**4—679** (April 1933)

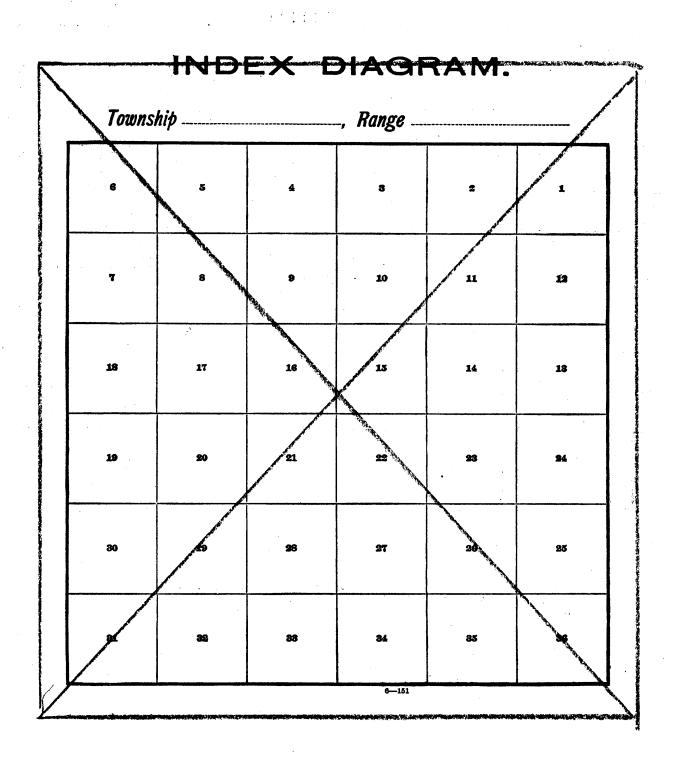
BCOK 4161

# FIELD NOTES

OFFRETRACEMENTOF

	PART OF WEST BOUNDARY
	AND OF THE SURVEY OF
	PART OF NORTH BOUNDARY
	and
	PART OF SUBDIVISION LINES of,
	and
	TRAVERSE OF RIGHT RIM OF MARBLE CANYON of
	the Colorado River thru
***********	
	TOWNSHIP 37 NORTH, RANGE 6 EAST
	Of the Gila and Salt River Meridian,
In th	e State ofArizona
	EXECUTED BY
en en	Bert E. Wakeman, Transitman (P.W.)
	and
	Elliott Pearson, Transitman (P.W.)
sup Unde	plemental plemental March 27, which provided
for t	he surveys included under Group No. $181$ , Arizona, bearing the approval of the
	missioner of the General Land Office under date of July 24, 1936
and o	assignment instructions dated November 9, 1936
Peti	acement & Survey commenced March 26 , 19 37

treement Survey completed April



## ~INDEX · DIAGRAM~

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\_\_\_\_ Lines of accepted surveys.

---- Unsurveyed lines.

Lines surveyed under this group.

Lines retraced under this group.

Areas surveyed as per accepted plats on file.

The retracement and surveys herein described were executed by Bert E. Wakeman and Elliott Pearson, Transitmen (P.W.) both using Young and Son's transit No. 8526. The instrument is equipped with Smith solar attachment and otherwise conforms to the standard requirements of the General Land Office.

### PRELIMINARY TEST OF INSTRUMENT.

- March 21, 1937: at station at the \$\frac{1}{4}\$ sec. cor. of secs. 13 and 18, T. 40 N., Rs. 7 and 8 E., G. & S.R.Meridian, Arizona, in latitude 36°52'N., longitude 111°35'W., and on the meridian determined at this station by Polaris observation on January 26 and 27, 1937, as described in field notes of survey of T. 38 N., R. 6 E., test the solar apparatus of Young and Son's transit No. 8526 as follows:
- At 9h. 00m., a.m., app.t., set off 36°52'N. on the lat. arc; 0°162'N. on the decl. arc; and determine a meridian with the solar, which agrees with the true meridian.
- At app. noon, with the lat. arc unchanged, observe the sun on the meridian, and obtain a reading of 0°19½'N. on the decl. arc, which agrees with the computed declination of the sun.
- At 3h. 00m., p.m., app.t., with the lat. arc unchanged, set off 0°22½'N. on the decl. arc, and determine a meridian with the solar, which agrees with the true meridian.
- As all of the solar observations taken during the usual hours of solar work agree within 1' with the true meridian, conclude that this instrument is in satisfactory adjustment on this date.
- Unless otherwise specified, all measurements herein recorded were made with a Lallie steel tape, 5 chs. in length, which was compared with a Lufkin standard tape and found correct. The measurements were made on the slope, the vertical angles determined by a clinometer in good adjustment, and the slope measurements properly reduced to true horizontal values for entry in the field notes.

RETRACEMENT: PART OF WEST BDY. OF T. 37 N., R. 6 E.

2.

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Chains	
	The North four miles of the West bdy. of T. 37 N., R. 6 E. were surveyed in 1926 by W.E. Hiester, U.S. Surveyor, as part of East bdy. of T. 37 N., R. 5 E., and in order to survey the traverse of the right rim of Marble Canyon thru said Tp., the portion of said Tp. bdy. bet. secs. 25 and 30 was surveyed South from cor. of secs. 19, 24, 25 and 30 to the canyon rim. This portion of the Tp. bdy. was designated as a blank line in view of the fact that no permanent corner monuments on the Tp. bdy. were established or witnessed to the south of the said section cor.
• • •	The following notes describe a retracement of that portion of the Tp. bdy. between the right rim of Marble Canyon and the cor. of secs. 19, 24, 25 and 30, for the purpose of establishing a temporary monument on the Tp. bdy. near the rim to control the survey of a traverse of said canyon rim thru sec. 30, T. 37 N., R. 6 E.
* 1	The cor. of secs: 19, 24, 25 and 30 is an iron post, 2 ins. in diam., projecting 30 ins. above ground, firmly set in ground and mound of stone, with brass cap marked as described in the official record.  Thence
	South, bet. secs. 25 and 30 (Part).
	Over gently rolling land, thru scattering undergrowth. Ascend gradually over N. slope.
13.06	(Record dist. to temp. traverse point of the traverse of canyon rim thru sec. 25) Set temp. monument for traverse of right rim of Marble Canyon thru sec. 30, T. 37 N., R. 6 E.
13.12	Right rim of Marble Canyon of the Colorado River, bears SE. and SW.
* 13.0 * 1	Land, gently rolling. Soil, rocky, 4th rate. Timber, none. Undergrowth, sage, greasebrush and cacti.

