

Oversight / NHS

FHWA REGION VIII OVERSIGHT? NO YES
 NATIONAL HIGHWAY SYSTEM? NO YES

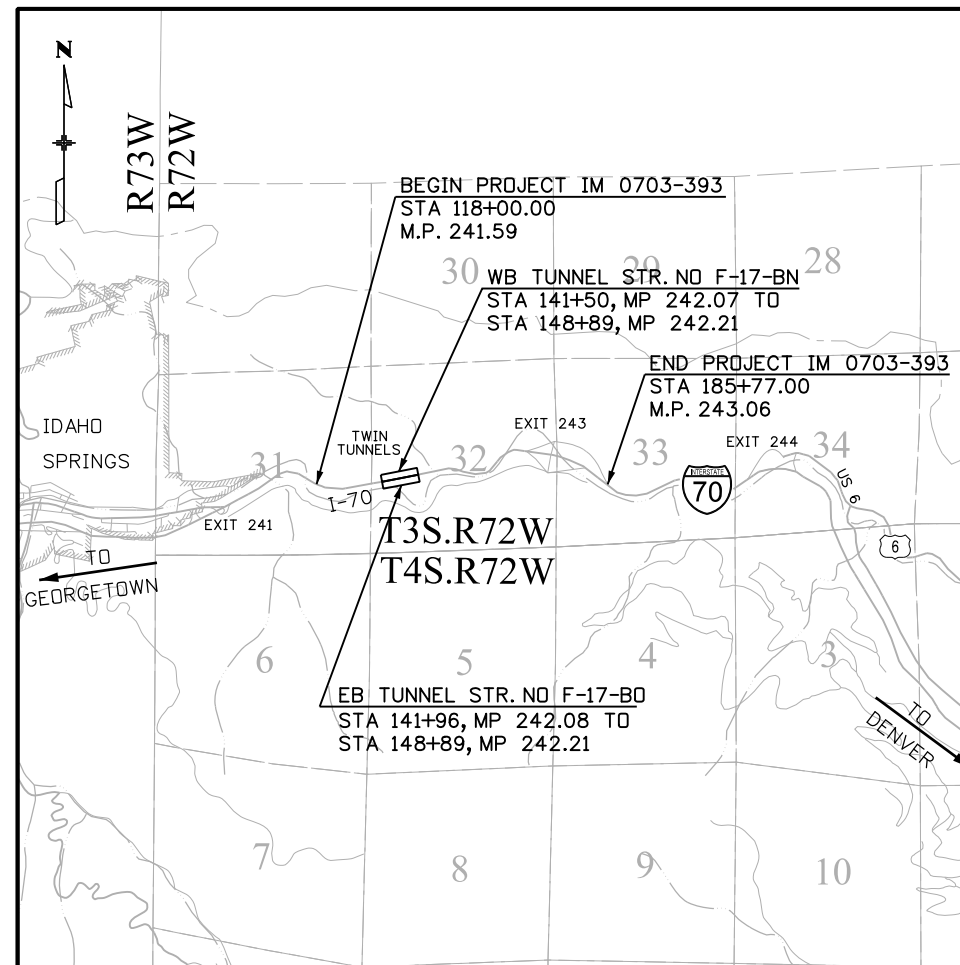
DEPARTMENT OF TRANSPORTATION STATE OF COLORADO

Related Projects:
 P. E. UNDER PROJECT: IM 0703-383
 Project Number: 18832
 Project Code: 18832
R.O.W. Projects:
 R.O.W. Project Description: XXXXXXXXXXXXXXXXX

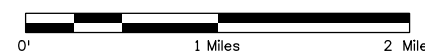
HIGHWAY CONSTRUCTION BID PLANS OF PROPOSED FEDERAL AID PROJECT NO. IM 0703-393 TWIN TUNNELS ROCKFALL AND LINER VOID REPAIRS CLEAR CREEK COUNTY CONSTRUCTION PROJECT CODE NO. 19038

| SHEET NO. | INDEX OF SHEETS |
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| 51 | STORMWATER MANAGEMENT PLAN |

| TABULATION OF LENGTH & DESIGN DATA *738 (693) | | |
|---|--------------------------------|-------------|
| STATION | FEET | |
| | ROADWAY I-70 | MAJOR STR. |
| BEGIN PROJECT IM 0703-393 STA 118+00.00, MP 241.70 | *2350.00 (2396.00) | |
| BEGIN WB TUNNEL STR F-17-BN STA 141+50, MP 242.07 | | |
| BEGIN EB TUNNEL STR F-17-B0 STA 141+96, MP 242.08 | | |
| | | *739 (693) |
| END WB TUNNEL STR F-17-BN STA 148+89, MP 242.21 | | |
| END EB TUNNEL STR F-17-B0 STA 148+89, MP 242.21 | | |
| END PROJECT IM 0703-393 STA 185+77.00, MP 242.87 | *3688.00 (3688.00) | |
| TOTAL | *6038.00 (6084.00) | *739 (693) |
| SUMMARY OF PROJECT LENGTH | FEET | MILE |
| ROADWAY (NET LENGTH) | *6038.00 (6084.00) | *1.14(1.15) |
| MAJOR STRUCTURE | *739 (693) | *0.14(0.13) |
| PROJECT GROSS LENGTH | *6777.00 (6777.00) | 1.28 |
| DESIGN DATA (EB I-70 BASELINE) | | |
| MAXIMUM RADIUS OF CURVE | I-70 2000 FT. | |
| MAXIMUM GRADE | 3.1% | |
| MINIMUM S.S.D. HORIZONTAL | 425 FT. | |
| MINIMUM S.S.D. VERTICAL | 425 FT. | |
| MAXIMUM DESIGN SPEED | 50 MPH | |
| 2035 DESIGN TRAFFIC | DHV = 6000 ADT = 59,200 | |
| DHV TRUCK % | 4% SUMMER (DHV) OR 8.5% ANNUAL | |
| CLEAR ZONE DISTANCE (TANGENT) | 22 FT. | |
| CLEAR ZONE DISTANCE (750.00 MIN. RADIUS) | 28 FT. | |
| CONSTRUCTION CLEAR ZONE (MIN. 18') | 18 FT. | |



PROJECT LOCATION MAP



Print Date: 9/6/2012
 File Name: 18832DES_WBTR_TitleSht.dgn
 Horiz. Scale: 1:1 Vert. Scale: NA
ATKINS 4601 DTC Boulevard, Suite 700
 Denver, CO 80237
 Phone: (303) 221-7275 Fax: (303) 221-7276

| Sheet Revisions | | |
|-----------------|----------|-------|
| Date: | Comments | Init. |
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| | | |

Colorado Department of Transportation

 425 A Corporate Circle
 Golden, CO 80401
 Phone: 720-497-6918 FAX: 720-497-6901
 Region 1 CRC

As Constructed
 No Revisions:
 Revised:
 Void:

Contract Information
 Contractor: _____
 Resident Engineer: _____
 Project Engineer: _____
 PROJECT STARTED: _____ ACCEPTED: _____
 Comments: _____

Project No./Code
 IM 0703-393
 19038
 Sheet Number **1**

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| PLAN NUMBER | NEW OR REVISED | M STANDARD TITLE | PAGE NUMBER | PLAN NUMBER | NEW OR REVISED | M STANDARD TITLE | PAGE NUMBER | PLAN NUMBER | NEW OR REVISED | S STANDARD TITLE | PAGE NUMBER |
|-------------------------------------|--------------------------|---|------------------|-------------------------------------|----------------|--|--------------------|-------------------------------------|--------------------------|--|-------------------------|
| <input checked="" type="checkbox"/> | | M-100-1 STANDARD SYMBOLS (3 SHEETS)..... | 1-3 | <input type="checkbox"/> | | M-607-1 WIRE FENCES AND GATES (3 SHEETS)..... | 100-102 | <input type="checkbox"/> | | S-612-1 DELINEATOR INSTALLATIONS (7 SHEETS) | 151-157 |
| <input checked="" type="checkbox"/> | | M-100-2 ACRONYMS AND ABBREVIATIONS (4 SHEETS)..... | 4-7 | <input type="checkbox"/> | | M-607-2 CHAIN LINK FENCE (3 SHEETS)..... | 103-105 | <input type="checkbox"/> | <input type="checkbox"/> | S-614-1 GROUND SIGN PLACEMENT (2 SHEETS) (REVISED ON JULY 24, 2012) ... | 158-159 |
| <input type="checkbox"/> | | M-203-1 APPROACH ROADS | 8 | <input type="checkbox"/> | | M-607-3 BARRIER FENCE..... | 106 | <input type="checkbox"/> | | S-614-2 CLASS I SIGNS | 160 |
| <input type="checkbox"/> | | M-203-2 DITCH TYPES..... | 9 | <input type="checkbox"/> | | M-607-4 DEER FENCE AND GATES (3 SHEETS) | 107-109 | <input type="checkbox"/> | | S-614-3 CLASS II SIGNS | 161 |
| <input type="checkbox"/> | | M-203-11 SUPERELEVATION CROWNED AND DIVIDED HIGHWAYS (3 SHEETS)..... | 10-12 | <input type="checkbox"/> | | M-607-10 PICKET SNOW FENCE | 110 | <input type="checkbox"/> | | S-614-4 CLASS III SIGNS (3 SHEETS) | 162-164 |
| <input type="checkbox"/> | | M-203-12 SUPERELEVATION STREETS (2 SHEETS)..... | 13-14 | <input type="checkbox"/> | | M-607-15 ROAD CLOSURE GATE (9 SHEETS)..... | 111-119 | <input type="checkbox"/> | | S-614-5 BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS (2 SHEETS)..... | 165-166 |
| <input type="checkbox"/> | | M-206-1 EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS)..... | 15-16 | <input type="checkbox"/> | | M-608-1 CURB RAMPS (6 SHEETS) | 120-125 | <input type="checkbox"/> | | S-614-6 CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS)..... | 167-168 |
| <input type="checkbox"/> | | M-206-2 EXCAVATION AND BACKFILL FOR BRIDGES (2 SHEETS)..... | 17-18 | <input type="checkbox"/> | | M-609-1 <input type="checkbox"/> CURBS, GUTTERS, AND SIDEWALKS (4 SHEETS) (REVISED ON JULY 24, 2012) | 126-129 | <input type="checkbox"/> | | S-614-8 TUBULAR STEEL SIGN SUPPORT DETAILS (5 SHEETS)..... | 169-173 |
| <input checked="" type="checkbox"/> | | M-208-1 TEMPORARY EROSION CONTROL (12 SHEETS)..... | 19-30 | <input type="checkbox"/> | | M-611-1 CATTLE GUARD (2 SHEETS)..... | 130-131 | <input type="checkbox"/> | | S-614-9 PEDESTRIAN PUSH BUTTON POST ASSEMBLY | 174 |
| <input type="checkbox"/> | | M-210-1 MAILBOX SUPPORTS (2 SHEETS) | 31-32 | <input type="checkbox"/> | | M-613-1 ROADWAY LIGHTING (4 SHEETS)..... | 132-135 | <input type="checkbox"/> | | S-614-10 MARKER ASSEMBLY INSTALLATIONS | 175 |
| <input type="checkbox"/> | | M-214-1 PLANTING DETAILS..... | 33 | <input type="checkbox"/> | | M-614-1 RUMBLE STRIPS (3 SHEETS)..... | 136-138 | <input type="checkbox"/> | | S-614-11 MILEPOST SIGN DETAIL FOR HIGH SNOW AREAS | 176 |
| <input type="checkbox"/> | <input type="checkbox"/> | M-412-1 CONCRETE PAVEMENT JOINTS (5 SHEETS) (REVISED ON JULY 24, 2012)..... | 34-38 | <input checked="" type="checkbox"/> | | M-614-2 SAND BARREL ARRAYS (2 SHEETS)..... | 139-140 | <input type="checkbox"/> | | S-614-12 STRUCTURE NUMBER INSTALLATION | 177 |
| <input type="checkbox"/> | | M-510-1 STRUCTURAL PLATE PIPE H-20 LOADING | 39 | <input type="checkbox"/> | | M-615-1 EMBANKMENT PROTECTOR TYPE 3 | 141 | <input type="checkbox"/> | | S-614-14 FLASHING BEACON AND SIGN INSTALLATIONS (3 SHEETS)..... | 178-180 |
| <input type="checkbox"/> | | M-601-1 SINGLE CONCRETE BOX CULVERT (2 SHEETS)..... | 40-41 | <input type="checkbox"/> | | M-615-2 EMBANKMENT PROTECTOR TYPE 5 | 142 | <input type="checkbox"/> | | S-614-20 TYPICAL POLE MOUNT SIGN INSTALLATIONS..... | 181 |
| <input type="checkbox"/> | | M-601-2 DOUBLE CONCRETE BOX CULVERT (2 SHEETS)..... | 42-43 | <input type="checkbox"/> | | M-616-1 INVERTED SIPHON..... | 143 | <input type="checkbox"/> | | S-614-21 CONCRETE BARRIER SIGN POST INSTALLATIONS | 182 |
| <input type="checkbox"/> | | M-601-3 TRIPLE CONCRETE BOX CULVERT (2 SHEETS)..... | 44-45 | <input type="checkbox"/> | | M-620-1 FIELD LABORATORY CLASS 1..... | 144 | <input type="checkbox"/> | | S-614-22 TYPICAL MULTI-SIGN INSTALLATIONS..... | 183 |
| <input type="checkbox"/> | | M-601-10 HEADWALL FOR PIPES..... | 46 | <input type="checkbox"/> | | M-620-2 FIELD LABORATORY CLASS 2 (2 SHEETS) | 145-146 | <input type="checkbox"/> | | S-614-40 TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS | 184-188 (5 SHEETS) |
| <input type="checkbox"/> | | M-601-11 TYPE "S" SADDLE HEADWALLS FOR PIPE..... | 47 | <input type="checkbox"/> | | M-620-11 FIELD OFFICE CLASS 1..... | 147 | <input type="checkbox"/> | | S-614-40A ALTERNATIVE TRAFFIC SIGNAL INSTALLATION DETAILS..... | 189-192 (4 SHEETS) |
| <input type="checkbox"/> | | M-601-12 HEADWALLS AND PIPE OUTLET PAVING | 48 | <input type="checkbox"/> | | M-620-12 FIELD OFFICE CLASS 2..... | 148 | <input type="checkbox"/> | | S-614-41 PEDESTAL POLE AND TEMPORARY SPAN WIRE SIGNALS..... | 193 |
| <input type="checkbox"/> | | M-601-20 WINGWALLS FOR PIPE OR BOX CULVERTS | 49 | <input type="checkbox"/> | | M-629-1 SURVEY MONUMENTS (2 SHEETS)..... | 149-150 | <input type="checkbox"/> | | S-614-42 CABINET FOUNDATION DETAIL (4 SHEETS)..... | 194-197 |
| <input type="checkbox"/> | | M-603-1 METAL PIPE (4 SHEETS)..... | 50-53 | | | | | <input type="checkbox"/> | | S-614-43 TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS..... | 198-207 (10 SHEETS) |
| <input type="checkbox"/> | | M-603-2 REINFORCED CONCRETE PIPE | 54 | | | | | <input type="checkbox"/> | | S-614-50 STATIC SIGN MONOTUBE STRUCTURES (12 SHEETS)..... | 208-219 |
| <input type="checkbox"/> | | M-603-3 PRECAST CONCRETE BOX CULVERT..... | 55 | | | | | <input type="checkbox"/> | | S-614-60 DYNAMIC SIGN MONOTUBE STRUCTURES (14 SHEETS)..... | 220-233 |
| <input type="checkbox"/> | | M-603-4 CORRUGATED POLYETHYLENE PIPE (AASHTO M294) | 56 | | | | | <input type="checkbox"/> | | S-627-1 PAVEMENT MARKINGS (5 SHEETS)..... | 234-238 |
| <input type="checkbox"/> | | M-603-5 POLYVINYL CHLORIDE (PVC) PIPE (AASHTO M304) | 57 | | | | | <input checked="" type="checkbox"/> | | S-630-1 TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION..... | 239-258 (20 SHEETS) |
| <input type="checkbox"/> | | M-603-10 CONCRETE AND METAL END SECTIONS (2 SHEETS) | 58-59 | | | | | <input checked="" type="checkbox"/> | | S-630-2 BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP)..... | 259 AND VERTICAL PANELS |
| <input type="checkbox"/> | | M-604-10 INLET, TYPE C | 60 | | | | | <input checked="" type="checkbox"/> | | S-630-3 FLASHING BEACON (PORTABLE) DETAILS | 260 |
| <input type="checkbox"/> | | M-604-11 INLET, TYPE D | 61 | | | | | <input type="checkbox"/> | | S-630-4 STEEL SIGN SUPPORT (TEMPORARY) INSTALLATION..... | 261-262 (2 SHEETS) |
| <input type="checkbox"/> | | M-604-12 CURB INLET TYPE R (2 SHEETS)..... | 62-63 | | | | | <input type="checkbox"/> | | S-630-5 PORTABLE RUMBLE STRIPS (TEMPORARY) (2 SHEETS) | 263-264 |
| <input type="checkbox"/> | | M-604-13 CONCRETE INLET TYPE 13..... | 64 | | | | | <input type="checkbox"/> | | S-630-6 EMERGENCY PULL-OFF AREA (TEMPORARY) | 265 |
| <input type="checkbox"/> | | M-604-20 MANHOLES (3 SHEETS)..... | 65-67 | | | | | <input checked="" type="checkbox"/> | | S-630-7 ROLLING ROADBLOCKS FOR TRAFFIC CONTROL | 266-268 (3 SHEETS) |
| <input type="checkbox"/> | | M-604-25 VANE GRATE INLET (5 SHEETS)..... | 68-72 | | | | | | | | |
| <input type="checkbox"/> | | M-605-1 SUBSURFACE DRAINS | 73 | | | | | | | | |
| <input type="checkbox"/> | | M-606-1 GUARDRAIL TYPE 3 W-BEAM (19 SHEETS) | 74-92 | | | | | | | | |
| <input type="checkbox"/> | | M-606-13 GUARDRAIL TYPE 7 F-SHAPE BARRIER (4 SHEETS)..... | 93-96 | | | | | | | | |
| <input checked="" type="checkbox"/> | | M-606-14 PRECAST TYPE 7 CONCRETE BARRIER (3 SHEETS)..... | 97-99 | | | | | | | | |



COLORADO
DEPARTMENT OF TRANSPORTATION
M&S STANDARDS PLANS LIST

July 04, 2012

Revised on July 24, 2012

THE STANDARD PLAN SHEETS INDICATED HEREON BY A MARKED BOX ARE TO BE USED TO CONSTRUCT THIS PROJECT.

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

| | | | | | | | | | | | | | | | | |
|--|--|------------------------|----------|-------|---|--|--|-----------------------|--|---|--|--|-------------------------|--|----------------|--|
| Print Date: 9/6/2012 | | Sheet Revisions | | | Colorado Department of Transportation | | | As Constructed | | STANDARD PLANS LIST | | | Project No./Code | | | |
| File Name: 18832DES_WBTR_StdPlanList.dgn | | Date: | Comments | Init. |  425 A Corporate Circle Golden, CO 80401 Phone: 720-497-6918 FAX: 720-497-6901 | | | No Revisions: | | Designer: KJS Detailer: BEG Subset: SPL | | | IM 0703-393 | | | |
| Horiz. Scale: 1:1 Vert. Scale: NA | | | | | | | | Revised: | | | | | Structure Numbers | | 19038 | |
|  4601 DTC Boulevard, Suite 700 Denver, CO 80237 Phone: (303) 221-7275 Fax: (303) 221-7276 | | | | | | | | Void: | | | | | Subset Sheets: 1 of 1 | | Sheet Number 2 | |
| | | | | | Region 1 | | | | | | | | CRC | | | |

GENERAL NOTES

1. PROJECT BENCHMARK: ALL ELEVATIONS SHOWN ON THESE PLANS ARE REFERENCED TO THE PROJECT BENCHMARKS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFEGUARDING THE PROJECT BENCHMARKS AND OTHER SURVEY MONUMENTS. DAMAGED MONUMENTS SHALL BE RE-ESTABLISHED AND REPLACED BY THE LICENSED LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
2. GEOTECHNICAL INFORMATION FOR THIS PROJECT IS BASED ON THE TWIN TUNNELS LINER INVESTIGATION FINAL REPORT, YEH AND ASSOCIATES, AUGUST 24, 2012. THE CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE GEOTECHNICAL RECOMMENDATIONS.
3. IN THE EVENT THE CONTRACTOR ALLOWS, AUTHORIZES, APPROVES, OR CONSTRUCTS ITEMS THAT DIFFER FROM THE APPROVED PLANS, SPECIFICATIONS, OR OTHER CONTRACT DOCUMENTS WITHOUT WRITTEN APPROVAL BY THE ENGINEER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY LIABILITY ARISING FROM SUCH CHANGES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROMPTLY NOTIFYING THE ENGINEER OF ANY PROBLEMS OR POTENTIAL PROBLEMS IN CONFORMING TO THE DESIGN LINE AND GRADE FOR ANY ELEMENT OF THE CONSTRUCTION WITHIN 7 DAYS. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE ENGINEER OF SITE CONDITIONS THAT DIFFER FROM THOSE SHOWN ON THE APPROVED PLANS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, AND ANY OTHER NEEDED ACTION TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE JOB SITE CONDITIONS THROUGHOUT THE DURATION OF CONSTRUCTION, INCLUDING SAFETY OF ALL PERSONS AND PROTECTION OF PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED ONLY TO WORKING HOURS. THE CONTRACTOR SHALL DEFEND INDEMNIFY AND HOLD THE OWNER, THE ENGINEER AND THE GOVERNING JURISDICTION HARMLESS FOR ANY AND ALL LIABILITY, IN CONNECTION WITH THE PERFORMANCE OF WORK, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER, THE ENGINEER, OR THE GOVERNING JURISDICTION.
7. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES THE APPROPRIATE EDITION OF THE GOVERNING JURISDICTION DESIGN AND CONSTRUCTION STANDARDS, ONE SET OF APPROVED CONSTRUCTION PLANS, THE STORM WATER MANAGEMENT PLAN, AND ALL REQUIRED PERMITS.
8. ALL CONSTRUCTION SHALL CONFORM TO THE APPROPRIATE EDITION OF THE SPECIFICATIONS OF THE COLORADO DEPARTMENT OF TRANSPORTATION, AND THE STANDARDS APPLICABLE TO ELEMENTS OF WORK NOT COVERED BY LOCAL AGENCY STANDARDS AND SPECIFICATIONS. REQUIREMENTS OF THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, THE ENVIRONMENTAL PROTECTION AGENCY, FEMA, AND THE U.S. ARMY CORPS OF ENGINEERS SHALL ALSO BE FOLLOWED AS THEY RELATE TO THE WORK.
9. THE FOLLOWING QUANTITIES ARE FOR IDENTIFIED NEEDS THAT MAY ARISE DURING CONSTRUCTION. THESE QUANTITIES ARE IN ADDITION TO THE QUANTITIES INCLUDED IN THE WORK FOR OTHER PAY ITEMS. THE USE OF THESE QUANTITIES WILL BE AT THE SOLE DISCRETION OF THE ENGINEER.

40 HOURS OF TRUCK (DUMP)
40 HOURS OF COMBINATION LOADER
10. THE CONTRACTOR'S STOCKPILE LOCATIONS WITHIN THE PROJECT LIMITS SHALL BE APPROVED BY THE ENGINEER.
11. THE CONTRACTOR SHALL ENSURE THAT SAFETY ISSUES PERTAINING TO GAPS, BLUNT ENDS, ETC. IN THE GUARDRAIL DURING CONSTRUCTION (BETWEEN REMOVAL, RESET, AND NEW INSTALLATIONS) ARE ADDRESSED DAILY. ALL METHODS PERTAINING TO THESE ISSUES SHALL BE APPROVED BY THE ENGINEER.

GENERAL NOTES CONT'D

12. ALL Bmps FOR STOCKPILES NECESSITATED BY THE CONTRACTOR'S WORK SEQUENCE WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.
13. THE CONTRACTOR SHALL MAINTAIN EXISTING DRAINAGE AT ALL TIMES DURING CONSTRUCTION. TEMPORARY ITEMS REQUIRED TO PROVIDE DRAINAGE SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
14. IT IS ANTICIPATED THAT 5 HOURS WILL BE NEEDED FOR POTHOLING.
15. IT IS ANTICIPATED THAT 220 LF OF GRAVEL BAG (ITEM 208-0034) WILL BE REQUIRED. GRAVEL BAG WILL REQUIRE INSTALLATION AND REMOVAL FOR EACH WORKING SHIFT. MULTIPLE INSTALLATION AND REMOVAL WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF GRAVEL BAG.
16. IT IS ANTICIPATED THAT 10 EACH OF CONCRETE WASHOUT STRUCTURE WILL BE REQUIRED. CONCRETE WASHOUT STRUCTURE SHALL BE PREFABRICATED AND ONLY ONE CONCRETE WASHOUT STRUCTURE IS REQUIRED FOR EACH WORKING SHIFT. PLAN QUANTITY OF CONCRETE WASHOUT STRUCTURE IS BASED ON A PAYMENT INTERVAL OF 80 CY OF CEMENT GROUT.



PAVEMENT CONSTRUCTION

17. WHERE NEW PAVEMENT IS TO ABUT EXISTING PAVEMENT, THE EXISTING PAVEMENT SHALL BE REMOVED TO A NEAT VERTICAL LINE USING A CUTTING SAW OR OTHER METHOD AS APPROVED BY THE ENGINEER. SAW CUTTING ASPHALT WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF REMOVAL OF ASPHALT MAT.

UTILITY NOTES

1. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO FOR LOCATION OF UNDERGROUND GAS, ELECTRIC, AND COMMUNICATION UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION (811). THE CONTRACTOR SHALL NOTIFY OTHER APPLICABLE UTILITY COMPANIES AS WELL TO OBTAIN FIELD LOCATES OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
2. LOCATIONS OF UNDERGROUND UTILITIES AS SHOWN ON THE PLANS WERE TAKEN FROM THE RECORDS OF THE CONTROLLING AGENCIES OR FROM AGENCY MARKINGS IN THE FIELD. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR COMPLETENESS OR ACCURACY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTENCE AND/OR LOCATION OF ALL UNDERGROUND UTILITIES AND PARTICIPATE IN THE RESOLUTION OF ANY CONFLICTS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL NECESSARY UTILITY RELOCATIONS WITH THE APPROPRIATE UTILITY COMPANY.
4. ALL UTILITY WORK SHALL BE PERFORMED/INSTALLED IN ACCORDANCE WITH THE CORRESPONDING UTILITY PROVIDER'S DESIGN STANDARDS, INCLUDING DEPTH OF COVER, BEDDING MATERIAL, RELOCATION COORDINATION, AND MATERIAL SPECIFICATIONS.

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|--|--|------------------------|-------|----------|--|--|-----------------------|--|---|--|--|-------------------------|--|
| Print Date: 9/6/2012 | | Sheet Revisions | | | Colorado Department of Transportation | | As Constructed | | GENERAL NOTES | | | Project No./Code | |
| File Name: 18832DES_WBTR_GenNote01.dgn | | 0000 | Date: | Comments | Init. |  425 A Corporate Circle Golden, CO 80401 Phone: 720-497-6918 FAX: 720-497-6901 | No Revisions: | | Designer: KJS Structure Numbers Detailer: BEG Subset: GNOTE Subset Sheets: 1 of 1 | | | IM 0703-393 | |
| Horiz. Scale: 1:1 Vert. Scale: NA | | | | | | | Revised: | | | | | 19038 | |
|  4601 DTC Boulevard, Suite 700 Denver, CO 80237 Phone: (303) 221-7275 Fax: (303) 221-7276 | | | | | | | Void: | | | | | Sheet Number | |
| | | | | | | | 3 | | | | | | |
| | | | | | Region 1 | | CRC | | | | | | |

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| INDEX | | | CONTRACT ITEM NO. | CONTRACT ITEM | UNIT | ROADWAY | | | | | | | | | | STRUCTURES | | | | PROJECT TOTALS | |
|-------|------|-------|-------------------|--|------|---------|-----------|--|--|--|--|--|--|--|--|------------|--|--|--------|----------------|------|
| BOOK | PAGE | SHEET | | | | PLAN | AS CONST. | | | | | | | | | | | | PLAN | AS CONST. | PLAN |
| | | | 202-01170 | Removal of Guardrail Type 7 | LF | 614 | | | | | | | | | | | | | 614 | | |
| | | | 203-01582 | Truck (Dump) | HOUR | 40 | | | | | | | | | | | | | 40 | | |
| | | | 203-01594 | Combination Loader | HOUR | 40 | | | | | | | | | | | | | 40 | | |
| | | | 203-01597 | Potholing | HOUR | 5 | | | | | | | | | | | | | 5 | | |
| | | | 203-02300 | Rock Scaler | HOUR | 192 | | | | | | | | | | | | | 192 | | |
| | | | 208-00034 | Gravel Bag | LF | 220 | | | | | | | | | | | | | 220 | | |
| | | | 208-00045 | Concrete Washout Structure | EACH | 10 | | | | | | | | | | | | | 10 | | |
| | | | 208-00103 | Removal and Disposal of Sediment (Labor) | HOUR | 10 | | | | | | | | | | | | | 10 | | |
| | | | 208-00106 | Sweeping (Sediment Removal) | HOUR | 80 | | | | | | | | | | | | | 80 | | |
| | | | 210-01170 | Reset Guardrail Type 7 | LF | 460 | | | | | | | | | | | | | 460 | | |
| | | | 211-00118 | 2 Inch Drilled Hole (Formation) | EACH | | | | | | | | | | | 10 | | | 10 | | |
| | | | 211-00150 | Patch Existing Drill Hole | EACH | | | | | | | | | | | 115 | | | 115 | | |
| | | | 211-00152 | Drain System Flushing (Setup) | EACH | | | | | | | | | | | 2 | | | 2 | | |
| | | | 211-00153 | Drain System Flushing | DAY | | | | | | | | | | | 17 | | | 17 | | |
| | | | 211-00222 | 2 Inch Core Drilled Hole (Voids) | EACH | | | | | | | | | | | 79 | | | 79 | | |
| | | | 211-02277 | Cement Grout (Voids) | CY | | | | | | | | | | | 700 | | | 700 | | |
| | | | 211-02278 | Cement Grout (Formation) | CY | | | | | | | | | | | 70 | | | 70 | | |
| | | | 403-00720 | Hot Mix Asphalt (Patching) (Asphalt) | TON | 41 | | | | | | | | | | | | | 41 | | |
| | | | 601-10400 | Drilled Hole | EACH | | | | | | | | | | | 115 | | | 115 | | |
| | | | 607-55050 | Mesh Anchor (Special) | EACH | 35 | | | | | | | | | | | | | 35 | | |
| | | | 607-55100 | Wire Mesh | SF | 60,000 | | | | | | | | | | | | | 60,000 | | |
| | | | 620-00002 | Field Office (Class 2) | EACH | 1 | | | | | | | | | | | | | 1 | | |

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 File Name: 18832DES_WBTR_SumQuan001.dgn
 Horiz. Scale: 1:200 Vert. Scale: NA



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Region 1 CRC

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| Void: |


| SUMMARY OF APPROXIMATE QUANTITIES | | | |
|-----------------------------------|------|-----------------------|--|
| Designer: | EJM | Structure Numbers | |
| Detailer: | BEG | | |
| Subset: | SOAQ | Subset Sheets: 1 of 3 | |

| Project No./Code |
|------------------|
| IM 0703-393 |
| 19038 |
| Sheet Number 4 |

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| INDEX | | | CONTRACT ITEM NO. | CONTRACT ITEM | UNIT | ROADWAY | | | | | | | | | | STRUCTURES | | | | PROJECT TOTALS | | |
|-------|------|-------|-------------------|--|------|---------|-----------|--|--|--|--|--|--|--|--|------------|--|--|--|----------------|-----------|------|
| BOOK | PAGE | SHEET | | | | PLAN | AS CONST. | | | | | | | | | | | | | PLAN | AS CONST. | PLAN |
| | | | 620-00020 | Sanitary Facility | EACH | 1 | | | | | | | | | | | | | | | 1 | |
| | | | 625-00000 | Construction Surveying | L S | 1 | | | | | | | | | | | | | | | | 1 |
| | | | 626-00000 | Mobilization | L S | 1 | | | | | | | | | | | | | | | | 1 |
| | | | 626-01000 | Public Information Services | L S | 1 | | | | | | | | | | | | | | | | 1 |
| | | | 630-00000 | Flagging | HOUR | 750 | | | | | | | | | | | | | | | | 750 |
| | | | 630-00003 | Uniformed Traffic Control | HOUR | 750 | | | | | | | | | | | | | | | | 750 |
| | | | 630-00007 | Traffic Control Inspection | DAY | 38 | | | | | | | | | | | | | | | | 38 |
| | | | 630-00012 | Traffic Control Management | DAY | 50 | | | | | | | | | | | | | | | | 50 |
| | | | 630-80001 | Flashing Beacon (Portable) | EACH | 19 | | | | | | | | | | | | | | | | 19 |
| | | | 630-80338 | Barricade (Type 3 M-D) (Temporary) | EACH | 12 | | | | | | | | | | | | | | | | 12 |
| | | | 630-80341 | Construction Traffic Sign (Panel Size A) | EACH | 38 | | | | | | | | | | | | | | | | 38 |
| | | | 630-80342 | Construction Traffic Sign (Panel Size B) | EACH | 65 | | | | | | | | | | | | | | | | 65 |
| | | | 630-80343 | Construction Traffic Sign (Panel Size C) | EACH | 37 | | | | | | | | | | | | | | | | 37 |
| | | | 630-80359 | Portable Message Sign Panel | DAY | 130 | | | | | | | | | | | | | | | | 130 |
| | | | 630-80360 | Drum Channelizing Device | EACH | 220 | | | | | | | | | | | | | | | | 220 |
| | | | 630-80370 | Concrete Barrier (Temporary) | LF | 636 | | | | | | | | | | | | | | | | 636 |
| | | | 630-80380 | Traffic Cone | EACH | 150 | | | | | | | | | | | | | | | | 150 |
| | | | 630-80384 | Tubular Marker | EACH | 190 | | | | | | | | | | | | | | | | 190 |
| | | | 630-80415 | Advanced Warning Flashing or Sequencing Panel (C Type) | DAY | 60 | | | | | | | | | | | | | | | | 60 |
| | | | 630-85006 | Impact Attenuator (Sand Filled Plastic Barrel) (Temporary) | EACH | 1 | | | | | | | | | | | | | | | | 1 |
| | | | 630-85010 | Impact Attenuator (Temporary) | EACH | 4 | | | | | | | | | | | | | | | | 4 |

