

Colorado Department of Transportation



Region 6
Address: 2000 South Holly Street
Denver, CO 80222
Phone: 303-757-9922 FAX: 303-757-9053
Survey Unit: Scott Kimmanau, PLS

Sheet Revisions

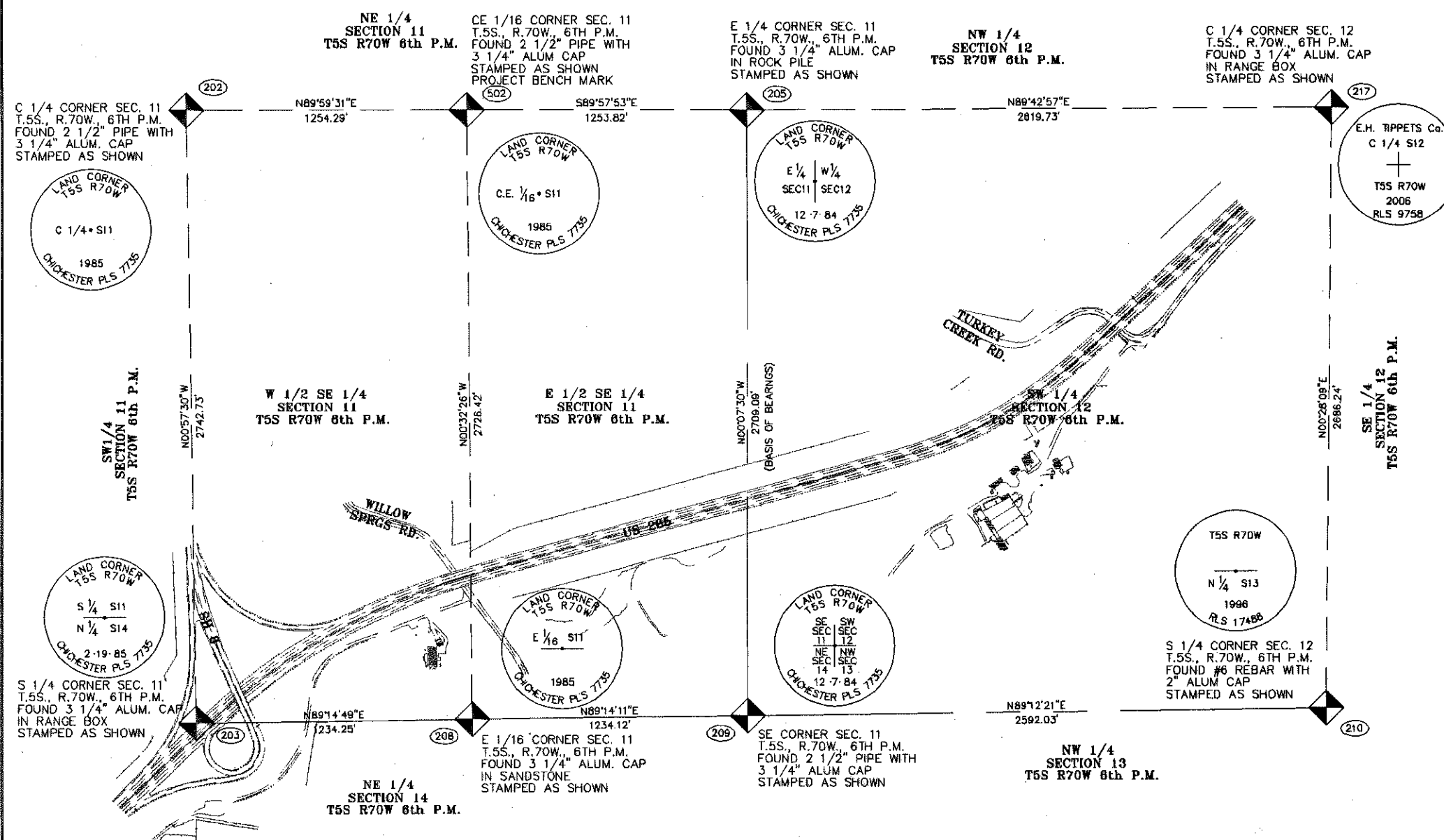
Date	Description	Initials
04/06	Change Title Block / Edit Notes	RDM
06/06	Surveyors Statement / Section Corners	JAC
11/06	Revised Description of Point #217	JAC

