



Region 1
18500 East Colfax Avenue
Aurora, Colorado 80022
Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway

Set Revisions

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85 MP 187.50 to MP 189.05

Located in the
North 1/2 of Sections 19 & 20,
Township 7 South, Range 67 West
of the 6th Principal Meridian
Douglas County
Colorado



Survey Control Diagram

Title Sheet

| | | | | |
|--|----------------|---------------|-----------|--------------|
| Project Number: STA R100-0702 | | | | |
| Project Location: Highway 85 @ Daniels Park Road | | | | |
| Project Location: Highway 85 MP 187.5 - 189.05 | | | | |
| Project Code: | Last Mod. Date | Subst. Sheets | Sheet No. | Total No. of |
| 13175 | 00-00-00 | XXX of XXX | XXX | XXX |

GEODETIC COORDINATE SUMMARY TABLE (ADJUSTED FIELD DATA)

| POINT NAME | GEODETIC COORDINATES NAD-83(92) CHARN | | ELLIP. HEIGHT | ELEV. NAVD 88m | MAPPING ANGLE | SCALE | NAD 83(92) ZONE 0502 | |
|--------------|---------------------------------------|----------------------|---------------|----------------|------------------|------------|----------------------|-------------|
| | LATITUDE(N) | LONGITUDE(W) | | | | | NORTHING (m) | EASTING (m) |
| CM-MP 188.10 | 39° 25' 49.62578" N | 104° 55' 13.74932" W | 1799.829 | 1816.458 | 0° 21' 55.77651" | 0.99967068 | 482253.644 | 964294.743 |
| CM-MP 187.80 | 39° 25' 46.56785" N | 104° 54' 52.95387" W | 1801.850 | 1818.501 | 0° 22' 08.89199" | 0.99967028 | 482162.532 | 964792.669 |
| CM-MP 188.45 | 39° 25' 53.22118" N | 104° 55' 37.78451" W | 1793.408 | 1810.003 | 0° 21' 40.61777" | 0.99967179 | 482360.873 | 963719.248 |
| CM-MP 189.05 | 39° 25' 59.39458" N | 104° 56' 07.43629" W | 1786.597 | 1803.167 | 0° 21' 21.91670" | 0.99967303 | 482546.808 | 963008.958 |
| CM-MP 187.65 | 39° 25' 45.19749" N | 104° 54' 44.12362" W | 1807.484 | 1824.138 | 0° 22' 14.46114" | 0.99966936 | 482121.637 | 965004.119 |
| K23 | 39° 25' 41.15066" N | 104° 54' 30.69573" W | 1807.516 | 1824.181 | 0° 22' 22.92996" | 0.99966925 | 481998.926 | 963326.062 |
| CM-MP 187.45 | 39° 25' 42.70028" N | 104° 54' 32.57185" W | 1809.067 | 1825.729 | 0° 22' 21.74671" | 0.99966905 | 482046.421 | 963280.883 |
| CM-MP 187.95 | 39° 25' 49.56932" N | 104° 55' 03.23604" W | 1802.103 | 1818.739 | 0° 22' 02.40713" | 0.99967033 | 482253.511 | 964546.177 |
| A397 | 39° 25' 58.52783" N | 104° 56' 02.94639" W | 1787.606 | 1804.178 | 0° 21' 24.74843" | 0.99967285 | 482520.747 | 963116.495 |
| MITCHELL | 39° 26' 40.42867" N | 104° 58' 30.41385" W | | | 0° 19' 51.74225" | 0.99967828 | 483791.715 | 959582.493 |
| CM-MP 187.50 | 39° 25' 43.23901" N | 104° 54' 35.24353" W | 1808.832 | 1825.492 | 0° 22' 20.06171" | 0.99966910 | 482062.619 | 963216.880 |
| CM-MP 188.25 | 39° 25' 50.25600" N | 104° 55' 24.81198" W | 1796.211 | 1812.831 | 0° 21' 48.79941" | 0.99967127 | 482271.395 | 964030.059 |
| CM-MP 188.85 | 39° 25' 58.45884" N | 104° 56' 03.66467" W | 1787.561 | 1804.140 | 0° 21' 24.29542" | 0.99967285 | 482518.513 | 963099.332 |
| CHASE | 39° 24' 45.78867" N | 104° 57' 11.7232" W | | | 0° 20' 41.37848" | 0.99967380 | 480267.560 | 961485.528 |
| CM-MP 188.75 | 39° 25' 57.07662" N | 104° 55' 54.67369" W | 1787.720 | 1804.304 | 0° 21' 29.96594" | 0.99967279 | 482477.230 | 963314.608 |

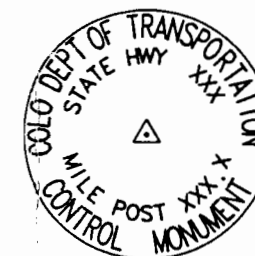
BASIS OF BEARINGS: Bearings used in the calculation of coordinates are based on a grid bearing of N 74°29'48" W from CM-MP 187.50 to CM-MP 187.65, as obtained from a Global Positioning System (GPS) survey based on the Colorado High Accuracy Reference Network (CHARN).