Chains	The following notes describe the survey of the west 2 miles of the N. bdy. of T. 37 N., R. 6 E., which constitutes all of said township bdy. situate West of the Colorado River, which is surveyable, owing to the canyon.
	Begin the survey at the cor. of Ts. 37 and 38 N., Rs. 5 and 6 E., established by W.E.Hiester, U.S.S., in 1926, which is an iron post 3 ins. in diam., projecting 34 ins. above ground, firmly set in ground and mound of stone, with brass cap marked as described in the official record. This cor. is on a flat topped spur, sloping NE.
	Thence
	East, bet. secs. 6 and 31.
•	Over rolling land, thru scattering undergrowth.
	Desc. 41 ft. over SE. slope.
7.60	Wash, 10 lks. wide, course NE.; asc. 36 ft. over NW. slope.
28.00	Spur, slopes N.; desc. 93 ft. over E. slope.
32.45	Wash, 10 lks. wide, course N.; asc. 83 ft. over W. slope to
39•46	(40.00 chs. minus convergency of 54 lks.) Set an iron post, 3 ft. long, 1 in. in diam., 12 ins. in the ground to bedrock, with a stone 8x12x12 ins., marked with a cross (+) deposited at base, and in a mound of stone to top, for \(\frac{1}{4}\) sec. cor., with brass cap marked
•	1 S 31 S 6
	1937
	Asc. 25 ft. over W. slope.
52.50	W. edge of top of spur, brs. N. and S. Thence across flat topped spur, sloping N.
54.45	E. edge of top of spur, brs. N. and S. Leave top of spur. Desc. 70 ft. over E. slope.
59.05	Rocky wash, 15 lks. wide, course N.; asc. 114 ft. over W. slope to
77.28	W. edge of top of ridge, brs. N. and S. Thence across nearly level top of ridge bearing N. and S.
79.46	Set an iron post, 3 ft. long, 2 ins. in diam., 26 ins. in the ground, with a stone 4x6x8 ins., mkd. with a cross (+) deposited at base, for cor. of secs. 5, 6, 31 and 32, with brass cap marked
	T38N R6E S31 S32 S 6 S 5 T37N
	1937
	stone 4 ft. base, 2 ft. high, W. of cor., 3 ft. dist.

SURVEY: PART OF NORTH BDY. OF T. 37 N., R. 6 E.

4.

	Chains	This sec. cor. is on nearly level top of ridge bearing N. and S.
		Land, rolling and level. Soil, rocky, 4th rate. Timber, none.
,	• •	Undergrowth, native weeds, sage, greasebrush and cacti.
	1 · · · · · · · · · · · · · · · · · · ·	East, bet. secs. 5 and 32.
		Over nearly level top of ridge, bearing N. and S. thru scattering undergrowth.
	5.00	E. edge of top of ridge, bears NE. and SW. Leave top of ridge. Desc. 50 ft. over SE. slope.
	18.65	Small ravine, 4 lks. wide, course SE.; asc. 56 ft. over SW. slope.
	33-45	Point of low spur, slopes S.; desc. 48 ft. over SE. slope to
	40.00	Set an iron post, 3 ft. long, 1 in. in diam., over a cross (+) 6 ins. long, cut in bedrock, and in a mound of stone to top, for ½ sec. cor., with brass cap marked
		\$\frac{32}{85}
	1	1937
		raise a mound of stone 4 ft. base, 2 ft. high, N. of cor.
		Descend 75 ft. over SE. slope.
	56.45	Rocky wash, 15 lks. wide, course NE.; asc. 61 ft. over NW. slope to
	74.83	Set an iron post, 3 ft. long, 2 ins. in diam., 8 ins. in the ground to bedrock, with a stone 12x10x8 ins., marked with a cross (+) deposited at base, and in a mound of stone to top, for witness cor. to cor. of secs. 4, 5, 32 and 33, with brass cap marked
		T38N R6E S32 S33 WC T37N
		1937
		Asc. slightly over NW. slope to
	75 <b>.</b> 00	Right or west rim of Marble Canyon of the Colorado River bears NW. and S. Discontinue chaining at this point owing to precipitous broken descent over the canyon wall.
	80.00	True point for cor. of secs. 4, 5, 32 and 33 falls on the right wall of Marble Canyon where it is inaccessible and cannot be monumented, therefore witness cor. is established 5.17 chs. West as described above.
		Land, rolling, broken and mountainous. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.
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5.

# SURVEY: PART OF SUBDIVISION OF T. 37 N., R. 6 E.

Chai	From cor. of secs. 5, 6, 31 and 32 on N. bdy. of Tp., hereinbefore described,
	South, on Sectional Guide Meridian, bet. secs. 5 & 6.
	Over nearly level top of ridge bearing N. and S., thru scattering undergrowth.
	Desc. gradually to
10.0	Leave nearly level top of ridge, brs. N. and SE.; desc. 17 ft. over SWslope.
14.0	Head of small ravine, course West; asc. 40 ft. over NW. slope.
22.5	Asc. gradually over W. and NW. slopes to
40.0	Elat topped ridge, bears NE. and SW. Set an iron post, 3 ft. long, 1 in. in diam., 28 ins. in the ground, for 4 sec. cor., with brass cap marked
	1
	s6 s5
	1937
	raise a mound of
	stone, 4 ft. base, 2 ft. high, W. of cor.
	Desc. 30 ft. over SE. slope.
50.8	Ravine, 3 lks. wide, course NE.; asc. 60 ft. over NE. slope.
62.5	Edge of top of ridge, bears NW. and E. Thence across nearly level top of ridge.
67.0	Spur, slopes SW. Leave top of ridge brs. NW. and E. Desc. 30 ft. over SE. slope to
80.0	Set an iron post, 3 ft. long, 2 ins. in diam., 18 ins. in the ground to bedrock, with a stone 12x10x5 ins., marked with a cross (+) deposited at base, and in a mound of stone to top, for cor. of secs. 5, 6, 7 and 8, with brass cap marked
•	T37N R6E S6 S5 S7 S8
	1937
	raise a mound of stone 4 ft. base, 2 ft. high, W. of cor.
	Land, gently rolling and nearly level.
950	Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.
	West, on a random line, bet. secs. 6 and 7.
40.0	A Control of the Cont
79•	
130	1, 6, 7 and 12, which is an iron post, 2 ins. in diam., projecting 34 ins. above ground, firmly set in ground and mound of stone, with brass cap marked as described in the official record.
1	

6.