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Region 1 CRC

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|----------------|
| No Revisions: |
| Revised: |
| Void: |

| SUMMARY OF APPROXIMATE QUANTITIES | | | |
|-----------------------------------|-----------------------|--|--|
| Designer: EJM | Structure Numbers | | |
| Detailer: BEG | | | |
| Subset: SOAQ | Subset Sheets: 2 of 3 | | |

| Project No./Code |
|------------------|
| IM 0730-393 |
| 19083 |
| Sheet Number 5 |

| INDEX | | | CONTRACT ITEM NO. | CONTRACT ITEM | UNIT | ROADWAY | | | | STRUCTURES | | | | PROJECT TOTALS | | |
|-------|------|-------|-------------------|---|------|---------|-----------|--|--|------------|--|--|--|----------------|----|------|
| BOOK | PAGE | SHEET | | | | PLAN | AS CONST. | | | | | | | | | PLAN |
| | | | 630-85041 | Mobile Attenuator FORCE ACCOUNT ===== | DAY | 75 | | | | | | | | | 75 | |
| | | | 700-70010 | F/A Minor Contract Revisions | F A | 1 | | | | | | | | | 1 | |
| | | | 700-70011 | F/A Partnering | F A | 1 | | | | | | | | | 1 | |
| | | | 700-70380 | F/A Erosion Control | F A | 1 | | | | | | | | | 1 | |
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|---|---|------------------------|----------|-------|---|---|-----------------------|----------|--|---------------|--|-----------------------|------------------|----------------|--|
| Print Date: 9/6/2012 | ATKINS 4601 DTC Boulevard, Suite 700 Denver, CO 80237 Phone: (303) 221-7275 Fax: (303) 221-7276 | Sheet Revisions | | | Colorado Department of Transportation | | As Constructed | | SUMMARY OF APPROXIMATE QUANTITIES | | | | Project No./Code | | |
| File Name: 18832DES_WBTR_SumQuan003.dgn | | Date: | Comments | Init. |  | 425 A Corporate Circle Golden, CO 80401 Phone: 720-497-6918 FAX: 720-497-6901 | No Revisions: | Revised: | Void: | Designer: EJM | | Structure Numbers | | IM 0703-393 | |
| Horiz. Scale: 1:200 Vert. Scale: NA | | | | | | | | | | Detailer: BEG | | | | 19083 | |
| | | | | | Region 1 | CRC | | | | Subset: SOAQ | | Subset Sheets: 3 of 3 | | Sheet Number 6 | |

SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES

| SIGNS | | | | | |
|---------------|---|-------------|------------|-----------|-----------|
| SIGN CODE | LEGEND | DESCRIPTION | PANEL SIZE | | |
| | | | A | B | C |
| | | | EA | EA | EA |
| 48G20-1 | ROAD WORK/ NEXT 2 MILES | 48" X 24" | 4 | | |
| 48G20-10 | XYZ/CONSTRUCTION/ THANKS YOU/555-555-5555 | 48" X 48" | | 2 | |
| 48G20-11 | CDOT PROJECT/MM-YY TO MM-YY/FOR INFORMATION/CALL/555-555-5555 | 48" X 48" | | 2 | |
| 36G20-5 | WORK/ZONE | 36" X 24" | 20 | | |
| 36R1-2 | YIELD | 36" X 36" | 1 | | |
| 48R11-2 | ROAD/CLOSED | 48" X 30" | | 2 | |
| 48R2-1(35) | SPEED/LIMIT/35 | 48" X 60" | | | 12 |
| 48R2-1(45) | SPEED/LIMIT/45 | 48" X 60" | | | 4 |
| 48R2-1(55) | SPEED/LIMIT/55 | 48" X 60" | | | 1 |
| 48R2-1(60) | SPEED/LIMIT/60 | 48" X 60" | | | 2 |
| 36R2-6 | FINES/DOUBLE | 36" X 24" | 4 | | |
| 48R4-1 | DO/NOT/PASS | 48" X 60" | | | 4 |
| 48R4-2 | PASS/WITH/CARE | 48" X 60" | | | 4 |
| 48R4-7 | KEEP RIGHT SYMBOL | 48" X 60" | | | 2 |
| 48R4-8 | KEEP LEFT SYMBOL | 48" X 60" | | | 2 |
| 48R5-1 | DO NOT/ENTER | 48" X 48" | | 2 | |
| 42R5-1A | WRONG/WAY | 42" X 30" | | 2 | |
| 48R52-6A | BEGIN/FINES/DOUBLE/IN WORK/ZONE | 48" X 60" | | | 4 |
| 48R52-6B | END/FINES/DOUBLE/IN WORK/ZONE | 48" X 60" | | | 2 |
| 30W13-1(25) | ADVISORY SPEED PLAQUE (25) | 30" X 30" | 3 | | |
| 48W1-3(L) | CURVE LEFT (SYMBOL) | 48" X 48" | | 2 | |
| 48W1-3(R) | CURVE RIGHT (SYMBOL) | 48" X 48" | | 1 | |
| 30W1-8(L) | CHEVRON LEFT | 30" X 36" | 3 | | |
| 30W1-8(R) | CHEVRON RIGHT | 30" X 36" | 3 | | |
| 48W20-1 | ROAD/WORK/1 MILE | 48" X 48" | | 4 | |
| 48W20-1 | ROAD/WORK/AHEAD | 48" X 48" | | 2 | |
| 48W20-5(L) | LEFT LANE/CLOSED/1/2 MILE | 48" X 48" | | 4 | |
| 48W20-5(L) | LEFT LANE/CLOSED/1000 FT | 48" X 48" | | 2 | |
| 48W20-5(R) | RIGHT LANE/CLOSED/1/2 MILE | 48" X 48" | | 2 | |
| 48W20-5(R) | RIGHT LANE/CLOSED/1500 FT | 48" X 48" | | 2 | |
| 48W3-2A | YIELD AHEAD SYMBOL | 48" X 48" | | 1 | |
| 48W4-1(R) | MERGE SYMBOL | 48" X 48" | | 1 | |
| 48W4-2(L) | LANE ENDS (LEFT) SYMBOL | 48" X 48" | | 4 | |
| 48W4-2(R) | LANE ENDS (RIGHT) SYMBOL | 48" X 48" | | 2 | |
| 96W4-50 | USE BOTH/LANES DURING/CONSTRUCTION | 96" X 60" | | 2 | |
| 48W4-51 | USE BOTH/LANES TO/MERGE/POINT | 48" X 60" | | 8 | |
| 48W4-52 | TAKE/TURNS/MERGE/HERE | 48" X 60" | | 4 | |
| 48W6-3 | TWO-WAY TRAFFIC SYMBOL | 48" X 48" | | 14 | |
| TOTALS | | | 38 | 65 | 37 |

1.) SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDE THE NIGHTTIME TUNNEL CLOSURE TCP INCLUDED IN THIS PLAN SET AND THE CONTRACTORS APPROVED MHT FOR WB & EB TUNNEL SINGLE LANE CLOSURES.

TABULATION OF TRAFFIC ENGINEERING ITEMS

| ITEM NUMBER | ITEM DESCRIPTION | UNIT | PROJECT TOTAL |
|-------------|--|-------|---------------|
| 630-00000 | FLAGGING | HOURL | 750 |
| 630-00003 | UNIFORMED TRAFFIC CONTROL | HOURL | 750 |
| 630-00007 | TRAFFIC CONTROL INSPECTION | DAY | 38 |
| 630-00012 | TRAFFIC CONTROL MANAGEMENT | DAY | 50 |
| 630-80001 | FLASHING BEACON (PORTABLE) | EACH | 19 |
| 630-80338 | BARRICADE (TYPE 3 M-D) (TEMPORARY) | EACH | 12 |
| 630-80341 | CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A) | EACH | 38 |
| 630-80342 | CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B) | EACH | 65 |
| 630-80343 | CONSTRUCTION TRAFFIC SIGN (PANEL SIZE C) | EACH | 37 |
| 630-80359 | PORTABLE MESSAGE SIGN PANEL | DAY | 130 |
| 630-80360 | DRUM CHANNELIZING DEVICE | EACH | 220 |
| 630-80370 | CONCRETE BARRIER (TEMPORARY) | LF | 636 |
| 630-80380 | TRAFFIC CONE | EACH | 150 |
| 630-80384 | TUBULAR MARKER | EACH | 190 |
| 630-80415 | ADVANCE WARNING FLASHING OR SEQUENCING PANEL (C TYPE) | DAY | 60 |
| 630-85006 | IMPACT ATTENUATOR (SAND FILLED PLASTIC BARREL) (TEMPORARY) | EACH | 1 |
| 630-85010 | IMPACT ATTENUATOR (TEMPORARY) | EACH | 4 |
| 630-85041 | MOBILE ATTENUATOR | DAY | 75 |

1.) TABULATION OF TRAFFIC ENGINEERING ITEMS INCLUDE THE NIGHTTIME TUNNEL CLOSURE TCP INCLUDED IN THIS PLAN SET AND THE CONTRACTORS APPROVED MHT FOR WB & EB TUNNEL SINGLE LANE CLOSURES.

2.) CONCRETE BARRIER (TEMPORARY) INCLUDES MULTIPLE RESETS TO COMPLETE THE WORK.

TABULATION OF RESETS AND REMOVALS

| LOCATION | SIDE | REMOVAL OF GUARDRAIL TYPE 7 | RESET OF GUARDRAIL TYPE 7 |
|------------------------|------|-----------------------------|---------------------------|
| | | LF | LF |
| | | 202-01170 | 210-01170 |
| EASTBOUND I-70 | | | |
| 118+00.00 TO 122+60.00 | LT | | 460 |
| 179+65.00 TO 185+77.00 | LT | 614 | |
| PROJECT TOTAL | | 614 | 460 |

TABULATION OF SURFACING

| LOCATION | HOT MIX ASPHALT (PATCHING)(ASPHALT) |
|----------------------------|-------------------------------------|
| | TON |
| | 403-00720 |
| WEST CROSSOVER (2") | |
| 118+00.00 TO 122+60.00 | 11 |
| EAST CROSSOVER (4") | |
| 179+65.00 TO 185+77.00 | 30 |
| PROJECT TOTAL | 41 |

* HMA (GRADING S)(100)(PG 58-28) SHALL BE USED

| | | | | | |
|---|--------------------------------|---|-----------------------|---|-------------------------|
| Print Date: 9/6/2012 | Sheet Revisions | Colorado Department of Transportation | As Constructed | TABULATION OF QUANTITIES | Project No./Code |
| File Name: 18832DES_WBTR_Tab001.dgn | Date: Comments Init. |  425 A Corporate Circle Golden, CO 80401 Phone: 720-497-6918 FAX: 720-497-6901 | No Revisions: | Designer: EJM Structure Detailer: JAG Numbers Subset: SDAQ Subset Sheets: 1 of 1 | IM 0703-393 |
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| | | Region 1 | CRC | | |

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TO ESTABLISH GEOMETRIC CONTROL FOR THE CONSTRUCTION OF THIS PROJECT, THE DEPARTMENT HAS PROVIDED THE FOLLOWING INFORMATION:

| | Format * |
|---|------------|
| <input checked="" type="checkbox"/> Horizontal Control | Plan Sheet |
| <input checked="" type="checkbox"/> Vertical Control | Plan Sheet |
| <input checked="" type="checkbox"/> Roadway Alignment | Plan Sheet |
| <input checked="" type="checkbox"/> Original Terrain Data | Plan Sheet |
| <input type="checkbox"/> Other: | |

* Specify the information format, ie., plan sheet, computer disk, computer printout, or other. The information marked is either contained on the plans or is available from the Engineer.

TYPE OF PROJECT

- | | |
|---|--|
| <input type="checkbox"/> Landscaping | <input type="checkbox"/> Major Reconstruction |
| <input type="checkbox"/> Signalization | <input type="checkbox"/> New Roadway Construction |
| <input type="checkbox"/> Safety Improvement | <input type="checkbox"/> Bridge Replacement |
| <input type="checkbox"/> Asphalt Overlay | <input type="checkbox"/> Bridge Widening |
| <input type="checkbox"/> Concrete Overlay | <input type="checkbox"/> New Bridge |
| <input type="checkbox"/> Minor Widening | <input checked="" type="checkbox"/> Other: <u>Tunnel Repairs/Rockfall Mitigation</u> |

SURVEY WORK TO BE PERFORMED BY OTHERS: _____

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 625:

- Establish and Maintain Project Centerline or Engineer Approved Offset Line(s)
- Verification and Maintenance of Horizontal and Vertical Control
- Verify or Determine existing grades and alignments
- Verify or Determine existing topography
- Clearing and Grubbing Limits (Section 201)
- Removal Limits (Section 202)
- Reset Items (Section 210)
- Excavation and Embankment (Section 203)
 - Excavation
 - Unclassified
 - Stripping
 - Muck
 - Rock
 - Borrow
 - Other: _____
 - Potholing
 - Embankment
 - Site Grading
 - Erosion Control (Perm)
 - Other: _____
 - As Staked Earthwork Quantities (See General Notes)

| | Slope Staking (Y/N) | Grid (Y/N) | Grade Stakes | Special Interval |
|------------|---------------------|------------|--------------|------------------|
| Excavation | - | - | - | - |
| Embankment | - | - | - | - |

- Landscaping
 - Top Soil (Section 207)
 - Seeding (Section 212)
 - Mulching (Section 213)
 - Planting (Section 214)
 - Herbicide (Section 217)
 - Other: _____
- Erosion Control (Section 208)
 - Seeding (Temp)
 - Silt Fence
 - Erosion Bales
 - Erosion Logs
 - Riprap (Temp)
 - Other: _____
- Roadway Bases
 - Untreated Subgrade
 - Treated Subgrade
 - Aggregate Base Course (Section 304)
 - Reconditioning
 - PMBB - Plant Mix Bituminous Base
 - Other: _____

| | Grid (Y/N) | Grade (Y/N) | Special Interval | Special Offset |
|---------------|------------|-------------|------------------|----------------|
| Roadway Bases | - | - | - | - |

- Pavements
 - HMA - Hot Mix Asphalt (Section 403)
 - Concrete (Section 412)
 - Heating & Scarifying Treatment
 - Prime Coat, Tack Coat & Rejuvenating Agent (Section 407)
 - Seal Coat or Chip Seal (Section 409)
 - Other: _____

| | Grid (Y/N) | Special Interval | Special Offset |
|-----------|------------|------------------|----------------|
| Pavements | - | - | - |

- Roadway Elements
 - Curb and Gutter (Section 609)
 - Drop inlets - alignment and grades (Section 604)
 - Retaining Walls
 - Guard Rail (Section 606)
 - Sidewalk (Section 608)
 - Overlay Stationing
 - Other: _____

| | Tangent Interval | Curve Interval | Special Offset |
|---------------|------------------|----------------|----------------|
| Curb & Gutter | - | - | - |

- Riprap (Perm) (Section 506)
- Slope and Ditch Paving (Section 507)

- Minor Structures
 - Structure Excavation limits (Section 206)
 - Culverts (Section 603)
 - Culverts w/ Headwalls and Wingwalls (Section 601)
 - Concrete Box Culverts w/ Headwalls and Wingwalls
 - Pipes (Section 603)
 - Sanitary Sewer
 - Storm Sewer
 - Water
 - Irrigation
 - Miscellaneous
 - Manholes (Section 604)
 - Inlets (Section 604)
 - Other: _____

| | Left Interval | Center Interval | Right Interval |
|------------|---------------|-----------------|----------------|
| Stationing | - | - | - |

- Major Structures - Overhead Signs (Section 614), Concrete Box Culverts, Bridges - and all other structures assigned a structure number
 - Structure Excavation limits (Section 206)
 - Concrete Box Culverts (Section 603) w/ Headwalls and Wingwalls (Section 601)
 - Piling locations and cut off elevations (Section 502)
 - Caisson locations and elevations (Section 503)
 - Footing locations, alignment, and elevations
 - Abutment/Pier locations, alignment, and elevations
 - Wingwall skew angles/offsets
 - Structural concrete form locations
 - Substructure As-constructed survey required for Bridges (Subsection 601 .12) and Overhead signs (S-614-50)
 - Bridge expansion joint(s) alignment and grade (longitudinal and transverse)
 - Deck grades at Girder 10th or "n" th point locations and elevations
 - Slope and Ditch Paving (Section 507)
 - Other: _____

- Fencing (Section 607)
 - Temporary
 - Permanent
 - Sound Barrier
 - Other: _____

- Delineators (Section 612)
 - Temporary
 - Permanent

- Lighting (Section 613) and Traffic Control Devices (Permanent) (Section 614)
 - Signal pole locations and elevations
 - Light pole locations and elevations
 - Sign locations
 - Field verify sign post locations, elevations, and lengths before fabrication.
 - Other: _____

- Pavement Marking (Section 627)
 - Striping (Temp)
 - Striping (Perm)
 - Symbols
 - Other: _____
- Temporary Lighting and Construction Traffic Control Devices (Section 630)
 - Signal pole locations and elevations (Temp)
 - Light pole locations and elevations (Temp)
 - Sign Locations (Temp)
 - Other: _____
- Easements (Temp Staking by P.L.S. Only)
- Right of Way (Temp Staking by P.L.S. Only)

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 629:

- Monumentation (Section 629)
 - Control
 - Right of Way
 - Land corners, Aliquot corners
 - Easements
 - Reference the specified existing monuments: ** _____
 - Replace the specified existing monuments: ** _____
 - Locate monuments. It is estimated _____ hours are required.


NOTE: All 629 items shall include adequate research, calculations, and evaluations of evidence for monuments to be set.

** A Tabulation of Survey Monuments may be provided on the plans.

GENERAL NOTES:

- Unless indicated otherwise on this Survey Tabulation Sheet, all survey work and staking intervals shall be done in accordance with the latest edition of the CDDT Survey Manual.
- Adequate information for establishing lines, grades, and locations for all work items have been specified on the plans. Any additional information required to stake the item or element shall be generated by the Contractor's surveyor.
- The Contractor's surveyor shall provide an estimate of the man-hours necessary to complete the work items indicated on this sheet. A copy of this sheet, with the estimated man-hours written on the blank line to the left of the specified items, shall be submitted with the Survey Schedule to the Engineer _____ days prior to the Presurvey Conference - Construction Survey.
- Stakes and Monuments which are damaged or destroyed by the progress of construction shall be replaced by the Contractor at no additional cost to the Department.
- The Contractor shall furnish an As Staked earthwork quantity to the Engineer prior to completion of twenty percent (20%) of the planned earthwork in any phase as per the CDDT Survey Manual. A printed copy of the As Staked earthwork data and a computer disk in the specified format shall be submitted to the Engineer. The Contractor shall field verify original ground cross sections at a maximum 500 feet intervals.
- Prior to beginning work on any subsequent operation, such as placing base course or paving, the Contractor shall certify in writing to the Engineer that the final grade is within specified tolerance.
- The Contractor's surveyor shall perform all field surveying and calculations necessary to tie plan grades into field grades.
- The Contractor shall coordinate construction staking on the project with any utility work.
- Fieldbooks shall contain daily records of points set and or measurements observed. The information recorded shall contain: date, crew members' names, point no., description, staking information, and sketches. If the survey information is collected electronically, information recorded shall be provided to the Project Engineer in a hard copy format that is intuitive, clear and related to the supplemental information recorded in the field books. All linear surveys, such as slope stakes and blue tops, shall have the station and offset information related to the measured information. Non-linear surveys such as structures staking shall have sketches relating electronic information, such as point numbers, to the sketch.
- The Contractor's surveyor shall submit the following fieldbooks to the Engineer:
 - Horizontal Control (Primary & Secondary)
 - Vertical Control (i.e. Benchmarks)
 - Property Pin Ties
 - Horizontal Alignment
 - Grading
 - Slope Staking
 - Minor Structures
 - Major Structures
 - One fieldbook for each work category shown on this sheet
 - Other Fieldbook(s): _____


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Region 1 **DAS**

| As Constructed | SURVEY TABULATION | | | Project No./Code |
|----------------|-------------------|-----------------------|--|------------------|
| No Revisions: | | | | IM 0703-393 |
| Revised: | Designer: EJM | Structure Numbers | | 19038 |
| Void: | Detailer: BEG | Subset Sheets: 1 of 1 | | Sheet Number 8 |



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|---|----------------|---------------|-----------|---------------------|
| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | | |
| Project Code: | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 3 | |

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.



Typical Control Monument Cap
Not to Scale

▲ CM - 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.

GENERAL NOTES:

BASIS OF BEARINGS: Bearings used in the calculation of coordinates are based on a grid bearing of S86°34'18"E from CDOT type 2 monuments (as described below) 170 CM-MP 240.4 to 170 CM-MP 240.6 as obtained from a Global Positioning System (GPS) survey based on the Colorado High Accuracy Reference Network (CHARN). Said grid bearing is NAD '83 (1992) Colorado State Plane (Central Zone).

BASIS OF ELEVATIONS: Project is based on an elevation of 2422.788 (meters) 7948.76 (feet) NAVD88 on NGS Second Order Bench Mark R 264 (NGS PID KK1151). All other Control Points on this project were established by GPS fast static observations tied to said Bench Mark R 264.

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.

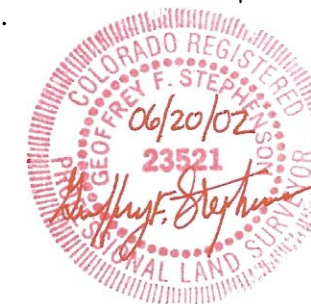
NOTE: Section lines shown herein were digitized from USGS maps and are shown for graphical reference purposes only. True aliquot corners and lines were not surveyed or established for this phase of the project survey control.

NOTE: The tabulation of geodetic and project coordinates as shown herein are listed in both US Feet and Meters.

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.

SURVEYORS STATEMENT: I, Geoffrey F. Stephenson, a Professional Land Surveyor in the State of Colorado, hereby state that this Control Survey Diagram was prepared under my direct supervision this 18th day of June, 2002, 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 as listed in the Colorado Department of Transportation Survey Manual Chapter Three (Revised 4/29/92).



Geoffrey F. Stephenson, P.L.S. 23521



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| Tabulation of Project Control | | | | |
|---|----------------|---------------|-----------|---------------------|
| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | | |
| Project Code: | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 3A | |

Project Coordinate Parameters – METERS

All calculations were based on point IDAHO AZ MK (NGS PID KK2023) with the following values:

Lat. 39°44'25.61860" N
Long. 105°30'49.53665" W

Ellipsoidal Height 2328.88
Combined Project Factor = 0.999633623
Combined Project Factor Reciprocal = 1.000366511

Conversion Example of State Plane Coordinates to Project Coordinates:

State Plane Northing x 1.000366511 - 304,990.129 = Project Northing
State Plane Easting x 1.000366511 - 609,928.033 = Project Easting

IDAHO AZ MK

516,511.710 x 1.000366511 - 304,990.129 = 211,710.888
913,222.359 x 1.000366511 - 609,928.033 = 303,629.032

*Truncation applied in order to match previously established project and mapping coordinates

Project Coordinate Parameters – US FEET

All calculations were based on point IDAHO AZ MK (NGS PID KK2023) with the following values:

Lat. 39°44'25.61860" N
Long. 105°30'49.53665" W

Ellipsoidal Height 7640.67'
Combined Project Factor = 0.999633623
Combined Project Factor Reciprocal = 1.000366511

Conversion Meters to USFeet:

One meter equals 3937/1200 feet.

Conversion Example of State Plane Coordinates to Project Coordinates:

State Plane Northing in USFT x 1.000366511 - 1,000,621.79 = Project Northing in USFT
State Plane Easting in USFT x 1.000366511 - 2,001,072.23 = Project Easting in USFT

IDAHO AZ MK

1,694,588.84' x 1.000366511 - 1,000,621.79' = 694,588.14'
2,996,130.36' x 1.000366511 - 2,001,072.23' = 996,156.25'

*Truncation applied in order to match previously established project and mapping coordinates



**GEODETTIC COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA) – METERS**

| POINT NAME | GEODETTIC COORDINATES NAD-83(92) (CHARN) | | NAD 83/92 ZONE 0502 | | ELLIP. HEIGHT | ELEV. (NAVD 88) | MAPPING ANGLE | GRID SCALE | DESCRIPTION |
|------------|--|----------------------|---------------------|------------|---------------|-----------------|-------------------|------------|-----------------------------|
| | LATITUDE | LONGITUDE | NORTHING | EASTING | | | | | |
| 2308 | 39° 44' 56.71162" N | 105° 40' 12.43179" W | 517484.230 | 899821.610 | 2524.198 | 2536.648 | -0° 06' 26.25433" | 0.99999982 | I70 CM MP 230.8 CDOT TYPE 2 |
| 2311 | 39° 45' 01.06229" N | 105° 39' 57.12417" W | 517617.738 | 900186.285 | 2515.554 | 2528.026 | -0° 06' 16.59998" | 1.00000006 | I70 CM MP 231.7 CDOT TYPE 2 |
| 2314 | 39° 45' 07.34590" N | 105° 39' 42.19956" W | 517810.893 | 900541.935 | 2513.501 | 2525.942 | -0° 06' 07.18718" | 1.00000040 | I70 CM MP 231.4 CDOT TYPE 2 |
| 2315 | 39° 45' 14.68660" N | 105° 39' 37.05188" W | 518037.075 | 900664.880 | 2513.131 | 2525.605 | -0° 06' 03.94059" | 1.00000081 | I70 CM MP 231.5 CDOT TYPE 2 |
| 2317 | 39° 45' 20.10177" N | 105° 39' 28.39847" W | 518203.727 | 900871.168 | 2512.097 | 2524.569 | -0° 05' 58.48298" | 1.00000111 | I70 CM MP 231.7 CDOT TYPE 2 |
| 2318 | 39° 45' 26.17488" N | 105° 39' 20.86614" W | 518390.722 | 901050.795 | 2522.480 | 2535.006 | -0° 05' 53.73245" | 1.00000145 | HANDICAMP (NGS PID AA5360) |
| 2320 | 39° 45' 32.94831" N | 105° 39' 12.07296" W | 518599.270 | 901260.463 | 2498.505 | 2511.018 | -0° 05' 48.18665" | 1.00000182 | I70 CM MP 232.0 CDOT TYPE 2 |
| 2323 | 39° 45' 39.10606" N | 105° 38' 58.46766" W | 518788.646 | 901584.632 | 2488.596 | 2501.118 | -0° 05' 39.60593" | 1.00000217 | I70 CM MP 232.3 CDOT TYPE 2 |
| 2325 | 39° 45' 43.87861" N | 105° 38' 48.62499" W | 518935.457 | 901819.156 | 2492.838 | 2505.381 | -0° 05' 33.39826" | 1.00000243 | I70 CM MP 232.5 CDOT TYPE 2 |
| 2327 | 39° 45' 46.44741" N | 105° 38' 34.17940" W | 519014.135 | 902163.123 | 2484.419 | 2496.979 | -0° 05' 24.28758" | 1.00000258 | I70 CM MP 232.7 CDOT TYPE 2 |
| 2329 | 39° 45' 48.95183" N | 105° 38' 19.40920" W | 519090.831 | 902514.807 | 2473.614 | 2486.176 | -0° 05' 14.97217" | 1.00000272 | I70 CM MP 232.9 CDOT TYPE 2 |
| 2331 | 39° 45' 51.49341" N | 105° 38' 03.38998" W | 519168.645 | 902896.215 | 2472.063 | 2484.647 | -0° 05' 04.86901" | 1.00000286 | I70 CM MP 233.1 CDOT TYPE 2 |
| 2332 | 39° 45' 53.84325" N | 105° 37' 51.68658" W | 519240.711 | 903174.883 | 2479.906 | 2492.488 | -0° 04' 57.48780" | 1.00000299 | I70 CM MP 233.2 CDOT TYPE 2 |
| 2334 | 39° 45' 59.20447" N | 105° 37' 36.96916" W | 519405.563 | 903525.413 | 2461.644 | 2474.267 | -0° 04' 48.20568" | 1.00000330 | I70 CM MP 233.4 CDOT TYPE 2 |
| 2336 | 39° 46' 00.42085" N | 105° 37' 27.62366" W | 519442.771 | 903747.899 | 2454.604 | 2467.220 | -0° 04' 42.31157" | 1.00000336 | I70 CM MP 233.6 CDOT TYPE 2 |
| 2338 | 39° 45' 59.92697" N | 105° 37' 12.71566" W | 519427.061 | 904102.705 | 2442.519 | 2455.158 | -0° 04' 32.90925" | 1.00000334 | I70 CM MP 233.8 CDOT TYPE 2 |
| 2341 | 39° 45' 57.79560" N | 105° 36' 57.71966" W | 519360.862 | 904459.542 | 2436.317 | 2448.966 | -0° 04' 23.45143" | 1.00000322 | I70 CM MP 234.1 CDOT TYPE 2 |
| 2343 | 39° 45' 55.97697" N | 105° 36' 45.40867" W | 519304.404 | 904752.491 | 2432.550 | 2445.212 | -0° 04' 15.68701" | 1.00000311 | I70 CM MP 234.3 CDOT TYPE 2 |
| 2345 | 39° 45' 55.47171" N | 105° 36' 31.10827" W | 519288.406 | 905092.843 | 2419.978 | 2432.660 | -0° 04' 06.66790" | 1.00000309 | I70 CM MP 234.5 CDOT TYPE 2 |
| 2346 | 39° 45' 54.92436" N | 105° 36' 18.78069" W | 519271.179 | 905386.239 | 2413.620 | 2426.254 | -0° 03' 58.89303" | 1.00000305 | I70 CM MP 234.6 CDOT TYPE 2 |
| 2348 | 39° 45' 54.24719" N | 105° 36' 11.14302" W | 519250.086 | 905568.004 | 2409.357 | 2422.006 | -0° 03' 54.07603" | 1.00000302 | I70 CM MP 234.8 CDOT TYPE 2 |
| 2350 | 39° 45' 49.18285" N | 105° 35' 57.24562" W | 519093.524 | 905898.615 | 2406.167 | 2418.907 | -0° 03' 45.31108" | 1.00000273 | I70 CM MP 235.0 CDOT TYPE 2 |
| 2351 | 39° 45' 51.90449" N | 105° 35' 47.03555" W | 519177.203 | 906141.725 | 2400.846 | 2413.571 | -0° 03' 38.87169" | 1.00000288 | I70 CM MP 235.1 CDOT TYPE 2 |
| 2353 | 39° 45' 52.31556" N | 105° 35' 35.29619" W | 519189.589 | 906421.157 | 2395.906 | 2408.666 | -0° 03' 31.46780" | 1.00000291 | I70 CM MP 235.3 CDOT TYPE 2 |
| 2354 | 39° 45' 47.82358" N | 105° 35' 28.82088" W | 519050.892 | 906575.142 | 2393.991 | 2406.740 | -0° 03' 27.38390" | 1.00000266 | I70 CM MP 235.4 CDOT TYPE 2 |
| 2356 | 39° 45' 49.47569" N | 105° 35' 17.17227" W | 519101.573 | 906852.455 | 2387.400 | 2400.188 | -0° 03' 20.03724" | 1.00000275 | I70 CM MP 235.6 CDOT TYPE 2 |
| 2358 | 39° 45' 46.76738" N | 105° 35' 04.22621" W | 519017.751 | 907160.521 | 2387.351 | 2400.170 | -0° 03' 11.87230" | 1.00000260 | I70 CM MP 235.8 CDOT TYPE 2 |
| 2359 | 39° 45' 47.82995" N | 105° 34' 52.15869" W | 519050.260 | 907447.786 | 2381.997 | 2394.816 | -0° 03' 04.26144" | 1.00000266 | I70 CM MP 235.9 CDOT TYPE 2 |
| 2361 | 39° 45' 44.41252" N | 105° 34' 41.64402" W | 518944.641 | 907697.968 | 2372.712 | 2385.531 | -0° 02' 57.62994" | 1.00000246 | I70 CM MP 236.1 CDOT TYPE 2 |
| 2362 | 39° 45' 42.61868" N | 105° 34' 33.75672" W | 518889.157 | 907885.660 | 2379.000 | 2391.806 | -0° 02' 52.65550" | 1.00000236 | I70 CM MP 236.2 CDOT TYPE 2 |
| 2364 | 39° 45' 36.39009" N | 105° 34' 26.13853" W | 518696.907 | 908066.838 | 2364.945 | 2377.762 | -0° 02' 47.85079" | 1.00000202 | I70 CM MP 236.4 CDOT TYPE 2 |
| 2366 | 39° 45' 30.28319" N | 105° 34' 19.05966" W | 518508.424 | 908235.190 | 2360.532 | 2373.358 | -0° 02' 43.38622" | 1.00000168 | I70 CM MP 236.6 CDOT TYPE 2 |
| 2367 | 39° 45' 28.39870" N | 105° 34' 05.25986" W | 518450.050 | 908563.635 | 2359.340 | 2372.192 | -0° 02' 34.68283" | 1.00000157 | I70 CM MP 236.7 CDOT TYPE 2 |
| 2369 | 39° 45' 23.77000" N | 105° 33' 58.49623" W | 518307.174 | 908724.533 | 2356.794 | 2369.662 | -0° 02' 30.41708" | 1.00000131 | I70 CM MP 236.9 CDOT TYPE 2 |

COLORADO DEPARTMENT OF TRANSPORTATION



Region 1
Address: 18500 E. Colfax Ave.
Aurora, CO 80011
Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

| Rev. No. | Description | Date |
|----------|-------------|------|
| | | |
| | | |
| | | |

INTERSTATE 70 (MP 230.8 TO MP 247.8)
Sections 2, 3, 11 & 12, T. 4 S., R. 72 W., 6th PM and
Sections 31, 32, 33, & 34, T. 3 S., R. 72 W., and
Sections 19, 27, 28, 29, 30, 34, 35 & 36, T. 3 S., R. 73 W. and
Sections 24, 25, 26, 27, & 34, T. 3 S., R. 74 W., 6th PM
CLEAR CREEK COUNTY, COLORADO

Control Survey Diagram

| Tabulation of Project Control | | | |
|---|----------------|-----------|---------------------|
| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | |
| Project Code: | Last Mod. Date | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 3B |