BASIS OF ELEVATIONS: Project is based on a elevation of 1824.181m on USC&GS point "K23", a 3 1/4" Brass cap in a concrete post.

COORDINATE DATUM: Project coordinates are modified Colorado State Plane Central Zone NAD '83 (92) coordinates. State Plane Coordinates are modified to a mean project elevation of 1824.181m. Project Latitude is 39°25'41.1507". Multiply state plane coordinates by a combined scale factor of 1.00033413364 to convert to project coordinates. Project coordinates are truncated by 50,000m in the Northing and 900,000m in the Easting. Project Coordinates in feet are in US Survey Feet. The CHARN is based on the NAD '83 (92) datum.

PROJECT COORDINATE SUMMARY TABLE (ADJUSTED FIELD DATA IN METERS)

| POINT NAME | PROJECT COORDINATES | | ELEV(m) | DESCRIPTION |
|--------------|---------------------|-----------|----------|-------------------------------------|
| | NORTH (m) | EAST (m) | | |
| CM-MP 187.80 | 432323.639 | 65115.039 | 1818.501 | CDOT Type II Control Monument |
| CM-MP 187.95 | 432414.648 | 64868.463 | 1818.739 | CDOT Type II Control Monument |
| CM-MP 188.10 | 432414.781 | 64616.947 | 1816.458 | CDOT Type II Control Monument |
| CM-MP 187.65 | 432282.730 | 65326.559 | 1824.138 | CDOT Type II Control Monument |
| K23 | 432159.978 | 65648.610 | 1824.181 | 3.25" USC&GS Brs. cap in conc. pst. |
| CM-MP 187.45 | 432207.488 | 65603.415 | 1825.729 | CDOT Type II Control Monument |
| CM-MP 187.50 | 432223.692 | 65539.392 | 1825.492 | CDOT Type II Control Monument |
| CM-MP 188.25 | 432432.538 | 64352.174 | 1812.831 | CDOT Type II Control Monument |
| A397 | 432681.974 | 63438.305 | 1804.178 | NGS Stainless steel rod |
| CM-MP 189.05 | 432708.043 | 63330.732 | 1803.167 | CDOT Type II Control Monument |
| MITCHELL | 433953.366 | 59903.121 | | NGS Stainless steel rod |
| CM-MP 188.85 | 432679.738 | 63421.136 | 1804.140 | CDOT Type II Control Monument |
| CM-MP 188.45 | 432522.046 | 64041.259 | 1810.003 | CDOT Type II Control Monument |
| CM-MP 188.75 | 432638.442 | 63636.484 | 1804.304 | CDOT Type II Control Monument |
| CHASE | 430428.033 | 61806.793 | | 3.25" Brs. cap in concrete post |



Typical Control
Monument Cap
Not to Scale

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.

NOTE: Refer to M-629-1 Survey Monuments of the Standard Plans, Colorado Department of Transportation, M & S Standards November 1992 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 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, David A. Stewart, a Professional Land Surveyor in the State of Colorado, hereby state that this Control Survey Diagram was prepared under my direct supervision this 7th day of November 2000, from a field survey performed from 08/20/2000 to 10/03/2000 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).

PROJECT COORDINATE SUMMARY TABLE (ADJUSTED FIELD DATA IN US FEET)

| POINT NAME | PROJECT COORDINATES | | ELEV(ft) | DESCRIPTION |
|--------------|---------------------|-----------|----------|-------------------------------------|
| | NORTH (ft) | EAST (ft) | | |
| CM-MP 187.80 | 1418381.81 | 213631.59 | 5966.20 | CDOT Type II Control Monument |
| CM-MP 187.95 | 1418680.39 | 212822.62 | 5966.98 | CDOT Type II Control Monument |
| CM-MP 188.10 | 1418680.83 | 211997.43 | 5959.50 | CDOT Type II Control Monument |
| CM-MP 187.65 | 1418247.59 | 214325.55 | 5984.69 | CDOT Type II Control Monument |
| CM-MP 187.45 | 1418000.73 | 215233.87 | 5989.91 | CDOT Type II Control Monument |
| CM-MP 187.50 | 1418053.90 | 215023.82 | 5989.14 | CDOT Type II Control Monument |
| CM-MP 188.25 | 1418739.09 | 211128.76 | 5947.60 | CDOT Type II Control Monument |
| CM-MP 189.05 | 1419642.97 | 207777.58 | 5915.89 | CDOT Type II Control Monument |
| CM-MP 188.85 | 1419550.11 | 208074.18 | 5919.08 | CDOT Type II Control Monument |
| CM-MP 188.45 | 1419032.74 | 210108.70 | 5938.32 | CDOT Type II Control Monument |
| CM-MP 188.75 | 1419414.62 | 208780.70 | 5919.62 | CDOT Type II Control Monument |
| K23 | 1417844.86 | 215382.15 | 5984.83 | 3.25" USC&GS Brs. cap in conc. pst. |
| A 397 | 1419557.44 | 208130.51 | 5919.21 | NGS Stainless steel rod |
| MITCHELL | 1423728.67 | 196532.16 | | NGS Stainless steel rod |
| CHASE | 1412162.64 | 202777.79 | | 3.25" Brs. cap in conc. post |

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.

