

LOCATED IN SECTIONS 28, 32, AND 33, TOWNSHIP 38 SOUTH, RANGE 4 WEST ALSO SECTIONS 5, 7, AND 8, TOWNSHIP 39 SOUTH, RANGE 4 WEST OF THE WILLAMETTE MERIDIAN

** RECEIVED **
Data 7-16-04 By BB
This survey consists of:
3 sheet(s) Map
0 page(s) Narrative
JACKSON COUNTY
SURVEYOR

NARRATIVE:

THE PURPOSE OF THIS SURVEY IS TO SHOW THE POSITIONS OF FOUND SURVEY MONUMENTS WITHIN THE THOMPSON CREEK BRIDGES PROJECT LIMITS PER ORS 209.155, TO RETRACE THE CENTER LINE AND RIGHT-OF WAY OF THOMPSON CREEK ROAD IN THE VICINITY OF EACH OF THE THREE BRIDGES IN THE PROJECT, AND LASTLY TO PROVIDE A GPS SURVEY REPORT AS PER ORS 209.250(5)(a)(b).

ALIGNMENT RESOLUTION:

I COMPUTED THE P.I.'S BETWEEN STATIONS 78+58.03 AND 289+75.35 BY HOLDING THE DATA IN THE THOMPSON CREEK ROAD FIELD NOTES OBTAINED FROM THE JACKSON COUNTY SURVEYOR'S OFFICE. I COMPUTED THE CENTERLINE CURVES AT EACH BRIDGE SITE BY HOLDING THE CURVE DATA FOUND IN THE ROLL MAP OBTAINED FROM THE COUNTY SURVEYOR'S OFFICE. NEXT, I USED THE DATA IN SURVEY 4337 TO COMPUTE THE THEORETICAL POSITIONS OF POINTS 1000 AND 1054. AS THE DIFFERENCE BETWEEN THE COMPUTED AND THE MEASURED POSITIONS OF SAID POINTS IS ONLY 0.02 FOOT, I HELD POINT 1054 FOR POSITION AND POINT 1000 FOR ROTATION AND TRANSFORMED THE ESTABLISHED ROAD ALIGNMENT ONTO THE TIED MONUMENTS. THIS RESULTED IN A GOOD FIT BETWEEN THE COMPUTED ALIGNMENT AND THE EXISTING ROAD AT ALL THREE BRIDGE SITES.

STATIONING AND RIGHT-OF-WAY WIDTH

THE RECORD STATIONING FOR THOMPSON CREEK ROAD IS FROM P.I TO P.I. ONLY. IN ORDER TO STATION THE CURVES, AT EACH SITE I STARTED STATIONING AT A P.I. ON THE NORTH END. AT THE SOUTH END I CREATED AN EQUATION STATION TO GET BACK ON STATION AS PER THE RECORD. THUS THE P.I. STATION OF THE CURVES ARE NOT RELATIVE TO THE RECORD P.I. STATIONS. I COMPUTED THE RIGHT-OF-WAY LINES PARALLEL WITH AND 30.00 FEET ON EACH SIDE OF CENTERLINE.

BASIS OF BEARING:

BASIS OF BEARINGS WAS ESTABLISHED BY GPS, UTILIZING THE NGS OPUS SOLUTIONS FROM THE NOAA WEBSITE (SEE GPS METHODOLOGY REPORT BELOW). FOR PURPOSES OF A BASIS OF BEARINGS, THE LINE BETWEEN CONTROL POINTS 100 AND 520 BEARS S30°40'02"W, 17,444.83 FEET. THE HORIZONTAL DATUM IS BASED UPON OREGON STATE PLANE, SOUTH ZONE *3602, NAD83(EPOCH:2002). THE STATE PLANE COORDINATES WERE CONVERTED TO LOCAL DATUM PLANE (LDP) COORDINATES BY DIVIDING STATE PLANE COORDINATES BY THE AVERAGE COMBINED SCALE FACTOR OF 0.99996277229, THEN SUBTRACTING 4,100,000 FROM THE EASTING. ALL BEARINGS ARE GRID, AND ALL DISTANCES REPRESENT TRUE GROUND DISTANCES.

