PROJECT LOCATED IN THE SE $\frac{1}{4}$ SEC 30; NE $\frac{1}{4}$ SEC 31; NW, SW, SE $\frac{1}{4}$ 'S SEC 32 OF T37S, R1W, W.M.; AND NE 1/4 SEC 5; NW, SW, SE 1/4'S SEC 4; NE 1/4 SEC 9; NW, SW 1/4'S SEC 10; NE, SE 1/4'S SEC 15; SW 1/4 SEC 14; NW, NE, SE $\frac{1}{4}$ 'S SEC 23; SW $\frac{1}{4}$ SEC 24; NW, NE $\frac{1}{4}$ 'S SEC 25 OF T38S, R1W, W.M.; AND SW, SE $\frac{1}{4}$ 'S SEC 30; NE $\frac{1}{4}$ SEC 31; NW, NE, SE $\frac{1}{4}$ 'S SEC 32; SW, SE $\frac{1}{4}$ 'S SEC 33 OF T38S, R1E, W.M.

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CONTROL AND I-5 CENTER LINE RECOVERY SURVEY FOR OREGON DEPT. OF TRANSPORTATION REGION 3

I-5: N. ASHLAND - 12TH STREET JACKSON COUNTY KEY NO. 11783





17355 SW BOONES FERRY RD. LAKE OSWEGO, OREGON 97035 PHONE: (503) 635-3618 FAX: (503) 635-5395 www.otak.com

PROJECT NO. 11732-014-001 DECEMBER 4, 2003 SHEET 1 OF 9



NARRATIVE

PURPOSE OF SURVEY

THE PURPOSE OF THIS SURVEY WAS TO RECOVER THE CENTER LINE OF INTERSTATE HIGHWAY NO. 5 FROM MILEPOST 18.73 (BUTLER CREEK ROAD IN ASHLAND) TO MILEPOST 26.72 (12TH STREET IN MEDFORD) FOR A HIGHWAY PRESERVATION (REPAVING) PROJECT.

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE OREGON COORDINATE SYSTEM OF 1983, SOUTH ZONE, BASED ON GPS OBSERVATIONS AT STATION "ASH" (PID NZ1326) AND STATION "PACIFIC SURVEY" (PID A12003).

HORIZONTAL PROJECT CONTROL

EXISTING GEODETIC CONTROL MONUMENTS "ASH" AND "PACIFIC SURVEY" WERE RECOVERED, AND PROJECT CONTROL MONUMENT NOS. 1-8 SET AT APPROXIMATELY EQUIDISTANT INTERVALS BETWEEN THE RECOVERED CONTROL. CONTROL MONUMENT NOS. 9-12 WERE SET AT THE BEAR CREEK BRIDGE STRUCTURES FOR USE IN ACQUIRING TOPOGRAPHIC DATA AT THE FOUR STRUCTURES. MEASUREMENTS WERE PERFORMED ON SEPTEMBER 23 THROUGH SEPTEMBER 26, 2003 AS SHOWN ON SHEET 2 OF THIS SURVEY USING TWO TRIMBLE MODEL 5700 AND TWO TRIMBLE MODEL 5800 GPS RECEIVERS WITH ZEPHYR ANTENNAS, AND TERRESTRIAL MEASUREMENTS WERE MADE WITH A GEODIMETER MODEL 610 TOTAL STATION. ALL GPS OBSERVATIONS WERE PROCESSED USING LEICA SKI-PRO VERSION 2.1.0.0 SOFTWARE, AND THE GPS VECTORS AND TERRESTRIAL OBSERVATIONS WERE SIMULTANEOUSLY ADJUSTED USING STAR*NET VERSION 6.0.25 LEAST SQUARES ADJUSTMENT SOFTWARE. THE NETWORK WAS CONSTRAINED TO THE PUBLISHED 1983(91) OREGON COORDINATE SYSTEM, SOUTH ZONE VALUES OF STATION "ASH" AND "PACIFIC SURVEY". THE 83(91) VALUES WERE USED (INSTEAD OF MORE CURRENT ADJUSTMENTS) IN ORDER TO CORRESPOND WITH PREVIOUS SURVEYS IN THE AREA. THE MAXIMUM 95% CONFIDENCE REGION ERRORS OF ANY CONTROL POINT WAS +/-0.034 FEET WITH RESPECT TO THE EXISTING GEODETIC CONTROL.

