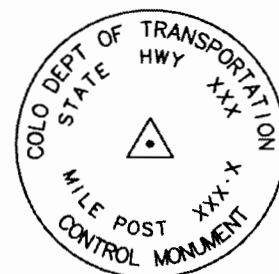


STATE HIGHWAY 9
Section 6, of T. 7 S., R 77 W.
and Section 31 of T. 6 S. R 77 W.,
of the 6th Principal Meridian
SUMMIT COUNTY, COLORADO
Prepared by Mountain Surveying & Mapping, Inc.

CONSTRUCTION SURVEYING AND MONUMENTATION REQUIREMENTS:

- 1). This Control Survey Diagram represents the horizontal and vertical control for the project established by Mountain Surveying and Mapping, Inc. 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.
- 2). 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.
- 3). 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.
- 4). When installing Type 3-A monuments, the aluminum access cover shall be positively secured to the PVC pipe with screws or glue. The access cover shall be caulked with asphalt caulking between the cover and the edges of the roadway surface to provide a positive moisture barrier around the access cover.
- 5). Control survey procedures, statistical analysis, and accuracy obtained for horizontal and vertical control shall be documented in the field book.
- 6). Legible copies of the field books shall be submitted to the Project Engineer for review on a monthly basis.
- 7). 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.
- 8). 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.



TYPICAL:
CM-MP - Control Monuments were set by Mountain Surveying and Mapping, Inc. 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 or CDOT Type 5 monuments, a 3 1/4" dia. Aluminum control monument stem cap set in concrete.

BASIS OF BEARING: Bearings used in the calculations of coordinates are based on a grid bearing of N 77°04'17" W from SH 9 CM 88.48 and SH 9 CM 88.56 as obtained from a Global Positioning System (GPS) survey based on the Colorado High Accuracy Reference Network (CHARN).

BASIS OF ELEVATIONS: Project is based on SH 9 CM-MP 87.48 ; a CDOT TYPE 2 MONUMENT with a NAVD 88 elevation of 9509.47ft.

COORDINATE DATUM: Project coordinates are modified Colorado state plane central zone NAD '83 coordinates. The combined elevation/scale factor used to modify the coordinates was 1.000475081

NOTE: Refer to NEW-629-1 SURVEY MONUMENTS of the STANDARD PLANS, COLORADO DEPARTMENT OF TRANSPORTATION M & S STANDARDS MARCH 15, 1996 for survey monument descriptions. Refer to M-100-1 STANDARD SYMBOLS of the STANDARD PLANS, COLORADO DEPARTMENT OF TRANSPORTATION M & S STANDARDS NOVEMBER 1992 for standard symbol definitions.

NOTE: This control survey is for the use of 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 restrictions, as described in the instruments of record, was not included in this control survey.

NOTE: 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.

SURVEYORS STATEMENT, I, Michael D. Helmbeck, a Professional Land Surveyor in the State of Colorado, hereby state that this Control Survey Diagram was prepared under my supervision this 1st day of December from a field survey performed under my supervision from 10-01-99 to 12-01-99, and checking 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 this control survey, as shown meets the minimum horizontal control tolerances of a Type B Survey.

Michael D. Helmbeck, RLS 17488

Computer File Information			Sheet Revisions			As Constructed			SURVEY CONTROL DIAGRAM			Project No./Code	
Creation Date:	11/29/99	Initials: FCA				No Revisions:	/	/				STA 009A-021	
Last Modification Date:	12/01/99	Initials: FCA				Revised:	/	/	Designer:	Structure Numbers	FIRST	12361	
Full Path:	P:\PROJECTS\CDOT\99070\SCD					Void:	/	/	Detailer:		DRAFT		
Drawing File Name:	99070SCD.dwg								Sheet Subset:	SURVEY	Subset Sheets:	1 of 2	Sheet Number
Acad Ver.	R14	Scale:	Units:	FEET									

Colorado Department of Transportation

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Region 1

STATE HIGHWAY 9
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GEODETIC COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA)

