

# RED WILLOW PRODUCTION COMPANY: NORTH CARRACAS 32-4 7F-2

SURFACE LOCATION: 144' FSL & 333' FWL

SECTION 7, T-32-N, R-4-W, N.M.P.M., ARCHULETA COUNTY, COLORADO. GROUND LEVEL ELEVATION: 6159'

LATERAL #1 BOTTOM HOLE LOCATION: 635' FSL, 479' FEL

SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.

LATERAL #2 BOTTOM HOLE LOCATION: 1899' FSL, 768' FEL

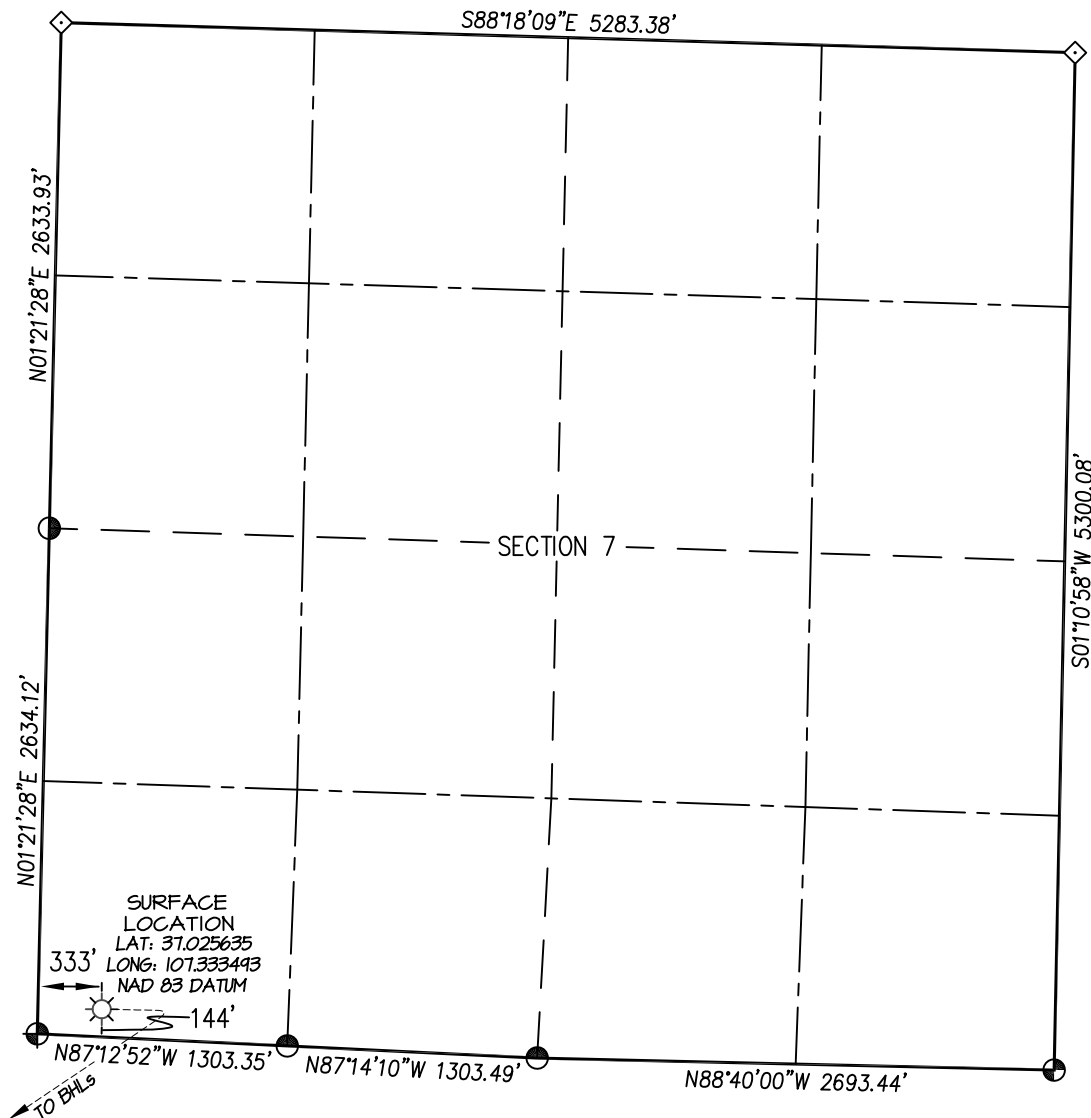
SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.

LATERAL #3 BOTTOM HOLE LOCATION: 1999' FNL, 857' FEL

SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.

LATERAL #4 BOTTOM HOLE LOCATION: 730' FNL, 814' FEL

SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.



- ⊕ and ⊙ denote found 3-1/4" B.L.M. aluminum cap.
- ◇ denotes single proportion calculated position.

## NOTE:

SEE SHEET 6 OF 6 FOR COORDINATE TABLE,  
SURVEY NOTES, AND SURVEYOR'S CERTIFICATE.

SHEET 1 OF 6

REVISED: 2/18/19  
SURVEYED: 11/1/17  
DRAWN BY: K.R.  
CHECKED BY: K.R.  
FILE NO. RW132MP2 JOB NO. RW132

PREPARED FOR:

RED WILLOW PRODUCTION CO.

**NORTHSTAR**  
SURVEYING & MAPPING, INC.

768 County Rd. 308  
DURANGO, CO. 81303  
(970) 385-0851

# RED WILLOW PRODUCTION COMPANY: NORTH CARRACAS 32-4 7F-2

SURFACE LOCATION: 144' FSL & 333' FWL

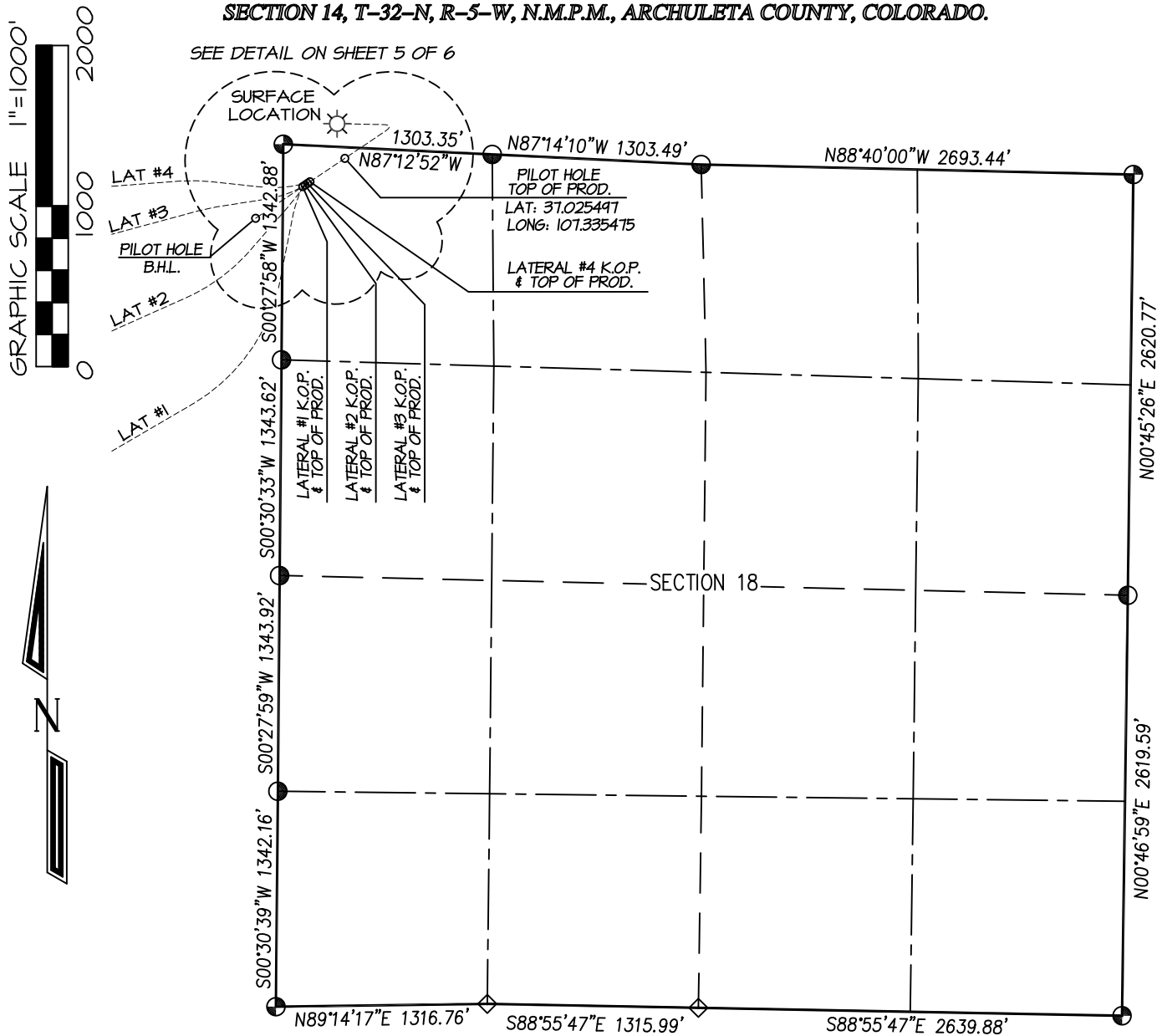
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SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.