REAL-TIME KINEMATIC (RTK) MONUMENT TIES

EXISTING MONUMENTS WERE DOUBLE-TIED USING RTK GPS EQUIPMENT AND PROCEDURES. MEASUREMENTS WERE PERFORMED ON SEPTEMBER 26 THROUGH OCTOBER 1, 2003, AND OCTOBER 15 THROUGH OCTOBER 16, 2003 USING A TRIMBLE MODEL 5700 BASE AND A TRIMBLE MODEL 5800 ROVER GPS RECEIVERS WITH ZEPHYR ANTENNAS. EACH MONUMENT WAS TIED FROM AT LEAST TWO CONTROL POINTS AND THE RESULTING BASELINE AND COVARIANCE MEASUREMENT DATA WAS ADJUSTED USING STAR*NET VERSION 6.0.25 LEAST SQUARES ADJUSTMENT SOFTWARE. THE MAXIMUM 95% CONFIDENCE REGION ERRORS OF ANY RECOVERED MONUMENT WAS +/- 0.128 FEET WITH RESPECT TO THE EXISTING PROJECT CONTROL.

LOCAL DATUM PLANE (LDP) COORDINATES

IN ORDER TO REPRESENT GROUND SURFACE VALUES, OREGON STATE PLANE COORDINATE VALUES WERE SCALED FROM THE GRID TO THE GROUND SURFACE USING A SCALE FACTOR BASED ON THE AVERAGE LATITUDE AND ELEVATION OF THE PROJECT. THE LDP COORDINATES SHOWN IN THIS SURVEY ARE IN UNITS OF INTERNATIONAL FEET, AND ARE BASED ON THE COMBINED SCALE FACTOR AT CONTROL POINT NO. 6. TO CONVERT LDP COORDINATES AND DISTANCES TO OREGON STATE PLANE, SOUTH ZONE VALUES, MULTIPLY THE LDP DATA BY 0.9999468855.

Date 19-7-03 Bros This survey Consists of: 9_shad(s) Map ____page(s) Narrative JACKSON COUNTY SURVEYOR