David A. Stewart, CO PLS 28664

Date

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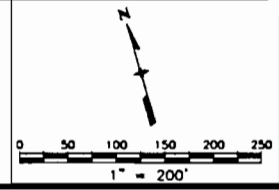
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85 MP 187.50 to MP 189.05

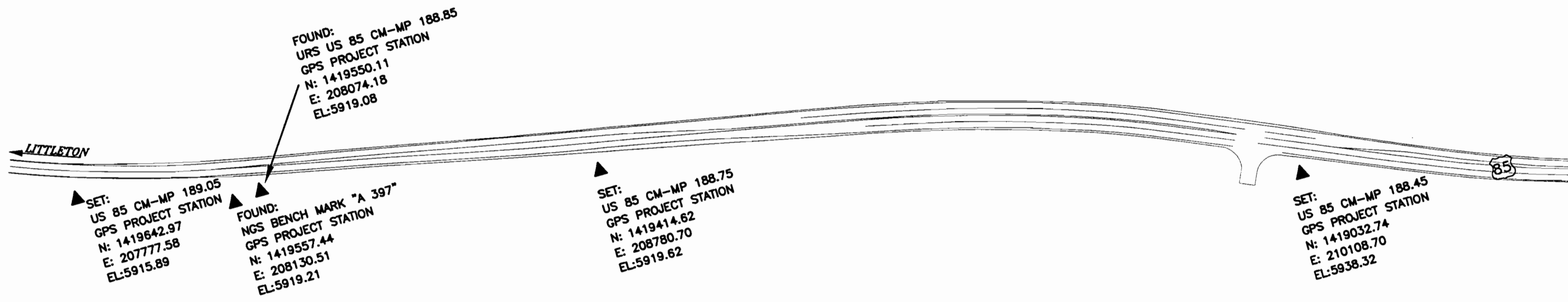
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Survey Control Diagram

Plan Sheet

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| Project Location: Highway 85 @ Daniels Park Road | | | | |
| Project Location: Highway 85 MP 187.5 - 189.05 | | | | |
| Project Code: | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 13175 | 00-00-00 | XXX of XXX | XXX | XXX |



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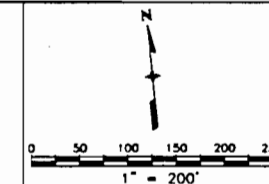
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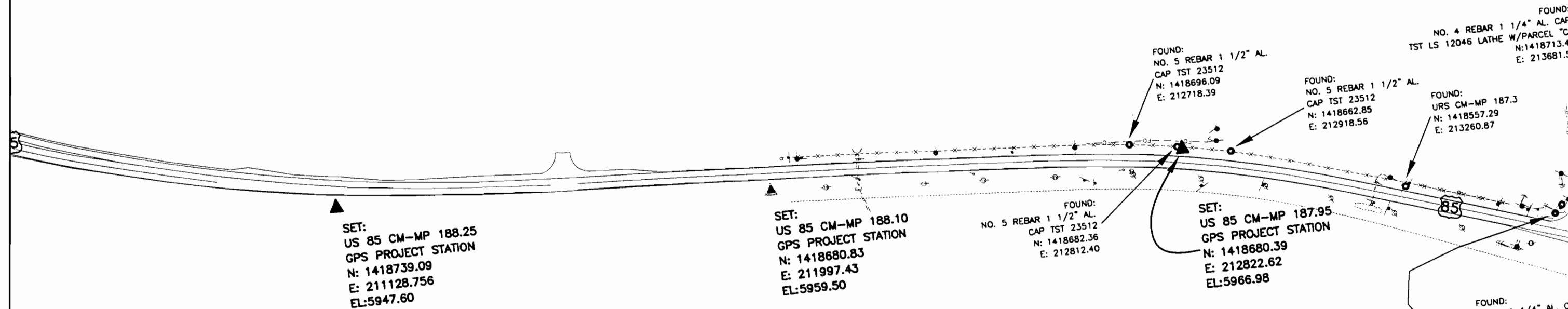
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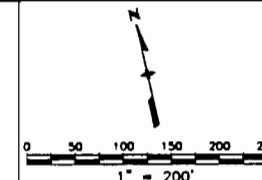
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