

### TABULATION OF LENGTH

STATION	LINEAR FEET	
	ROADWAY	MAJOR STRUCTURE
PEORIA STREET 103+45.32 BEGIN ROADWAY 118+00.00 END ROADWAY	1,454.68	
BELFORD AVENUE 3+72.13 BEGIN ROADWAY 12+68.32 END ROADWAY	896.19	
<b>TOTALS</b>	<b>2,350.87</b>	<b>0.00</b>
<b>SUMMARY</b>		
	LIN. FT.	MILES
Roadway	2,350.87	0.45
GROSS AND NET LENGTH	2,350.87	0.45
<b>PEORIA STREET DESIGN DATA</b>		
Minimum Curve Radius (Feet)	1,190	
Maximum Grade	5.0%	
Minimum S.S.D. Horizontal (Feet)	495	
Minimum S.S.D. Vertical (Feet)	495	
Minimum Design Speed (MPH)	55	
Posted Speed Limit (MPH)	45	
Superelevation e(Max.)	4%	
2035 Design Traffic	N/A	
DHV Trucks %	N/A	
<b>BELFORD AVENUE DESIGN DATA</b>		
Minimum Curve Radius (Feet)	762	
Maximum Grade	5.0%	
Minimum S.S.D. Horizontal (Feet)	305	
Minimum S.S.D. Vertical (Feet)	305	
Minimum Design Speed (MPH)	40	
Posted Speed Limit (MPH)	35	
Superelevation e(Max.)	NC	
2035 Design Traffic	N/A	
DHV Trucks %	N/A	

ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

DATE

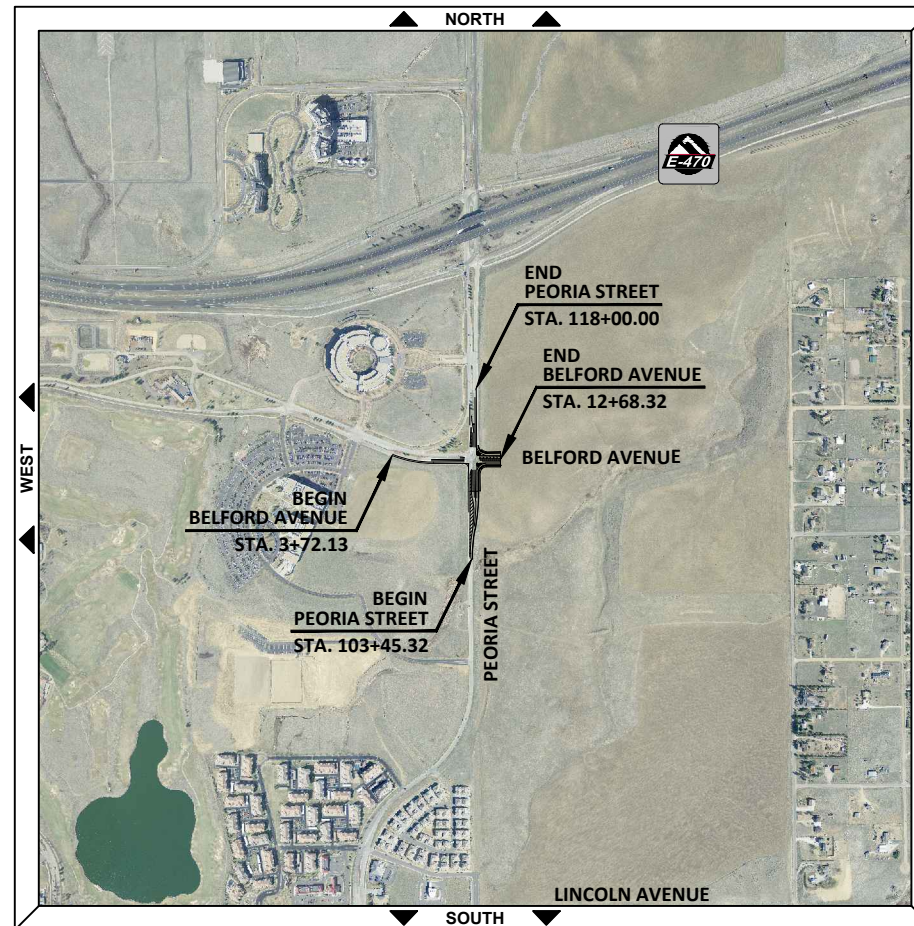
THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR STREET, DRAINAGE, GRADING, EROSION, AND SEDIMENT CONTROL IMPROVEMENTS ONLY.

ENGINEERING DIVISION ACCEPTANCE BLOCK

## CONSTRUCTION PLANS PLAN AND PROFILE OF PROPOSED PEORIA & BELFORD INTERSECTION PROJECT COUNTY OF DOUGLAS, STATE OF COLORADO

### SCALE OF ORIGINAL DRAWINGS

ON PLAN      1" = 40'  
ON PROFILE    1" = 40' HORIZONTAL  
                  1" = 4' VERTICAL



### BASIS OF BEARING:

THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 6, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN BEING MONUMENTED AS SHOWN HEREON HAVING A BEARING OF NORTH 00°29'49" WEST, AS DETERMINED BY GPS OBSERVATION FROM NGS CONTROL POINTS IN THE COLORADO CENTRAL ZONE, STATE PLAN COORDINATE SYSTEM, TOWN OF PARKER, COUNTY OF DOUGLAS, STATE OF COLORADO.

### INDEX OF SHEETS

SHEET NO.	SUBSET SHEETS	DESCRIPTION
1	T-1	TITLE SHEET
2	SP-1	STANDARD PLANS LIST
3 - 4	GN-1 TO GN-2	GENERAL NOTES
5 - 6	TY-1 TO TY-2	TYPICAL SECTIONS
7 - 9	SM-1 TO SM-3	SUMMARY OF APPROXIMATE QUANTITIES
10 - 12	TB-1 TO TB-3	TABULATION OF QUANTITIES
13 - 14	GM-1 TO GM-2	GEOMETRIC LAYOUT
15 - 18	RM-1 TO RM-4	REMOVAL AND RESET PLANS
19 - 25	RD-1 TO RD-7	ROADWAY DETAILS
26 - 27	DA-1 TO DA-2	ROADWAY DATA
28 - 30	PL-1 TO PL-3	ROADWAY PLANS
31	PF-1	ROADWAY PLAN PHASE B (FUTURE)
32	PR-1	ROADWAY PROFILE
33	CJ-1	CONCRETE JOINTING PLAN
34	ID-1	INTERSECTION & CURB RETURN DETAILS
35	CD-1	CONCRETE CURB RAMP DETAILS
36	TD-1	TRUCK TURNING DETAILS
37	DD-1	DRAINAGE DETAILS
38	DR-1	DRAINAGE PLAN
39	EL-1	GESC TITLE SHEET
40	ET-1	TABULATION OF EROSION CONTROL QUANTITIES
41	EI-1	INITIAL GRADING AND EROSION CONTROL PLAN
42	EN-1	INTERIM GRADING AND EROSION CONTROL PLAN
43	EF-1	FINAL GRADING AND EROSION CONTROL PLAN
44 - 57	1 TO 14	GESC PLAN STANDARD NOTES AND DETAILS
58	ST-1	TABULATION OF SIGNING AND STRIPING QUANTITIES
59 - 62	SS-1 TO SS-4	SIGNING AND STRIPING PLANS
63	SN-1	TRAFFIC SIGNAL GENERAL NOTES
64	TT-1	TRAFFIC SIGNAL ITEM TABULATION AND SYMBOLS
65 - 66	TS-1 TO TS-2	TRAFFIC SIGNAL MODIFICATION PLANS
67	TM-1	TRAFFIC SIGNAL PLAN (TEMPORARY)
68 - 83	CS-1 TO CS-16	ROADWAY CROSS SECTIONS

### BENCHMARKS: (COMPARK SOUTH)

#### SOURCE BENCHMARKS:

DOUGLAS COUNTY BM 1.115010  
A DOUGLAS COUNTY GIS MONUMENT SET IN CONCRETE LOCATED APPROXIMATELY 130 FEET SOUTHWESTERLY OF THE CENTERLINE OF CHAMBERS ROAD AND 95 FEET NORTHWESTERLY OF THE CENTERLINE OF COMPARK BOULEVARD.

ELEVATION = 5752.84 (NAVD 88)

#### SITE BENCHMARK:

THE NORTHEAST BOLT OF A SIGNAL POLE LOCATED APPROXIMATELY 56 FEET NORTH OF CENTERLINE OF BELFORD AVENUE AND APPROXIMATELY 80 FEET WEST OF THE CENTERLINE OF SOUTH PEORIA STREET.

ELEVATION = 5918.38

A CHISELED SQUARE ON THE SOUTHWEST CORNER OF AN INLET LOCATED APPROXIMATELY 47 FEET SOUTH OF THE CENTERLINE OF BELFORD AVENUE AND APPROXIMATELY 119 FEET WEST OF THE CENTERLINE OF SOUTH PEORIA STREET.

ELEVATION = 5916.03

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Horizontal Scale: NTS

Vertical Scale: NTS



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### Sheet Revisions

Date	Comments	Initials



As Constructed

No Revisions:

Revised:

Void:

PEORIA & BELFORD INTERSECTION  
TITLE SHEET

Designer:

DCS

Detailer:

JHH

Subset:

TITLE

Structure

Numbers

Sheets:

T-1 of 1

Project No./Code

Sheet Number

1

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PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER
M-100-1		STANDARD SYMBOLS (3 SHEETS)	1-3
M-100-2		ACRONYMS AND ABBREVIATIONS (4 SHEETS)	4-7
M-203-1	<input type="checkbox"/>	APPROACH ROADS (REVISED ON JULY 08, 2013)	<del>8</del>
M-203-2		DITCH TYPES	9
M-203-11		SUPERELEVATION CROWNED AND DIVIDED HIGHWAYS (3 SHEETS)	10-12
M-203-12		SUPERELEVATION STREETS (2 SHEETS)	13-14
M-206-1		EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS)	15-16
M-206-2		EXCAVATION AND BACKFILL FOR BRIDGES (2 SHEETS)	17-18
M-208-1	<input type="checkbox"/>	TEMPORARY EROSION CONTROL (11 SHEETS) (REVISED ON MARCH 29, 2016)	<del>19-30</del>
M-210-1		MAILBOX SUPPORTS (2 SHEETS)	31-32
M-214-1		PLANTING DETAILS	33
M-216-1	<input type="checkbox"/>	SOIL RETENTION COVERING (2 SHEETS) (NEW ON JULY 16, 2015)	
M-412-1	<input type="checkbox"/>	CONCRETE PAVEMENT JOINTS (5 SHEETS) (REVISED ON JULY 24, 2012)	<del>34-38</del>
M-510-1		STRUCTURAL PLATE PIPE H-20 LOADING	39
M-601-1	<input type="checkbox"/>	SINGLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2015)	<del>40-41</del>
M-601-2	<input type="checkbox"/>	DOUBLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2015)	<del>42-43</del>
M-601-3	<input type="checkbox"/>	TRIPLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2015)	<del>44-45</del>
M-601-10		HEADWALL FOR PIPES	46
M-601-11		TYPE "S" SADDLE HEADWALLS FOR PIPE	47
M-601-12		HEADWALLS AND PIPE OUTLET PAVING	48
M-601-20		WINGWALLS FOR PIPE OR BOX CULVERTS	49
M-603-1	<input type="checkbox"/>	METAL PIPE (4 SHEETS) (REVISED ON OCTOBER 02, 2014)	<del>50-53</del>
M-603-2	<input type="checkbox"/>	REINFORCED CONCRETE PIPE (REVISED ON OCTOBER 02, 2014)	<del>54</del>
M-603-3		PRECAST CONCRETE BOX CULVERT	55
M-603-4	<input type="checkbox"/>	CORRUGATED POLYETHYLENE PIPE (AASHTO M294) (REVISED ON OCT. 02, 2014)	<del>56</del>
M-603-5	<input type="checkbox"/>	POLYVINYL CHLORIDE (PVC) PIPE (AASHTO M304) (REVISED ON OCT. 02, 2014)	<del>57</del>
M-603-6	<input type="checkbox"/>	STEEL REINFORCED POLYETHYLENE RIBBED PIPE (AASHTO MP 20) (NEW ON APRIL 30, 2015)	
M-603-10		CONCRETE AND METAL END SECTIONS (2 SHEETS)	58-59
M-604-10		INLET, TYPE C	60
M-604-11		INLET, TYPE D	61
M-604-12		CURB INLET TYPE R (2 SHEETS)	62-63
M-604-13		CONCRETE INLET TYPE 13	64
M-604-20		MANHOLES (3 SHEETS)	65-67
M-604-25		VANE GRATE INLET (5 SHEETS)	68-72
M-605-1		SUBSURFACE DRAINS	73
M-606-1	<input type="checkbox"/>	GUARDRAIL TYPE 3 W-BEAM (20 SHEETS) (REVISED ON OCTOBER 27, 2014)	<del>74-92</del>
M-606-1	<input type="checkbox"/>	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES (20 SHEETS) (REVISED ON DECEMBER 29, 2015)	
M-606-13	<input type="checkbox"/>	GUARDRAIL TYPE 7 F-SHAPE BARRIER (4 SHEETS) (REVISED ON AUGUST 30, 2013)	<del>93-96</del>
M-606-14		PRECAST TYPE 7 CONCRETE BARRIER (3 SHEETS)	97-99

PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER
M-607-1		WIRE FENCES AND GATES (3 SHEETS)	100-102
M-607-2		CHAIN LINK FENCE (3 SHEETS)	103-105
M-607-3		BARRIER FENCE	106
M-607-4	<input type="checkbox"/>	DEER FENCE, GATES, AND GAME RAMPS (5 SHEETS) (REVISED ON APRIL 30, 2015)	<del>107-109</del>
M-607-10		PICKET SNOW FENCE	110
M-607-15		ROAD CLOSURE GATE (9 SHEETS)	111-119
M-608-1	<input type="checkbox"/>	CURB RAMPS (7 SHEETS) (REVISED ON JUNE 16, 2014)	<del>120-125</del>
M-609-1	<input type="checkbox"/>	CURBS, GUTTERS, AND SIDEWALKS (4 SHEETS) (REVISED ON JULY 24, 2012)	<del>126-129</del>
M-611-1		CATTLE GUARD (2 SHEETS)	130-131
M-611-2	<input type="checkbox"/>	DEER GUARD (2 SHEETS) (NEW ON APRIL 30, 2015)	
M-613-1		ROADWAY LIGHTING (4 SHEETS)	132-135
M-614-1		RUMBLE STRIPS (3 SHEETS)	136-138
M-614-2		SAND BARREL ARRAYS (2 SHEETS)	139-140
M-615-1		EMBANKMENT PROTECTOR TYPE 3	141
M-615-2		EMBANKMENT PROTECTOR TYPE 5	142
M-616-1		INVERTED SIPHON	143
M-620-1		FIELD LABORATORY CLASS 1	144
M-620-2		FIELD LABORATORY CLASS 2 (2 SHEETS)	145-146
M-620-11		FIELD OFFICE CLASS 1	147
M-620-12		FIELD OFFICE CLASS 2	148
M-629-1		SURVEY MONUMENTS (2 SHEETS)	149-150

PLAN NUMBER	NEW OR REVISED	S STANDARD TITLE	PAGE NUMBER
S-612-1		DELINEATOR INSTALLATIONS (7 SHEETS)	151-157
S-614-1	<input checked="" type="checkbox"/>	GROUND SIGN PLACEMENT (2 SHEETS) (REVISED ON DEC. 12, 2014)	<del>158-159</del>
S-614-2	<input type="checkbox"/>	CLASS I SIGNS (REVISED ON JUNE 24, 2016)	<del>160</del>
S-614-3		CLASS II SIGNS	161
S-614-4	<input type="checkbox"/>	CLASS III SIGNS (3 SHEETS) (REVISED ON DECEMBER 17, 2014)	<del>162-164</del>
S-614-5		BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS (2 SHEETS)	165-166
S-614-6	<input type="checkbox"/>	CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS) (REVISED ON SEPTEMBER 16, 2013)	<del>167-168</del>
S-614-8	<input type="checkbox"/>	TUBULAR STEEL SIGN SUPPORT DETAILS (6 SHEETS) (REVISED ON OCTOBER 23, 2014)	<del>169-173</del>
S-614-9	<input type="checkbox"/>	PEDESTRIAN PUSH BUTTON POST ASSEMBLY (REVISED ON MAY 24, 2016)	<del>174</del>
S-614-10		MARKER ASSEMBLY INSTALLATIONS	175
S-614-11		MILEPOST SIGN DETAIL FOR HIGH SNOW AREAS	176
S-614-12		STRUCTURE NUMBER INSTALLATION	177
S-614-14		FLASHING BEACON AND SIGN INSTALLATIONS (3 SHEETS)	178-180
S-614-20		TYPICAL POLE MOUNT SIGN INSTALLATIONS	181
S-614-21	<input type="checkbox"/>	CONCRETE BARRIER SIGN POST INSTALLATIONS (REVISED ON MAY 24, 2016)	<del>182</del>
S-614-22		TYPICAL MULTI-SIGN INSTALLATIONS	183
S-614-40	<input type="checkbox"/>	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS (5 SHEETS) (REVISED ON JUNE 17, 2016)	<del>184-188</del>
S-614-40A	<input type="checkbox"/>	ALTERNATIVE TRAFFIC SIGNAL INSTALLATION DETAILS (4 SHEETS) (REVISED ON JUNE 17, 2016)	<del>189-192</del>
S-614-41	<input type="checkbox"/>	TEMPORARY SPAN WIRE SIGNALS (REVISED ON APRIL 2, 2015)	<del>193</del>
S-614-42		CABINET FOUNDATION DETAIL (4 SHEETS)	194-197
S-614-43		TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS (10 SHEETS)	198-207
S-614-44	<input type="checkbox"/>	PEDESTAL POLE SIGNALS (2 SHEETS) (REVISED ON JUNE 17, 2016)	
S-614-50	<input type="checkbox"/>	STATIC SIGN MONOTUBE STRUCTURES (12 SHEETS) (REVISED ON JUNE 17, 2016)	<del>208-219</del>
S-614-60	<input type="checkbox"/>	DYNAMIC SIGN MONOTUBE STRUCTURES (14 SHEETS) (REVISED ON JUNE 17, 2016)	<del>220-233</del>
S-627-1	<input type="checkbox"/>	PAVEMENT MARKINGS (5 SHEETS) (REVISED ON JUNE 10, 2014)	<del>234-238</del>
S-630-1	<input checked="" type="checkbox"/>	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (24 SHEETS) (REVISED ON JUNE 23, 2016)	<del>239-258</del>
S-630-2	<input checked="" type="checkbox"/>	BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) AND VERTICAL PANELS (REVISED ON JUNE 3, 2016)	<del>259</del>
S-630-3		FLASHING BEACON (PORTABLE) DETAILS	260
S-630-4		STEEL SIGN SUPPORT (TEMPORARY) INSTALLATION DETAILS (2 SHEETS)	261-262
S-630-5	<input type="checkbox"/>	PORTABLE RUMBLE STRIPS (TEMPORARY) (2 SHEETS) (REVISED ON AUGUST 13, 2015)	<del>263-264</del>
S-630-6		EMERGENCY PULL-OFF AREA (TEMPORARY)	265
S-630-7		ROLLING ROADBLOCKS FOR TRAFFIC CONTROL (3 SHEETS)	266-268

COLORADO  
 DEPARTMENT OF TRANSPORTATION  
**M&S STANDARDS PLANS LIST**  
 July 04, 2012  
 Revised on June 24, 2016

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

NEW OR REVISED STANDARD PLAN SHEETS APPLICABLE TO THIS PROJECT, INDICATED BY A MARKED BOX  WILL BE ATTACHED TO THE PLANS.

Print Date: 8/17/2016 9:50:34 PM		Sheet Revisions				As Constructed		PEORIA & BELFORD INTERSECTION STANDARD PLANS LIST		Project No./Code	
File Name: G115360-01SPL01.dwg						No Revisions:					
Horizontal Scale: NTS Vertical Scale: NTS					Revised:		Designer: DCS Structure				
 6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832					Void:		Detailer: JHH Numbers				
							Subset: GENERAL Sheets: SP-1 of 1		Sheet Number 2		

**GENERAL NOTES**

UNLESS OTHERWISE NOTED, ALL STATIONS, DIMENSIONS AND ELEVATIONS AT THE CURB AND GUTTER ARE TO THE PANLINE (LIP).

ALL WORK TO BE CONDUCTED WITHIN THE PROJECT LIMITS SHALL BE COMPLETED IN ACCORDANCE WITH DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS, LATEST EDITION, CDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, AND ITS SUPPLEMENTS, CDOT STANDARD PLANS (M&S STANDARDS), LATEST EDITION, AND THE APPROVED PLANS AND SPECIFICATIONS.

ALL WORK ZONE TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION, THE CURRENT COLORADO SUPPLEMENTS, AND THE APPROVED PLANS AND SPECIFICATIONS.

UTILITIES

UTILITY INFORMATION AS SHOWN ON THE PLAN SHEETS ARE PLOTTED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR'S ATTENTION IS DIRECTED TO PARAGRAPH 105.11 OF THE STANDARD SPECIFICATIONS CONCERNING UTILITIES. THE CONTRACTOR SHALL CALL 811 FOR UTILITY LOCATIONS AT LEAST 2 WORKING DAYS PRIOR TO ANY DIGGING, NOT INCLUDING THE DAY OF ACTUAL CONTACT.



IT IS ESTIMATED THAT TWENTY FOUR (24) HOURS WILL BE REQUIRED FOR UTILITY POTHOLES.

PAVEMENT AND CURB AND GUTTER

ANY LAYER OF BITUMINOUS PAVEMENT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE SUCCEEDING LAYER IS PLACED.

CUTTING OR PATCHING OF PERMANENT PAVEMENT WILL NOT BE PERMITTED WITHOUT THE APPROVAL OF ENGINEER.

FOR PRELIMINARY PLAN QUANTITIES OF BITUMINOUS MATERIALS, THE FOLLOWING RATES OF APPLICATION WERE USED:

DILUTED EMULSIFIED ASPHALT (SLOW-SETTING)	AT	0.10 GAL. PER SQ. YD. (DILUTED)
HOT MIX ASPHALT	AT	110 LBS. PER SQ. YD. PER 1" THICKNESS
AGGREGATE BASE COURSE	AT	133 LBS. PER CUBIC FOOT

WHEN ORDERED BY THE ENGINEER A TACK COAT OF EMULSIFIED ASPHALT (SLOW-SETTING) IS TO BE APPLIED BETWEEN PAVEMENT COURSES TO IMPROVE THE BOND. DILUTED EMULSIFIED ASPHALT FOR TACK SHALL CONSIST OF 1 PART EMULSIFIED ASPHALT AND 1 PART WATER.

RATES OF APPLICATION AS SHOWN ABOVE SHALL BE DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION.

ALL CONCRETE FOR PORTLAND CEMENT CONCRETE PAVEMENT SHALL BE CLASS P.

PAVEMENT SMOOTHNESS IS HRI CATEGORY III.

EARTHWORK

WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATIONS SHALL BE AS ORDERED BY THE ENGINEER AND WILL NOT BE PAID FOR SEPARATELY.

DEPTH OF MOISTURE – DENSITY CONTROL FOR THIS PROJECT SHALL BE AS FOLLOWS:

FULL DEPTH OF ALL EMBANKMENTS  
BASES OF CUTS AND FILLS = 8 INCHES

EXCAVATION REQUIRED FOR COMPACTION OF BASES OF CUTS AND FILLS WILL BE CONSIDERED SUBSIDIARY TO THAT OPERATION AND WILL NOT BE PAID FOR SEPARATELY.

THE TYPE OF COMPACTION FOR EARTHWORK ON THIS PROJECT SHALL BE ASTM D698 FOR COHESIVE SOILS OR ASTM D 1557 FOR GRANULAR SOILS. THE FOLLOWING COMPACTION SPECIFICATIONS SHOULD BE FOLLOWED FOR EACH AREA:

BENEATH STRUCTURAL AREAS: 95% OF MAXIMUM DRY DENSITY  
BENEATH NON-STRUCTURAL AREAS: 90% OF MAXIMUM DRY DENSITY

THE CONTRACTOR SHALL REFER TO THE FINAL GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION ON MOISTURE CONTROL AND COMPACTION.

RIGHT OF WAY

EXISTING RIGHT OF WAY INFORMATION AS SHOWN ON THE PLAN SHEETS ARE PLOTTED FROM THE BEST AVAILABLE INFORMATION.

CONSTRUCTION

REMOVAL OF CONCRETE PAVEMENT REQUIRED ON THIS PROJECT SHALL BE SAW CUT TO A VERTICAL EDGE. COST TO BE INCLUDED IN THE WORK.

ANY CURB AND GUTTER OR CONCRETE PAVEMENT, WHICH IS TO REMAIN AND IS DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATION, SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

SHORING MAY BE REQUIRED TO CONSTRUCT THE IMPROVEMENTS IDENTIFIED FOR THIS PROJECT INCLUDING UTILITY RELOCATIONS, STORM SEWER PIPES, DRAINAGE STRUCTURES AND OTHER PROPOSED IMPROVEMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY REQUIRED SHORING AREAS. ALL REQUIRED SHORING FOR THIS PROJECT WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.

THE CONCENTRATION OF WATER-SOLUBLE SULFATES OF THE ONSITE SOILS INDICATED CONCENTRATIONS OF LESS THAN 100 PPM (PARTS PER MILLION) TO 100 PPM. THIS IS CONSIDERED TO BE A NEGLIGIBLE CONCENTRATION RELATIVE TO POTENTIAL CORROSIVE ATTACK ON CONCRETE. THEREFORE, ALL CONCRETE IN CONTACT WITH THE SOILS ON THE SITE MAY BE DESIGNED FOR NEGLIGIBLE SULFATE EXPOSURE (SØ) IN ACCORDANCE WITH THE CURRENT AMERICAN CONCRETE INSTITUTE (ACI) MANUAL.

WATER MAY BE PURCHASED FROM THE STONEGATE WATER AND SANITATION DISTRICT.

THE END POSTS AND CORNER POSTS ARE NOT PAID FOR SEPARATELY BUT ARE INCLUDED IN THE FENCE BID ITEM.

This project is subject to a permit with the Colorado Department of Health for Stormwater Discharges Associated with Construction Activities. The permit shall be obtained by the Contractor. The Contractor shall prepare all applications required and submit to the Colorado Department of Health. The Contractor shall submit a copy of the permit to the Engineer prior to the start of Construction. The Contractor is Responsible for all permit application fees.

UTILITY LIST

THE FOLLOWING IS A LIST OF KNOWN UTILITIES WITH SERVICES WITHIN THE PROJECT LIMITS:



BROOKS KAUFMAN INTERMOUNTAIN RURAL ELECTRIC ASSOCIATION (303) 688-3100 PHONE



WILLIAM BENSON CENTURYLINK (303) 792-6069 PHONE



COLORADO DEPARTMENT OF HEALTH (303) 320-8333 PHONE



KEVIN YOUNG COMCAST (720) 490-3867 PHONE



MICHELLE O'NAN XCEL ENERGY (303) 329-1618 PHONE



DOUGLAS COUNTY SIGN & SIGNAL DEPARTMENT (303) 663-6237 PHONE



JIM ADAMSON MERIDIAN METROPOLITAN DISTRICT SHEA PROPERTIES (303) 790-1498 PHONE

STANDARD ABBREVIATION/DEFINITIONS

THE FOLLOWING IS A LIST OF ABBREVIATIONS USED IN THE CONTRACT DOCUMENTS:

- HCL – HORIZONTAL CONTROL LINE
- PGL – PROFILE GRADE LINE
- HMA – HOT MIX ASPHALT
- NTS – NOT TO SCALE
- ROW – RIGHT OF WAY
- RCP – REINFORCED CONCRETE PIPE
- PVC – POLYVINYL CHLORIDE PIPE
- PI – POINT OF INTERSECTION
- PC – POINT OF CURVATURE
- PRC – POINT OF REVERSE CURVATURE
- PT – POINT OF TANGENT
- VPI – VERTICAL POINT OF INTERSECTION
- VPC – VERTICAL POINT OF CURVATURE
- VPT – VERTICAL POINT OF TANGENT
- NC – NORMAL CROWN
- NIC – NOT IN CONTRACT
- NA – NOT APPLICABLE
- POSS – POINT OF SLOPE SELECTION
- PL – PROPERTY LINE

I:\115360-01 - Compare at Belford\CADD\Design\Drawings\Peoria\ Dustin.Shaklee

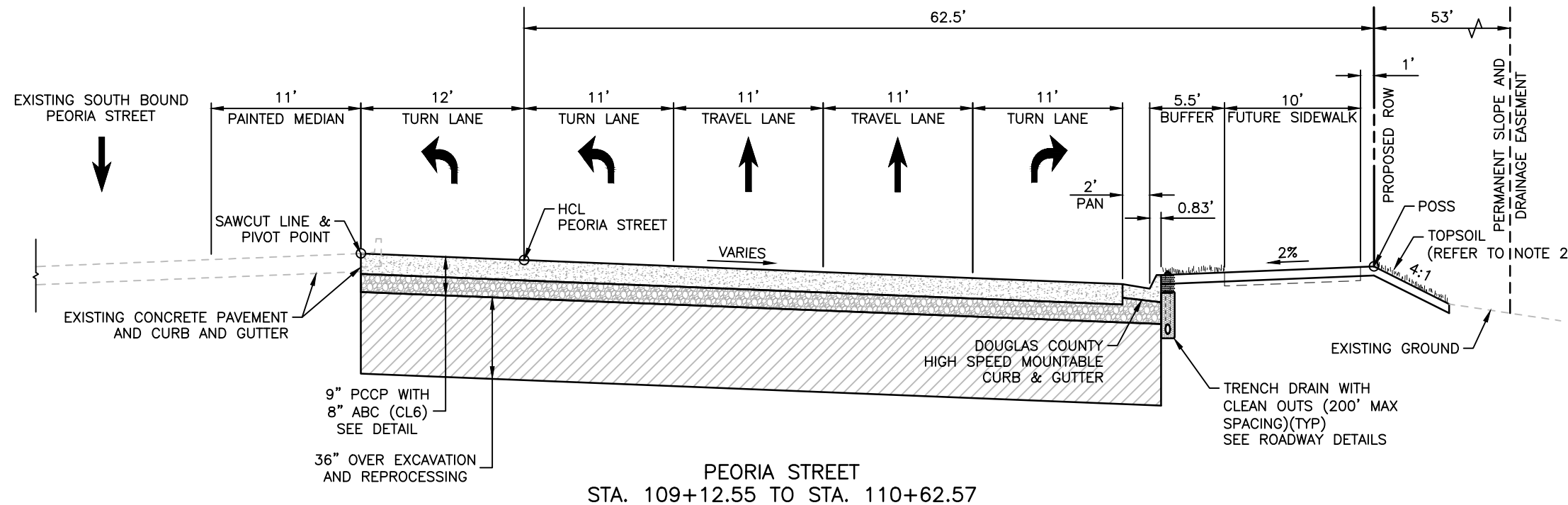
Print Date: 8/17/2016 9:51:02 PM		<b>Sheet Revisions</b>				As Constructed		<b>PEORIA &amp; BELFORD INTERSECTION GENERAL NOTES</b>		Project No./Code	
File Name: G115360-01GNR01.dwg		(R-X)	Date	Comments		Initials	No Revisions:				
Horizontal Scale: NTS Vertical Scale: NTS						Revised:		Designer: DCS	Structure		
6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832						Void:		Detailer: JHH	Numbers		
								Subset: GENERAL	Sheets: GN-1 of 2	Sheet Number <b>3</b>	