GPS METHODOLOGY REPORT:

THE PURPOSE OF THIS PORTION OF THE SURVEY WAS TO ESTABLISH SITE GROUND SURVEY CONTROL IN A CORRIDOR ALONG THOMPSON CREEK ROAD. THE INTENT OF THIS APPROACH WAS TO TIE ALL THREE SITES ONTO ONE COORDINATE SYSTEM. DUE TO THE REMOTENESS OF THE PROJECT WE COULD FIND NO GPS REFERENCE POINTS OR STATIONS IN THE VICINITY. THEREFORE WE RELIED ON AN OPUS (ONLINE POSITIONING USER SERVICE) SOLUTION PROVIDED BY NGS ON THEIR WEBSITE (<http://www.ngs.noaa.gov/OPUS>). THE RESULTING CONTROL IS BY NO MEANS MEANT TO BE USED IN A GEODETIC NETWORK OR MEANT TO BE USED BY OTHERS AS GPS REFERENCE POINTS.

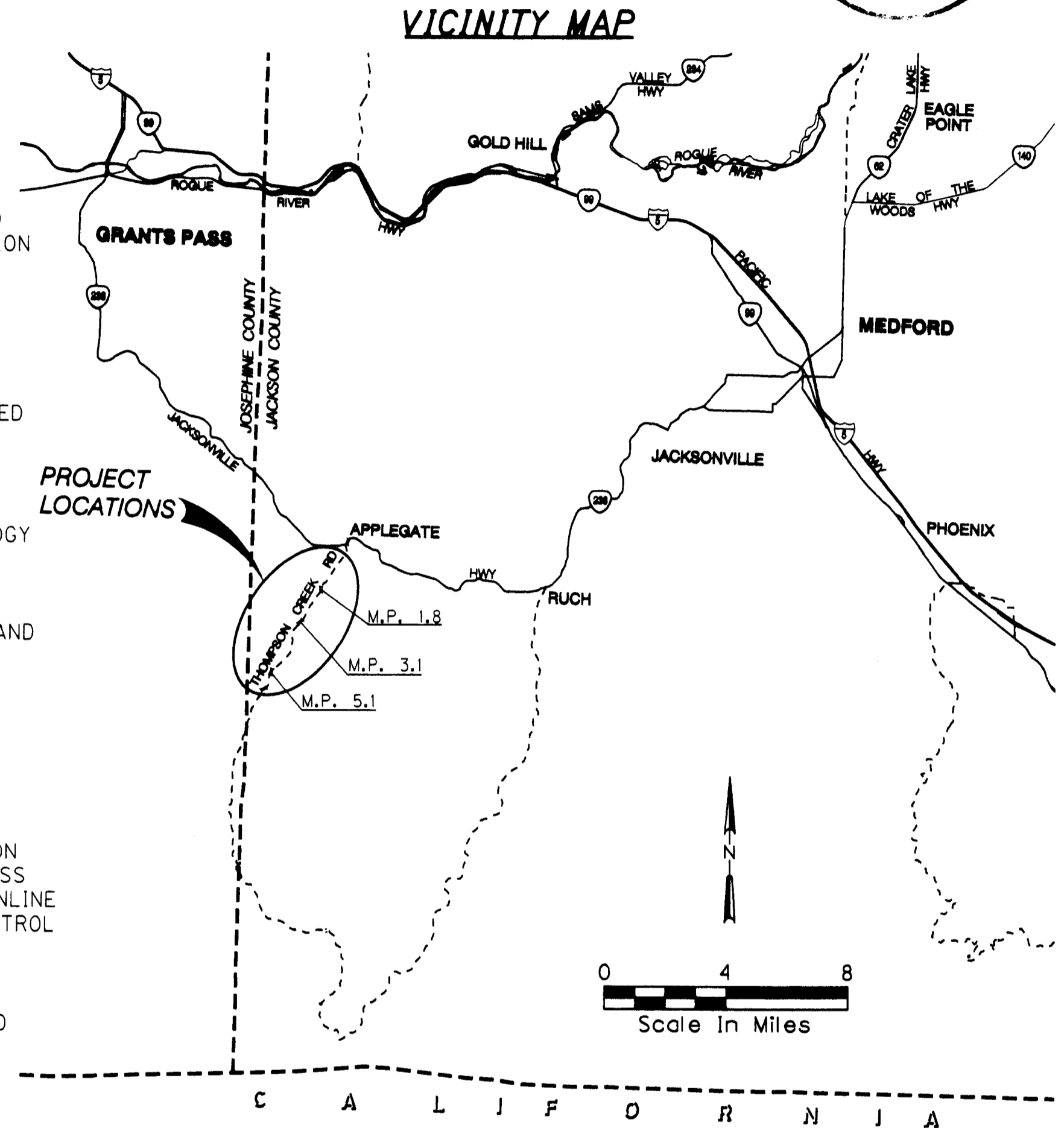
CONTROL WAS ESTABLISHED UTILIZING A GLOBAL POSITIONING SYSTEM (GPS) STATIC SURVEY. OBSERVATIONS WERE COLLECTED FROM MAY 17 THRU 21, 2004 BY A CH2M HILL CREW USING LEICA AT502 DUAL FREQUENCY GPS ANTENNAE. OBSERVATIONS WERE COLLECTED FOR A MINIMUM OF A 4 HOUR SESSION AS RECOMMENDED BY THE NGS NOAA OPUS WEBSITE.

