

HORIZONTAL CONTROL, RECOVERY AND RETRACEMENT MAP

BY THE OREGON DEPARTMENT OF TRANSPORTATION
FOR DOUGLAS COUNTY PUBLIC WORKS DEPARTMENT
LOCATED IN THE S.E. 1/4, N.W. 1/4 AND S.W. 1/4 OF SEC. 32, T. 26 S., R. 6 W., W.M.
DOUGLAS COUNTY

FILED

Date: 10-7-1998 By: JP
This survey consists of:
Map: M129-16
Narrative:
Corner Rpt:
DOUGLAS COUNTY SURVEYOR

Horizontal Control Network

SURVEY NARRATIVE

Set Monuments					
Point	DESCRIPTION	NORTH (M)	EAST (M)	ELEV. (M)	
3	SET 13 MM SO. IRON ROD 760 MM LONG W/38 MM DIA. ALUM. CAP STAMPED "ODOT HORIZ. CONTROL 3"	19878.009	39722.697	121.368	
4	SET 13 MM SO. IRON ROD 760 MM LONG W/38 MM DIA. ALUM. CAP STAMPED "ODOT HORIZ. CONTROL 4"	19816.618	39577.820	121.060	
5	SET 13 MM SO. IRON ROD 760 MM LONG W/38 MM DIA. ALUM. CAP STAMPED "ODOT HORIZ. CONTROL 5"	19927.560	39481.237	121.223	
6	SET 13 MM SO. IRON ROD 760 MM LONG W/38 MM DIA. ALUM. CAP STAMPED "ODOT HORIZ. CONTROL 6"	19993.734	39399.999	121.141	
7	SET 13 MM SO. IRON ROD 760 MM LONG W/38 MM DIA. ALUM. CAP STAMPED "ODOT HORIZ. CONTROL 7"	20155.626	39229.806	120.711	
8	SET 13 MM SO. IRON ROD 760 MM LONG W/38 MM DIA. ALUM. CAP STAMPED "ODOT HORIZ. CONTROL 8"	20304.184	39081.574	120.862	
9	SET 13 MM SO. IRON ROD 760 MM LONG W/38 MM DIA. ALUM. CAP STAMPED "ODOT HORIZ. CONTROL 9"	20489.521	38882.280	118.550	

THE PURPOSE OF THIS METRIC SURVEY NETWORK WAS TO ESTABLISH CONTROL FOR A DOUGLAS COUNTY BRIDGE REPLACEMENT PROJECT CALLED "SOUTH UMPQUA (CURRY RD.) O'FLOW BR #19C184".

THE NETWORK USED AS A BASIS OF BEARING TWO RIGHT-OF-WAY MONUMENTS NAMED POINTS #1 & #2. POINT #1 IS A 32 MM (1 1/4") IRON PIPE SET ON CENTERLINE. POINT #2 IS A 32 MM (1 1/4") IRON PIPE SET ON CENTERLINE. THE BEARING BETWEEN POINTS #1 AND #2 WAS OBTAINED FROM DOUGLAS COUNTY SURVEYORS OFFICE MAP #M22-23 (CS 43/190). NO STATIONING WAS GIVEN FOR THESE POINTS. STATIONING AND COORDINATES FOR THIS SURVEY ARE ASSUMED.

POINT #2 WAS OCCUPIED AND POINT #1 WAS BACKSIGHTED. TWO TO FOUR NETWORK POINTS WERE THEN FORESIGHTED FROM EACH OCCUPIED POINT. POINT #1 WAS THE ONLY POINT NOT OCCUPIED. SET NETWORK POINTS INCLUDE POINT #3 THRU POINT #9. POINT #10 IS THE QUARTER CORNER OF SECTIONS 31 & 32, T26S, R6W, W.M. POINT #11 IS A WITNESS CORNER TO THE QUARTER CORNER.

