E 2009 to the brass cap.

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CHAINS

Cor. is located 1.5 lks. E. of a barbed wire fence, 4 strand,
 bears North and South.

N. 0°03' W., on record bearing, beginning new measurement.

3.80

The record point on the line between secs. 4 and 5, determined
 at record bearing and dist., there is no remaining evidence of
 the orig. cor.

This point now functions as a witness point.

Set a stainless steel post, 28 ins. long, 2 1/2 ins. diam.,
 22 ins. in the ground, with brass cap mkd.

WP
 T 32 N R 6 E
 S 5 | S 4

2009

Deposit a magnet, in a white plastic case, at the base of the
 stainless steel post.

Raise a mound of stone, 4 ft. base, 2 1/2 ft. high, W. of cor.

Cor. is located 10 lks. S. of the S. rim of the Little Colorado
 River canyon, bears N. 55° E. and S. 55° W., and 1.5 lks. E. of
 a barbed wire fence, 4 strand, bears North and South.

From this cor. point, a drill hole, the remaining evidence of
 USGS triangulation station SOUTH CARDENAS, 1 in. diam., 5 ins.
 deep, located on sandstone bedrock, at Cape Solitude on the E.
 rim of the Grand Canyon, bears S. 75°27' W., 184.46 chs. dist.

T. 32 N., R. 6 E., Gila and Salt River Meridian, Arizona

CHAINS

GENERAL DESCRIPTION

The area surveyed is approximately 6 miles NE of Desert View, Grand Canyon National Park, Arizona and on the boundary between the Navajo Indian Reservation and Grand Canyon National Park. The terrain is rolling and broken. The surveyed area includes a portion of the Coconino plateau lower basin and lies on a plateau between the Little Colorado River and the Colorado River. The drainage is northeast and easterly.

The elevation varies from 5800 to 6000 feet above sea level. The soil is mostly sand, sandy clay and rocky with sandstone and limestone outcrops. There is no timber, with the vegetation consisting of sagebrush, cacti, greasewood, yucca, and native grasses.

Principal access to the township is provided by Navajo Route 6149, a graded road, branching off State Route 64, two township to the south, and extending northerly into this township, along the lower basin. Cedar Mountain Road, a trail road from Desert View, Grand Canyon National Park, runs easterly to the foot of Cedar Mountain with trail roads extending northerly off of it. The area is used primarily for livestock grazing on the Navajo Reservation side. There is no mining activity in the township.

The mean magnetic declination of $11\ 1/2^\circ$ E. was derived from the United States Geological Survey computer program GEOMAGIX, utilizing the World Magnetic Model for Epoch 2005 for the dates of survey.

CERTIFICATE OF SURVEY

I, Jones Curtiss, Cadastral Surveyor, HEREBY CERTIFY upon honor, that in pursuance of special instructions bearing date of the 10th day of February, 2009, I have dependently resurveyed a portion of the subdivisional lines, which is identical to the boundary between the Navajo Indian Reservation and the Grand Canyon National Park, T. 32 N., R. 6 E., of the Gila and Salt River Meridian, in the State of Arizona, which are represented in the foregoing field notes as having been executed by me and under my direction. Said survey has been made in strict conformity with said special instructions, the Manual of Instructions for the Survey of the Public Lands of the United States, 1973, and in specific manner described in the foregoing field notes.

March 05, 2010
(Date)

Jones Curtiss
(Cadastral Surveyor)

CERTIFICATE OF APPROVAL

BUREAU OF LAND MANAGEMENT
Phoenix, Arizona

The foregoing field notes of the dependent resurvey of a portion of the subdivisional lines, which is identical to the boundary between the Navajo Indian Reservation and the Grand Canyon National Park, T. 32 N., R. 6 E., Gila and Salt River Meridian, in the State of Arizona, executed by Jones Curtiss, Cadastral Surveyor, having been critically examined and found correct, are hereby approved.

4/5/2010
(Date)

Stephen K. Hansen
(Chief Cadastral Surveyor of Arizona)

~~CERTIFICATE OF TRANSCRIPT~~

~~I CERTIFY That the foregoing transcript of the field notes of the above described surveys in T. 32 N., R. 6 E., Gila and Salt River Meridian, Arizona, is a true copy of the original field notes.~~

~~_____
(Date)~~

~~_____
(Chief Cadastral Surveyor of Arizona)~~