	<b>b.</b>	
	Chains	Thence,
		N. 89°59'E., on true line, bet. secs. 6 and 7.
		Over gently rolling land, thru scattering undergrowth.
		Asc. 23 ft. over W. slope.
	5.00	W. edge of top of low spur, brs. N. and S. Thence across nearly level top of spur, sloping N.
# · · · · · · · · · · · · · · · · · · ·	15.00	E. edge of top of spur, brs. N. and S. Leave top of spur and enter gently rolling land; desc. gradually over E. slope.
	18.00	Ravine, 3 lks. wide, course N.; asc. gradually over N. slope to
	39 <b>•</b> 59	Set an iron post, 3 ft. long, 1 in. in diam., 18 ins. in the ground to bedrock, with a stone 4x4x10 ins., marked with a cross (+) deposited at base, and in a mound of stone to top, for \( \frac{1}{4} \) sec. cor., with brass cap marked
:		1 S 6 S 7
		1937
		raise a mound of stone 4 ft. base, 2 ft. high, N. of cor.
i.		Desc. gradually over NE. slope.
† •	43.90	Head of small ravine, drains NE.; asc. 10 ft. over W. slope.
	47.60	Low spur, slopes N.; desc. 19 ft. over E. slope.
	53.30	Wash, 4 lks. wide, course NE. near head; asc. 8 ft. over NW. slope.
i.	55.60	Point of spur, slopes N.; desc. 22 ft. over NE. slope.
	61.75	Rocky wash, 15 lks. wide, course NW.; asc. 34 ft. over SW. slope.
	64.60	Point of spur, slopes SW.; desc. 12 ft. over SE. slope.
	68 <b>.50</b>	Wash, 5 lks. wide, course SW.; asc. slightly over SW. slope.
The state of the s	69 <b>.</b> 60	Point of spur, slopes SW.; desc. 20 ft. over SE. slope to
	79•59	The cor. of secs. 5, 6, 7 and 8.
		Land, gently rolling and nearly level. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.
		East, bet. secs. 5 and 8 ( $W.\frac{1}{2}$ ).
		Over gently rolling land, thru scattering undergrowth.  Desc. slightly over SE. slope.
	0.95	Wash, 5 lks. wide, course S. 85°W.; asc. 50 ft. over NW. slope to
,	22.30	Small ravine, 3 lks. wide, course NW.; asc. 30 ft. over NW. slope.

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	Chains	
	30.00	Ridge, bears NE. and SW.; desc. slightly over SE. slope to canyon rim.
	34.30	Set an iron post, 3 ft. long, 1 in. in diam., 27 ins. in the ground, with a stone 12x8x4 ins., mkd. with a cross (+) deposited at base, for witness cor. to \( \frac{1}{4} \) sec. cor., with brass cap marked
		₹ S 5 WC
		1937
		raise a mound of stone 4 ft. base, 2 ft. high, N. of cor.
	34.40	Left rim of North Canyon, bears N. 10°E., and S. 10° W.
		Discontinue chaining owing to precipitous broken descent into said canyon.
	40.00	True point for \( \frac{1}{4} \) sec. cor. of secs. 5 and 8 falls on left wall of North Canyon where it is inaccessible and cannot be monumented, therefore establish witness cor. at 5.70 chs. West, as described above.
		Land, gently rolling and mountainous. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.
		From cor. of secs. 5, 6, 7 and 8.
		South, on Sectional Guide Meridian, bet. secs. 7 and 8.
-		Over gently rolling land, thru scattering undergrowth.
	0.50	Small ravine, 5 lks. wide, course West; asc. gradually over NW. slope to
	40.00	Set an iron post, 3 ft. long, 1 in. in diam., 28 ins. in the ground, for \( \frac{1}{4} \) sec. cor., with brass cap marked
		**************************************
	•	s <b>7</b>   s8
		1937
		raise a mound of stone 4 ft. base, 2 ft. high, W. of cor.
	1	Asc. gradually over NW. slope to
	62.39	Triangulation and offset point, on low ridge bearing NE. and SW. Desc. 32 ft. over SE. slope to
	64.33	Left rim of North Canyon, brs. NE. and SW. Discontinue chaining at this point as the remainder of the line bet. secs. 7 and 8 is impassable owing to precipitous broken walls of North Canyon. The vertical angle from this point on sec. line SE. to bottom of canyon is -54°.
	•	Obtain measurement of sec. line across canyon by a triangulation as follows:
- 1		

8.