CONVERSION OF SURVEY NO. 17166 COORDINATES

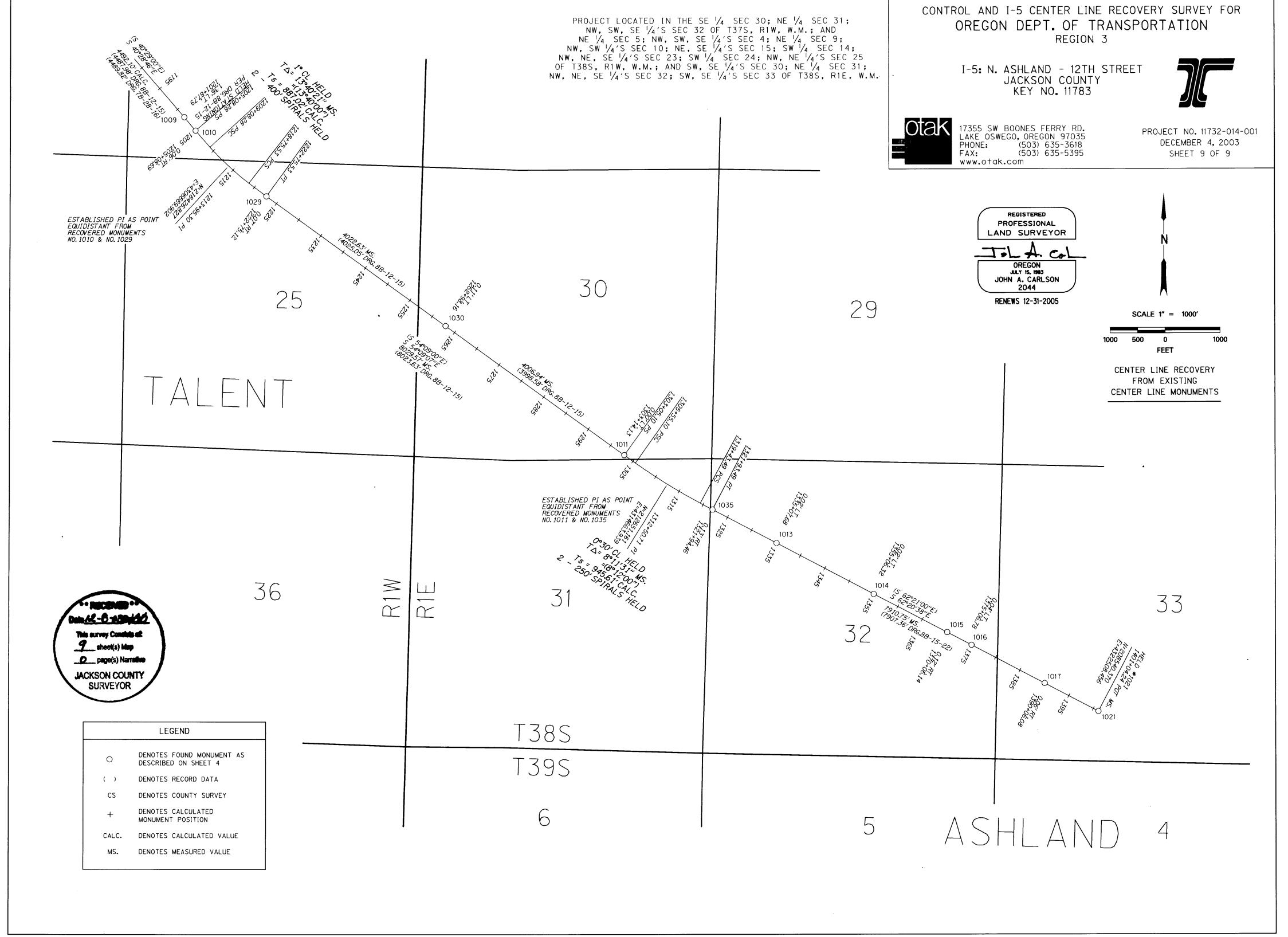
THE COORDINATES IN SURVEY NO. 17166, JACKSON COUNTY SURVEY RECORDS, ARE IN METRIC UNITS, AND ARE REPRESENTED TO BE LDP COORDINATES BASED ON NAD83(1991) VALUES OF EXISTING JACKSON COUNTY GEODETIC CONTROL. WHEN THE SURVEY NO. 17166 COORDINATE VALUES WERE SCALED TO STATE PLANE GRID VALUES USING THE SURVEY NO. 17166 LOCAL SCALE FACTOR OF 0.99994213, THEN SCALED TO BACK TO GROUND SURFACE USING THIS PROJECT'S LOCAL SCALE FACTOR OF 0.9999468855. THE SURVEY NO. 17166 COORDINATE VALUES FOR SURVEY NO. 17166 MONUMENT NOS. 613, 614, 1006, 1007 AND 1205 DID NOT MATCH THIS SURVEY'S MEASURED VALUES. THE SURVEY NO. 17166 COORDINATES WERE TRANSFORMED BY +0.41 FEET IN THE NORTHINGS, AND -3.71 FEET IN THE EASTINGS TO BEST FIT THIS SURVEY'S MEASURED COORDINATES.

