



Region 1  
18500 East Colfax Avenue  
Aurora, CO 80011  
Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway

Sheet Revisions

mm/yy	xxxx	xxx

36 MP 80.0 to MP 80.7  
Located in:  
Sections 31 and 32 Township 3 South Range 64 West  
Section 36 Township 3 South Range 65 West  
of the 6th Principal Meridian  
County of Adams  
State of Colorado

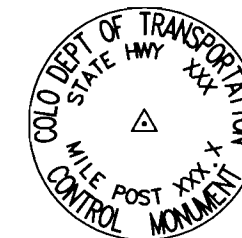


Land Survey Control Diagram

Title Sheet

Project Number: BR 0362-027				
Project Location: US Hwy. 36 @ Box Elder Creek				
Project Location:				
Project Code:	Last Mod. Date:	Subset Sheets:	Sheet No.:	Total No. of Sheets:
14584	00-00-00	1 of 3	1	3

# LAND SURVEY CONTROL DIAGRAM



Typical Control Monument Cap Not to Scale

## GEODETTIC COORDINATE SUMMARY TABLE (ADJUSTED FIELD DATA)

POINT NAME	GEODETTIC COORDINATES NAD-83(92) (CHARN)		ELLIP. HEIGHT	ELEV. (NAVD '88)	MAPPING ANGLE	SCALE	NAD 83(92) ZONE 0502	
	LATITUDE(N)	LONGITUDE(W)					NORTHING (m)	EASTING (m)
CHARN WATKINS AZ.	39° 44' 43.96135"	104° 36' 43.45448"	1663.329	1681.253	0° 33' 36.02787"	0.999999122	517449.258	990504.952
USCGS B.M., CHARN H55	39° 45' 22.18112"	104° 30' 28.66869"	1672.419	1690.517	0° 37' 32.40136"	1.000001225	518720.272	999414.617
USGS 5513=G 2	39° 44' 47.13549"	104° 36' 10.74764"	1664.088	1682.027	0° 33' 56.65573"	0.999999295	517554.799	991282.642
US HWY. 36 CM-MP 80.20	39° 44' 44.62829"	104° 35' 36.56125"	1667.980	1685.937	0° 34' 18.21673"	0.999999158	517485.555	992097.283
US HWY. 36 CM-MP 80.00	39° 44' 42.19578"	104° 35' 50.01797"	1668.199	1686.148	0° 34' 09.72972"	0.999999025	517407.346	991777.664
US HWY. 36 CM-MP 80.40	39° 44' 46.96543"	104° 35' 21.19380"	1669.240	1687.210	0° 34' 27.90882"	0.999999286	517561.292	992462.414
US HWY. 36 CM-MP 80.48	39° 44' 47.02719"	104° 35' 17.31230"	1666.912	1684.888	0° 34' 30.35685"	0.999999289	517564.124	992554.802
US HWY. 36 CM-MP 80.70	39° 44' 49.75939"	104° 35' 03.11753"	1668.650	1686.648	0° 34' 39.30934"	0.999999438	517651.784	992891.884
US HWY. 36 CM-MP 80.41	39° 44' 47.90720"	104° 35' 19.15939"	1666.695	1684.667	0° 34' 29.19190"	0.999999337	517590.822	992510.556
I-70 CM-MP 295.5	39° 44' 22.83793"	104° 35' 55.77381"	1670.612	1688.551	0° 34' 06.09957"	0.999997974	516808.989	991646.555
I-70 CM-MP 296.1	39° 44' 23.32053"	104° 35' 09.30757"	1675.435	1693.406	0° 34' 35.40535"	0.999998000	516834.926	992752.725
US HWY. 36 CM-MP 80.50	39° 44' 48.38040"	104° 35' 15.09283"	1669.593	1687.575	0° 34' 31.75664"	0.999999363	517606.387	992607.221
I-70 CM-MP 295.3	39° 44' 22.80655"	104° 36' 10.83157"	1674.538	1692.468	0° 33' 56.60280"	0.999997972	516804.473	991288.052

CM-MP - Control Point Monuments set by CDOT. They are CDOT type 2 monuments, a 3-1/4" dia. aluminum control monument cap (as shown) on a 3' X 3/4" dia. finned aluminum security rod on a 3' X 3/4" dia. smooth aluminum rod.