C	· •	
	Chains	
		Set a flag designated "B" ahead on sec. line beyond and near the right rim of North Canyon.
	• 10.	From 62.39 ch. station designated as point "A" chain a base West 7.00
	•	chs. to point "C". From "C" the flag "B" bears S. 14° 24'E.
٠		Vertical angle "A" to "B" is +3°.  Included angles of the triangle
		Sec. 7  Sec. 1/2e   180,00   Sec. 8   75°36', the sum of which is 180°00'.
		Dist. chained to "A" =62.39 chs. South Dist, triangulated "A"
		to "B" =27.26 " " Dist.cor. of secs.5,
		6,7,8 to flag "B" =89.65 chs.South  B 69.65 Line bet.secs.7 & 8 =80.00 " "  Point for cor.of secs.
		7,8,17 & 18 to flag "B" = 9.65 chs.South
	78.00	(Approx.) Bottom of North Canyon, 100 lks. wide, course NE., about 1000 ft. below the left rim of the canyon. Asc. over precipitous NW. slope.
	80.00	True point for cor. of secs. 7, 8, 17 and 18 on precipitous slope on the right wall of North Canyon, where it is inaccessible and cannot be monumented, therefore establish witness cor. at 9.00 chs. South as hereinafter described.
		Land, gently rolling and mountainous. Soil, rocky, 4th rate.
	* *2	Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.
		From true point for cor. of secs. 7, 8, 17 and 18.
	•	S. 89°59'W., on random line, bet. secs. 7 and 18.
		Measurement to left rim of North Canyon by offset line in sec. 7, as follows:
		From 62.39 ch. station on line bet. secs. 7 and 8,
		S. 89°59'W., 20.00 chs. to offset point, thence
		South, 17.61 chs. to
	20.00	Offset point on random sec. line 60 lks. W. from left rim of North Canyon.
		Thence,
		S. 89°59'W., on random line, bet. secs. 7 and 18, continuing measurement from the true point for cor. of secs. 7, 8, 17 and 18.
	40.00	Set temp. ½ sec. cor.
	79.70	Intersect W. bdy. of the Tp. 2 lks. S. of the cor. of secs. 7, 12, 13 and 18, which is an iron post, 2 ins. in diam., projecting 34 ins. above ground, firmly set in ground and mound of stone, and marked on brass cap as described in the official record.
		Thence
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	Chains	East, on true line, bet. secs. 7 and 18.
		Over gently rolling land, thru scattering undergrowth.
:	•	Ascend gradually over W. slope.
; •	10.00	Low, flat topped ridge, bears N. and S.; desc. 98 ft. over E. slope.
•	24.85	Rocky wash, 25 lks. wide, course S.; asc. 109 ft. over W. slope.
•	36.00	Spur, slopes S.; desc. 15 ft. over E. slope.
	37.60	Ravine, 5 lks. wide, course S.; asc. 10 ft. over W. slope to
	39.70	Set an iron post, 3 ft. long, 1 in. in diam., on exposed bedrock, with a stone 14x12x7 ins. marked with a cross (+) deposited at base, and in a mound of stone to top, for 4 sec. cor., with brass cap marked
		½ S 7 S 18
	·	1937
		Aşç. 15 ft. over W. slope.
	46.00	Flat topped spur, slopes S.; desc. 80 ft. over E. slope.
-	56.00	Ravine 6 lks. wide, course S.; asc. gradually over SW. slope to canyon rim.
	59 <b>-70</b>	Offset point.
<b>.</b>	60.30	Left rim of North Canyon, and top of almost vertical cliff 400 ft. high, bearing NE. and SW., facing SE.
		Discontinue chaining at this point. Measurement to sec. cor. point in canyon by offset line as follows:
	P	From 59.70 ch. station; North 17.61 chs.; thence East, 20 chs. to 62.39 ch. station on line bet. secs. 7 and 8; thence by triangulation South 17.61 chs. to true point for cor. of secs. 7, 8, 17 and 18.
	76.00	(Approx.) Bottom of North Canyon, 100 lks. wide, course NE.; asc. over precipitous broken NW. slope to
	<b>7</b> 9.70	True point for cor. of secs. 7, 8, 17 and 18, on precipitous NW. slope of right wall of North Canyon. Witness cor. established 9.00 chs. South as hereinafter described.
		Land, gently rolling, broken and mountainous. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.
## 		From true point for cor. of secs. 7, 8, 17 and 18.
:		East, bet. secs. 8 and 17.
-	•	Over mountainous land, in North Canyon.
*		Ascend over precipitous broken NW. and N. slopes on the right wall of said canyon.
* - -		Measurement to point on sec. line at canyon rim by an off-

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L	<i>.</i>		
	Chains	set line in sec. 17, as follows:	
		From flag point "B" of the triangulation hereinbefore described on line bet. secs. 7 and 8, which is 9.65 chs. South from the sec. cor. point; thence North 65 lks.; thence East, 26.30 chs.; thence North 9.00 chs. to point on sec. line bet. secs. 8 and 17 at 26.30 chs. E. from sec. cor. point.	
	18.00	(Approx.) Wash, 30 lks. wide, in gulch, course N. from SW.	
	26.30	Right rim of North Canyon, bears S. 89°W. and N. 40°E. Leave canyon and mountainous land and enter rolling land.	•
	•	Continue measurement from sec. cor. point, on sec. line.	
		Asc. 14 ft. over NW. slope, thru scattering undergrowth.	
,	29.30	Spur, slopes NE.; desc. 57 ft. over SE. slope.	
,	32.97	Rocky wash, 25 lks. wide, course NE.; asc. 42 ft. over NW. slope.	
	36.80	Point of spur, slopes NW.; desc. slightly over NE. slope.	٠
	38.20	Head of ravine, course N.; asc. 14 ft. over NW. slope to	
•	40.00	Set an iron post, 3 ft. long, 1 in. in diam., 27 ins. in the ground, for \( \frac{1}{4} \) sec. cor., with brass cap marked	
•		\frac{1}{4} \frac{\sigma 8}{\sigma \cdot 17}	
	·	1937	
	1, *	Raise a mound of stone, 3 ft. base, 2 ft. high N. of cor.	,
		This cor. is on flat-topped spur sloping N.	
•	42.70	Leave top of spur, desc. 30 ft. over NE. slope.	
	47•97	Ravine, 5 lks. wide, course NW.; asc. 95 ft. over W. slope to canyon rim.	
	65.80	Set temp. monument for traverse of canyon rim thru secs. 5, 8 and 17.	
	65 <b>.</b> 90 \	Right or west rim of Marble Canyon of the Colorado River, bears NE. and SE.	
		Discontinue survey of the sec. line at this point as the remainder of the line is in the canyon, and precipitous broken slopes on the canyon wall render the point for cor. of secs. 8, 9, 16 and 17 inaccessible, and no point within prescribed limits of such point is available for the establishment of a witness cor.	
		Land, mountainous, broken and rolling. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.	
		From true point for cor. of secs. 7, 8, 17 and 18.	
		South, on Sectional Guide Meridian, bet. secs. 17 and 18.	
		Over mountainous land, on right wall of North Canyon. Ascend over precipitous broken NW. slope.	