LATERAL #3 BOTTOM HOLE LOCATION: 1999' FSL, 857' FEL  
SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.

LATERAL #4 BOTTOM HOLE LOCATION: 730' FSL, 814' FEL  
SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.



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SHEET 2 OF 6

REVISED: 2/18/19  
SURVEYED: 11/1/17  
DRAWN BY: K.R.  
CHECKED BY: K.R.  
FILE NO.: RW132MP2 JOB NO. RW132

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LATERAL #2 BOTTOM HOLE LOCATION: 1899' FSL, 768' FEL

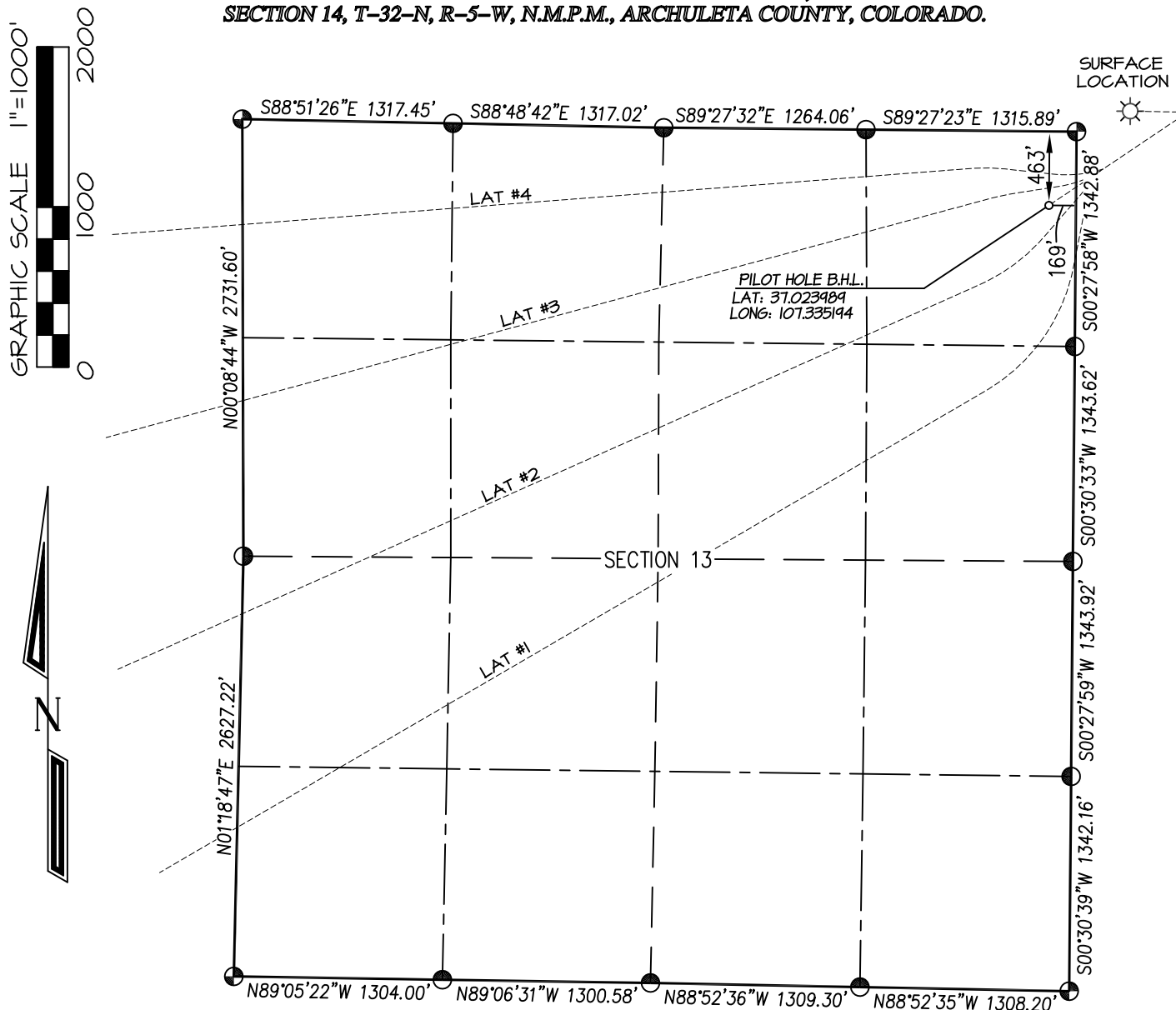
SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.

LATERAL #3 BOTTOM HOLE LOCATION: 1999' FNL, 857' FEL

SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.

LATERAL #4 BOTTOM HOLE LOCATION: 730' FNL, 814' FEL

SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.



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SHEET 3 OF 6

REVISED: 2/18/19  
SURVEYED: 11/1/17  
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FILE NO.: RW132MP2 JOB NO. RW132