**GEODETTIC COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA) – METERS**

| POINT NAME | GEODETTIC COORDINATES NAD-83(92) (CHARN) | | NAD 83/92 | ZONE 0502 | ELLIP. HEIGHT | ELEV. (NAVD 88) | MAPPING ANGLE | GRID SCALE | DESCRIPTION |
|------------|--|----------------------|------------|------------|---------------|-----------------|-------------------|------------|------------------------------|
| | LATITUDE | LONGITUDE | NORTHING | EASTING | | | | | |
| 2370 | 39° 45' 15.34911" N | 105° 33' 46.22784" W | 518047.252 | 909016.397 | 2429.204 | 2442.082 | -0° 02' 22.67953" | 1.00000085 | I70 CM MP 237.0 CDOT TYPE 2 |
| 2372 | 39° 45' 19.27110" N | 105° 33' 42.63883" W | 518168.154 | 909101.917 | 2356.799 | 2369.654 | -0° 02' 20.41599" | 1.00000106 | I70 CM MP 237.2 CDOT TYPE 2 |
| 2373 | 39° 45' 19.61020" N | 105° 33' 32.41576" W | 518178.450 | 909345.284 | 2348.818 | 2361.711 | -0° 02' 13.96840" | 1.00000108 | I70 CM MP 237.3 CDOT TYPE 2 |
| 2374 | 39° 45' 16.87193" N | 105° 33' 23.60817" W | 518093.864 | 909554.896 | 2341.557 | 2354.589 | -0° 02' 08.41354" | 1.00000093 | I70 CM MP 237.4 CDOT TYPE 2 |
| 2377 | 39° 45' 06.80161" N | 105° 33' 14.54037" W | 517783.148 | 909770.571 | 2334.776 | 2347.836 | -0° 02' 02.69458" | 1.00000037 | I70 CM MP 237.7 CDOT TYPE 2 |
| 2379 | 39° 45' 02.04751" N | 105° 33' 03.85997" W | 517636.376 | 910024.748 | 2332.453 | 2345.519 | -0° 01' 55.95857" | 1.00000011 | I70 CM MP 237.9 CDOT TYPE 2 |
| 2381 | 39° 44' 57.53352" N | 105° 32' 52.40680" W | 517497.009 | 910297.336 | 2339.925 | 2352.992 | -0° 01' 48.73517" | 0.99999987 | I70 CM MP 238.1 CDOT TYPE 2 |
| 2382 | 39° 44' 48.37294" N | 105° 32' 48.04616" W | 517214.428 | 910401.004 | 2322.076 | 2335.150 | -0° 01' 45.98496" | 0.99999936 | I70 CM MP 238.2 CDOT TYPE 2 |
| 2384 | 39° 44' 45.95213" N | 105° 32' 37.82822" W | 517139.645 | 910644.236 | 2320.808 | 2333.899 | -0° 01' 39.54061" | 0.99999923 | I70 CM MP 238.4 CDOT TYPE 2 |
| 2385 | 39° 44' 44.42227" N | 105° 32' 28.33548" W | 517092.356 | 910870.219 | 2316.808 | 2329.901 | -0° 01' 33.55364" | 0.99999915 | I70 CM-MP 238.5 CDOT TYPE 2 |
| 2387 | 39° 44' 39.52804" N | 105° 32' 17.00951" W | 516941.293 | 911139.807 | 2314.604 | 2327.691 | -0° 01' 26.41047" | 0.99999888 | I70 CM-MP 238.7 CDOT TYPE 2 |
| 2388 | 39° 44' 40.87145" N | 105° 32' 06.29745" W | 516982.623 | 911394.864 | 2310.376 | 2323.497 | -0° 01' 19.65448" | 0.99999895 | I70 CM-MP 238.8 CDOT TYPE 2 |
| 2390 | 39° 44' 36.84917" N | 105° 31' 59.01066" W | 516858.505 | 911568.307 | 2308.067 | 2321.191 | -0° 01' 15.05878" | 0.99999873 | I70 CM-MP 239.0 CDOT TYPE 2 |
| 2391 | 39° 44' 39.09086" N | 105° 31' 46.03929" W | 516927.536 | 911877.164 | 2305.445 | 2318.481 | -0° 01' 06.87787" | 0.99999886 | IDAHO 1977 (NGS PID KK2025) |
| 2392 | 39° 44' 35.73090" N | 105° 31' 46.09168" W | 516823.910 | 911875.883 | 2302.223 | 2315.346 | -0° 01' 06.91091" | 0.99999867 | I70 CM-MP 239.2A CDOT TYPE 2 |
| 2394 | 39° 44' 31.98786" N | 105° 31' 35.26638" W | 516708.389 | 912133.590 | 2296.646 | 2309.804 | -0° 01' 00.08351" | 0.99999847 | I70 CM-MP 239.4 CDOT TYPE 2 |
| 2395 | 39° 44' 28.68845" N | 105° 31' 25.88071" W | 516606.569 | 912357.031 | 2294.105 | 2307.264 | -0° 00' 54.16406" | 0.99999829 | I70 CM-MP 239.5 CDOT TYPE 2 |
| 2397 | 39° 44' 28.55285" N | 105° 31' 12.92146" W | 516602.311 | 912665.587 | 2290.286 | 2303.461 | -0° 00' 45.99080" | 0.99999828 | I70 CM-MP 239.7 CDOT TYPE 2 |
| 2399 | 39° 44' 27.38279" N | 105° 30' 55.61199" W | 516566.144 | 913077.715 | 2285.861 | 2299.062 | -0° 00' 35.07390" | 0.99999822 | I70 CM-MP 239.9 CDOT TYPE 2 |
| 2400 | 39° 44' 25.61860" N | 105° 30' 49.53665" W | 516511.710 | 913222.359 | 2328.880 | 2341.988 | -0° 00' 31.24223" | 0.99999812 | IDAHO AZ MK (NGS PID KK2023) |
| 2401 | 39° 44' 29.87233" N | 105° 30' 46.48195" W | 516642.891 | 913295.111 | 2290.620 | 2303.734 | -0° 00' 29.31568" | 0.99999836 | I70 CM-MP 240.1 CDOT TYPE 2 |
| 2402 | 39° 44' 29.70239" N | 105° 30' 37.18297" W | 516637.622 | 913516.515 | 2298.919 | 2312.053 | -0° 00' 23.45091" | 0.99999835 | I70 CM-MP 240.2 CDOT TYPE 2 |
| 2403 | 39° 44' 28.74141" N | 105° 30' 31.38770" W | 516607.969 | 913654.496 | 2299.391 | 2312.486 | -0° 00' 19.79589" | 0.99999829 | I70 CM-MP 240.3 CDOT TYPE 2 |
| 2404 | 39° 44' 26.02663" N | 105° 30' 22.76918" W | 516524.224 | 913859.695 | 2292.068 | 2305.182 | -0° 00' 14.36028" | 0.99999815 | I70 CM-MP 240.4 CDOT TYPE 2 |
| 2406 | 39° 44' 25.39057" N | 105° 30' 09.00435" W | 516504.591 | 914187.435 | 2281.825 | 2294.963 | -0° 00' 05.67895" | 0.99999811 | I70 CM-MP 240.6 CDOT TYPE 2 |
| 2408 | 39° 44' 26.19903" N | 105° 29' 57.27544" W | 516529.523 | 914466.701 | 2279.179 | 2292.388 | 0° 00' 01.71835" | 0.99999816 | I70 CM-MP 240.8 CDOT TYPE 2 |
| 2410 | 39° 44' 27.73665" N | 105° 29' 45.03376" W | 516576.953 | 914758.173 | 2264.977 | 2278.167 | 0° 00' 09.43905" | 0.99999824 | I70 CM-MP 241.0 CDOT TYPE 2 |
| 2412 | 39° 44' 34.07960" N | 105° 29' 36.84038" W | 516772.591 | 914953.242 | 2259.881 | 2273.073 | 0° 00' 14.60653" | 0.99999858 | I70 CM-MP 241.2 CDOT TYPE 2 |
| 2413 | 39° 44' 34.18808" N | 105° 29' 28.79034" W | 516775.953 | 915144.907 | 2259.442 | 2272.636 | 0° 00' 19.68361" | 0.99999859 | I70 CM-MP 241.3 CDOT TYPE 2 |
| 2415 | 39° 44' 42.58381" N | 105° 29' 16.31206" W | 517034.924 | 915441.970 | 2261.023 | 2274.246 | 0° 00' 27.55352" | 0.99999905 | I70 CM-MP 241.5 CDOT TYPE 2 |
| 2417 | 39° 44' 37.77636" N | 105° 29' 04.43352" W | 516886.698 | 915724.805 | 2254.178 | 2267.422 | 0° 00' 35.04520" | 0.99999879 | I70 CM-MP 241.7 CDOT TYPE 2 |
| 2419 | 39° 44' 36.62192" N | 105° 28' 53.33633" W | 516851.142 | 915989.024 | 2251.439 | 2264.834 | 0° 00' 42.04408" | 0.99999872 | I70 CM-MP 241.9 CDOT TYPE 2 |
| 2421 | 39° 44' 37.93414" N | 105° 28' 39.19422" W | 516891.689 | 916325.724 | 2238.631 | 2252.049 | 0° 00' 50.96336" | 0.99999879 | I70 CM-MP 242.1 CDOT TYPE 2 |
| 2424 | 39° 44' 41.86232" N | 105° 28' 15.90359" W | 517012.997 | 916880.209 | 2227.426 | 2240.712 | 0° 01' 05.65252" | 0.99999901 | I70 CM-MP 242.4 CDOT TYPE 2 |
| 2425 | 39° 44' 40.69798" N | 105° 28' 02.05896" W | 516977.199 | 917209.841 | 2230.096 | 2243.441 | 0° 01' 14.38418" | 0.99999894 | I70 CM-MP 242.5 CDOT TYPE 2 |
| 2427 | 39° 44' 48.87477" N | 105° 27' 52.78190" W | 517229.467 | 917430.617 | 2225.269 | 2238.633 | 0° 01' 20.23513" | 0.99999939 | I70 CM-MP 242.7 CDOT TYPE 2 |
| 2430 | 39° 44' 48.86770" N | 105° 27' 40.31364" W | 517229.370 | 917727.460 | 2215.788 | 2229.311 | 0° 01' 28.09873" | 0.99999939 | I70 CM-MP 243.0 CDOT TYPE 2 |
| 2431 | 39° 44' 46.30646" N | 105° 27' 32.39475" W | 517150.460 | 917916.027 | 2217.501 | 2231.043 | 0° 01' 33.09309" | 0.99999925 | I70 CM-MP 243.1 CDOT TYPE 2 |
| 2433 | 39° 44' 40.12997" N | 105° 27' 21.07307" W | 516960.094 | 918185.667 | 2209.253 | 2222.655 | 0° 01' 40.23356" | 0.99999891 | I70 CM-MP 243.3 CDOT TYPE 2 |
| 2434 | 39° 44' 34.61568" N | 105° 27' 11.35646" W | 516790.140 | 918417.094 | 2205.881 | 2219.304 | 0° 01' 46.36172" | 0.99999861 | I70 CM-MP 243.4 CDOT TYPE 2 |
| 2436 | 39° 44' 41.10287" N | 105° 26' 53.44532" W | 516990.447 | 918843.430 | 2202.791 | 2216.401 | 0° 01' 57.65809" | 0.99999897 | I70 CM-MP 243.6 CDOT TYPE 2 |
| 2439 | 39° 44' 37.24276" N | 105° 26' 43.64776" W | 516871.531 | 919076.767 | 2199.582 | 2213.200 | 0° 02' 03.83731" | 0.99999876 | I70 CM-MP 243.9 CDOT TYPE 2 |
| 2440 | 39° 44' 36.78068" N | 105° 26' 33.49251" W | 516857.429 | 919318.562 | 2198.207 | 2211.842 | 0° 02' 10.24212" | 0.99999873 | I70 CM-MP 244.0 CDOT TYPE 2 |
| 2441 | 39° 44' 41.45680" N | 105° 26' 24.27794" W | 517001.790 | 919537.856 | 2189.106 | 2202.601 | 0° 02' 16.05365" | 0.99999899 | I70 CM-MP 244.1 CDOT TYPE 2 |
| 2442 | 39° 44' 46.53450" N | 105° 26' 16.07592" W | 517158.525 | 919733.027 | 2190.129 | 2203.651 | 0° 02' 21.22658" | 0.99999926 | I70 CM-MP 244.2 CDOT TYPE 2 |
| 2444 | 39° 44' 41.58641" N | 105° 26' 06.79498" W | 517006.073 | 919954.097 | 2208.399 | 2222.093 | 0° 02' 27.07997" | 0.99999899 | I70 CM-MP 244.4 CDOT TYPE 2 |
| 2445 | 39° 44' 35.60127" N | 105° 25' 59.09815" W | 516821.615 | 920137.483 | 2227.192 | 2240.771 | 0° 02' 31.93428" | 0.99999867 | I70 CM-MP 244.5 CDOT TYPE 2 |
| 2447 | 39° 44' 28.23046" N | 105° 25' 57.82529" W | 516594.310 | 920167.957 | 2236.803 | 2250.341 | 0° 02' 32.73706" | 0.99999827 | I70 CM-MP 244.7 CDOT TYPE 2 |
| 2448 | 39° 44' 22.74769" N | 105° 25' 52.52395" W | 516425.308 | 920294.309 | 2248.455 | 2262.006 | 0° 02' 36.08056" | 0.99999797 | I70 CM-MP 244.8 CDOT TYPE 2 |
| 2449 | 39° 44' 16.52187" N | 105° 25' 53.85515" W | 516233.270 | 920262.757 | 2261.956 | 2275.525 | 0° 02' 35.24099" | 0.99999763 | I70 CM-MP 244.9 CDOT TYPE 2 |
| 2451 | 39° 44' 07.73476" N | 105° 25' 46.65295" W | 515962.394 | 920434.458 | 2281.122 | 2294.673 | 0° 02' 39.78334" | 0.99999716 | I70 CM-MP 245.1 CDOT TYPE 2 |
| 2452 | 39° 43' 58.99118" N | 105° 25' 38.26429" W | 515692.886 | 920634.422 | 2303.618 | 2317.182 | 0° 02' 45.07398" | 0.99999669 | I70 CM-MP 245.2 CDOT TYPE 2 |
| 2454 | 39° 43' 48.73257" N | 105° 25' 34.70134" W | 515376.565 | 920719.522 | 2323.843 | 2337.412 | 0° 02' 47.32110" | 0.99999614 | I70 CM-MP 245.4 CDOT TYPE 2 |
| 2456 | 39° 43' 42.68484" N | 105° 25' 24.09661" W | 515190.254 | 920972.215 | 2342.310 | 2355.906 | 0° 02' 54.00939" | 0.99999582 | I70 CM-MP 245.6 CDOT TYPE 2 |
| 2459 | 39° 43' 31.06784" N | 105° 25' 13.69866" W | 514832.182 | 921220.146 | 2375.535 | 2389.297 | 0° 03' 00.56726" | 0.99999521 | I70 CM-MP 245.9 CDOT TYPE 2 |
| 2460 | 39° 43' 28.65029" N | 105° 25' 03.21643" W | 514757.844 | 921469.850 | 2379.550 | 2393.179 | 0° 03' 07.17831" | 0.99999508 | RMCL 120 (NGS PID AA5198) |
| 2461 | 39° 43' 25.51346" N | 105° 24' 58.81234" W | 514661.197 | 921574.824 | 2390.047 | 2403.882 | 0° 03' 09.95591" | 0.99999491 | I70 CM-MP 246.1 CDOT TYPE 2 |
| 2463 | 39° 43' 19.50238" N | 105° 24' 50.55393" W | 514475.991 | 921771.679 | 2409.339 | 2422.995 | 0° 03' 15.16441" | 0.99999460 | I70 CM-MP 246.3 CDOT TYPE 2 |





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| Tabulation of Project Control | | | | |
|---|----------------|---------------|-----------|---------------------|
| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | | |
| Project Code: | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 3C | |

**GEODETTIC COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA) - METERS**

| POINT NAME | GEODETTIC COORDINATES NAD-83(92) (CHARN) | | NAD 83/92 ZONE 0502 | | ELLIP. HEIGHT | ELEV. (NAVD 88) | MAPPING ANGLE | GRID SCALE | DESCRIPTION |
|------------|--|----------------------|---------------------|------------|---------------|-----------------|-------------------|------------|------------------------------|
| | LATITUDE | LONGITUDE | NORTHING | EASTING | | | | | |
| 2464 | 39° 43' 19.59863" N | 105° 24' 40.55965" W | 514479.188 | 922009.703 | 2395.227 | 2408.880 | 0° 03' 21.46769" | 0.99999460 | I70 CM-MP 246.4 CDOT TYPE 2 |
| 2465 | 39° 43' 13.16992" N | 105° 24' 36.75629" W | 514281.007 | 922100.480 | 2386.531 | 2400.367 | 0° 03' 23.86643" | 0.99999426 | I70 CM-MP 246.5 CDOT TYPE 2 |
| 2466 | 39° 43' 17.14000" N | 105° 24' 26.84075" W | 514403.687 | 922336.513 | 2389.818 | 2403.676 | 0° 03' 30.12006" | 0.99999447 | I70 CM-MP 246.6 CDOT TYPE 2 |
| 2468 | 39° 43' 14.34297" N | 105° 24' 17.55302" W | 514317.651 | 922557.804 | 2361.673 | 2375.385 | 0° 03' 35.97773" | 0.99999433 | I70 CM-MP 246.8 CDOT TYPE 2 |
| 2470 | 39° 43' 09.23375" N | 105° 24' 04.40224" W | 514160.411 | 922871.184 | 2336.831 | 2350.572 | 0° 03' 44.27179" | 0.99999406 | I70 CM-MP 247.0 CDOT TYPE 2 |
| 2472 | 39° 43' 02.13164" N | 105° 23' 53.39750" W | 513941.662 | 923133.532 | 2316.453 | 2330.351 | 0° 03' 51.21237" | 0.99999369 | I70 CM-MP 247.2 CDOT TYPE 2 |
| 2474 | 39° 42' 57.36249" N | 105° 23' 41.13015" W | 513794.909 | 923425.885 | 2297.892 | 2311.814 | 0° 03' 58.94926" | 0.99999344 | I70 CM MP 247.4 CDOT TYPE 2 |
| 2476 | 39° 42' 53.11868" N | 105° 23' 29.07420" W | 513664.362 | 923713.194 | 2291.215 | 2305.161 | 0° 04' 06.55282" | 0.99999322 | I70 CM MP 247.6 CDOT TYPE 2 |
| 2478 | 39° 42' 57.86853" N | 105° 23' 18.87832" W | 513811.147 | 923955.868 | 2275.874 | 2289.692 | 0° 04' 12.98326" | 0.99999347 | I70 CM MP 247.8 CDOT TYPE 2 |
| 2571 | 39° 45' 36.16510" N | 105° 40' 01.38696" W | 518700.551 | 900086.793 | 2562.436 | 2574.901 | -0° 06' 19.28847" | 1.00000200 | US40 CM MP 257.1 CDOT TYPE 2 |
| 2573 | 39° 45' 33.15680" N | 105° 39' 51.15739" W | 518607.326 | 900330.123 | 2540.010 | 2552.492 | -0° 06' 12.83679" | 1.00000184 | US40 CM MP 257.3 CDOT TYPE 2 |
| 2575 | 39° 45' 34.92100" N | 105° 39' 37.69132" W | 518661.164 | 900650.760 | 2516.119 | 2528.619 | -0° 06' 04.34388" | 1.00000193 | US40 CM MP 257.5 CDOT TYPE 2 |
| 2576 | 39° 45' 35.19756" N | 105° 39' 29.60308" W | 518669.356 | 900843.303 | 2511.278 | 2523.764 | -0° 05' 59.24271" | 1.00000195 | US40 CM MP 257.6 CDOT TYPE 2 |
| E447 | 39° 44' 33.71324" N | 105° 25' 51.40884" W | 516763.522 | 920320.603 | 2186.220 | 2199.929 | 0° 02' 36.78385" | 0.99999856 | BM E447 |
| G447 | 39° 43' 58.46492" N | 105° 25' 35.32777" W | 515676.712 | 920704.361 | 2290.045 | 2303.634 | 0° 02' 46.92601" | 0.99999666 | BM G447 |
| J447 | 39° 43' 17.84039" N | 105° 24' 34.70923" W | 514425.099 | 922149.092 | 2390.091 | 2403.920 | 0° 03' 25.15749" | 0.99999451 | BM J447 |
| L445 | 39° 45' 47.66670" N | 105° 38' 30.62329" W | 519051.607 | 902247.826 | 2480.378 | 2492.931 | -0° 05' 22.04478" | 1.00000265 | BM L445 |
| P445 | 39° 45' 43.46593" N | 105° 34' 43.23570" W | 518915.479 | 907660.057 | 2373.846 | 2386.658 | -0° 02' 58.63380" | 1.00000241 | BM P445 |
| R264 | 39° 45' 53.27880" N | 105° 36' 05.81625" W | 519220.076 | 905694.757 | 2410.131 | 2422.788 | -0° 03' 50.71649" | 1.00000296 | R 264 (NGS PID KK1151) |
| U445 | 39° 43' 07.08531" N | 105° 22' 22.82490" W | 514097.156 | 925290.567 | 2215.350 | 2229.269 | 0° 04' 48.33556" | 0.99999395 | BM U445 |
| Y445 | 39° 44' 36.83058" N | 105° 29' 06.46244" W | 516857.520 | 915676.504 | 2248.069 | 2261.270 | 0° 00' 33.76558" | 0.99999873 | BM Y445 |



COLORADO DEPARTMENT OF TRANSPORTATION



Region 1
Address: 18500 E. Colfax Ave.
Aurora, CO 80011
Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

Table for sheet revisions with columns for revision number, description, and date.

INTERSTATE 70 (MP 230.8 TO MP 247.8)
Sections 2, 3, 11 & 12, T. 4 S., R. 72 W., 6th PM and
Sections 31, 32, 33, & 34, T. 3 S., R. 72 W., and
Sections 19, 27, 28, 29, 30, 34, 35 & 36, T. 3 S., R. 73 W. and
Sections 24, 25, 26, 27, & 34, T. 3 S., R. 74 W., 6th PM
CLEAR CREEK COUNTY, COLORADO

Control Survey Diagram

Table for project control details including project number, location, and sheet information.

GEODETIC COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA) - US FEET

Main table containing geodetic coordinates for points 2308 to 2404, including latitude/longitude, NAD coordinates, ellipsoid height, elevation, mapping angle, grid scale, and description.





Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

Table with columns for revision number, date, and description.

INTERSTATE 70 (MP 230.8 TO MP 247.8)
Sections 2, 3, 11 & 12, T. 4 S., R. 72 W., 6th PM and
Sections 31, 32, 33, & 34, T. 3 S., R. 72 W., and
Sections 19, 27, 28, 29, 30, 34, 35 & 36, T. 3 S., R. 73 W. and
Sections 24, 25, 26, 27, & 34, T. 3 S., R. 74 W., 6th PM
CLEAR CREEK COUNTY, COLORADO

Control Survey Diagram

Tabulation of Project Control
Project Number: IM 0703-244 (SEGMENTS 1-5)
Project Location: I 70 (MP 230.8 to MP 247.8)
Project Location: Empire Jct. - Jefferson County Line
Project Code: 12691 Last Mod. Date: June 20, 2002 Subset Sheets: of Sheet No. Total No. of Sheets: 3E

GEODETIC COORDINATE SUMMARY TABLE
(ADJUSTED FIELD DATA) - US FEET

Main geodetic coordinate summary table with columns: POINT NAME, GEODETIC COORDINATES NAD-83(92) (CHARN) [LATITUDE, LONGITUDE], NAD 83/92 [NORTHING, EASTING], ZONE 0502, ELLIP. HEIGHT, ELEV. (NAVD 88), MAPPING ANGLE, GRID SCALE, DESCRIPTION.





Region 1
 Address: 18500 E. Colfax Ave.
 Aurora, CO 80011
 Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

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INTERSTATE 70 (MP 230.8 TO MP 247.8)
 Sections 2, 3, 11 & 12, T. 4 S., R. 72 W., 6th PM and
 Sections 31, 32, 33, & 34, T. 3 S., R. 72 W., and
 Sections 19, 27, 28, 29, 30, 34, 35 & 36, T. 3 S., R. 73 W. and
 Sections 24, 25, 26, 27, & 34, T. 3 S., R. 74 W., 6th PM
 CLEAR CREEK COUNTY, COLORADO

Control Survey Diagram

| Tabulation of Project Control | | | | |
|---|----------------|---------------|-----------|---------------------|
| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | | |
| Project Code: | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 3F | |

PROJECT COORDINATE SUMMARY TABLE
 (ADJUSTED FIELD DATA) - METERS

| POINT NAME | PROJECT COORDINATES | | ELEV. (NAVD 88) | DESCRIPTION |
|------------|---------------------|------------|-----------------|------------------------------|
| | NORTHING | EASTING | | |
| 2308 | 212683.763 | 290223.370 | 2536.648 | 170 CM MP 230.8 CDOT TYPE 2 |
| 2311 | 212817.320 | 290588.178 | 2528.026 | 170 CM MP 231.7 CDOT TYPE 2 |
| 2314 | 213010.546 | 290943.958 | 2525.942 | 170 CM MP 231.4 CDOT TYPE 2 |
| 2315 | 213236.811 | 291066.949 | 2525.605 | 170 CM MP 231.5 CDOT TYPE 2 |
| 2317 | 213403.524 | 291273.312 | 2524.569 | 170 CM MP 231.7 CDOT TYPE 2 |
| 2318 | 213590.587 | 291453.004 | 2535.006 | HANDICAMP (NGS PID AA5360) |
| 2320 | 213799.212 | 291662.750 | 2511.018 | 170 CM MP 232.0 CDOT TYPE 2 |
| 2323 | 213988.657 | 291987.038 | 2501.118 | 170 CM MP 232.3 CDOT TYPE 2 |
| 2325 | 214135.522 | 292221.647 | 2505.381 | 170 CM MP 232.5 CDOT TYPE 2 |
| 2327 | 214214.229 | 292565.741 | 2496.979 | 170 CM MP 232.7 CDOT TYPE 2 |
| 2329 | 214290.953 | 292917.554 | 2486.176 | 170 CM MP 232.9 CDOT TYPE 2 |
| 2331 | 214368.795 | 293299.101 | 2484.647 | 170 CM MP 233.1 CDOT TYPE 2 |
| 2332 | 214440.888 | 293577.871 | 2492.488 | 170 CM MP 233.2 CDOT TYPE 2 |
| 2334 | 214605.801 | 293928.530 | 2474.267 | 170 CM MP 233.4 CDOT TYPE 2 |
| 2336 | 214643.022 | 294151.097 | 2467.220 | 170 CM MP 233.6 CDOT TYPE 2 |
| 2338 | 214627.307 | 294506.034 | 2455.158 | 170 CM MP 233.8 CDOT TYPE 2 |
| 2341 | 214561.083 | 294863.002 | 2448.966 | 170 CM MP 234.1 CDOT TYPE 2 |
| 2343 | 214504.604 | 295156.058 | 2445.212 | 170 CM MP 234.3 CDOT TYPE 2 |
| 2345 | 214488.600 | 295496.535 | 2432.660 | 170 CM MP 234.5 CDOT TYPE 2 |
| 2346 | 214471.367 | 295790.038 | 2426.254 | 170 CM MP 234.6 CDOT TYPE 2 |
| 2348 | 214450.266 | 295971.870 | 2422.006 | 170 CM MP 234.8 CDOT TYPE 2 |
| 2350 | 214293.647 | 296302.602 | 2418.907 | 170 CM MP 235.0 CDOT TYPE 2 |
| 2351 | 214377.356 | 296545.802 | 2413.571 | 170 CM MP 235.1 CDOT TYPE 2 |
| 2353 | 214389.748 | 296825.336 | 2408.666 | 170 CM MP 235.3 CDOT TYPE 2 |
| 2354 | 214251.000 | 296979.377 | 2406.740 | 170 CM MP 235.4 CDOT TYPE 2 |
| 2356 | 214301.699 | 297256.792 | 2400.188 | 170 CM MP 235.6 CDOT TYPE 2 |
| 2358 | 214217.846 | 297564.970 | 2400.170 | 170 CM MP 235.8 CDOT TYPE 2 |
| 2359 | 214250.368 | 297852.341 | 2394.816 | 170 CM MP 235.9 CDOT TYPE 2 |
| 2361 | 214144.710 | 298102.615 | 2385.531 | 170 CM MP 236.1 CDOT TYPE 2 |
| 2362 | 214089.205 | 298290.375 | 2391.806 | 170 CM MP 236.2 CDOT TYPE 2 |
| 2364 | 213896.884 | 298471.620 | 2377.762 | 170 CM MP 236.4 CDOT TYPE 2 |
| 2366 | 213708.333 | 298640.033 | 2373.358 | 170 CM MP 236.6 CDOT TYPE 2 |
| 2367 | 213649.937 | 298968.599 | 2372.192 | 170 CM MP 236.7 CDOT TYPE 2 |
| 2369 | 213507.008 | 299129.556 | 2369.662 | 170 CM MP 236.9 CDOT TYPE 2 |
| 2370 | 213246.992 | 299421.527 | 2442.082 | 170 CM MP 237.0 CDOT TYPE 2 |
| 2372 | 213367.938 | 299507.078 | 2369.654 | 170 CM MP 237.2 CDOT TYPE 2 |
| 2373 | 213378.238 | 299750.534 | 2361.711 | 170 CM MP 237.3 CDOT TYPE 2 |
| 2374 | 213293.621 | 299960.223 | 2354.589 | 170 CM MP 237.4 CDOT TYPE 2 |
| 2377 | 212982.790 | 300175.977 | 2347.836 | 170 CM MP 237.7 CDOT TYPE 2 |
| 2379 | 212835.965 | 300430.247 | 2345.519 | 170 CM MP 237.9 CDOT TYPE 2 |
| 2381 | 212696.547 | 300702.935 | 2352.992 | 170 CM MP 238.1 CDOT TYPE 2 |
| 2382 | 212413.862 | 300806.642 | 2335.150 | 170 CM MP 238.2 CDOT TYPE 2 |
| 2384 | 212339.052 | 301049.962 | 2333.899 | 170 CM MP 238.4 CDOT TYPE 2 |
| 2385 | 212291.746 | 301276.028 | 2329.901 | 170 CM-MP 238.5 CDOT TYPE 2 |
| 2387 | 212140.627 | 301545.715 | 2327.691 | 170 CM-MP 238.7 CDOT TYPE 2 |
| 2388 | 212181.973 | 301800.865 | 2323.497 | 170 CM-MP 238.8 CDOT TYPE 2 |
| 2390 | 212057.809 | 301974.372 | 2321.191 | 170 CM-MP 239.0 CDOT TYPE 2 |
| 2391 | 212126.865 | 302283.343 | 2318.481 | IDAHO 1977 (NGS PID KK2025) |
| 2392 | 212023.201 | 302282.061 | 2315.346 | 170 CM-MP 239.2A CDOT TYPE 2 |
| 2394 | 211907.638 | 302539.862 | 2309.804 | 170 CM-MP 239.4 CDOT TYPE 2 |
| 2395 | 211805.780 | 302763.385 | 2307.264 | 170 CM-MP 239.5 CDOT TYPE 2 |
| 2397 | 211801.521 | 303072.054 | 2303.461 | 170 CM-MP 239.7 CDOT TYPE 2 |
| 2399 | 211765.341 | 303484.333 | 2299.062 | 170 CM-MP 239.9 CDOT TYPE 2 |
| 2400 | 211710.888 | 303629.031 | 2341.988 | IDAHO AZ MK (NGS PID KK2023) |
| 2401 | 211842.116 | 303701.808 | 2303.734 | 170 CM-MP 240.1 CDOT TYPE 2 |
| 2402 | 211836.845 | 303923.294 | 2312.053 | 170 CM-MP 240.2 CDOT TYPE 2 |
| 2403 | 211807.181 | 304061.326 | 2312.486 | 170 CM-MP 240.3 CDOT TYPE 2 |

PROJECT COORDINATE SUMMARY TABLE
 (ADJUSTED FIELD DATA) - METERS

| POINT NAME | PROJECT COORDINATES | | ELEV. (NAVD 88) | DESCRIPTION |
|------------|---------------------|------------|-----------------|------------------------------|
| | NORTHING | EASTING | | |
| 2404 | 211723.406 | 304266.600 | 2305.182 | 170 CM-MP 240.4 CDOT TYPE 2 |
| 2406 | 211703.766 | 304594.460 | 2294.963 | 170 CM-MP 240.6 CDOT TYPE 2 |
| 2408 | 211728.706 | 304873.828 | 2292.388 | 170 CM-MP 240.8 CDOT TYPE 2 |
| 2410 | 211776.154 | 305165.407 | 2278.167 | 170 CM-MP 241.0 CDOT TYPE 2 |
| 2412 | 211971.863 | 305360.547 | 2273.073 | 170 CM-MP 241.2 CDOT TYPE 2 |
| 2413 | 211975.226 | 305552.283 | 2272.636 | 170 CM-MP 241.3 CDOT TYPE 2 |
| 2415 | 212234.292 | 305849.455 | 2274.246 | 170 CM-MP 241.5 CDOT TYPE 2 |
| 2417 | 212086.012 | 306132.394 | 2267.422 | 170 CM-MP 241.7 CDOT TYPE 2 |
| 2419 | 212050.443 | 306396.709 | 2264.834 | 170 CM-MP 241.9 CDOT TYPE 2 |
| 2421 | 212091.005 | 306733.532 | 2252.049 | 170 CM-MP 242.1 CDOT TYPE 2 |
| 2424 | 212212.357 | 307288.221 | 2240.712 | 170 CM-MP 242.4 CDOT TYPE 2 |
| 2425 | 212176.546 | 307617.974 | 2243.441 | 170 CM-MP 242.5 CDOT TYPE 2 |
| 2427 | 212428.906 | 307838.831 | 2238.633 | 170 CM-MP 242.7 CDOT TYPE 2 |
| 2430 | 212428.809 | 308135.782 | 2229.311 | 170 CM-MP 243.0 CDOT TYPE 2 |
| 2431 | 212349.871 | 308324.419 | 2231.043 | 170 CM-MP 243.1 CDOT TYPE 2 |
| 2433 | 212159.435 | 308594.158 | 2222.655 | 170 CM-MP 243.3 CDOT TYPE 2 |
| 2434 | 211989.419 | 308825.669 | 2219.304 | 170 CM-MP 243.4 CDOT TYPE 2 |
| 2436 | 212189.799 | 309252.161 | 2216.401 | 170 CM-MP 243.6 CDOT TYPE 2 |
| 2439 | 212070.840 | 309485.584 | 2213.200 | 170 CM-MP 243.9 CDOT TYPE 2 |
| 2440 | 212056.733 | 309727.467 | 2211.842 | 170 CM-MP 244.0 CDOT TYPE 2 |
| 2441 | 212201.146 | 309946.842 | 2202.601 | 170 CM-MP 244.1 CDOT TYPE 2 |
| 2442 | 212357.939 | 310142.085 | 2203.651 | 170 CM-MP 244.2 CDOT TYPE 2 |
| 2444 | 212205.431 | 310363.235 | 2222.093 | 170 CM-MP 244.4 CDOT TYPE 2 |
| 2445 | 212020.905 | 310546.689 | 2240.771 | 170 CM-MP 244.5 CDOT TYPE 2 |
| 2447 | 211793.517 | 310577.174 | 2250.341 | 170 CM-MP 244.7 CDOT TYPE 2 |
| 2448 | 211624.453 | 310703.572 | 2262.006 | 170 CM-MP 244.8 CDOT TYPE 2 |
| 2449 | 211432.345 | 310672.009 | 2275.525 | 170 CM-MP 244.9 CDOT TYPE 2 |
| 2451 | 211161.369 | 310843.773 | 2294.673 | 170 CM-MP 245.1 CDOT TYPE 2 |
| 2452 | 210891.763 | 311043.810 | 2317.182 | 170 CM-MP 245.2 CDOT TYPE 2 |
| 2454 | 210575.326 | 311128.941 | 2337.412 | 170 CM-MP 245.4 CDOT TYPE 2 |
| 2456 | 210388.946 | 311381.726 | 2355.906 | 170 CM-MP 245.6 CDOT TYPE 2 |
| 2459 | 210030.744 | 311629.748 | 2389.297 | 170 CM-MP 245.9 CDOT TYPE 2 |
| 2460 | 209956.377 | 311879.544 | 2393.179 | RMCL 120 (NGS PID AA5198) |
| 2461 | 209859.695 | 311984.557 | 2403.882 | 170 CM-MP 246.1 CDOT TYPE 2 |
| 2463 | 209674.421 | 312181.484 | 2422.995 | 170 CM-MP 246.3 CDOT TYPE 2 |
| 2464 | 209677.620 | 312419.595 | 2408.880 | 170 CM-MP 246.4 CDOT TYPE 2 |
| 2465 | 209479.366 | 312510.405 | 2400.367 | 170 CM-MP 246.5 CDOT TYPE 2 |
| 2466 | 209602.091 | 312746.524 | 2403.676 | 170 CM-MP 246.6 CDOT TYPE 2 |
| 2468 | 209516.024 | 312967.897 | 2375.385 | 170 CM-MP 246.8 CDOT TYPE 2 |
| 2470 | 209358.726 | 313281.392 | 2350.572 | 170 CM-MP 247.0 CDOT TYPE 2 |
| 2472 | 209139.897 | 313543.836 | 2330.351 | 170 CM-MP 247.2 CDOT TYPE 2 |
| 2474 | 208993.090 | 313836.296 | 2311.814 | 170 CM MP 247.4 CDOT TYPE 2 |
| 2476 | 208862.495 | 314123.710 | 2305.161 | 170 CM MP 247.6 CDOT TYPE 2 |
| 2478 | 209009.334 | 314366.473 | 2289.692 | 170 CM MP 247.8 CDOT TYPE 2 |
| 2571 | 213900.530 | 290488.650 | 2574.901 | US40 CM MP 257.1 CDOT TYPE 2 |
| 2573 | 213807.271 | 290732.069 | 2552.492 | US40 CM MP 257.3 CDOT TYPE 2 |
| 2575 | 213861.129 | 291052.824 | 2528.619 | US40 CM MP 257.5 CDOT TYPE 2 |
| 2576 | 213869.324 | 291245.437 | 2523.764 | US40 CM MP 257.6 CDOT TYPE 2 |
| E447 | 211962.791 | 310729.876 | 2199.929 | BM E447 |
| G447 | 210875.583 | 311113.775 | 2303.634 | BM G447 |
| J447 | 209623.511 | 312559.035 | 2403.920 | BM J447 |
| L445 | 214251.715 | 292650.475 | 2492.931 | BM L445 |
| P445 | 214115.537 | 298064.689 | 2386.658 | BM P445 |
| R264 | 214420.246 | 296098.669 | 2422.788 | R 264 (NGS PID KK1151) |
| U445 | 209295.448 | 315701.661 | 2229.269 | BM U445 |
| Y445 | 212056.824 | 306084.074 | 2261.270 | BM Y445 |