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	Chains	Measurement to 9.65 ch. station by triangulation herein- before described on line bet. secs. 7 and 8, from which point chain return measurement North 1.35 chs. to	
	8.30	Right rim of North Canyon, bears NE. and SW. Leave canyon continuing over mountainous land, thru scattering undergrowth.	
		Resume chaining, continuing line and measurement from sec. cor. point. Asc. 12 ft. over NW. slope to	
	9.00.	Set an iron post, 3 ft. long, 2 ins. in diam., 10 ins. in the ground to bedrock, with a glass bottle deposited at base, and in a mound of stone to top, for witness corto cor. of secs. 7, 8, 17 and 18, with brass cap marked	
	•	WC T37N   R6E S 7   S 8 S18   S17	
		Asc. 12 ft. over NW. slope.	
	9.65	Spur, slopes NE.; leave mountainous and enter rolling and broken land. Desc. 68 ft. over SE. slope.	
	17.40	Rocky wash, 30 lks. wide, course NE.; asc. 70 ft. over NW. slope.	
•	23.25.	Toe of spur, slopes W.; desc. 20 ft. over SW. slope.	
	30.50	Rocky wash, 15 lks. wide, course NW.; asc. 93 ft. over N. slope to	
	35.65	Point of spur slopes N.; asc. 16 ft. along top of spur to	
	37.40	Leave spur, slopes N. from SE.; desc. 35 ft. over W. slope to	
	40.00	Set an iron post, 3 ft. long, 1 in. in diam., 28 ins. in the ground, for \$\frac{1}{4}\$ sec. cor., with brass cap marked	
		1. 4	
	-	s18   s17	I
		1937	I
		Raise a mound of stone, 4 ft. base, 2 ft. high, W. of cor.	Ī
		Desc. 15 ft. over W. slope.	: [
	48.20	Wash, 7 lks. wide, course NW.; asc. 97 ft. over NE. slope to	
	60.50	Thence over flat top of spur sloping N.; asc. 35 ft. to	
	80.00	Set an iron post, 3 ft. long, 2 ins. in diam., 18 ins. in the ground to bedrock, with a stone 14x12x6 ins. marked with a cross (+) deposited at base, and in a mound of stone to top, for cor. of secs. 17, 18, 19 and 20, with brass cap marked	
		S18   S17   S19   S20	

1937

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1	2	
	Chains	Land, mountainous, broken and rolling. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.
		West, on random line, bet. secs. 18 and 19.
	40.00	Set temp. ½ sec. cor.
	79.80	Intersect W. bdy. of the Tp. 16 lks. S. of the cor. of secs. 13, 18, 19 and 24, which is an iron post, 2 ins. in diam., projecting 10 ins. above ground, firmly set, marked on brass cap and witnessed as described in the official record.
		Thence
		S. 89°53'E., on true line, bet. secs. 18 and 19.
		Over rolling land, thru scattering undergrowth.  Desc. slightly over SE. slope.
	0.60	Wash, 15 lks. wide, course NE.; from W.; asc. 34 ft. over W. slope.
	7.70	Spur, slopes N.; desc. 35 ft. over E. slope.
	16.43	Wash, 10 lks. wide, course NE.; asc. gradually over N. slope.
	22.87	Wash, 6 lks. wide, course N.; asc. 60 ft. over W. slope.
	27.10	Spur, slopes N.; desc. 43 ft. over E. slope.
	32.44	Wash, 5 lks. wide, course N.; asc. 40 ft. over W. slope.
-	36.20	Spur, slopes N.; desc. 52 ft. over E. slope.
	39 • 30	Wash, 6 lks. wide, course N.; asc. slightly over W. slope to
	39.80	Set an iron post, 3 ft. long, 1 in. in diam., 27 ins. in the ground, for 4 sec. cor., with brass cap marked
		½ <u>s 18</u> s 19
		1937
		Raise a mound of stone, 3 ft. base, 2 ft. high, N. of cor.
		Asc. 70 ft. over W. slope.
	45.60	Spur, slopes N.; desc. 26 ft. over E. slope.
	49.10	Wash, 5 lks. wide, course N.; asc. 35 ft. over W. slope.
	57.70	Flat topped spur, slopes N.; desc. 45 ft. over E. slope.
	66.30	Wash, 12 lks. wide, course N.; asc. 45 ft. over W. slope
	75.00	W. edge of top of spur, bears N. and S. Thence over nearly level top of spur, sloping N.
	79.80	The cor. of secs. 17, 18, 19 and 20.

BOOK Sist

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	Chains	Land, rolling. Soil, rocky, 4th rate.
		Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.
		East, bet. secs. 17 and 20 $(\mathbb{V} \cdot \frac{1}{2})$
		Over nearly level top of spur, sloping N., thru scattering undergrowth.
And the second s	3.00	E. edge of top of spur, bears N. and S. Leave top of spur, and enter rolling land. Desc. 20 ft. over E. slope.
	7.20	Ravine, 5 lks. wide, course N.; asc. 20 ft. over W. slope.
	12.00	Spur, slopes NW.; desc. slightly over NE. slope.
	13.80	Head of ravine, course N.; asc. 6 ft. over W. slope.
	16.10	Spur, slopes N.; desc. 34 ft. over E. slope.
	19-55	Ravine, 10 lks. wide, course N.; asc. 53 ft. over W. slope.
	26.20	Spur, slopes N.; desc. 10 ft. over E. slope.
	30.15	Drain, 5 lks. wide, course N.; asc. gradually over W. slope to canyon rim.
	34.60	Set an iron post, 3 ft. long, 1 in. in diam., 4 ins. in the ground to bedrock, with a stone 10x0x6 ins., marked with a cross (+) deposited at base, and in a mound of stone to top, for witness cor. to \(\frac{1}{4}\) sec. cor., with brass cap marked
		1 S 17 4 S 20 WC
:		1937
	34.70	Right rim of Marble Canyon of the Colorado River, bears NE. and SW.
	:	Discontinue chaining at this point owing to precipitous descent over SE. slope on canyon wall. Colorado River, course SW. is about 1800 ft. below.
• • • • • • • • • • • • • • • • • • •	40.00	True point for \(\frac{1}{4}\) sec. cor. falls on right or west wall of Marble Canyon where it is inaccessible and cannot be monumented, therefore witness cor. is established on the sec. line at 5.40 chs. West as described above.
	•	Land, rolling and mountainous. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.
		From the cor. of secs. 17, 18, 19 and 20.
: :		South, bet. secs. 19 and 20 $(N \cdot \frac{1}{2})$ .
		Over nearly level top of spur, sloping N., thru scattering undergrowth.
	25.00	Low flat-topped ridge, bears NE. and SW. Descend gradually over S. slope to
÷	40.00	Set an iron post, 3 ft. long, 1 in. in diam., 12 ins. in