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**RED WILLOW PRODUCTION COMPANY: NORTH CARRACAS 32-4 7F-2**

**SURFACE LOCATION: 144' FSL & 333' FWL**

**SECTION 7, T-32-N, R-4-W, N.M.P.M., ARCHULETA COUNTY, COLORADO. GROUND LEVEL ELEVATION: 6159'**

**LATERAL #1 BOTTOM HOLE LOCATION: 635' FSL, 479' FEL**

**SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.**

**LATERAL #2 BOTTOM HOLE LOCATION: 1899' FSL, 768' FEL**

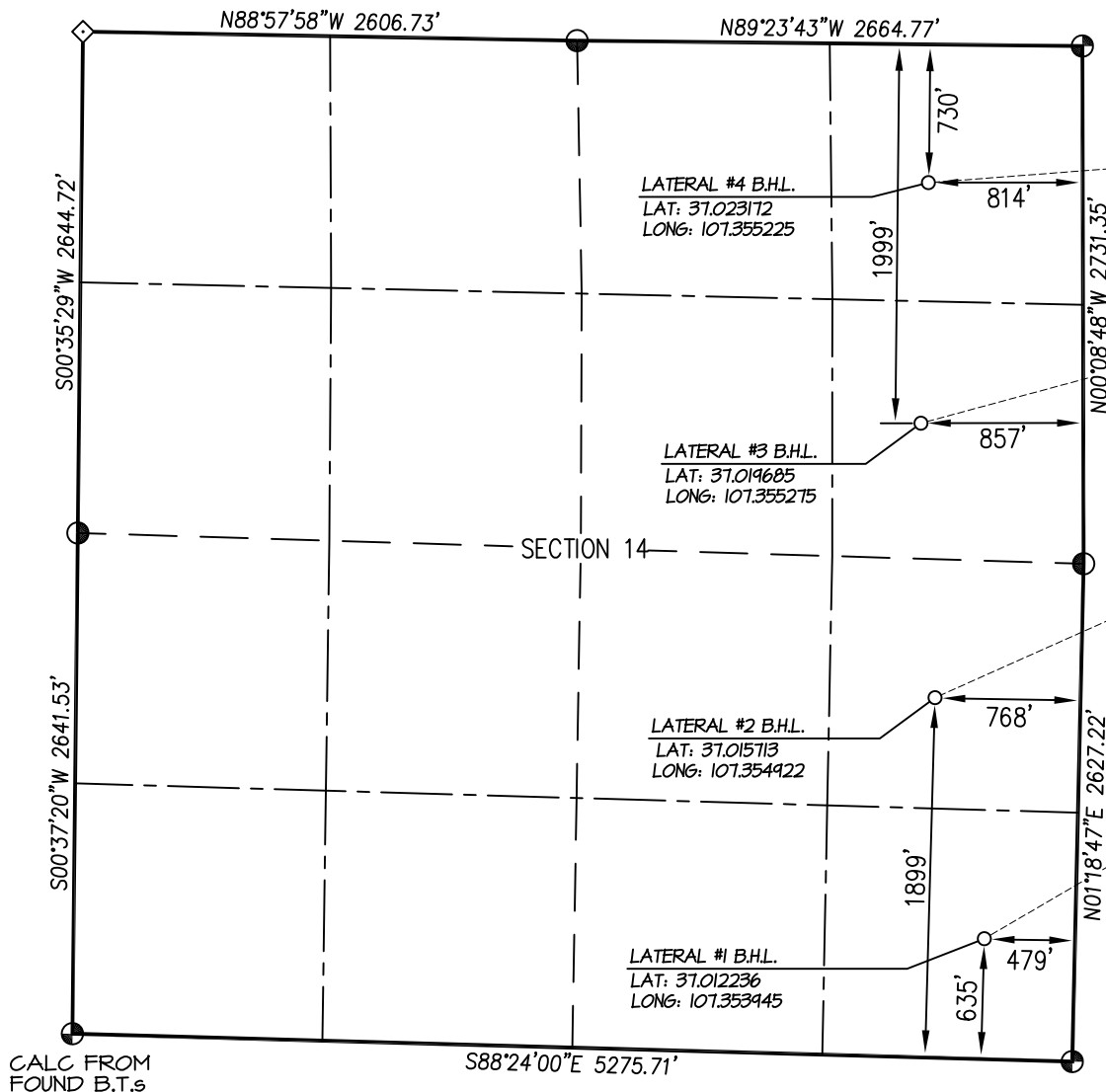
**SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.**

**LATERAL #3 BOTTOM HOLE LOCATION: 1999' FSL, 857' FEL**

**SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.**

**LATERAL #4 BOTTOM HOLE LOCATION: 730' FSL, 814' FEL**

**SECTION 14, T-32-N, R-5-W, N.M.P.M., ARCHULETA COUNTY, COLORADO.**



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SURVEY NOTES, AND SURVEYOR'S CERTIFICATE.

**SHEET 4 OF 6**

REVISED: 2/18/19  
SURVEYED: 11/1/17  
DRAWN BY: K.R.  
CHECKED BY: K.R.  
FILE NO.: RW132MP2 JOB NO. RW132

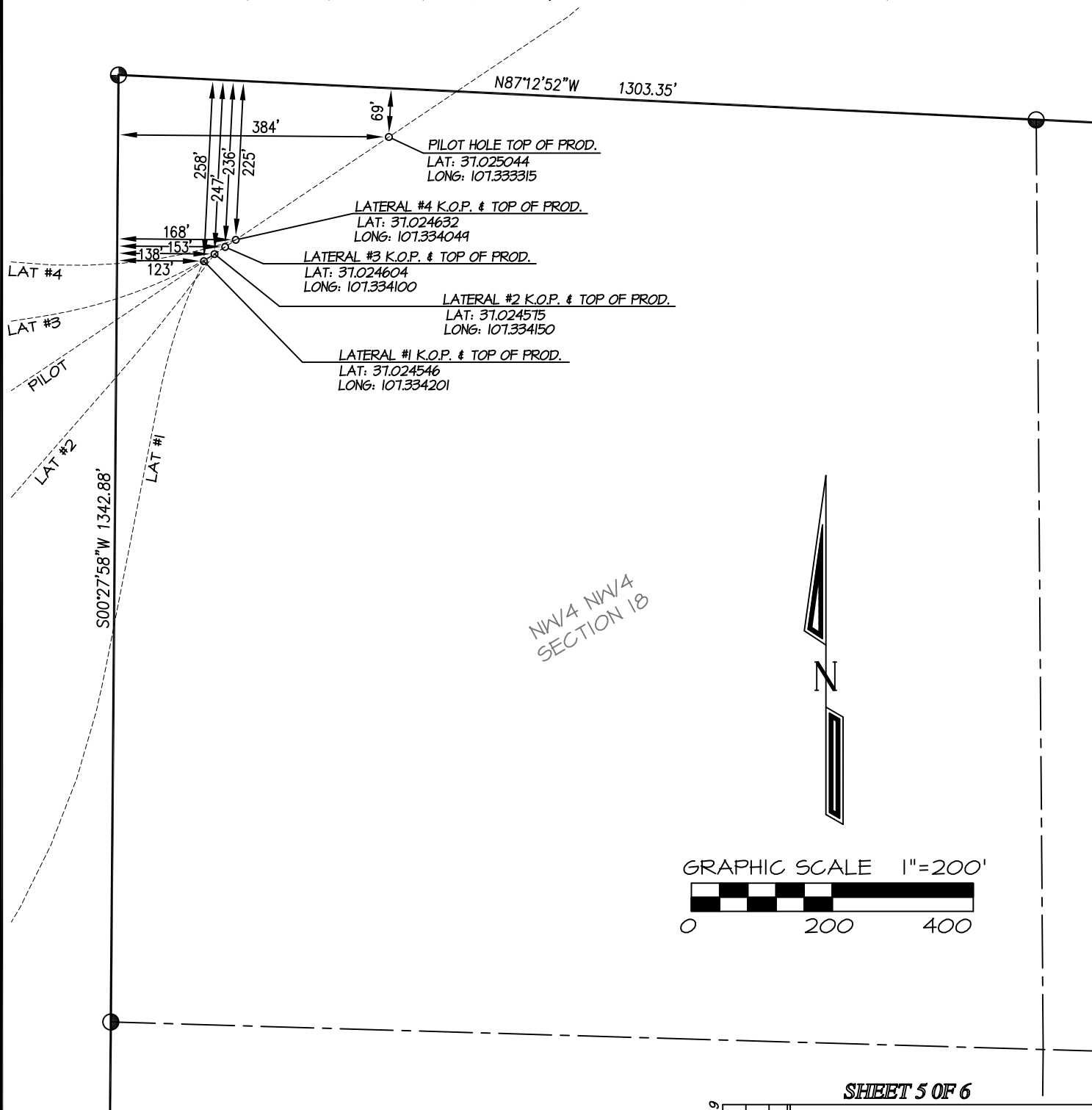
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**RED WILLOW PRODUCTION COMPANY: NORTH CARRACAS 32-4 7F-2**  
**SURFACE LOCATION: 144' FSL & 333' FWL**  
**SECTION 7, T-32-N, R-4-W, N.M.P.M., ARCHULETA COUNTY, COLORADO. GROUND LEVEL ELEVATION: 6159'**  
**PILOT & LATERAL KICKOFF/TOP OF PRODUCTION DETAIL**