DEPARTMENT OF TRANSPORTATION - STATE OF COLORADO

US 285 / SH 8
SECTIONS 11 & 12, TOWNSHIP 5 SOUTH, RANGE 70 WEST, 6TH P.M.
COUNTY OF JEFFERSON, COLORADO

Land Survey Control Diagram Plan Sheet

Project Number:	BR 2854-105
Project Location:	US 285 / SH 8
Project Location:	
Project Code:	Last Mod. Date Subset Sheets Sheet No. Total No. of Sheets
14890	11-14-06 1 of 4 3 4



GENERAL NOTES

BASIS OF BEARINGS: All bearings are based on the west line of the Southwest Quarter (SW1/4) of Section 12, Township 5 South, Range 70 West of the 6th P.M., being a grid bearing of $N00^{\circ}07'30''W$ (2709.09'), said line being monumented as shown hereon. The grid bearing was obtained from a Global Positioning System (GPS) survey based on the Colorado High Accuracy Reference Network (CHARN). The grid bearing is NAD83(1992) Colorado State Plane Central Zone (502).

BASIS OF ELEVATIONS: Vertical control for this project was established by differential leveling from point 502. Point 502 is the Project Bench Mark and is monumented as shown hereon. The orthometric height (elevation) of point 502 is 6085.66 feet (NAVD 88). The orthometric height of point 502 is a GPS derived height based on GEOID 03 as published by the National Geodetic Survey (NGS) used in conjunction with a GPS static observation tied to "P 409" PID KK1473, a National Geodetic Survey (NGS) First Order, Class II Bench Mark. The published (NAVD 88) orthometric height (elevation) of "P 409" is 5581.37 feet.

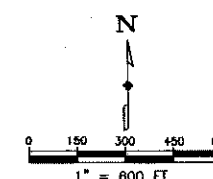
COORDINATE DATUM: Geodetic coordinates are based on NAD83(1992). Orthometric heights are shown in NAVD 88. State Plane coordinates are Colorado Central Zone (502) Units are in US Survey Feet (sft)
Project (Ground) coordinates are Modified State Plane Combined Project factor = 0.999685361
Combined Project Factor Reciprocal = 1.0003147385
Truncation applied to State Plane Coordinates:
Northing Reduction 1,000,000.00 sft
Easting Reduction 3,000,000.00 sft
Coordinates on this project are for the exclusive use of the Colorado Department of Transportation for the construction of this project and are considered Project Coordinates only.

NOTE: In accordance with C.R.S. 13-80-105:
Notice: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the statement shown.

SURVEYOR'S STATEMENT: I, Jenelle D. Lund, a professional land surveyor licensed in the State of Colorado, do hereby state to the Colorado Department of Transportation this Land Survey Control Diagram was prepared and the field survey it represents was performed under my responsible charge and, based upon my knowledge, information and belief is in accordance with applicable standards of practice defined by Colorado Department of Transportation publications. This statement is not a guaranty or warranty, either expressed or implied.

Jenelle D. Lund
Jenelle D. Lund PLS No. 23049

11-14-06
Date



LEGEND

- INDICATES FOUND ALIQUOT LAND CORNER
- (2002) INDICATES SURVEY CONTROL POINT NUMBER (SEE SHEET 3C FOR DESCRIPTION)