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L <b>4</b>	
Chains	
	the ground to bedrock, with a stone $6x6x4$ ins., marked with a cross (+) deposited at base, and in a mound of stone to top, for $\frac{1}{4}$ sec. cor., with brass cap marked
	. S19 S20
	1937
40.10	Right rim of Marble Canyon of the Colorado River, bears NE. and SW.
	Discontinue survey at this point owing to precipitous broken descent over the canyon wall, and as the remainder of the sec. line is in the canyon.
	Land, nearly level and gently rolling. Soil, rocky, 4th rate. Timber, none. Undergrowth, native weeds, sage, greasebrush and cacti.
	ondergrowth, hative weeds, sage, greasebrush and cactr.
•	From the cor. of secs. 19, 24, 25 and 30, on W. bdy. of the Tp., hereinbefore described.
	East, bet. secs. 19 and 30 $(W.\frac{1}{2})$ .
	Over gently rolling land, thru scattering undergrowth. Asc. gradually over N. and NW. slopes to
39.82	(40.00 chs. minus convergency of 18 lks.) Set an iron post, 3 ft. long, 1 in. in diam., 8 ins. in the ground to bedrock, with a stone 8x5x3 ins. marked with a cross (+) deposited at base, and in a mound of stone to top, for \(\frac{1}{4}\) sec. cor., with brass cap marked
	½ S 19 S 30
	1937
40.00	Right rim of Marble Canyon of the Colorado River, bears NE. and SW.
•	Discontinue survey of the sec. line at this point, as the E. dof the line is in the canyon and is impassable.
	Land, gently rolling. Soil, rocky, 4th rate. Timber, none.
•	Undergrowth, native weeds, sage, greasebrush and cacti.
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TRAVERSE OF RIGHT RIM OF MARBLE CANYON OF THE COLORADO RIVER thru T. 37 N., R. 6 E.

EOCH 4161

Chains

The following notes describe survey of a traverse of the right or west rim of the Marble Canyon of the Colorado River, downstream thru T. 37 N., R. 6 E. This traverse is chained except across the mouth of North Canyon, and follows the rim as closely as is practicable consistent with safety, and the number of courses is reduced to the minimum.

Begin at the witness cor. to cor. of secs. 4, 5, 32 and 33, on the N. bdy. of the Tp., hereinbefore described, which is 5.17 chs. West from the true cor. point, and 17 lks. West from the canyon rim.

#### Thence

Traverse thru secs. 5 and 8.

Over rolling and broken land, thru scattering low undergrowth.

South, 11.88 chs., thence,

- S. 6°18'E., 31.25 chs., to point where the right rim of
  Marble Canyon merges with the
  left rim of North Canyon extending southwesterly. Discontinue
  chaining.
  Leave rolling and enter mountainous land in North Canyon.
- S. 11°07'W., 54.52 chs. Measurement by triangulation, across mouth of North Canyon, entering Marble Canyon from the SW. At approximately 35.00 chs. on this course cross the bottom of North Canyon, course NE. The end of this course is on a point where the right rim of Marble Canyon merges with the right rim of North Canyon extending SW. Thence
- S. 5°30'E., 12.60 chs., resuming chaining, over rolling and broken land, thru scattering low undergrowth.

  Thence
- S. 36°30'E., 17.00 chs., thence,
- S. 4°00'W., 13.91 chs., thence,
- S. 18°30'W., 16.00 chs., thence,
- S. 41°00'W., 11.00 chs. to temp. monument on the sec.
  line bet. secs. 8 and 17 at 65.80
  chs. East from true point for cor.
  of secs. 7, 8, 17 and 18.

Land, rolling, broken and mountainous. Soil, rocky, 4th rate.
Timber, none.

Undergrowth, native weeds, sage, greasebrush and cacti.

From temp. monument at 65.80 ch. station (E) on line bet. secs. 8 and 17.

Traverse thru sec. 17.

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BOOK 4161

## TRAVERSE OF RIGHT RIM OF MARBLE CANYON OF THE COLORADO RIVER thru T. 37 N., R. 6 E.

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Chains

Over rolling land, thru scattering undergrowth.

- s. 9°30'E., 14.76 chs., thence,
- s. 8° 00'W., 5.00 chs., thence,
- S. 41°30'W., 7.00 chs., thence,
- S. 31°00'W., 26.34 chs., thence,
- S. 7°30'W., 24.85 chs., thence,
- N. 87°45'W., 5.91 chs., thence,
- S. 34°02'W., 9.97 chs., to the witness cor. to \(\frac{1}{4}\) sec. cor. of secs. 17 and 20, on the sec. line at 34.60 chs. East from the cor. of secs. 17, 18, 19 and 20.

Land, rolling.
Soil, rocky, 4th rate.
Timber, none.
Undergrowth, native weeds, sage, greasebrush and cacti.

From the witness cor. to  $\frac{1}{4}$  sec. cor. of secs. 17 and 20.

Traverse thru sec. 20.

Over rolling land, thru scattering undergrowth.