⊕ and ⊙ denote found 3-1/4" B.L.M. aluminum cap.  
 ◇ denotes single proportion calculated position

**NOTE:**  
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 SURVEY NOTES, AND SURVEYOR'S CERTIFICATE.

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 SURVEYED: 11/1/17  
 DRAWN BY: K.R.  
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 FILE NO.: RW132MP2 JOB NO. RW132

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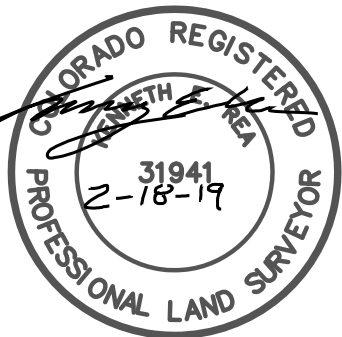
**SURFACE LOCATION: 144' FSL & 333' FWL**

**SECTION 7, T-32-N, R-4-W, N.M.P.M., ARCHULETA COUNTY, COLORADO. GROUND LEVEL ELEVATION: 6159'**

NORTH CARRACAS 32-4 7F-2	CSZ NAD '83	NAD '83	TIES	SEC/TWP/RNG
SURFACE HOLE LOCATION	N (Y) = 1,135,962.08' E (X) = 2,464,751.04'	LAT: 37.025635°N LONG: 107.333493°W	FSL = 144' FWL = 333'	SECTION 7, T-32-N, R-4-W
PILOT HOLE - TOP OF PRODUCTION	N (Y) = 1,135,746.13' E (X) = 2,464,798.87'	LAT: 37.025044°N LONG: 107.333315°W	FNL = 69' FWL = 384'	SECTION 18, T-32-N, R-4-W
PILOT HOLE - BOTTOM HOLE LOCATION	N (Y) = 1,135,372.86' E (X) = 2,464,242.87'	LAT: 37.023989°N LONG: 107.335194°W	FNL = 463' FEL = 169'	SECTION 13, T-32-N, R-5-W
PROPOSED TOP OF PRODUCTION & KOP LATERAL #1	N (Y) = 1,135,569.99' E (X) = 2,464,536.51'	LAT: 37.024546°N LONG: 107.334201°W	FNL = 258' FWL = 123'	SECTION 18, T-32-N, R-4-W
PROPOSED BOTTOM HOLE LOCATION LATERAL #1	N (Y) = 1,131,202.25' E (X) = 2,458,684.53'	LAT: 37.012236°N LONG: 107.353945°W	FSL = 635' FEL = 479'	SECTION 14, T-32-N, R-5-W
PROPOSED TOP OF PRODUCTION & KOP LATERAL #2	N (Y) = 1,135,580.09' E (X) = 2,464,551.56'	LAT: 37.024575°N LONG: 107.334150°W	FNL = 247' FWL = 138'	SECTION 18, T-32-N, R-4-W
PROPOSED BOTTOM HOLE LOCATION LATERAL #2	N (Y) = 1,132,473.85' E (X) = 2,458,424.50'	LAT: 37.015713°N LONG: 107.354922°W	FSL = 1899' FEL = 768'	SECTION 14, T-32-N, R-5-W
PROPOSED TOP OF PRODUCTION & KOP LATERAL #3	N (Y) = 1,135,590.19' E (X) = 2,464,566.61'	LAT: 37.024604°N LONG: 107.334100°W	FNL = 236' FWL = 153'	SECTION 18, T-32-N, R-4-W
PROPOSED BOTTOM HOLE LOCATION LATERAL #3	N (Y) = 1,133,921.81' E (X) = 2,458,350.20'	LAT: 37.019685°N LONG: 107.355275°W	FNL = 1999' FEL = 857'	SECTION 14, T-32-N, R-5-W
PROPOSED TOP OF PRODUCTION & KOP LATERAL #4	N (Y) = 1,135,600.30' E (X) = 2,464,581.66'	LAT: 37.024632°N LONG: 107.334049°W	FNL = 225' FWL = 168'	SECTION 18, T-32-N, R-4-W
PROPOSED BOTTOM HOLE LOCATION LATERAL #4	N (Y) = 1,135,190.74' E (X) = 2,458,390.00'	LAT: 37.023172°N LONG: 107.355225°W	FNL = 730' FEL = 814'	SECTION 14, T-32-N, R-5-W

NOTES:

1. WELL LOCATION FOOTAGE CALLS MEASURED PERPENDICULAR TO SECTION LINES.
2. WELL GPS OBSERVATION PERFORMED BY NELSON ROSS ON 11/1/2017 - PDOP VALUE = 1.85
3. BEARINGS & DISTANCE SHOWN ARE FIELD MEASURED UNLESS OTHERWISE NOTED.
4. ALL MEASURED DISTANCES SHOWN ARE GRID DISTANCE WITH NO SCALE FACTOR APPLIED.
5. BEARINGS ARE BASED ON THE NORTH AMERICAN DATUM OF 1983, COLORADO SOUTH STATE PLANE COORDINATE SYSTEM, ZONE 0503.
6. ELEVATION IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID12A).



I, KENNETH E. REA, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE WELL LOCATION SHOWN ON THIS PLAT IS ACCURATELY PLOTTED FROM FIELD NOTES OF ACTUAL SURVEYS MADE UNDER MY DIRECT SUPERVISION, AND THAT THIS PLAT IS NOT A LAND SURVEY PLAT OR IMPROVEMENT SURVEY PLAT, AND THAT IT IS NOT TO BE RELIED UPON FOR THE ESTABLISHMENT OF FENCE, BUILDING, OR OTHER FUTURE IMPROVEMENT LINES.

REVISED: 2/18/19  
SURVEYED: 11/1/17  
DRAWN BY: K.R.  
CHECKED BY: K.R.  
FILE NO: RW132MP2 JOB NO. RW132

**SHEET 6 OF 6**

PREPARED FOR:

**RED WILLOW PRODUCTION CO.**

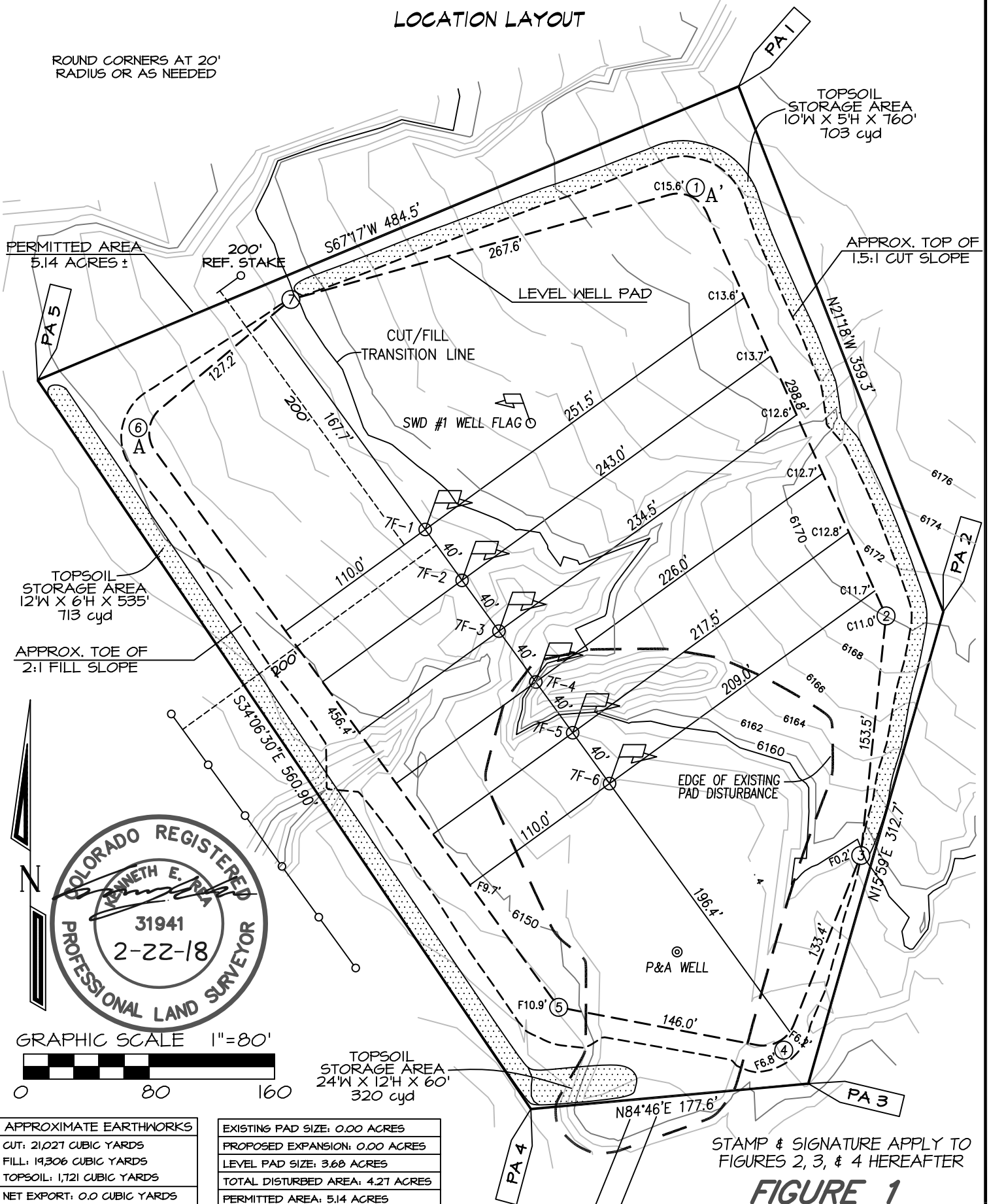
**NORTHSTAR  
SURVEYING & MAPPING, INC.**

768 County Rd. 308  
DURANGO, CO. 81303  
(970) 385-0851

**RED WILLOW PRODUCTION COMPANY: NORTH CARRACAS PAD 2F**  
**NORTH CARRACAS 32-4 7F-1, 7F-2, 7F-3, 7F-4, 7F-5, & 7F-6**

**LOCATION LAYOUT**

ROUND CORNERS AT 20'  
RADIUS OR AS NEEDED



STAMP & SIGNATURE APPLY TO  
FIGURES 2, 3, & 4 HEREAFTER

**FIGURE 1**

DRAWING SCALE: 1" = 80'

DATE DRAWN: 11/30/17

NORTHSTAR SURVEYING & MAPPING, INC.

FILE NO. RW132CFA

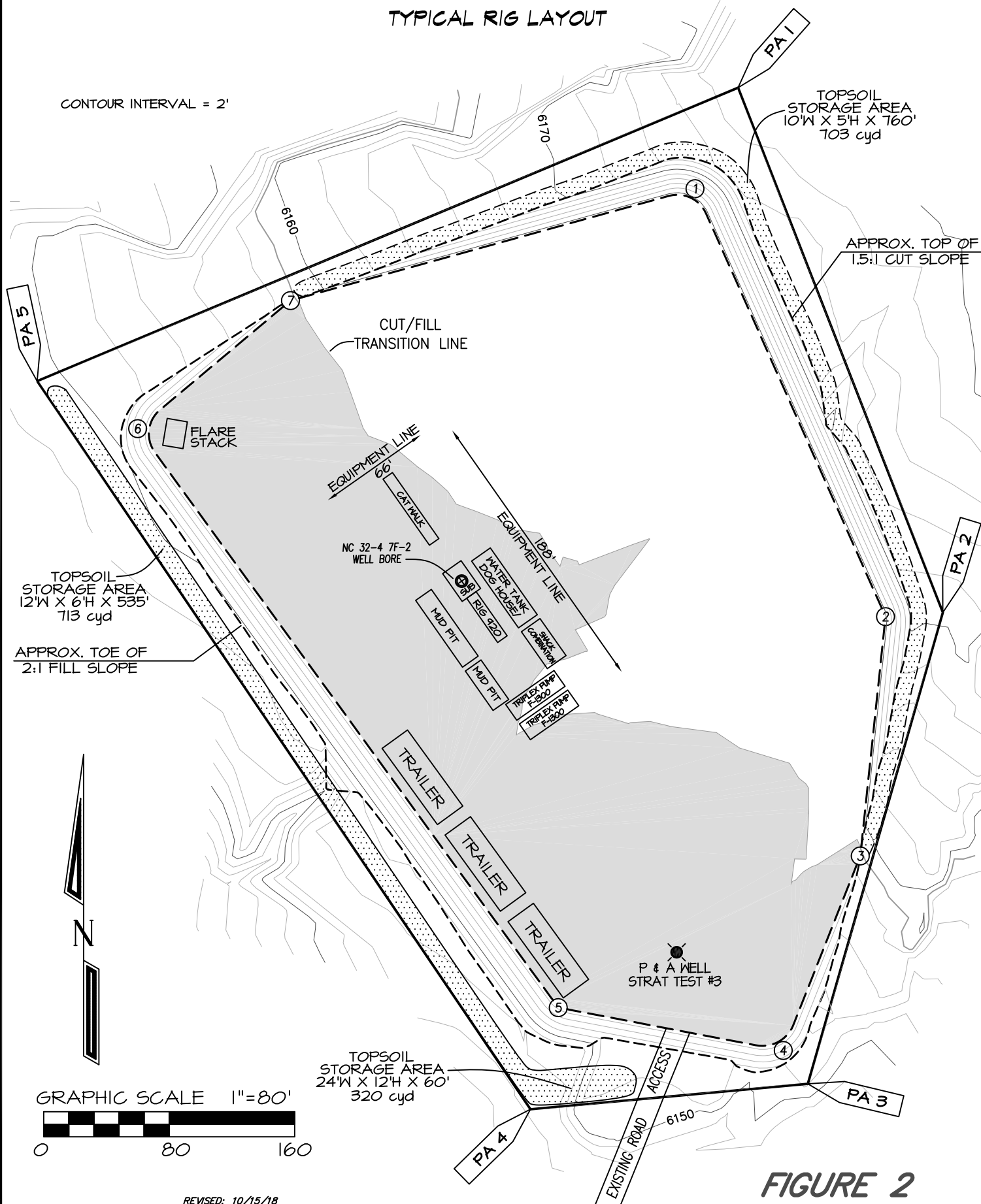
DRAWN BY: K.R.

CHECKED BY: K.R.