BASIS OF BEARINGS: Bearings used in the calculation of coordinates are based on a grid bearing of N 76°15'01" E from US HWY. 36 CM-MP 80.00 to US HWY. 36 CM-MP 80.20, as obtained from a Global Positioning System (GPS) survey based on the Colorado High Accuracy Reference Network (CHARN).

BASIS OF ELEVATIONS: USGS Bench Mark established in 1912. Said bench mark being, a found Brass Cap on top of a 3 1/2" pipe projecting approximately 0.5' above the ground, with a NAVD '88 and project elevation of 1682.027 meters or 5518.45 feet. A differential level loop was ran from this bench mark through the project control points with a misclosure of 0.007ft., well within the tolerance set forth in the 2003 CDOT Survey Manual in Chapter 5 at 5.8.6.

COORDINATE DATUM: Project coordinates are modified Colorado State Plane Central Zone NAD '83(92) coordinates. State plane coordinates were modified to a mean project elevation of 1685.9370 meters. The combined elevation/scale factor used to modify the coordinates from state plane to project coordinates was 1.000265427. Project coordinates were truncated plane by 0.0 in the Northing and by 0.0 in the Easting after converting from state coordinates to project coordinates. The CHARN is based on the NAD '83(92) datum. Project Coordinates = State Plane Coordinate \* 1.00026542733 \* 3937/1200

NOTE: This control survey is for the use of the Colorado Department of Transportation personnel. The survey is not a complete boundary survey and does not subdivide land. Title policy, title commitment, and title research were not part of this control survey, therefore, easements, rights, and restrictions of record are not shown. The verification of the physical evidence with relation to easements, rights of way, property boundaries, and restriction, as described in the Instruments of record, were not included in this control survey.

NOTE: Refer to M-629-1 Survey Monuments of the Standard Plans, Colorado Department of Transportation, M & S Standards October 2000 for survey monument descriptions. Refer to M-100-1 Standard Symbols of the Standard Plans, Colorado Department of Transportation, M & S Standards October 2000 for standard symbol definitions.

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 hereon.

SURVEYORS STATEMENT: I, David A. Stewart, a Professional Land Surveyor in the State of Colorado, hereby state that this Land Survey Control Diagram was prepared under my direct supervision this 17th day of February 2005, from a field survey performed under my supervision and checking from July 1, 2004 to February 17, 2005, for and on behalf of the Department of Transportation, State of Colorado, and is not a Land Survey Plat or Right-of-Way Survey Plat and to the best of my knowledge and belief the project control survey, as shown, meets the minimum horizontal control tolerances of a CDOT Class A Survey, as listed in Chapter Five (5.5.2) of the Colorado Department of Transportation 2003 Survey Manual and the land survey control as shown, meets the minimum horizontal control tolerances of a CDOT Class B Survey, as listed in Chapter Five (5.5.2) of the Colorado Department of Transportation 2003 Survey Manual.