CONTROL POINTS AT EACH OF THE THREE SITES WERE OCCUPIED, THE DATA WAS FORWARDED TO OPUS, AND THE STATE PLANE COORDINATES WERE RETURNED. (SEE TABLE FOR RESULTS AND RESIDUALS)

GPS POINTS OPUS RESULTS

POINT	LATITUDE(N)	LONGITUDE(W)	PEAK ERROR		SPC		LDP	
			LATITUDE	LONGITUDE	NORTHING(ft)	EASTING(ft)	NORTHING	EASTING
100	42-14-05.82589	123-11-04.50900	0.015(m)	0.018(m)	218766.41	4194331.45	218774.55	94487.60
110	42-13-57.02181	123-11-05.74192	0.016(m)	0.013(m)	217878.57	4194210.18	217886.69	94366.32
300	42-13-05.17682	123-11-49.02236	0.075(m)	0.060(m)	212737.48	4190786.79	212745.40	90942.81
320	42-13-04.78745	123-11-46.32335	0.010(m)	0.026(m)	212691.54	4190988.52	212699.46	91144.54
500	42-11-41.35830	123-12-52.99757	0.042(m)	0.020(m)	204412.24	4185700.19	204419.85	85856.02
520	42-11-34.85207	123-12-56.25109	0.006(m)	0.027(m)	203761.88	4185434.05	203769.46	85589.87

NOTE: ALL GPS POINTS ARE 5/8" IRON RODS WITH RED PLASTIC CAP STAMPED "CH2M HILL CONTROL"



REFERENCES:
SN 4337, SN 17408, ROLL MAP AND FIELD NOTES FOR THOMPSON CREEK ROAD

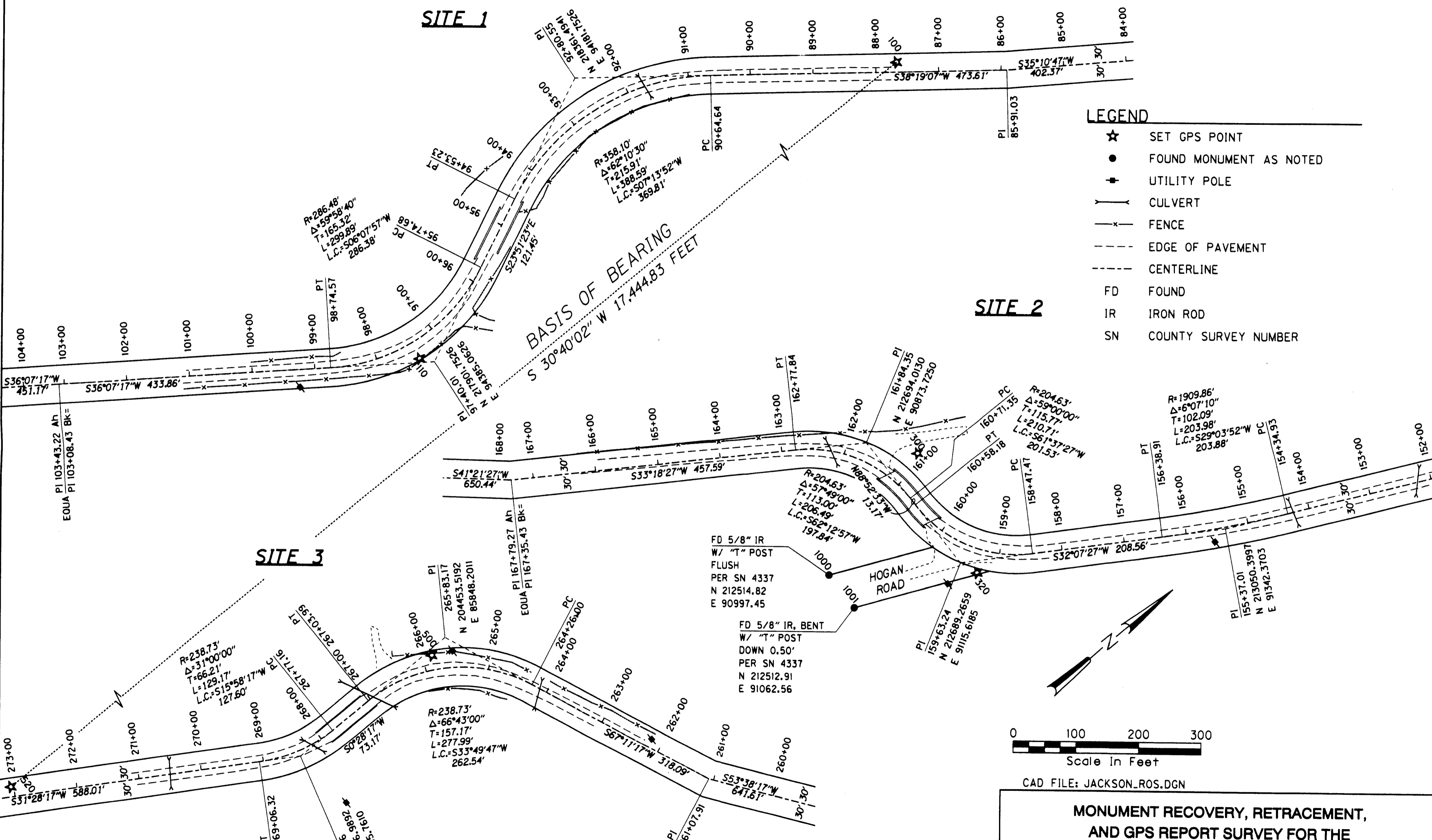
REGISTERED
PROFESSIONAL
LAND SURVEYOR
John V. Thatcher
OREGON
JULY 19, 1994
JOHN V. THATCHER
2681
RENEWAL: 6/30/06
SIGNED: 8-2-04