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| Tabulation of Project Control | | | |
|---|----------------|---------------|---------------------|
| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | |
| Project Code: | Last Mod. Date | Subset Sheets | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 3G |

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

| POINT NAME | PROJECT COORDINATES | | ELEV. (NAVD 88) | DESCRIPTION |
|------------|---------------------|-----------|--------------------|------------------------------|
| | NORTHING | EASTING | | |
| 2308 | 697779.98 | 952174.51 | 8322.32 | I70 CM MP 230.8 CDOT TYPE 2 |
| 2311 | 698218.16 | 953371.38 | 8294.03 | I70 CM MP 231.7 CDOT TYPE 2 |
| 2314 | 698852.10 | 954538.64 | 8287.20 | I70 CM MP 231.4 CDOT TYPE 2 |
| 2315 | 699594.44 | 954942.15 | 8286.09 | I70 CM MP 231.5 CDOT TYPE 2 |
| 2317 | 700141.40 | 955619.19 | 8282.69 | I70 CM MP 231.7 CDOT TYPE 2 |
| 2318 | 700755.12 | 956208.73 | 8316.93 | HANDICAMP (NGS PID AA5360) |
| 2320 | 701439.58 | 956896.87 | 8238.23 | I70 CM MP 232.0 CDOT TYPE 2 |
| 2323 | 702061.12 | 957960.81 | 8205.75 | I70 CM MP 232.3 CDOT TYPE 2 |
| 2325 | 702542.96 | 958730.52 | 8219.74 | I70 CM MP 232.5 CDOT TYPE 2 |
| 2327 | 702801.18 | 959859.44 | 8192.17 | I70 CM MP 232.7 CDOT TYPE 2 |
| 2329 | 703052.90 | 961013.67 | 8156.73 | I70 CM MP 232.9 CDOT TYPE 2 |
| 2331 | 703308.29 | 962265.47 | 8151.71 | I70 CM MP 233.1 CDOT TYPE 2 |
| 2332 | 703544.81 | 963180.07 | 8177.44 | I70 CM MP 233.2 CDOT TYPE 2 |
| 2334 | 704085.87 | 964330.52 | 8117.66 | I70 CM MP 233.4 CDOT TYPE 2 |
| 2336 | 704207.98 | 965060.73 | 8094.54 | I70 CM MP 233.6 CDOT TYPE 2 |
| 2338 | 704156.42 | 966225.21 | 8054.96 | I70 CM MP 233.8 CDOT TYPE 2 |
| 2341 | 703939.15 | 967396.37 | 8034.65 | I70 CM MP 234.1 CDOT TYPE 2 |
| 2343 | 703753.86 | 968357.83 | 8022.33 | I70 CM MP 234.3 CDOT TYPE 2 |
| 2345 | 703701.35 | 969474.88 | 7981.15 | I70 CM MP 234.5 CDOT TYPE 2 |
| 2346 | 703644.81 | 970437.82 | 7960.14 | I70 CM MP 234.6 CDOT TYPE 2 |
| 2348 | 703575.58 | 971034.38 | 7946.20 | I70 CM MP 234.8 CDOT TYPE 2 |
| 2350 | 703061.74 | 972119.45 | 7936.03 | I70 CM MP 235.0 CDOT TYPE 2 |
| 2351 | 703336.38 | 972917.35 | 7918.53 | I70 CM MP 235.1 CDOT TYPE 2 |
| 2353 | 703377.03 | 973834.46 | 7902.43 | I70 CM MP 235.3 CDOT TYPE 2 |
| 2354 | 702921.82 | 974339.84 | 7896.11 | I70 CM MP 235.4 CDOT TYPE 2 |
| 2356 | 703088.16 | 975249.99 | 7874.62 | I70 CM MP 235.6 CDOT TYPE 2 |
| 2358 | 702813.05 | 976261.07 | 7874.56 | I70 CM MP 235.8 CDOT TYPE 2 |
| 2359 | 702919.75 | 977203.89 | 7856.99 | I70 CM MP 235.9 CDOT TYPE 2 |
| 2361 | 702573.10 | 978025.00 | 7826.53 | I70 CM MP 236.1 CDOT TYPE 2 |
| 2362 | 702391.00 | 978641.01 | 7847.12 | I70 CM MP 236.2 CDOT TYPE 2 |
| 2364 | 701760.03 | 979235.64 | 7801.04 | I70 CM MP 236.4 CDOT TYPE 2 |
| 2366 | 701141.42 | 979788.17 | 7786.59 | I70 CM MP 236.6 CDOT TYPE 2 |
| 2367 | 700949.84 | 980866.15 | 7782.77 | I70 CM MP 236.7 CDOT TYPE 2 |
| 2369 | 700480.91 | 981394.22 | 7774.47 | I70 CM MP 236.9 CDOT TYPE 2 |
| 2370 | 699627.84 | 982352.13 | 8012.07 | I70 CM MP 237.0 CDOT TYPE 2 |
| 2372 | 700024.64 | 982632.81 | 7774.44 | I70 CM MP 237.2 CDOT TYPE 2 |
| 2373 | 700058.44 | 983431.54 | 7748.38 | I70 CM MP 237.3 CDOT TYPE 2 |
| 2374 | 699780.82 | 984119.50 | 7725.02 | I70 CM MP 237.4 CDOT TYPE 2 |
| 2377 | 698761.04 | 984827.35 | 7702.86 | I70 CM MP 237.7 CDOT TYPE 2 |
| 2379 | 698279.33 | 985661.57 | 7695.26 | I70 CM MP 237.9 CDOT TYPE 2 |
| 2381 | 697821.92 | 986556.21 | 7719.78 | I70 CM MP 238.1 CDOT TYPE 2 |
| 2382 | 696894.48 | 986896.46 | 7661.24 | I70 CM MP 238.2 CDOT TYPE 2 |
| 2384 | 696649.04 | 987694.75 | 7657.13 | I70 CM MP 238.4 CDOT TYPE 2 |
| 2385 | 696493.84 | 988436.44 | 7644.02 | I70 CM-MP 238.5 CDOT TYPE 2 |
| 2387 | 695998.04 | 989321.23 | 7636.77 | I70 CM-MP 238.7 CDOT TYPE 2 |
| 2388 | 696133.69 | 990158.34 | 7623.01 | I70 CM-MP 238.8 CDOT TYPE 2 |
| 2390 | 695726.33 | 990727.59 | 7615.44 | I70 CM-MP 239.0 CDOT TYPE 2 |
| 2391 | 695952.89 | 991741.27 | 7606.55 | IDAHO 1977 (NGS PID KK2025) |
| 2392 | 695612.79 | 991737.06 | 7596.27 | I70 CM-MP 239.2A CDOT TYPE 2 |
| 2394 | 695233.64 | 992582.87 | 7578.08 | I70 CM-MP 239.4 CDOT TYPE 2 |
| 2395 | 694899.46 | 993316.21 | 7569.75 | I70 CM-MP 239.5 CDOT TYPE 2 |
| 2397 | 694885.49 | 994328.90 | 7557.27 | I70 CM-MP 239.7 CDOT TYPE 2 |
| 2399 | 694766.79 | 995681.52 | 7542.84 | I70 CM-MP 239.9 CDOT TYPE 2 |
| 2400 | 694588.14 | 996156.25 | 7683.67 | IDAHO AZ MK (NGS PID KK2023) |
| 2401 | 695018.68 | 996395.02 | 7558.17 | I70 CM-MP 240.1 CDOT TYPE 2 |
| 2402 | 695001.38 | 997121.68 | 7585.46 | I70 CM-MP 240.2 CDOT TYPE 2 |
| 2403 | 694904.06 | 997574.53 | 7586.88 | I70 CM-MP 240.3 CDOT TYPE 2 |

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

| POINT NAME | PROJECT COORDINATES | | ELEV. (NAVD 88) | DESCRIPTION |
|------------|---------------------|------------|--------------------|------------------------------|
| | NORTHING | EASTING | | |
| 2404 | 694629.21 | 998248.00 | 7562.92 | I70 CM-MP 240.4 CDOT TYPE 2 |
| 2406 | 694564.77 | 999323.66 | 7529.39 | I70 CM-MP 240.6 CDOT TYPE 2 |
| 2408 | 694646.60 | 1000240.22 | 7520.94 | I70 CM-MP 240.8 CDOT TYPE 2 |
| 2410 | 694802.27 | 1001196.84 | 7474.29 | I70 CM-MP 241.0 CDOT TYPE 2 |
| 2412 | 695444.36 | 1001837.06 | 7457.57 | I70 CM-MP 241.2 CDOT TYPE 2 |
| 2413 | 695455.39 | 1002466.11 | 7456.14 | I70 CM-MP 241.3 CDOT TYPE 2 |
| 2415 | 696305.34 | 1003441.09 | 7461.42 | I70 CM-MP 241.5 CDOT TYPE 2 |
| 2417 | 695818.86 | 1004369.36 | 7439.03 | I70 CM-MP 241.7 CDOT TYPE 2 |
| 2419 | 695702.16 | 1005236.54 | 7430.54 | I70 CM-MP 241.9 CDOT TYPE 2 |
| 2421 | 695835.24 | 1006341.60 | 7388.60 | I70 CM-MP 242.1 CDOT TYPE 2 |
| 2424 | 696233.38 | 1008161.44 | 7351.40 | I70 CM-MP 242.4 CDOT TYPE 2 |
| 2425 | 696115.89 | 1009243.30 | 7360.36 | I70 CM-MP 242.5 CDOT TYPE 2 |
| 2427 | 696943.84 | 1009967.90 | 7344.58 | I70 CM-MP 242.7 CDOT TYPE 2 |
| 2430 | 696943.52 | 1010942.15 | 7314.00 | I70 CM-MP 243.0 CDOT TYPE 2 |
| 2431 | 696684.53 | 1011561.03 | 7319.68 | I70 CM-MP 243.1 CDOT TYPE 2 |
| 2433 | 696059.75 | 1012446.00 | 7292.16 | I70 CM-MP 243.3 CDOT TYPE 2 |
| 2434 | 695501.95 | 1013205.55 | 7281.17 | I70 CM-MP 243.4 CDOT TYPE 2 |
| 2436 | 696159.37 | 1014604.80 | 7271.64 | I70 CM-MP 243.6 CDOT TYPE 2 |
| 2439 | 695769.08 | 1015370.62 | 7261.14 | I70 CM-MP 243.9 CDOT TYPE 2 |
| 2440 | 695722.80 | 1016164.20 | 7256.68 | I70 CM-MP 244.0 CDOT TYPE 2 |
| 2441 | 696196.59 | 1016883.93 | 7226.37 | I70 CM-MP 244.1 CDOT TYPE 2 |
| 2442 | 696711.00 | 1017524.49 | 7229.81 | I70 CM-MP 244.2 CDOT TYPE 2 |
| 2444 | 696210.65 | 1018250.05 | 7290.32 | I70 CM-MP 244.4 CDOT TYPE 2 |
| 2445 | 695605.25 | 1018851.93 | 7351.60 | I70 CM-MP 244.5 CDOT TYPE 2 |
| 2447 | 694859.23 | 1018951.95 | 7382.99 | I70 CM-MP 244.7 CDOT TYPE 2 |
| 2448 | 694304.56 | 1019366.64 | 7421.26 | I70 CM-MP 244.8 CDOT TYPE 2 |
| 2449 | 693674.29 | 1019263.08 | 7465.62 | I70 CM-MP 244.9 CDOT TYPE 2 |
| 2451 | 692785.26 | 1019826.61 | 7528.44 | I70 CM-MP 245.1 CDOT TYPE 2 |
| 2452 | 691900.73 | 1020482.90 | 7602.19 | I70 CM-MP 245.2 CDOT TYPE 2 |
| 2454 | 690862.55 | 1020762.20 | 7668.66 | I70 CM-MP 245.4 CDOT TYPE 2 |
| 2456 | 690251.07 | 1021591.55 | 7729.34 | I70 CM-MP 245.6 CDOT TYPE 2 |
| 2459 | 689075.86 | 1022405.27 | 7838.89 | I70 CM-MP 245.9 CDOT TYPE 2 |
| 2460 | 688831.88 | 1023224.80 | 7851.62 | RMCL 120 (NGS PID AA5198) |
| 2461 | 688514.68 | 1023569.33 | 7886.74 | I70 CM-MP 246.1 CDOT TYPE 2 |
| 2463 | 687906.83 | 1024215.42 | 7949.44 | I70 CM-MP 246.3 CDOT TYPE 2 |
| 2464 | 687917.32 | 1024996.62 | 7903.13 | I70 CM-MP 246.4 CDOT TYPE 2 |
| 2465 | 687266.89 | 1025294.56 | 7875.20 | I70 CM-MP 246.5 CDOT TYPE 2 |
| 2466 | 687669.53 | 1026069.22 | 7886.06 | I70 CM-MP 246.6 CDOT TYPE 2 |
| 2468 | 687387.15 | 1026795.51 | 7793.24 | I70 CM-MP 246.8 CDOT TYPE 2 |
| 2470 | 686871.09 | 1027824.03 | 7711.83 | I70 CM-MP 247.0 CDOT TYPE 2 |
| 2472 | 686153.14 | 1028685.07 | 7645.49 | I70 CM-MP 247.2 CDOT TYPE 2 |
| 2474 | 685671.50 | 1029644.58 | 7584.68 | I70 CM MP 247.4 CDOT TYPE 2 |
| 2476 | 685243.04 | 1030587.54 | 7562.85 | I70 CM MP 247.6 CDOT TYPE 2 |
| 2478 | 685724.79 | 1031384.00 | 7512.10 | I70 CM MP 247.8 CDOT TYPE 2 |
| 2571 | 701771.99 | 953044.85 | 8447.82 | US40 CM MP 257.1 CDOT TYPE 2 |
| 2573 | 701466.02 | 953843.46 | 8374.30 | US40 CM MP 257.3 CDOT TYPE 2 |
| 2575 | 701642.72 | 954895.81 | 8295.95 | US40 CM MP 257.5 CDOT TYPE 2 |
| 2576 | 701669.61 | 955527.74 | 8280.05 | US40 CM MP 257.6 CDOT TYPE 2 |
| E447 | 695414.59 | 1019452.93 | 7217.60 | BM E447 |
| G447 | 691847.64 | 1020712.44 | 7557.84 | BM G447 |
| J447 | 687739.80 | 1025454.10 | 7886.86 | BM J447 |
| L445 | 702924.17 | 960137.43 | 8178.89 | BM L445 |
| P445 | 702477.39 | 977900.57 | 7830.23 | BM P445 |
| R264 | 703477.09 | 971450.38 | 7948.76 | R 264 (NGS PID KK1151) |
| U445 | 686663.48 | 1035764.53 | 7313.86 | BM U445 |
| Y445 | 695723.10 | 1004210.83 | 7418.85 | BM Y445 |





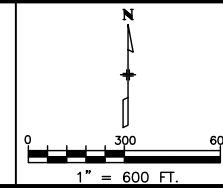
Region 1
 Address: 18500 E. Colfax Ave.
 Aurora, CO 80011
 Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

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INTERSTATE 70 (MP 230.8 TO MP 247.8)
 Sections 2, 3, 11 & 12, T. 4 S., R. 72 W., 6th PM and
 Sections 31, 32, 33, & 34, T. 3 S., R. 72 W., and
 Sections 19, 27, 28, 29, 30, 34, 35 & 36, T. 3 S., R. 73 W. and
 Sections 24, 25, 26, 27, & 34, T. 3 S., R. 74 W., 6th PM
CLEAR CREEK COUNTY, COLORADO



Control Survey Diagram

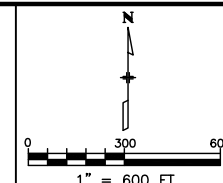
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| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | | |
| Project Code | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 3H | |



- LEGEND**
- ▲ INDICATES SURVEY CONTROL MONUMENT (MILE POST CORRESPONDS TO POINT NUMBER)
 - ⊙ INDICATES NGS HARN STATION
 - INDICATES BENCH MARK



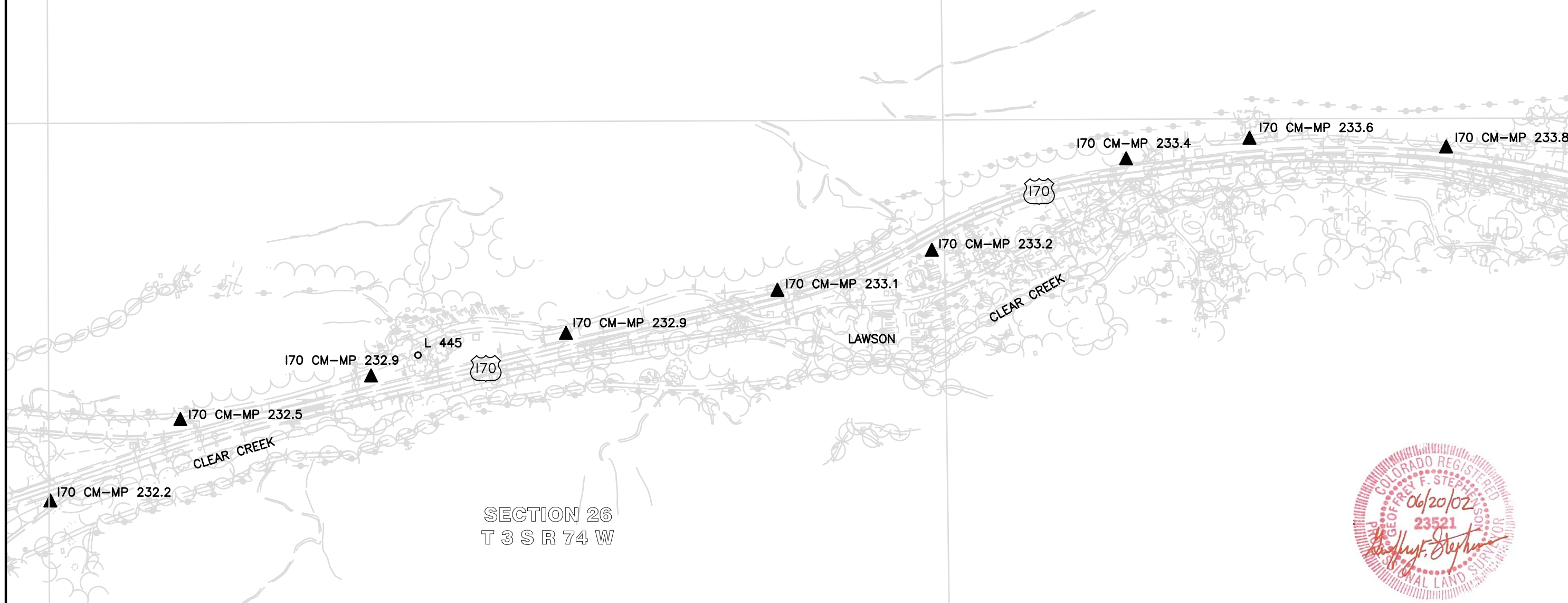
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| PLAN SHEET | | | | |
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| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | | |
| Project Code | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 31 | |

SECTION 23
T 3 S R 74 W

SECTION 26
T 3 S R 74 W



LEGEND

- ▲ INDICATES SURVEY CONTROL MONUMENT (MILE POST CORRESPONDS TO POINT NUMBER)
- ⊙ INDICATES NGS HARN STATION
- INDICATES BENCH MARK



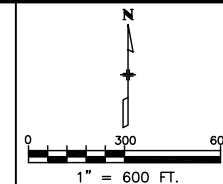
Region 1
 Address: 18500 E. Colfax Ave.
 Aurora, CO 80011
 Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

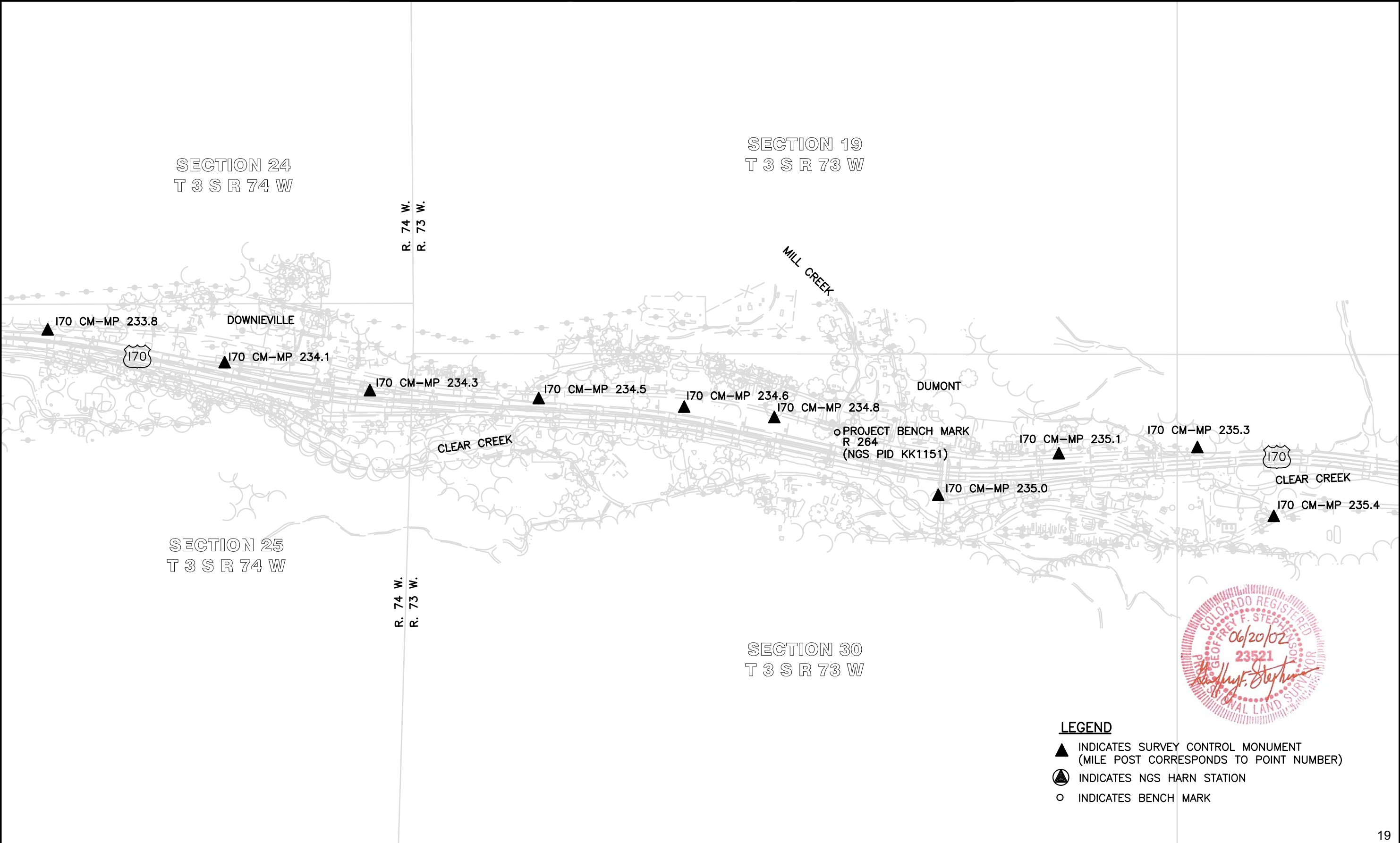
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INTERSTATE 70 (MP 230.8 TO MP 247.8)
 Sections 2, 3, 11 & 12, T. 4 S., R. 72 W., 6th PM and
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 Sections 24, 25, 26, 27, & 34, T. 3 S., R. 74 W., 6th PM
 CLEAR CREEK COUNTY, COLORADO



Control Survey Diagram

| PLAN SHEET | | | | |
|---|----------------|---------------|-----------|---------------------|
| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | | |
| Project Code | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 3J | |



LEGEND

- ▲ INDICATES SURVEY CONTROL MONUMENT (MILE POST CORRESPONDS TO POINT NUMBER)
- ⊙ INDICATES NGS HARN STATION
- INDICATES BENCH MARK



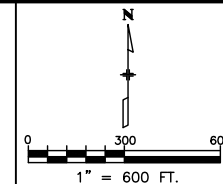
Region 1
 Address: 18500 E. Colfax Ave.
 Aurora, CO 80011
 Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

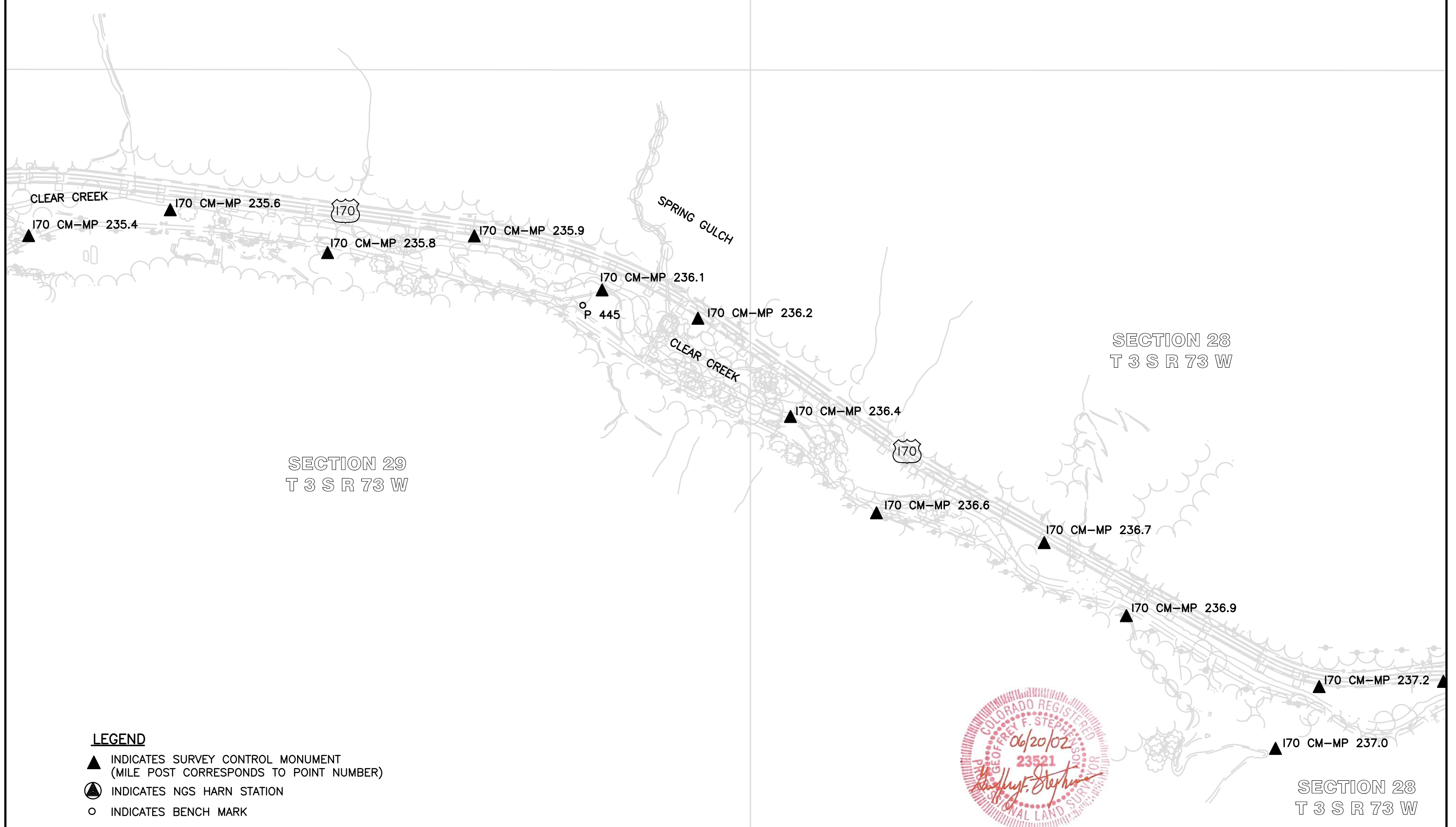
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INTERSTATE 70 (MP 230.8 TO MP 247.8)
 Sections 2, 3, 11 & 12, T. 4 S., R. 72 W., 6th PM and
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 CLEAR CREEK COUNTY, COLORADO



Control Survey Diagram

| PLAN SHEET | | | | |
|---|----------------|---------------|-----------|---------------------|
| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | | |
| Project Code | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 3K | |



LEGEND

- ▲ INDICATES SURVEY CONTROL MONUMENT (MILE POST CORRESPONDS TO POINT NUMBER)
- ⊙ INDICATES NGS HARN STATION
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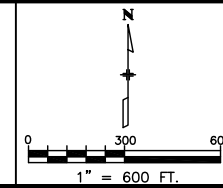
Region 1
 Address: 18500 E. Colfax Ave.
 Aurora, CO 80011
 Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

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INTERSTATE 70 (MP 230.8 TO MP 247.8)
 Sections 2, 3, 11 & 12, T. 4 S., R. 72 W., 6th PM and
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 Sections 24, 25, 26, 27, & 34, T. 3 S., R. 74 W., 6th PM
 CLEAR CREEK COUNTY, COLORADO



Control Survey Diagram

| PLAN SHEET | | | | |
|---|----------------|---------------|-----------|---------------------|
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| 12691 | June 20, 2002 | of | 3L | |



LEGEND

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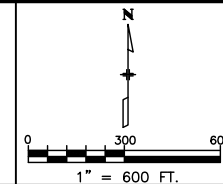
Region 1
 Address: 18500 E. Colfax Ave.
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Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

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INTERSTATE 70 (MP 230.8 TO MP 247.8)
 Sections 2, 3, 11 & 12, T. 4 S., R. 72 W., 6th PM and
 Sections 31, 32, 33, & 34, T. 3 S., R. 72 W., and
 Sections 19, 27, 28, 29, 30, 34, 35 & 36, T. 3 S., R. 73 W. and
 Sections 24, 25, 26, 27, & 34, T. 3 S., R. 74 W., 6th PM
 CLEAR CREEK COUNTY, COLORADO



Control Survey Diagram

| PLAN SHEET | | | | |
|---|----------------|---------------|-----------|---------------------|
| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | | |
| Project Code | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 3M | |



T. 3 S.
 T. 4 S.

LEGEND

- ▲ INDICATES SURVEY CONTROL MONUMENT
(MILE POST CORRESPONDS TO POINT NUMBER)
- INDICATES NGS HARN STATION
- INDICATES BENCH MARK





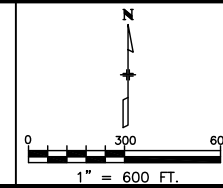
Region 1
 Address: 18500 E. Colfax Ave.
 Aurora, CO 80011
 Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

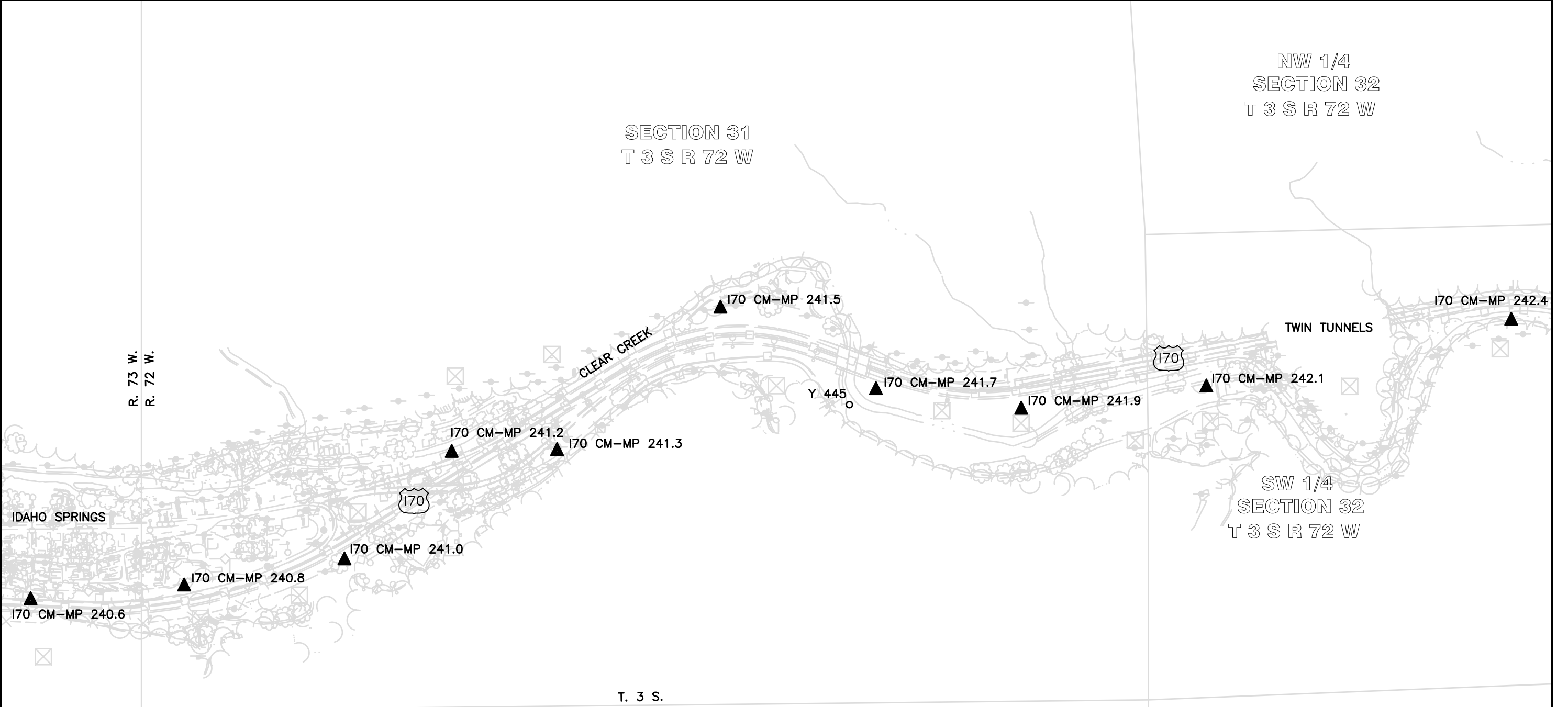
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INTERSTATE 70 (MP 230.8 TO MP 247.8)
 Sections 2, 3, 11 & 12, T. 4 S., R. 72 W., 6th PM and
 Sections 31, 32, 33, & 34, T. 3 S., R. 72 W., and
 Sections 19, 27, 28, 29, 30, 34, 35 & 36, T. 3 S., R. 73 W. and
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 CLEAR CREEK COUNTY, COLORADO