**DOUGLAS COUNTY STANDARD NOTES**

1. THE DOUGLAS COUNTY ENGINEERING DIRECTOR SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES THE ENGINEERING DIVISION HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL CONFORMANCE WITH THE DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS AND THE DOUGLAS COUNTY SUBDIVISION RESOLUTION OR ACCEPTED VARIANCES TO THOSE REGULATIONS. THE DOUGLAS COUNTY ENGINEERING DIRECTOR, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY, OTHER THAN STATED ABOVE, FOR THE COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS. THE OWNER AND ENGINEER UNDERSTAND THAT THE RESPONSIBILITY FOR THE ENGINEERING ADEQUACY OF THE FACILITIES DEPICTED IN THIS DOCUMENT LIES SOLELY WITH THE PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF COLORADO WHOSE STAMP AND SIGNATURE IS AFFIXED TO THIS DOCUMENT.
2. ALL CONSTRUCTION SHALL CONFORM TO DOUGLAS COUNTY STANDARDS. ANY CONSTRUCTION NOT SPECIFICALLY ADDRESSED BY THESE PLANS AND SPECIFICATIONS WILL BE BUILT IN COMPLIANCE WITH THE LATEST EDITION OF THE MOST STRINGENT OF THE FOLLOWING:
  - THE DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS
  - THE COLORADO DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
  - THE COLORADO DEPARTMENT OF TRANSPORTATION M STANDARDS
3. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE DOUGLAS COUNTY ENGINEERING DIVISION AS APPLICABLE. THE COUNTY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO ITS STANDARDS AND SPECIFICATIONS.
4. THE CONTRACTOR SHALL NOTIFY THE DOUGLAS COUNTY ENGINEERING INSPECTION DIVISION, 303-660-7487, A MINIMUM OF 24-HOURS AND A MAXIMUM OF 72-HOURS PRIOR TO STARTING CONSTRUCTION. CONTRACTOR SHALL NOTIFY DOUGLAS COUNTY ENGINEERING INSPECTION WHEN WORKING OUTSIDE OF THE PUBLIC RIGHT-OF-WAY ON ANY FACILITY THAT WILL BE CONVEYED TO THE COUNTY, URBAN DRAINAGE & FLOOD CONTROL DISTRICT, OR OTHER SPECIAL DISTRICT FOR MAINTENANCE (STORM SEWER, ENERGY DISSIPATORS, DETENTION OUTLET STRUCTURES, OR OTHER DRAINAGE INFRASTRUCTURES). FAILURE TO NOTIFY THE ENGINEERING INSPECTION DIVISION TO ALLOW THEM TO INSPECT THE CONSTRUCTION MAY RESULT IN NON-ACCEPTANCE OF THE FACILITY/INFRASTRUCTURE BY THE COUNTY AND/OR URBAN DRAINAGE.
5. CONSTRUCTION WILL NOT BEGIN UNTIL ALL APPLICABLE PERMITS HAVE BEEN ISSUED. IF A DOUGLAS COUNTY ENGINEERING INSPECTOR IS NOT AVAILABLE AFTER PROPER NOTICE OF CONSTRUCTION ACTIVITY HAS BEEN PROVIDED, THE PERMITTEE MAY COMMENCE WORK IN THE INSPECTOR'S ABSENCE. HOWEVER, DOUGLAS COUNTY RESERVES THE RIGHT NOT TO ACCEPT THE IMPROVEMENT IF SUBSEQUENT TESTING REVEALS AN IMPROPER INSTALLATION.
6. THE LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ACTUAL CONSTRUCTION. FOR INFORMATION CONTACT: COLORADO 811, AT 1-800-922-1987 (WWW.COLORADO811.ORG).
7. THE CONTRACTOR SHALL HAVE ONE (1) COPY OF THE PLANS SIGNED BY THE DOUGLAS COUNTY ENGINEERING DIRECTOR, ONE (1) COPY OF THE ROADWAY DESIGN AND CONSTRUCTION STANDARDS, AS AMENDED, AND ALL APPLICABLE PERMITS AT THE JOB SITE AT ALL TIMES.
8. ALL PROPOSED STREET CUTS TO EXISTING PAVEMENTS FOR UTILITIES, STORM SEWER OR FOR OTHER PURPOSES ARE LISTED AND REFERENCED BELOW:
  - POSSIBLE UTILITY RELOCATIONS DUE TO FINAL PAVEMENT SECTION TO BE DETERMINED
9. A TRAFFIC CONTROL PLAN, IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, SHALL BE SUBMITTED TO DOUGLAS COUNTY FOR ACCEPTANCE WITH THE RIGHT-OF-WAY USE AND CONSTRUCTION PERMIT APPLICATION. A RIGHT-OF-WAY USE AND CONSTRUCTION PERMIT WILL NOT BE ISSUED WITHOUT AN ACCEPTED TRAFFIC CONTROL PLAN FOR TRAFFIC CONTROL DURING CONSTRUCTION.
10. THE CONSTRUCTION PLANS SHALL BE CONSIDERED VALID FOR THREE (3) YEARS FROM THE DATE OF COUNTY ACCEPTANCE, AFTER WHICH TIME THESE PLANS SHALL BE VOID AND WILL BE SUBJECT TO RE-REVIEW AND RE-ACCEPTANCE BY DOUGLAS COUNTY.
11. DOUGLAS COUNTY STANDARD DETAILS SHALL NOT BE MODIFIED. ANY NON-STANDARD DETAILS WILL BE CLEARLY IDENTIFIED AS SUCH.
12. PAVING, INCLUDING CONSTRUCTION OF CURB AND GUTTER (WHEN USED), SHALL NOT START UNTIL A PAVEMENT DESIGN REPORT AND SUBGRADE COMPACTION TESTS ARE ACCEPTED BY THE ENGINEERING INSPECTION DIVISION FOR ALL PUBLIC AND PRIVATE ROADS.
13. STANDARD DOUGLAS COUNTY HANDICAP RAMPS ARE TO BE CONSTRUCTED AT ALL CURB RETURNS AND AT MID-BLOCK LOCATIONS OPPOSITE OF ONE OF THE CURB RETURNS OF ALL "T" INTERSECTIONS AS IDENTIFIED ON THESE PLANS.
14. ALL STATIONING IS BASED ON CENTERLINE OF ROADWAYS UNLESS OTHERWISE NOTED.
15. ALL ELEVATIONS ARE ON UNITED STATES COAST AND GEODETIC SURVEY (USC&GS) (NAVD-88) DATUM WITH DATE. THE RANGE POINT OR MONUMENTS SHALL BE SHOWN ON CONSTRUCTION DRAWINGS.
16. ALL STORM SEWER IMPROVEMENTS (PUBLIC AND PRIVATE) INCLUDING, BUT NOT LIMITED TO, INLETS, PIPES, CULVERTS, CHANNELS, DITCHES, HYDRAULIC STRUCTURES, RIPRAP, DETENTION BASINS, FOREBAYS, MICROPOOLS, AND WATER QUALITY FACILITIES REQUIRE PERMITTING AND INSPECTIONS. PLEASE CONTACT THE DOUGLAS COUNTY ENGINEERING INSPECTIONS DIVISION AT 303- 660-7487 FOR PERMITTING REQUIREMENTS AND INSPECTIONS SCHEDULING.
17. TWO (2) MANHOLE ACCESS POINTS ARE REQUIRED ON ALL TYPE "R" CURB INLETS GREATER THAN OR EQUAL TO TEN (10) FEET IN LENGTH.
18. EPOXY COATED REBAR IS REQUIRED ON ALL DRAINAGE STRUCTURES.
19. DOUGLAS COUNTY REQUIRES CLASS D CONCRETE FOR ALL DRAINAGE STRUCTURES.
20. ALL RCP STORM SEWERS MUST USE ASTM C443 WATERTIGHT GASKETS PER THE CURRENT DOUGLAS COUNTY AND URBAN DRAINAGE DESIGN CRITERIA.
21. ALL RCP SHALL BE CLASS III STORM SEWER PIPE UNLESS OTHERWISE SPECIFIED.
22. JOINT RESTRAINTS ARE REQUIRED FOR A MINIMUM OF THE LAST TWO PIPE JOINTS AND FLARED END SECTION OF AN RCP OUTFALL.
23. PRECAST INLETS AND MANHOLE BASES ARE NOT ALLOWED.
24. TOE WALLS ARE REQUIRED ON FLARED END SECTIONS AT THE OUTLET END OF CULVERTS AND STORM SEWER OUTFALLS.
25. FILTER FABRIC IS REQUIRED UNDER ALL RIPRAP PADS.
26. THE PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF COLORADO, SIGNING THESE PLANS IS RESPONSIBLE FOR ENSURING THAT THE DETAILS INCLUDED ARE COMPATIBLE WITH THE STANDARD DOUGLAS COUNTY DETAILS CONTAINED IN THE LATEST VERSIONS OF THE CRITERIA MANUALS. THIS INCLUDES, BUT IS NOT LIMITED TO:
  - DOUGLAS COUNTY ROADWAY DESIGN AND CONSTRUCTION STANDARDS
  - DOUGLAS COUNTY STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA
  - DOUGLAS COUNTY GRADING, EROSION AND SEDIMENT CONTROL CRITERIA
  - CDOT M & S STANDARDS
  - MUTCD
  - URBAN STORM DRAINAGE CRITERIA MANUAL VOLUMES 1,2 & 3
27. A TEMPORARY CONSTRUCTION ACCESS PERMIT FROM DOUGLAS COUNTY MAY BE REQUIRED FOR ANY PROJECT.

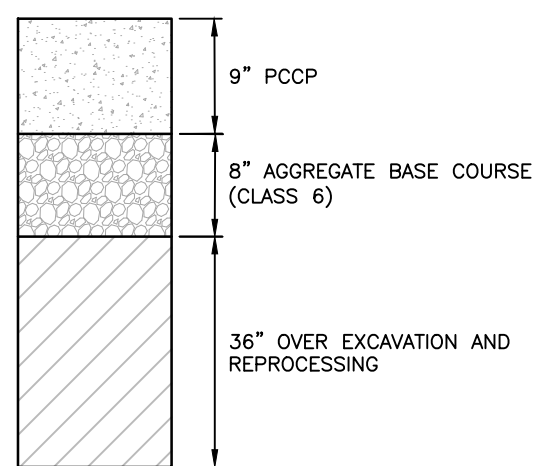
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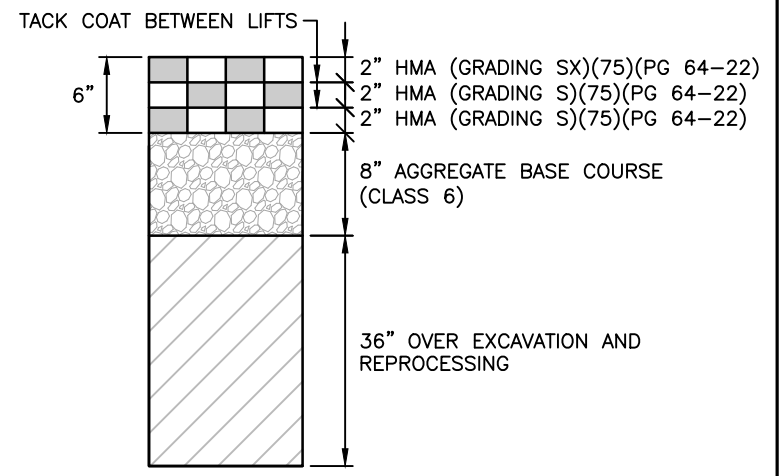
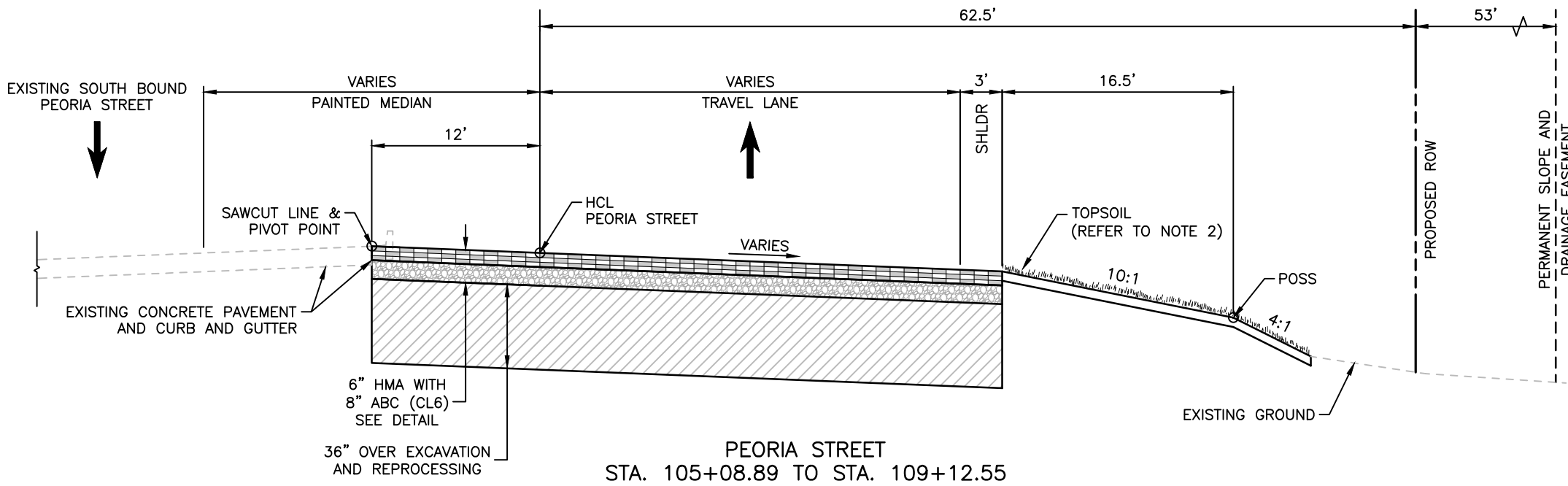


**PEORIA CROSS SLOPE TRANSITIONS**

+ HCL PEORIA ST	2.02%±	+ 103+45.32
● SAWCUT LINE	1.97%±	+ 104+45.32
○ PIVOT POINT	2.23%±	105+45.32
* MATCH EXISTING CROSS SLOPE	1.75%±	105+95.32
	2.00%	108+95.32
	2.00%	110+35.32
	1.00%	110+89.55
	2.00%±	1.00%
	2.48%±	112+20.26
	2.26%±	112+91.33



**9" CONCRETE PAVEMENT DETAIL (WITH LOAD TRANSFER DEVICES)**



**6" HOT MIX ASPHALT PAVEMENT DETAIL**

- NOTES:**
- BREAK POINTS ON SLOPES AND IN BOTTOMS OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR A PLEASING APPEARANCE. SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.
  - THE TOPSOIL SHALL BE PLACED AT A MINIMUM DEPTH OF 4 INCHES. DUE TO THE ANTICIPATED EXCESS AMOUNT OF TOPSOIL, SOME SURFACES WILL CONTAIN TOPSOIL EXCEEDING 4 INCHES IN DEPTH.

- THE CONTRACTOR SHALL INSTALL 1/2" EXPANSION MATERIAL BETWEEN THE BACK OF CURB AND THE ISLAND MEDIAN COVER MATERIAL. A SEALANT MATERIAL THAT MATCHES THE COLOR OF THE MEDIAN COVER MATERIAL SHALL BE APPLIED ON THE JOINT OVER THE EXPANSION MATERIAL. THE EXPANSION MATERIAL AND SEALANT SHALL NOT TO BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
- FINAL GEOTECHNICAL REPORT TO DETERMINE FINAL PAVEMENT SECTION DETAILS.

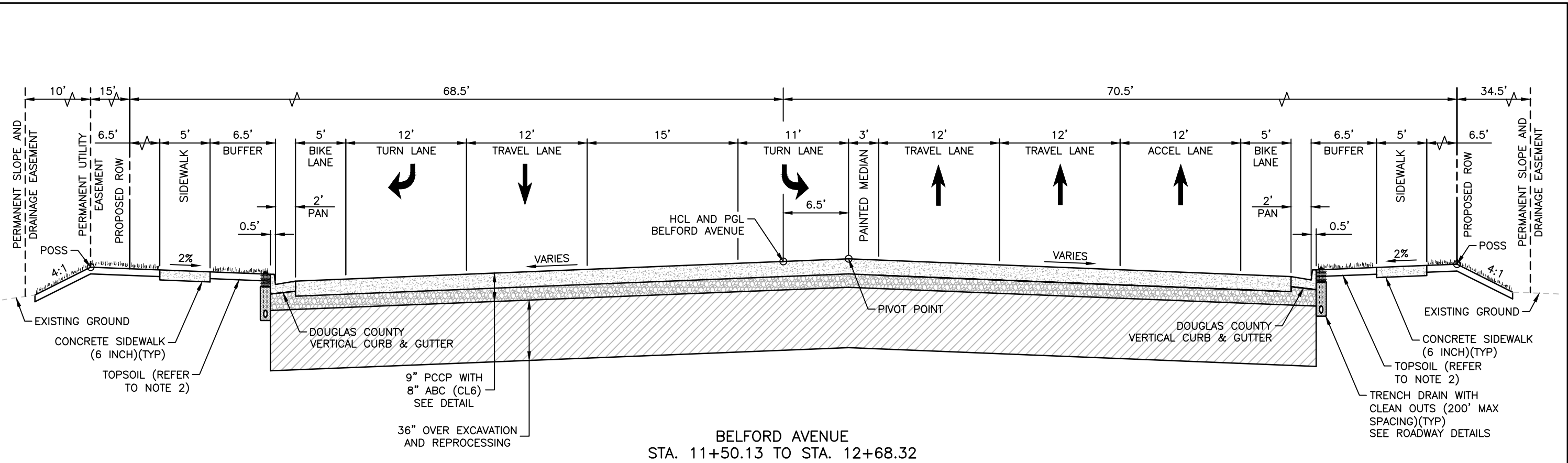
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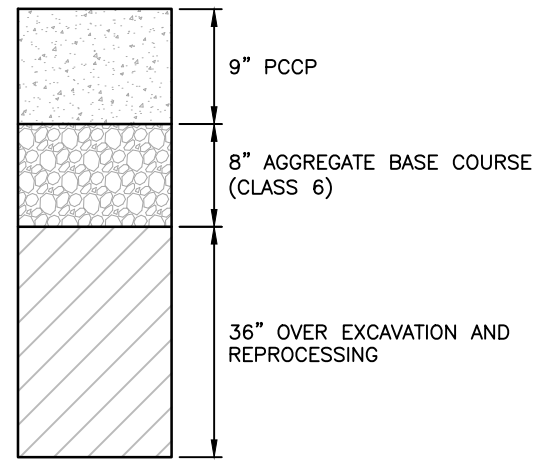
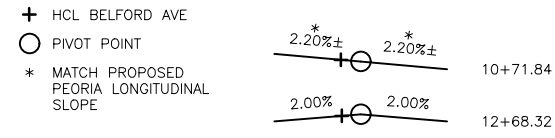


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**BELFORD AVENUE**  
STA. 11+50.13 TO STA. 12+68.32

**BELFORD CROSS SLOPE TRANSITIONS**



**9" CONCRETE PAVEMENT DETAIL**  
(WITH LOAD TRANSFER DEVICES)

- NOTES:**
- BREAK POINTS ON SLOPES AND IN BOTTOMS OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR A PLEASING APPEARANCE. SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.
  - THE TOPSOIL SHALL BE PLACED AT A MINIMUM DEPTH OF 4 INCHES. DUE TO THE ANTICIPATED EXCESS AMOUNT OF TOPSOIL, SOME SURFACES WILL CONTAIN TOPSOIL EXCEEDING 4 INCHES IN DEPTH.

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- FINAL GEOTECHNICAL REPORT TO DETERMINE FINAL PAVEMENT SECTION DETAILS.

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Index			Contract Item No.	Contract Item	Unit	General		Roadway		Drainage		Erosion		Traffic		Project Totals		
Book	Page	Sheet				Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan
			201	CLEARING AND GRUBBING	LS	1											1	
			202	REMOVAL OF BARRICADE	EACH									1			1	
			202	REMOVAL OF PAVEMENT MARKING	SF									2904			2904	
			202	REMOVAL OF SIGN PANEL	EACH									3			3	
			202	REMOVAL OF GROUND SIGN	EACH									3			3	
			202	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	LS									1			1	
			202	REMOVAL OF FENCE	LF			710									710	
			202	REMOVAL OF CURB AND GUTTER	LF			1349									1349	
			202	REMOVAL OF CONCRETE PAVEMENT	SY			709									709	
			202	REMOVAL OF LIGHT STANDARD	EACH			5									5	
			202	REMOVAL OF LIGHT STANDARD FOUNDATION	EACH			5									5	
			202	REMOVAL OF PULL BOX	EACH			5									5	
			202	REMOVAL OF INLET	EACH					1							1	
			203	EMBANKMENT MATERIAL (COMPLETE IN PLACE)	CY			6324									6324	
			203	OVEREXCAVATION (COMPLETE IN PLACE)	CY			5374									5374	
			203	POTHOLING	HOUR	24											24	
			207	STOCKPILE TOPSOIL	CY			1192									1192	
			207	TOPSOIL	CY			491									491	
			208	INLET PROTECTION	LF							74					74	
			208	CONCRETE WASHOUT STRUCTURE	EACH							1					1	
			208	VEHICLE TRACKING CONTROL	EACH							2					2	
			208	SILT FENCE	LF							230					230	
			208	SEDIMENT CONTROL LOG (12 INCH)	LF							670					670	
			208	SEDIMENT REMOVAL AND DISPOSAL	HR							40					40	
			208	EROSION CONTROL SUPERVISOR	DAY							90					90	
			210	RESET SIGN PANEL	EACH									3			3	
			210	RESET PULL BOX	EACH			2									2	
			210	MODIFY MANHOLE	EACH			4									4	
			210	ADJUST VALVE BOX	EACH			4									4	
			210	RESET TRAFFIC SIGNAL EQUIPMENT	LS									1			1	
			212	SEEDING (NATIVE)	ACRE							1.5					1.5	

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						Subset: QUANTITIES			Sheets: SM-1 of 3		


Index			Contract Item No.	Contract Item	Unit	General		Roadway		Drainage		Erosion		Traffic		Project Totals	
Book	Page	Sheet				Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.
			213	MULCHING (WEED FREE STRAW)	ACRE							1.5					1.5
			304	AGGREGATE BASE COURSE (CLASS 6)	CY			1570									1570
			403	HOT MIX ASPHALT (GRADING S)(75)(PG 64-22)	TON			460									460
			403	HOT MIX ASPHALT (GRADING SX)(75)(PG 64-22)	TON			230									230
			411	EMULSIFIED ASPHALT (SLOW-SETTING)	GAL			417									417
			412	CONCRETE PAVEMENT (9 INCH)	SY			4687									4687
			506	GROUTED RIPRAP (12 INCH)	CY					50							50
			604	INLET TYPE R L 5 (5 FOOT)	EACH					1							1
			605	TRENCH DRAIN (PERFORATED)	LF					555							555
			607	CONSTRUCTION FENCE	LF							1155					1155
			607	FENCE BARBED WIRE WITH METAL POSTS	LF			850									850
			608	CONCRETE SIDEWALK (6 INCH)	SY			191									191
			608	CONCRETE CURB RAMP	SY			40									40
			609	HIGH SPEED MOUNTABLE CURB AND GUTTER	LF			352									352
			609	VERTICAL CURB AND GUTTER	LF			252									252
			609	MEDIAN CURB AND GUTTER	LF			216									216
			610	MEDIAN COVER MATERIAL (4 INCH PATTERNED CONCRETE)	SF			645									645
			612	DELINEATOR (TYPE I)	EACH								6				6
			613	COMMON TRENCH	LF								50				50
			613	COMMON BORE	LF								295				295
			613	PVC CONDUIT 2" (WITHIN COMMON BORE OR TRENCH)	LF								435				435
			613	PVC CONDUIT 3" (WITHIN COMMON BORE OR TRENCH)	LF								785				785
			613	PULL BOX (TYPE I)	EACH								1				1
			613	PULL BOX (TYPE II)	EACH								4				4
			614	SIGN PANEL (CLASS I)	SF								123				123
			614	SIGN PANEL (CLASS II)	SF								58				58
			614	STEEL SIGN POST (2x2 INCH TUBING)	LF								123				123
			614	TRAFFIC SIGNAL LIGHT POLE, 50' MAST ARM	EACH								1				1
			614	TRAFFIC SIGNAL LIGHT POLE, 60' MAST ARM	EACH								2				2
			614	TRAFFIC SIGNAL LIGHT POLE, 65' MAST ARM	EACH								1				1
			614	TRAFFIC SIGNAL HEAD, 3-SECTION, 12' LENSES	EACH								10				10

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Index			Contract Item No.	Contract Item	Unit	General		Roadway		Drainage		Erosion		Traffic		Project Totals	
Book	Page	Sheet				Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.	Plan	As Const.
			614	TRAFFIC SIGNAL HEAD, 3-SECTION, 12' LENSES "ARROW"	EACH									11			11
			614	PEDESTRIAN HEAD (16-INCH) (COUNTDOWN)	EACH									2			2
			614	PEDESTRIAN PUSH BUTTONS	EACH									2			2
			614	INTERSECTION DETECTION SYSTEM (CAMERA)	EACH									4			4
			614	OPTICOM GTT 762 CARD	EACH									2			2
			614	OPTICOM GTT 722 HEAD	EACH									2			2
			614	TRAFFIC SIGNAL CONTROLLER CABINET MODIFICATIONS	LS									1			1
			620	FIELD OFFICE (CLASS 2)	EACH	1											1
			620	FIELD LAB (CLASS 2)	EACH	1											1
			620	SANITARY FACILITY	EACH	1											1
			625	CONSTRUCTION SURVEYING	LS	1											1
			626	MOBILIZATION	LS	1											1
			627	PAVEMENT MARKING PAINT (WATERBORNE)	GAL									47			47
			627	METHYL METHACRYLATE PAVEMENT MARKING (WORD-SYMBOL)	SF									290			290
			627	METHYL METHACRYLATE PAVEMENT MARKING (XWALK-STOP LINE)	SF									736			736
			630	TRAFFIC SIGNAL (TEMPORARY)	LS									1			1
			630	CONSTRUCTION TRAFFIC CONTROL	LS									1			1
			700	F/A MINOR CONTRACT REVISIONS	FA	1											1
			700	F/A EROSION CONTROL	FA							1					1
			700	F/A LANDSCAPING	FA	1											1
			700	F/A IRRIGATION	FA	1											1

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TABULATION OF REMOVAL AND RESET QUANTITIES

STATION/LOCATION	REMOVAL OF PAVEMENT MARKING	REMOVAL OF CURB AND GUTTER	REMOVAL OF CONCRETE PAVEMENT	REMOVAL OF FENCE	REMOVAL OF LIGHT STANDARD	REMOVAL OF LIGHT STANDARD FOUNDATION	REMOVAL OF PULL BOX	REMOVAL OF BARRICADE	RESET PULL BOX	MODIFY MANHOLE	ADJUST VALVE BOX
	SF	LF	SY	LF	EA	EA	EA	EA	EA	EA	EA
PEORIA ST / BELFORD AVE											
SHEET RM-1	527	455		210	3	3	3			1	
SHEET RM-2	1392	752	709	500	1	1	2	1	2	3	4
SHEET RM-3	160	142			1	1					
SHEET RM-4	825										
PROJECT TOTALS	2904	1349	709	710	5	5	5	1	2	4	4

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(R-X)	Date	Comments	Initials



As Constructed	PEORIA & BELFORD INTERSECTION TABULATION OF REMOVAL AND RESET QUANTITIES		Project No./Code
No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: JHH		
Void:	Subset: QUANTITIES	Sheets: TB-1 of 3	Sheet Number 10

TABULATION OF ROADWAY QUANTITIES

STATION/LOCATION	STOCKPILE TOPSOIL	TOPSOIL	AGGREGATE BASE COURSE (CLASS 6)	HOT MIX ASPHALT (GRADING S) (75) (PG 64-22)	HOT MIX ASPHALT (GRADING SX) (75) (PG 64-22)	EMULSIFIED ASPHALT (SLOW- SETTING)	HIGH SPEED MOUNTABLE CURB AND GUTTER	VERTICAL CURB AND GUTTER	MEDIAN CURB AND GUTTER	CONCRETE PAVEMENT (9 INCH)	MEDIAN COVER MATERIAL (4 INCH PATTERNED CONCRETE)	CONCRETE SIDEWALK (6 INCH)	CONCRETE CURB RAMP	FENCE BARBED WIRE WITH METAL POSTS	TRENCH DRAIN (PERFORATED)
	CY	CY	CY	TON	TON	GAL	LF	LF	LF	SY	SF	SY	SY	LF	LF
PEORIA ST / BELFORD AVE															
SHEET PL-1	343	190	303	300	150	272								221	
SHEET PL-2	849	301	1248	160	80	145	352	252	198	4604	645	191	40	629	555
SHEET PL-3			19						18	83					
PROJECT TOTALS	1192	491	1570	460	230	417	352	252	216	4687	645	191	40	850	555

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Print Date: 8/17/2016 9:53:21 PM		<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/> </div> <div> <p style="text-align: center;">Sheet Revisions</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Date</th> <th style="width: 55%;">Comments</th> <th style="width: 30%;">Initials</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table> </div> </div>			Date	Comments	Initials										<div style="display: flex; align-items: center;"> <div> <p style="margin: 0;"><b>Manhard</b> CONSULTING LTD</p> <p style="font-size: 8px; margin: 0;">800 E. Arapaho Court, Suite 110, Centennial, CO 80112 ph: 303.708.0900 fax: 303.708.0400 manhard.com Civil Engineers • Surveyors • Water Resources Engineers • Water &amp; Wastewater Engineers Construction Managers • Environmental Scientists • Landscape Architects • Planners</p> </div> </div>		As Constructed		<b>PEORIA &amp; BELFORD INTERSECTION TABULATION OF ROADWAY QUANTITIES</b>		Project No./Code	
Date	Comments				Initials																			
File Name: D115360-01TAB02.dwg		No Revisions:																						
Horizontal Scale: NTS      Vertical Scale: NTS		Revised:		Designer: DCS		Structure Numbers																		
<div> <p style="margin: 0; font-size: 8px;">6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832</p> </div>		Void:		Detailer: JHH		Subsets: QUANTITIES		Sheets: TB-2 of 3																
										Sheet Number 11														

**SUMMARY OF EARTHWORK**

INDEX			ITEM	PROJECT TOTALS	
BOOK	PAGE	SHEET		CU. YDS.	
			EMBANKMENT MATERIAL (CIP) ROADWAY (FROM CROSS-SECTIONS) PEORIA STREET BELFORD AVENUE	4,692 1,632	
			SUBTOTAL	6,324	
			TOTAL FOR PAY QUANTITY	6,324	
			OVEREXCAVATION (FROM CROSS-SECTIONS) PEORIA STREET BELFORD AVENUE	3,647 1,727	
			SUBTOTAL	5,374	
			TOTAL FOR PAY QUANTITY	5,374	

**FOR INFORMATION ONLY**

			UNCLASSIFIED EXCAVATION (FOR INFO. ONLY) ROADWAY (FROM CROSS-SECTIONS) PEORIA STREET BELFORD AVENUE	1,364 202	
			TOTAL	1,566	
			COMPACTION (MOISTURE & DENSITY CONTROL) EMBANKMENT (NET) BASES OF CUTS & FILLS (8 INCHES) OVEREXCAVATION AND REPROCESSING	6,324 0 5,374	
			TOTAL	11,698	
			WETTING QUANTITIES COMPACTION (11698 x 0.040 M. GAL./yd)	468	
			TOTAL	468	
			ROADWAY QUANTITIES BALANCE		
			EMBANKMENT (NET)	6,324	
			EMBANKMENT X FACTOR (1.15)	7,273	
			EMBANKMENT REQUIRED FOR SHRINKAGE BASES OF CUTS & FILLS OVEREXCAVATION	0 806	
			BALANCE TOTAL (EMBANKMENT)	8,079	
			UNCLASSIFIED EXCAVATION	1,566	
			TO BE IMPORTED BY CONTRACTOR	6,513	
			BALANCE TOTAL	8,079	

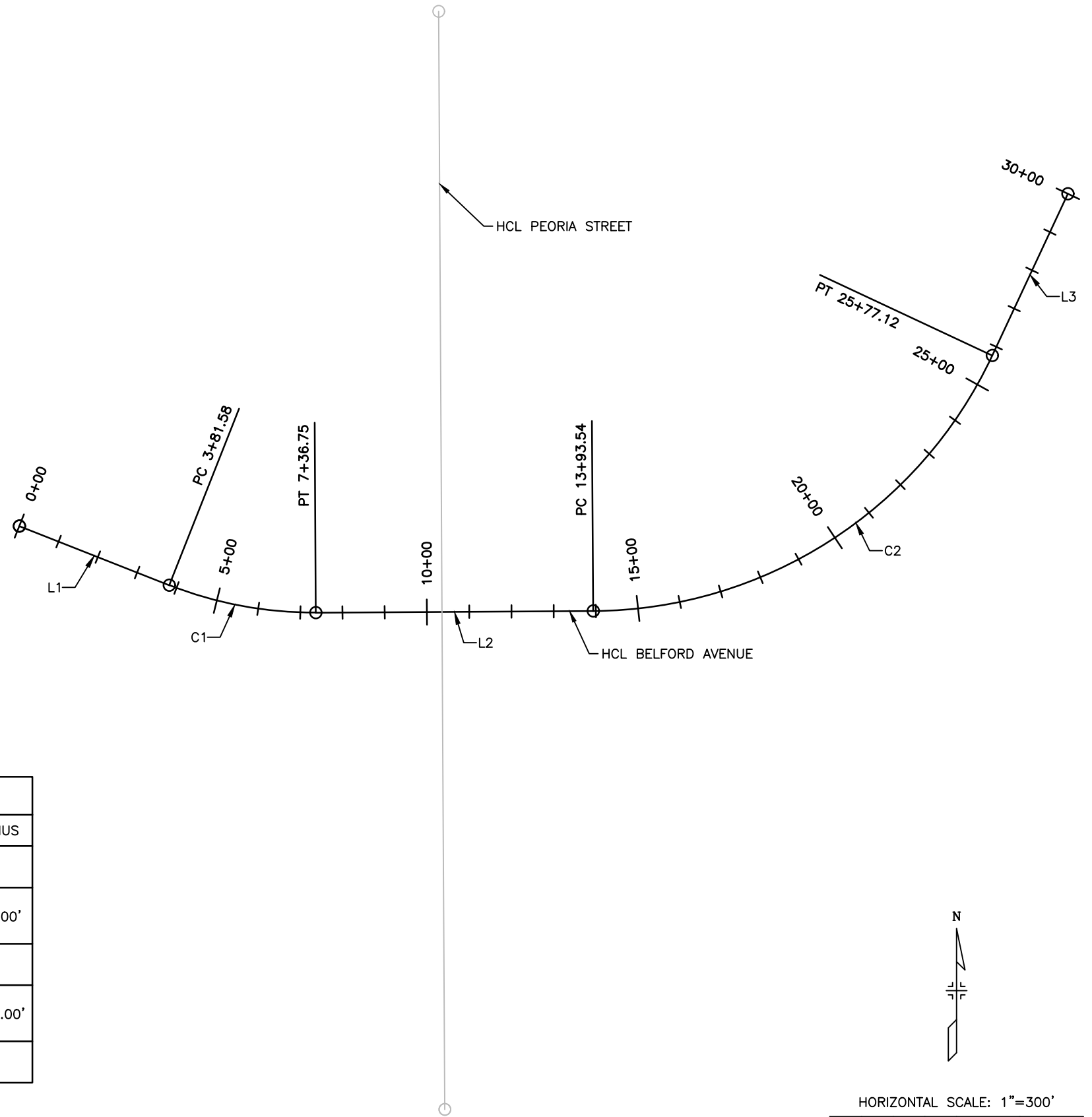
**NOTES:**

- CROSS SECTIONS REFLECT EARTHWORK VOLUMES THAT ARE CALCULATED FROM THE PROPOSED SUBGRADE (BOTTOM OF AGGREGATE BASE COURSE) TO THE EXISTING GROUND WITHOUT ADJUSTMENT FOR EXISTING TOPSOIL STRIPPING AND STOCKPILE, EXISTING PAVEMENT REMOVAL, AND PROPOSED TOPSOIL QUANTITIES. THE OVEREXCAVATION AND REPROCESSING QUANTITIES ARE CALCULATED AND LISTED SEPARATELY.
- FINAL GEOTECHNICAL REPORT TO DETERMINE FINAL PAVEMENT SECTION DETAILS.