- S. 33°49'W., 6.07 chs., thence,
- S. 16°00'W., 17.69 chs., thence,
- S. 39°30'W., 17.65 chs., thence,
- S. 50°00'W., 2.00 chs., thence,
- S. 77°30'W., 13.88 chs., to the ½ sec. cor. of secs. 19 and 20, hereinbefore described, 10 lks. N. of Canyon rim.

Land, rolling.
Soil, rocky, 4th rate.
Timber, none.
Undergrowth, native weeds, sage, greasebrush and cacti.

From  $\frac{1}{4}$  sec. cor. of secs. 19 and 20.

Traverse thru sec. 19.

Over rolling land, thru scattering undergrowth.

- s. 46°48'w., 5.62 chs., thence,
- S. 63°00'W., 15.00 chs., thence,
- S. 37°30'W., 37.00 chs., to the ½ sec. cor. of secs. 19 and 30, established as herein-before described at 39.82 chs.

  East from cor. of secs. 19, 24, 25 and 30 on W. bdy. of Tp. and 10 lks. W. from canyon rim.

Land, rolling.
Soil, rocky, 4th rate.
Timber, none.
Undergrowth, native weeds, sage, greasebrush and cacti.

TRAVERSE OF RIGHT RIM OF MARBLE CANYON OF THE COLORADO RIVER thru T. 37 N., R. 6 E.

BOCK WO

17

Chains

From the  $\frac{1}{4}$  sec. cor. of secs. 19 and 30.

Traverse thru sec. 30.

Over gently rolling land, thru scattering undergrowth.

- S. 59°00'W., 7.18 chs., thence,
- S. 47°15'W., 5.00 chs., thence,
- S. 33°00'W., 12.68 chs., thence,
- N. 78°36'W., 23.53 chs., to temp. monument on W. bdy. of Tp., set at a point 13.06 chs. South from cor. of secs. 19, 24, 25 and 30, as hereinbefore described.

Land, gently rolling.
Soil, rocky, 4th rate.
Timber, none.
Undergrowth, native weeds, sage, greasebrush and cacti.

#### GENERAL DESCRIPTION

The portion of this township surveyed as described in the foregoing field notes includes all of the surveyable land in the township situate west of the Colorado River. The said river flows southwesterly thru the township from the North bdy. of sec. 4 to the W. bdy. of sec. 30, thru a deep canyon with almost perpendicular bare rock walls, about 1800 ft. deep, known as Marble Canyon. This canyon is broken into in secs. 4 and 9 by a side canyon known as North Canyon, entering this township on the W. bdy. of sec. 18, crossing the surveyed portion in a northeasterly direction, and thus dividing the surveyed area into two portions, of nearly equal area to the N. and S. of said North Canyon. The North Canyon is about 20 chs. wide and 200 ft. deep, where it enters this township, but widens and deepens rapidly to its mouth, where it is about 40 chs. wide and 1800 ft. deep. The wash in the bottom of this canyon is dry and the walls of the canyon are precipitous bare rock.

Except the mountainous surface in the canyons, the surface of the area surveyed varies from level and nearly level to rolling and broken, and the soil is gravelly and rocky, 3rd and 4th rates.

There is no timber, and the scattering low undergrowth consists of native weeds, sage, greasebrush and cacti.

There are no springs and the only permanent water is the stream in the Colorado River.

There are no settlers, improvements, roads or trails, and no indications of valuable mineral deposits.

The agricultural value of the land is for grazing and that is of very poor quality.

The center of the Colorado River forms a part of the boundary of the Navajo Indian Reservation, and all of this township to the east of the river is in the said Indian Reservation and is unsurveyed at the present time.

#### FINAL TEST OF INSTRUMENT.

April 11, 1937: at station at the ½ sec. cor. of secs. 13 and 18, T. 40 N., Rs. 7 and 8 E., in latitude 36°52'N., longitude 111°35'W., and on the meridian determined at this station by Polaris observation on January 26 and 27, 1937, as described in field notes of survey of T. 38 N., R. 6 E., test the solar apparatus of Young and Son's transit No. 8526 as follows:

At 9h. 00m., a.m., app.t., set off 36°52'N. on the lat. arc; 8°21'N. on the decl. arc; and determine a meridian with the solar, which agrees with the true meridian.

At app. noon, with the lat. arc unchanged, observe the sun on the meridian, and obtain a reading of  $8^{\circ}23\frac{1}{2}$ 'N. on the decl. arc, which agrees with the computed declination of the sun.

At 3h. 00m., p.m., app.t., with the lat. arc unchanged, set off 8°26½ N. on the decl. arc, and determine a meridian with the solar, which agrees with the true meridian.

As all of the solar observations taken during the usual hours of solar work agree within 1' with the true meridian, conclude that this instrument has remained in satisfactory adjustment throughout the surveys executed with same which are described in the foregoing field notes.

FIELD ASSISTANTS.
to
Pearson Transitma

	ETTTO O Pearson,	Translonan (P.W.)
	NAMES.	CAPACITY.
	Nelson B. Turner	Principal Assistant
	Jack Bowker	Chàinman
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# BOOK 4161 CERTIFICATE OF UNITED STATES SURVEYOR

supplemental Magnetial instructions received from			Arizona
pearing date of the 27th	day ofMarc	ch , 1936	., I have well, faithfully, and truly
n my own proper person, and in st	trict conformity with	said instructions,	the Manual of Surveying Instruc-
ions, and the laws of the United S	States, surveyed all th	nose parts or portio	ns of
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Township 37 North Ra			of the Gila and
			, which are represented in
		•	rection; and that all the corners of
			the Manual of Surveying Instruc-
supplemental ions, and the special written instr	uctions of the Distric	et Cadastral Engin	eer for Arizona
and in the specific manner describe	ed in the field notes,	and that the foreg	going are the original field notes of
such survey.		en.	H Bearson
Fredonia, Arizona Sanuary 4, 1938		ceus	Transitman (P.V.)
	APPRO	DVAL.	
		OFFICE OF U. S. S	<del>upervisor of Surveys</del> ,
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			he said field notes, and the survey
they describe, are hereby approved	<b>4</b> .		
	•		U.S. Supervisor of Surveys
I-certify that the foregoing tre	anscript of the field p	otes of the above-	1 5 0
	as been correctly cop		
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EOOK 9101