Control Survey Diagram

| PLAN SHEET | | | | |
|---|----------------|---------------|-----------|---------------------|
| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | | |
| Project Code: | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 3N | |



R. 73 W.
R. 72 W.

SECTION 31
T 3 S R 72 W

NW 1/4
SECTION 32
T 3 S R 72 W

SW 1/4
SECTION 32
T 3 S R 72 W

T. 3 S.
T. 4 S.

LEGEND

- ▲ INDICATES SURVEY CONTROL MONUMENT (MILE POST CORRESPONDS TO POINT NUMBER)
- ⊙ INDICATES NGS HARN STATION
- INDICATES BENCH MARK

R. 73 W.
R. 72 W.





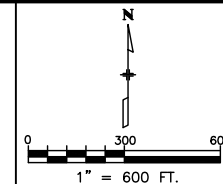
Region 1
Address: 18500 E. Colfax Ave.
Aurora, CO 80011
Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

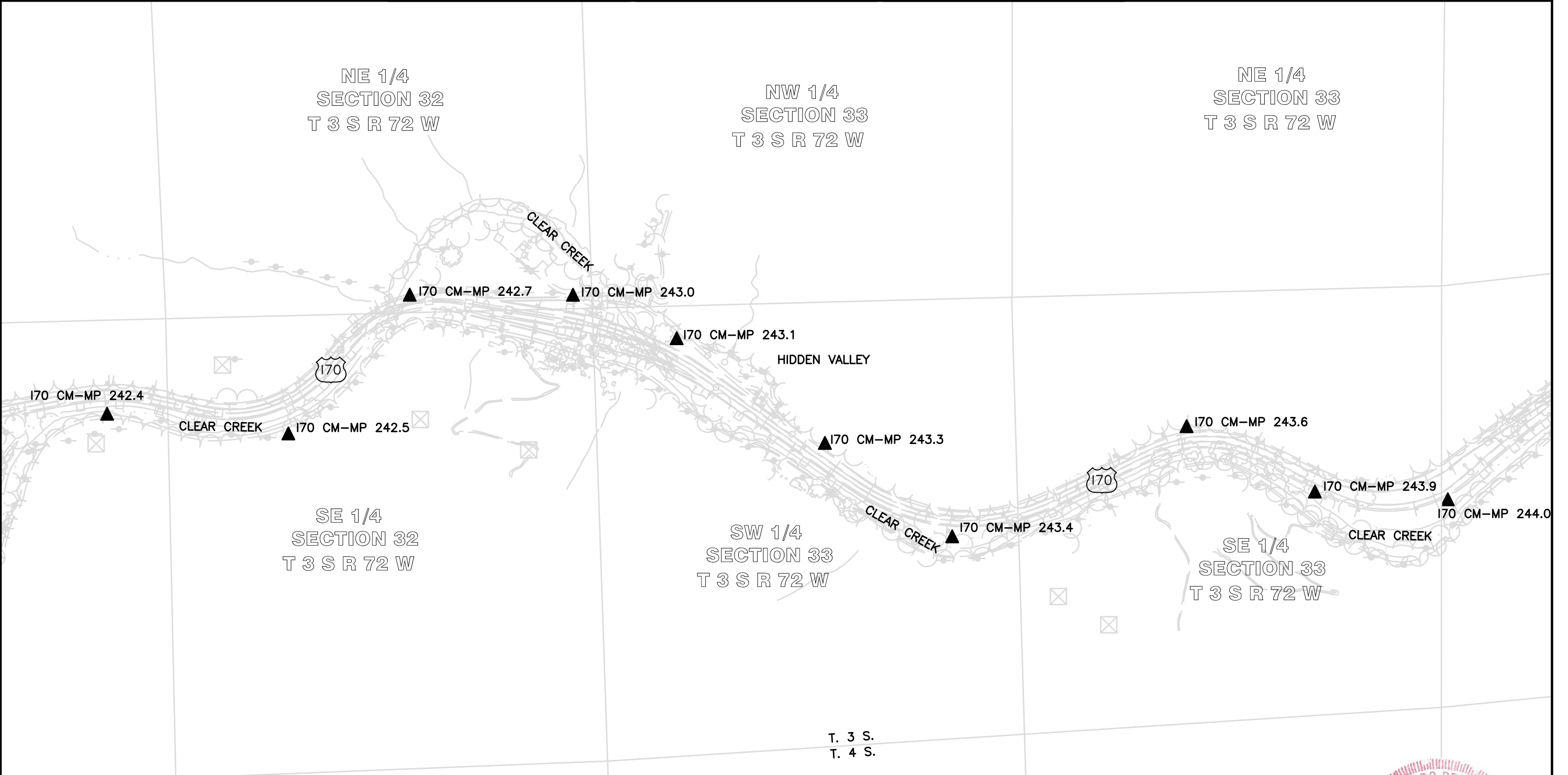
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INTERSTATE 70 (MP 230.8 TO MP 247.8)
Sections 2, 3, 11 & 12, T. 4 S., R. 72 W., 6th PM and
Sections 31, 32, 33, & 34, T. 3 S., R. 72 W., and
Sections 19, 27, 28, 29, 30, 34, 35 & 36, T. 3 S., R. 73 W. and
Sections 24, 25, 26, 27, & 34, T. 3 S., R. 74 W., 6th PM
CLEAR CREEK COUNTY, COLORADO



Control Survey Diagram

| PLAN SHEET | | | | |
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| Project Code | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 30 | |



LEGEND

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- ⊙ INDICATES NGS HARN STATION
- INDICATES BENCH MARK





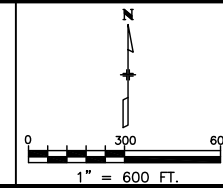
Region 1
 Address: 18500 E. Colfax Ave.
 Aurora, CO 80011
 Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

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INTERSTATE 70 (MP 230.8 TO MP 247.8)
 Sections 2, 3, 11 & 12, T. 4 S., R. 72 W., 6th PM and
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 Sections 24, 25, 26, 27, & 34, T. 3 S., R. 74 W., 6th PM
 CLEAR CREEK COUNTY, COLORADO



Control Survey Diagram

PLAN SHEET

| | | | | |
|---|----------------|---------------|-----------|---------------------|
| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | | |
| Project Code: | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 3P | |



LEGEND

- ▲ INDICATES SURVEY CONTROL MONUMENT (MILE POST CORRESPONDS TO POINT NUMBER)
- ⊙ INDICATES NGS HARN STATION
- INDICATES BENCH MARK



NW 1/4
 SECTION 2
 T 4 S R 72 W



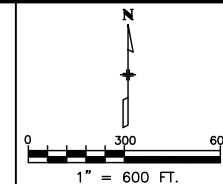
Region 1
 Address: 18500 E. Colfax Ave.
 Aurora, CO 80011
 Phone: (303) 757-9744 FAX: (303) 757-9746

Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

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INTERSTATE 70 (MP 230.8 TO MP 247.8)
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 CLEAR CREEK COUNTY, COLORADO



Control Survey Diagram

PLAN SHEET

| | | | | |
|---|----------------|---------------|-----------|---------------------|
| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | | |
| Project Code: | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 30 | |

NW 1/4
 SECTION 3
 T 4 S R 72 W

NE 1/4
 SECTION 3
 T 4 S R 72 W

NW 1/4
 SECTION 2
 T 4 S R 72 W

SE 1/4
 SECTION 3
 T 4 S R 72 W

SW 1/4
 SECTION 2
 T 4 S R 72 W



SE 1/4
 SECTION 2
 T 4 S R 72 W

LEGEND

- ▲ INDICATES SURVEY CONTROL MONUMENT (MILE POST CORRESPONDS TO POINT NUMBER)
- ⊙ INDICATES NGS HARN STATION
- INDICATES BENCH MARK

RMCL 120
 NGS PID AA5198
 MP 246.0



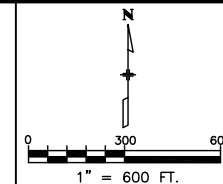
Region 1
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Survey Unit: Joseph P. Conway, PLS

Sheet Revisions

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INTERSTATE 70 (MP 230.8 TO MP 247.8)
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 CLEAR CREEK COUNTY, COLORADO



Control Survey Diagram

| PLAN SHEET | | | | |
|---|----------------|---------------|-----------|---------------------|
| Project Number: IM 0703-244 (SEGMENTS 1-5) | | | | |
| Project Location: I 70 (MP 230.8 to MP 247.8) | | | | |
| Project Location: Empire Jct. - Jefferson County Line | | | | |
| Project Code | Last Mod. Date | Subset Sheets | Sheet No. | Total No. of Sheets |
| 12691 | June 20, 2002 | of | 3R | |



NOTE:
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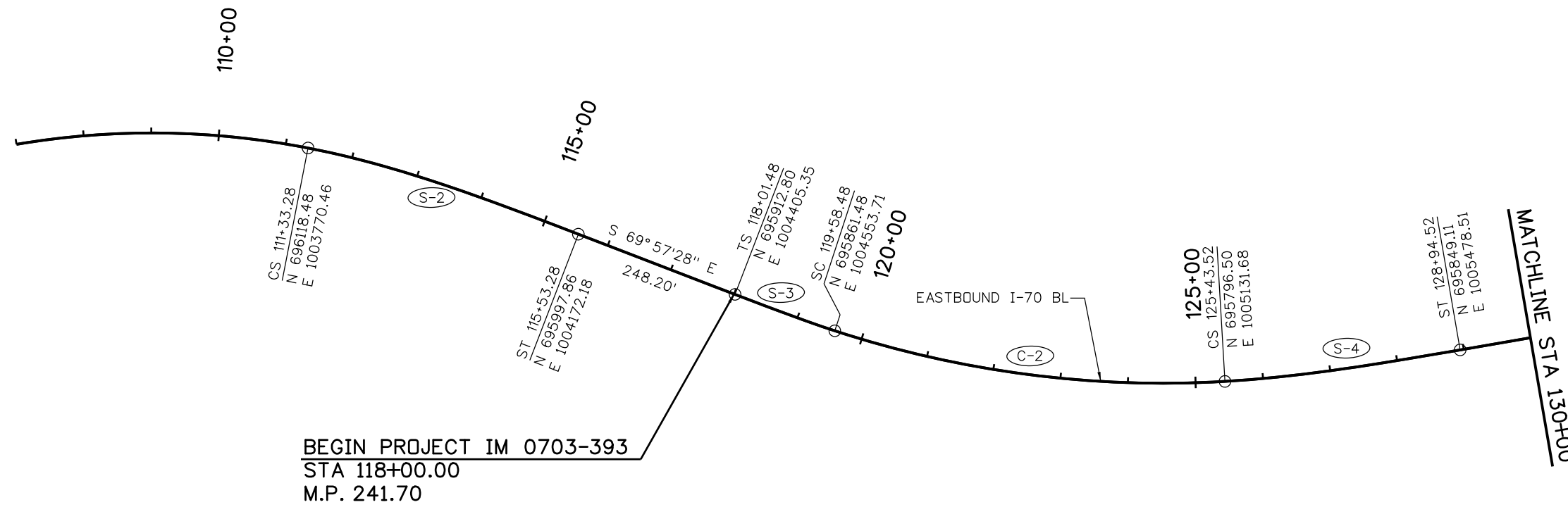
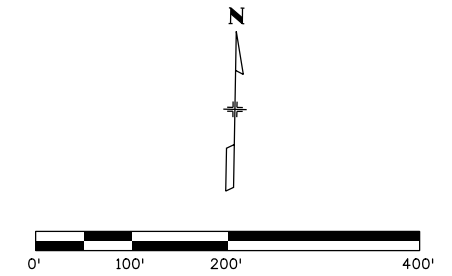
LEGEND

- ▲ INDICATES SURVEY CONTROL MONUMENT (MILE POST CORRESPONDS TO POINT NUMBER)
- ⊙ INDICATES NGS HARN STATION
- INDICATES BENCH MARK



CURVE/SPIRAL TABLE

| NUMBER | TYPE | DELTA/THETA | TANGENT | L TAN | S TAN | LENGTH | RADIUS | e (%) | PI STATION | PI NORTHING | PI EASTING |
|--------|--------|-------------|---------|---------|---------|---------|----------|-------|------------|-------------|------------|
| S-2 | SPIRAL | 9° 59'36" | | 280.45' | 140.41' | 420.00' | | - | 112+73.69 | 696093.98 | 1003908.72 |
| S-3 | SPIRAL | 2° 52'59" | | 104.68' | 52.35' | 157.00' | | - | 119+06.16 | 695876.93 | 1004503.69 |
| C-2 | CURVE | 21° 29'14" | 296.00' | - | - | 585.04' | 1560.00' | - | 122+54.48 | 695774.16 | 1004836.53 |
| S-4 | SPIRAL | 6° 26'45" | | 234.16' | 117.14' | 351.00' | | - | 126+60.66 | 695805.34 | 1005248.49 |

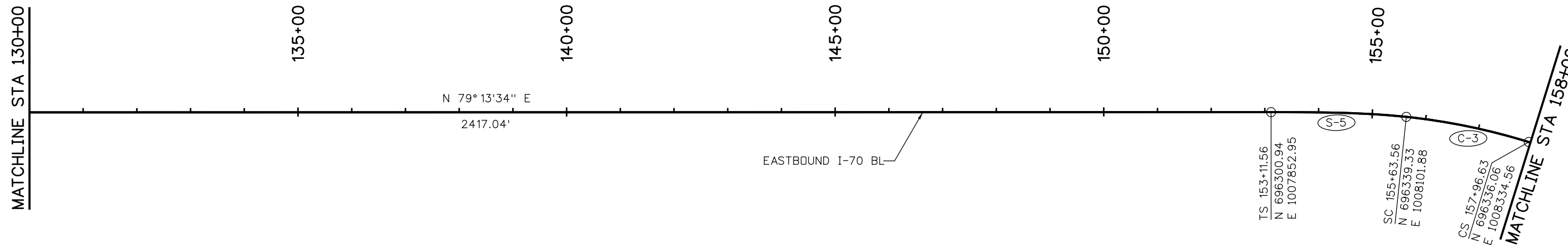
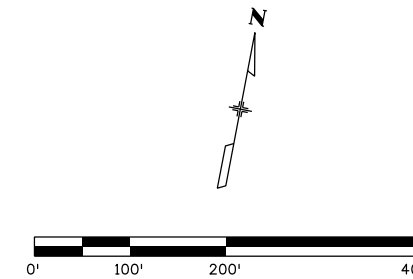


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| Print Date: 9/6/2012 | 0000 | Sheet Revisions | Colorado Department of Transportation | | As Constructed | EASTBOUND I-70 GEOMETRIC LAYOUT STA 107+00 TO 130+00 | | Project No./Code |
| File Name: 18832DES_WBTR_Geolay001.dgn | | Date: | Comments | Init. | No Revisions: | Designer: EJM Structure Detailer: JAG Numbers | | IM 0703-393 |
| Horiz. Scale: 1:200 Vert. Scale: | | | | | Revised: | | | 19038 |
| ATKINS 4601 DTC Boulevard, Suite 700 Denver, CO 80237 Phone: (303) 221-7275 Fax: (303) 221-7276 | | | | 425 A Corporate Circle Golden, CO 80401 Phone: 720-497-6918 FAX: 720-497-6901 Region 1 | Void: | Subset: GEOM Subset Sheets: 1 of 4 | Sheet Number 28 | |


CURVE/SPIRAL TABLE

| NUMBER | TYPE | DELTA/THETA | TANGENT | L TAN | S TAN | LENGTH | RADIUS | e (%) | PI STATION | PI NORTHING | PI EASTING |
|--------|--------|-------------|---------|---------|--------|---------|----------|-------|------------|-------------|------------|
| S-5 | SPIRAL | 6° 00' 58" | | 168.10' | 84.09' | 252.00' | | - | 154+79.66 | 696332.36 | 1008018.09 |
| C-3 | CURVE | 11° 07' 41" | 116.90' | - | - | 233.06' | 1200.00' | - | 156+80.46 | 696349.03 | 1008218.38 |



Print Date: 9/6/2012
 File Name: 18832DES_WBTR_Geolay002.dgn
 Horiz. Scale: 1:200 Vert. Scale:
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 Denver, CO 80237
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| Sheet Revisions | | |
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| Date: | Comments | Init. |
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Colorado Department of Transportation

 425 A Corporate Circle
 Golden, CO 80401
 Phone: 720-497-6918 FAX: 720-497-6901
Region 1 **CRC**

| As Constructed |
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| No Revisions: |
| Revised: |
| Void: |

**EASTBOUND I-70
 GEOMETRIC LAYOUT
 STA 130+00 TO 158+00**

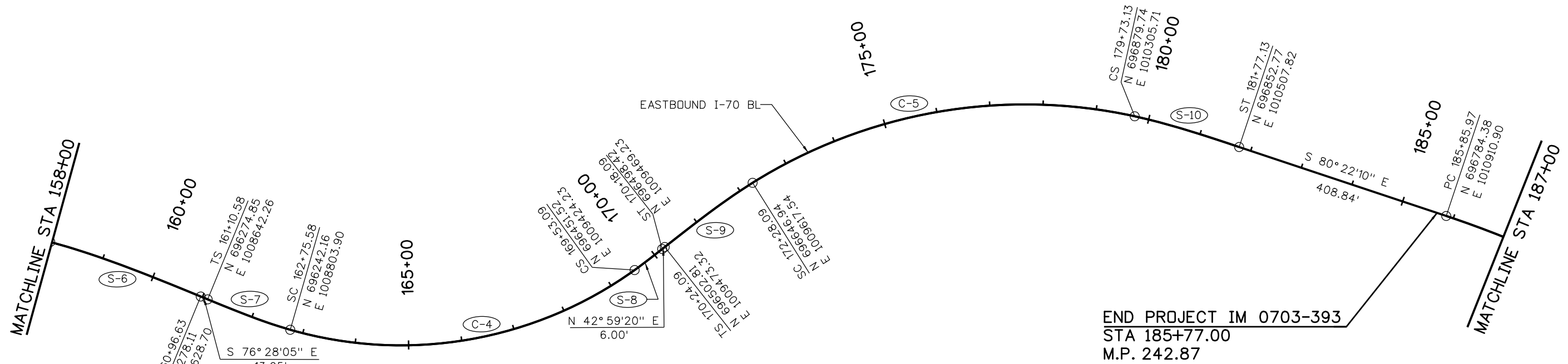
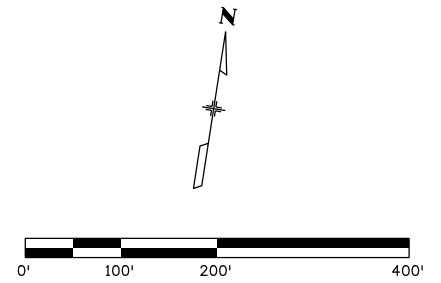
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| Designer: EJM | Structure Numbers |
| Detailer: JAG | |
| Subset: GEOM | Subset Sheets: 2 of 4 |

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| Project No./Code |
| IM 0703-393 |
| 19038 |
| Sheet Number 29 |

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CURVE/SPIRAL TABLE

| NUMBER | TYPE | DELTA/THETA | TANGENT | L TAN | S TAN | LENGTH | RADIUS | e (%) | PI STATION | PI NORTHING | PI EASTING |
|--------|--------|-------------|---------|---------|---------|---------|---------|-------|------------|-------------|------------|
| S-6 | SPIRAL | 7° 09' 43" | | 200.16' | 100.15' | 300.00' | | - | 158+96.78 | 696324.95 | 1008434.09 |
| S-7 | SPIRAL | 6° 18' 09" | | 110.07' | 55.06' | 165.00' | | - | 162+20.65 | 696249.09 | 1008749.27 |
| C-4 | CURVE | 51° 45' 28" | 363.84' | - | - | 677.51' | 750.00' | - | 166+39.42 | 696196.38 | 1009164.85 |
| S-8 | SPIRAL | 2° 28' 58" | | 43.34' | 21.67' | 65.00' | | - | 169+74.76 | 696466.72 | 1009439.68 |
| S-9 | SPIRAL | 6° 05' 16" | | 136.08' | 68.07' | 204.00' | | - | 171+60.17 | 696602.35 | 1009566.11 |
| C-5 | CURVE | 44° 27' 59" | 392.42' | - | - | 745.04' | 960.00' | - | 176+20.50 | 696903.99 | 1009914.05 |
| S-10 | SPIRAL | 6° 05' 16" | | 136.08' | 68.07' | 204.00' | | - | 180+41.20 | 696875.54 | 1010373.66 |

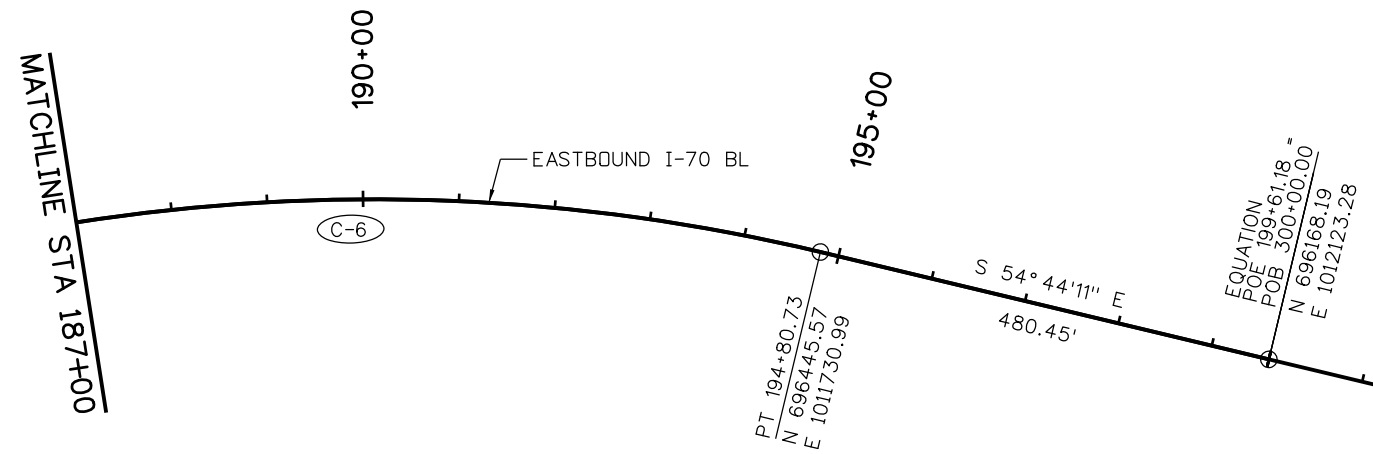
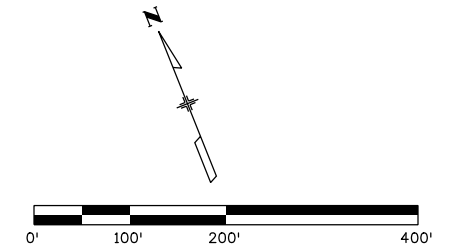


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| Print Date: 9/6/2012 | | Sheet Revisions | Colorado Department of Transportation | As Constructed | EASTBOUND I-70 GEOMETRIC LAYOUT STA 158+00 TO 187+00 | Project No./Code |
| File Name: 18832DES_WBTR_Geolay003.dgn | | Date: Comments Init. | 425 A Corporate Circle Golden, CO 80401 Phone: 720-497-6918 FAX: 720-497-6901 | No Revisions: | Designer: EJM Structure | IM 0703-393 |
| Horiz. Scale: 1:200 Vert. Scale: | 0000 | | Region 1 CRC | Revised: | Detailer: JAG Numbers | 19038 |
| ATKINS 4601 DTC Boulevard, Suite 700 Denver, CO 80237 Phone: (303) 221-7275 Fax: (303) 221-7276 | | | | Void: | Subset: GEOM Subset Sheets: 3 of 4 | Sheet Number 30 |

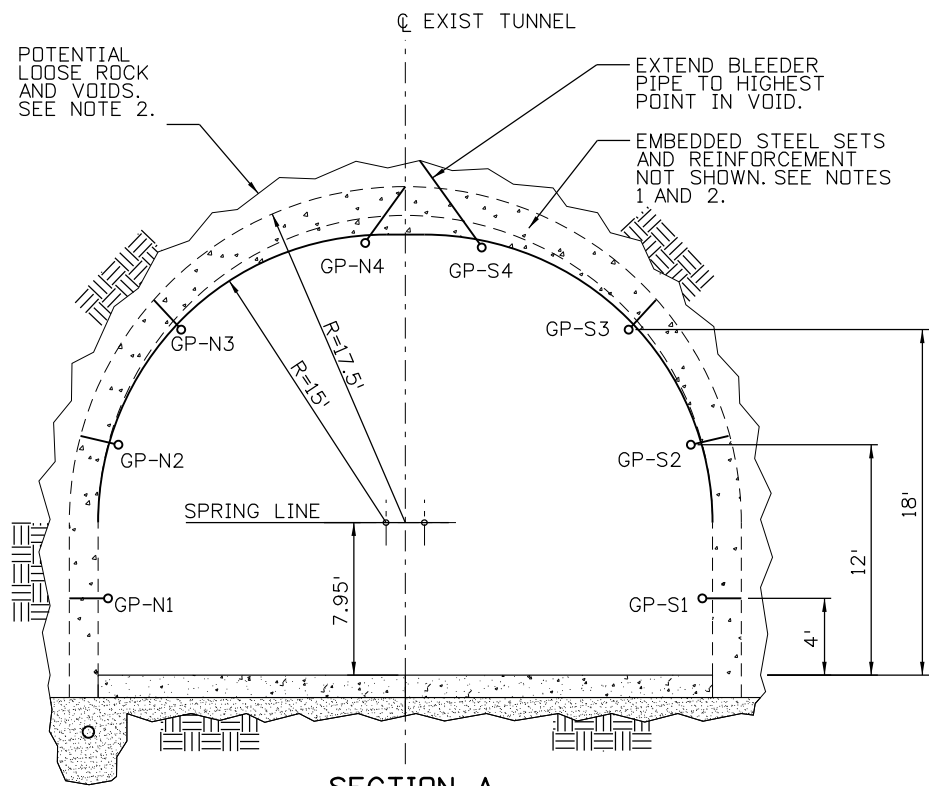
CURVE/SPIRAL TABLE

| NUMBER | TYPE | DELTA/ THETA | TANGENT | L TAN | S TAN | LENGTH | RADIUS | e (%) | PI STATION | PI NORTHING | PI EASTING |
|--------|-------|-----------------|---------|-------|-------|---------|----------|-------|------------|-------------|------------|
| C-6 | CURVE | 25° 37'59" | 454.99' | - | - | 894.76' | 2000.00' | - | 190+40.96 | 696708.26 | 1011359.48 |

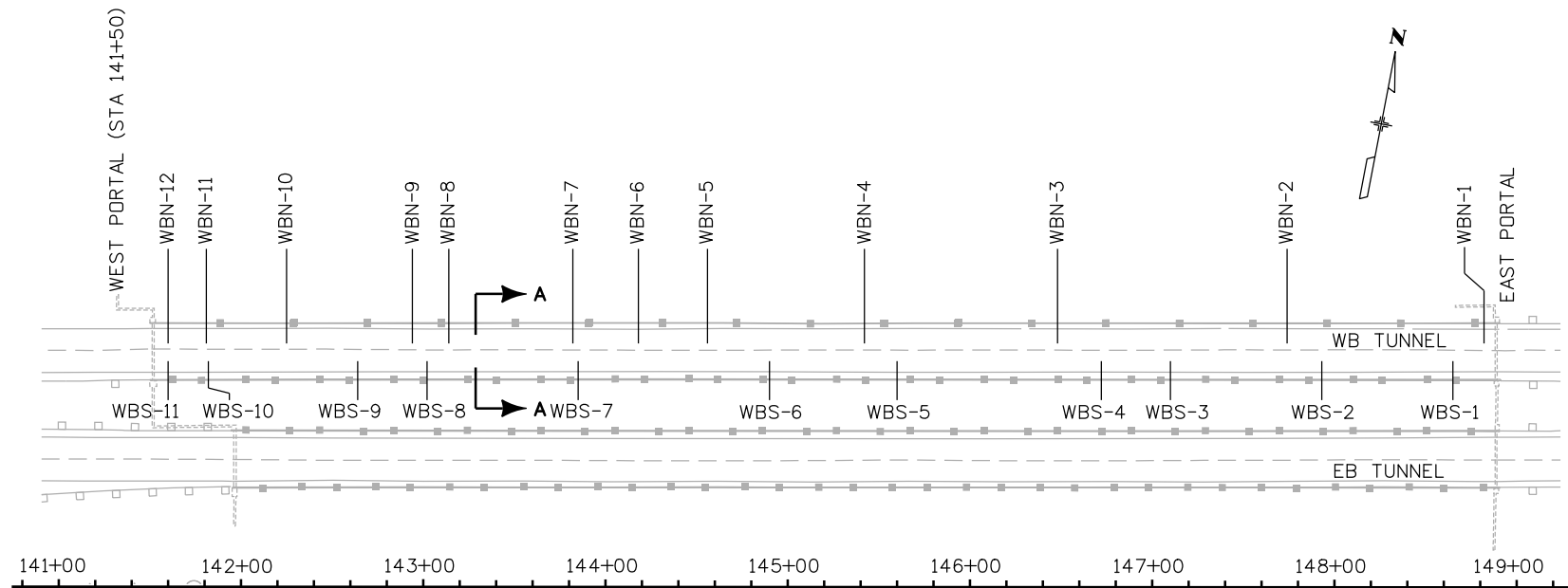


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| Print Date: 9/7/2012 | 0000 | Sheet Revisions | | | Colorado Department of Transportation  425 A Corporate Circle Golden, CO 80401 Phone: 720-497-6918 FAX: 720-497-6901 Region 1 CRC | As Constructed | | EASTBOUND I-70 GEOMETRIC LAYOUT STA 187+00 TO 199+61 | | Project No./Code | |
| File Name: 18832DES_WBTR_Geolay004.dgn | | Date: | Comments | Init. | | No Revisions: | IM 0703-393 | | | | |
| Horiz. Scale: 1:200 Vert. Scale: | | | | | | Revised: | Designer: EJM | Structure Numbers | 19038 | | |
| ATKINS 4601 DTC Boulevard, Suite 700 Denver, CO 80237 Phone: (303) 221-7275 Fax: (303) 221-7276 | | | | | Void: | Detailer: JAG | Subset Sheets: 4 of 4 | Sheet Number 31 | | | |
| | | | | | | Subset: GEOM | | | | | |



SECTION A
WB TUNNEL GROUT POSITIONS



PLAN
GROUT STATION LOCATIONS

NOTES:

1. DRILLED HOLES MAY ENCOUNTER STEEL ELEMENTS EMBEDDED IN THE LINING AND ROCK INCLUDING STEEL RIBS, STEEL ANGLES USED AS COLLAR BRACES BETWEEN RIBS, AND ROCK BOLTS. SEE REFERENCE AS-BUILT DRAWINGS FOR PROJECT I-70-3(2)251. AS-BUILT SHEET 2 INDICATES 10" X 8" WF 39 LB/FT STEEL SETS ON 4FT CENTERS WITH 4" ANGLE SPREADERS AT 6' MAX SPACING. LONGITUDINAL REINFORCEMENT #5 @ 18" TRANSVERSE REINFORCEMENT #6 @ 8"
2. RECOMMENDED GROUT STATIONS AND GROUT POSITIONS INDICATED HERE ARE BASED ON LIKELY VOID LOCATIONS AND STEEL SET LOCATIONS IDENTIFIED USING GROUND PENETRATING RADAR (GRP) AND IMPACT ECHO METHODS AS REPORTED IN "NONDESTRUCTIVE EVALUATION INVESTIGATION, IMPACT ECHO AND GROUND PENETRATING RADAR EVALUATION, I-70 TWIN TUNNELS INVESTIGATION, IDAHO SPRINGS, COLORADO," PREPARED BY DLSON ENGINEERING FOR YEH ASSOCIATES, INC., JUNE 28, 2012.
3. WHERE BACKFILL GROUT LOCATIONS COINCIDE WITH FORMATION GROUT PIPES, SAME HOLES MAY BE USED FOR BOTH PURPOSES.
4. CONTRACTOR SHALL MEASURE AND RECORD AS-BUILT THICKNESS OF TUNNEL LINING AND DEPTH OF VOID IN DIRECTION OF HOLE DRILLED AT EACH GROUT POSITION. SEE SHEET 3 OF 4.