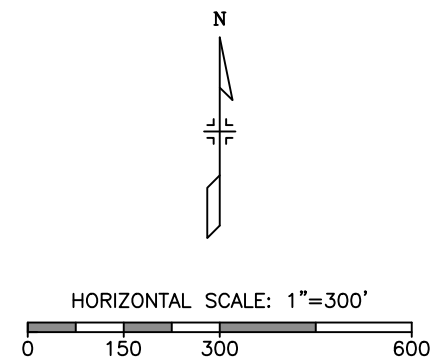
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File Name: D115360-01TAB03.dwg		No Revisions:		Designer: DCS	Structure		
Horizontal Scale: NTS      Vertical Scale: NTS		Revised:		Detailer: JHH	Numbers		
 6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832	(R-X) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Date	Comments	Initials	Subst: QUANTITIES	Sheets: TB-3 of 3	Sheet Number 12

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HCL - BELFORD									
NO.		STATION	NORTHING	EASTING	LENGTH	LINE/CHORD BEARING	DELTA	TANGENT	RADIUS
L1		0+00.00 3+81.58	25463.6349 25323.5186	86262.0518 86616.9751	381.58'	S68°27'24.97"E			
C1	PC= PI= PT=	3+81.58 5+61.36 7+36.75	25323.5186 25257.5049 25258.5667	86616.9751 86784.1920 86963.9644	355.17'	S79°23'51.63"E	021°52'53.31"	179.78'	930.00'
L2		7+36.75 13+93.54	25258.5667 25262.4460	86963.9644 87620.7403	656.79'	N89°39'41.72"E			
C2	PC= PI= PT=	13+93.54 20+57.13 25+77.12	25262.4460 25266.3653 25867.4036	87620.7403 88284.3163 88565.5663	1183.58'	N57°22'09.07"E	064°35'05.30"	663.59'	1050.00'
L3		25+77.12 30+00.00	25867.4036 26250.4268	88565.5663 88744.7982	422.88'	N25°04'36.42"E			



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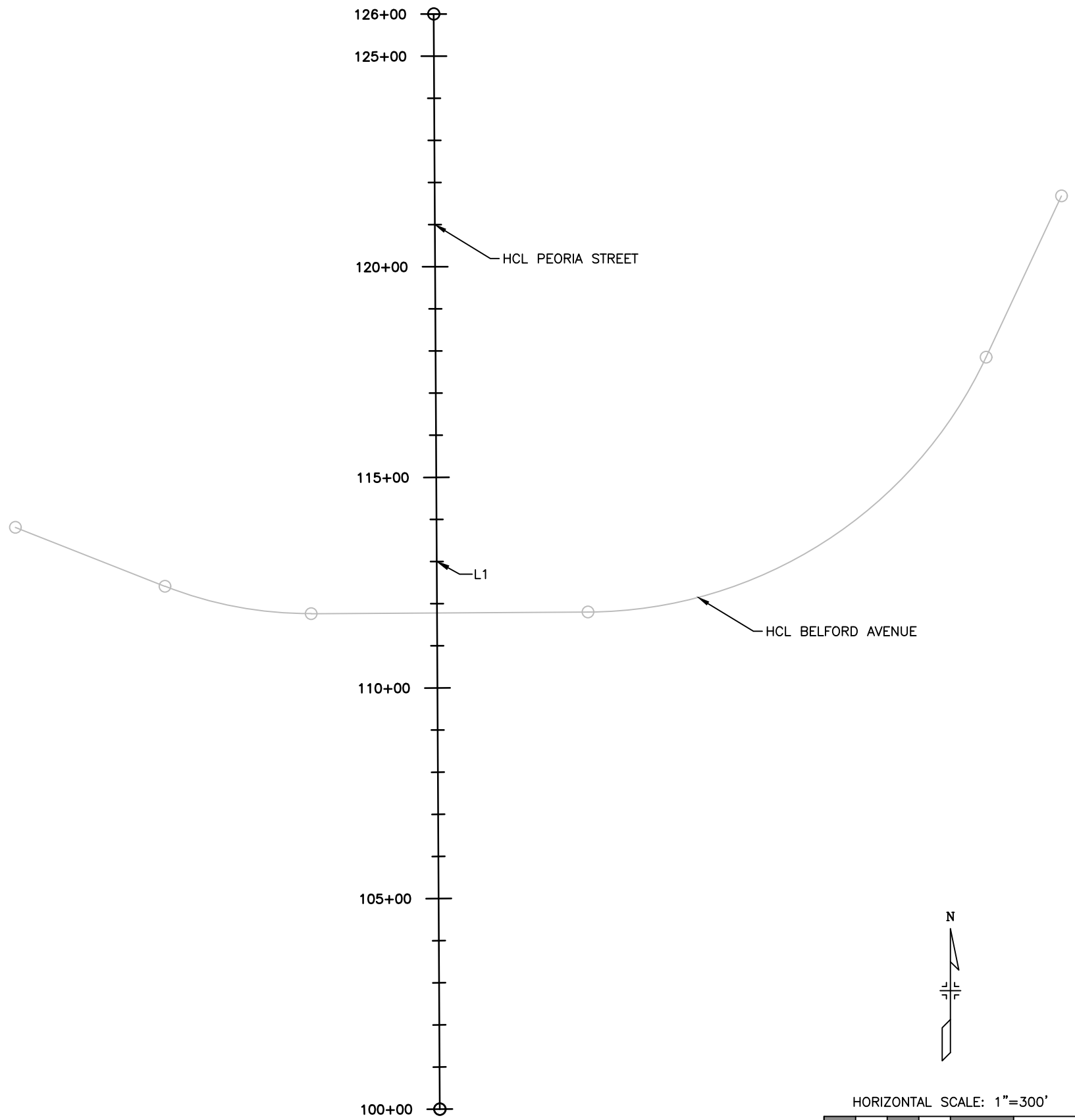
Sheet Revisions		
Date	Comments	Initials



As Constructed	PEORIA & BELFORD INTERSECTION GEOMETRIC LAYOUT		Project No./Code
No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: JHH		
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**FELSBURG HOLT & ULLEVIG**  
 6300 South Syracuse Way, Suite 600  
 Centennial, CO 80111  
 tel 303.721.1440  
 fax 303.721.0832

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HCL - PEORIA									
NO.		STATION	NORTHING	EASTING	LENGTH	LINE/CHORD BEARING	DELTA	TANGENT	RADIUS
L1	POB= POE=	100+00.00 126+00.00	24082.3120 26682.2709	87269.5760 87254.9507	2600.00'	N00°19'20.27"W			

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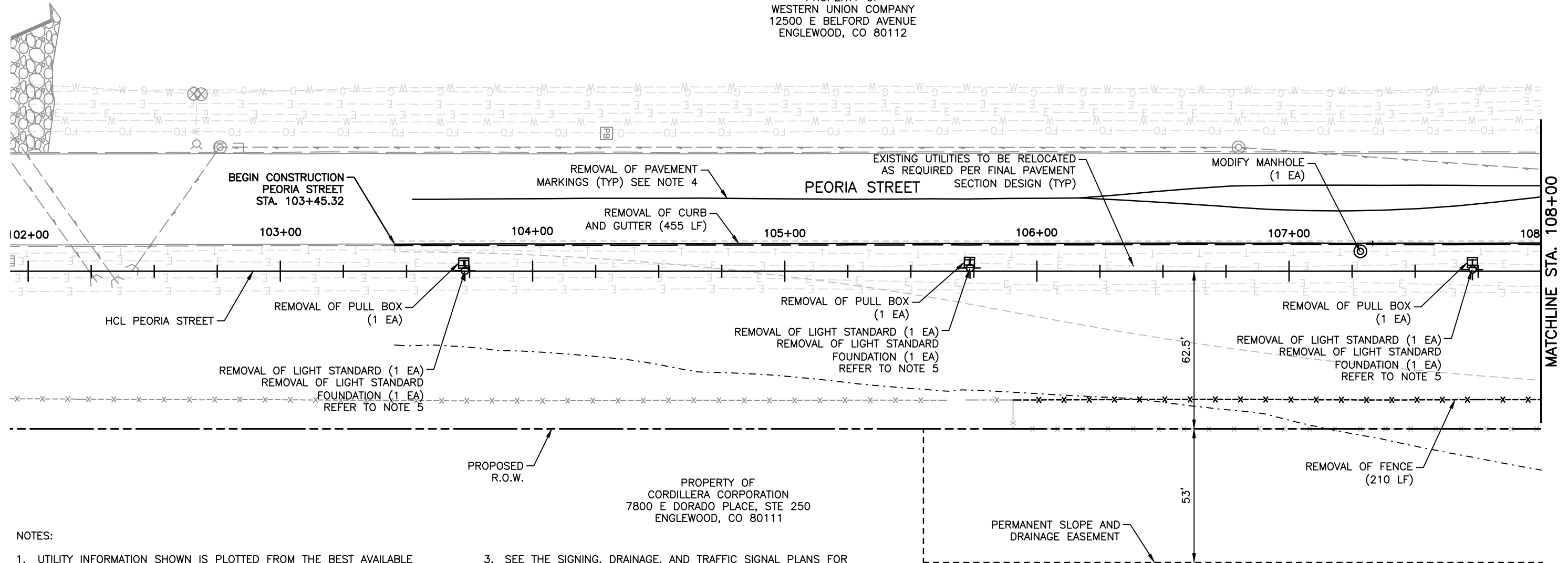


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PROPERTY OF  
WESTERN UNION COMPANY  
12500 E BELFORD AVENUE  
ENGLEWOOD, CO 80112



NOTES:

- UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
- PERMANENT SLOPE AND DRAINAGE EASEMENTS SHALL NOT BE CLEARED AND GRUBBED UNLESS IT IS REQUIRED IN ORDER TO CONSTRUCT THE ROADWAY SECTION. THE CONTRACTOR SHALL USE PARTICULAR CARE TO MINIMIZE DAMAGE TO PLANTINGS WITHIN THE PROPERTY.
- SEE THE SIGNING, DRAINAGE, AND TRAFFIC SIGNAL PLANS FOR ADDITIONAL REMOVAL AND RESET ITEMS.
- 527 SF OF REMOVAL OF PAVEMENT MARKINGS THIS SHEET.
- CONTRACTOR SHALL COORDINATE WITH MERIDIAN METROPOLITAN DISTRICT AS IT RELATES TO THE MEDIAN IRRIGATION SYSTEM, LANDSCAPE MATERIALS, AND LIGHTING.

LEGEND

- TOP OF CUT
  - TOE OF FILL
  - [Hatched Box] LIMITS OF REMOVAL OF CONCRETE PAVEMENT
- HORIZONTAL SCALE: 1"=40'
- 

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Sheet Revisions			
Date	Comments	Initials	

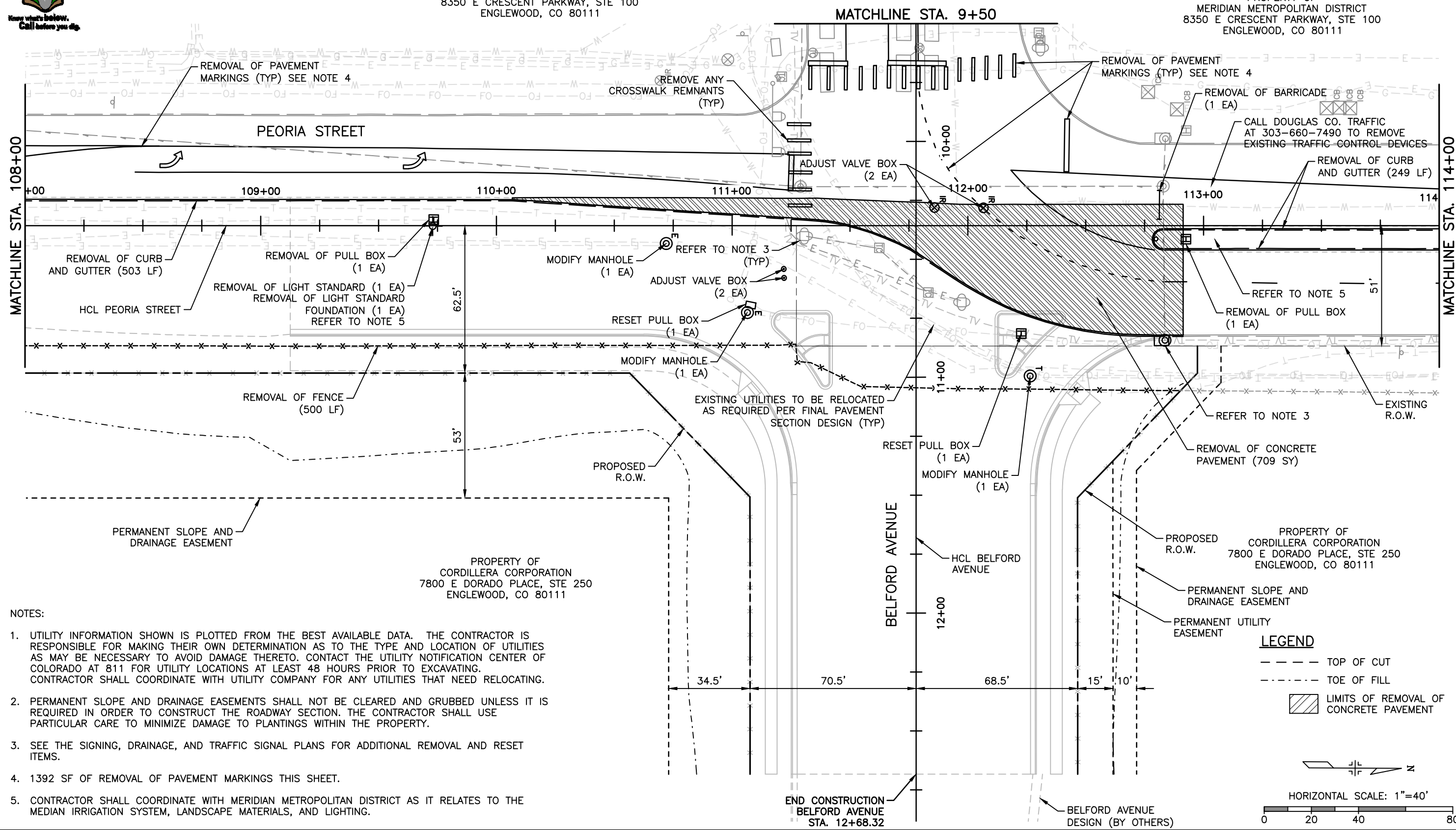


As Constructed	PEORIA & BELFORD INTERSECTION REMOVAL AND RESET PLAN STA. 102+00 TO STA. 108+00		Project No./Code
No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: JHH		
Void:	Subset: ROADWAY	Sheets: RM-1 of 4	Sheet Number 15



PROPERTY OF  
MERIDIAN METROPOLITAN DISTRICT  
8350 E CRESCENT PARKWAY, STE 100  
ENGLEWOOD, CO 80111

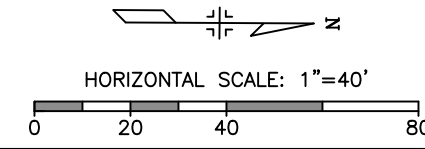
PROPERTY OF  
MERIDIAN METROPOLITAN DISTRICT  
8350 E CRESCENT PARKWAY, STE 100  
ENGLEWOOD, CO 80111



- NOTES:
- UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
  - PERMANENT SLOPE AND DRAINAGE EASEMENTS SHALL NOT BE CLEARED AND GRUBBED UNLESS IT IS REQUIRED IN ORDER TO CONSTRUCT THE ROADWAY SECTION. THE CONTRACTOR SHALL USE PARTICULAR CARE TO MINIMIZE DAMAGE TO PLANTINGS WITHIN THE PROPERTY.
  - SEE THE SIGNING, DRAINAGE, AND TRAFFIC SIGNAL PLANS FOR ADDITIONAL REMOVAL AND RESET ITEMS.
  - 1392 SF OF REMOVAL OF PAVEMENT MARKINGS THIS SHEET.
  - CONTRACTOR SHALL COORDINATE WITH MERIDIAN METROPOLITAN DISTRICT AS IT RELATES TO THE MEDIAN IRRIGATION SYSTEM, LANDSCAPE MATERIALS, AND LIGHTING.

**LEGEND**

- TOP OF CUT
- - - - TOE OF FILL
- [Hatched Box] LIMITS OF REMOVAL OF CONCRETE PAVEMENT



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PEORIA & BELFORD INTERSECTION REMOVAL AND RESET PLAN STA. 108+00 TO STA. 114+00			
Designer:	DCS	Structure	
Detailer:	JHH	Numbers	
Subset:	ROADWAY	Sheets:	RM-2 of 4

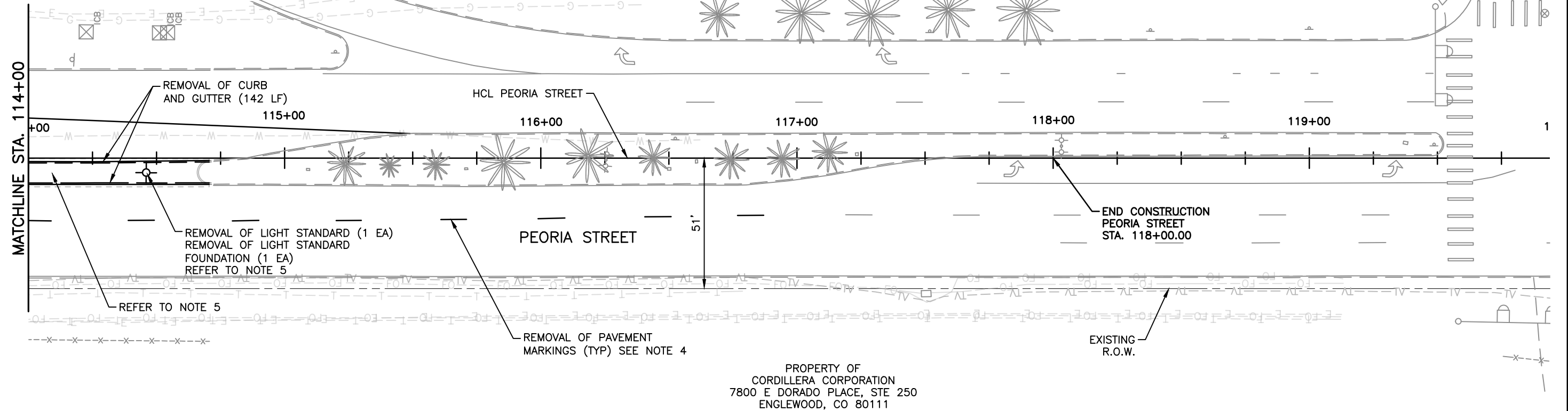
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Sheet Number	16



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PROPERTY OF  
MERIDIAN METROPOLITAN DISTRICT  
8350 E CRESCENT PARKWAY, STE 100  
ENGLEWOOD, CO 80111

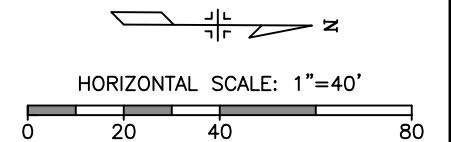


NOTES:

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- SEE THE SIGNING, DRAINAGE, AND TRAFFIC SIGNAL PLANS FOR ADDITIONAL REMOVAL AND RESET ITEMS.
- 160 SF OF REMOVAL OF PAVEMENT MARKINGS THIS SHEET.
- CONTRACTOR SHALL COORDINATE WITH MERIDIAN METROPOLITAN DISTRICT AS IT RELATES TO THE MEDIAN IRRIGATION SYSTEM, LANDSCAPE MATERIALS, AND LIGHTING.

LEGEND

- TOP OF CUT
- - - - - TOE OF FILL
- LIMITS OF REMOVAL OF CONCRETE PAVEMENT



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PEORIA & BELFORD INTERSECTION REMOVAL AND RESET PLAN STA. 114+00 TO STA. 120+00			
Designer:	DCS	Structure	
Detailer:	JHH	Numbers	
Subset:	ROADWAY	Sheets:	RM-3 of 4

Project No./Code
Sheet Number
17

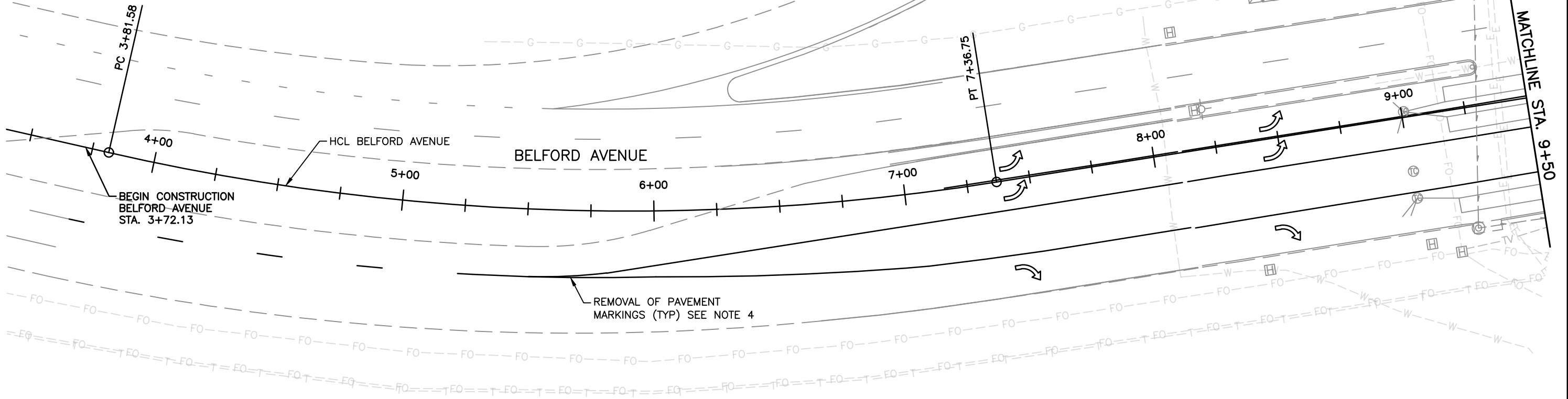


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GREENWOOD VILLAGE, CO 80111

PROPERTY OF  
MERIDIAN METROPOLITAN DISTRICT  
8350 E CRESCENT PARKWAY, STE 100  
ENGLEWOOD, CO 80111

PROPERTY OF  
WESTERN UNION COMPANY  
12500 E BELFORD AVENUE  
ENGLEWOOD, CO 80112

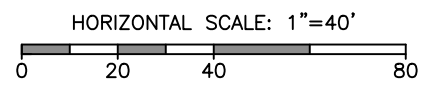


NOTES:

- UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
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- SEE THE SIGNING, DRAINAGE, AND TRAFFIC SIGNAL PLANS FOR ADDITIONAL REMOVAL AND RESET ITEMS.
- 825 SF OF REMOVAL OF PAVEMENT MARKINGS THIS SHEET.

LEGEND

- TOP OF CUT
- - - - - TOE OF FILL
- [Hatched Box] LIMITS OF REMOVAL OF CONCRETE PAVEMENT



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THE FOLLOWING NOTES ARE APPLICABLE TO ALL ROADWAY SECTIONS IDENTIFIED ON THE PREVIOUS PAGES (LOCALS, COLLECTORS, ARTERIALS AND RURAL ROADWAYS), UNLESS MODIFICATIONS ARE APPROVED IN WRITING BY THE DIRECTOR OF PUBLIC WORKS.

NOTES:

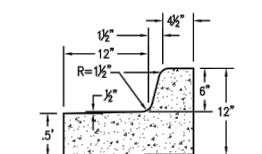
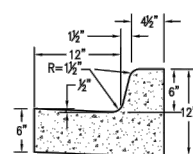
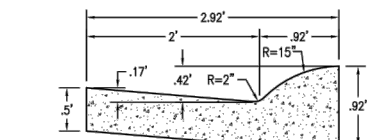
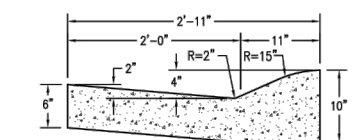
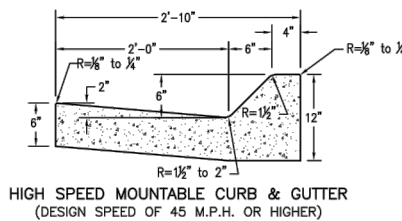
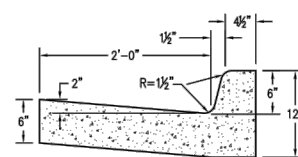
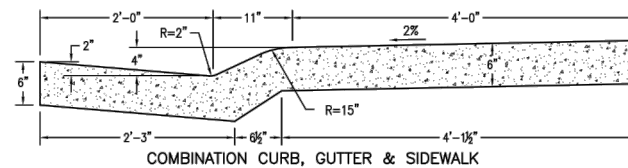
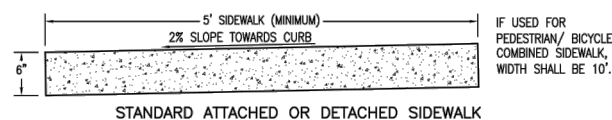
- GUTTERS SHALL BE AT LEAST 6" THICK.
- ALL CURBS SHALL USE THE CATCH SECTION UNLESS OTHERWISE NOTED.
- ALL COMBINATION CURB, GUTTER AND SIDEWALKS TO BE 6" THICK (MIN.), SIDEWALKS WITH VERTICAL CURB AND GUTTER TO BE 6" THICK (MIN.).
- NON-LANDSCAPED MEDIAN ISLANDS SHALL BE COVERED WITH AN ACCEPTABLE IMPERMEABLE SURFACE.
- IF ANY SECTION OF A DETACHED SIDEWALK IS TO BE PLACED OUTSIDE OF THE ROAD RIGHT-OF-WAY, THEN A SIDEWALK EASEMENT SHALL BE REQUIRED TO MAINTAIN PUBLIC USE.
- TOTAL PAVEMENT THICKNESS TO BE DETERMINED BY PAVEMENT DESIGN PROCEDURES IN CHAPTER 5.
- PLACEMENT, MOISTURE AND DENSITY CONTROL FOR SUBGRADE, SUBBASE, AND SURFACING MATERIALS SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF CHAPTER 8.