## PROJECT COORDINATE SUMMARY TABLE (ADJUSTED FIELD DATA)

POINT NAME	PROJECT COORDINATES		ELEV(USft)	DESCRIPTION
	NORTH (USft)	EAST (USft)		
USCGS B.M., CHARN H55	1702286.47	3279783.10	5546.30	USCGS Brass Cap in Concrete Post
US HWY. 36 CM-MP 80.70	1698780.01	3258377.42	5533.61	CDOT Type II Control Monument
US HWY. 36 CM-MP 80.50	1698631.03	3257443.24	5536.65	CDOT Type II Control Monument
US HWY. 36 CM-MP 80.41	1698579.95	3257126.02	5527.11	CDOT Type II Control Monument
I-70 CM-MP 296.1	1696099.33	3257920.74	5555.78	CDOT Type II Control Monument
US HWY. 36 CM-MP 80.48	1698492.34	3257271.22	5527.84	CDOT Type II Control Monument
US HWY. 36 CM-MP 80.40	1698483.04	3256968.03	5535.45	CDOT Type II Control Monument
US HWY. 36 CM-MP 80.20	1698234.50	3255769.78	5531.28	CDOT Type II Control Monument
USGS 5513=G 2	1698461.73	3253096.37	5518.45	USGS Brass Cap on 3 1/4" Pipe
CHARN WATKINS AZ.	1698115.38	3250544.22	5515.91	NGS Brass Cap in Concrete
US HWY. 36 CM-MP 80.00	1697977.84	3254720.88	5531.97	CDOT Type II Control Monument
I-70 CM-MP 295.5	1696014.21	3254290.62	5539.85	CDOT Type II Control Monument
I-70 CM-MP 295.3	1695999.39	3253114.12	5552.71	CDOT Type II Control Monument

CONSTRUCTION SURVEYING AND MONUMENTATION REQUIREMENTS:

- This Control Survey Diagram represents the horizontal and vertical control for the project established by the Division. It is possible that some of the survey control monuments listed have been disturbed or obliterated. It is the Contractor's responsibility to verify the existence and stability of the control monuments before submitting a bid price.
- All Type 1 and Type 2 monuments shall be set flush with the ground. Witness posts shall be installed 1 foot from and facing all Type 1 and Type 2 monuments, or as directed by the Project Engineer.
- Installation of Type 3 and Type 3-A monuments shall be completed in the same day that installation is commenced. Under no circumstances shall holes in the roadway be left open overnight.
- When installing Type 3-A monuments, the aluminum monument box shall be positively secured in the roadway surface. The monument box shall be caulked with asphalt caulking between the monument box and the edges of the roadway surface to provide a positive moisture barrier around the monument box.
- Control survey procedures, statistical analysis, and accuracy obtained for horizontal and vertical control shall be documented in the field book.
- Legible copies of the field books shall be submitted to the Project Engineer for review on a monthly basis.
- It is ultimately the prime Contractor's responsibility to insure that these requirements, as well as any contained in the CDOT specifications, project special provisions, and CDOT Survey Manual are fulfilled under this contract.
- The minimum staking intervals for each item are described on the plans or in the CDOT Survey Manual. If the contractor wishes to reduce the minimum intervals, a Contract Modification Order must be negotiated and the cost of the item reduced accordingly.
- Whenever the contract includes the setting of CDOT Type 2 monuments, a Project Control Diagram, signed and sealed by the P.L.S. in responsible charge, shall be submitted to the Engineer. An AutoCad drawing on CD shall accompany the hard copy.

David A. Stewart  
Colorado PLS No. 28664

Date

FILING CERTIFICATION: DEPOSITED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 19\_\_\_\_, AT \_\_\_\_\_, FOR INFORMATION ONLY IN BOOK \_\_\_\_\_ OF THE COUNTY LAND SURVEYS/RIGHT OF WAY SURVEYS AT PAGE \_\_\_\_\_, RECEPTION NUMBER \_\_\_\_\_

SIGNED \_\_\_\_\_

DEPT. \_\_\_\_\_

14584LSCD.dwg 06 DEC 2004 15:24:29.0 PLOT/EDIT by DAS



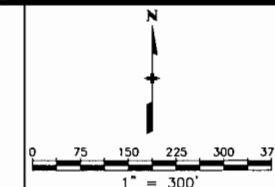
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Sheet Revisions

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36 MP 80.0 to MP 80.7  
Located in:  
Sections 31 and 32 Township 3 South Range 64 West  
Section 36 Township 3 South Range 65 West  
of the 6th Principal Meridian  
County of Adams  
State of Colorado