CAD FILE: JACKSON_ROS.DGN

**MONUMENT RECOVERY, RETRACEMENT,
AND GPS REPORT SURVEY FOR THE
THOMPSON CREEK ROAD BRIDGES PROJECT
JACKSON COUNTY, OREGON**

CH2MHILL
CH2M HILL SURVEY GROUP
825 N.E. MULTNOMAH, SUITE 1300, PORTLAND, OR 97232
JULY 1, 2004 SHEET 1 OF 3

LOCATED IN SECTIONS 28, 32, AND 33, TOWNSHIP 38 SOUTH, RANGE 4 WEST
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- LEGEND**
- ★ SET GPS POINT
 - FOUND MONUMENT AS NOTED
 - ⊕ UTILITY POLE
 - x— CULVERT
 - x— FENCE
 - - - - EDGE OF PAVEMENT
 - - - - CENTERLINE
 - FD FOUND
 - IR IRON ROD
 - SN COUNTY SURVEY NUMBER

RECEIVED
Date 7-16-04 By *[Signature]*
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OREGON JULY 19, 1994 JOHN V. THATCHER 2681
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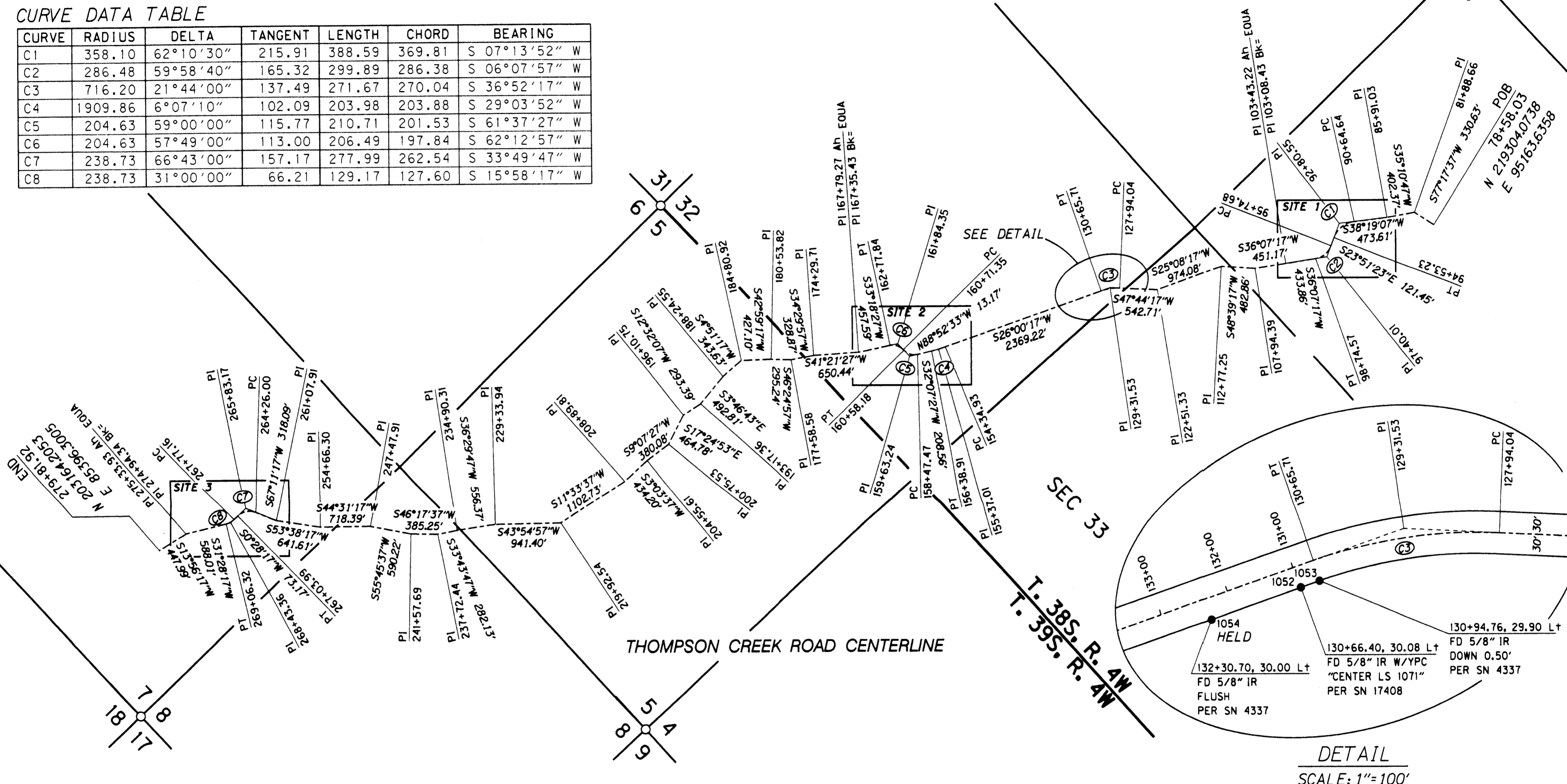
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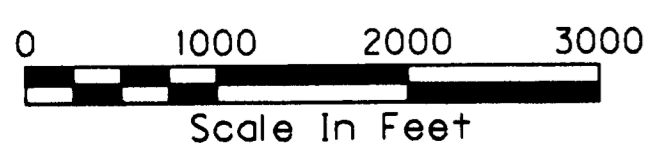