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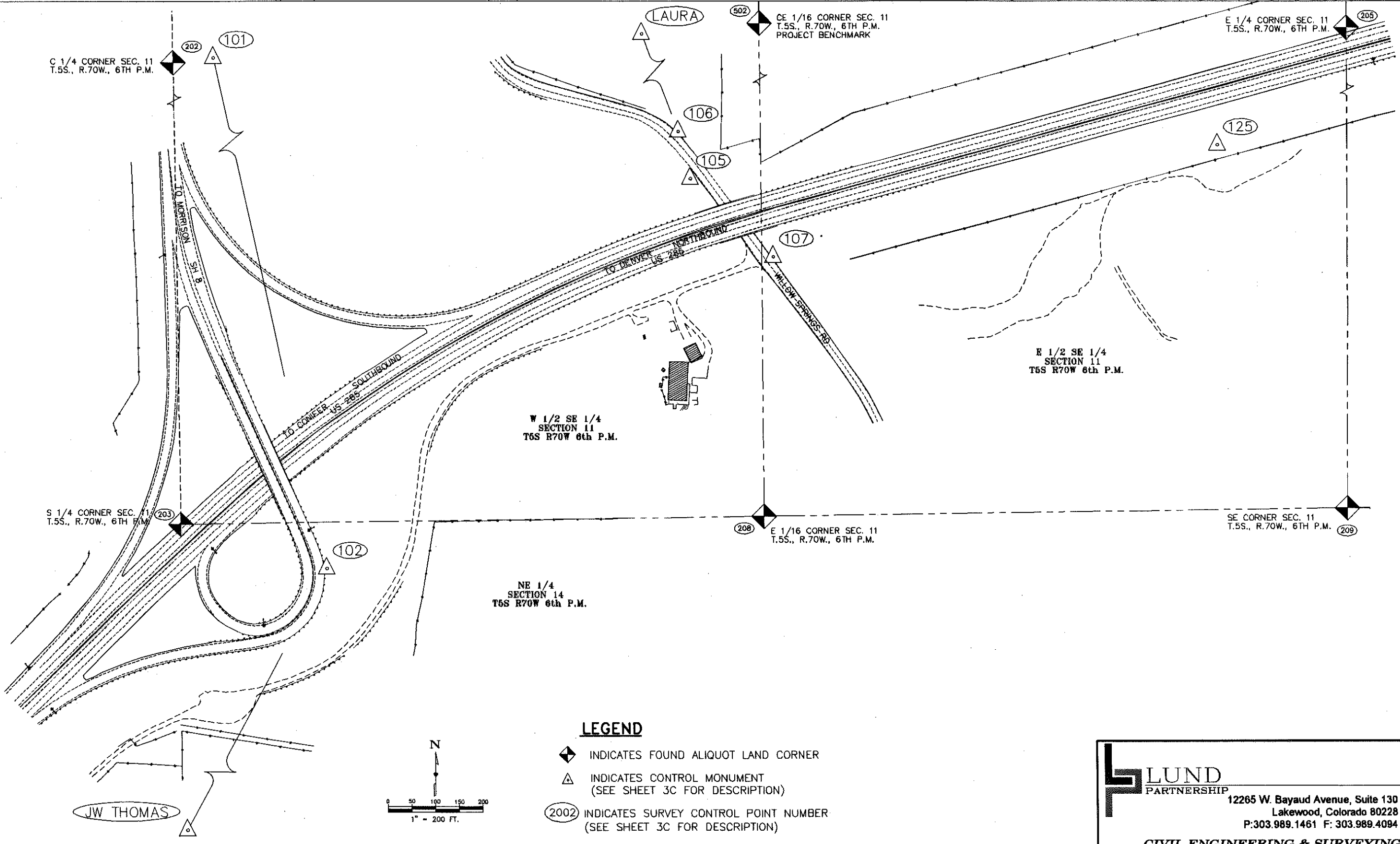
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US 285 / SH 8
SECTIONS 11 & 12, TOWNSHIP 5 SOUTH, RANGE 70 WEST, 6TH P.M.
COUNTY OF JEFFERSON, COLORADO

Land Survey Control Diagram
Plan Sheet

Project Number:	BR 2854-105
Project Location:	US 285 / SH 8
Project Location:	
Project Code:	Last Mod. Date: Subset Sheets: Sheet No. Total No. of Sheets
14890	11-14-06 2 of 4 3A 4



LEGEND

- ◆ INDICATES FOUND ALIQUOT LAND CORNER
- △ INDICATES CONTROL MONUMENT (SEE SHEET 3C FOR DESCRIPTION)
- (2002) INDICATES SURVEY CONTROL POINT NUMBER (SEE SHEET 3C FOR DESCRIPTION)