Land Survey Control Diagram

Plan Sheet				
Project Number: BR 0362-027				
Project Location: US Hwy. 36 @ Box Elder Creek				
Project Location:				
Project Code	Last Mod. Date	Subset Sheets	Sheet No.	Total No. of Sheets
14584	00-00-00	2 of 3	3A	3

TABULATION OF PROPERTY EVIDENCE

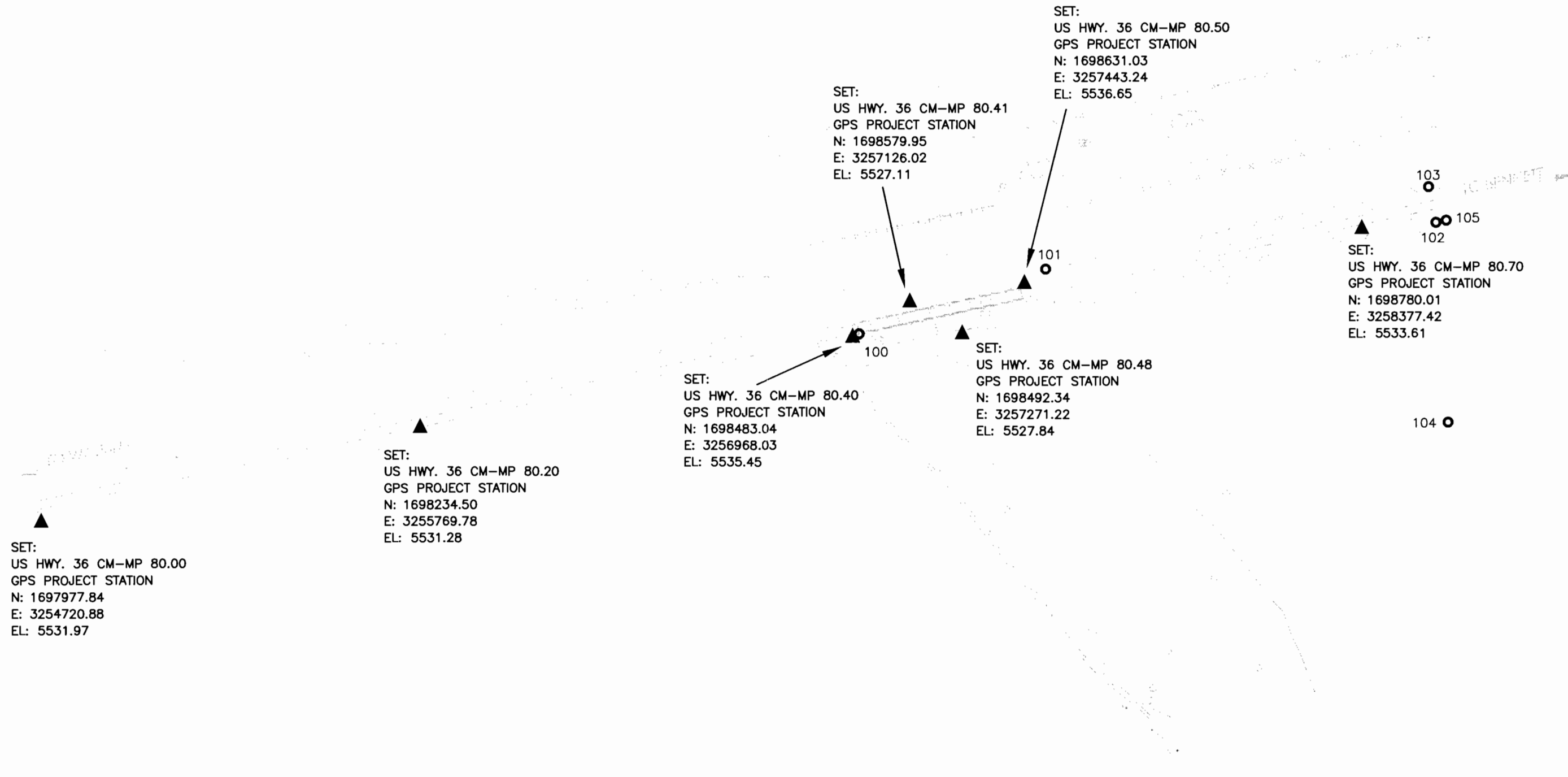
PNT NO.	PROJECT COORDINATES		DESCRIPTION
	NORTHING	EASTING	
101	1698674.39	3257502.03	3.5"x4.0" CONC STATE HWY POST
103	1698899.65	3258562.39	4.0"x4.0" CONC POST ST HWY ROW SHOT TAKEN AT GRND EAST SIDE
102	1698801.81	3258583.03	3.5"x4.0" CONC STATE HWY POST
100	1698496.82	3256986.40	2" BRASS CAP UDFCD BXU4 1994
104	1698251.31	3258616.13	1 1/4" PLASTIC CAP B J SURVEYING LS 10717
105	1698807.62	3258611.28	#4 REBAR (BENT)
108	1697386.56	3254489.53	1" DIA RED PLASTIC CAP WSSI 23524