A WILD T1610 ELECTRONIC THEODOLITE AND A WILD D11600 DISTOMAT DISTANCE METER WERE USED TO MAKE ALL NETWORK OBSERVATIONS. THE T1610 THEODOLITE HAS A STANDARD ANGULAR ERROR OF +/-1.5 SECONDS AND THE D11600 HAS A STANDARD DISTANCE ERROR OF +/- 3 MM +/- 2 PPM.

VERTICAL CONTROL WAS ESTABLISHED USING BENCH MARK #NU2 LOCATED 60 FEET WEST OF THE PUMPHOUSE IN SINGLETON PARK. A CLOSED LEVEL CIRCUIT WAS RUN FROM BM #NU2 THRU NETWORK POINTS #11, AND #9 THRU #1 USING A WILD NA2002 LEVEL. CLOSURE = 8 MM X SQUARE ROOT OF 1,341 = 0.0093 M. THE STANDARD DEVIATION FOR A WILD NA2002 IS 0.9 MM IN A 1 KM DOUBLE RUN LEVEL CIRCUIT.

THE HORIZONTAL CONTROL NETWORK WAS ADJUSTED USING A LEAST SQUARES ADJUSTMENT TECHNIQUE. THE LEAST SQUARES ADJUSTMENT PRODUCED: ANGULAR RESIDUALS (THE AMOUNTS THE FIELD OBSERVED ANGLES WERE CHANGED DUE TO THE ADJUSTMENT) AVERAGING LESS THAN 1 SECOND AND NO GREATER THAN 4 SECONDS; AND DISTANCE RESIDUALS (THE AMOUNTS THE FIELD OBSERVED DISTANCES WERE CHANGED DUE TO THE ADJUSTMENT) AVERAGING 1.08 MM AND NO GREATER THAN 4 MM. THE SURVEY WAS COMPLETED 31 MARCH, 1997.

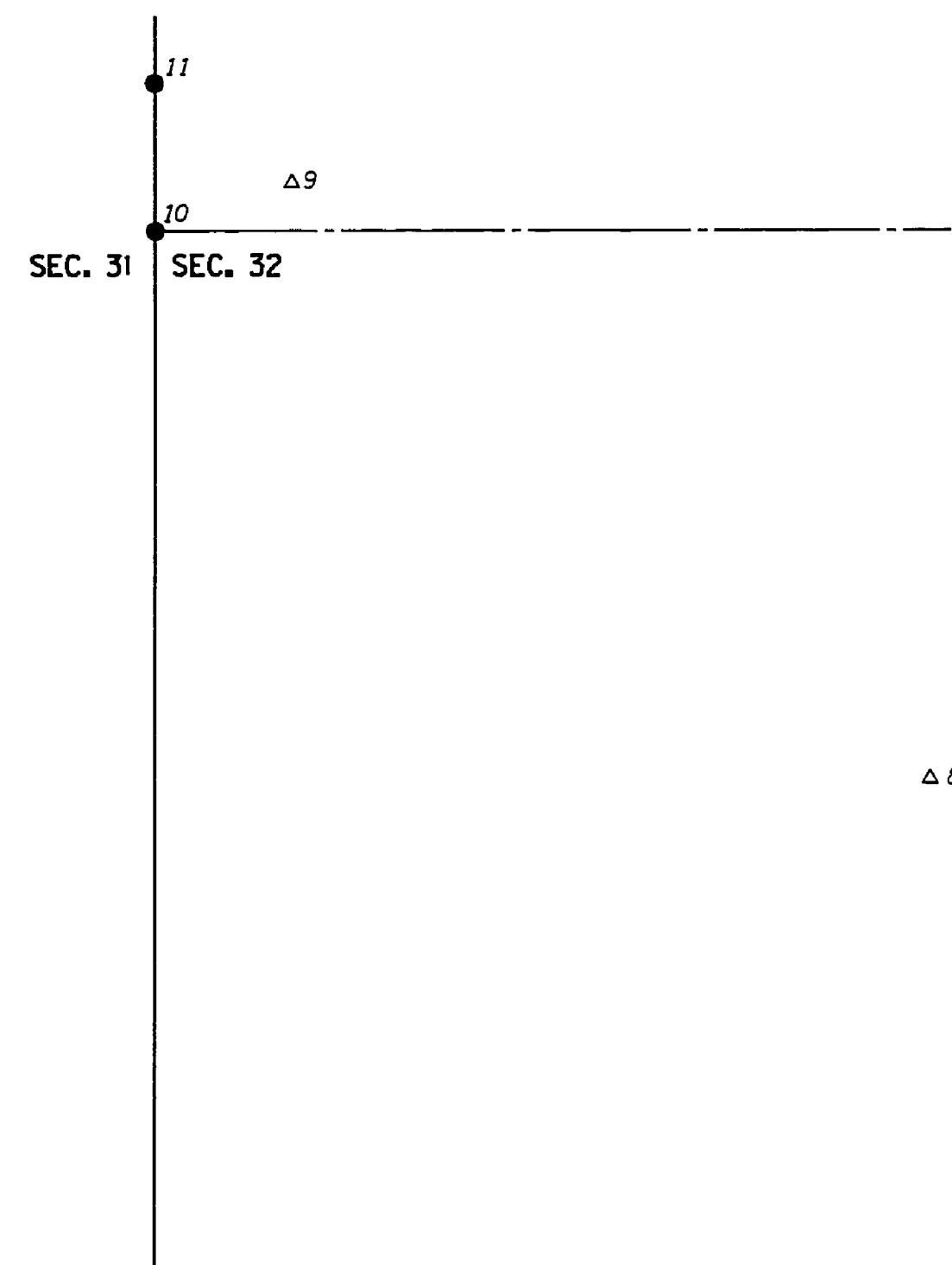
THERE IS A 95% PROBABILITY THAT THE FINAL POSITIONS OF THE CONTROL POINTS ARE WITHIN THE ERROR ELLIPSES AS SHOWN IN THE TABLE BELOW:

PT.	STANDARD DEVIATIONS		STANDARD ERROR ELLIPSES		
	NORTH	EAST	SEMI MAJOR	SEMI MINOR	ORIENTATION
3	0.002	0.001	0.003	0.001	S21°07'33"E
4	0.003	0.002	0.003	0.001	S18°58'06"E
5	0.004	0.002	0.004	0.002	N17°51'08"E
6	0.005	0.003	0.006	0.002	N29°50'54"E
7	0.009	0.007	0.011	0.002	N38°04'43"E
8	0.013	0.012	0.018	0.003	N40°57'41"E
9	0.020	0.018	0.027	0.003	N41°57'18"E
10	0.022	0.020	0.029	0.003	N41°32'28"E
11	0.022	0.018	0.028	0.003	N38°51'48"E

Found Monuments					
Point	DESCRIPTION	NORTH (M)	EAST (M)	ELEV. (M)	
1	FD 32 MM (1 1/4") IRON PIPE 490 MM BELOW PVMT. (DCSO M22-23) GOOD CONDITION	19824.131	39587.348	120.643	
2	FD 32 MM (1 1/4") IRON PIPE 300 MM BELOW PVMT (DCSO M22-23) GOOD CONDITION	20000.000	40000.000	120.659	
10	FD 19 mm (3/4") IRON ROD 350 MM BELOW SUR. (1/4 CORNER BTW. SEC. 31 & 32 T26S R6W) GOOD CONDITION	20474.628	38839.255		
11	FD 32 MM (1 1/4") IRON PIPE W/64 MM (2 1/2") BRASS DISK STAMPED "COUNTY SURVEYORS OFFICE WC 150 S TO 1/4 S31 S32 T26S R6W 1964" 60 MM BELOW SUR. POOR CONDITION	20520.547	38838.981	119.103	
1000	FD 38 MM (1 1/2") IRON PIPE 100 MM BELOW SUR. GOOD CONDITION (REF. DCSO #M95-16.)	19994.976	40007.611		
1001	FD 13 mm (1/2") IRON ROD W/25 mm (1") PLASTIC. Cap Stamped "BAUGHMAN TECH. SERV." 100 MM BELOW SUR. (REF. DCSO #M95-16) GOOD CONDITION	19955.138	39914.150		
1002	FD 19 mm (3/4") IRON PIPE FLUSH W/SUR. (REF. DCSO #M95-16) GOOD CONDITION	19966.095	39901.015		
1003	FD 19 mm (3/4") IRON PIPE 100 MM BELOW SUR. (REF. DCSO #M95-16) GOOD CONDITION	19948.143	39858.917		
1004	FD 19 mm (3/4") IRON PIPE 300 MM BELOW SUR. (REF. DCSO #M22-23) GOOD CONDITION	19937.413	39833.678		
1005	FD 19 mm (3/4") IRON PIPE 150 MM BELOW SUR. (REF. DCSO #M95-16) GOOD CONDITION	19906.250	39798.363		
1006	FD AXLE 200 MM BELOW SUR. (REF. DCSO #M22-23) POOR CONDITION	19958.714	39454.900		
1007	FD AXLE 100 MM BELOW SUR. (REF. DCSO #M22-23) GOOD CONDITION	20057.272	39350.573		
1008	FD AXLE 150 MM BELOW SUR. (REF. DCSO #M22-23) GOOD CONDITION	20171.995	39228.741		
1009	FD 16 MM (5/8") IRON ROD W/32 MM (1 1/4") PLASTIC CAP STAMPED "LS 1076" FLUSH W/SURFACE (REF. DCSO #M11-13) GOOD CONDITION	19820.095	39597.193		

RETRACEMENT NARRATIVE

THE ALIGNMENTS INCLUDE THREE TANGENT SECTIONS RADIATING FROM POINT #1 AS THE CENTRAL VERTEX. POINTS #1 AND #2 MONUMENT THE CENTERLINE OF COUNTY RD. #80 AND LIE ON A BEARING OF N66°55'00"E (DCSO MAP #M22-23) THE ALIGNMENT FOR COUNTY RD. #80A BEARS N46°45'00"W FROM POINT #1 (DCSO MAP #M22-23). THIS BEARING SUBSTANTIALLY FITS FOUND PROPERTY PINS ALONG THE ALIGNMENT. A BEARING OF S16°00'00"W FOR THE SOUTHWEST EXTENSION OF COUNTY RD. #80 WAS OBTAINED FROM DOUGLAS COUNTY ASSESSORS OFFICE MAP 26 6 32.



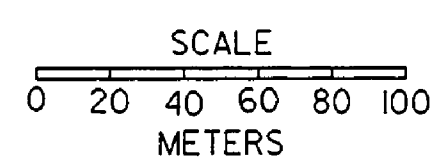
REGISTERED PROFESSIONAL LAND SURVEYOR
Robert G. Pappe
OREGON JANUARY 29, 1991
ROBERT G. PAPPE 2483
EXPIRES 12-31-98

ROBERT G. PAPPE P.L.S.
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3500 N.W. Stewart Parkway
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SURVEY COMPLETED 31 MARCH, 1997