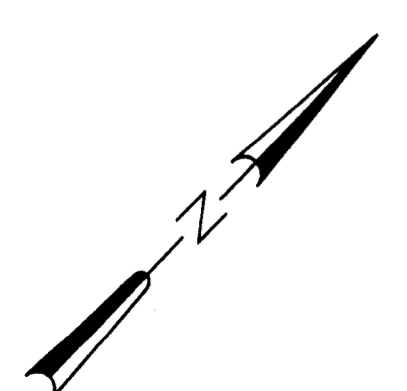
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CURVE DATA TABLE

CURVE	RADIUS	DELTA	TANGENT	LENGTH	CHORD	BEARING
C1	358.10	62°10'30"	215.91	388.59	369.81	S 07°13'52" W
C2	286.48	59°58'40"	165.32	299.89	286.38	S 06°07'57" W
C3	716.20	21°44'00"	137.49	271.67	270.04	S 36°52'17" W
C4	1909.86	6°07'10"	102.09	203.98	203.88	S 29°03'52" W
C5	204.63	59°00'00"	115.77	210.71	201.53	S 61°37'27" W
C6	204.63	57°49'00"	113.00	206.49	197.84	S 62°12'57" W
C7	238.73	66°43'00"	157.17	277.99	262.54	S 33°49'47" W
C8	238.73	31°00'00"	66.21	129.17	127.60	S 15°58'17" W



CAD FILE: JACKSON_ROS.DGN



- LEGEND**
- FOUND MONUMENT AS NOTED
 - ⊕ APPROXIMATE SECTION CORNER
 - FD FOUND
 - IR IRON ROD
 - W/YPC WITH YELLOW PLASTIC CAP
 - CENTERLINE OF THOMPSON CREEK ROAD

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