| TABULATION OF GROUTING ITEMS | | | |
|------------------------------|----------------------------------|------|-----|
| ITEM | DESCRIPTION | UNT | QTY |
| 211 | 2 INCH CORE DRILLED HOLE (VOIDS) | EACH | 79 |
| 211 | 2 INCH DRILLED HOLE (FORMATION) | EACH | 10 |
| 211 | CEMENT GROUT (VOIDS) | CY | 700 |
| 211 | CEMENT GROUT (FORMATION) | CY | 70 |
| 211 | PATCH EXISTING DRILL HOLE | EACH | 115 |
| 211 | DRAIN SYSTEM FLUSHING (SETUP) | EACH | 2 |
| 211 | DRAIN SYSTEM FLUSHING | DAYS | 17 |
| 601 | DRILLED HOLE | EACH | 115 |

| WB TUNNEL - SOUTH SIDEWALL | | | GROUT POSITION (SEE NOTE 4) | | | |
|----------------------------|---|-----------------|-----------------------------|----|----|----|
| GROUT STATION (SEE NOTE 3) | DISTANCE TO WEST PORTAL OF WB TUNNEL (FEET) | LOCATION (STA.) | S1 | S2 | S3 | S4 |
| WBS-1 | 715 | 148+65 | ● | ● | | ○ |
| WBS-2 | 643 | 147+93 | ● | ● | ● | ○ |
| WBS-3 | 560 | 147+10 | | ● | ● | ○ |
| WBS-4 | 522 | 146+72 | ● | ● | ● | ○ |
| WBS-5 | 410 | 145+60 | ● | ● | | ○ |
| WBS-6 | 340 | 144+90 | ● | ● | | ○ |
| WBS-7 | 235 | 143+85 | ● | ● | ● | ○ |
| WBS-8 | 152 | 143+02 | ● | ● | | ○ |
| WBS-9 | 114 | 142+64 | ● | ● | | ○ |
| WBS-10 | 32 | 141+82 | ● | ● | ● | ○ |
| WBS-11 | 10 | 141+60 | | | ● | ○ |

| WB TUNNEL - NORTH SIDEWALL | | | GROUT POSITION (SEE NOTE 4) | | | |
|----------------------------|---|-----------------|-----------------------------|----|----|----|
| GROUT STATION (SEE NOTE 3) | DISTANCE TO WEST PORTAL OF WB TUNNEL (FEET) | LOCATION (STA.) | N1 | N2 | N3 | N4 |
| WBN-1 | 732 | 148+82 | | | ● | ● |
| WBN-2 | 624 | 147+74 | ● | ● | ● | ● |
| WBN-3 | 498 | 146+48 | ● | ● | ● | ● |
| WBN-4 | 392 | 145+42 | ● | ● | | ● |
| WBN-5 | 306 | 144+56 | | ● | ● | ● |
| WBN-6 | 268 | 144+18 | ● | ● | ● | |
| WBN-7 | 232 | 143+82 | ● | ● | ● | ● |
| WBN-8 | 164 | 143+14 | ● | ● | ● | ● |
| WBN-9 | 144 | 142+94 | | ● | ● | |
| WBN-10 | 75 | 142+25 | ● | ● | ● | ● |
| WBN-11 | 31 | 141+81 | ● | ● | ● | |
| WBN-12 | 10 | 141+60 | | ● | ● | ● |

LEGEND:

- DRILL AND INJECT GROUT
- DRILL AND MONITOR FOR GROUT RETURN

| | |
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| Revision Dates (Preliminary Stage Only) | |
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|------------|------------|------------|------------|
| Quantities | | Detail | |
| INITIAL | DATE | INITIAL | DATE |
| LA | 09-04-12 | MEF | 09-06-12 |
| Checked By | Checked By | Checked By | Checked By |
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Print Date: 9/6/2012
 File Name: 19038 WB TUNNEL REPAIR.dgn
 Horiz. Scale: 1:1 Vert. Scale: N/A
 Unit Information Unit Leader Initials

ATKINS **PARSONS BRINCKERHOFF**

| Sheet Revisions | | |
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| Date: | Comments | Init. |
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Colorado Department of Transportation

Region 1 **CRC**

425 A Corporate Circle
 Golden, CO 80401
 Phone: 720-497-6918 FAX: 720-497-6901

| |
|-----------------------|
| As Constructed |
| No Revisions: |
| Revised: |
| Void: |

I-70 TWIN TUNNELS
ROCKFALL/LINING VOID REPAIR
WB TUNNEL

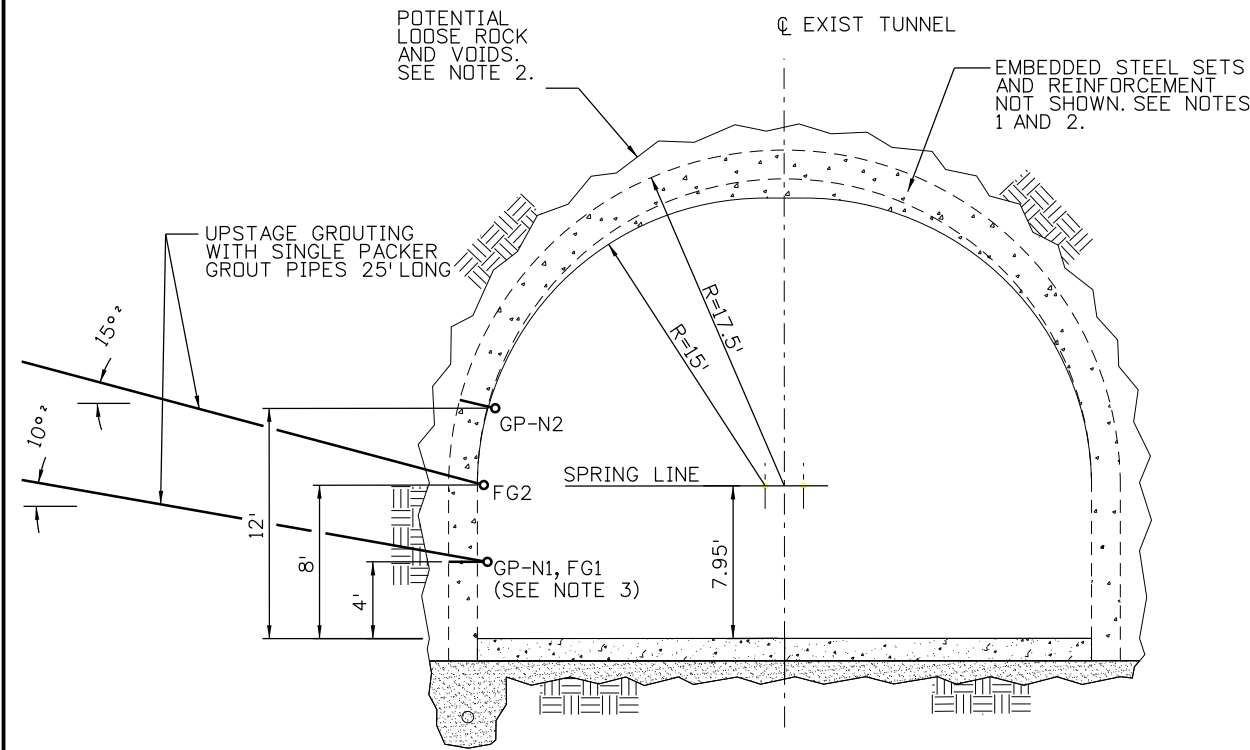
Designer: M. FOWLER Structure STR F-17-BD
 Detailer: D. GATTSHALL Numbers
 Subset: TUNNEL CP 0 Subset Sheets: 1 of 4

| |
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| Project No./Code |
| C 0703-393 |
| 19038 |
| Sheet Number 32 |

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|------------|----------|---------|---------------|----------|---------|---------------|
| Design | DATE | INITIAL | DESIGNED BY | DATE | INITIAL | DESIGNED BY |
| Checked By | 09-04-12 | MF | Checked By | 09-04-12 | LA | Checked By |
| Detail | DATE | INITIAL | DETAILED BY | DATE | INITIAL | DETAILED BY |
| Checked By | 09-06-12 | DSM | Checked By | 09-06-12 | MEF | Checked By |
| Quantities | DATE | INITIAL | QUANTITIES BY | DATE | INITIAL | QUANTITIES BY |
| Checked By | 09-06-12 | DSM | Checked By | 09-06-12 | MEF | Checked By |

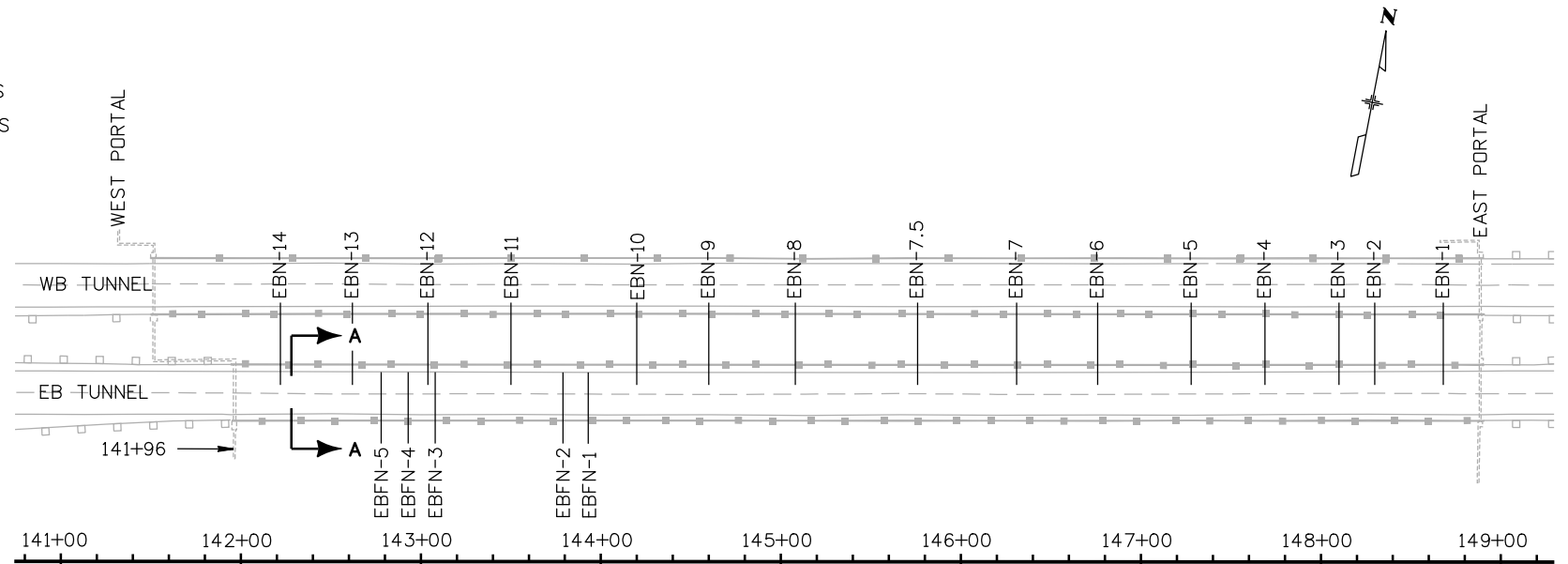
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| Revision Dates | (Preliminary Stage Only) |
|----------------|--------------------------|



SECTION A
EB TUNNEL GROUT POSITIONS

NOTES:

- DRILLED HOLES MAY ENCOUNTER STEEL ELEMENTS EMBEDDED IN THE LINING AND ROCK INCLUDING STEEL RIBS, STEEL ANGLES USED AS COLLAR BRACES BETWEEN RIBS, AND ROCK BOLTS. SEE REFERENCE AS-BUILT DRAWINGS FOR PROJECT I-70-3(2)251. AS-BUILT SHEET 2 INDICATES 10" X 8" WF 39 LB/FT STEEL SETS ON 4FT CENTERS WITH 4" ANGLE SPREADERS AT 6' MAX SPACING. LONGITUDINAL REINFORCEMENT #5 @ 18" TRANSVERSE REINFORCEMENT #6 @ 8"
- RECOMMENDED GROUT STATIONS AND GROUT POSITIONS INDICATED HERE ARE BASED ON LIKELY VOID LOCATIONS AND STEEL SET LOCATIONS IDENTIFIED USING GROUND PENETRATING RADAR (GRP) AND IMPACT ECHO METHODS AS REPORTED IN "NONDESTRUCTIVE EVALUATION INVESTIGATION, IMPACT ECHO AND GROUND PENETRATING RADAR EVALUATION, I-70 TWIN TUNNELS INVESTIGATION, IDAHO SPRINGS, COLORADO," PREPARED BY OLSON ENGINEERING FOR YEH ASSOCIATES, INC., JUNE 28, 2012.
- WHERE BACKFILL GROUT LOCATIONS COINCIDE WITH FORMATION GROUT PIPES, SAME HOLES MAY BE USED FOR BOTH PURPOSES.
- CONTRACTOR SHALL MEASURE AND RECORD AS-BUILT THICKNESS OF TUNNEL LINING AND DEPTH OF VOID IN DIRECTION OF HOLE DRILLED AT EACH GROUT POSITION. SEE SHEET 4 OF 4.



PLAN
GROUT STATION LOCATIONS

| GROUT STATION | DISTANCE TO WEST PORTAL OF EB TUNNEL (FEET) | LOCATION (STA.) | GROUT POSITION (SEE NOTE 4) | |
|---------------|---|-----------------|-----------------------------|----|
| | | | N1 | N2 |
| EBN-1 | 672 | 148+68 | ● | ○ |
| EBN-2 | 634 | 148+30 | ● | ○ |
| EBN-3 | 614 | 148+10 | ● | ○ |
| EBN-4 | 573 | 147+69 | ● | ○ |
| EBN-5 | 532 | 147+28 | ● | ○ |
| EBN-6 | 480 | 146+76 | ● | ○ |
| EBN-7 | 435 | 146+31 | ● | ○ |
| EBN-7.5 | 380 | 145+76 | ● | ○ |
| EBN-8 | 312 | 145+08 | ● | ○ |
| EBN-9 | 264 | 144+60 | ● | ○ |
| EBN-10 | 224 | 144+20 | ● | ○ |
| EBN-11 | 154 | 143+50 | ● | ○ |
| EBN-12 | 108 | 143+04 | ● | ○ |
| EBN-13 | 66 | 142+62 | ● | ○ |
| EBN-14 | 26 | 142+22 | ● | ○ |

| GROUT STATION | DISTANCE TO WEST PORTAL OF EB TUNNEL (FEET) | LOCATION (STA.) | GROUT POSITION | |
|---------------|---|-----------------|----------------|-----|
| | | | FG1 | FG2 |
| EBFN-1 | 197 | 143+93 | ● | ● |
| EBFN-2 | 183 | 143+79 | ● | ● |
| EBFN-3 | 112 | 143+08 | ● | ● |
| EBFN-4 | 97 | 142+93 | ● | ● |
| EBFN-5 | 82 | 142+78 | ● | ● |

LEGEND:

- DRILL AND INJECT GROUT
- DRILL AND MONITOR FOR GROUT RETURN

Print Date: 9/6/2012
 File Name: 19038 EB TUNNEL REPAIR.dgn
 Horiz. Scale: 1:1 Vert. Scale: N/A
 Unit Information Unit Leader Initials

ATKINS **PARSONS BRINCKERHOFF**

| Sheet Revisions | | |
|-----------------|----------|-------|
| Date: | Comments | Init. |
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Colorado Department of Transportation

DOT
DEPARTMENT OF TRANSPORTATION

425 A Corporate Circle
 Golden, CO 80401
 Phone: 720-497-6918 FAX: 720-497-6901

Region 1 **CRC**

| |
|-----------------------|
| As Constructed |
| No Revisions: |
| Revised: |
| Void: |

I-70 TWIN TUNNELS
ROCKFALL/LINING VOID REPAIR
EB TUNNEL

Designer: M. FOWLER
 Detailer: D. GATTSHALL
 Subset: TUNNEL CP 0

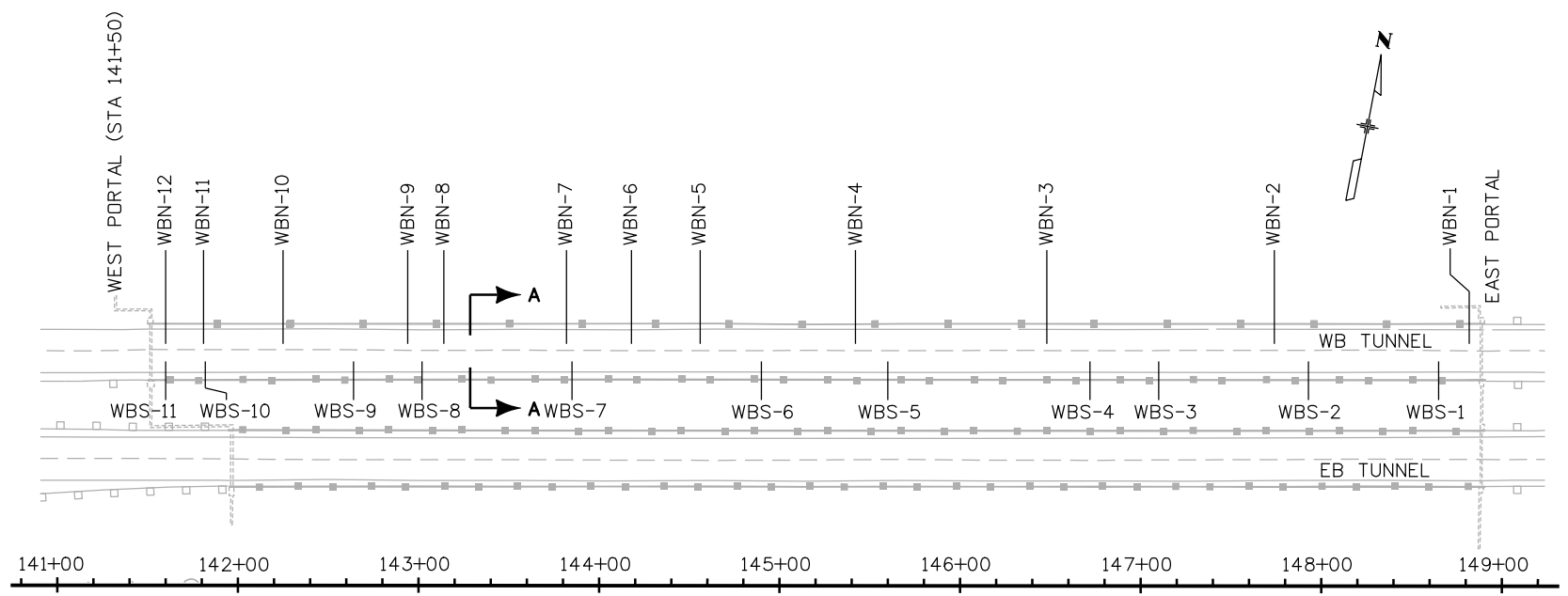
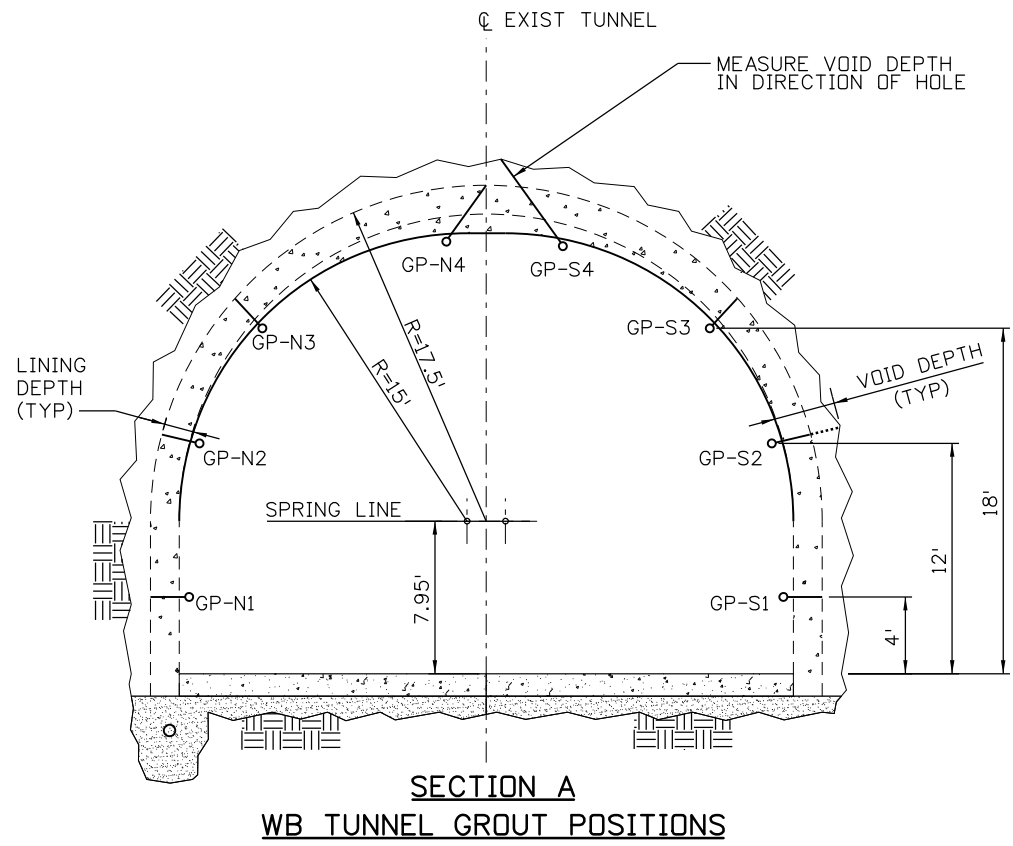
Structure Numbers
 STR F-17-BD

Subset Sheets: 2 of 4

| | |
|------------------|------------------------|
| Project No./Code | C 0703-393 |
| 19038 | Sheet Number 33 |

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|----------------|-------------|------------|-------------|
| Revision Dates | | Quantities | |
| Design | Detail | Design | Detail |
| Checked By | Designed By | Checked By | Designed By |
| DSM | MEF | MEF | MEF |
| DATE | DATE | DATE | DATE |
| 09-06-12 | 09-04-12 | 09-06-12 | 09-04-12 |



| WB TUNNEL - SOUTH SIDEWALL | | | GROUT POSITION | | | | | | | |
|----------------------------|------------------------|--------------------------|----------------|------------|--------------|------------|--------------|------------|--------------|------------|
| GROUT STATION | DESIGN LOCATION (STA.) | AS-BUILT LOCATION (STA.) | S1 | | S2 | | S3 | | S4 | |
| | | | LINING DEPTH | VOID DEPTH | LINING DEPTH | VOID DEPTH | LINING DEPTH | VOID DEPTH | LINING DEPTH | VOID DEPTH |
| WBS-1 | 148+65 | | | | | | | | | |
| WBS-2 | 147+93 | | | | | | | | | |
| WBS-3 | 147+10 | | | | | | | | | |
| WBS-4 | 146+72 | | | | | | | | | |
| WBS-5 | 145+60 | | | | | | | | | |
| WBS-6 | 144+90 | | | | | | | | | |
| WBS-7 | 143+85 | | | | | | | | | |
| WBS-8 | 143+02 | | | | | | | | | |
| WBS-9 | 142+64 | | | | | | | | | |
| WBS-10 | 141+82 | | | | | | | | | |
| WBS-11 | 141+60 | | | | | | | | | |

| WB TUNNEL - NORTH SIDEWALL | | | GROUT POSITION | | | | | | | |
|----------------------------|------------------------|--------------------------|----------------|------------|--------------|------------|--------------|------------|--------------|------------|
| GROUT STATION | DESIGN LOCATION (STA.) | AS-BUILT LOCATION (STA.) | N1 | | N2 | | N3 | | N4 | |
| | | | LINING DEPTH | VOID DEPTH | LINING DEPTH | VOID DEPTH | LINING DEPTH | VOID DEPTH | LINING DEPTH | VOID DEPTH |
| WBN-1 | 148+82 | | | | | | | | | |
| WBN-2 | 147+74 | | | | | | | | | |
| WBN-3 | 146+48 | | | | | | | | | |
| WBN-4 | 145+42 | | | | | | | | | |
| WBN-5 | 144+56 | | | | | | | | | |
| WBN-6 | 144+18 | | | | | | | | | |
| WBN-7 | 143+82 | | | | | | | | | |
| WBN-8 | 143+14 | | | | | | | | | |
| WBN-9 | 142+94 | | | | | | | | | |
| WBN-10 | 142+25 | | | | | | | | | |
| WBN-11 | 141+81 | | | | | | | | | |
| WBN-12 | 141+60 | | | | | | | | | |

- NOTES:
- CONTRACTOR SHALL USE THIS SHEET TO RECORD AS-BUILT THICKNESS OF TUNNEL LINING AND DEPTH OF VOID IN DIRECTION OF HOLE DRILLED AT EACH GROUT POSITION.
 - REPORT ALL LINING AND VOID DEPTH DIMENSIONS TO THE NEAREST INCH AS MEASURED FROM INSIDE SURFACE OF TUNNEL.

Print Date: 9/6/2012
 File Name: 19038 WBTR WB TUNNEL LINING DIMENSIONS.dgn
 Horiz. Scale: 1:1 Vert. Scale: N/A
 Unit Information Unit Leader Initials

ATKINS **PARSONS BRINCKERHOFF**

| Sheet Revisions | | |
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| Date: | Comments | Init. |
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Colorado Department of Transportation
 425 A Corporate Circle
 Golden, CO 80401
 Phone: 720-497-6918 FAX: 720-497-6901

Region 1 **CRC**

As Constructed
 No Revisions:
 Revised:
 Void:

**I-70 TWIN TUNNELS
 ROCKFALL/LINING VOID REPAIR
 WB TUNNEL AS-FOUND LINING DIMENSIONS**

Designer: M. FOWLER
 Detailer: D. GATTSHALL
 Subset: TUNNEL CP 0

Structure Numbers: STR F-17-BD
 Subset Sheets: 3 of 4

Project No./Code
 C 0703-393

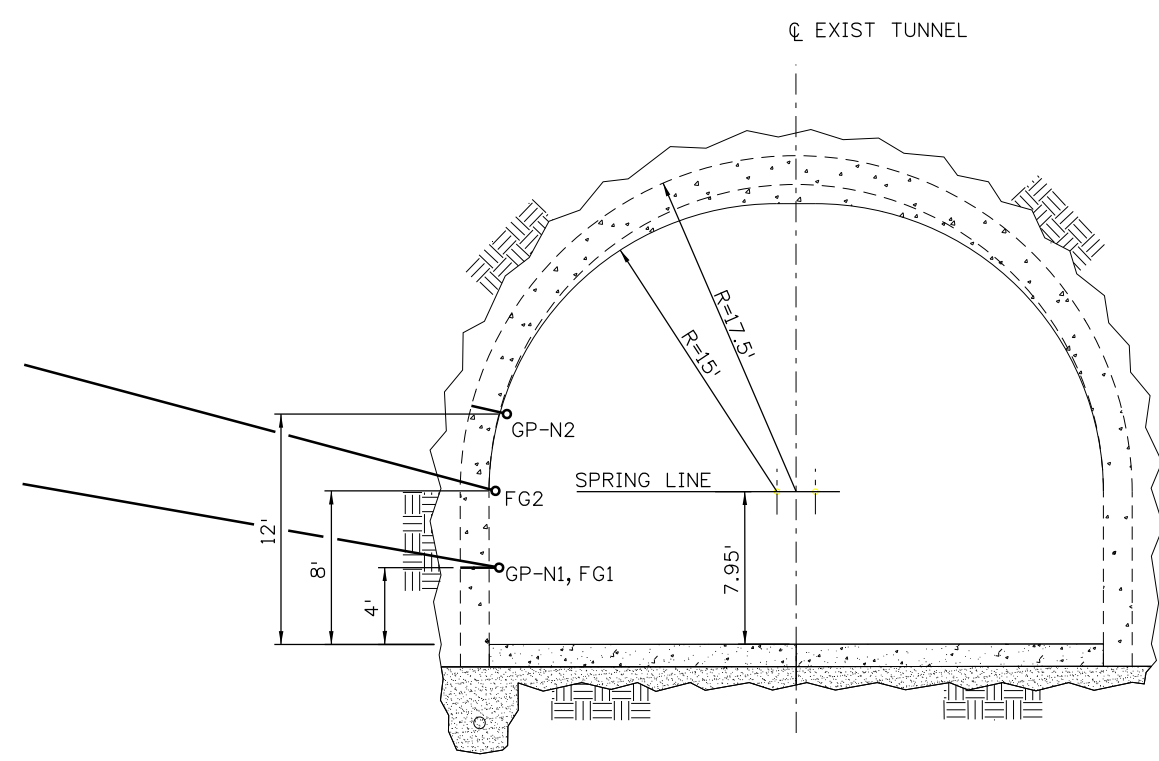
19038

Sheet Number **34**

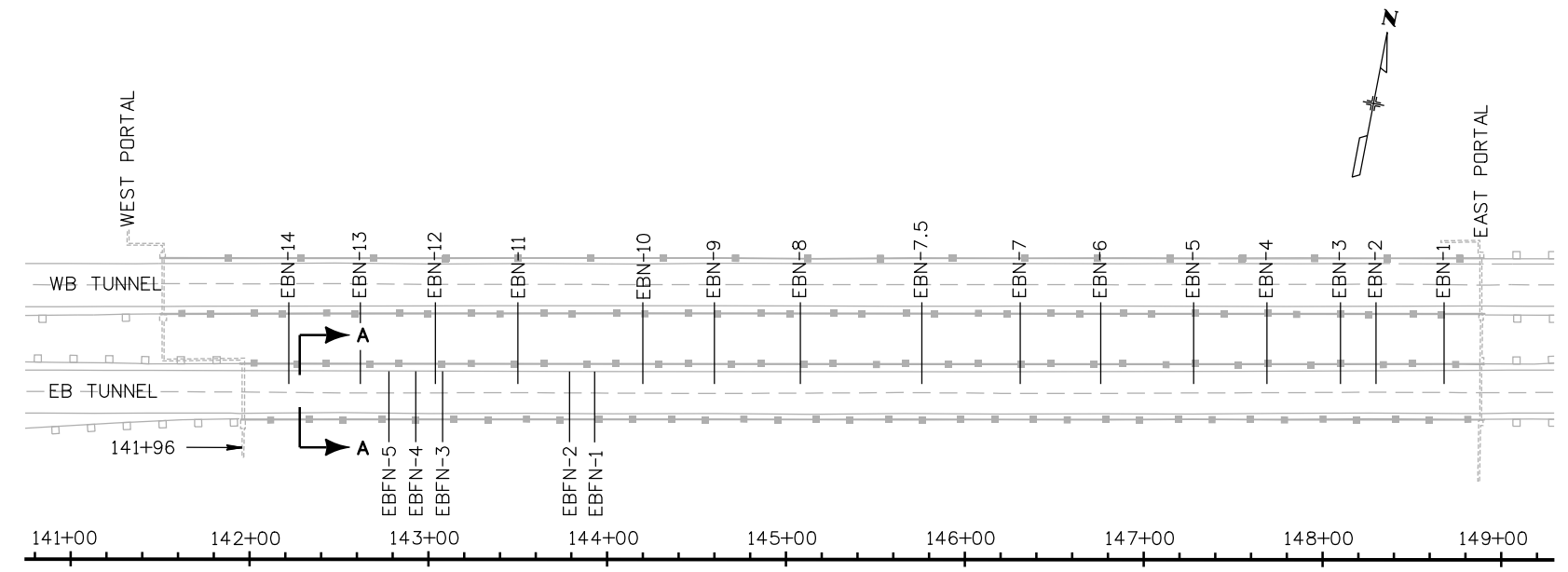
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| Revision Dates (Preliminary Stage Only) | |
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|-------------|------------|---------|----------|------------|----------|
| Design | | Detail | | Quantities | |
| Designed By | Checked By | INITIAL | DATE | INITIAL | DATE |
| MF | DSM | MF | 09-04-12 | LA | 09-04-12 |
| | | | | MEF | 09-06-12 |



SECTION A
EB TUNNEL GROUT POSITIONS



PLAN
GROUT STATION LOCATIONS

| BACKFILL GROUTING - NORTH SIDEWALL | | | GROUT POSITION | | | |
|------------------------------------|------------------------|--------------------------|----------------|------------|--------------|------------|
| GROUT STATION | DESIGN LOCATION (STA.) | AS-BUILT LOCATION (STA.) | N1 | | N2 | |
| | | | LINING DEPTH | VOID DEPTH | LINING DEPTH | VOID DEPTH |
| EBN-1 | 148+68 | | | | | |
| EBN-2 | 148+30 | | | | | |
| EBN-3 | 148+10 | | | | | |
| EBN-4 | 147+69 | | | | | |
| EBN-5 | 147+28 | | | | | |
| EBN-6 | 146+76 | | | | | |
| EBN-7 | 146+31 | | | | | |
| EBN-7.5 | 145+76 | | | | | |
| EBN-8 | 145+08 | | | | | |
| EBN-9 | 144+60 | | | | | |
| EBN-10 | 144+20 | | | | | |
| EBN-11 | 143+50 | | | | | |
| EBN-12 | 143+04 | | | | | |
| EBN-13 | 142+62 | | | | | |
| EBN-14 | 142+22 | | | | | |

| FORMATION GROUTING - PILLAR | | | GROUT POSITION | | | |
|-----------------------------|------------------------|--------------------------|----------------|------------|--------------|------------|
| GROUT STATION | DESIGN LOCATION (STA.) | AS-BUILT LOCATION (STA.) | FG1 | | FG2 | |
| | | | LINING DEPTH | VOID DEPTH | LINING DEPTH | VOID DEPTH |
| EBFN-1 | 143+93 | | | | | |
| EBFN-2 | 143+79 | | | | | |
| EBFN-3 | 143+08 | | | | | |
| EBFN-4 | 142+93 | | | | | |
| EBFN-5 | 142+78 | | | | | |

NOTES:

- CONTRACTOR SHALL USE THIS SHEET TO RECORD AS-BUILT THICKNESS OF TUNNEL LINING AND DEPTH OF VOID IN DIRECTION OF HOLE DRILLED AT EACH GROUT POSITION.
- REPORT ALL LINING AND VOID DEPTH DIMENSIONS TO THE NEAREST INCH AS MEASURED FROM INSIDE SURFACE OF TUNNEL.