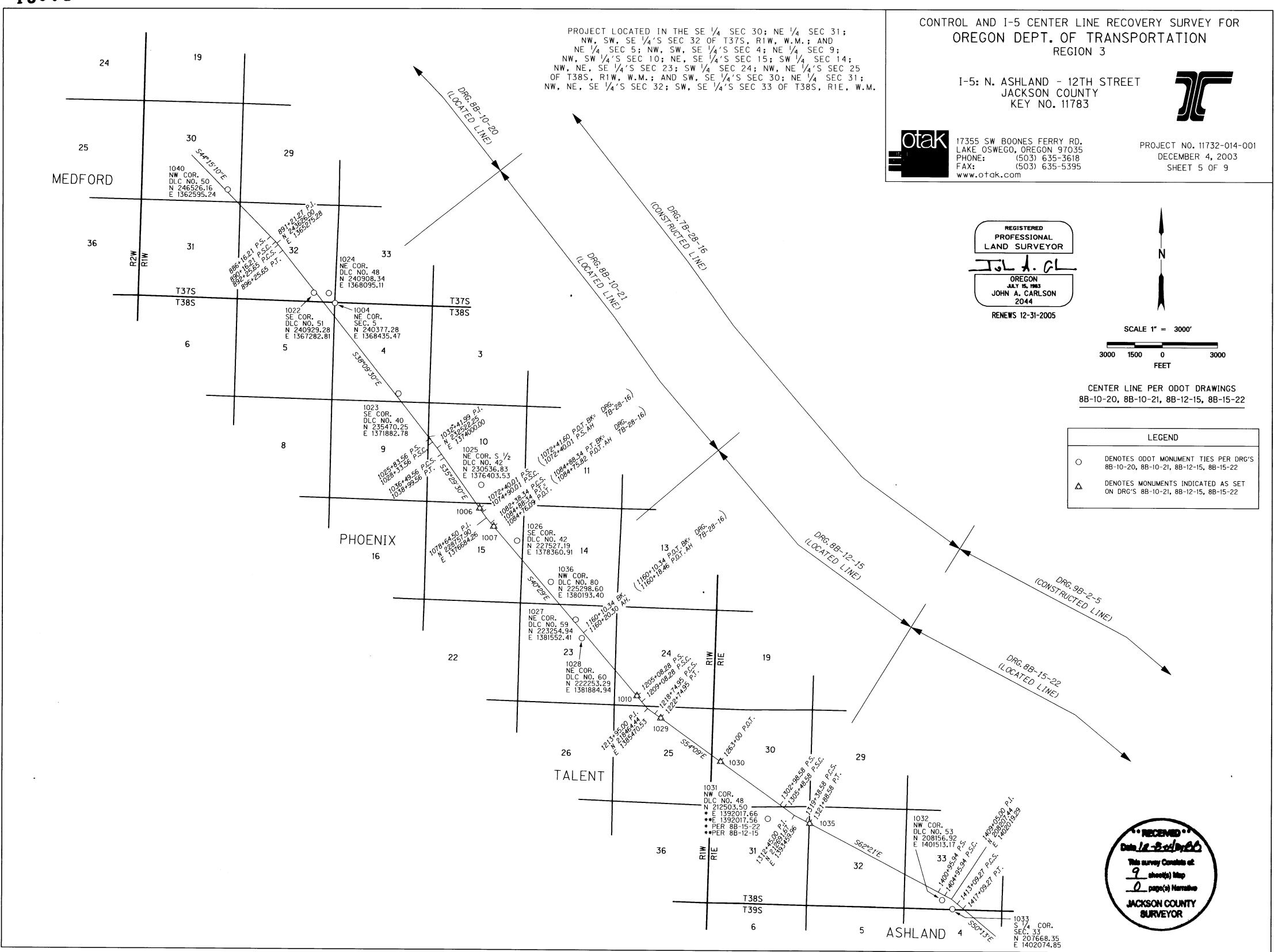
INTERSTATE HIGHWAY NO. 5 CENTER LINE RECOVERIES THE CENTER LINE OF INTERSTATE HIGHWAY NO. 5 IS SHOWN ON TWO SETS OF OREGON DEPARTMENT OF TRANSPORTATION MAPS. DRG. 7B-28-16 AND DRG. 9B-2-5 SHOW THE CONSTRUCTION CENTER LINE OF THE HIGHWAY, AND IS THE SAME CENTER LINE AS THAT ONE SHOWN ON THE 1975 "SEVEN OAKS - S. ASHLAND INTERCHANGE SECTION" CONSTRUCTION PLAN SET. DRG. 8B-10-20, 8B-10-21, 8B-12-15, 8B-15-22 SHOW THE LOCATED HIGHWAY CENTER LINE, AND IS THE CENTER LINE USED FOR THE ACQUISITION OF THE HIGHWAY RIGHT OF WAY. THE CONSTRUCTION AND LOCATED CENTER LINES ARE NOT THE SAME. THIS SURVEY ATTEMPTED TO RECOVER THE LOCATED HIGHWAY CENTER LINE. MONUMENTS WERE RECOVERED AT THE MAJORITY OF THE CURVE AND TANGENT POINTS ALONG THE ALIGNMENT. AN INITIAL REVIEW OF THE RELATIVE POSITIONS OF THE MONUMENTS WITH RESPECT TO THE DATA SHOWN ON THE RIGHT OF WAY DRAWINGS SHOWED THAT THE DISTANCES ALONG, AND THE ANGULAR RELATIONSHIPS BETWEEN, TANGENT SECTIONS DID NOT CORRESPOND. ADDITIONALLY, THE RELATIONSHIP BETWEEN MONUMENTED CENTER LINE AND THE ACTUAL POSITIONS OF GOVERNMENT CORNERS ADJACENT TO THE CENTER LINE DID NOT CORRESPOND TO THE RIGHT OF WAY DRAWING DATA. BECAUSE OF THE DISCREPANCY BETWEEN MEASURED AND RECORD DATA, AND THE DISCREPANCY BETWEEN THE MONUMENTED CENTER LINE AND OTHER EXISTING MONUMENTATION, TWO SEPARATE RECOVERIES WERE PERFORMED.