APPROXIMATE EARTHWORKS	
CUT:	21,027 CUBIC YARDS
FILL:	19,306 CUBIC YARDS
TOPSOIL:	1,721 CUBIC YARDS
NET EXPORT:	0.0 CUBIC YARDS

EXISTING PAD SIZE:	0.00 ACRES
PROPOSED EXPANSION:	0.00 ACRES
LEVEL PAD SIZE:	3.68 ACRES
TOTAL DISTURBED AREA:	4.27 ACRES
PERMITTED AREA:	5.14 ACRES

**RED WILLOW PRODUCTION COMPANY: NORTH CARRACAS PAD 2F**  
**NORTH CARRACAS 32-4 7F-1, 7F-2, 7F-3, 7F-4, 7F-5 & 7F-6**  
**TYPICAL RIG LAYOUT**



**FIGURE 2**



## FACILITY LAYOUT & RECLAMATION

TOPSOIL  
STORAGE AREA  
10'W X 5'H X 760'  
703 cyd

APPROX. TOP OF  
1.5:1 CUT SLOPE

- EDGE OF RECLAIMED PAD  
3.33 AC.  $\pm$

SND #1 WELL FLAG

SWD PUMP &  
GENERATOR  
HOUSING

FUEL  
LINE

WELLHEAD

WELLHEAD

WELLHEAD

WELLHEAD

WELLHEAD

WELLHEAD

SEPARATORS

METERS

COMPRESSOR PAD

WATER  
PIPELINE  
P & A WELL  
STRAT TEST #3

APPROX. TOE OF  
2:1 FILL SLOPE

GRAPHIC SCALE 1"=80'

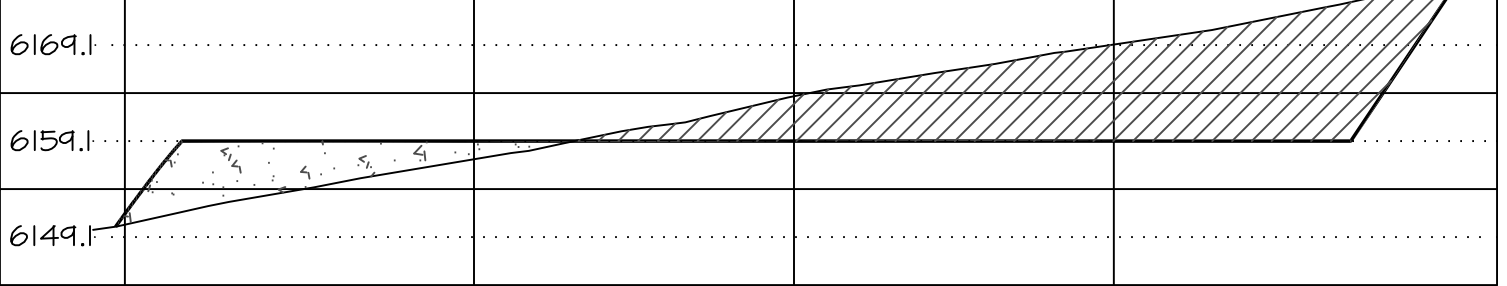
A number line is shown with markings at 0, 80, and 160. The segment from 0 to 80 is divided into 8 equal intervals, each containing a black and white checkerboard pattern. The segment from 80 to 160 is a solid black bar.

**FIGURE 3**

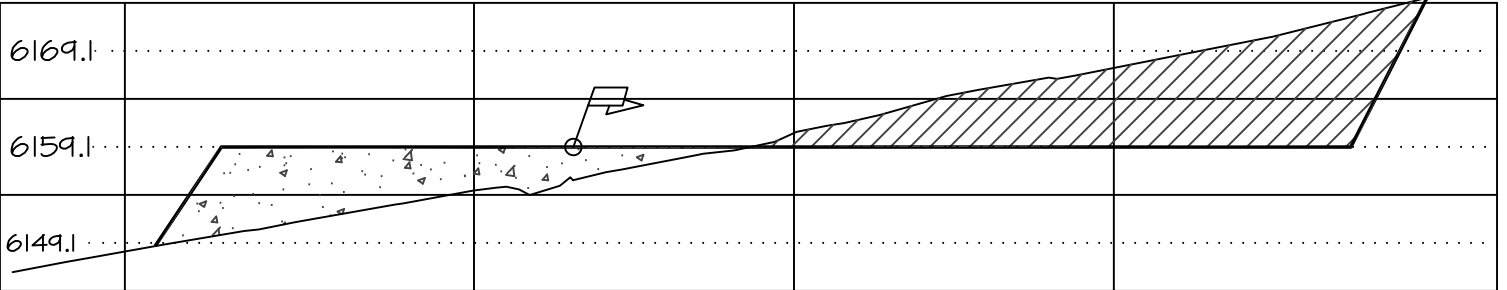
RED WILLOW PRODUCTION COMPANY: NORTH CARRACAS PAD 2F  
NORTH CARRACAS 32-4 7F-1, 7F-2, 7F-3, 7F-4, 7F-5, & 7F-6

PAD CROSS SECTION DETAIL

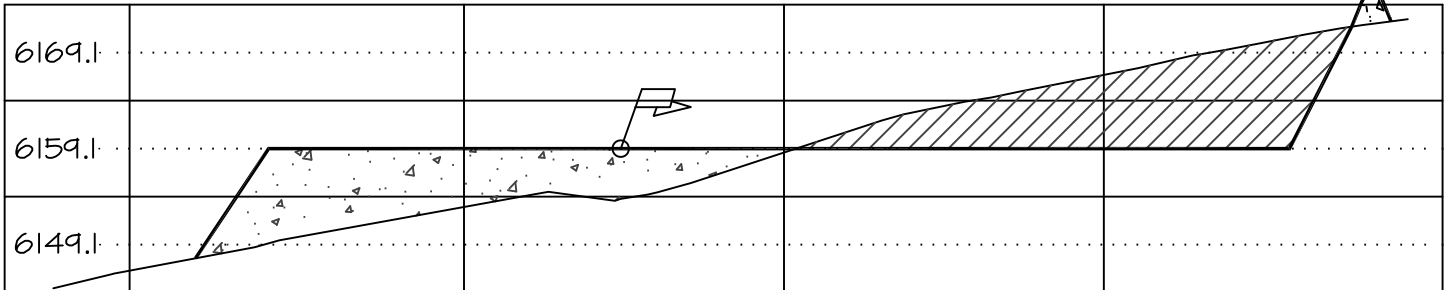
ELEV. A-A'



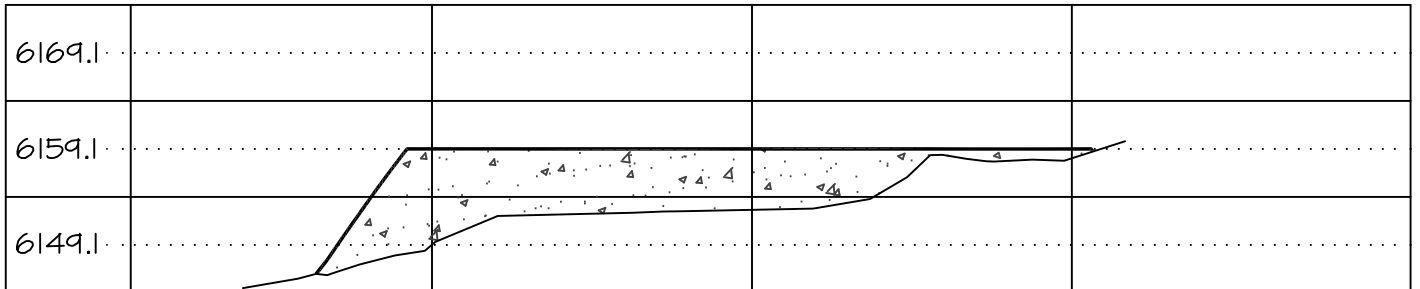
ELEV. B-B'



ELEV. C-C'



ELEV. D-D'



VERTICAL SCALE: 1" = 20' / HORIZONTAL SCALE: 1" = 60'