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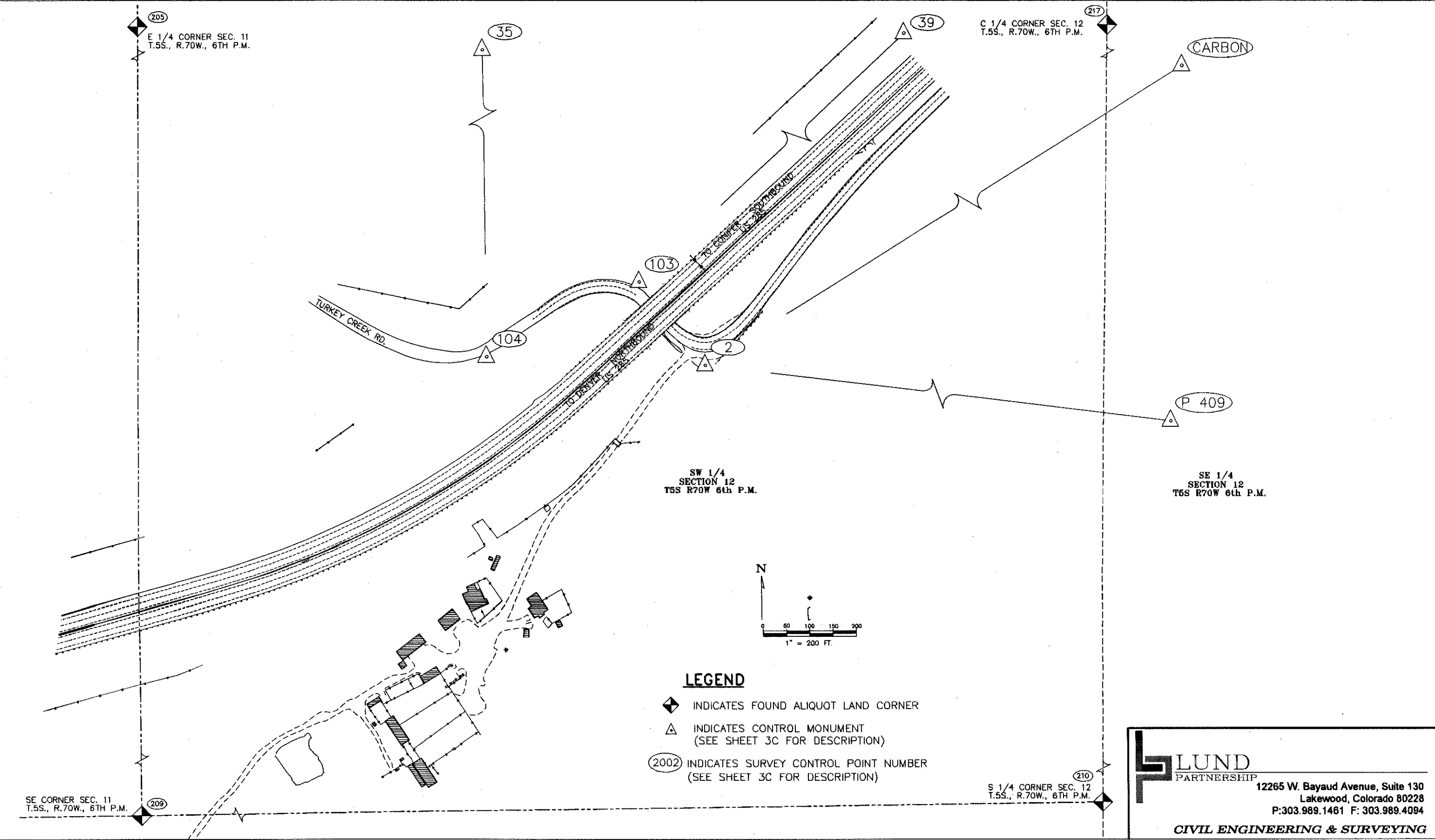
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DEPARTMENT OF TRANSPORTATION - STATE OF COLORADO

US 285 / SH 8
SECTIONS 11 & 12, TOWNSHIP 5 SOUTH, RANGE 70 WEST, 6TH P.M.
COUNTY OF JEFFERSON, COLORADO

Land Survey Control Diagram
Plan Sheet

Project Number: BR 2854-105				
Project Location: US 285 / SH 8				
Project Location:				
Project Code:	Last Mod. Date	Subset Sheets	Sheet No.	Total No. of Sheets
14890	11-14-06	3 of 4	38	4



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DEPARTMENT OF TRANSPORTATION - STATE OF COLORADO

US 285 / SH 8
SECTIONS 11 & 12, TOWNSHIP 5 SOUTH, RANGE 70 WEST, 6TH P.M.
COUNTY OF JEFFERSON, COLORADO

Land Survey Control Diagram

COORDINATE SUMMARY TABLE OF PROJECT CONTROL				
Project Number: BR 2854-105				
Project Location: US 285 / SH 8				
Project Location:				
Project Code:	Last Mod. Date	Subset Sheets	Sheet No.	Total No. of Sheets
14890	11-14-06	4 of 4	3C	4