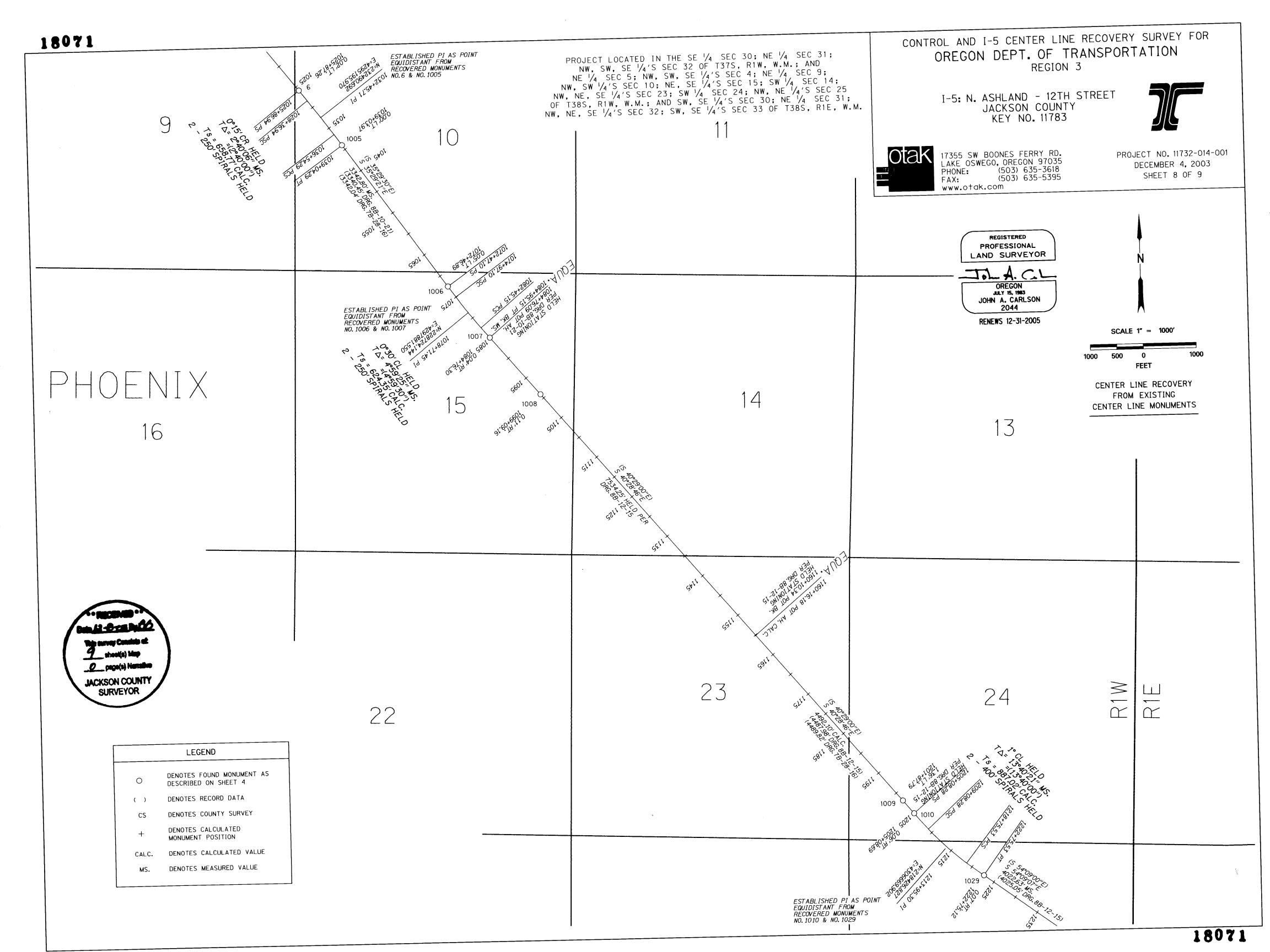
CENTER LINE FROM RECOVERED GOVERNMENT CORNER MONUMENTS DRG. 8B-10-20, 8B-10-21, 8B-12-15, 8B-15-22 SHOW THE POSITION OF THE LOCATED HIGHWAY CENTER LINE WITH RESPECT TO VARIOUS SECTION AND DONATION LAND CLAIM CORNERS ADJACENT TO THE HIGHWAY. A MATHEMATICAL MODEL LINKING THE RECORD POSITION OF THE CENTER LINE TO THE VARIOUS RECOVERED GOVERNMENT CORNERS WAS CREATED AND MULTIPLE SCENARIOS RUN WHEREIN DIFFERENT RECOVERED MONUMENTS WERE HELD IN THE ANALYSIS. THE SCENARIOS WERE BASED UPON THE ASSUMPTIONS THAT THE ORIGINAL SURVEY WORK INCLUDED STANDARD DISTANCE ERRORS OF 0.1 FEET PLUS 250 PPM (1:4000) FOR DISTANCE MEASUREMENTS, AND 10 SECONDS FOR ANGULAR MEASUREMENTS. SHEET 6 OF THIS SURVEY SHOWS THE BEST RESULT OF THE DIFFERENT SCENARIOS MATCHING RECORD DATA TO THE EXISTING GOVERNMENT CORNERS. THIS CENTER LINE IS APPROXIMATELY TWO FEET NORTHEASTERLY OF THE MONUMENTED CENTER LINE DESCRIBED BELOW.