POINT NAME	GEODETIC COORDINATES NAD-83(92) (CHARN)		ELEV. (NAVD 88)M	MAPPING ANGLE	SCALE FACTOR	NAD 83/92		DESCRIPTION
	LATITUDE(N)	LONGITUDE(W)				NORTHING (M)	EASTING (M)	
SH 9 CM-MP 86.46	39°28'37.61130"	106°02'41.38532"	2930.676	-0°20'37.02523	0.999957405	487415.518	867526.115	SH 9 CM-MP 86.46 CDOT TYPE 5 MON
SH 9 CM-MP 86.56	39°28'39.53496"	106°02'52.50451"	2932.587	-0°20'44.03799	0.999957466	487478.439	867280.735	SH 9 CM-MP 86.56 CDOT TYPE 5 MON
SH 9 CM-MP 86.61	39°28'43.18383"	106°02'53.70857"	2930.978	-0°20'44.79612	0.999957582	487589.131	867232.686	SH 9 CM-MP 86.61 CDOT TYPE 2 MON
SH 9 CM-MP 86.72	39°28'49.87199"	106°02'52.86889"	2925.650	-0°20'44.26767	0.999957796	487795.268	867253.955	SH 9 CM-MP 86.72 CDOT TYPE 5 MON
SH 9 CM-MP 86.82	39°28'55.60858"	106°02'54.48050"	2921.974	-0°20'45.28422	0.999957981	487972.407	867216.504	SH 9 CM-MP 86.82 CDOT TYPE 5 MON
SH 9 CM-MP 86.90	39°29'00.36299"	106°02'57.25942"	2920.481	-0°20'47.03686	0.999958134	488119.427	867150.982	SH 9 CM-MP 86.90 CDOT TYPE 2 MON
SH 9 CM-MP 87.00	39°29'03.99427"	106°02'50.05785"	2913.165	-0°20'42.49490	0.999958251	488230.371	867323.751	SH 9 CM-MP 87.00 CDOT TYPE 2 MON
SH 9 CM-MP 87.02	39°29'06.04831"	106°02'54.36740"	2913.202	-0°20'45.21289	0.999958318	488294.335	867221.150	SH 9 CM-MP 87.02 CDOT TYPE 2 MON
SH 9 CM-MP 87.18	39°29'15.16660"	106°02'54.78989"	2906.094	-0°20'45.47935	0.999958615	488575.589	867212.752	SH 9 CM-MP 87.18 CDOT TYPE 2 MON
SH 9 CM-MP 87.19	39°29'13.89214"	106°02'49.22098"	2908.414	-0°20'41.96710	0.999958573	488535.485	867345.587	SH 9 CM-MP 87.19 CDOT TYPE 2 MON
SH 9 CM-MP 87.43	39°29'22.81827"	106°02'54.52176"	2900.989	-0°20'45.31025	0.999958886	488611.516	867220.584	SH 9 CM-MP 87.43 CDOT TYPE 2 MON
SH 9 CM-MP 87.45	39°29'25.92390"	106°02'48.56505"	2900.556	-0°20'41.55341	0.999958988	488906.431	867363.494	SH 9 CM-MP 87.45 CDOT TYPE 2 MON
SH 9 CM-MP 87.46	39°29'27.24362"	106°02'44.76789"	2898.492	-0°20'39.15858	0.999959011	488946.583	867454.470	SH 9 CM-MP 87.46 CDOT TYPE 2 MON
US C&GS BM DISK V-301	39°24'16.34822"	106°02'56.04195"	3130.028	-0°20'46.26901	0.999948956	479422.477	867127.528	US C&GS BM DISK V-301

PROJECT COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA)

POINT NAME	PROJECT COORDINATES		ELEV. (NAVD 88)ft	DESCRIPTION
	NORTHING (ft)	EASTING (ft)		
SH 9 CM-MP 86.46	1599888.80	2847560.77	9615.08	SH 9 CM-MP 86.46 CDOT TYPE 5 MON
SH 9 CM-MP 86.56	1600088.78	2846889.69	9621.33	SH 9 CM-MP 86.56 CDOT TYPE 5 MON
SH 9 CM-MP 86.61	1600458.68	2846597.63	9616.05	SH 9 CM-MP 86.61 CDOT TYPE 2 MON
SH 9 CM-MP 86.72	1601135.28	2846667.44	9598.57	SH 9 CM-MP 86.72 CDOT TYPE 5 MON
SH 9 CM-MP 86.82	1601716.72	2846544.51	9586.51	SH 9 CM-MP 86.82 CDOT TYPE 5 MON
SH 9 CM-MP 86.90	1602199.30	2846329.44	9581.61	SH 9 CM-MP 86.90 CDOT TYPE 2 MON
SH 9 CM-MP 87.00	1602563.46	2846896.54	9557.60	SH 9 CM-MP 87.00 CDOT TYPE 2 MON
SH 9 CM-MP 87.02	1602773.42	2846559.76	9557.73	SH 9 CM-MP 87.02 CDOT TYPE 2 MON
SH 9 CM-MP 87.18	1603696.60	2846532.20	9534.41	SH 9 CM-MP 87.18 CDOT TYPE 2 MON
SH 9 CM-MP 87.19	1603564.96	2846968.21	9542.02	SH 9 CM-MP 87.19 CDOT TYPE 2 MON
SH 9 CM-MP 87.43	1604471.01	2846557.90	9517.66	SH 9 CM-MP 87.43 CDOT TYPE 2 MON
SH 9 CM-MP 87.45	1604782.55	2847026.99	9516.24	SH 9 CM-MP 87.45 CDOT TYPE 2 MON
SH 9 CM-MP 87.46	1604914.35	2847325.81	9509.47	SH 9 CM-MP 87.46 CDOT TYPE 2 MON
US C&GS BM DISK V-301	1573652.30	2846252.46	10289.10	US C&GS BM DISK V-301

Computer File Information			Sheet Revisions		Colorado Department of Transportation 18500 E. Colfax Avenue Aurora, Colorado 80011 Phone: (303) 757-9744 Fax: (303) 757-9746 Region 1	As Constructed		SURVEY CONTROL DIAGRAM		Project No./Code	
Creation Date:	11/29/99	Initials: FCA				No Revisions:	/ /	Designer:	Structure	STA 009A-021	
Last Modification Date:	12/01/99	Initials: FCA				Revised:	/ /	Detailer:	Numbers	12361	
Full Path:	P:\PROJECTS\CDOT\99070\SCD					Void:	/ /	Sheet Subset:	SURVEY	Subset Sheets:	2 of 2
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Acad Ver.	R14	Scale:	1" = 200'	Units:	FEET						