GPS COORDINATE SUMMARY (US FT) - NAD88 (1992) - STATE PLANE COORDINATES - CENTRAL ZONE (502)

PT. NUMBER	LATITUDE	LONGITUDE	HEIGHT	CONVERGENCE	GRID SCALE FACTOR	NORTHING	EASTING	NAVD 88 ELEVATION	MONUMENT DESCRIPTION
35	39° 38' 45.03620" N	105° 10' 48.73833" W	5714.89	0° 12' 06.088710254"	0.999981055	1660285.51	3090053.96	5766.38	MP 4.8 CDOT TYPE 2 MONUMENT
39	39° 38' 13.44132" N	105° 10' 02.47711" W	5706.84	0° 12' 35.265180319"	0.999979611	1657101.68	3093684.29	5758.65	MP 5.6 CDOT TYPE 2 MONUMENT
101	39° 37' 43.19921" N	105° 11' 37.02203" W	6139.03	0° 11' 35.636688003"	0.999978250	1654015.73	3086298.23	6189.76	LPI CONTROL #5 REBAR W/2" ALUMINUM CAP
102	39° 37' 24.74224" N	105° 11' 31.79930" W	6083.23	0° 11' 38.930607548"	0.999977430	1652149.61	3086713.18	6133.90	LPI CONTROL #5 REBAR W/2" ALUMINUM CAP
502	39° 37' 52.73895" N	105° 11' 20.19185" W	6034.63	0° 11' 46.251304913"	0.999978677	1654985.44	3087611.73	6085.66	C 1/16 COR, SEC.11, T5S, R70W,6TH PM 2-1/2" PIPE W/ 3-1/4" ALUM CAP
CARBON	39° 38' 52.23451" N	105° 08' 16.51578" W	5729.71	0° 13' 42.093868551"	0.999981388	1661058.53	3101958.14	5782	NGS POINT CARBON 3" BRASS DISK IN CONCRETE - PID KK 1845
JW THOMAS	39° 35' 09.94552" N	105° 13' 08.01595" W	6981.68	0° 10' 38.247725108"	0.999971686	1638486.39	3079226.76	7030.60	NGS POINT JWTHOMAS 4" ALUMINUM DISK IN CONCRETE - PID AA7129
LAURA	39° 38' 01.46498" N	105° 11' 35.41773" W	6094.80	0° 11' 36.648454511"	0.999979069	1655864.31	3086417.50	6145.67	NGS POINT LAURA 4" ALUMINUM DISK IN CONCRETE -PID AA7130
P 409	39° 37' 12.38437" N	105° 05' 29.68238" W	5528.11	0° 15' 27.314213627"	0.999976886	1651010.93	3115053.14	5581.37	NGS POINT P409 STEEL ROD IN RANGE BOX - PID KK1473

ALIQUOT LAND CORNERS (U.S. SURVEY FEET) - PROJECT COORDINATES

PT. NUM.	NORTHING	EASTING	NAVD 88 ELEVATION	DESCRIPTION
202	655506.15	87329.23	6166.05	FOUND 2 1/2" PIPE WITH 3 1/4" ALUMINUM CAP AS SHOWN ON SHEET 3. C 1/4 COR. SEC. 11, T.5S., R.70W., 6TH P.M.
203	652763.81	87375.10	6124.27	FOUND 3 1/4" ALUMINUM CAP IN RANGE BOX AS SHOWN ON SHEET 3. S 1/4 COR. SEC. 11, T.5S., R.70W., 6TH P.M.
205	655505.56	89837.33	6045.43	FOUND 3 1/4" ALUMINUM CAP IN ROCK PILE AS SHOWN ON SHEET 3. E 1/4 COR. SEC. 11, T.5S., R.70W., 6TH P.M.
208	652780.03	88609.24	5979.26	FOUND 3 1/4" ALUMINUM CAP IN SANDSTONE AS SHOWN ON SHEET 3. E 1/8 COR. SEC. 11, T.5S., R.70W., 6TH P.M.
209	652796.48	89843.25	5915.01	FOUND 2 1/2" PIPE WITH 3 1/4" ALUMINUM CAP AS SHOWN ON SHEET 3. SE COR. SEC. 11, T.5S., R.70W., 6TH P.M.
210	652832.40	92435.03	6104.91	FOUND #6 REBAR WITH 2" ALUMINUM CAP AS SHOWN ON SHEET 3. S 1/4 COR. SEC. 12, T5S., R.70W., 6TH P.M.
217	655518.55	92457.03	5801.43	FOUND 3 1/4" ALUMINUM CAP IN RANGE BOX AS SHOWN ON SHEET 3. C 1/4 COR. SEC. 12, T5S., R.70W., 6TH P.M.
502	655506.33	88583.52	6085.66	FOUND 2 1/2" PIPE WITH 3 1/4" ALUMINUM CAP AS SHOWN ON SHEET 3. CE 1/8 COR. SEC. 11, T5S., R.70W., 6TH P.M.

