

COLORADO DEPARTMENT OF TRANSPORTATION



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

Survey Unit:

Sheet Revisions	
mm/yy	xx

SH 83 & SH 86 MP 50.0 to MP 51.0
SEC. 35, T. 7 S., R. 66 W. &
SEC. 2, T. 8 S., R. 66 W. OF THE 6TH P.M.
FRANKTOWN,
DOUGLAS COUNTY, COLORADO
PREPARED BY MOUNTAIN SURVEYING AND MAPPING, INC.
8751 E. HAMPDEN AVE. DENVER, COLORADO 80231
COUNTY, COLORADO

Survey Control Diagram				
Title Sheet				
Project Number: STA R100-086				
Project Location: FRANKTOWN, COLORADO				
Project Location:				
Project Code:	Last Mod. Date	Subset Sheets	Sheet No.	Total No. of Sheets
13827	04/09/02	of	1	3



Typical Control Monument Cap Not to Scale

BASIS OF BEARING: Bearings used in the calculations of coordinates are based on a grid bearing of N 17°00'09" W from SH83 CM-MP 50.5 and SH83 CM-MP 50.6 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 a NSRS benchmark B 337, a standard Coast and Geodetic Survey benchmark disk set in the headwall of a small culvert, with a NAVD88 elevation of 1876.459m. B 337 has a posted elevation.

COORDINATE DATUM: Coordinates on this project are for the exclusive use of the CDOT for the construction of this project and are considered Project Coordinates only.



CP - Control Point Monuments set by CDOT. They were 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. Except as noted.

NOTE: This control survey is for the use of the Colorado Department of Transportation personnel. The survey is not a complete Boundary Survey. 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: 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.

NOTE: No guarantee as to the accuracy of the information contained on the attached drawing is either stated or implied unless this copy bears an original signature of the professional land surveyor hereon named.

SURVEYORS STATEMENT: I, Kevin C. Hoffman, a Professional Land Surveyor in the State of Colorado, hereby state that this Control Survey Diagram was prepared under my direct supervision this _____ day of _____, from a field survey performed under my supervision 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 and this topographic survey, as shown, meets the minimum horizontal control tolerances of a Type D Survey as listed in the Colorado Department of Transportation Survey Manual Chapter Three (Revised 4/29/92).

CONSTRUCTION SURVEYING AND MONUMENTATION REQUIREMENTS:

- 1). 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.
- 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 Contractors 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.

Kevin C. Hoffman, LS 22568



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GEODETIC COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA)

POINT NAME	GEODETIC COORINATES NAD-83(92) (CHARN)		ELLIP. (NAVD88)m	MAPPING ANGLE	SCALE	NAD 83(92) ZONE 0502	
	LATITUDE(N)	LONGITUDE(W)				NORTHING (m)	EASTING (m)
SH83 CM-MP 50.5	39° 23' 14.72463" N	104° 45' 07.11517" W	1859.422	0° 28' 18.37434"	0.999948370	477582.922	978841.507
SH83 CM-MP 50.6	39° 23' 21.03916" N	104° 45' 09.53040" W	1857.545	0° 28' 16.85108"	0.999948523	477777.168	978782.111
SH83 NGS BM	39° 23' 28.62949" N	104° 45' 09.82778" W	1859.330	0° 28' 16.66352"	0.999948708	478011.173	978773.070
SH83 CM-MP 50.9	39° 23' 36.26477" N	104° 45' 13.72188" W	1858.922	0° 28' 14.20755"	0.999948896	478245.857	978677.958
SH83 CM-MP 51.0	39° 23' 41.54841" N	104° 45' 14.37129" W	1858.348	0° 28' 13.79798"	0.999949027	478408.662	978661.082
SH86 CM-MP 6.8	39° 23' 27.77785" N	104° 45' 14.97969" W	1854.672	0° 28' 13.41427"	0.999948687	477983.898	978650.012
SH86 CM-MP 6.7	39° 23' 28.34806" N	104° 45' 20.96119" W	1847.824	0° 28' 09.64180"	0.999948701	478000.308	978506.743
SH86 CM-MP 7.0	39° 23' 26.45385" N	104° 44' 59.95396" W	1870.217	0° 28' 22.89084"	0.999948655	477946.030	979009.882
SH86 CM-MP 7.15	39° 23' 23.64856" N	104° 44' 51.47229" W	1872.940	0° 28' 28.24014"	0.999948586	477861.201	979213.547
SH83 DC GIS	39° 19' 20.56149" N	104° 44' 06.70365" W	2010.310	0° 28' 56.47525"	0.999943350	470374.129	980347.888
SH86 NGS HORZ	39° 21' 44.47043" N	104° 39' 58.62146" W	2026.640	0° 31' 32.93810"	0.999946282	474864.046	986248.986

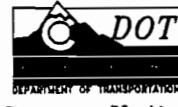
PROJECT COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA)

POINT NAME	PROJECT COORDINATES		ELEV(ft)	DESCRIPTION
	NORTH (ft)	EAST (ft)		
SH83 CM-MP- 50.50	255078.64	259776.71	6156.64	SET CDOT TYPE 2 MON.
SH83 CM-MP- 50.60	255716.15	259581.78	6150.49	SET CDOT TYPE 2 MON.
SH83 CM-MP- 50.80	256484.14	259552.10	6156.35	FOUND NGS BRASS CAP-B 337.
SH83 CM-MP- 50.90	257254.37	259239.95	6155.01	SET CDOT TYPE 5 MON.
SH83 CM-MP- 51.00	257788.69	259184.56	6153.13	SET CDOT TYPE 2 MON.
SH83 CM-MP- 6.80	256394.63	259148.23	6141.07	SET CDOT TYPE 2 MON.
SH83 CM-MP- 6.70	256448.48	258678.03	6118.58	SET CDOT TYPE 2 MON.
SH83 CM-MP- 7.00	256270.35	260329.31	6192.08	SET CDOT TYPE 2 MON.
SH83 CM-MP- 7.15	255991.94	260997.74	6201.05	SET CDOT TYPE 2 MON.

CALCULATION PARAMETERS
GEODETIC COORDINATES TO PROJECT COORDINATES

SH83 MP 50.0 to MP 51.0
SH86 MP 5.0 to MP 7.2
Douglas County, Colorado

Project Latitude 39.232760
Project Longitude 104.450910
Project Elevation 1877.0533m
Zone Colorado Central
Scale Factor 0.9999486837
Combined Factor 0.9996542072
Northing Reduction 400000m
Easting Reduction 900000m
Meters to U.S. Survey Foot (3937/1200).

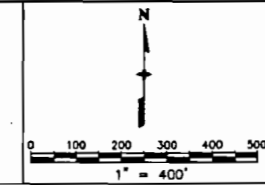


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