ROADWAY NOTES

Issued: 05/2013

Revised: \_\_\_\_\_

Drawing No. **SP.16**



NOTES:

- IF A SIDEWALK IS PLACED BEHIND THE CURB BUT IS NOT PLACED MONOLITHICALLY, EXPANSION JOINT MATERIAL AND A SILICONE BASE SEALER MUST BE APPLIED BETWEEN THE SIDEWALK AND THE CURB.
- SEE DRAWING NUMBER SP.20 FOR TRENCH DRAIN.
- SEE DRAWING NUMBER SP.28 AND SP.29 FOR CONCRETE JOINTS

CURB & GUTTERS AND SIDEWALKS

Issued: 05/2013

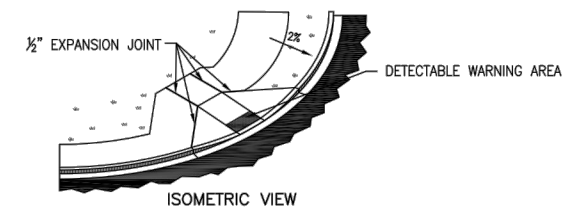
Revised: \_\_\_\_\_

Drawing No. **SP.17**



CURB RAMP GENERAL NOTES:

- IN ACCORDANCE WITH CRS43-2-107(2), RAMPS SHALL BE PROVIDED AT ALL CORNERS OF STREET INTERSECTIONS WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB. RAMPS SHALL ALSO BE PROVIDED AT WALK LOCATIONS IN MID-BLOCK IN THE VICINITIES OF HOSPITALS, MEDICAL CENTERS, ATHLETIC STADIUMS AND AT "T" INTERSECTIONS DIRECTLY OPPOSITE EITHER CURB RETURN.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF DOUGLAS COUNTY.
- SIDEWALKS SHALL BE RAMPED WHERE A DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.
- DETAILS SHOWN IN THE PLAN SHALL APPLY TO ALL CONSTRUCTION OR RECONSTRUCTION OF STREETS, CURBS OR SIDEWALKS.
- SPECIAL DESIGNS ARE REQUIRED WHEN GRADES ARE OVER 4%.
- IN NEW CONSTRUCTION, RAMP AND CURB MAY BE POURED MONOLITHICALLY.
- RAMP AND WINGS SHALL BE POURED MONOLITHICALLY.
- MINIMUM WIDTH OF RAMPS SHALL BE 4 FEET AND RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.
- MAINTAIN BACK OF WALK ELEVATION AT 2.0% SLOPE FROM TOP OF CURB.
- CONCRETE FOR SIDEWALK RAMPS SHALL BE CLASS "D".
- GUTTER FLOW LINE AND PROFILE SHALL BE MAINTAINED PER THESE STANDARDS THROUGH THE RAMP AREA.
- A 1/2" EXPANSION JOINT SHALL BE REQUIRED WHERE THE CONCRETE RAMP JOINS ANY RIGID PAVEMENT OR STRUCTURE.
- DRAINAGE STRUCTURES SHALL NOT BE PLACED IN LINE WITH RAMPS. LOCATION OF THE RAMP SHALL TAKE PRECEDENCE OVER LOCATION OF THE DRAINAGE STRUCTURE.
- ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST SIGNAGE AND STRIPPING SUPPLEMENT OR THE LATEST EDITION OF THE MUTCD FOR STREETS AND HIGHWAYS.



DETECTABLE WARNING AREA NOTES

- TRUNCATED DOME DETECTABLE WARNING AREAS SHALL BE INSTALLED WITHIN CURB RAMPS AT ALL SIDEWALK/STREET TRANSITIONS, AS DESCRIBED BY THE AMERICAN'S WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG), LATEST REVISION.
- DETECTABLE WARNING DEVICES SHALL BE TRUNCATED DOME WARNING DEVICES. COLOR SHALL BE BRICK RED, TILE RED, OR OTHER EQUIVALENT COLOR TO PROVIDE COLOR CONTRAST WITH ADJACENT SURFACES, AS REQUIRED BY ADAAG SECTION 4.29.2. THE COUNTY ENGINEER MUST APPROVE THE TRUNCATED DOME WARNING AREA COLOR PRIOR TO CONSTRUCTION.
- CONTRASTING COLOR REQUIREMENT SHALL BE MET BY TRUNCATED DOME SECTIONS AND NOT BY USE OF COLORED CONCRETE.
- A SAMPLE OF THE DETECTABLE WARNING (TRUNCATED DOMES) TO BE USED ON THE PROJECT SHALL BE SUBMITTED TO AND ACCEPTED BY THE COUNTY ENGINEER PRIOR TO CONSTRUCTION.
- ALL DETECTABLE WARNING AREAS SHALL START A MINIMUM OF 6 INCHES FROM THE FLOW LINE OF THE CURB. ALL DETECTABLE WARNING AREAS SHALL BE 24 INCHES IN LENGTH AND COVER THE COMPLETE WIDTH OF THE RAMP AREA ONLY.
- SURFACE APPLIED TRUNCATED DOME PANELS ARE ONLY ALLOWED ON PRE-EXISTING CURB RAMPS AND ARE NOT ALLOWED IN NEW CONSTRUCTION.

CURB RAMP & DETECTABLE WARNING AREA NOTES

Issued: 05/2013

Revised: \_\_\_\_\_

Drawing No. **SP.18a**



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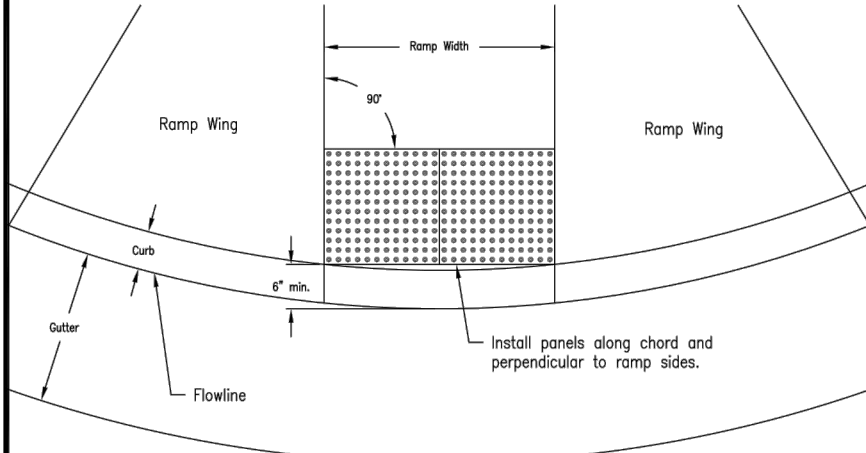
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Void:	Subset: ROADWAY	Sheets: RD-1 of 7	Sheet Number 19

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**Panel Installation Notes:**

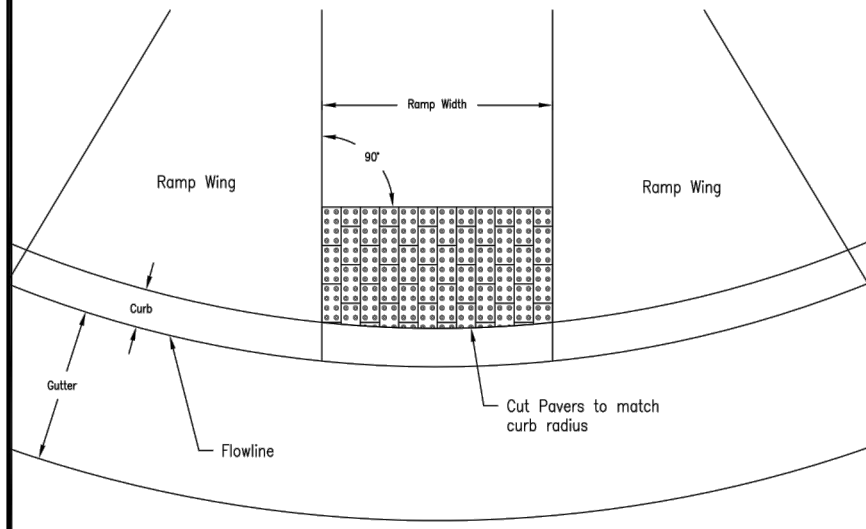
1. DETECTABLE WARNING PANELS, 24" X 24" OR 24" X 30" IN SIZE, SHALL BE PREFABRICATED REDDISH WITH TRUNCATED DOMES AND COMPLY WITH ADA REQUIREMENTS. ONLY FULL PANELS SHALL BE USED TO OBTAIN SPECIFIC RAMP THROAT WIDTH, (I.E. TWO 24" PANELS FOR A 4' RAMP, TWO 30" PANELS FOR A 5' RAMP, ETC.)
2. PRIOR TO START OF WORK, CONTRACTOR SHALL SUBMIT, TO CITY ENGINEER FOR APPROVAL, A SAMPLE PANEL AND DOCUMENTATION FROM THE MANUFACTURER. PANEL SURFACE SHALL HAVE A MINIMUM OF 70% LIGHT REFLECTIVITY CONTRAST WITH THE ADJOINING SURFACE.
3. PANELS SHALL BE PLACED AS SHOWN, WITH DOME PATTERN IN A SQUARE GRID AND ALIGNED IN THE DIRECTION OF TRAVEL. A STEEL TEMPLATE SHALL BE USED TO ENSURE PROPER ALIGNMENT AND UNIFORM GRADE.
4. REMOVE THE PROPER AMOUNT OF CONCRETE WITHIN THE TEMPLATE FOR AN ACCURATE INSTALLATION. ONCE TO THE PROPER DEPTH, FLOAT THE AREA TO RECEIVE THE PANELS UNTIL A SMOOTH PASTE HAS DEVELOPED.
5. WET THE BACK SIDE OF EACH PANEL AND TROWEL SOME CONCRETE PASTE OR APPROVED BONDING AGENT OVER THE WET SURFACE FOR BETTER ADHERENCE.
6. SET THE FIRST PANEL ON THE FRESHLY PREPARED SURFACE. DO NOT PRESS DOWN HARD ON THE PANEL, BUT PREFERABLY TWIST FROM SIDE TO SIDE. SET PANEL WITH RUBBER Mallet TO PROPER DEPTH SO THAT THE BASE OF THE TRUNCATED DOME IS AT THE SAME ELEVATION AS THE ADJOINING RAMP SURFACE.
7. SET SUCCESSIVE PANELS WITH A TIGHT BUTT JOINT AGAINST THE PREVIOUSLY SET PANEL. PROVIDE A 1/8" GAP BETWEEN PANELS.
8. FLOAT FRESH CONCRETE AROUND PANELS. FINISH AND BROOM SURROUNDING CONCRETE AS SPECIFIED. CLEAN ANY CONCRETE OFF PANELS WITH A SPONGE.
9. PROVIDE 1" DEEP TOOL JOINTS AT CORNERS OF DETECTABLE WARNING AREA, AND TOOL AROUND PANELS WITH 1/8" RADIUS EDGER.
10. WHEN CUT PANELS ARE REQUIRED, CUT SECTIONS SHALL NOT SIGNIFICANTLY IMPACT OVERALL TRUNCATED DOMES PATTERN AND CUT DOMES SHALL BE BEVELED AT A 45-DEGREE ANGLE TO CREATE A SMOOTH TRANSITION.
11. ANY PANELS THAT ARE DAMAGED DURING TRANSPORT OR INSTALLATION WILL BE REJECTED AND SHALL NOT BE INSTALLED.
12. CLEAN OUT 1/8" JOINT(S) BETWEEN PANELS AND SEAL WITH EPOXY.
13. SETTING TRUNCATED DOME PANELS IN SAND BEDDING OR OTHER NON-CEMENTITIOUS BEDDING MATERIALS SHALL NOT BE ALLOWED.



<b>CURB RAMP WITH PANEL DETECTABLE WARNING AREA INSTALLATION</b>		Issued: 05/2013
<b>DOUGLAS COUNTY</b> COLORADO		Revised: _____
		Drawing No. <b>SP.18b</b>

**Paver Installation Notes:**

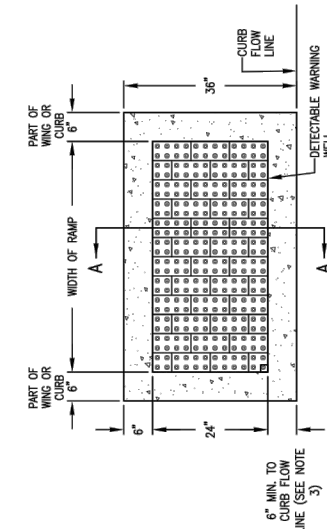
1. DETECTABLE WARNING PAVERS SHALL BE PREFABRICATED REDDISH INTEGRALLY COLORED TRUNCATED DOMES SURFACED CONCRETE OR MASONRY PAVERS. PAVERS SHALL MEET THE REQUIREMENTS OF ASTM C 902 OR ASTM C 936 AND COMPLY WITH ADA REQUIREMENTS.
2. PRIOR TO START OF WORK, CONTRACTOR SHALL SUBMIT, TO CITY ENGINEER FOR APPROVAL, A SAMPLE PAVER AND DOCUMENTATION FROM THE MANUFACTURER. PAVERS SURFACE SHALL HAVE A MINIMUM OF 70% LIGHT REFLECTIVITY CONTRAST WITH THE ADJOINING SURFACE.
3. WELL FOR PAVERS SHALL BE ACCURATELY BLOCKED OUT TO ENSURE PROPER DEPTH, ALIGNMENT, AND UNIFORM GRADE. ONLY FULL WIDTH PAVERS SHALL BE USED TO OBTAIN SPECIFIED RAMP THROAT WIDTH.
4. PAVERS SHALL BE PLACED IN THE RUNNING PATTERN SHOWN, DOMES PLACED IN A SQUARE GRID AND ALIGNED IN THE DIRECTION OF TRAVEL. PAVERS SHALL BE INSTALLED SO THAT THE BASES OF THE TRUNCATED DOMES ARE AT THE SAME ELEVATION AS THE ADJOINING RAMP SURFACE.
5. SAND FOR BEDDING MATERIAL SHALL CONFORM TO ASTM C 33. SAND TO BE PLACED BETWEEN JOINTS SHALL CONFORM TO ASTM C 144.
6. BEDDING SAND SHALL BE SCREED TO THE APPROPRIATE DEPTH PRIOR TO THE PAVERS INSTALLATION. A PLATE VIBRATOR SHALL BE USED TO EMBED THE PAVERS INTO THE SAND. ANY PAVERS THAT ARE DAMAGED DURING TRANSPORTATION OR INSTALLATION WILL BE REJECTED AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
7. WHEN CUT PAVERS ARE REQUIRED, CUT SECTIONS SHALL NOT SIGNIFICANTLY IMPACT OVERALL TRUNCATED DOMES PATTERN AND CUT DOMES SHALL BE BEVELED AT A 45-DEGREE ANGLE TO CREATE A SMOOTH TRANSITION.
8. JOINT SPACING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, BUT SHALL NOT BE MORE THAN 1/8". JOINTS SHALL BE FILLED COMPLETELY WITH SAND. EXCESS SAND SHALL BE REMOVED BY SWEEPING.



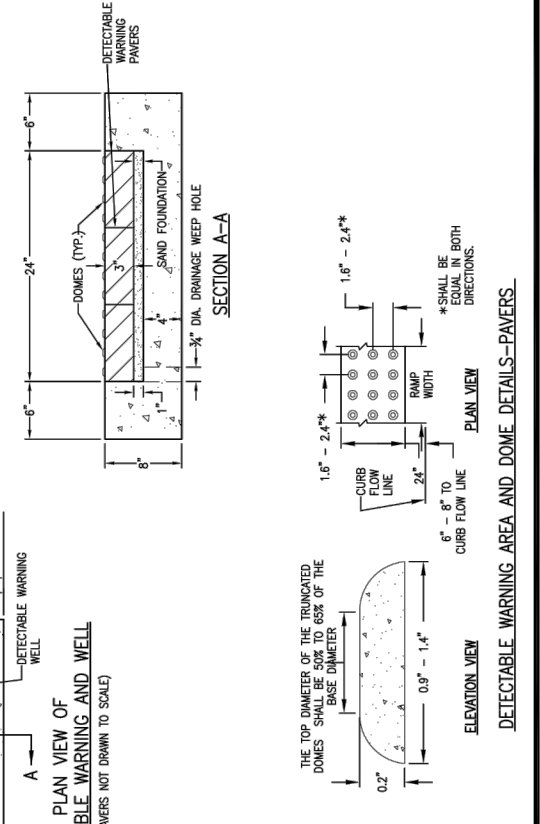
<b>CURB RAMP WITH PAVER DETECTABLE WARNING AREA INSTALLATION</b>		Issued: 05/2013
<b>DOUGLAS COUNTY</b> COLORADO		Revised: _____
		Drawing No. <b>SP.18c</b>

**GENERAL NOTES**

1. THE DETECTABLE WARNING SHALL BE INSTALLED AT SIDEWALK/STREET TRANSITIONS. THEY SHALL BE MADE IN PAVEMENT WITH A TRUNCATED DOME SURFACE. THE DOMES SHALL BE PLACED IN A SQUARE GRID.
2. THE TOP OF THE DRAINAGE WEEP HOLE SHALL BE LOCATED AT THE LOWEST POINT OF THE DETECTABLE WARNING WELL.
3. ALL DETECTABLE WARNING AREAS SHALL START A MINIMUM OF 6 INCHES FROM THE FLOW LINE OF THE CURB AND NOT BE MORE THAN A MAXIMUM OF 8 INCHES FROM ANY POINT ON THE FLOW LINE OF THE CURB. DETECTABLE WARNING AREAS SHALL BE 2 INCHES WIDER IN LENGTH AND COVER THE COMPLETE WIDTH OF THE RAMP AREA ONLY.
4. RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1. THE DETECTABLE



<b>CURB RAMP WITH PAVER DETECTABLE WARNING AREA INSTALLATION</b>		Issued: 05/2013
<b>DOUGLAS COUNTY</b> COLORADO		Revised: _____
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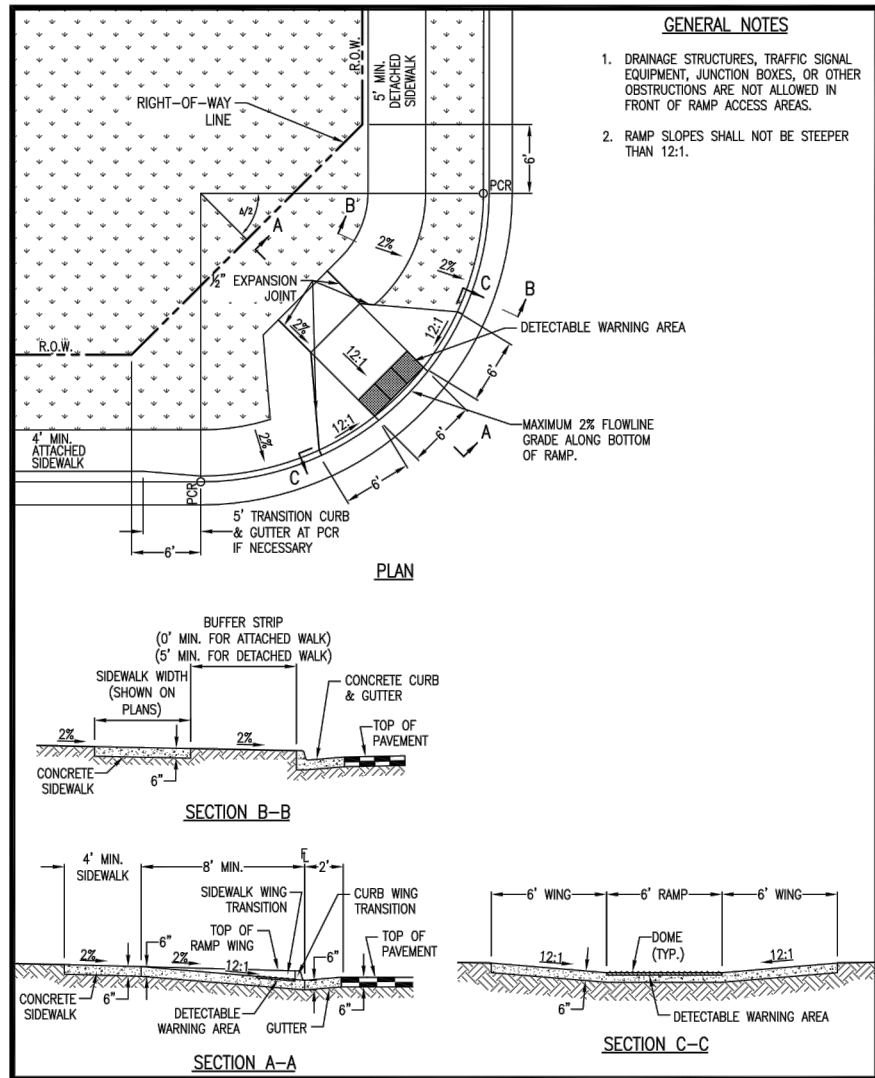
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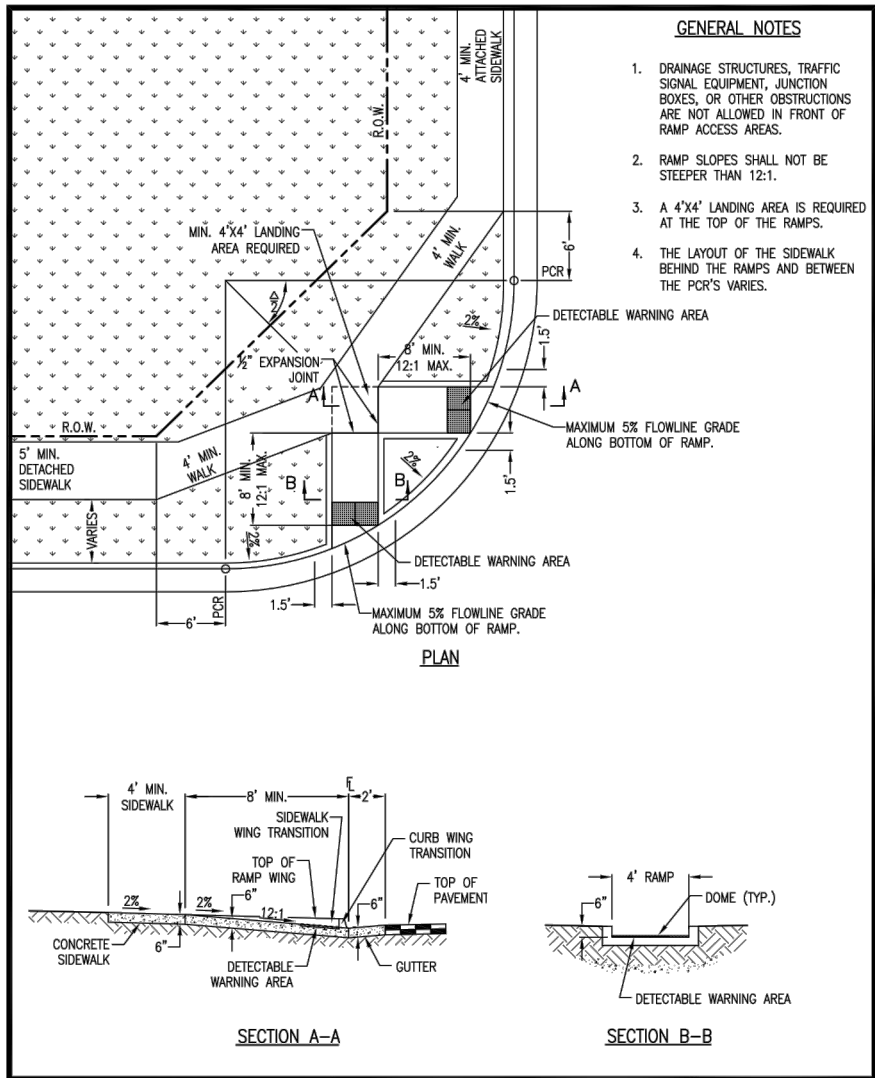
- GENERAL NOTES**
1. DRAINAGE STRUCTURES, TRAFFIC SIGNAL EQUIPMENT, JUNCTION BOXES, OR OTHER OBSTRUCTIONS ARE NOT ALLOWED IN FRONT OF RAMP ACCESS AREAS.
  2. RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

CDOT M & S STANDARDS  
M-608-1

**DIAGONAL CURB RAMP FOR CURB RETURN RADIUS OF 20' TO 30'**

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Drawing No. **SP.19a**

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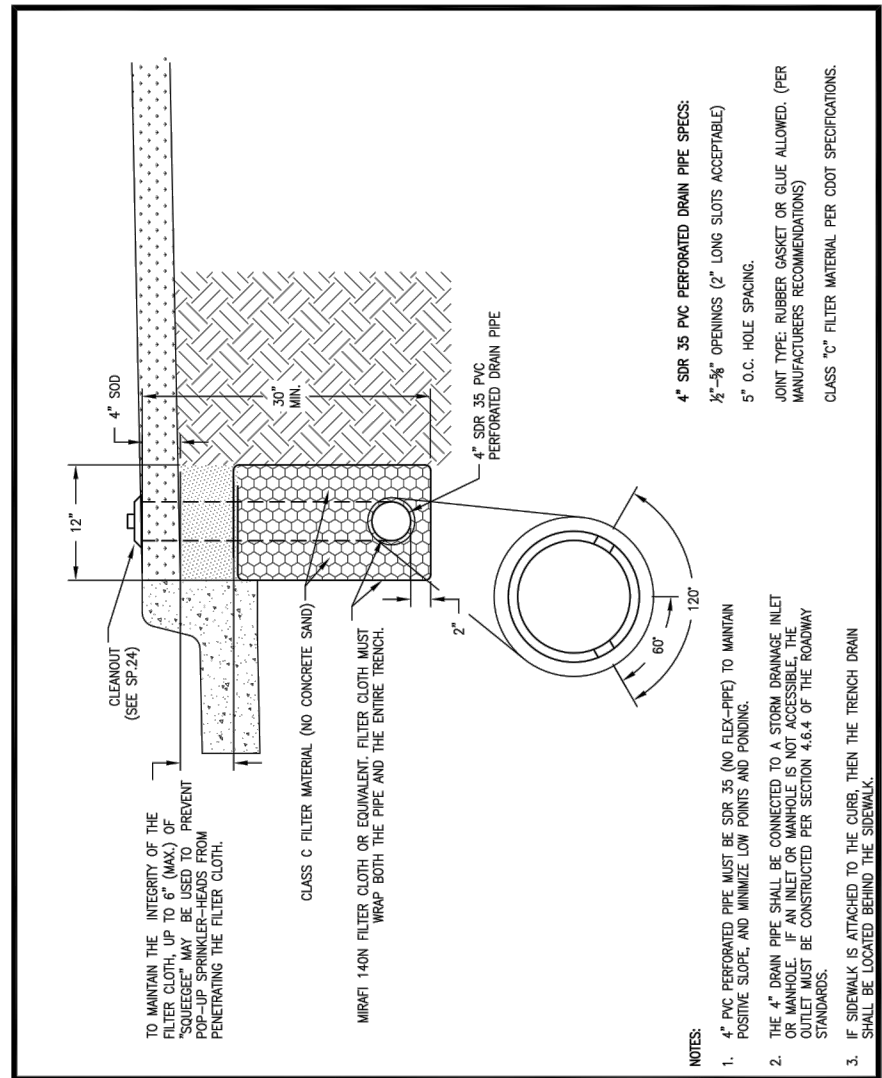
- GENERAL NOTES**
1. DRAINAGE STRUCTURES, TRAFFIC SIGNAL EQUIPMENT, JUNCTION BOXES, OR OTHER OBSTRUCTIONS ARE NOT ALLOWED IN FRONT OF RAMP ACCESS AREAS.
  2. RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.
  3. A 4'x4' LANDING AREA IS REQUIRED AT THE TOP OF THE RAMP.
  4. THE LAYOUT OF THE SIDEWALK BEHIND THE RAMP AND BETWEEN THE PCR'S VARIES.

REFERENCE:

**PERPENDICULAR CURB RAMP FOR CURB RETURN RADIUS OF 35' TO 50'**

Issued: 05/2013  
Revised: \_\_\_\_\_  
Drawing No. **SP.19b**

**DOUGLAS COUNTY**  
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- 4\"/>**

**TRENCH DRAIN**

Issued: 05/2013  
Revised: \_\_\_\_\_  
Drawing No. **SP.23a**

**DOUGLAS COUNTY**  
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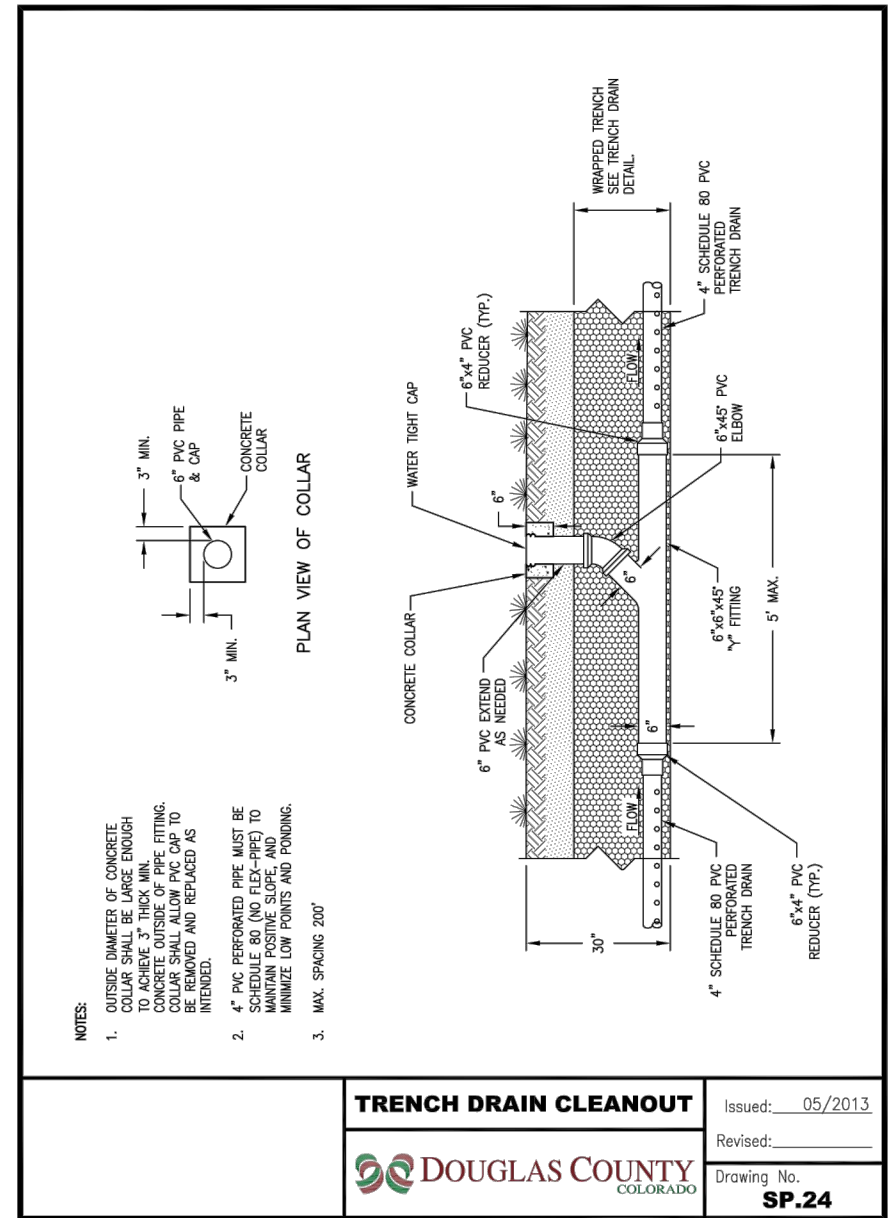
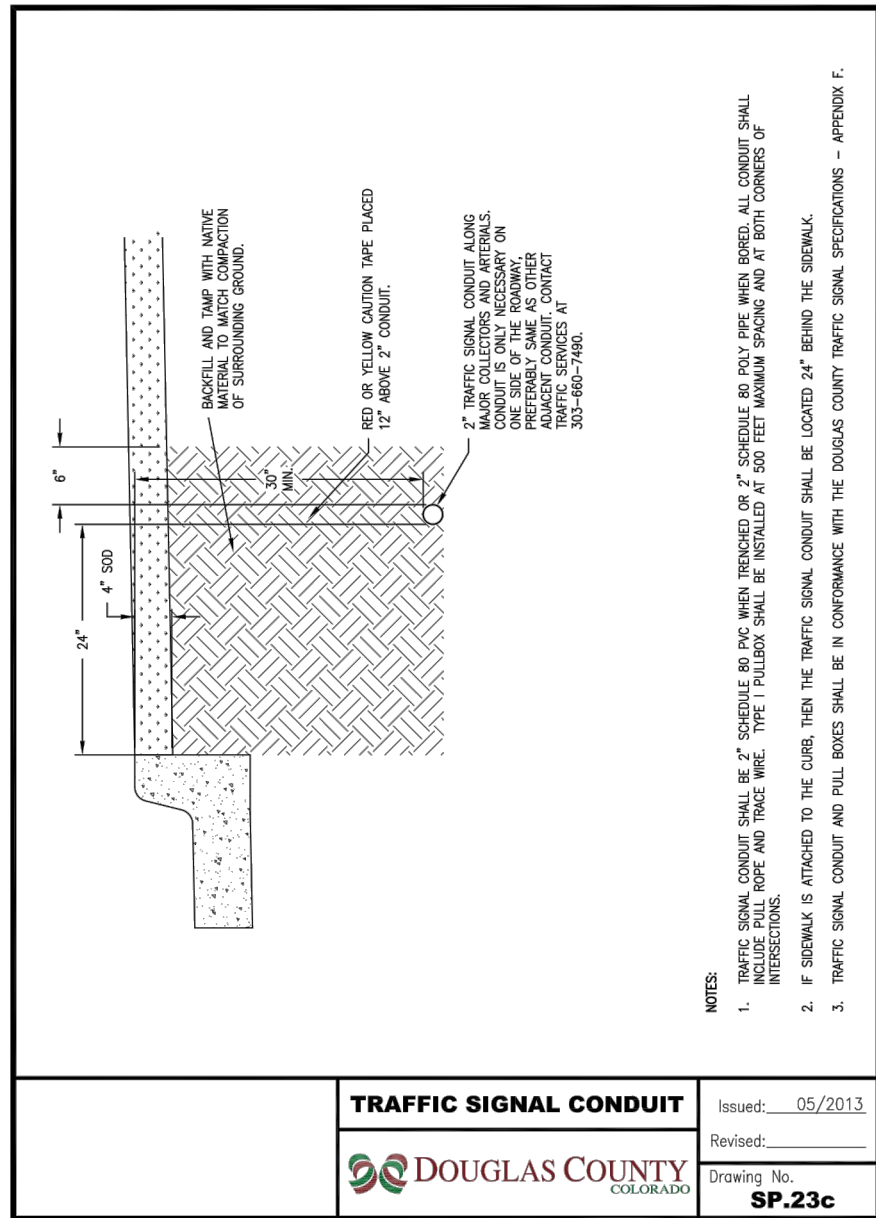
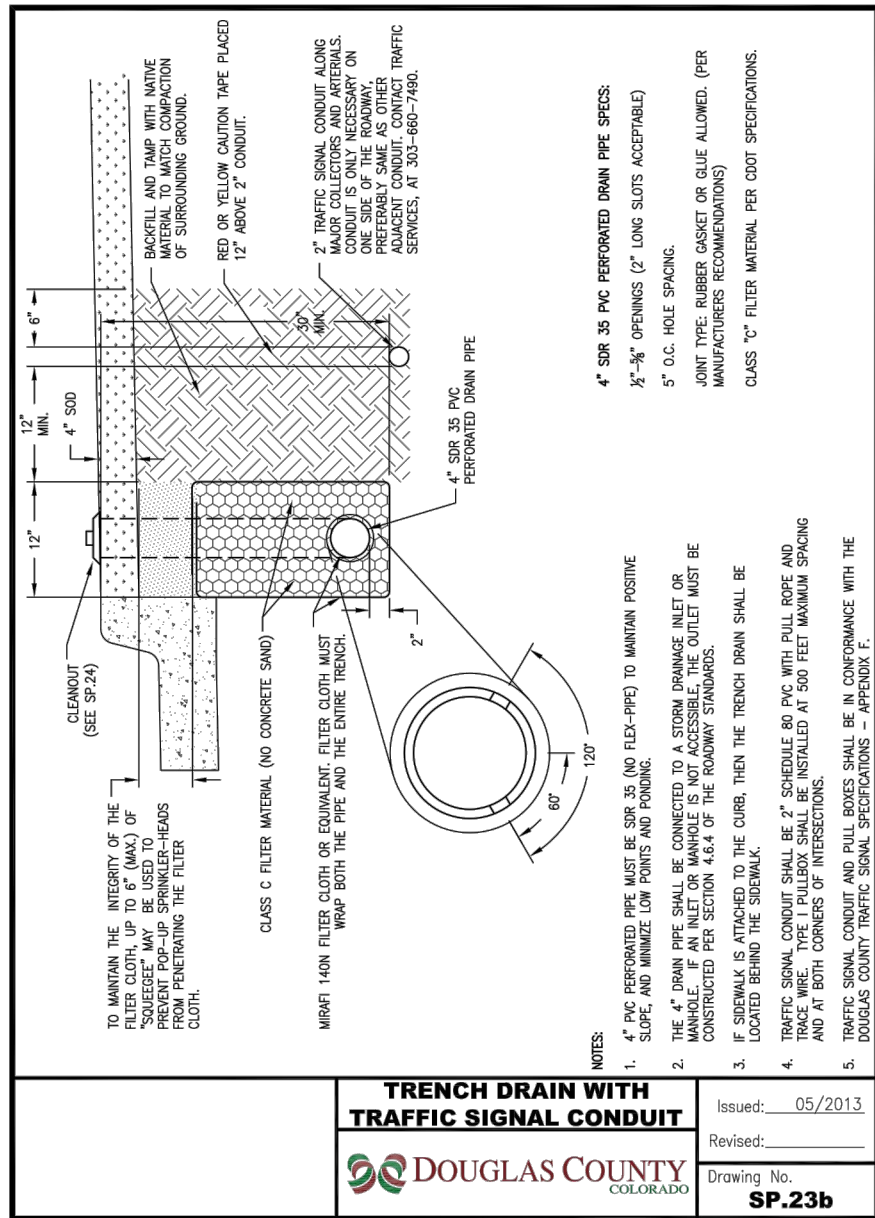
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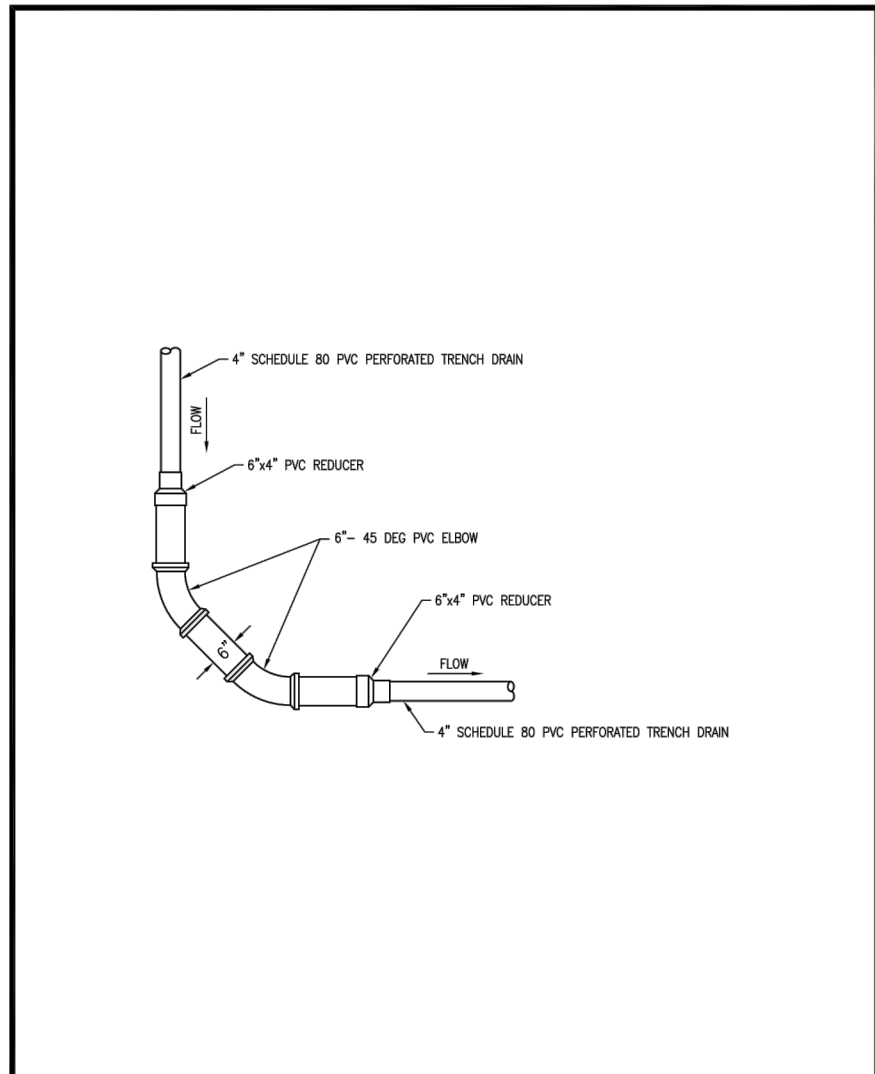


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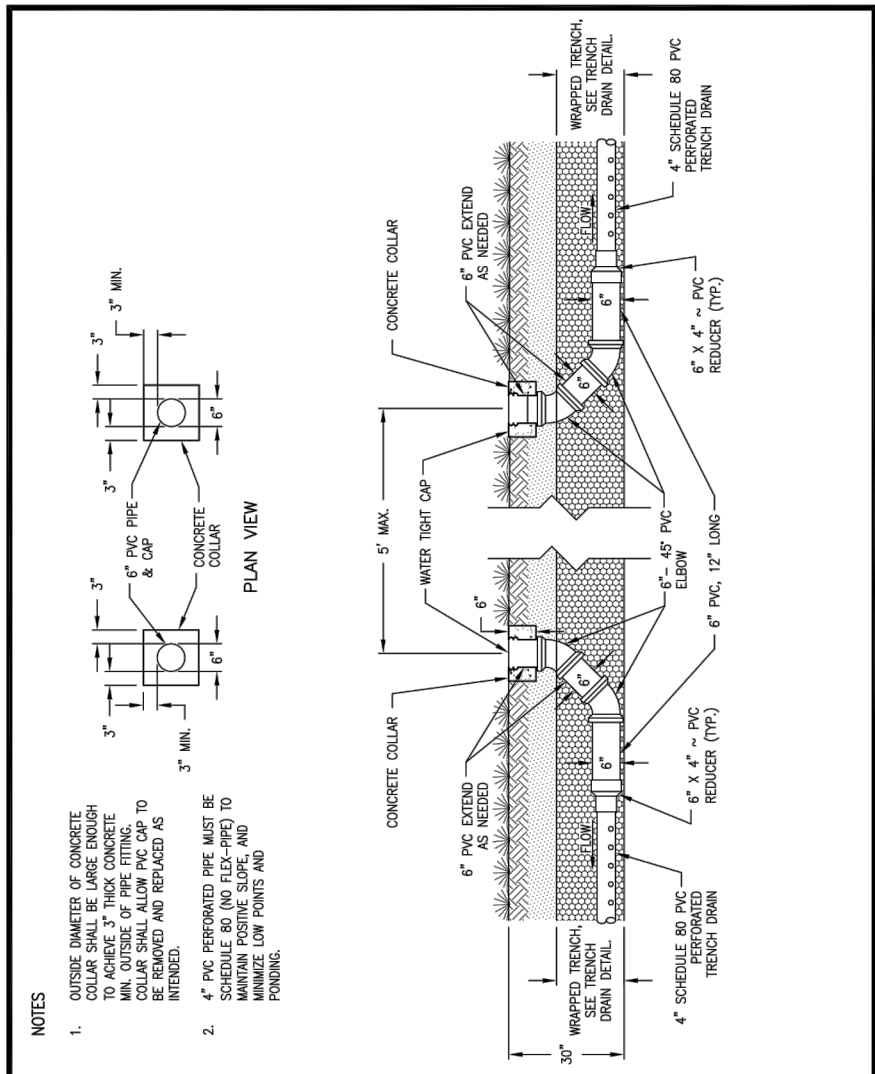


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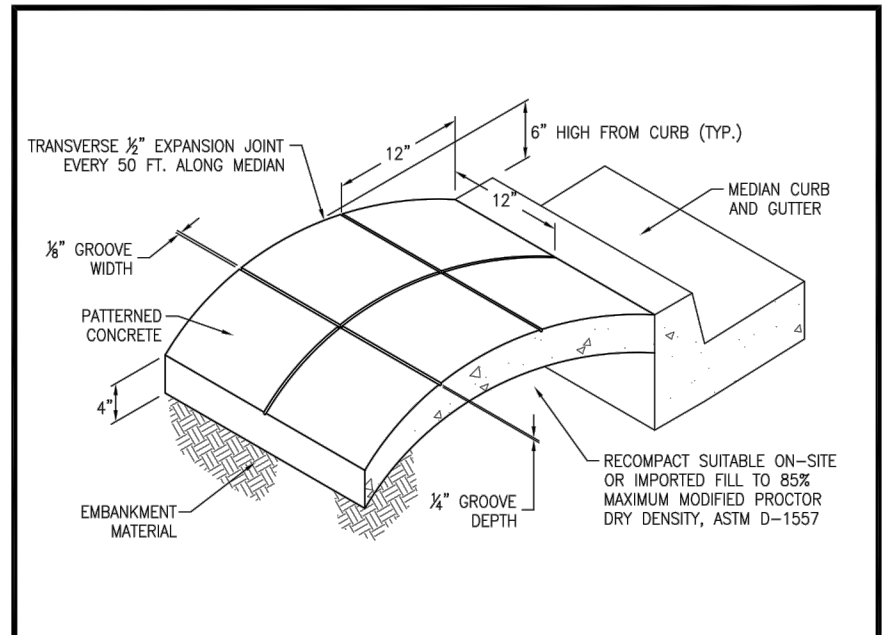
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**TRENCH DRAIN 90° CORNER** Issued: 05/2013  
 Revised: \_\_\_\_\_  
 Drawing No. **SP.25**



**BACK TO BACK TRENCH DRAIN CLEANOUTS** Issued: 05/2013  
 Revised: \_\_\_\_\_  
 Drawing No. **SP.26**



- NOTES:**
1. THE MEDIAN PAVING SHALL BE CONSTRUCTED WITH 4" THICK, INTEGRALLY COLORED CONCRETE, EMBOSSED WITH A 12"x12" BRICK PATTERN AS SHOWN.
  2. INSTALL 1/2"x4" EXPANSION MATERIAL AT MEDIAN NOSES, FIXED OBJECTS, AND AT TRANSVERSE JOINTS AT 50 FT. INTERVALS (MAXIMUM) ALONG THE MEDIAN.
  3. PATTERNED CONCRETE TO BE COLORED SUNSET ROSE # 160.
  4. THE CONCRETE MIX DESIGN SHALL CONFORM TO THE REQUIREMENTS OF THE COLOR ADMIXTURE MANUFACTURER AND THE FOLLOWING:
    - 1) 28-DAY COMPRESSIVE STRENGTH = 3000 PSI (MIN.)
    - 2) WATER/CEMENT RATIO = 0.45 (MAX.)
    - 3) CEMENT CONTENT = 6-1/2 SACKS/CY (MIN.) (TYPE II CEMENT)
    - 4) MAXIMUM AGGREGATE SIZE = 3/8"
    - 5) ENTRAINED AIR CONTENT = 6%-10%
    - 6) SLUMP = 4 INCHES (MAX.) - 1 INCH (MIN.)
  5. FOR WEED CONTROL PRIOR TO MEDIAN PAVING, APPLY A PRE-EMERGENT HERBICIDE TO MEDIAN SUBGRADE AREA PER MANUFACTURER'S SPECIFICATIONS FOR PAVING UNDER THE BARRIER 50 LABEL (PBI GORDAN). TRIFLURALIN IS LABELED FOR USE UNDER ASPHALT UNDER THE TREFLAN 4EC LABEL (EIANCO).

**MEDIAN COVER MATERIAL** Issued: 05/2013  
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					Sheet Number <b>23</b>

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**CONTRACTION OR WEAKEN PLANE JOINT**  
N.T.S.

**SAWED JOINT**  
N.T.S.

**EXPANSION JOINT**  
N.T.S.

NOTES:  
1. JOINT SEALANT MATERIAL MUST MEET ASTM 3406.  
2. 3/8" DIA. BACKER ROD.

<b>CONCRETE JOINTS</b>		Issued: 05/2013
<b>DOUGLAS COUNTY</b> COLORADO		Revised: _____
		Drawing No. <b>SP.31</b>

**GENERAL NOTES**

1. PAVEMENT THICKNESS (T) SHALL BE AS CALLED FOR IN THE PLAN.

PAVEMENT THICKNESS (T)	THE DIM SIZE	THICKNESS FOR TRANSVERSE JOINT
T < 8 IN.	No. 4	1 IN.
8 IN. < T < 10 IN.	No. 5	1.25 IN.
10 IN. > T < 15 IN.	No. 6	1.50 IN.

REFERENCE:  
CDOT M & S STANDARDS  
M-412-1

<b>CONCRETE JOINTS</b>		Issued: 05/2013
<b>DOUGLAS COUNTY</b> COLORADO		Revised: _____
		Drawing No. <b>SP.32</b>

**GENERAL NOTES**

- THIS STANDARD PLAN DOES NOT APPLY TO CONCRETE OVERLAYS (RETIROPPING).
- LOCATE JOINTS AT A MINIMUM OF 2 FEET FROM A CURB.
- IN THE CONCRETE PAVED AREAS, JOINTS SHALL BE CAST AT THE END OF THE PAVED AREA UNLESS OTHERWISE INDICATED BY THE INSTRUCTIONS. IN THIS CASE, JOINTS SHALL BE CONSTRUCTED ONLY WHERE INDICATED ON THE WORK OF CONTRACTOR IS COVERED WITHIN 40 FEET OF THE JOINT.
- WHERE THE CONTRACTOR SHALL BE AN UNLINED JOINT.
- IN A CONCRETE PAVED AREA, JOINTS SHALL BE CAST AT THE END OF THE PAVED AREA UNLESS OTHERWISE INDICATED BY THE INSTRUCTIONS. IN THIS CASE, JOINTS SHALL BE CONSTRUCTED ONLY WHERE INDICATED ON THE WORK OF CONTRACTOR IS COVERED WITHIN 40 FEET OF THE JOINT.
- ON VARIABLE WIDTH SLABS, THE 2 FOOT OR 4 FOOT END OF SLAB WITH DIMENSION MAY BE INCHES.
- CONCRETE JOINT SEALANT SHALL BE PLACED SEPARATELY OF FOR PAVED OR SPEED CHANGE LANES. ALTERNATE JOINT SEALANT SHALL BE USED FOR SPEED CHANGE LANE.

REFERENCE:  
CDOT M & S STANDARDS  
M-412-1

<b>TYPICAL CONCRETE JOINT LAYOUT</b>		Issued: 05/2013
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		Drawing No. <b>SP.33a</b>

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Subset:	ROADWAY
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Sheet Number	24

**JOINT LEGEND**

- EXPANSION CONTRACTION
- TRANSVERSE CONTRACTION
- LONGITUDINAL CONTRACTION
- EXPANSION CONTRACTION
- LONGITUDINAL CONTRACTION
- EXPANSION CONTRACTION
- LONGITUDINAL CONTRACTION
- EXPANSION CONTRACTION
- LONGITUDINAL CONTRACTION

**GENERAL NOTES**

- THIS STANDARD PLAN DOES NOT APPLY TO THIN CONCRETE OVERLAY (INTERLOCKING).
- THIS STANDARD PLAN DOES NOT APPLY TO THIN CONCRETE OVERLAY (INTERLOCKING).
- THIS JOINT LAYOUT IS INTENDED TO BE USED AS A STANDARD FOR THE JOINT LAYOUT FOR THE PROJECT. IF THE CONTRACTOR PROPOSES CHANGES FROM THIS STANDARD OR THE PROJECT HAS UNUSUAL JOINT LAYOUTS, THE CONTRACTOR SHALL PREPARE A JOINT LAYOUT FOR APPROVAL BY THE ENGINEER. THE JOINT LAYOUT SHALL BE CONSTRUCTED ONLY WHERE NECESSARY ON THE PLAN.
- TRANSVERSE JOINTS SHALL BE PLACED AT SPACINGS OF 10 FEET, THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNLINED JOINT.
- ON A LANE DIVIDED HIGHWAYS, THE 2' LANE DIRECTIONAL PAVEMENT AND BOTH SHOULDERS SHALL BE PLACED AT SPACINGS OF 10 FEET, THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNLINED JOINT.
- ON VARIABLE WIDTH LANES, THE 2' FOOT END OF SLAB WIDTH DIMENSION MAY BE 48 INCHES.
- LOCATED JOINT AT (C) JOINT OR 2' FT. MIN FROM (C) JOINT.
- LONGITUDINAL JOINT LOCATIONS AT SPREAD CHANGES SHALL BE USED IF APPROVED.

**TYPICAL CONCRETE JOINT LAYOUT**

MULTI-LANE WITH ACCELERATION AND DECELERATION LANES AND CONCRETE SHOULDERS

**OPTIONAL LONGITUDINAL JOINT IN CENTER FOR SINGLE LANE ACCELERATION AND DECELERATION LANE**

Issued: 05/2013  
Revised: \_\_\_\_\_  
Drawing No. **SP.33b**

REFERENCE:  
CDOT M & S STANDARDS  
M-412-1

**DOUGLAS COUNTY**  
COLORADO

Issued: 05/2013  
Revised: \_\_\_\_\_  
Drawing No. **SP.33b**

**JOINT LEGEND**

- EXPANSION CONTRACTION
- TRANSVERSE CONTRACTION
- LONGITUDINAL CONTRACTION
- EXPANSION CONTRACTION
- LONGITUDINAL CONTRACTION
- EXPANSION CONTRACTION
- LONGITUDINAL CONTRACTION
- EXPANSION CONTRACTION
- LONGITUDINAL CONTRACTION

**GENERAL NOTES**

- THIS STANDARD DOES NOT APPLY TO THIN CONCRETE OVERLAY (INTERLOCKING).
- THIS STANDARD DOES NOT APPLY TO THIN CONCRETE OVERLAY (INTERLOCKING).
- THIS JOINT LAYOUT IS INTENDED TO BE USED AS A STANDARD FOR THE JOINT LAYOUT FOR THE PROJECT. IF THE CONTRACTOR PROPOSES CHANGES FROM THIS STANDARD OR THE PROJECT HAS UNUSUAL JOINT LAYOUTS, THE CONTRACTOR SHALL PREPARE A JOINT LAYOUT FOR APPROVAL BY THE ENGINEER. THE JOINT LAYOUT SHALL BE CONSTRUCTED ONLY WHERE NECESSARY ON THE PLAN.
- TRANSVERSE JOINTS SHALL BE PLACED AT SPACINGS OF 10 FEET, THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNLINED JOINT.
- ON A LANE DIVIDED HIGHWAYS, THE 2' LANE DIRECTIONAL PAVEMENT AND BOTH SHOULDERS SHALL BE PLACED AT SPACINGS OF 10 FEET, THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNLINED JOINT.
- ON VARIABLE WIDTH LANES, THE 2' FOOT END OF SLAB WIDTH DIMENSION MAY BE 48 INCHES.
- LOCATED JOINT AT (C) JOINT OR 2' FT. MIN FROM (C) JOINT.
- LONGITUDINAL JOINT LOCATIONS AT SPREAD CHANGES SHALL BE USED IF APPROVED.

**TYPICAL CONCRETE JOINT LAYOUT**

TYPICAL CURB-EDGED PAVEMENT JOINT LAYOUT

Issued: 05/2013  
Revised: \_\_\_\_\_  
Drawing No. **SP.33c**

REFERENCE:  
CDOT M & S STANDARDS  
M-412-1

**DOUGLAS COUNTY**  
COLORADO

Issued: 05/2013  
Revised: \_\_\_\_\_  
Drawing No. **SP.33c**

**JOINT LEGEND**

- EXPANSION CONTRACTION
- TRANSVERSE CONTRACTION
- LONGITUDINAL CONTRACTION
- EXPANSION CONTRACTION
- LONGITUDINAL CONTRACTION
- EXPANSION CONTRACTION
- LONGITUDINAL CONTRACTION
- EXPANSION CONTRACTION
- LONGITUDINAL CONTRACTION

**GENERAL NOTES**

- THIS STANDARD DOES NOT APPLY TO THIN CONCRETE OVERLAY (INTERLOCKING).
- THIS STANDARD DOES NOT APPLY TO THIN CONCRETE OVERLAY (INTERLOCKING).
- THIS JOINT LAYOUT IS INTENDED TO BE USED AS A STANDARD FOR THE JOINT LAYOUT FOR THE PROJECT. IF THE CONTRACTOR PROPOSES CHANGES FROM THIS STANDARD OR THE PROJECT HAS UNUSUAL JOINT LAYOUTS, THE CONTRACTOR SHALL PREPARE A JOINT LAYOUT FOR APPROVAL BY THE ENGINEER. THE JOINT LAYOUT SHALL BE CONSTRUCTED ONLY WHERE NECESSARY ON THE PLAN.
- TRANSVERSE JOINTS SHALL BE PLACED AT SPACINGS OF 10 FEET, THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNLINED JOINT.
- ON A LANE DIVIDED HIGHWAYS, THE 2' LANE DIRECTIONAL PAVEMENT AND BOTH SHOULDERS SHALL BE PLACED AT SPACINGS OF 10 FEET, THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNLINED JOINT.
- ON VARIABLE WIDTH LANES, THE 2' FOOT END OF SLAB WIDTH DIMENSION MAY BE 48 INCHES.
- LOCATED JOINT AT (C) JOINT OR 2' FT. MIN FROM (C) JOINT.
- LONGITUDINAL JOINT LOCATIONS AT SPREAD CHANGES SHALL BE USED IF APPROVED.

**TYPICAL CONCRETE JOINT LAYOUT**

MULTI-LANE INTERSECTION WITH SPEED CHANGE LANE AND CONCRETE SHOULDERS

Issued: 05/2013  
Revised: \_\_\_\_\_  
Drawing No. **SP.33d**

REFERENCE:  
CDOT M & S STANDARDS  
M-412-1

**DOUGLAS COUNTY**  
COLORADO

Issued: 05/2013  
Revised: \_\_\_\_\_  
Drawing No. **SP.33d**

Sheet Revisions		
Date	Comments	Initials

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As Constructed		PEORIA & BELFORD INTERSECTION ROADWAY DETAILS		Project No./Code	
No Revisions:		Designer:	DCS	Structure Numbers	
Revised:		Detailer:	JHH		
Void:		Subset:	ROADWAY	Sheets:	RD-7 of 7
				Sheet Number	25

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POINT TABLE - ROADWAY PLANS				
POINT #	STATION	OFFSET	ELEVATION	DESCRIPTION
P - 1	103+45.32	12.00' LT	5894.64	BEGIN CONSTRUCTION / SAWCUT LINE / MATCH EXISTING
P - 2	103+45.32	7.76' LT	5894.72	BEGIN CONSTRUCTION / PC / PROPOSED EOP
P - 3	103+65.32	7.55' LT	5894.89	PROPOSED EOP
P - 4	103+85.31	7.04' LT	5895.13	PROPOSED EOP
P - 5	104+05.29	6.22' LT	5895.45	PROPOSED EOP
P - 6	104+25.26	5.08' LT	5895.79	PROPOSED EOP
P - 7	104+45.21	3.65' LT	5896.17	PROPOSED EOP
P - 8	104+65.13	1.90' LT	5896.61	PROPOSED EOP
P - 9	104+85.02	0.15' RT	5897.06	PROPOSED EOP
P - 10	105+04.88	2.51' RT	5897.58	PROPOSED EOP
P - 11	105+24.71	5.18' RT	5898.11	PROPOSED EOP
P - 12	105+44.48	8.15' RT	5898.72	PROPOSED EOP
P - 13	105+64.21	11.42' RT	5899.33	PROPOSED EOP
P - 14	105+88.64	15.91' RT	5900.14	PCC / PROPOSED EOP
P - 15	106+08.30	19.60' RT	5900.76	PROPOSED EOP
P - 16	106+28.00	23.06' RT	5901.39	PROPOSED EOP
P - 17	106+47.74	26.28' RT	5902.05	PROPOSED EOP
P - 18	106+67.51	29.28' RT	5902.73	PROPOSED EOP
P - 19	106+87.32	32.04' RT	5903.34	PROPOSED EOP
P - 20	107+07.16	34.57' RT	5903.98	PROPOSED EOP
P - 21	107+27.03	36.86' RT	5904.61	PROPOSED EOP
P - 22	107+46.92	38.93' RT	5905.22	PROPOSED EOP
P - 23	107+66.84	40.75' RT	5905.83	PROPOSED EOP
P - 24	107+86.77	42.35' RT	5906.37	PROPOSED EOP
P - 25	105+90.56	51.06' RT	5894.66	PROPOSED FENCE BARBED WIRE WITH METAL POSTS / MATCH EXISTING
P - 26	105+90.56	62.50' RT	5894.45	PROPOSED FENCE BARBED WIRE WITH METAL POSTS
P - 30	108+06.73	43.71' RT	5906.88	PROPOSED EOP
P - 31	108+26.69	44.83' RT	5907.40	PROPOSED EOP
P - 32	108+46.67	45.73' RT	5907.96	PROPOSED EOP
P - 33	108+66.66	46.38' RT	5908.56	PROPOSED EOP
P - 34	108+86.66	46.80' RT	5909.16	PROPOSED EOP
P - 35	109+02.55	46.97' RT	5909.65	PT / PROPOSED EOP
P - 36	109+12.55	46.00' RT	5910.01	PROPOSED CURB FLOWLINE
P - 37	109+12.55	44.00' RT	5910.05	PROPOSED CURB LIP
P - 38	110+62.57	44.00' RT	5914.38	PC / PROPOSED CURB LIP
P - 39	11+44.71	50.50' RT	5915.36	PT / PROPOSED CURB LIP / CURB TRANSITION