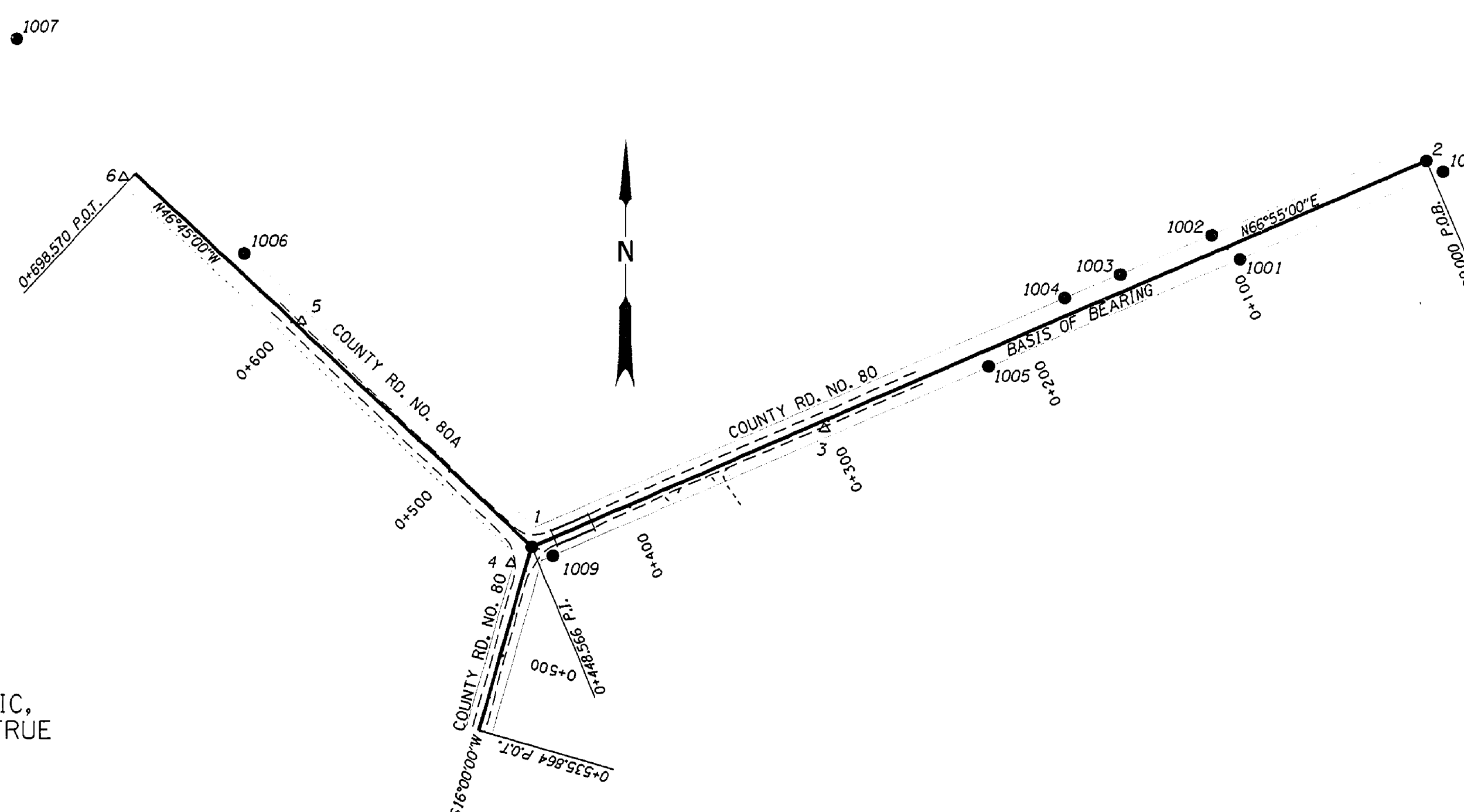
LEGEND

- △ SET MONUMENT
- FOUND MONUMENT



Scale 1:2000

NOTE: ALL COORDINATES ON THIS MAP ARE METRIC, ON A LOCAL DATUM PLANE, WHICH REPRESENTS TRUE GROUND DISTANCES. TO CONVERT COORDINATES TO ENGLISH, DIVIDE THE METRIC COORDINATES BY 0.3048



OREGON DEPARTMENT OF TRANSPORTATION HORIZONTAL CONTROL, RECOVERY, AND RETRACEMENT MAP

SOUTH UMPQUA (CURRY RD.)
O'FLOW BR. #19C184
DOUGLAS COUNTY

ODOT
3500 Stewart Parkway, Suite 140
Roseburg, Oregon 97470

KEY NO.: 08508