# FIELD ASSISTANTS.

	Bert E. Wakeman, Transitman (P.W.)				
	NAMES.	CAPACITY.			
	Nelson B. Turner	Prin. Assistant			
	Jack Bowker	Chai man			
	Clark Eldridge	Cornerman- Flagman			
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## CERTIFICATE OF UNITED STATES SURVEYOR

searing date of the 27th day of March 19 56, there well, faithfully, and truly a my own proper person, and in strict conformity with said instructions, the Manual of Surveying Instructions, and the laws of the United States, retraced all those parts or portions of the West Boundary  and surveyed all these parts or portions of the Subdivision Lines of and  Traverse of Right Rim of Marble Canyon of the Colorado River thru  Township 37 North, Range 6 East  alignment with the Manual of Surveying Instructions, and the process of the Calarado River thru  Township 37 North, Range 6 East  Subdivision In the State of Arizona , which are represented in the foregoing field notes as having been executed by me, and under my direction; and that all the corners of a retracement adjources have been established and perpetuated in strict accordance with the Manual of Surveying Instructions, and high-pecial written instructions of the District Cadastral Engineer for Arizona and in the specific manner described in the field notes, and that the foregoing are the original field notes of retracement and unhauvrey.  Approval  Oppics of Supervisor of Surveys Transition (F. W.)  Approval  Oppics of Supervisor of Surveys, ponver, Colorado, July 5 , 1938.  The foregoing field notes of retracement of Part of West Boundary, and of the survey of Part of North Boundary and  Part of Subdivision Lines of, and  Traverse of Right Rim of Marble Canyon of the Colorado River thru  Township 37 North, Bange 6 East  of the Gila and Salt Hiver Meridian, in the State of Arizona succuted by 32t R. Wakenan and Elifett February. Transition (F. W.)  supplemental males A special instructions dated March, 27, 1939, for Group 181, Arizona having been retreasured.	
supplemental generated from the District Cadastral Engineer for	I, Bert E. Wakeman, Transitman (P.W.), hereby certify upon honor that, in pursuan
n my own proper person, and in strict conformity with said instructions, the Manual of Surveying Instructions, and the laws of the United States, retraced all those parts or portions of the United States, retraced all those parts or portions of the Subdivision Lines of and Preverse of Right Him. of Manbla Canvon of the Galarado Bivar thru.  Township 37 North, Range 5 East of the Galarado Bivar thru.  Township 37 North, Range 6 East of the Galarado Bivar thru.  Township 37 North, Range 6 East of the Preverse of the Galarado Bivar thru.  Township 37 North, Range 6 East of the District Cadestral Engineer for Arizona and the specific manner described in the field notes, and that the foregoing are the original field notes of retracement and under my direction; and the specific manner described in the field notes, and that the foregoing are the original field notes of retracement and under my direction.  APPROVAL  OFFICE OF SUFERVISOR OF SURVEYS, Denver, Colorado, July 5 , 1938  The foregoing field notes of retracement of Part of West Boundary and of the survey of Part of North Boundary and Fart of Subdivision Lines of, and  Traverse of Right Rim of Marble Canyon of the Colorado River thru  Township 37 North, Bange 6 East  of the Oile and Solt Miver Meridian, in the State of Arizona having been described instructions dated March 27,1936, for Group 181, Arizona having been described years by Appendically examined, and the necessary corrections and explanations made, the said field notes, and the survey shey describe are hereby approved.	gunni emantai
Nest Boundary  Ind. surveyed all those parts or portions of the  Nest Boundary  Ind. surveyed all those parts or portions of the  Subdivision Lines of  and  Traverso of Right Rim of Marbla Canyon of the Colorado River thru  Township 77 Morth, Renge 6 East of Arizons of the Manual of Surveying Instructions and the second of the Supplemental of the specific manner described in the field notes, and that the foregoing are the original field notes of retracement and under my direction; and that all the corners of retracement and under my direction; and that all the corners of retracement and under my direction; and that all the corners of retracement and under my direction; and that all the corners of retracement and under my direction; and that all the corners of retracement and under my direction; and that all the corners of retracement and under my direction; and that all the corners of retracement and under my direction; and that the foregoing are the original field notes of retracement and undergraph of the field notes of retracement and undergraph of the colorado, July 5 , 1938.  Approval  Operice of Supervisor of Surveys,  Denver, Colorado, July 5 , 1938.  The foregoing field notes of retracement of Part of North Boundary and of the survey of Part of North Boundary and Part of Subdivision Lines of, and  Traverse of Right Rim of Marble Canyon of the Colorado River thru  Township 37 North, Bange 6 East  of the Cila and Salt Miver Merdian, in the State of Arizona having been refrecement and and all third Marble Canyon of the Colorado River thru  Township 37 North, Bange 6 East  of the Cila and Salt Miver Merdian, in the State of Arizona, having been refrecement and and and the necessary corrections and explanations made, the sald field notes, and the purveys they describe are the foregoing transcript of Burveys.	pearing date of the 27th day of March , 19 36, I have well, faithfully, and true
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and surveyed all those parts or portions of the and and and and and and and arrayerse of Right Rim of Marble Canyon of the Colorado River thru Township 37 North, Renge 6 Fast of Arizone which are represented in the foregoing field notes as having been executed by me, and under my direction; and that all the corners of aretracement and the specific manner described in the field notes, and that the foregoing are the original field notes of retracement and under the specific manner described in the field notes, and that the foregoing are the original field notes of retracement and under the specific manner described in the field notes, and that the foregoing are the original field notes of retracement and under the specific manner described in the field notes, and that the foregoing are the original field notes of retracement and under the specific manner described in the field notes, and that the foregoing are the original field notes of retracement and under the survey.  APPROVAL  OFFICE OF Supervision of Surveys,  Denver, Colorado, July 5, 1938.  The foregoing field notes of retracement of Part of North Boundary,  and of the survey of Part of North Bound	ions, and the laws of the United States, retraged all those parts or portions of the
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