Print Date: 9/6/2012
 File Name: 19038 WBTR EB TUNNEL LINING DIMENSIONS.dgn
 Horiz. Scale: 1:1 Vert. Scale: N/A
 Unit Information Unit Leader Initials

ATKINS **PARSONS BRINCKERHOFF**

| Sheet Revisions | | |
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| Date: | Comments | Init. |
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Colorado Department of Transportation

DOT 425 A Corporate Circle
 Golden, CO 80401
 Phone: 720-497-6918 FAX: 720-497-6901

Region 1 CRC

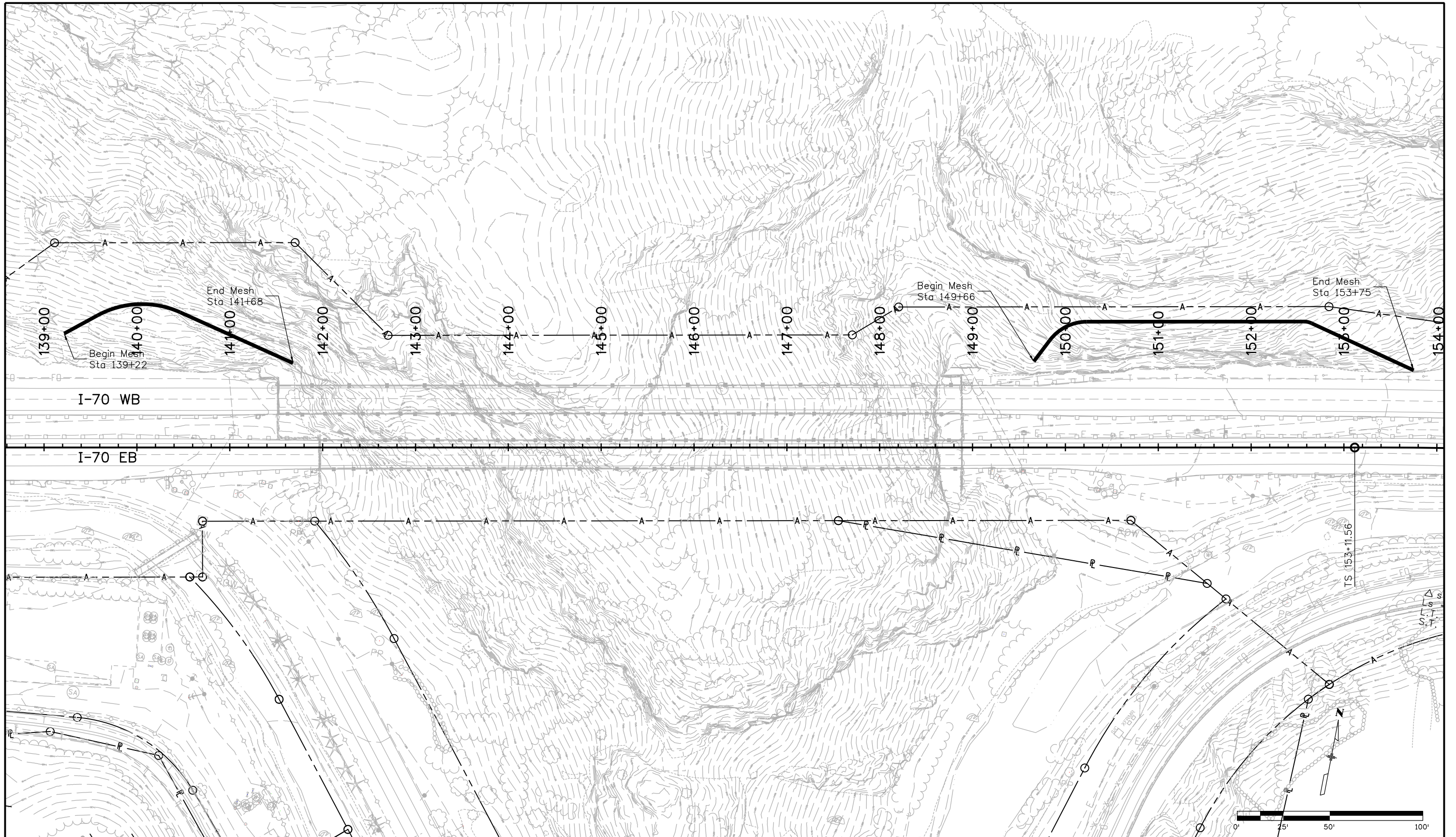
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| As Constructed |
| No Revisions: |
| Revised: |
| Void: |

I-70 TWIN TUNNELS
ROCKFALL/LINING VOID REPAIR
EB TUNNEL AS-FOUND LINING DIMENSIONS

Designer: M. FOWLER Structure STR F-17-BD
 Detailer: D. GATTSHALL Numbers
 Subset: TUNNEL CP 0 Subset Sheets: 4 of 4

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| Project No./Code |
| C 0703-393 |
| 19038 |
| Sheet Number 35 |

Mike Walz 9/11/29 AM W:\2012 Projects\212-090 CDDT 1-70 Twin Tunnel Widening\Drawings\Rockfall\19038DES_RockfallPlan Sheet.dgn



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| File Name: 19038DES_Rockfall Plan Sheet.dgn |
| Horiz. Scale: 1:100 Vert. Scale: As Noted |
| Unit Information Unit Leader Initials |

| Sheet Revisions | | |
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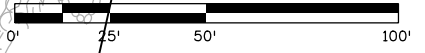
Colorado Department of Transportation
 425 A Corporate Circle
 Golden, CO 80401
 Phone: 720-497-6905 FAX: 720-497-6901

Region 1 **CRC**

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| As Constructed |
| No Revisions: |
| Revised: |
| Void: |

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|---------------------------------------|----------|-------------------|--------|
| ROCKFALL MITIGATION PLAN SHEET | | | |
| Designer: | T. Ortiz | Structure Numbers | |
| Detailer: | | | |
| Sheet Subset: | Rockfall | Subset Sheets: | 1 of 5 |

| |
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| Project No./Code |
| C-0703-393 |
| 19038 |
| Sheet Number 36 |






Arrows represent big horn sheep pathway.

Twin Tunnels West
Photo annotation is conceptual only.

QUANTITY TABULATIONS
(Lengths and quantities may change in response to field conditions.)

| ITEM | UNITS | QUANTITIES | NOTES |
|---------------------------------|-------|------------|--|
| MESH ANCHOR (SPECIAL) 607-55050 | EA | 13 | One common coupler and four end couplers |
| WIRE MESH 607-55100 | SF | 20,000 | |

| | | | | | | | | | |
|----------------------------------|----------------|------------------------|--|--|-----------------------|--|-----------------------|-------------------------|--|
| Computer File Information | | Sheet Revisions | |  Colorado Department of Transportation 4670 Holly St. Unit A Denver, Colorado 80216 Phone: 303-398-6588 FAX: 303-398-6504 Soils and Rockfall Program | As Constructed | Rockfall Quantities Twin Tunnels West | | Project No./Code | |
| Creation Date: | Initials: | | | | No Revisions: | | | | |
| Last Modification Date: | Initials: | | | | Revised: | Designer: T. Ortiz | Structure Numbers | 19038 | |
| Full Path: | | | | | Void: | Detailer: R. Group | | | |
| Drawing File Name: | | | | | | Sheet Subset: Rockfall | Subset Sheets: 2 of 5 | Sheet Number 37 | |
| Scale: varies | Units: English | | | | | | | | |


Arrows represent big horn sheep pathways



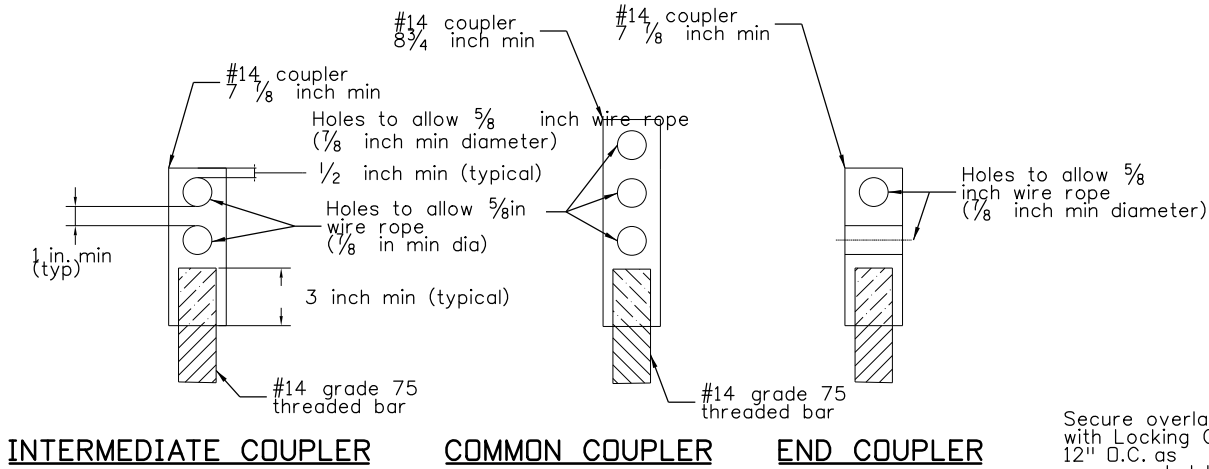
Twin Tunnels East
Photo annotation is conceptual only.

QUANTITY TABULATIONS
(Lengths and quantities may change in response to field conditions.)

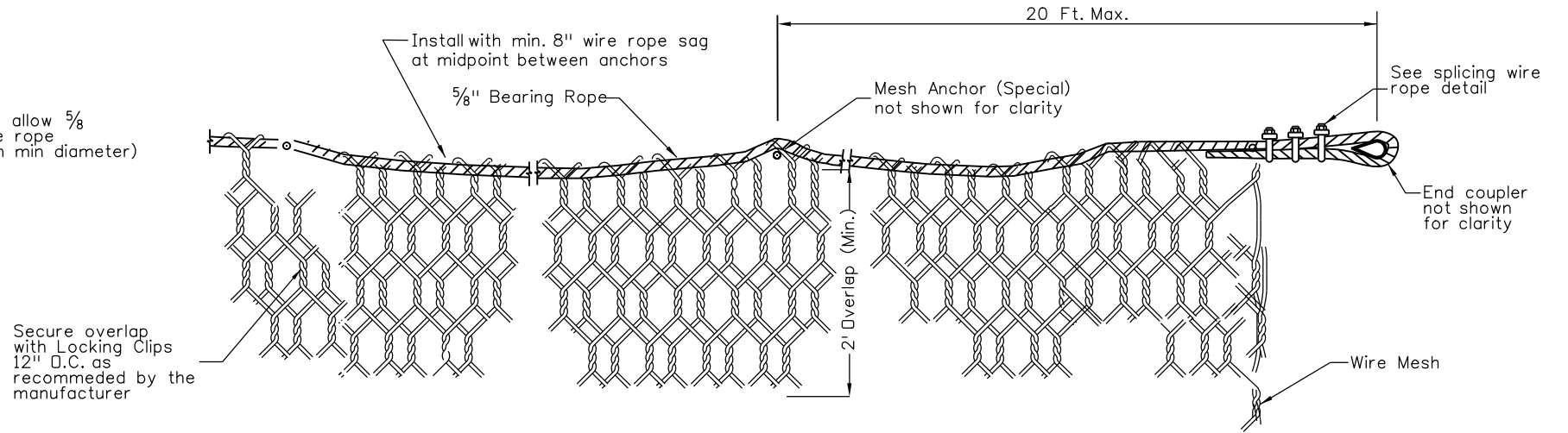
| ITEM | UNITS | QUANTITIES | NOTES |
|---------------------------------|-------|------------|--|
| MESH ANCHOR (SPECIAL) 607-55050 | EA | 22 | Two common couplers and six end couplers |
| WIRE MESH 607-55100 | SF | 40,000 | |

| Computer File Information | | Sheet Revisions | | Colorado Department of Transportation | | As Constructed | | Rockfall Quantities Twin Tunnels East | | Project No./Code | | | |
|---------------------------|----------------|----------------------|----------------------|--|--|----------------|--|--|--|-----------------------|--|-----------------|--|
| Creation Date: | Initials: | <input type="text"/> | <input type="text"/> |  4670 Holly St. Unit A Denver, Colorado 80216 Phone: 303-398-6588 FAX: 303-398-6504 Soils and Rockfall Program | | No Revisions: | | Designer: T. Ortiz Detailer: R. Group | | C 0703 - 393 | | | |
| Last Modification Date: | Initials: | <input type="text"/> | <input type="text"/> | | | Revised: | | | | Structure Numbers | | 19038 | |
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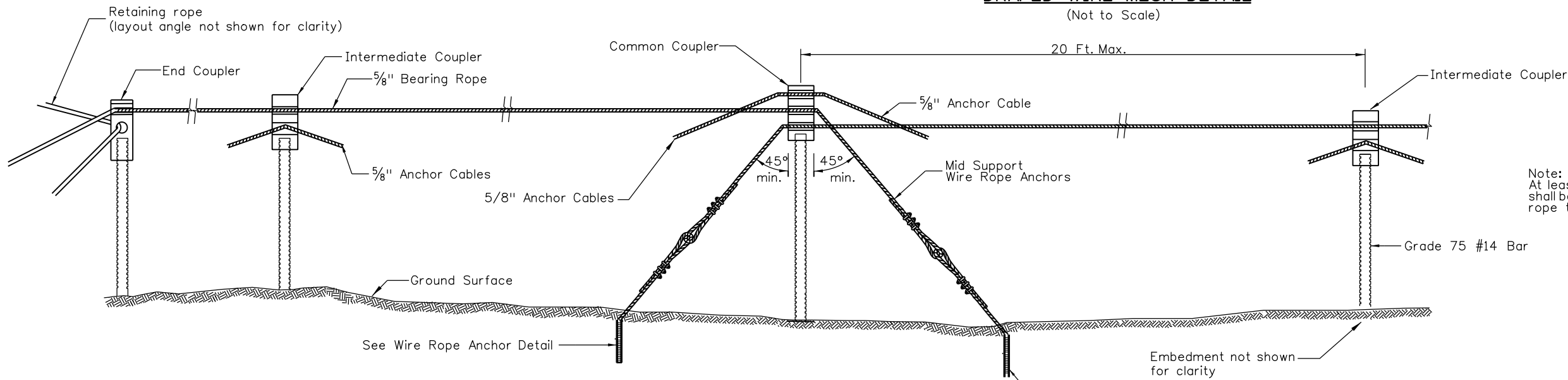
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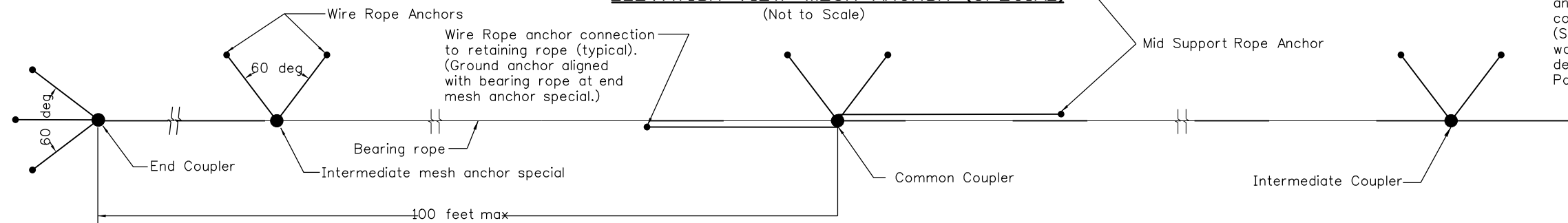
INTERMEDIATE COUPLER COMMON COUPLER END COUPLER



DRAPED WIRE MESH DETAIL
(Not to Scale)



ELEVATION VIEW MESH ANCHOR (SPECIAL)
(Not to Scale)



PLAN VIEW OF MESH ANCHOR (SPECIAL)
(Not to Scale)

Note:
At least one thimble shall be used on all wire rope to wire rope connections.

Note: End Coupler, Common Coupler and Intermediate Coupler all are considered part of the Mesh Anchor (Special) and are to be included in the work. The number of each coupler will be determined in the field when the Mesh Post Anchors are located.

Print Date: 8/27/2012
File Name: 19038DES_Draped Mesh Detail01.dgn
Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

| Sheet Revisions | | |
|-----------------|----------|-------|
| Date: | Comments | Init. |
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Colorado Department of Transportation
425 A Corporate Circle
Golden, CO 80401
Phone: 720-497-6905 FAX: 720-497-6901
Region 1 CRC

As Constructed
No Revisions:
Revised:
Void:

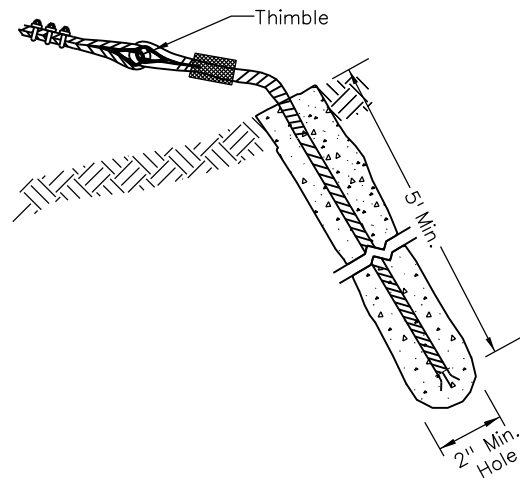
DRAPED WIRE MESH DETAILS
Designer: T. Ortiz Structure Numbers
Detailer: Sheet Subset: Rockfall Subset Sheets: 4 of 5

Project No./Code
C-0703-393
19038
Sheet Number **39**

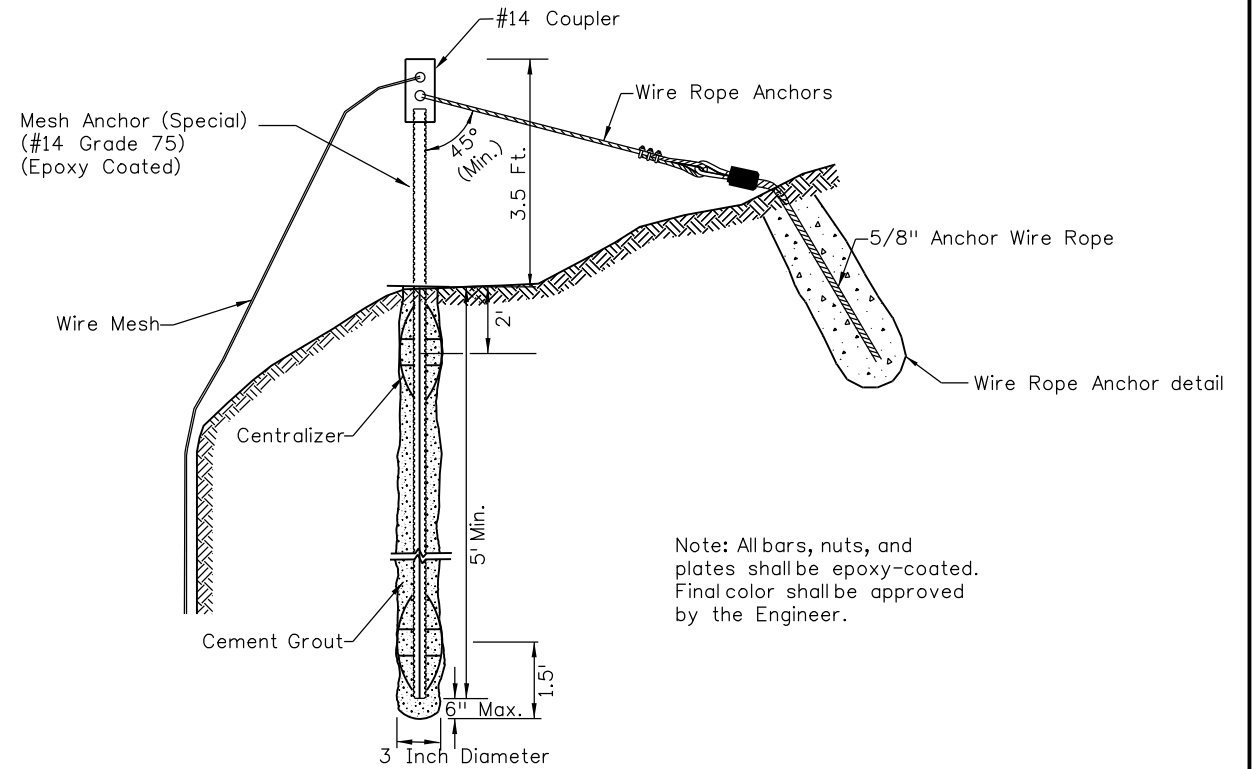
NOTES FOR DRAPED WIRE MESH

- Scaling necessary to install the Wire Mesh and Mesh Anchor (Special) shall be performed in accordance with Section 203 and shall not be paid for separately unless it is directed by the Engineer.
- Wire Mesh shall be in an alternating color scheme of standard dark brown and standard black as approved by the Engineer.
- Wire mesh panels shall be attached with 9 gauge wire, hog-rings in accordance with ASTM A975, or approved fasteners in accordance with the wire mesh manufactures specifications.
- Wire rope clips shall be configured according to the manufactures recommendations.
- Mesh Anchor (Special) shall be located in the field by the Contractor and the Engineer to ensure constructability and performance.
- It is understood that big horn sheep in this area walk along drainages and graze in grassy areas above the portals. To the extent possible, grass areas and branches shall be avoided when locating Mesh Anchor (Special).
- Wire Mesh shall be installed as to minimize the spacing between the slope and mesh.
- Testing of the Mesh Anchor (Special) and Wire Rope Anchor installation shall be as described in section 607. A drawing and description of the testing set up and procedure shall be submitted one week prior to testing.

The wire mesh specified for this application is generally accepted as satisfactory for drapery systems where rock dislodged from the slope is 2 feet or less. The Mesh Anchor (special) allows for rock above (approximately 20 feet) the mesh line that is dislodged to be contained within the drapery. It is understood that rock sizes greater than 3 feet and more than 20 feet above the mesh line are possible at the location. This design is not intended to mitigate all rockfall but to reduce the effect of rockfall on the highway.

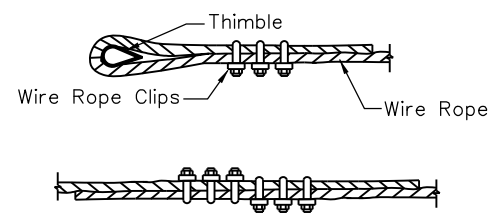


WIRE ROPE ANCHOR
(Not to Scale)

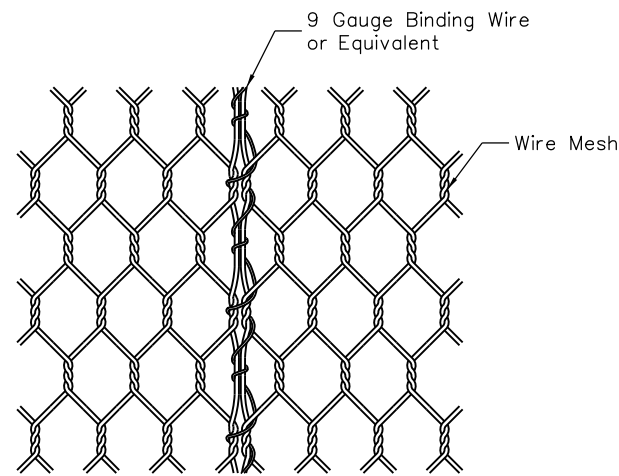


Note: All bars, nuts, and plates shall be epoxy-coated. Final color shall be approved by the Engineer.

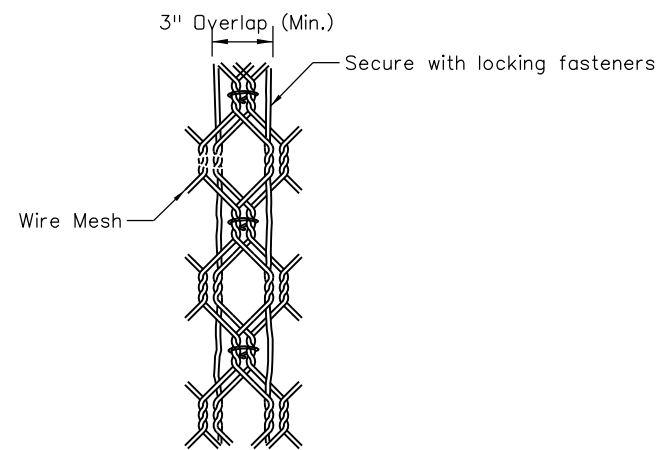
MESH ANCHOR (SPECIAL) DETAIL
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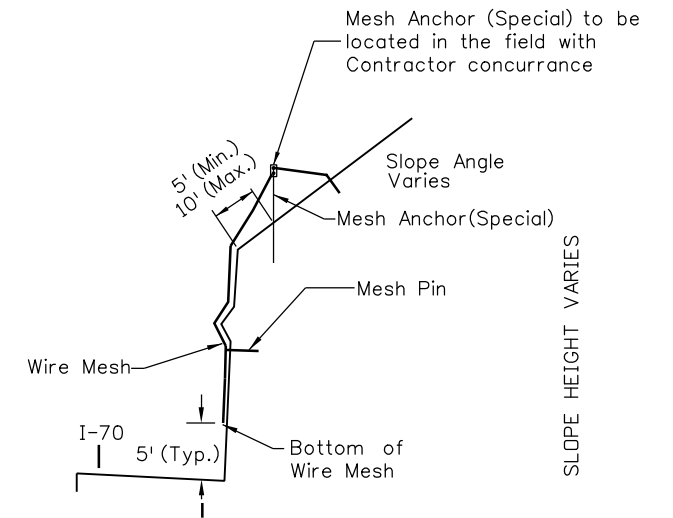
SPLICING WIRE ROPE DETAIL
(As recommended by manufacturer)



OPTION 1: TYPICAL LACING DETAIL
(Not to Scale)



OPTION 2: TYPICAL SPICING DETAIL
(Not to Scale)

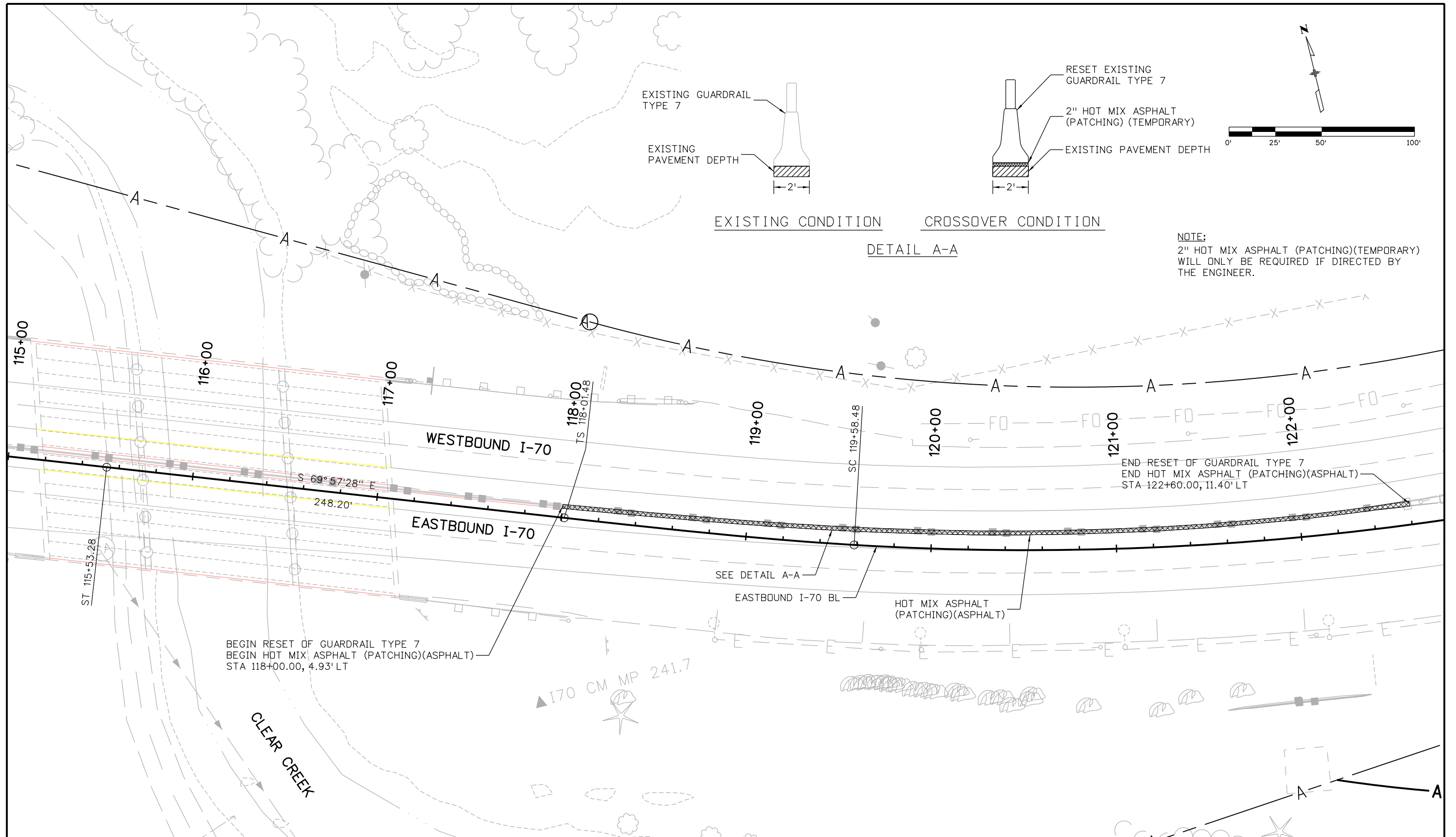


TYPICAL SECTION WIRE MESH WITH MESH ANCHOR(SPECIAL)
(Not to Scale)

SLOPE HEIGHT VARIES

Mike Walz 1:41:42 PM W:\2012 Projects\212-090 CDDT I-70 Twin Tunnel Widening\Drawings\Rockfall\19038DES_Draped Mesh Detail02.dgn

| | | | | | | | | | | | |
|--|--|------------------------|-----------|-------|--|-----------------------|---------------------------------|------------------------|-----------------------|-------------------------|----|
| Print Date: 8/27/2012 | | Sheet Revisions | | | Colorado Department of Transportation 425 A Corporate Circle Golden, CO 80401 Phone: 720-497-6905 FAX: 720-497-6901 Region 1 | As Constructed | DRAPED WIRE MESH DETAILS | | | Project No./Code | |
| File Name: 19038DES_Draped Mesh Detail02.dgn | | Date: | Comments: | Init. | | No Revisions: | | | | C-0703-393 | |
| Horiz. Scale: 1:1 Vert. Scale: As Noted | | | | | | Revised: | Designer: T. Ortiz | Structure Numbers: | 19038 | | |
| Unit Information Unit Leader Initials | | | | | | Void: | Detailer: | Sheet Subset: Rockfall | Subset Sheets: 5 of 5 | Sheet Number | 40 |




Print Date: 9/6/2012
 File Name: 18832DES_WBTR_CrossOver_Plan001.dgn
 Horiz. Scale: 1:50 Vert. Scale: NA

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WEST CROSSOVER PLAN

Designer: SDH Structure Numbers
 Detailer: SDH
 Subset: INCIDENT Subset Sheets: 1 of 2

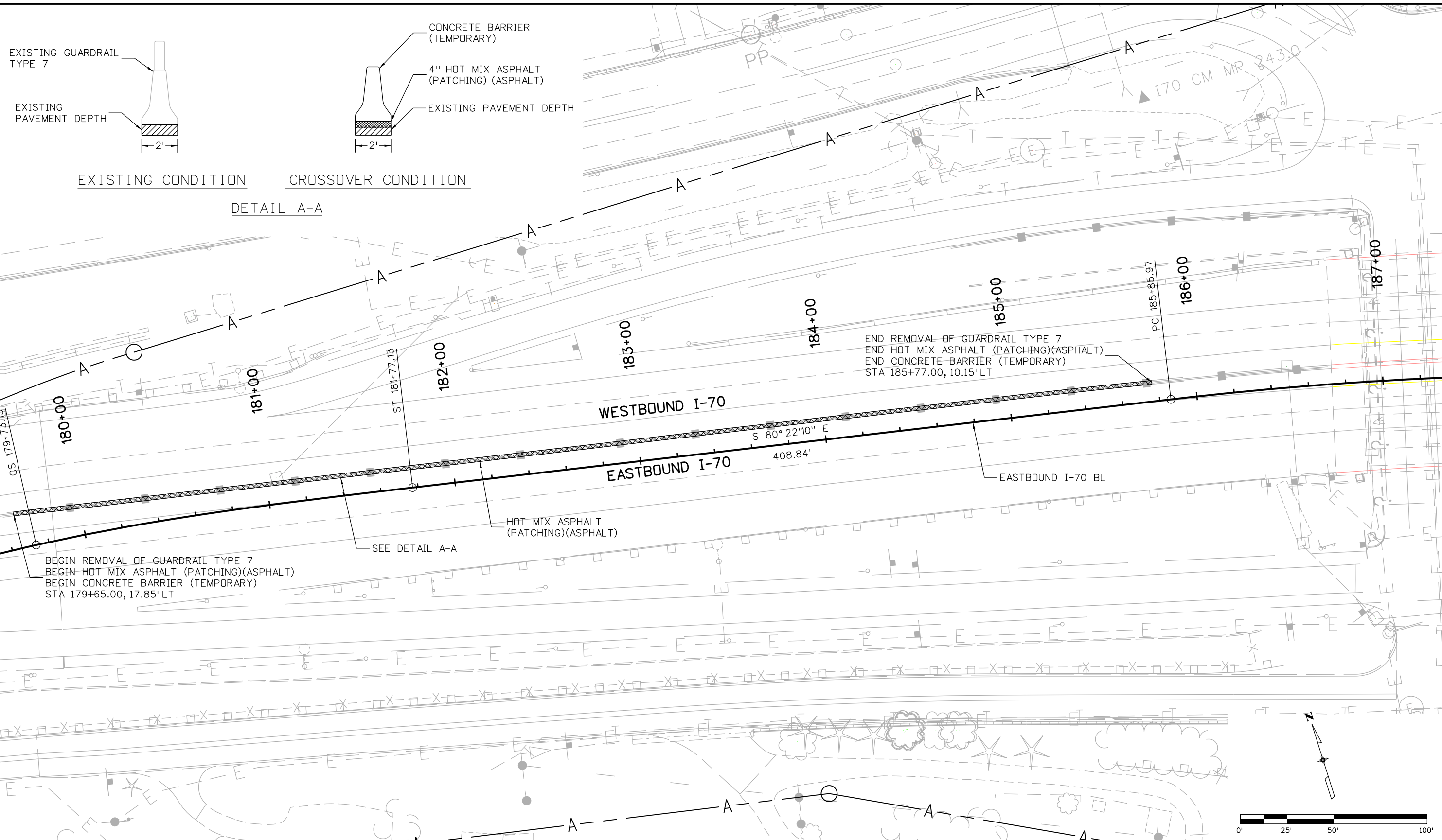
Project No./Code

IM 0703-393

19038

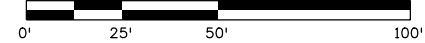
Sheet Number **41**

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BEGIN REMOVAL OF GUARDRAIL TYPE 7
 BEGIN HOT MIX ASPHALT (PATCHING)(ASPHALT)
 BEGIN CONCRETE BARRIER (TEMPORARY)
 STA 179+65.00, 17.85' LT

END REMOVAL OF GUARDRAIL TYPE 7
 END HOT MIX ASPHALT (PATCHING)(ASPHALT)
 END CONCRETE BARRIER (TEMPORARY)
 STA 185+77.00, 10.15' LT



Print Date: 9/6/2012
 File Name: 18832DES_WBTR_CrossOver_Plan002.dgn
 Horiz. Scale: 1:50 Vert. Scale: NA
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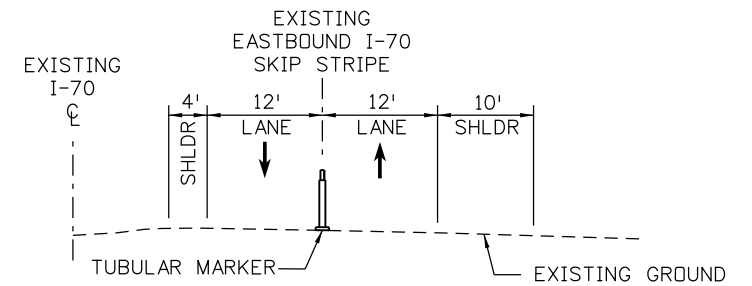
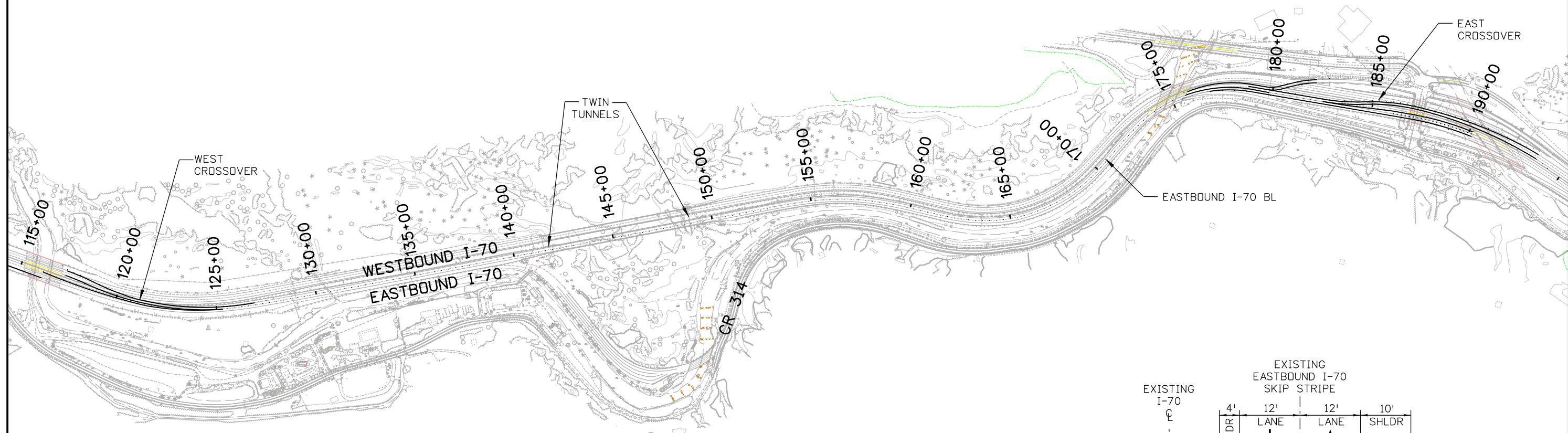
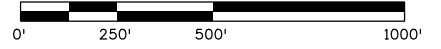
As Constructed
 No Revisions:
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 Void:

EAST CROSSOVER PLAN

| | | | |
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| Designer: | SDH | Structure Numbers | |
| Detailer: | SDH | Subset Sheets: 2 of 2 | |
| Subset: | INCIDENT | | |

Project No./Code
 IM 0703-393
 19038
 Sheet Number **42**

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TYPICAL SECTION
WESTBOUND I-70 DETOUR
USING EASTBOUND I-70

Print Date: 9/7/2012
 File Name: 18832DES_WBTR_ Evening Closure Key01.dgn
 Horiz. Scale: 1:500 Vert. Scale: NA
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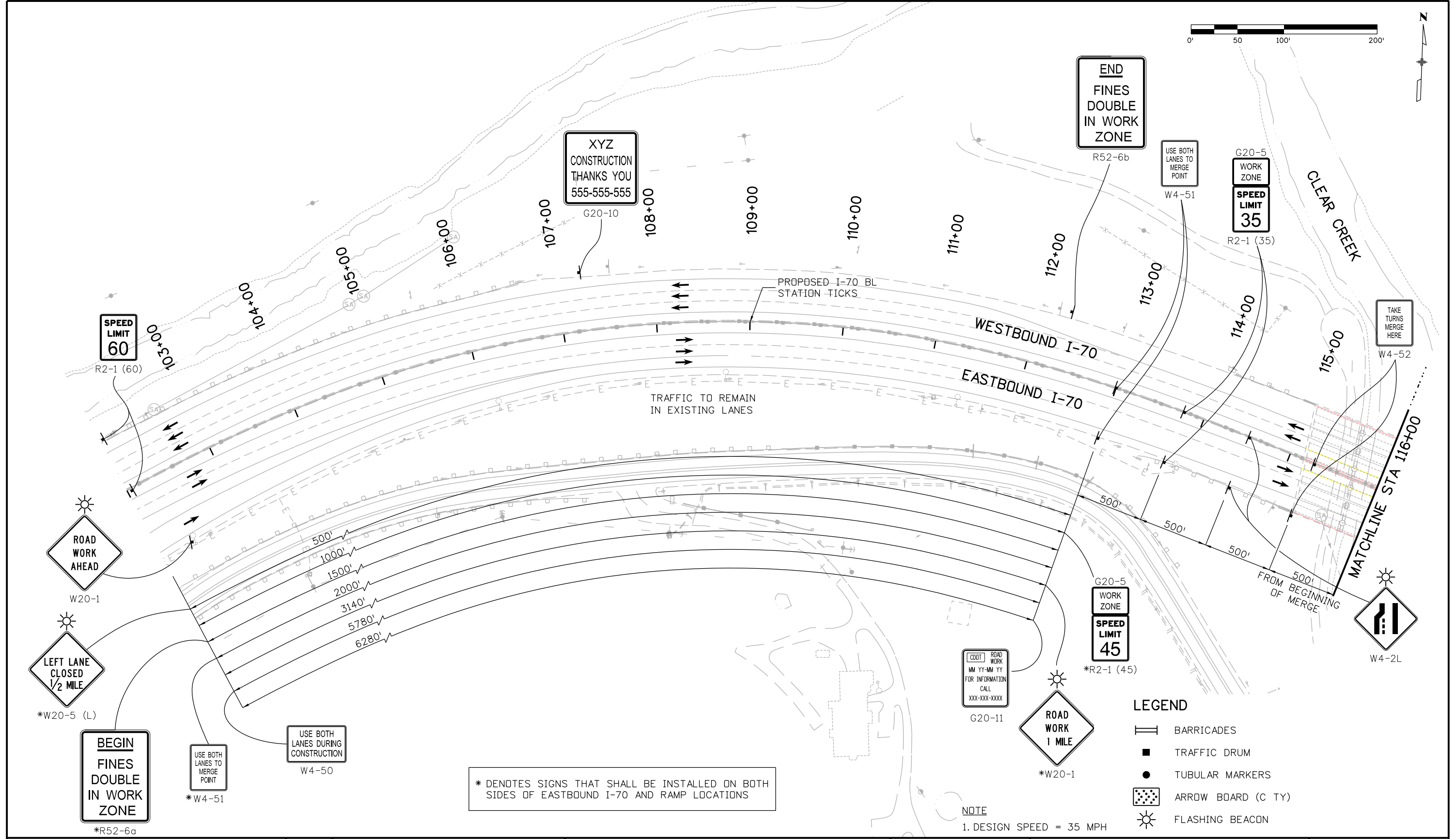
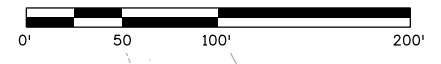
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 Region 1 CRC

As Constructed
 No Revisions:
 Revised:
 Void:

**WESTBOUND NIGHTTIME
 TUNNEL CLOSURE
 KEY PLAN**
 Designer: S. Sandvik
 Detailer: B. Gaines
 Subset: TCP
 Structure Numbers
 Subset Sheets: 1 of 8

Project No./Code
 IM 0703-393
 19038
 Sheet Number **43**

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Print Date: 9/6/2012
 File Name: 18832DES_WB Nighttime Closure_Plan001.dgn
 Horiz. Scale: 1:100 Vert. Scale: NA

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Region 1 **CRC**

As Constructed

No Revisions:

Revised:

Void:

**WESTBOUND NIGHTTIME
TUNNEL CLOSURE
TRAFFIC CONTROL PLAN**

Designer: S. Sandvik
 Detailer: B. Gaines
 Subset: TCP

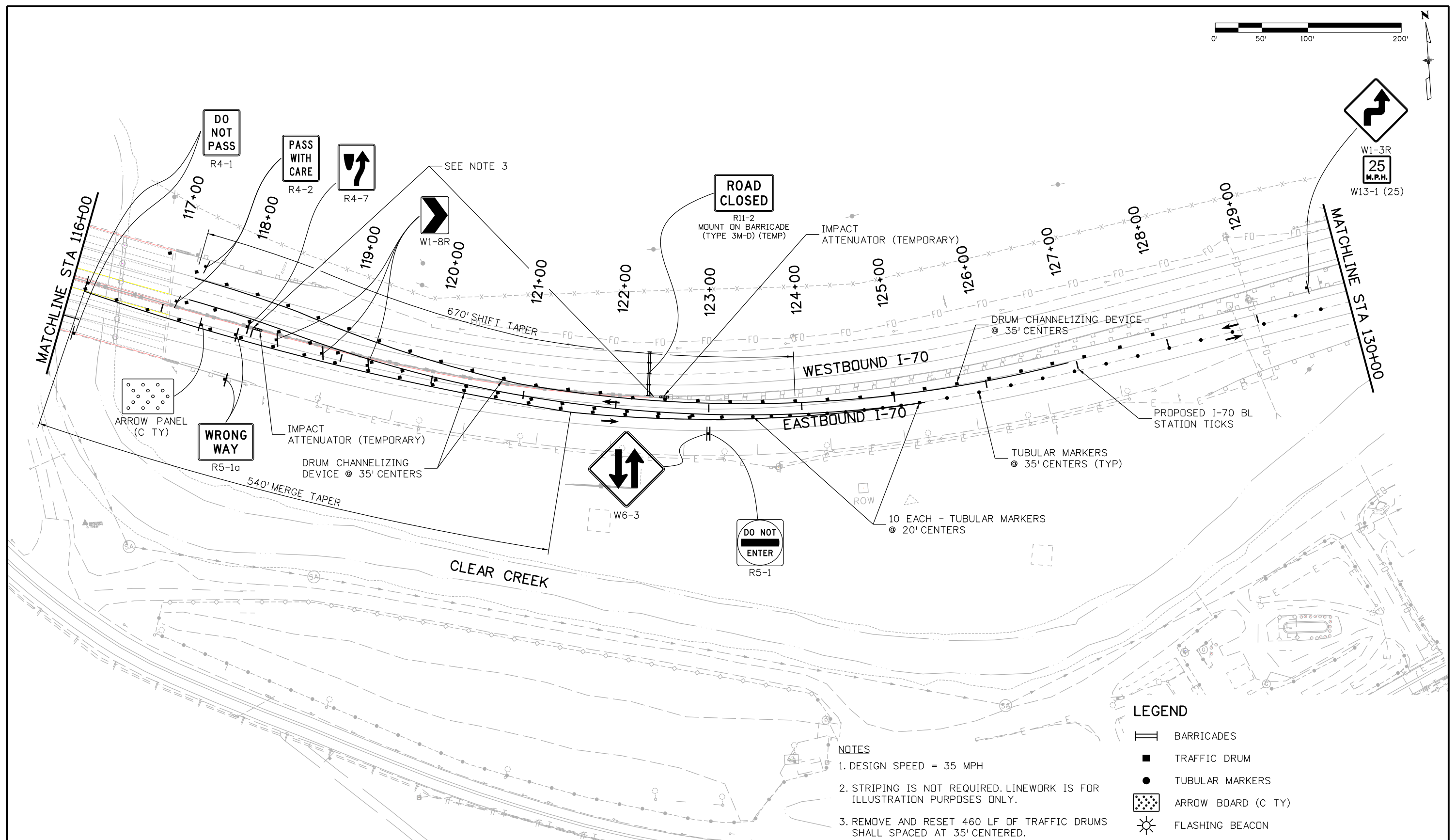
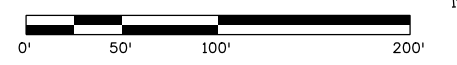
Structure Numbers
 Subset Sheets: 2 of 8

Project No./Code
 IM 0703-393

19038

Sheet Number **44**

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- NOTES**
- DESIGN SPEED = 35 MPH
 - STRIPING IS NOT REQUIRED. LINWORK IS FOR ILLUSTRATION PURPOSES ONLY.
 - REMOVE AND RESET 460 LF OF TRAFFIC DRUMS SHALL SPACED AT 35' CENTERED.

LEGEND

| | |
|--|--------------------|
| | BARRICADES |
| | TRAFFIC DRUM |
| | TUBULAR MARKERS |
| | ARROW BOARD (C TY) |
| | FLASHING BEACON |

Print Date: 9/6/2012
 File Name: 18832DES_WB Nighttime Closure_Plan002.dgn
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Region 1 **CRC**

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No Revisions:
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 Void:

WESTBOUND NIGHTTIME TUNNEL CLOSURE TRAFFIC CONTROL PLAN

Designer: S. Sandvik
 Detailer: B. Gaines
 Subset: TCP

Structure Numbers
 Subset Sheets: 3 of 8

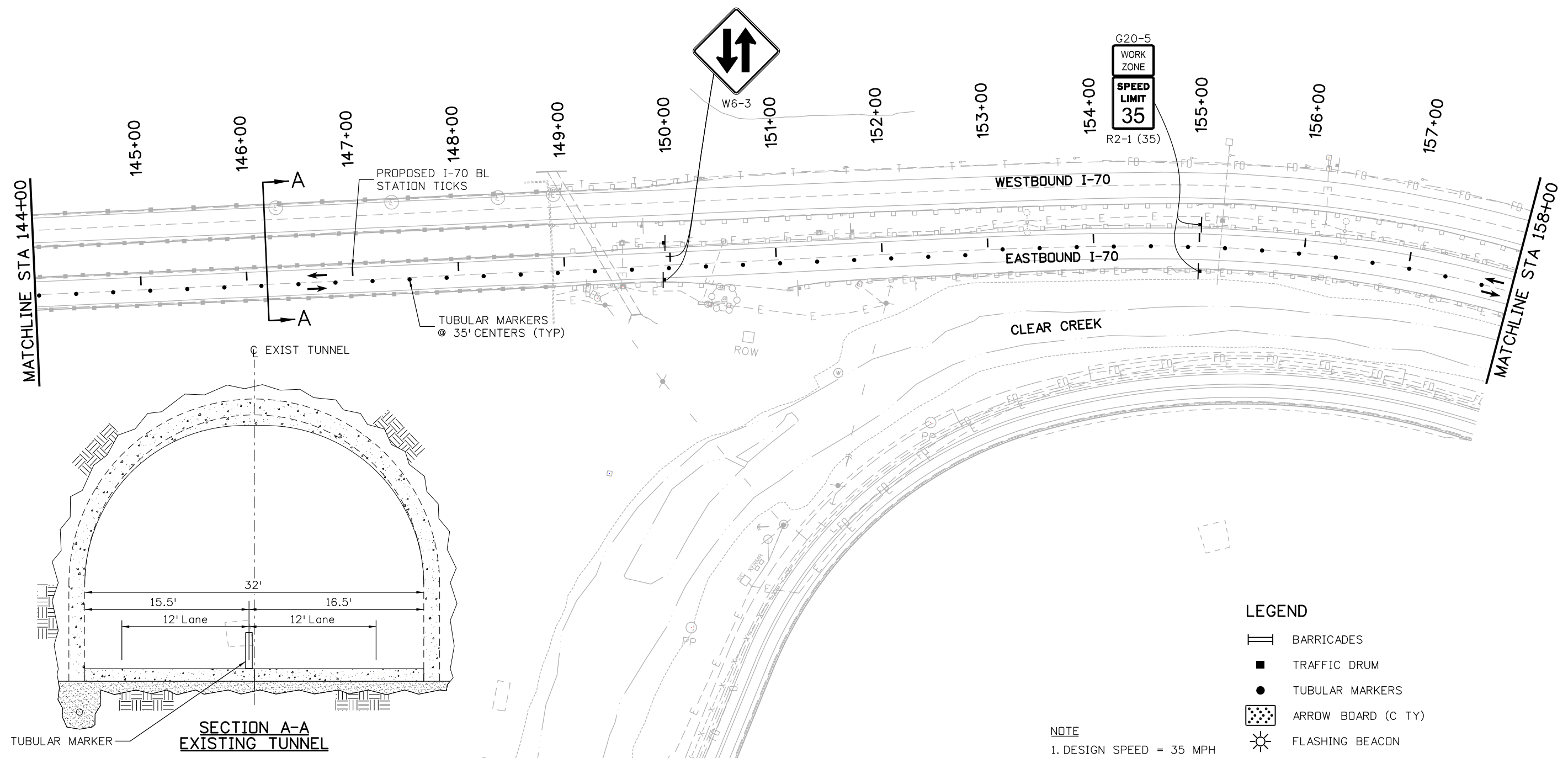
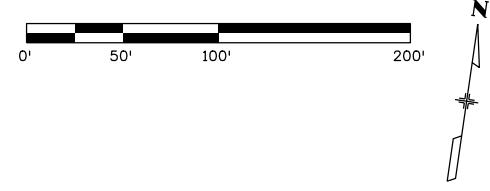
Project No./Code

IM 0703-393

19038

Sheet Number **45**

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LEGEND

- BARRICADES
- TRAFFIC DRUM
- TUBULAR MARKERS
- ARROW BOARD (C TY)
- FLASHING BEACON

NOTE
1. DESIGN SPEED = 35 MPH

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 File Name: 18832DES_WB Nighttime Closure_Plan004.dgn
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Region 1 **CRC**

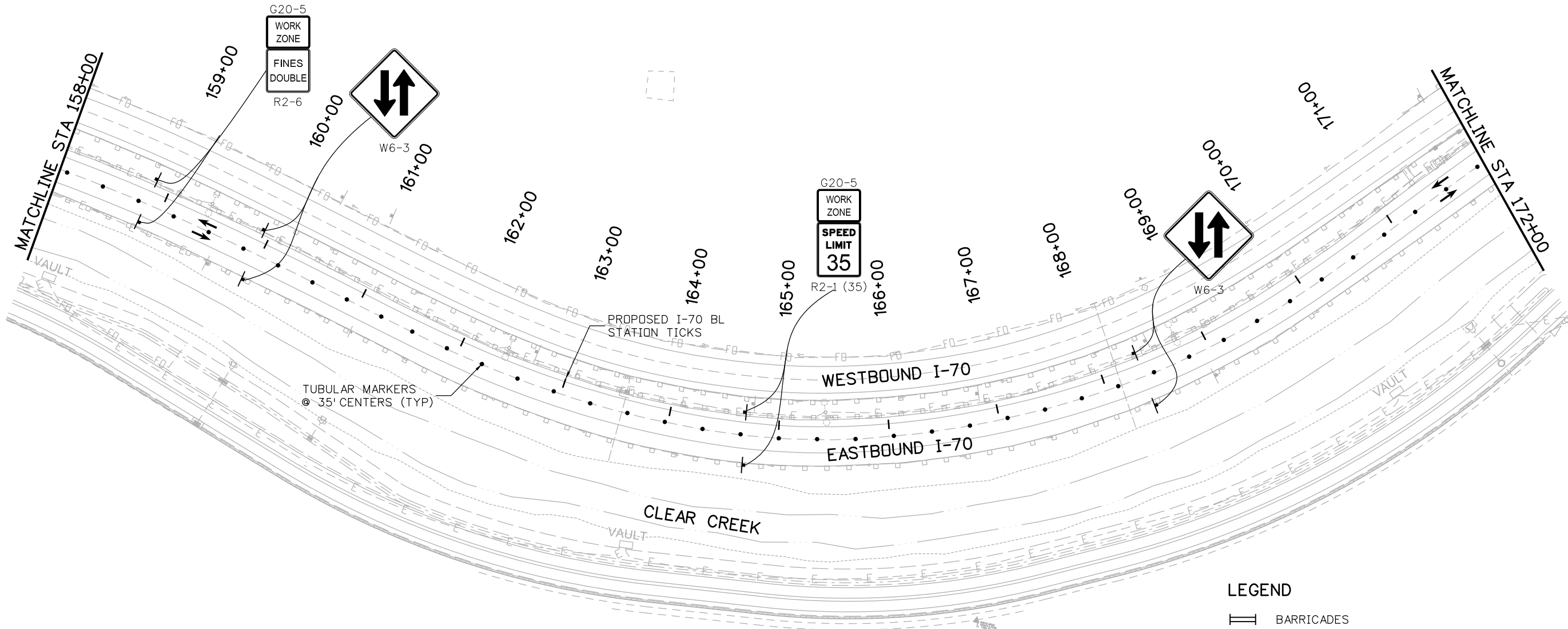
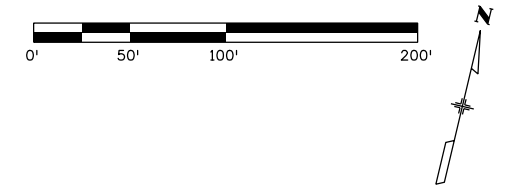
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WESTBOUND NIGHTTIME TUNNEL CLOSURE TRAFFIC CONTROL PLAN

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| Designer: | S. Sandvik | Structure Numbers: | |
| Detailer: | B. Gaines | Subset Sheets: | 5 of 8 |
| Subset: | TCP | | |

Project No./Code
 IM 0703-393
 19038
 Sheet Number **47**

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NOTE
1. DESIGN SPEED = 35 MPH

- LEGEND**
- BARRICADES
 - TRAFFIC DRUM
 - TUBULAR MARKERS
 - ARROW BOARD (C TY)
 - FLASHING BEACON

Print Date: 9/6/2012
 File Name: 18832DES_WB Nighttime Closure_Plan005.dgn
 Horiz. Scale: 1:100 Vert. Scale:
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| Date: | Comments | Init. |
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 Region 1 CRC

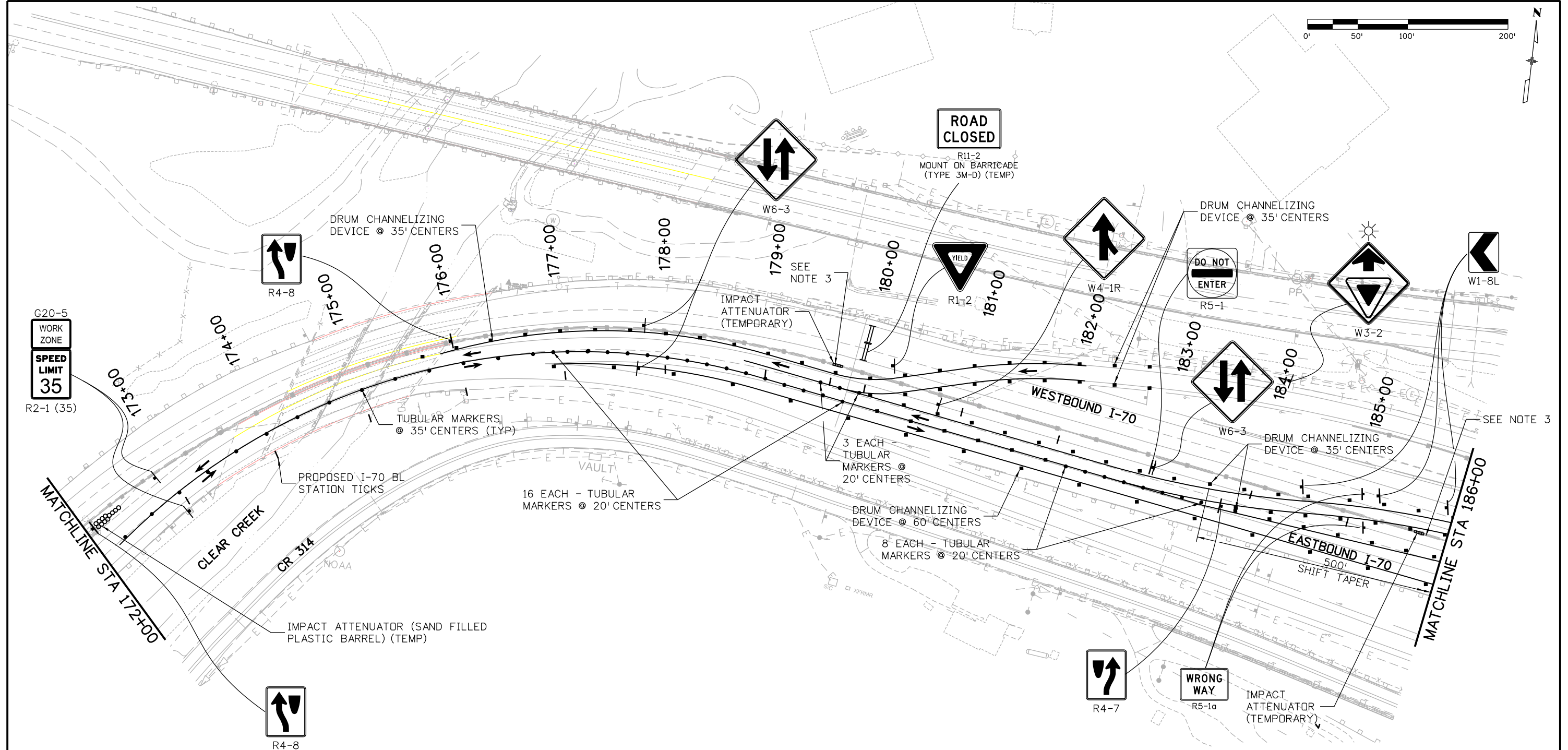
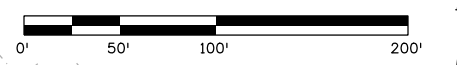
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WESTBOUND NIGHTTIME TUNNEL CLOSURE TRAFFIC CONTROL PLAN

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| Designer: | S. Sandvik | Structure Numbers | |
| Detailer: | B. Gaines | | |
| Subset: | TCP | Subset Sheets: 6 of 8 | |

Project No./Code
 IM 0703-393
 19038
 Sheet Number **48**

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LEGEND

- BARRICADES
- TRAFFIC DRUM
- TUBULAR MARKERS
- ARROW BOARD (C TY)
- FLASHING BEACON

NOTES

1. DESIGN SPEED = 35 MPH
2. STRIPING IS NOT REQUIRED. LINWORK IS FOR ILLUSTRATION PURPOSES ONLY.
3. REMOVE AND RESET 614 LF OF TRAFFIC DRUMS SHALL SPACED AT 35' CENTERED.

Print Date: 9/6/2012
 File Name: 18832DES_WB Nighttime Closure_Plan006.dgn
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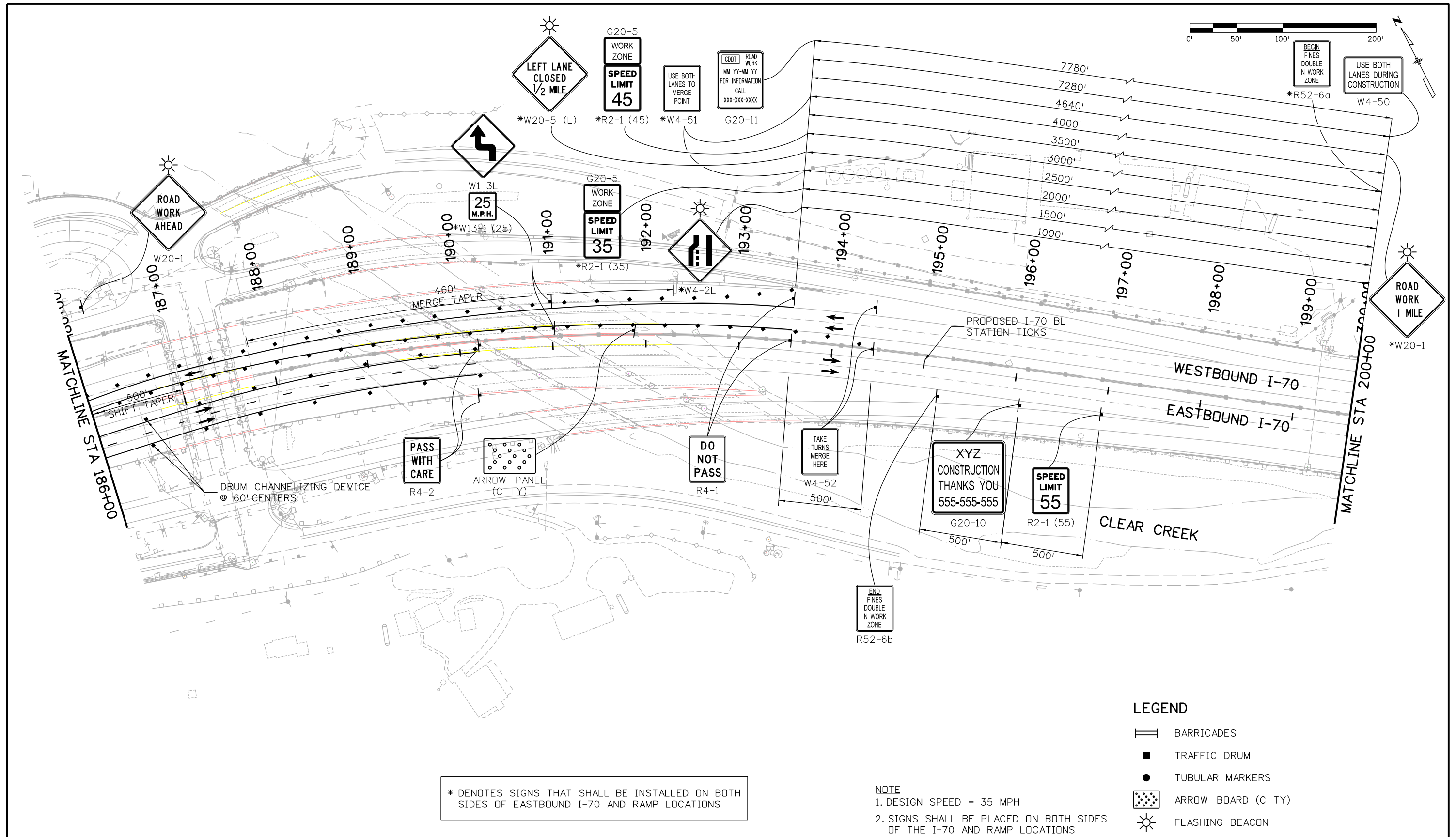
WESTBOUND NIGHTTIME TUNNEL CLOSURE TRAFFIC CONTROL PLAN

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| Designer: S. Sandvik | Structure Numbers |
| Detailer: B. Gaines | |
| Subset: TCP | Subset Sheets: 7 of 8 |

Project No./Code
 IM 0703-393
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Sheet Number 49

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* DENOTES SIGNS THAT SHALL BE INSTALLED ON BOTH SIDES OF EASTBOUND I-70 AND RAMP LOCATIONS

NOTE
 1. DESIGN SPEED = 35 MPH
 2. SIGNS SHALL BE PLACED ON BOTH SIDES OF THE I-70 AND RAMP LOCATIONS

LEGEND

| | |
|--|--------------------|
| | BARRICADES |
| | TRAFFIC DRUM |
| | TUBULAR MARKERS |
| | ARROW BOARD (C TY) |
| | FLASHING BEACON |

Print Date: 9/6/2012
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WESTBOUND NIGHTTIME TUNNEL CLOSURE TRAFFIC CONTROL PLAN

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| Designer: | S. Sandvik | Structure Numbers | |
| Detailer: | B. Gaines | | |
| Subset: | TCP | Subset Sheets: 8 of 8 | |

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| Project No./Code |
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| 19038 |
| Sheet Number 50 |

1. STORMWATER MANAGEMENT CONTROLS FIRST CONSTRUCTION ACTIVITIES

THE CONTRACTOR SHALL PERFORM THE FOLLOWING:

A. POTENTIAL POLLUTANT SOURCES

1. Evaluate, identify and describe all potential sources of pollutants at the site in accordance with subsection 107.25 and place any BMPs required to contain potential pollutants.

B. BEST MANAGEMENT PRACTICES (BMPs) FOR STORMWATER POLLUTION PREVENTION

NARRATIVES*

Concrete

It is anticipated that a fabricated washout structure shall be required on the project to clean off concrete equipment and tools.

Concrete/debris and waste from construction activities shall be picked up and disposed of properly to an offsite location at the end of the day. Removal of spoils, concrete, debris and waste shall be paid for separately but will be included in the cost of work.

Gravel Bags

Gravel bags shall be used as perimeter protection and along the curb and gutter to contain process water and slurry generated from drilling or saw cutting within the construction site. Gravel bag inlet/outlet protection shall be installed according to Standard Plan M-208-1 (culvert erosion log inlet installation) in which gravel bags shall be j-hooked or placed in such a manner at these locations that sediment laden water will not go around the ends of logs directly into pipe or ditch.

Gravel bags shall be wrapped with impermeable fabric to prevent discharge of fine particles produced during drilling or saw cutting operations. Process water, slurry and debris shall be vacuumed or picked up and disposed of properly to an offsite location. Gravel bags shall be removed from travel lanes at the end of each day, refer to general notes for payment.

Wetlands

No wetland impacts are anticipated on the project.

*BMP details and narratives not covered by the SWMP or Standard Plan M-208-1 shall be added to the SWMP notebook by the Contractor. The narrative should explain what, when, where and how the BMP is being used.

C. OFFSITE DRAINAGE (RUN ON WATER)

1. Place BMPs to address run-on water in accordance with subsection 208.03.

D. VEHICLE TRACKING PAD

1. BMPs shall be implemented in accordance with subsection 208.04.

E. PERIMETER CONTROL

1. Perimeter control shall be established as the first item on the SWMP to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters.
2. Perimeter control may consist of vegetation buffers, berms, silt fence, erosion logs, existing landforms, or other BMPs as approved.
3. Perimeter control shall be in accordance with subsection 208.04.

2. DURING CONSTRUCTION

The SWMP should be considered a "living document" that is continuously reviewed and modified. During construction, the following items shall be added, updated, or amended as needed by the Contractor in accordance with Section 208.

- A. **MATERIALS HANDLING AND SPILL PREVENTION** - Prior to construction commencing the Contractor shall submit a Spill Prevention, Control and Countermeasure Plan, see subsection 208.06. Materials handling shall be in accordance with subsection 208.06.
- B. **STOCKPILE MANAGEMENT** - Shall be done in accordance with subsection 101.95 and 208.07.
- C. **CONCRETE WASHOUT** - Concrete washout shall be contained by a fabricated concrete washout structure in accordance with subsection 208.02(k). Concrete washout structure shall be paid per general notes.
- D. **SAW CUTTING** - Shall be done in accordance with subsection 101.95, 208.04, 208.05.
- E. **STREET CLEANING** - Shall be done in accordance with subsection 208.04.

3. TABULATION OF STORMWATER QUANTITIES

| Pay Item | Description | Pay Unit | *Quantity |
|----------|--|----------|-----------|
| 208 | Gravel Bag | LF | 220 |
| 208 | Concrete Washout Structure | Each | 10 |
| 208 | Removal and Disposal of Sediment (labor) | Hour | 10 |
| 208 | Sweeping (Sediment Removal) | Hour | 80 |
| 208 | Erosion Control | FA | 1 |

*It is anticipated that additional BMPs and BMP quantities not shown on the SWMP Site Maps shall be required on the project for unforeseen conditions and replacement of items that are beyond their useful service life, see subsection 208.03 and 208.04 (e). Quantities for all BMPs shown above are estimated, and have been increased for unforeseen Project conditions.

1. All other items described as part of the SWMP and Standard Special Provisions 101, 107.25, 208 shall be paid for by force account.

| | | | | | | | | | | | | | | |
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| Print Date: 9/6/2012 | 0000 | Sheet Revisions | | | Colorado Department of Transportation | | | As Constructed | | STORMWATER MANAGEMENT PLAN | | | Project No./Code | |
| File Name: SWMP Template_1.dgn | | Date: | Comments | Init. |  425 A Corporate Circle Golden, CO 80401 Phone: 720-497-6918 FAX: 720-497-6901 | | | No Revisions: | | IM 0703-393 | | | | |
| Horiz. Scale: 1:100 Vert. Scale: | | | | | | | | Revised: | | Designer: JJP | | Structure | 19038 | |
| ATKINS 4601 DTC Boulevard, Suite 700 Denver, CO 80237 Phone: (303) 221-7275 Fax: (303) 221-7276 | | | | Region 1 | | | Void: | | Detailer: JAG | Numbers | Sheet Number | | 51 | |
| | | | | | | | Subset: SWMP | | Subset Sheets: 1 of 1 | | | | | |