FILING CERTIFICATION: DEPOSITED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 19\_\_\_\_, A. \_\_\_\_\_ M., FOR INFORMATION ONLY IN BOOK \_\_\_\_\_ OF THE COUNTY LAND SURVEYS/RIGHT OF WAY SURVEYS AT PAGE \_\_\_\_\_ RECEPTION NUMBER \_\_\_\_\_

SIGNED \_\_\_\_\_ DEPT. \_\_\_\_\_

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108



SET:  
US HWY. 36 CM-MP 80.00  
GPS PROJECT STATION  
N: 1697977.84  
E: 3254720.88  
EL: 5531.97

SET:  
US HWY. 36 CM-MP 80.20  
GPS PROJECT STATION  
N: 1698234.50  
E: 3255769.78  
EL: 5531.28

SET:  
US HWY. 36 CM-MP 80.40  
GPS PROJECT STATION  
N: 1698483.04  
E: 3256968.03  
EL: 5535.45

SET:  
US HWY. 36 CM-MP 80.41  
GPS PROJECT STATION  
N: 1698579.95  
E: 3257126.02  
EL: 5527.11

SET:  
US HWY. 36 CM-MP 80.48  
GPS PROJECT STATION  
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E: 3257271.22  
EL: 5527.84

SET:  
US HWY. 36 CM-MP 80.50  
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EL: 5536.65

SET:  
US HWY. 36 CM-MP 80.70  
GPS PROJECT STATION  
N: 1698780.01  
E: 3258377.42  
EL: 5533.61



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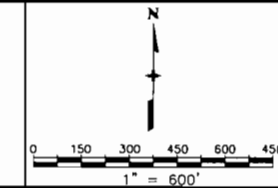
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Land Survey Control Diagram

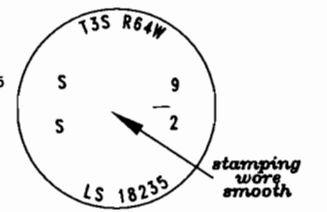
Plan Sheet				
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14584	00-00-00	3 of 3	3B	3



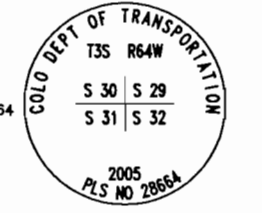
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E: 3253061.90



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N 1/4 SEC. 31 T3S R64W  
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N: 1701297.65  
E: 3255940.57