POINT TABLE - ROADWAY PLANS				
POINT #	STATION	OFFSET	ELEVATION	DESCRIPTION
P - 40	11+49.71	50.50' RT	5915.30	PROPOSED CURB LIP / CURB TRANSITION
P - 41	12+68.32	50.50' RT	5913.32	END CONSTRUCTION / PROPOSED CURB LIP
P - 42	109+12.55	12.00' LT	5911.17	SAWCUT LINE / MATCH EXISTING
P - 43	109+91.88	12.00' LT	5913.77	SAWCUT LINE / MATCH EXISTING
P - 44	110+50.83	11.89' LT	5914.98	SAWCUT LINE / MATCH EXISTING
P - 45	110+89.55	11.82' LT	5915.76	PROPOSED PEORIA CROWN LINE / SAWCUT LINE / MATCH EXISTING
P - 46	111+28.92	11.64' LT	5916.51	SAWCUT LINE / MATCH EXISTING
P - 47	111+70.75	10.23' LT	5917.37	SAWCUT LINE / MATCH EXISTING
P - 48	112+20.23	9.09' LT	5918.57	SAWCUT LINE / MATCH EXISTING
P - 49	112+58.01	9.04' LT	5919.21	SAWCUT LINE / MATCH EXISTING
P - 50	112+91.33	9.09' LT	5919.92	SAWCUT LINE / MATCH EXISTING
P - 51	112+82.37	0.20' RT	5919.93	PROPOSED PEORIA CROWN LINE
P - 52	112+91.33	0.20' RT	5920.15	PROPOSED PEORIA CROWN LINE / SAWCUT LINE / MATCH EXISTING
P - 53	112+91.33	11.20' RT	5919.97	SAWCUT LINE / MATCH EXISTING
P - 54	112+91.33	44.36' RT	5919.14	END CONSTRUCTION / PT / PROPOSED CURB LIP / MATCH EXISTING
P - 55	112+77.93	45.81' RT	5918.81	PROPOSED CURB LIP / CURB TRANSITION
P - 56	112+73.08	47.04' RT	5918.68	PROPOSED CURB LIP / CURB TRANSITION
P - 57	11+45.13	48.50' LT	5916.64	PC / PROPOSED CURB LIP
P - 58	11+50.13	48.50' LT	5916.52	PROPOSED CURB LIP / CURB TRANSITION
P - 59	12+68.32	48.50' LT	5913.10	END CONSTRUCTION / PROPOSED CURB LIP
P - 60	12+68.32	6.50' RT	5914.20	END CONSTRUCTION / PROPOSED BELFORD CROWN LINE
P - 61	10+71.82	6.50' RT	5917.02	PROPOSED BELFORD CROWN LINE
P - 62	110+56.57	62.50' RT	5914.84	PROPOSED FENCE BARBED WIRE WITH METAL POSTS
P - 63	11+50.71	70.50' RT	5915.97	PROPOSED FENCE BARBED WIRE WITH METAL POSTS
P - 64	12+68.32	70.50' RT	5914.00	PROPOSED FENCE BARBED WIRE WITH METAL POSTS
P - 65	12+68.32	68.50' LT	5913.78	PROPOSED FENCE BARBED WIRE WITH METAL POSTS
P - 66	11+51.13	68.50' LT	5917.17	PROPOSED FENCE BARBED WIRE WITH METAL POSTS
P - 67	112+90.23	69.95' RT	5918.57	PROPOSED FENCE BARBED WIRE WITH METAL POSTS / MATCH EXISTING
P - 80	114+70.53	0.20' RT	5923.51	END CONSTRUCTION / SAWCUT LINE / MATCH EXISTING
P - 81	114+70.53	0.93' RT	5923.49	PC / PROPOSED CURB FLOWLINE / MATCH EXISTING
P - 82	114+65.86	5.61' RT	5923.27	MIDPOINT / PROPOSED CURB FLOWLINE
P - 83	114+70.53	10.28' RT	5923.23	PT / PROPOSED CURB FLOWLINE / MATCH EXISTING
P - 84	114+70.53	11.20' RT	5923.21	END CONSTRUCTION / SAWCUT LINE / MATCH EXISTING

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Sheet Revisions		
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As Constructed	PEORIA & BELFORD INTERSECTION ROADWAY DATA		Project No./Code
No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: JHH		
Void:	Subset: ROADWAY	Sheets: DA-1 of 2	Sheet Number 26


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POINT TABLE – INTERSECTION & CURB RETURN DETAILS				
POINT #	STATION	OFFSET	ELEVATION	DESCRIPTION
I – 1	50+50.00	0.00' RT	5914.38	PC / PROPOSED CURB LIP
I – 2	51+06.32	0.00' RT	5915.63	CL CONCRETE CURB RAMP
I – 3	51+52.08	0.00' RT	5915.36	PT / PROPOSED CURB LIP / CURB TRANSITION
I – 4	51+02.36	15.73' RT	5916.19	PC / PROPOSED CONCRETE SIDEWALK
I – 5	51+29.10	14.54' RT	5916.18	MIDPOINT / PROPOSED CONCRETE SIDEWALK
I – 6	51+54.58	13.50' RT	5915.88	PT / PROPOSED CONCRETE SIDEWALK
I – 7	51+02.78	9.99' RT	5916.08	PROPOSED CONCRETE SIDEWALK / PROPOSED CONCRETE CURB RAMP
I – 8	51+09.87	9.99' RT	5916.13	PROPOSED CONCRETE SIDEWALK / PROPOSED CONCRETE CURB RAMP
I – 9	51+11.22	8.50' RT	5916.10	PC / PROPOSED CONCRETE SIDEWALK / PROPOSED CONCRETE CURB RAMP
I – 10	51+31.65	8.50' RT	5916.04	MIDPOINT / PROPOSED CONCRETE SIDEWALK
I – 11	51+52.08	8.50' RT	5915.81	PT / PROPOSED CONCRETE SIDEWALK
I – 12	50+96.43	20.00' LT	5915.82	PCC / PROPOSED CURB LIP
I – 13	51+06.32	20.00' LT	5915.94	CL CONCRETE CURB RAMP
I – 14	51+19.24	20.00' LT	5916.01	PCC / PROPOSED CURB LIP
I – 15	51+20.28	25.64' LT	5916.12	PT / PROPOSED CURB LIP
I – 16	51+10.05	35.23' LT	5916.27	CL CONCRETE CURB RAMP
I – 17	51+05.37	41.29' LT	5916.36	PC / PROPOSED CURB LIP
I – 18	51+02.78	41.09' LT	5916.37	PT / PROPOSED CURB LIP
I – 19	50+94.16	28.83' LT	5915.92	PC / PROPOSED CURB LIP
I – 20	60+50.00	0.00' RT	5916.64	PC / PROPOSED CURB LIP
I – 21	60+96.18	0.00' RT	5917.77	CL CONCRETE CURB RAMP
I – 22	61+51.88	0.00' RT	5919.14	END CONSTRUCTION / PT / PROPOSED CURB LIP / MATCH EXISTING
I – 23	60+47.49	13.50' RT	5917.13	PC / PROPOSED CONCRETE SIDEWALK
I – 24	60+73.18	14.55' RT	5917.77	MIDPOINT / PROPOSED CONCRETE SIDEWALK
I – 25	61+00.14	15.75' RT	5918.46	PT / PROPOSED CONCRETE SIDEWALK
I – 26	60+50.00	8.50' RT	5917.08	PC / PROPOSED CONCRETE SIDEWALK
I – 27	60+70.64	8.50' RT	5917.59	MIDPOINT / PROPOSED CONCRETE SIDEWALK
I – 28	60+91.28	8.50' RT	5918.10	PT / PROPOSED CONCRETE SIDEWALK / PROPOSED CONCRETE CURB RAMP
I – 29	60+92.63	9.99' RT	5918.16	PROPOSED CONCRETE SIDEWALK / PROPOSED CONCRETE CURB RAMP
I – 30	60+99.72	9.99' RT	5918.33	PROPOSED CONCRETE SIDEWALK / PROPOSED CONCRETE CURB RAMP
I – 31	60+88.07	20.00' LT	5917.62	PCC / PROPOSED CURB LIP
I – 32	60+96.18	20.00' LT	5917.88	CL CONCRETE CURB RAMP
I – 33	61+10.00	20.00' LT	5918.33	PCC / PROPOSED CURB LIP
I – 34	61+11.30	25.41' LT	5918.42	PC / PROPOSED CURB LIP
I – 35	60+99.40	41.23' LT	5918.05	PT / PROPOSED CURB LIP

POINT TABLE – INTERSECTION & CURB RETURN DETAILS				
POINT #	STATION	OFFSET	ELEVATION	DESCRIPTION
I – 36	60+96.81	41.42' LT	5917.84	PC / PROPOSED CURB LIP
I – 37	60+92.25	35.49' LT	5917.68	CL CONCRETE CURB RAMP
I – 38	60+86.16	29.21' LT	5917.49	PT / PROPOSED CURB LIP

POINT TABLE – CONCRETE CURB RAMP DETAILS				
POINT #	STATION	OFFSET	ELEVATION	DESCRIPTION
D – 1	51+06.32	10.07' RT	5916.11	CL CONCRETE CURB RAMP / MIDPOINT AT TOP
D – 2	51+06.32	0.00' RT	5915.63	CL CONCRETE CURB RAMP
D – 3	50+97.04	2.00' RT	5915.38	BEGIN CONCRETE CURB RAMP FLARE AT FLOWLINE
D – 4	51+03.23	2.00' RT	5915.44	CONCRETE CURB RAMP BOTTOM AT FLOWLINE
D – 5	51+06.32	2.00' RT	5915.47	CL CONCRETE CURB RAMP AT FLOWLINE
D – 6	51+09.42	2.00' RT	5915.48	CONCRETE CURB RAMP BOTTOM AT FLOWLINE
D – 7	51+15.61	2.00' RT	5915.50	BEGIN CONCRETE CURB RAMP FLARE AT FLOWLINE
D – 8	51+06.32	20.00' LT	5915.94	CL CONCRETE CURB RAMP
D – 9	51+03.72	21.00' LT	5916.01	BEGIN CONCRETE CURB RAMP ARC AT FLOWLINE
D – 10	51+06.32	21.00' LT	5916.18	CL CONCRETE CURB RAMP AT FLOWLINE
D – 11	51+08.92	21.00' LT	5916.17	BEGIN CONCRETE CURB RAMP ARC AT FLOWLINE
D – 12	51+06.86	28.02' LT	5916.64	CL CONCRETE CURB RAMP / MIDPOINT OF ARC
D – 13	51+10.05	35.23' LT	5916.27	CL CONCRETE CURB RAMP
D – 14	51+07.88	36.60' LT	5916.34	BEGIN CONCRETE CURB RAMP ARC AT FLOWLINE
D – 15	51+09.66	34.44' LT	5916.31	CL CONCRETE CURB RAMP AT FLOWLINE
D – 16	51+11.52	32.35' LT	5916.28	BEGIN CONCRETE CURB RAMP ARC AT FLOWLINE
D – 17	60+92.25	35.49' LT	5917.68	CL CONCRETE CURB RAMP
D – 18	60+94.41	36.87' LT	5917.78	BEGIN CONCRETE CURB RAMP ARC AT FLOWLINE
D – 19	60+92.64	34.70' LT	5917.72	CL CONCRETE CURB RAMP AT FLOWLINE
D – 20	60+90.80	32.60' LT	5917.66	BEGIN CONCRETE CURB RAMP ARC AT FLOWLINE
D – 21	60+95.63	27.96' LT	5918.37	CL CONCRETE CURB RAMP / MIDPOINT OF ARC
D – 22	60+96.18	20.00' LT	5917.88	CL CONCRETE CURB RAMP
D – 23	60+98.78	21.00' LT	5918.09	BEGIN CONCRETE CURB RAMP ARC AT FLOWLINE
D – 24	60+96.18	21.00' LT	5917.97	CL CONCRETE CURB RAMP AT FLOWLINE
D – 25	60+93.58	21.00' LT	5918.05	BEGIN CONCRETE CURB RAMP ARC AT FLOWLINE
D – 26	60+96.18	0.00' RT	5917.77	CL CONCRETE CURB RAMP
D – 27	60+96.18	10.07' RT	5918.25	CL CONCRETE CURB RAMP / MIDPOINT AT TOP
D – 28	61+05.47	2.00' RT	5917.83	BEGIN CONCRETE CURB RAMP FLARE AT FLOWLINE
D – 29	60+99.27	2.00' RT	5917.68	CONCRETE CURB RAMP BOTTOM AT FLOWLINE
D – 30	60+96.18	2.00' RT	5917.60	CL CONCRETE CURB RAMP AT FLOWLINE
D – 31	60+93.08	2.00' RT	5917.53	CONCRETE CURB RAMP BOTTOM AT FLOWLINE
D – 32	60+86.89	2.00' RT	5917.38	BEGIN CONCRETE CURB RAMP FLARE AT FLOWLINE

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(R-X)	Sheet Revisions		
	Date	Comments	Initials

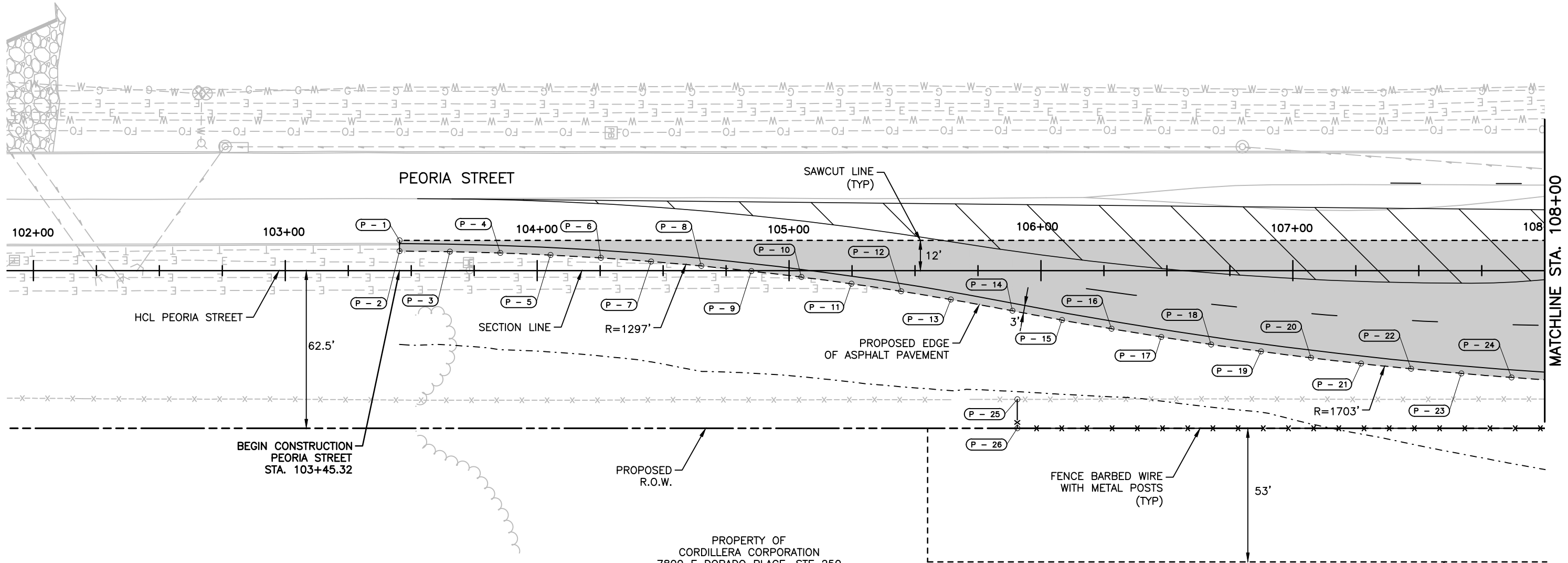


As Constructed	PEORIA & BELFORD INTERSECTION ROADWAY DATA		Project No./Code
No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: JHH		
Void:	Subset: ROADWAY	Sheets: DA-2 of 2	Sheet Number 27



Know what's below.  
Call before you dig.

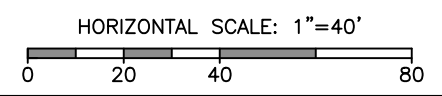
PROPERTY OF  
WESTERN UNION COMPANY  
12500 E BELFORD AVENUE  
ENGLEWOOD, CO 80112



- NOTES:
- UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
  - PERMANENT SLOPE AND DRAINAGE EASEMENTS SHALL NOT BE CLEARED AND GRUBBED UNLESS IT IS REQUIRED IN ORDER TO CONSTRUCT THE ROADWAY SECTION. THE CONTRACTOR SHALL USE PARTICULAR CARE TO MINIMIZE DAMAGE TO PLANTINGS WITHIN THE PROPERTY.
  - SEE ROADWAY DATA, SIGNING AND STRIPING PLANS, TRAFFIC SIGNAL PLANS, ROADWAY DETAILS, DRAINAGE PLANS, REMOVAL AND RESET PLANS, INTERSECTION AND CURB RETURN DETAILS FOR ADDITIONAL INFORMATION.

**LEGEND**

---	TOP OF CUT
- - - - -	TOE OF FILL
-▲-	TRENCH DRAIN
-x-x-	FENCE BARBED WIRE WITH METAL POSTS
[Grid]	MEDIAN COVER MATERIAL PATTERNED CONCRETE (4 INCH)
[Dotted]	LIMITS OF CONCRETE PAVEMENT (9 INCH)
[Shaded]	LIMITS OF HOT MIX ASPHALT (6 INCH)



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Sheet Revisions			
Date	Comments	Initials	

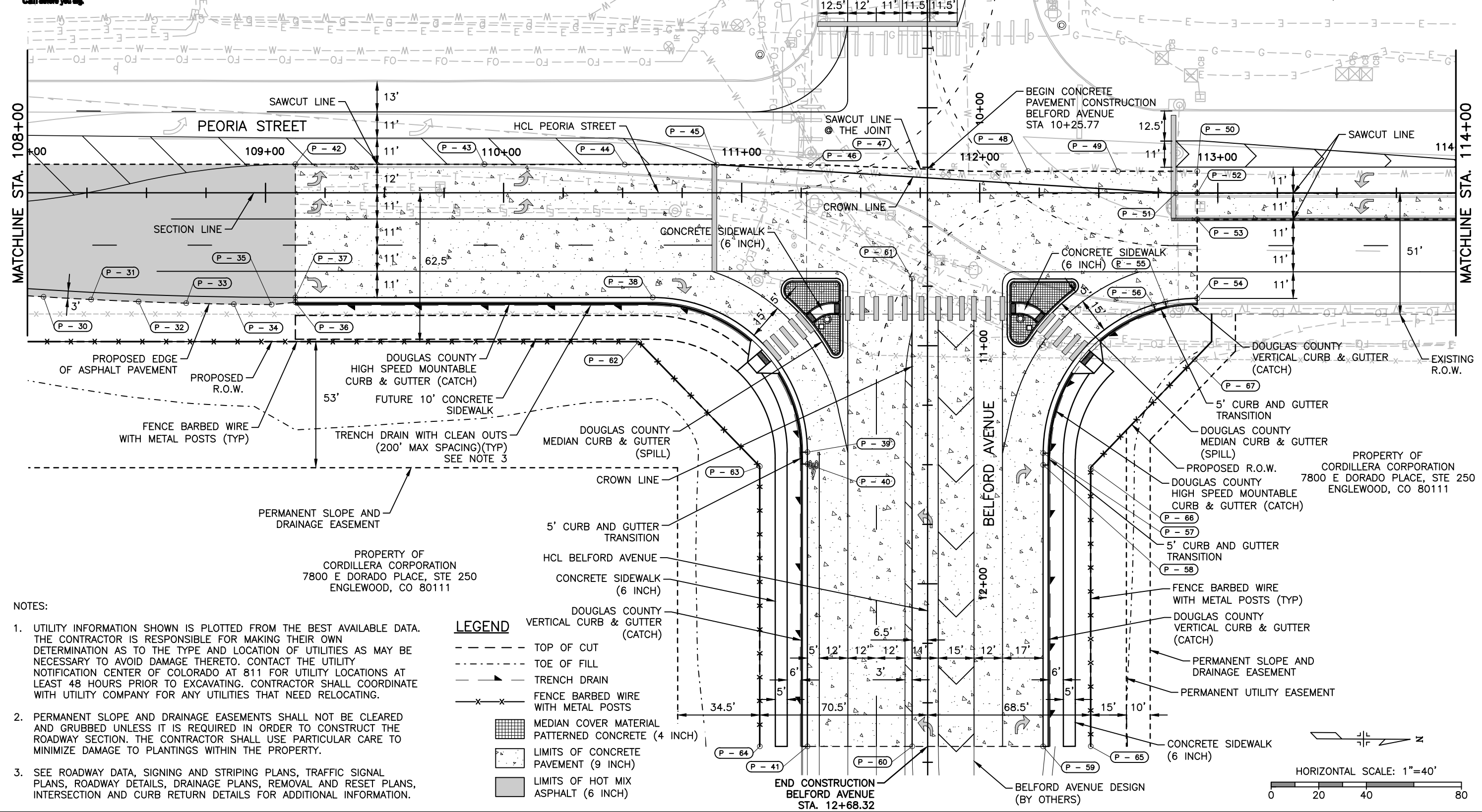


As Constructed	PEORIA & BELFORD INTERSECTION ROADWAY PLAN STA. 102+00 TO STA. 108+00		Project No./Code
No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: JHH		
Void:	Subset: ROADWAY	Sheets: PL-1 of 3	Sheet Number 28



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MERIDIAN METROPOLITAN DISTRICT  
8350 E CRESCENT PARKWAY, STE 100  
ENGLEWOOD, CO 80111

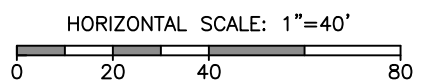
PROPERTY OF  
MERIDIAN METROPOLITAN DISTRICT  
8350 E CRESCENT PARKWAY, STE 100  
ENGLEWOOD, CO 80111



- NOTES:**
- UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
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**LEGEND**

---	TOP OF CUT
- - - -	TOE OF FILL
-▲-	TRENCH DRAIN
-x-x-	FENCE BARBED WIRE WITH METAL POSTS
[Grid Pattern]	MEDIAN COVER MATERIAL PATTERNED CONCRETE (4 INCH)
[Dotted Pattern]	LIMITS OF CONCRETE PAVEMENT (9 INCH)
[Solid Grey]	LIMITS OF HOT MIX ASPHALT (6 INCH)



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Date	Comments	Initials	



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No Revisions:	STA. 108+00 TO STA. 114+00		
Revised:	Designer: DCS	Structure Numbers	
Void:	Detailer: JHH		
	Subset: ROADWAY	Sheets: PL-2 of 3	Sheet Number 29

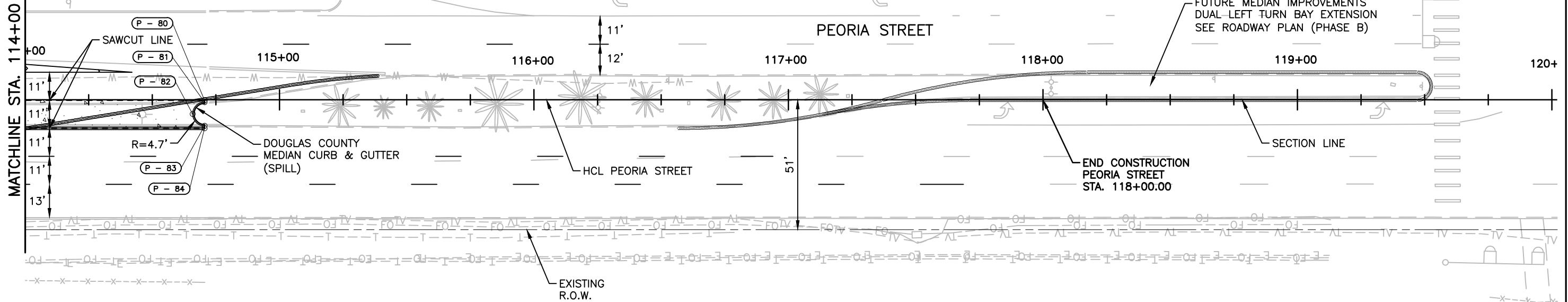
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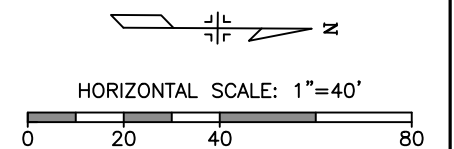


NOTES:

- UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
- PERMANENT SLOPE AND DRAINAGE EASEMENTS SHALL NOT BE CLEARED AND GRUBBED UNLESS IT IS REQUIRED IN ORDER TO CONSTRUCT THE ROADWAY SECTION. THE CONTRACTOR SHALL USE PARTICULAR CARE TO MINIMIZE DAMAGE TO PLANTINGS WITHIN THE PROPERTY.
- SEE ROADWAY DATA, SIGNING AND STRIPING PLANS, TRAFFIC SIGNAL PLANS, ROADWAY DETAILS, DRAINAGE PLANS, REMOVAL AND RESET PLANS, INTERSECTION AND CURB RETURN DETAILS FOR ADDITIONAL INFORMATION.

LEGEND

- TOP OF CUT
- - - - - TOE OF FILL
- TRENCH DRAIN
- x-x- FENCE BARBED WIRE WITH METAL POSTS
- [Grid Pattern] MEDIAN COVER MATERIAL PATTERNED CONCRETE (4 INCH)
- [Dotted Pattern] LIMITS OF CONCRETE PAVEMENT (9 INCH)
- [Solid Grey] LIMITS OF HOT MIX ASPHALT (6 INCH)



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Void:

PEORIA & BELFORD INTERSECTION ROADWAY PLAN STA. 114+00 TO STA. 120+00			
Designer:	DCS	Structure	
Detailer:	JHH	Numbers	
Subset:	ROADWAY	Sheets:	PL-3 of 3

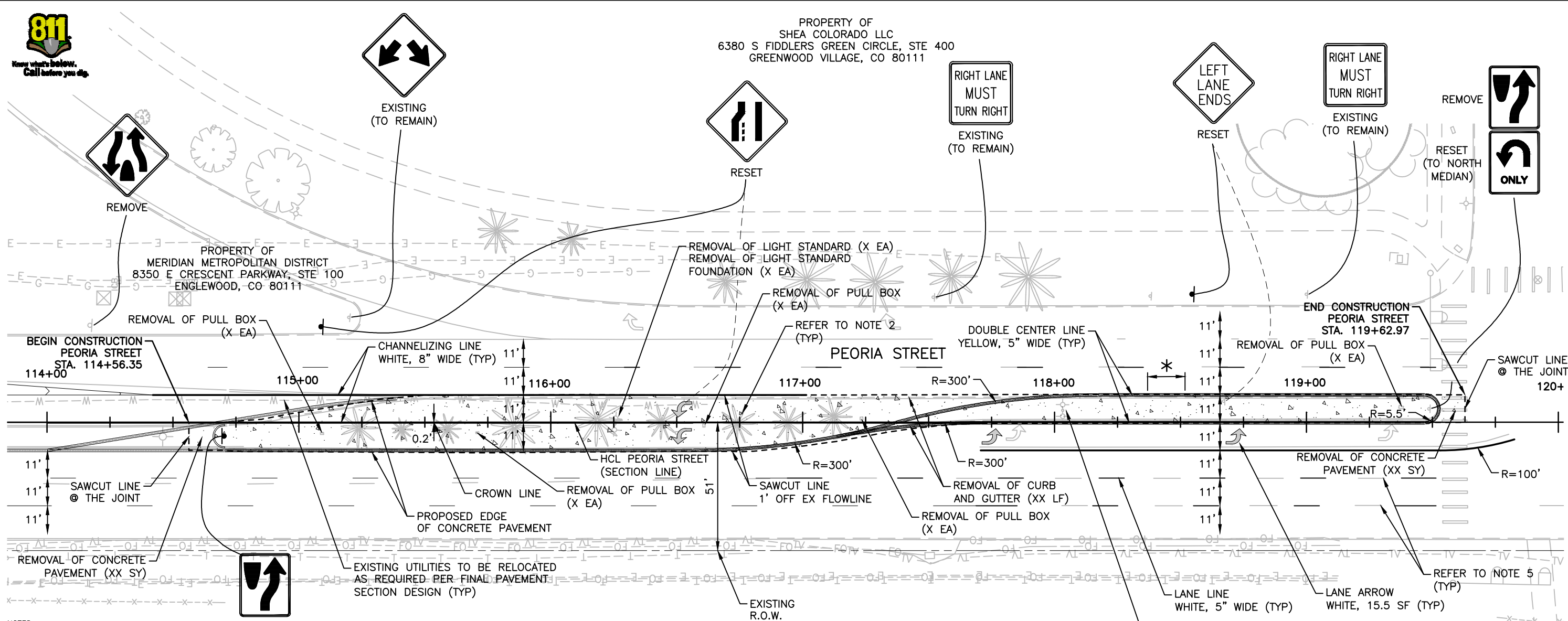
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Sheet Number
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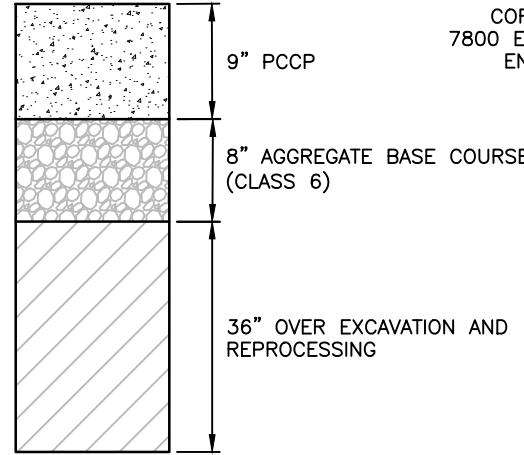
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ENGLEWOOD, CO 80111

PROPERTY OF  
CORDILLERA CORPORATION  
7800 E DORADO PLACE, STE 250  
ENGLEWOOD, CO 80111



- NOTES:
- UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
  - CONTRACTOR SHALL COORDINATE WITH MERIDIAN METROPOLITAN DISTRICT AS IT RELATES TO THE MEDIAN IRRIGATION SYSTEM, LANDSCAPE MATERIALS, AND LIGHTING.
  - QUANTITIES AND COST WILL BE CALCULATED PRIOR TO CONSTRUCTION.
  - FINAL GEOTECHNICAL REPORT TO DETERMINE FINAL PAVEMENT SECTION DETAILS.
  - XX SF OF REMOVAL OF PAVEMENT MARKINGS THIS SHEET.
  - ALL SIGNAGE AND STRIPING FOR PUBLIC AND/OR PRIVATE ROADWAYS, WALKWAYS OR BICYCLE TRAILS OPEN TO PUBLIC TRAVEL SHALL CONFORM TO THE MOST RECENT VERSION OF THE FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE COLORADO SUPPLEMENTAL MUTCD, AND THE DOUGLAS COUNTY SIGNAGE AND STRIPING SUPPLEMENT.
  - ALL STREET NAMES SHOWN ARE FOR INFORMATION ONLY. FOR ACCEPTED STREET NAMES, REFER TO THE RECORDED FINAL PLAT FOR THIS SUBDIVISION.
  - STRIPING MATERIAL WILL BE:  
LONG LINE: WATERBORNE PAINT PER CDOT SPECIFICATIONS.  
ARROW LEGEND: METHYL-MYTHACRYLATE
  - ALL PAVEMENT MARKINGS ARE SUBJECT TO MATERIAL CHANGES DUE TO SEASON AND/OR WEATHER. TEMPORARY MARKING MATERIALS MAY BE REQUIRED. SPECIFIED FINAL PAVEMENT MARKING MATERIALS SHALL BE INSTALLED WHEN SEASON/WEATHER ALLOW.
  - ALL SIGNS INSTALLED IN RAISED MEDIANS (OR IN CONCRETE) SHALL BE INSTALLED USING THE KLEEN BREAK MODEL 425 ANCHORS AND COUPLERS FROM XCESSORIES SQUARED DEVELOPMENT AND MANUFACTURING INC.
  - KLEEN BREAK MODEL 425 ANCHORS ALSO NEED TO BE INSTALLED PER XCESSORIES SQUARED DEVELOPMENT AND MANUFACTURING INC, DRAWING # XKB425-20-CI "SQUARE POST SIGN SUPPORT INSTALLATION INSTRUCTIONS" AT THE TIME OF ISLAND CONSTRUCTION FOR ALL KNOWN FUTURE SIGNS.