FIGURE 4

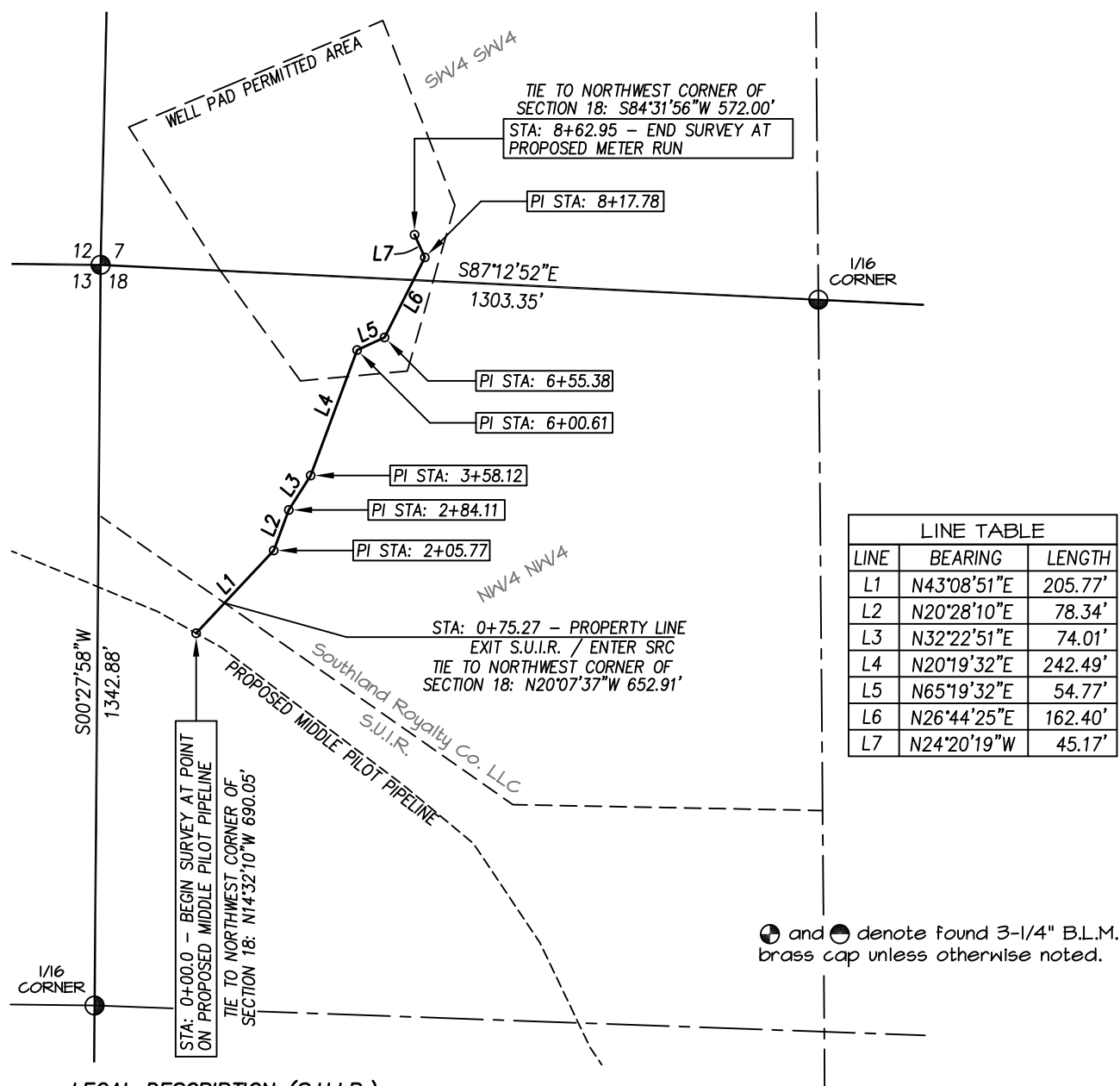
DATE DRAWN: 10/30/17

NORTHSTAR SURVEYING & MAPPING, INC.

FILE NORW132CFB

DRAWN BY: K.R.

CHECKED BY: K.R.



OWNERSHIP	STATION	FEET/RODS
S.U.I.R.	0+00.0 TO 0+75.27	75.27 / 4.56
Southland Royalty Company LLC	0+75.27 TO 8+62.95	787.68 / 47.74

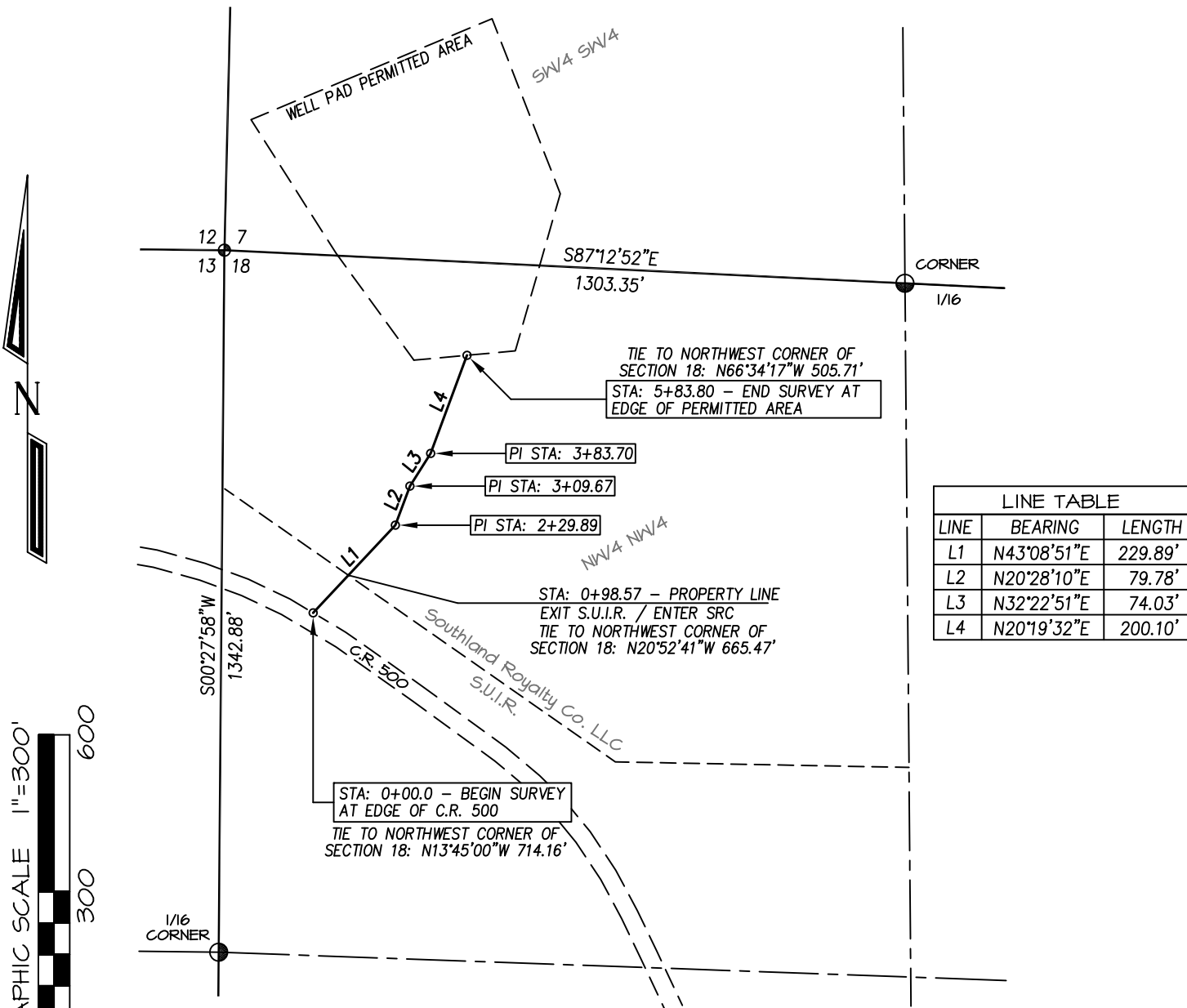
A circular seal for a Colorado Registered Professional Land Surveyor. The outer ring contains the text "COLORADO REGISTERED" at the top and "PROFESSIONAL LAND SURVEYOR" at the bottom. Inside the ring, the name "KENNETH E. REA" is written in a stylized font, with a signature over it. Below the name, the number "31941" and the date "12-1-17" are printed.

I, KENNETH E. REA, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAT WAS MADE UNDER MY DIRECT SUPERVISION AND THAT THIS PLAT ACCURATELY REPRESENTS THIS SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF.