FOUND:  
NE COR SEC. 31 T3S R64W  
3 1/4" ALUM. CAP LS 18235  
N: 1701285.08  
E: 3258589.06



SET:  
NE COR. SEC. 31 T3S R64W  
3 1/4" ALUM. CAP CDOT PLS 28664  
N: 1701285.08  
E: 3258589.06

TABULATION OF PROPERTY EVIDENCE

PNT NO.	PROJECT COORDINATES		DESCRIPTION
	NORTHING	EASTING	
101	1698674.39	3257502.03	3.5"x4.0" CONC STATE HWY POST
103	1698899.65	3258562.39	4.0"x4.0" CONC POST ST HWY ROW SHOT TAKEN AT GRND EAST SIDE
102	1698801.81	3258583.03	3.5"x4.0" CONC STATE HWY POST
100	1698496.82	3256986.40	2" BRASS CAP UDFCD BXU4 1994
104	1698251.31	3258616.13	1 1/4" PLASTIC CAP B J SURVEYING LS 10717
105	1698807.62	3258611.28	#4 REBAR (CENT)
106	1696241.37	3258634.00	1 1/4" RED PLAS. CAP BJ SURVEYING LS 10717
107	1697606.72	3254442.62	1" DIA RED PLASTIC CAP VSSI 23524
108	1697386.56	3254489.53	1" DIA RED PLASTIC CAP VSSI 23524
109	1697317.73	3254166.83	1" DIA RED PLASTIC CAP VSSI 23524
110	1697744.98	3253629.43	1" DIA RED PLASTIC CAP - VSSI 23524
111	1696356.89	3253634.09	#4 REBAR W/REMAINS OF FADED PLAS. CAP
112	1696271.99	3253945.78	#4 REBAR

NW 1/4 Section 31 T 3 S, R 64 W

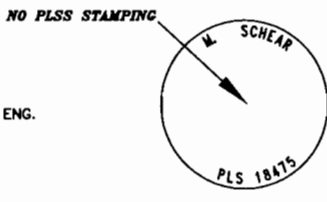
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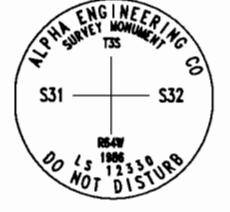
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E: 3255954.11



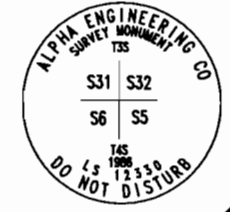
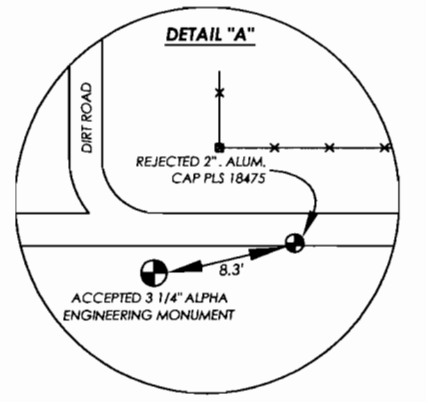
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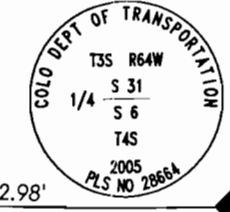
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2" ALUM. CAP PLS 18475  
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SEE DETAIL "A"



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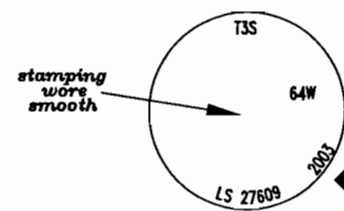
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SET:  
S 1/4 COR SEC. 31 T3S R64W  
3 1/4" ALUM. CAP CDOT PLS 28664  
N: 1695988.64  
E: 3255967.52

FOUND:  
1 7/8" CM-MP 295.5  
GPS PROJECT STATION  
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E: 3254290.82  
E: 55.39.85 S 89°30'06" E 2882.98'

FOUND:  
SW COR SEC. 31 T3S R64W  
3 1/4" BRASS CAP IN BRIDGE DECK  
N: 1698013.71  
E: 3253084.65



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