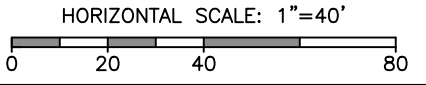


9" CONCRETE PAVEMENT DETAIL  
(WITH LOAD TRANSFER DEVICES)

WORD AND SYMBOL NOTES  
LEFT TURN ARROW - 4x 15.5 SF

LEGEND

LIMITS OF CONCRETE PAVEMENT (9 INCH)



\* MATCH EXISTING TRANSVERSE JOINTS (TYP)

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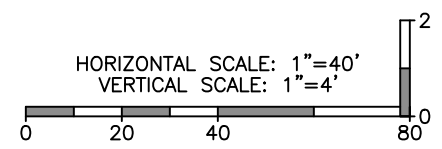
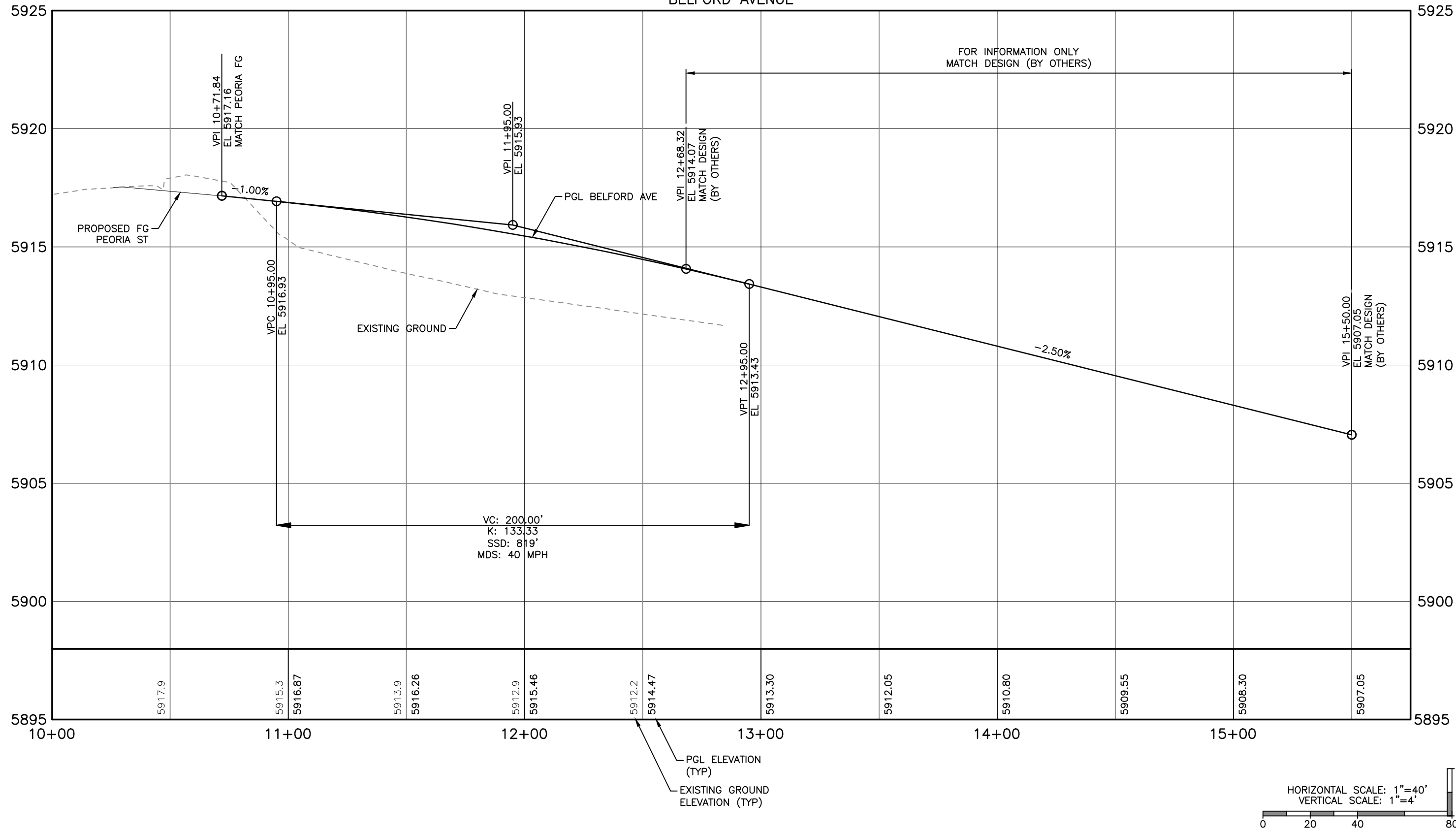
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No Revisions:	Designer: DCS	Structure Numbers
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Void:	Subset: ROADWAY	Sheets: PF-1 of 1

Project No./Code		Sheet Number 31

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BELFORD AVENUE



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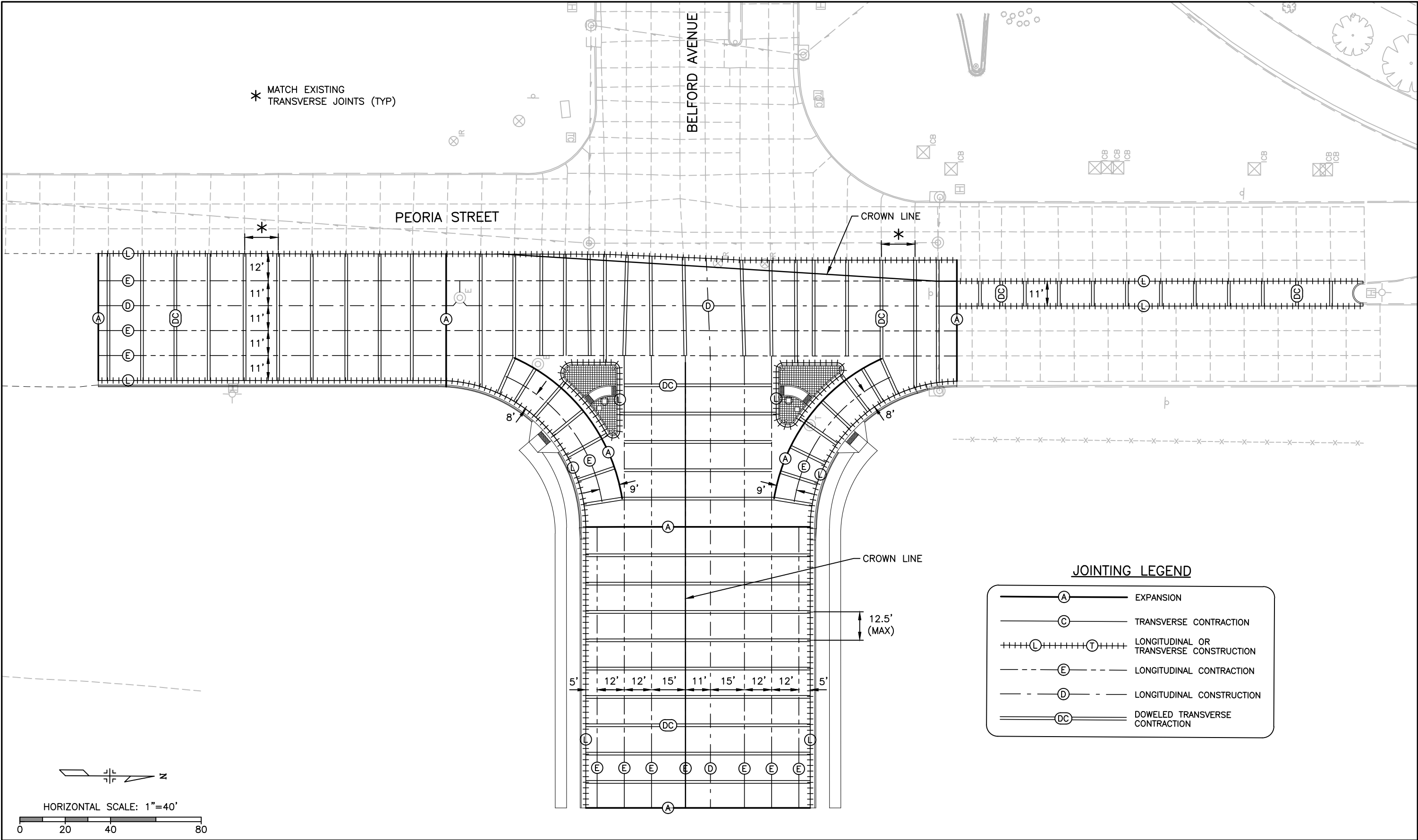
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PEORIA & BELFORD INTERSECTION  
 ROADWAY PROFILE - BELFORD  
 STA. 10+71.84 TO STA. 15+50.00

Designer:	DCS	Structure	
Detailer:	JHH	Numbers	
Subset:	ROADWAY	Sheets:	PR-1 of 1

Project No./Code  
 Sheet Number 32



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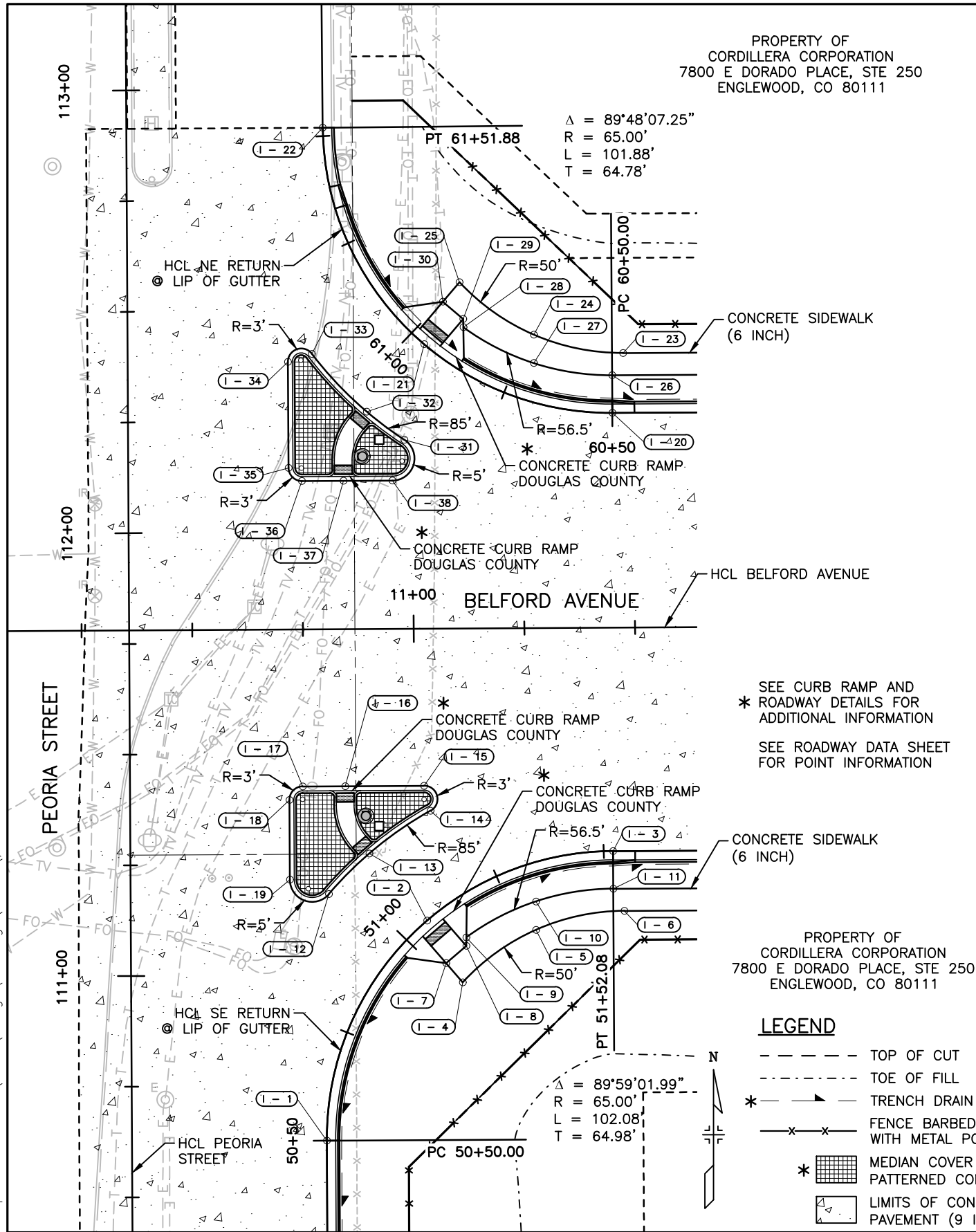
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 No Revisions:  
 Revised:  
 Void:

**PEORIA & BELFORD INTERSECTION  
 CONCRETE JOINTING PLAN**

Designer: DCS Structure  
 Detailer: DCS Numbers  
 Subset: ROADWAY Sheets: CJ-1 of 1

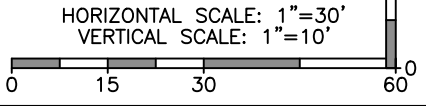
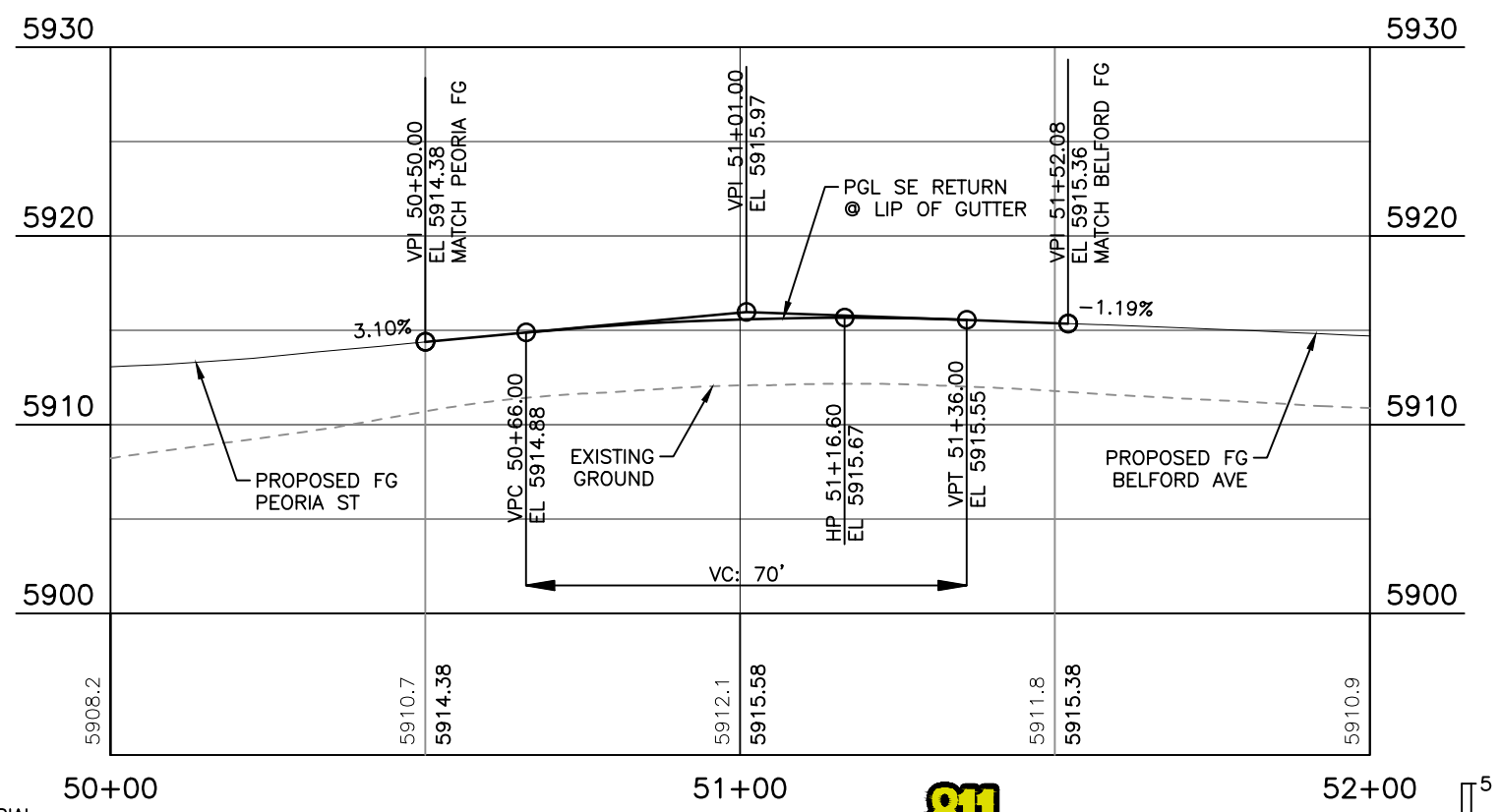
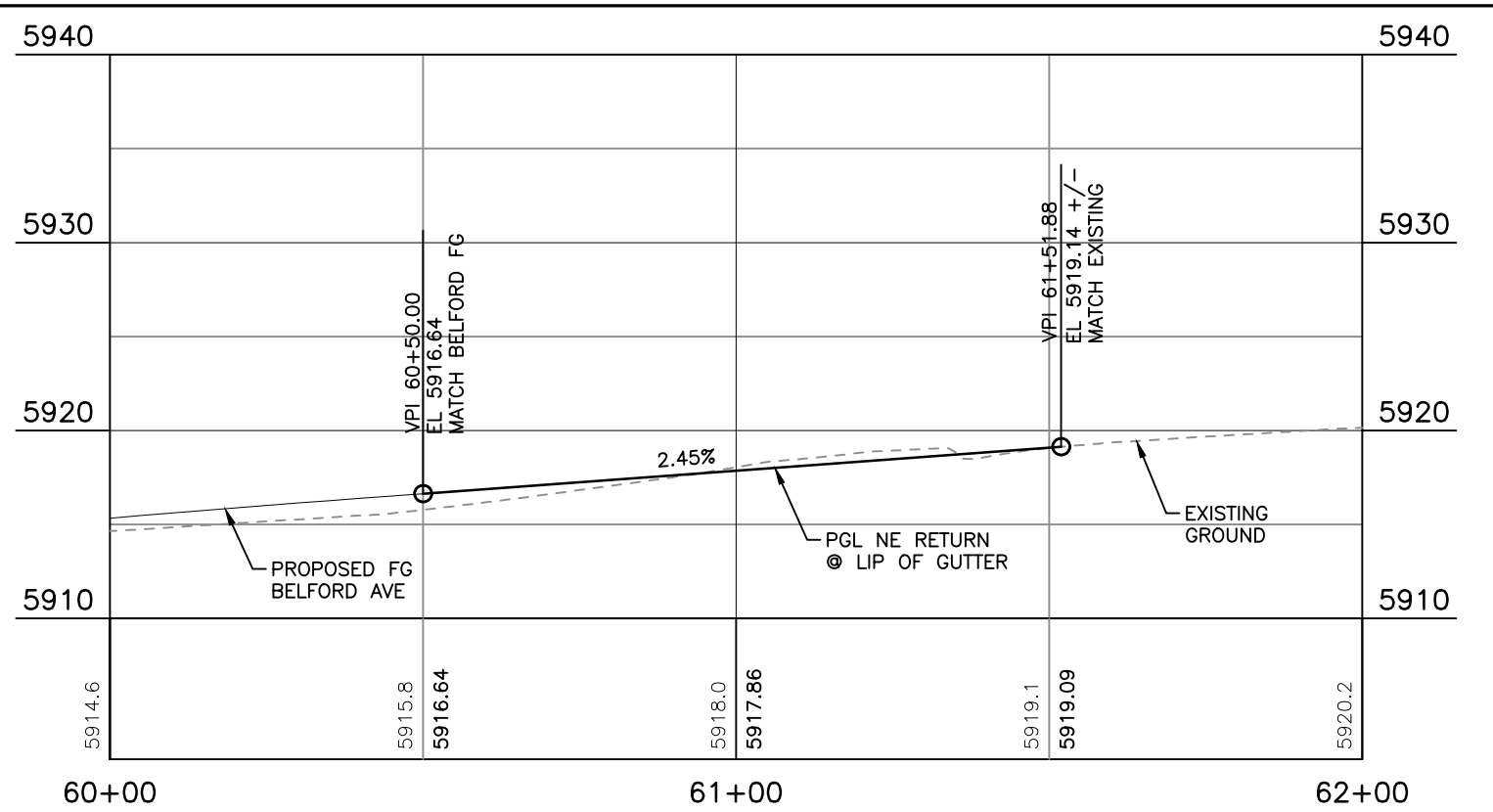
Project No./Code  
 Sheet Number **33**

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SEE CURB RAMP AND ROADWAY DETAILS FOR ADDITIONAL INFORMATION  
SEE ROADWAY DATA SHEET FOR POINT INFORMATION

- LEGEND**
- TOP OF CUT
  - - - TOE OF FILL
  - \* --- TRENCH DRAIN
  - x - x - FENCE BARBED WIRE WITH METAL POSTS
  - \* [Pattern] MEDIAN COVER MATERIAL PATTERNED CONCRETE (4 INCH)
  - [Pattern] LIMITS OF CONCRETE PAVEMENT (9 INCH)



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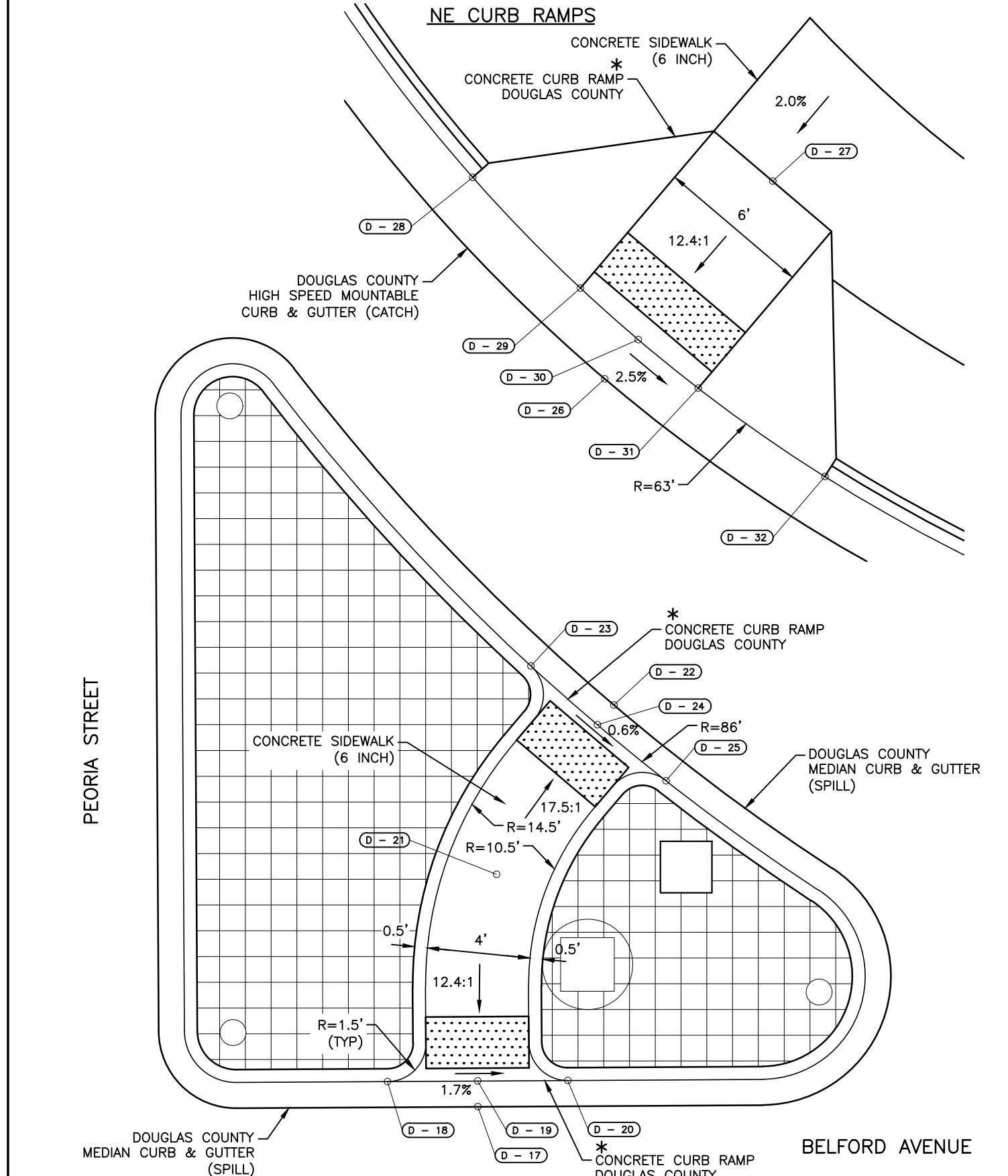
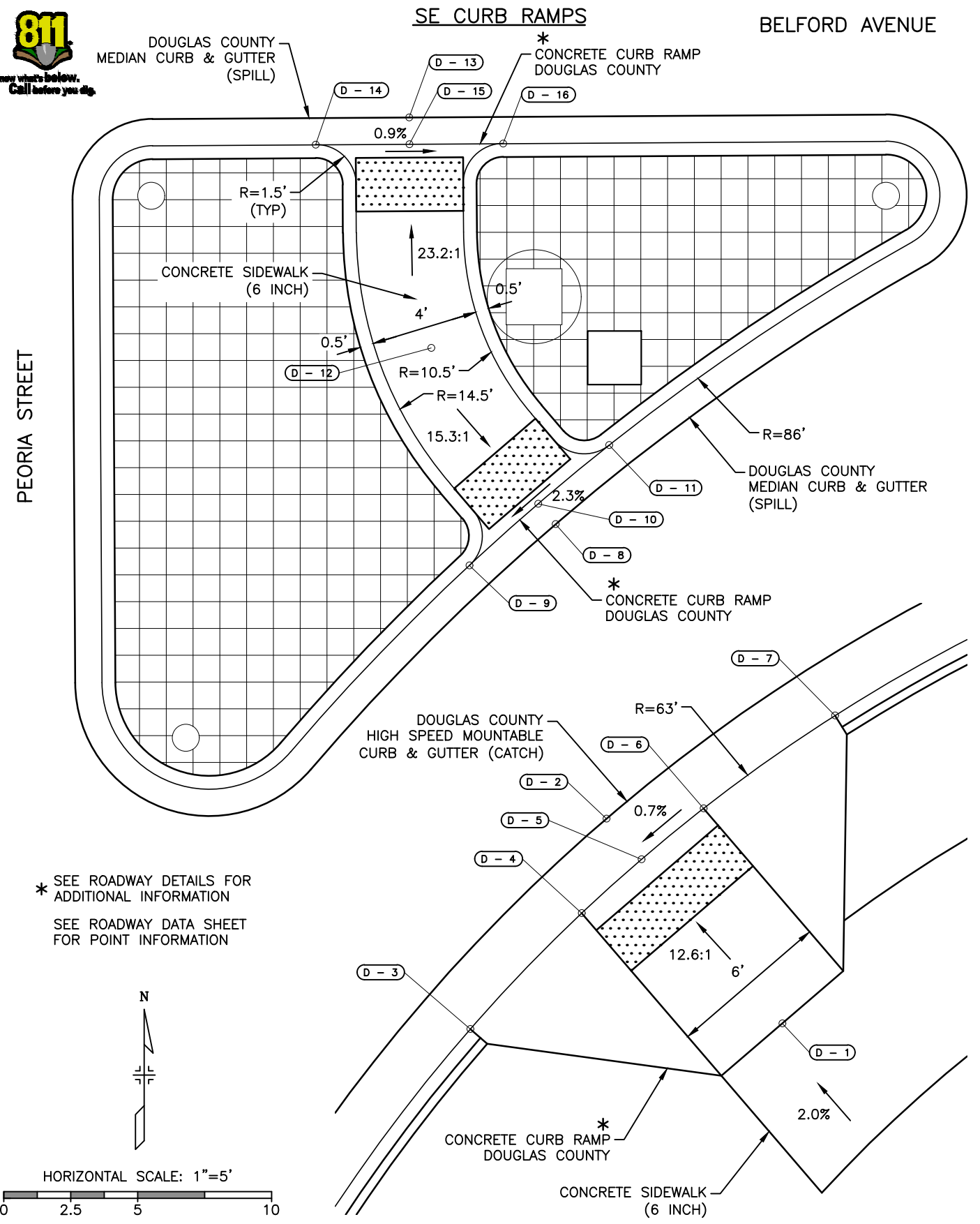
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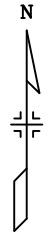
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No Revisions:	Designer:	DCS	Structure	
Revised:	Detailer:	DCS	Numbers	
Void:	Subset:	ROADWAY	Sheets:	ID-1 of 1
				Sheet Number <b>34</b>



\* SEE ROADWAY DETAILS FOR ADDITIONAL INFORMATION  
 SEE ROADWAY DATA SHEET FOR POINT INFORMATION



HORIZONTAL SCALE: 1"=5'  
 0 2.5 5 10

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 fax 303.721.0832

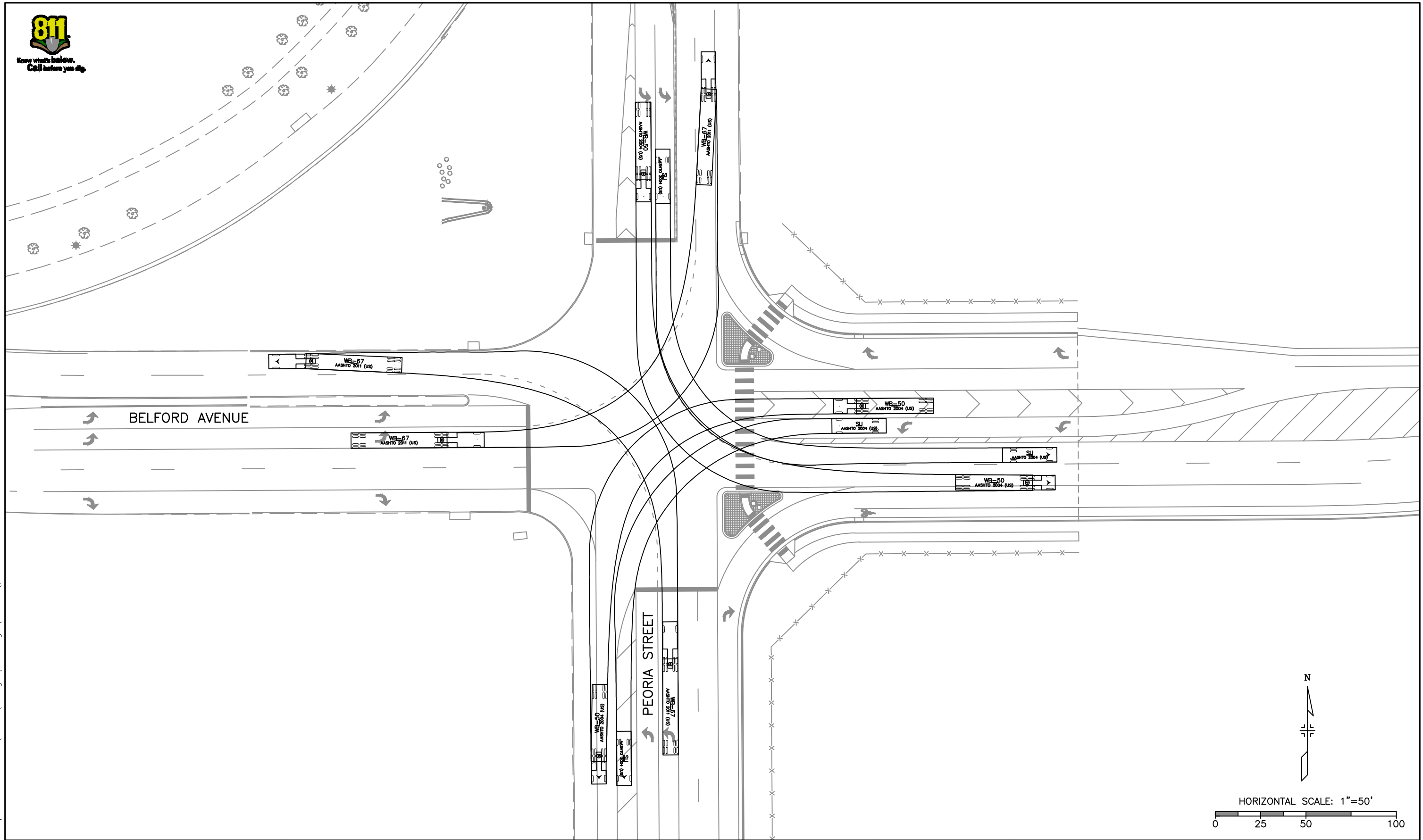
Sheet Revisions			
(R-X)	Date	Comments	Initials