CENTER LINE FROM RECOVERED CENTER LINE MONUMENTS DRG. 8B-10-20, 8B-10-21, 8B-12-15, 8B-15-22 SHOW THAT SOME MONUMENTS REFERENCING THE LOCATED LINE WERE SET AT VARYING LOCATIONS ALONG THE ALIGNMENT (SEE SHEET 5). THOSE MONUMENTS,

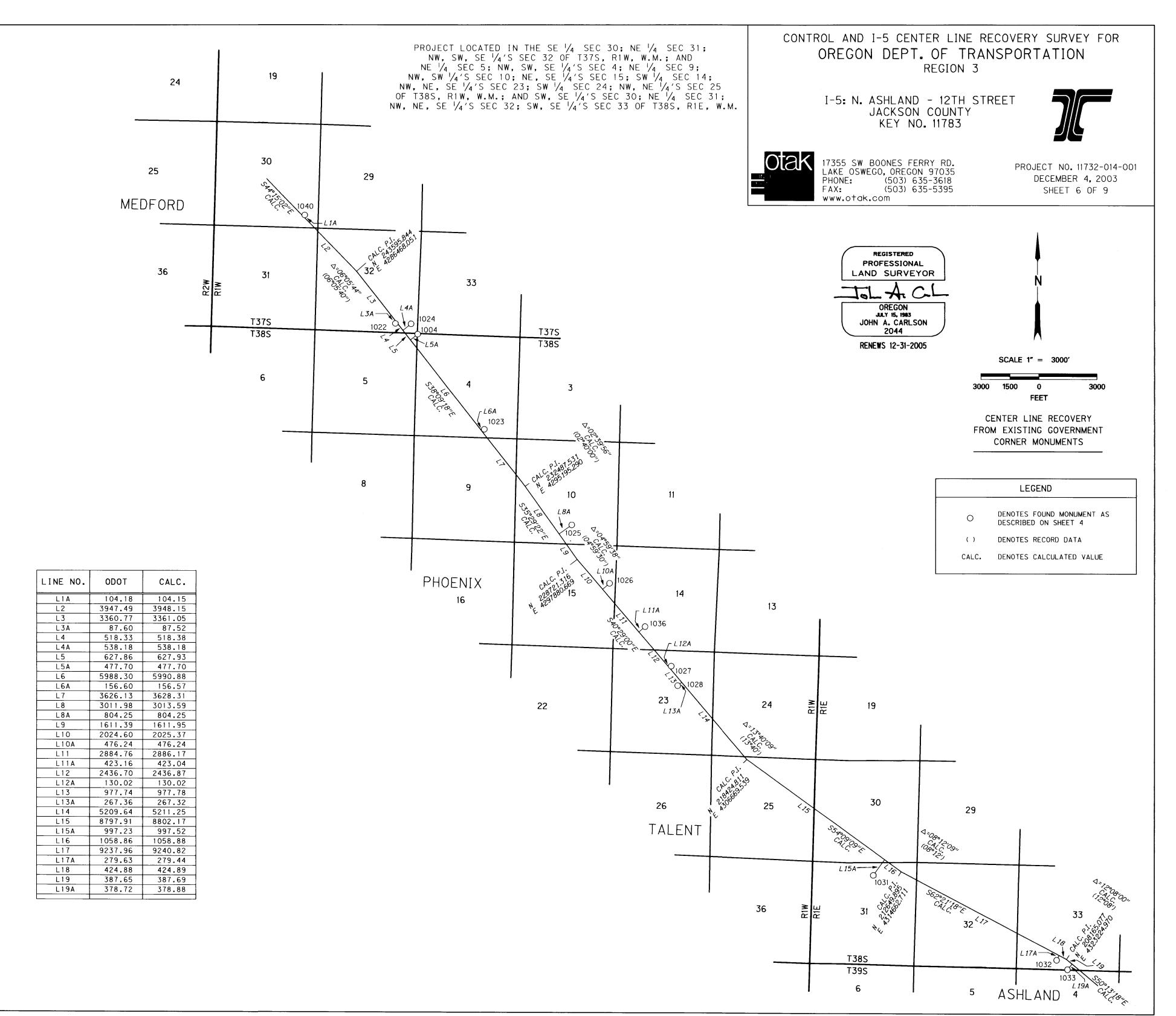
ADDITIONAL RECOVERED CENTER LINE MONUMENTS, AND DATA FROM SURVEY NO. 17166 WERE HELD TO GENERATE THE CENTER LINE SHOWN ON SHEETS 7-9 OF THIS SURVEY.







JACKSON COUNTY SURVEYOR



PROJECT LOCATED IN THE SE 1/4 SEC 30; NE 1/4 SEC 31;
NW, SW, SE 1/4'S SEC 32 OF T37S, R1W, W.M.; AND
NE 1/4 SEC 5; NW, SW, SE 1/4'S SEC 4; NE 1/4 SEC 9;
NW, SW 1/4'S SEC 10; NE, SE 1/4'S SEC 15; SW 1/4 SEC 14;
NW, NE, SE 1/4'S SEC 23; SW 1/4 SEC 24; NW, NE 1/4'S SEC 25
OF T38S, R1W, W.M.; AND SW, SE 1/4'S SEC 30; NE 1/4 SEC 31;
NW, NE, SE 1/4'S SEC 32; SW, SE 1/4'S SEC 33 OF T38S, R1E, W.M.

OREGON DEPT. OF TRANSPORTATION

REGION 3

I-5: N. ASHLAND - 12TH STREET JACKSON COUNTY KEY NO. 11783





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PROJECT NO. 11732-014-001 DECEMBER 4, 2003 SHEET 4 OF 9