SURVEY CONTROL POINTS (U.S. SURVEY FEET) - PROJECT COORDINATES

PT. NUM.	NORTHING	EASTING	NAVD 88 ELEVATION	DESCRIPTION
2	654437.41	91591.66	5844.06	SET #5 REBAR WITH 2" ALUMINUM CAP STAMPED "LPI CONTROL POINT"
101	654536.31	87269.60	6189.76	SET #5 REBAR WITH 2" ALUMINUM CAP STAMPED "LPI CONTROL POINT"
102	652669.60	87684.69	6133.90	SET #5 REBAR WITH 2" ALUMINUM CAP STAMPED "LPI CONTROL POINT"
103	654617.45	91448.88	5849.66	SET #5 REBAR WITH 2" ALUMINUM CAP STAMPED "LPI CONTROL POINT"
104	654455.22	91121.07	5883.83	SET #5 REBAR WITH 2" ALUMINUM CAP STAMPED "LPI CONTROL POINT"
105	653494.40	88453.95	6036.78	SET #5 REBAR WITH 2" ALUMINUM CAP STAMPED "LPI CONTROL POINT"
106	653594.31	88428.30	6045.18	SET #5 REBAR WITH 2" ALUMINUM CAP STAMPED "LPI CONTROL POINT"
107	653328.63	88629.10	6015.18	SET #5 REBAR WITH 2" ALUMINUM CAP STAMPED "LPI CONTROL POINT"
125	653565.52	89568.75	6030.60	SET #5 REBAR WITH 2" ALUMINUM CAP STAMPED "LPI CONTROL POINT"

Project Coordinate Parameters:

Geodetic coordinates are based on NAD83(1992) Orthometric Heights are shown in NAVD 88
State Plane coordinates are Colorado Central Zone (502)
Units are in US Survey Feet (sft)
Project (Ground) coordinates are Modified State Plane Combined Project factor = 0.999685361
Combined Project Factor Reciprocal = 1.0003147385
Truncation applied to State Plane Coordinates:
Northing Reduction 1,000,000.00 sft
Easting Reduction 3,000,000.00 sft

NOTE: National Geodetic Survey "B" Order and First Order Horizontal Control Stations held fixed in the final fully constrained least squares adjustment of the GPS data are as follows:

Designation: CARBON
PID: KK1845
NAD 83(1992) CHARN
Latitude 39° 38' 52.23451 (N)
Longitude 105° 08' 16.51578 (W)
Ellip. Height 1746.42 (meters)

Designation: LAURA
PID: AA7130
NAD 83(1992) CHARN
Latitude 39° 38' 01.46498 (N)
Longitude 105° 11' 35.41773 (W)
Ellip. Height 1857.70 (meters)

Designation: JWTHOMAS
PID: AA7129
NAD 83(1992) CHARN
Latitude 39° 35' 09.94552 (N)
Longitude 105° 13' 08.01595 (W)
Ellip. Height 2128.02 (meters)

Designation: P 409
PID: KK1473
NAD 83(1992) CHARN
Latitude 39° 37' 12.38437 (N)
Longitude 105° 05' 29.68238 (W)
Ellip. Height 1684.97 (meters)

Conversion Example of State Plane Coordinates to Project Coordinates:

State Plane Northing x 1.0003147385 - 1,000,000 (sft) = Project Northing (sft)
State Plane Easting x 1.0003147385 - 3,000,000 (sft) = Project Easting (sft)

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