DRAWN BY: K.R.	SURVEYED: 11/3/17
CHECKED BY: K.R.	DRAWN: 12/01/17
FILE NO. RW132PL	JOB NO. RW132

768 County Rd. 308  
DURANGO, CO. 81303  
(970) 385-0851

RED WILLOW PRODUCTION COMPANY: NORTH CARRACAS PAD 2F  
PROPOSED ACCESS ROAD LOCATED IN THE NW/4 NW/4 OF SECTION 18,  
T32N, R4W, N.M.P.M., ARCHULETA COUNTY, COLORADO



- LEGAL DESCRIPTION (S.U.I.R.) -

An access easement being twenty feet (20') wide located in the NW/4 NW/4 of Section 18, Township 32 North, Range 4 West, N.M.P.M., Archuleta County, Colorado.  
Said easement lying ten feet (10') on each side of the following described centerline:  
Beginning at a point on the north edge of Archuleta C.R. 500, whence the Northwest corner of said Section 18, being a 3-1/4" B.L.M. brass cap, bears N13°45'00"W a distance of 714.16 feet.  
Thence N43°08'51"E a distance of 98.57 feet terminating at a point whence said Northwest corner of Section 18 bears: N20°52'41"W a distance of 665.47 feet.  
Described easement being 98.57 feet in length & containing 0.05 acres, more or less.

- LEGAL DESCRIPTION (Southland Royalty Company LLC) -

An access easement being twenty feet (20') wide located in the NW/4 NW/4 of Section 18, Township 32 North, Range 4 West, N.M.P.M., Archuleta County, Colorado.  
Said easement lying ten feet (10') on each side of the following described centerline:  
Beginning at a point whence the Northwest corner of said Section 18, being a 3-1/4" B.L.M. brass cap, bears N20°52'41"W a distance of 665.47 feet.  
Thence N43°08'51"E a distance of 131.32 feet,  
Thence N20°28'10"E a distance of 79.78 feet,  
Thence N32°22'51"E a distance of 74.03 feet,  
Thence N20°19'32"E a distance of 200.10 feet, terminating edge of proposed North Carracas Pad 2F permitted well pad area whence said Northwest corner of Section 18 bears: N66°34'17"W a distance of 505.71 feet.  
Described easement being 485.23 feet in length & containing 0.22 acres, more or less.

⊕ and ⊙ denote found 3-1/4" B.L.M. brass cap unless otherwise noted.

OWNERSHIP	STATION	FEET/RODS
S.U.I.R.	0+00.0 TO 0+98.57	98.57 / 5.97
Southland Royalty Company LLC	0+98.57 TO 5+83.80	485.23 / 29.41

BASIS OF BEARING:

REAL-TIME KINEMATIC GPS SURVEY  
SOLUTION OF CO SOUTH STATE  
PLANE (NAD 83) COORDINATE GRID  
- NO ROTATION OR SCALE FACTOR APPLIED -

DRAWN BY: K.R. SURVEYED: 11/3/17  
CHECKED BY: K.R. DRAWN: 12/1/17  
FILE NO.: RW1324C JOB NO.: RW132

PREPARED FOR:  
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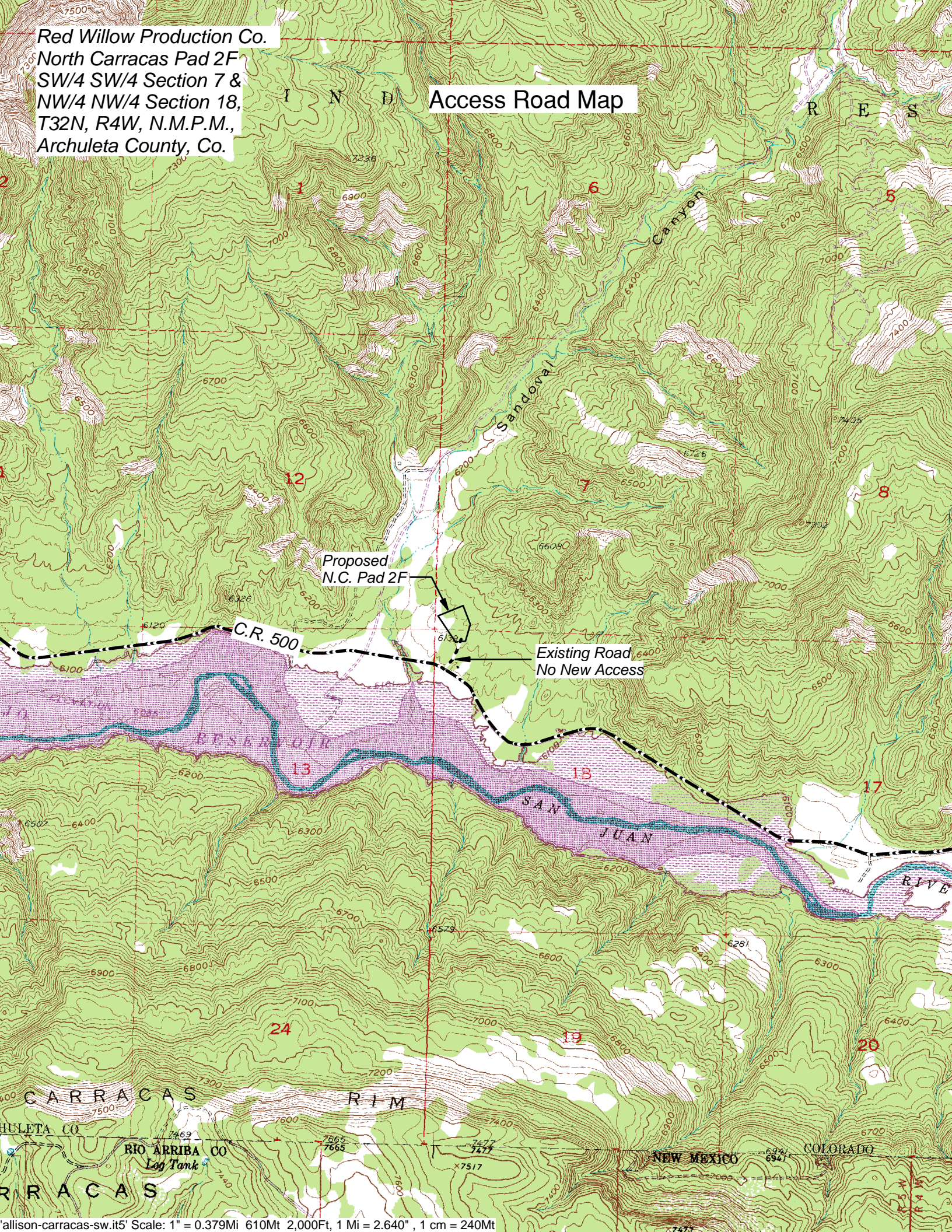


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Red Willow Production Co.  
North Carracas Pad 2F  
SW/4 SW/4 Section 7 &  
NW/4 NW/4 Section 18,  
T32N, R4W, N.M.P.M.,  
Archuleta County, Co.

# Access Road Map





*Red Willow Production Company*  
**North Carracas 32-4 7F-2**  
144' FSL, 333' FWL, Section 7, T32N, R4W, Archuleta County, Co.



Looking North



Looking East



Looking South



Looking West

All photos taken on 10/30/2017

**Directions from the Intersection of State Highway 172 & State Highway 151 in Ignacio, CO**

**to Red Willow Production Company: North Carracas Pad 2F**

**SW/4 SW/4 Section 7 & NW/4 NW/4 Section 18, T32N, R4W, N.M.P.M., Archuleta County, CO.**

From the Intersection of State Highway 172 & State Highway 151 in Ignacio, CO. travel East on State Hwy 151 for 19.7 miles;

Go right (East) for on Archuleta County Road #500 for 6.7 miles;

Go left (North) following existing road for 0.1 miles to staked North Carracas Pad 2F well location.