RECOVERED MONUMENT TABLE

RECOVERED MONUMENT TABLE				
PT. NO.	LDP (FT) NORTHING	LDP (FT) EASTING	DATE TIED	DESCRIPTION
6	233008.46	4294789.18	9/24/2003	FOUND 23/4" BRASS CAP IN CONCRETE (SEE TYPICAL SKETCH #1)-DOWN 0.30'
1000	242835.27	4287069.20	9/27/2003	
1001	242788.12	4287104.99	9/27/2003	
1002	234734.48	4300096.47	9/27/2003	
1003	229607.21	4294633.32	9/27/2003	
1004	240345.95	4289627.85	9/27/2003	
1005	231954.56	4295578.23	9/27/2003	
1006	229232.71	4297519.00	9/27/2003	FOUND 23/4" BRASS CAP IN CONCRETE (SEE TYPICAL SKETCH #1)-DOWN 0.20'
1007	228249.05	4298286.97	9/27/2003	
1008	227159.12	4299217.09	9/27/2003	
1009	219346.19	4305887.05	9/27/2003	
1010	219101.18	4306094.29	9/27/2003	
1011	213205.51	4313896.67	9/27/2003	FOUND 23/4" BRASS CAP IN CONCRETE (SEE TYPICAL SKETCH #1)-FLUSH
1012	213129.40	4312836.98	9/27/2003	
1013	211602.26	4316665.56	9/27/2003	
1014	210674.57	4318435.87	9/27/2003	
1015	209978.29	4319764.26	9/27/2003	
1016	209746.05	4320207.78	9/27/2003	
1017	209050.04	4321535.74	9/27/2003	
1018	245563.38	4284823.51	9/27/2003	FOUND 1" BRASS CAP IN CONCRETE SIDEWALK "ODOT 613 CONTROL"-FLUSH
1019	245688.70	4284350.44	9/27/2003	FOUND 2" ALUMINUM CAP "OREGON STATE HWY. DIV. 614 CONTROL POINT"-DOWN 0.20'
1020	242964.82	4287072.36	9/27/2003	· · · · · · · · · · · · · · · · · · ·
1021	208540.37	4322508.46	9/27/2003	
1022	240898.84	4288475.65	10/15/2003	
1023	235437.35	4293076.88	10/15/2003	
1024	240876.13	4289288.25	10/15/2003	
1025	230503.80	4297601.22	10/15/2003	
1026	227490.34	4299556.88	10/15/2003	
1027	223218.61	4302750.97	10/15/2003	FOUND 3" BRASS CAP IN CONCRETE (NE DLC 59) (SEE SKETCH)-DOWN 0.20'
1028	222214.91	4303082.93	10/15/2003	FOUND 21/2" BRASS CAP (NE DLC 60) (SEE SKETCH)-DOWN 0.40'
1029	217907.53	4307388.52	10/15/2003	FOUND 23/4" BRASS CAP IN CONCRETE (SEE TYPICAL SKETCH #1)-DOWN 0.20'
1030	215551.65	4310649.59	10/15/2003	FOUND 23/4" BRASS CAP IN CONCRETE (SEE TYPICAL SKETCH *1)-FLUSH
1031	212461.44	4313220.23	10/15/2003	
1032	208114.68	4322718.93	10/15/2003	FOUND 3" BRASS CAP IN CONCRETE (NW DLC 53) (SEE SKETCH)-FLUSH
1033	207625.85	4323280.51	10/15/2003	FOUND 21/2" BRASS CAP & PILE OF ROCKS 1/4 COR. 33/4 (SEE SKETCH)-UP 0.10'
1034	207647.43	4323846.63	10/15/2003	
1035	212211.68	4315502.31	10/15/2003	
1036	225260.27	4301391.13	10/15/2003	
1037	246257.33	4284029.69	10/15/2003	
1038	246081.79	4284254.02	10/15/2003	
1039	246082.20	4284254.36	10/15/2003	<u></u>
1040	246496.55	4283787.64		(NW DLC 50) NOT RECOVERED DUE TO BEE HIVE AT MONUMENT - CALCULATED POSITION ONLY

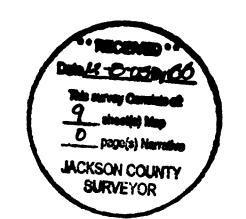
NOTES:

- 1. LDP DENOTES LOCAL DATUM PLANE COORDINATES
- 2. ALL MONUMENTS FOUND IN "GOOD CONDITION"
- 3. YPC DENOTES YELLOW PLASTIC CAP
- 4. SEE SHEET 3 FOR MONUMENT CAP SKETCHES
- 5. TO CONVERT LDP COORDINATES TO THE OREGON COORDINATE STSTEM OF 1983 (1991 ADJUSTMENT), SOUTH ZONE, MULTIPLY THE LDP COORDINATE VALUES BY 0.9999468855

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JULY 15, 1903
JOHN A. CARLSON
2044

RENEWS 12-31-2005



COR.

C.S. 1969

C.S. 1972

1033

ASHLAND 4

T38S

T39S