As Constructed	PEORIA & BELFORD INTERSECTION CONCRETE CURB RAMP DETAILS		Project No./Code
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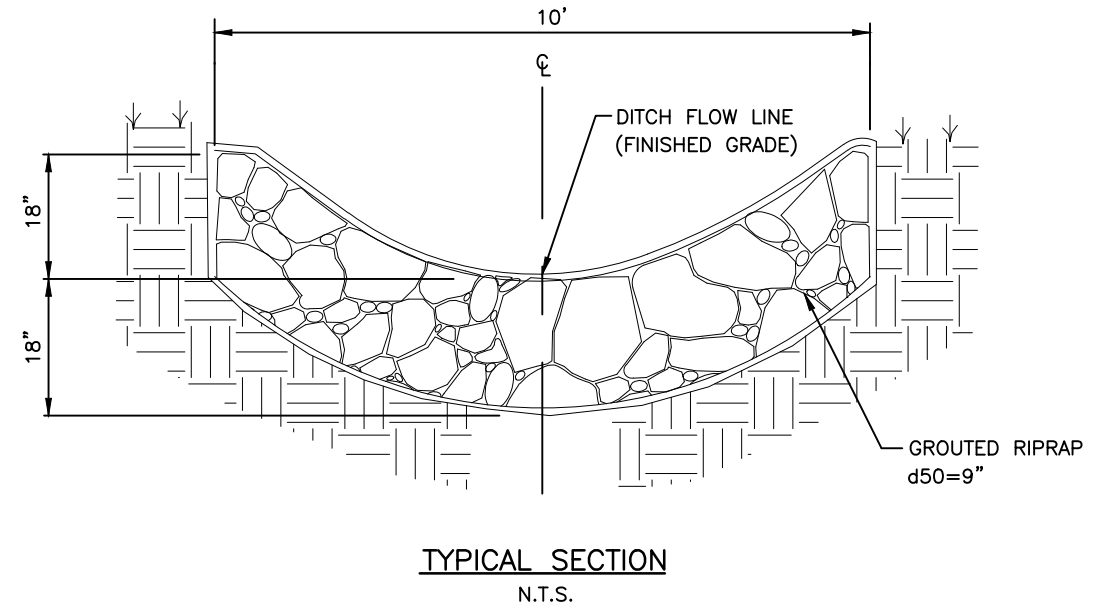
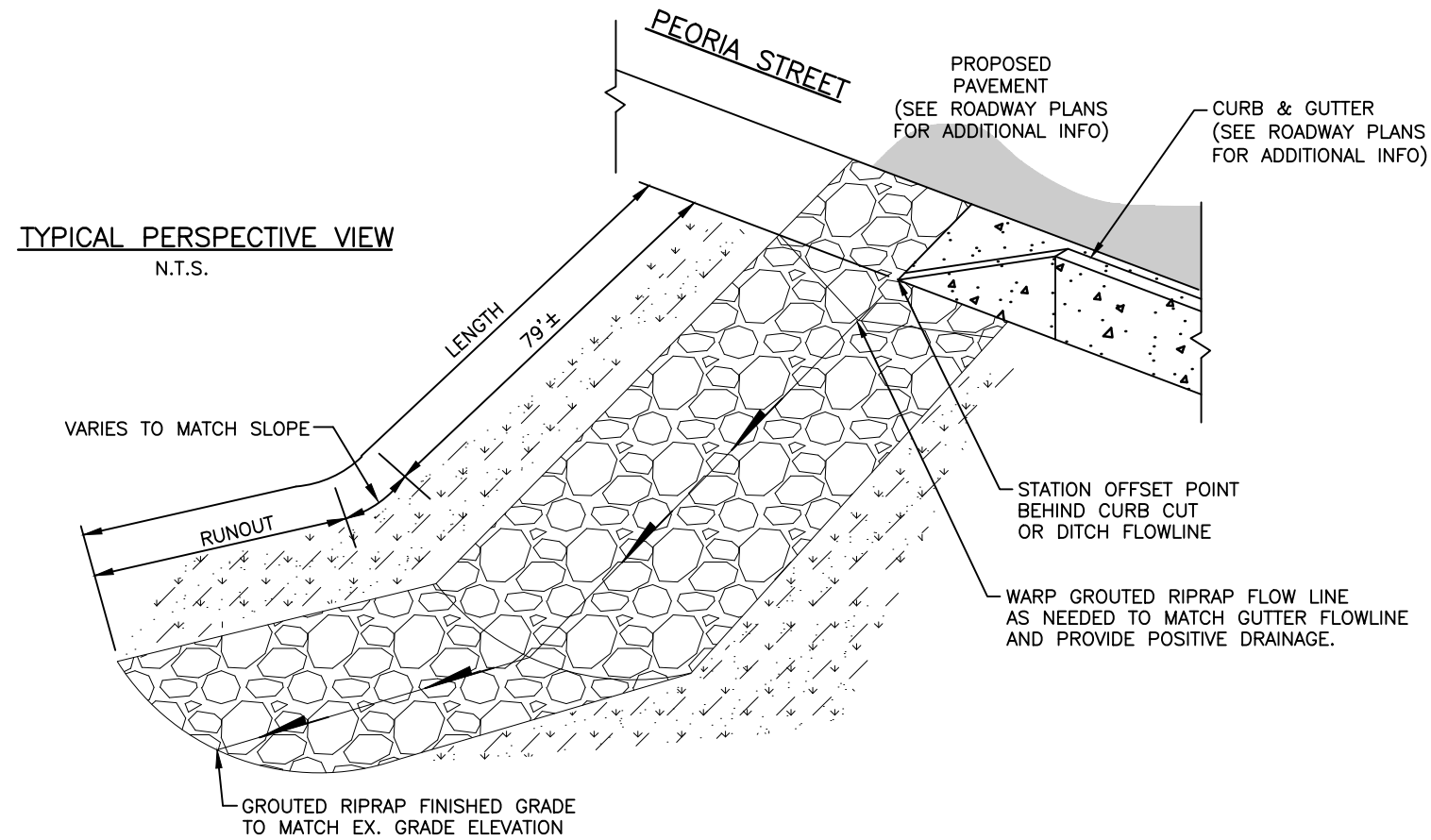
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PEORIA & BELFORD INTERSECTION TRUCK TURNING DETAILS		
Designer:	DCS	Structure
Detailer:	DCS	Numbers
Subset:	ROADWAY	Sheets: TD-1 of 1

Project No./Code
Sheet Number 36



**GROUT NOTES**

**MATERIAL SPECIFICATIONS**

- ALL GROUT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH EQUAL TO 3200 PSI.
- ONE CUBIC YARD OF GROUT SHALL HAVE A MINIMUM OF SIX (6) SACKS OF TYPE II PORTLAND CEMENT.
- A MAXIMUM OF 25% TYPE F FLY ASH MAY BE SUBSTITUTED FOR THE PORTLAND CEMENT.
- FOR TYPE A GROUT, THE AGGREGATE SHALL BE COMPRISED OF 70% NATURAL SAND (FINES) AND 30% 3/8-INCH ROCK (COARSE).
- FOR TYPE B GROUT, THE AGGREGATE SHALL BE COMPRISED OF 3/4-INCH MAXIMUM GRAVEL, STRUCTURAL CONCRETE AGGREGATE.
- TYPE B GROUT SHALL BE USED IN STREAMS WITH SIGNIFICANT PERENNIAL FLOWS.
- THE GROUT SLUMP SHALL BE 4-INCHES TO 6-INCHES.
- AIR ENTRAINMENT SHALL BE 5.5%-7.5%.
- TO CONTROL SHRINKAGE AND CRACKING, 1.5 POUNDS OF FIBERMESH, OR EQUIVALENT, SHALL BE USED PER CUBIC YARD OF GROUT.
- COLOR ADDITIVE IN REQUIRED AMOUNTS SHALL BE USED WHEN SO SPECIFIED BY CONTRACT.

**PLACEMENT SPECIFICATIONS**

- ALL TYPE A GROUT SHALL BE DELIVERED BY MEANS OF A LOW PRESSURE (LESS THAN 10 PSI) GROUT PUMP USING A 2-INCH DIAMETER NOZZLE.
- ALL TYPE B GROUT SHALL BE DELIVERED BY MEANS OF A LOW PRESSURE (LESS THAN 10 PSI) CONCRETE PUMP USING A 3-INCH DIAMETER NOZZLE.
- FULL DEPTH PENETRATION OF THE GROUT INTO THE BOULDER VOIDS SHALL BE ACHIEVED BY INJECTING GROUT STARTING WITH THE NOZZLE NEAR THE BOTTOM AND RAISING IT AS GROUT FILLS, WHILE VIBRATING GROUT INTO PLACE USING A PENCIL VIBRATOR.
- AFTER GROUT PLACEMENT, EXPOSED BOULDER FACES SHALL BE CLEANED WITH A WET BROOM.
- ALL GROUT BETWEEN BOULDERS SHALL BE TREATED WITH A BROOM FINISH.
- ALL FINISHED GROUT SURFACES SHALL BE SPRAYED WITH A CLEAR LIQUID MEMBRANE CURING COMPOUND AS SPECIFIED IN ASTM C-309.
- SPECIAL PROCEDURES SHALL BE REQUIRED FOR GROUT PLACEMENT WHEN THE AIR TEMPERATURES ARE LESS THAN 40°F OR GREATER THAN 90°F. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER OF THE PROCEDURES TO BE USED FOR PROTECTING THE GROUT.
- CLEAN BOULDERS BY BRUSHING AND WASHING BEFORE GROUTING.

**TABULATION OF GROUDED RIPRAP**

I.D.	STATION/OFFSET	DIMENSIONS	QUANTITIES	NOTES
		LENGTH (INCLUDES RUNOUT)	GROUDED RIPRAP (12 INCH) (CY)	
B1	109+12.55, 46' RT.	79'±	50	
B2	108+48.00, 91.41' RT.	10'		
B3	108+38.10, 90.04' RT.			

**GENERAL NOTES:**

- TABULATION OF GROUDED RIPRAP QUANTITIES HAVE BEEN CARRIED FORWARD TO THE SUMMARY OF APPROXIMATE QUANTITIES SHEETS.
- ALL EXCAVATION, BACKFILL, TOPSOIL, AND EXTRA WORK REQUIRED FOR CONSTRUCTION OF GROUDED RIPRAP RUNDOWN SHALL BE INCLUDED IN THE COST OF GROUDED RIPRAP.

**GROUDED RIPRAP DETAILS**

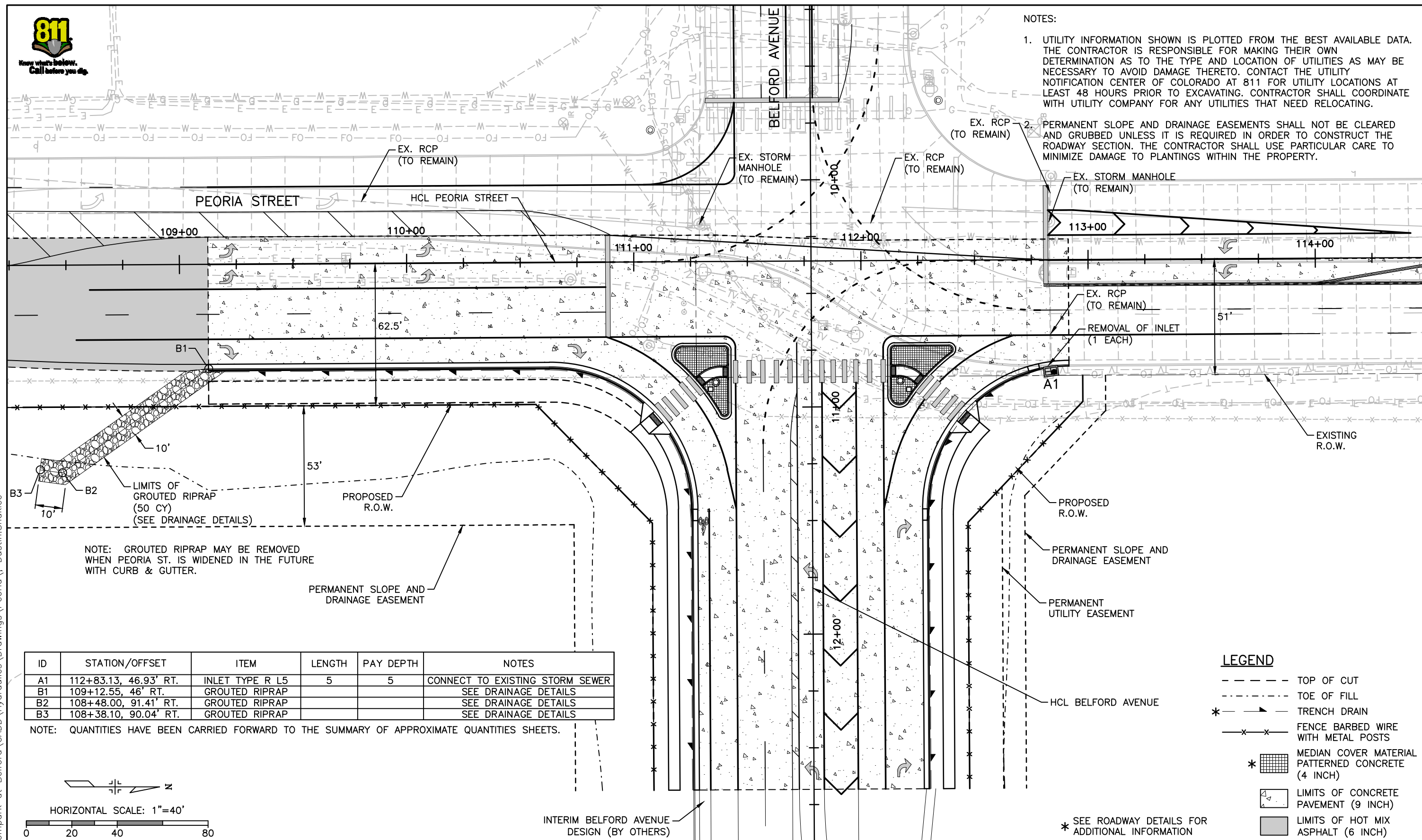
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File Name: H115360-01DET01.dwg		No Revisions:		GROUDED RIPRAP RUNDOWN DETAIL		
Horizontal Scale: NTS Vertical Scale: NTS		Revised:	Designer: CDT	Structure Numbers		
6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832	Date Comments Initials	Detailer: KLT Subset: DRAINAGE	Sheets: DD-1 of 1	Sheet Number 37		

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**NOTES:**

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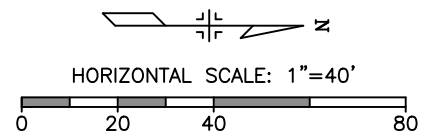
NOTE: GROUTED RIPRAP MAY BE REMOVED WHEN PEORIA ST. IS WIDENED IN THE FUTURE WITH CURB & GUTTER.

ID	STATION/OFFSET	ITEM	LENGTH	PAY DEPTH	NOTES
A1	112+83.13, 46.93' RT.	INLET TYPE R L5	5	5	CONNECT TO EXISTING STORM SEWER
B1	109+12.55, 46' RT.	GROUTED RIPRAP			SEE DRAINAGE DETAILS
B2	108+48.00, 91.41' RT.	GROUTED RIPRAP			SEE DRAINAGE DETAILS
B3	108+38.10, 90.04' RT.	GROUTED RIPRAP			SEE DRAINAGE DETAILS

NOTE: QUANTITIES HAVE BEEN CARRIED FORWARD TO THE SUMMARY OF APPROXIMATE QUANTITIES SHEETS.

**LEGEND**

- TOP OF CUT
- - - - - TOE OF FILL
- \* --- TRENCH DRAIN
- x-x- FENCE BARBED WIRE WITH METAL POSTS
- \* [Grid Pattern] MEDIAN COVER MATERIAL PATTERNED CONCRETE (4 INCH)
- [Square with dots] LIMITS OF CONCRETE PAVEMENT (9 INCH)
- [Shaded Area] LIMITS OF HOT MIX ASPHALT (6 INCH)



INTERIM BELFORD AVENUE DESIGN (BY OTHERS)

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**PEORIA & BELFORD INTERSECTION DRAINAGE PLAN**

Designer:	CDT	Structure	
Detailer:	KLT	Numbers	
Subset:	DRAINAGE	Sheets:	DR-1 of 1

Project No./Code	
Sheet Number	38

# DOUGLAS COUNTY COLORADO

## CONSTRUCTION PLANS GRADING, EROSION AND SEDIMENT CONTROL (GESC) PLANS FOR PEORIA & BELFORD INTERSECTION PROJECT COUNTY OF DOUGLAS, STATE OF COLORADO

SCALE OF ORIGINAL DRAWINGS

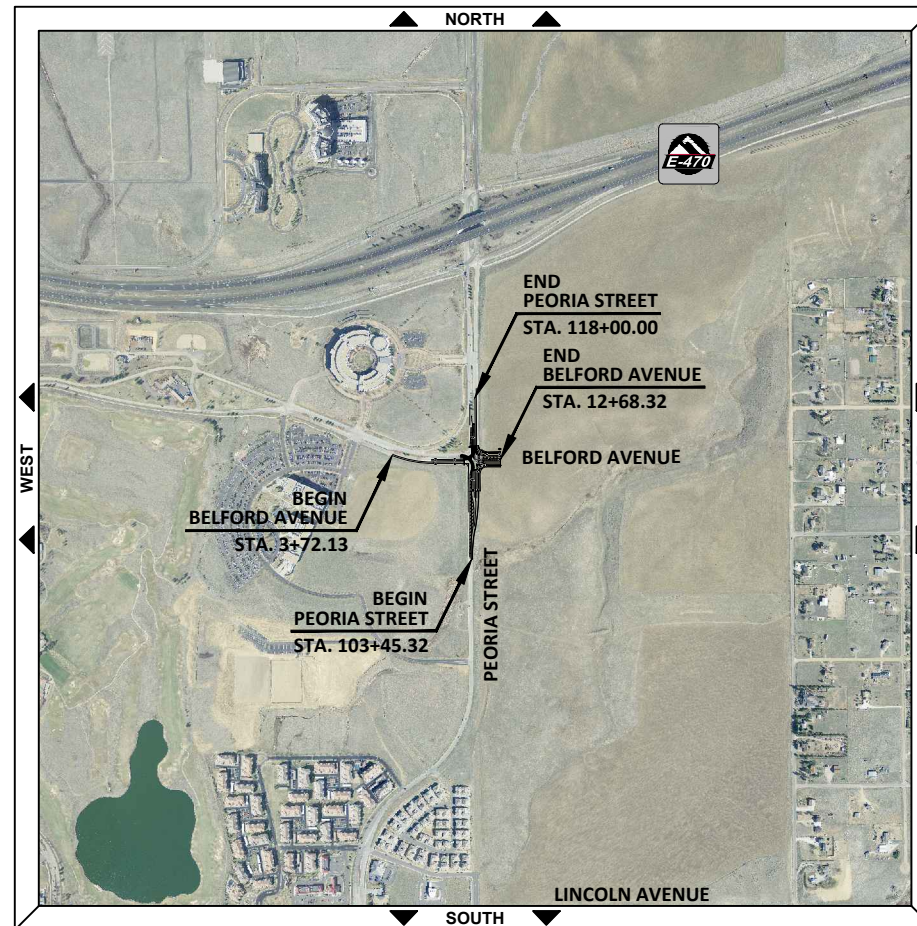
ON PLAN 1" = 100'

**NOTE:**

THE GRADING, EROSION AND SEDIMENT CONTROL PLAN INCLUDED HEREIN HAS BEEN PLACED IN THE DOUGLAS COUNTY FILE FOR THIS PROJECT AND APPEARS TO FULFILL APPLICABLE DOUGLAS COUNTY GRADING, EROSION AND SEDIMENT CONTROL CRITERIA, AS AMENDED. ADDITIONAL GRADING, EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED OF THE PERMITTEE(S) DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED GESC PLAN DOES NOT FUNCTION AS INTENDED. THE REQUIREMENTS OF THIS GESC PLAN SHALL RUN WITH THE LAND AND BE THE OBLIGATION OF THE PERMITTEE(S) UNTIL SUCH TIME AS THE GESC PLAN IS PROPERLY COMPLETED, MODIFIED OR VOIDED.

THE GRADING, EROSION AND SEDIMENT CONTROL PLAN INCLUDED HEREIN HAS BEEN PREPARED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE REQUIREMENTS OF THE GRADING, EROSION, AND SEDIMENT CONTROL (GESC) CRITERIA MANUAL OF DOUGLAS COUNTY, AS AMENDED.

\_\_\_\_\_  
XXXX DATE P.E. NUMBER



**INDEX OF SHEETS**

SHEET NO.	SUBSET SHEETS	DESCRIPTION
39	EL-1	GESC TITLE SHEET
40	ET-1	TABULATION OF EROSION CONTROL QUANTITIES
41	EI-1	INITIAL GRADING AND EROSION CONTROL PLAN
42	EN-1	INTERIM GRADING AND EROSION CONTROL PLAN
43	EF-1	FINAL GRADING AND EROSION CONTROL PLAN
44 - 57	1 TO 14	GESC PLAN STANDARD NOTES AND DETAILS

\_\_\_\_\_  
ASSISTANT DIRECTOR OF DEVELOPMENT REVIEW

\_\_\_\_\_  
DATE

THESE CONSTRUCTION DRAWINGS HAVE BEEN REVIEWED BY DOUGLAS COUNTY FOR GRADING, EROSION AND SEDIMENT CONTROL IMPROVEMENTS ONLY.

\_\_\_\_\_  
ENGINEERING DIVISION ACCEPTANCE BLOCK

**BASIS OF BEARING:**

THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 6, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN BEING MONUMENTED AS SHOWN HEREON HAVING A BEARING OF NORTH 00°29'49" WEST, AS DETERMINED BY GPS OBSERVATION FROM NGS CONTROL POINTS IN THE COLORADO CENTRAL ZONE, STATE PLAN COORDINATE SYSTEM, TOWN OF PARKER, COUNTY OF DOUGLAS, STATE OF COLORADO.

**BENCHMARKS: (COMPARK SOUTH)**

**SOURCE BENCHMARKS:**  
DOUGLAS COUNTY BM 1.115010  
A DOUGLAS COUNTY GIS MONUMENT SET IN CONCRETE LOCATED APPROXIMATELY 130 FEET SOUTHWESTERLY OF THE CENTERLINE OF CHAMBERS ROAD AND 95 FEET NORTHWESTERLY OF THE CENTERLINE OF COMPARK BOULEVARD.  
ELEVATION = 5752.84 (NAVD 88)

**SITE BENCHMARK:**  
THE NORTHEAST BOLT OF A SIGNAL POLE LOCATED APPROXIMATELY 56 FEET NORTH OF CENTERLINE OF BELFORD AVENUE AND APPROXIMATELY 80 FEET WEST OF THE CENTERLINE OF SOUTH PEORIA STREET.  
ELEVATION = 5918.38

A CHISELED SQUARE ON THE SOUTHWEST CORNER OF AN INLET LOCATED APPROXIMATELY 47 FEET SOUTH OF THE CENTERLINE OF BELFORD AVENUE AND APPROXIMATELY 119 FEET WEST OF THE CENTERLINE OF SOUTH PEORIA STREET.  
ELEVATION = 5916.03

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Print Date: 8/17/2016 10:09:59 PM	Sheet Revisions	As Constructed	PEORIA & BELFORD INTERSECTION GESC TITLE SHEET		Project No./Code
File Name: E115360-01TTL01.dwg			No Revisions:		
Horizontal Scale: NTS Vertical Scale: NTS	Date	Revised:	Designer: CDT	Structure Numbers	
 6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832	Comments	Void:	Detailer: KLT	Sheets: EL-1 of 1	Sheet Number 39
	Initials				



**TABULATION OF EROSION CONTROL QUANTITIES**

DRAWING NUMBER	CHECK DAM	*CONCRETE WASHOUT STRUCTURE	*VEHICLE TRACKING CONTROL	*STABILIZED STAGING AREA	SEEDING (NATIVE)	MULCHING (WEED FREE STRAW)	*REINFORCED ROCK BERM FOR CULVERT	#*REINFORCED ROCK BERM	*SEDIMENT CONTROL LOG (12 INCH)	EROSION CONTROL BLANKET (STRAW)	DIVERSION DITCH	CONSTRUCTION FENCE	SILT FENCE	INLET PROTECTION
	LF	EACH	EACH	SY	ACRE	ACRE	EACH	LF	LF	SY	LF	LF	LF	LF
INITIAL (EI-1)		1	2						670			1155	230	62
INTERIM (EN-1)														12
FINAL (EF-1)					1.5	1.5								
<b>PROJECT TOTALS</b>	0	1	2	0	1.5	1.5	0	0	670	0	0	1155	230	74

1. THESE QUANTITIES HAVE BEEN TAKEN FORWARD TO THE SUMMARY OF APPROXIMATE QUANTITIES.
  2. FOR DETAILS, SEE GESC STANDARD NOTES AND DETAILS.
  3. CHECK DAMS ARE NOT TO BE REMOVED UNLESS DIRECTED BY THE PROJECT ENGINEER.
  4. MULCH TACKIFIER IS REQUIRED AND IS INCLUDED IN THE COST OF MULCHING.
  5. PERMANENT FENCE SHALL BE PLACED ON PROPOSED R.O.W. AS INITIAL CONSTRUCTION SEQUENCE. CONSTRUCTION FENCE SHALL BE PLACED AS DIRECTED BY THE PROJECT ENGINEER.
  6. SEE EROSION CONTROL PLAN SHEETS FOR ADDITIONAL PLACEMENT INFORMATION.
  7. LOCATION OF STOCKPILES, INCLUDING TOPSOIL, IMPORTED AGGREGATES, EXCESS MATERIALS, STORAGE AND STAGING AREAS FOR EQUIPMENT FUEL, LUBRICANT, CHEMICAL (AND OTHER MATERIALS), WASTE STORAGE, BORROW AND DISPOSAL AREAS SHALL BE LOCATED PRIOR TO CONSTRUCTION WITH IN THE DEFINED LIMITS OF CONSTRUCTION BY THE PROJECT ENGINEER.
- \* THESE ITEMS SHALL BE PAID FOR AS PLACE AND REMOVE.  
 # NOT ALL REINFORCED ROCK BERMS ARE TO BE REMOVED, SEE PLANS OR AS DIRECTED BY THE PROJECT ENGINEER.

ADDITIONAL SEDIMENT/EROSION CONTROL:  
 IT IS ESTIMATED THAT BLADING (120 HORSEPOWER), DOZING (100 HORSEPOWER), COMBINATION LOADER (125 HORSEPOWER) AND/OR BACKHOE (75 HORSEPOWER) AND/OR LABORER MAY BE REQUIRED FOR MISCELLANEOUS EROSION CONTROL WORK AS DIRECTED BY THE ENGINEER. WORK SHALL BE PAID FOR AS 208 SEDIMENT REMOVAL AND DISPOSAL (40 HRS). AN EROSION CONTROL SUPERVISOR WILL BE REQUIRED FOR THIS PROJECT AND SHALL BE PAID FOR AS 208 EROSION CONTROL SUPERVISOR (90 DAYS).

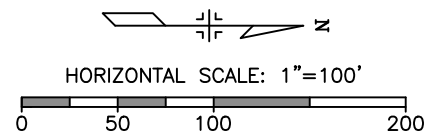
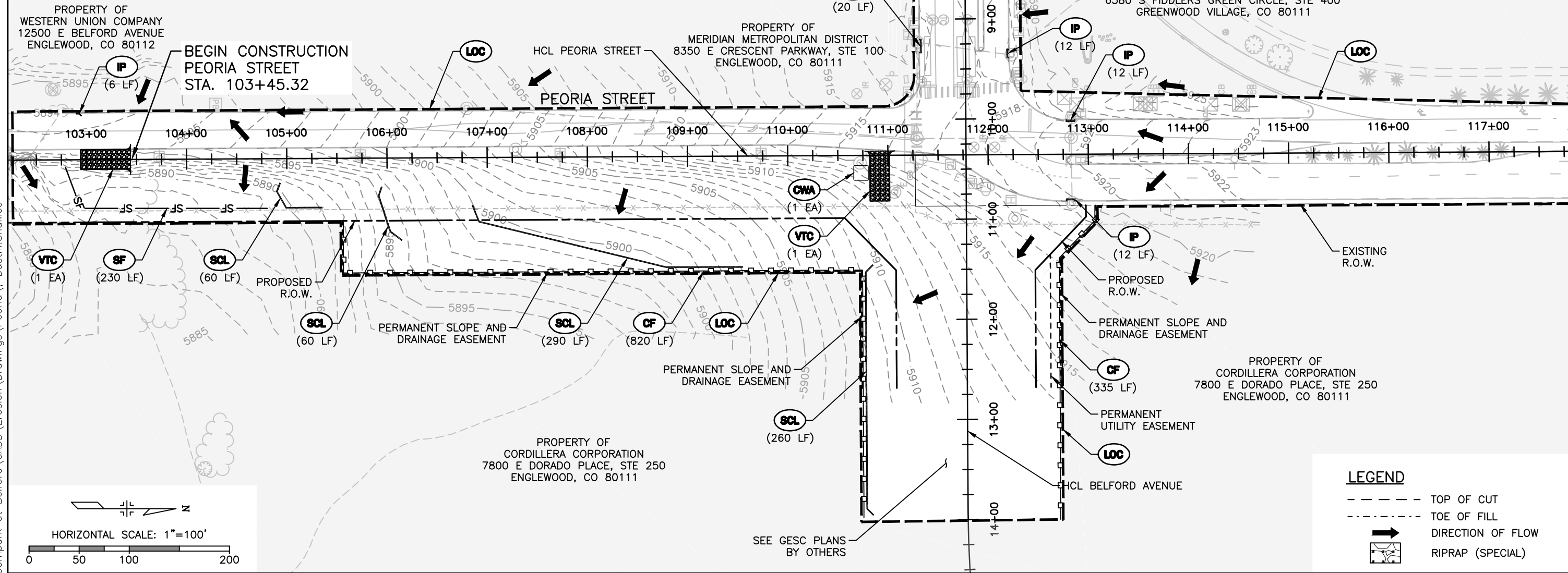
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Print Date: 8/17/2016 10:47:25 PM		<b>Sheet Revisions</b>			 <p style="font-size: 8px; margin: 0;">8008 E. Arapahoe Court, Suite 110, Centennial, CO 80112 ph 303.721.0900 fax 303.721.0400 manhard.com                  Civil Engineers • Surveyors • Water Resource Engineers • Water &amp; Wastewater Engineers                  Construction Managers • Environmental Scientists • Landscape Architects • Planners</p>	As Constructed		PEORIA & BELFORD INTERSECTION TABULATION OF EROSION CONTROL QUANTITIES		Project No./Code		
File Name: E115360-01TAB01.dwg		(R-X)	Date	Comments		Initials	No Revisions:					
Horizontal Scale: NTS      Vertical Scale: NTS		○					Revised:		Designer: CDT	Structure		
 6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832		○					Void:		Detailer: KLT	Numbers		
		○						Subset: EROSION	Sheets: ET-1 of 1	Sheet Number <b>40</b>		



BMP LEGEND	
	CD CHECK DAM
	CB COMPOST BLANKET
	CFB COMPOST FILTER BERM
	CWA CONCRETE WASHOUT AREA
	CF CONSTRUCTION FENCE
	CM CONSTRUCTION MARKER
	DW DEWATERING
	DD DIVERSION DITCH
	ECB EROSION CONTROL BLANKET
	IP INLET PROTECTION
	RCD REINFORCED CHECK DAM
	RRB REINFORCED ROCK BERM
	RRC RRB FOR CULVERT PROTECTION
	SB SEDIMENT BASIN
	SCL SEDIMENT CONTROL LOG
	ST SEDIMENT TRAP
	SM SEEDING AND MULCHING
	SF SILT FENCE
	SSA STABILIZED STAGING AREA
	SR SURFACE ROUGHENING
	TSD TEMPORARY SLOPE DRAIN
	TSC TEMPORARY STREAM CROSSING
	TER TERRACING
	VTC VEHICLE TRACKING CONTROL
	VWC VTC WITH WHEEL WASH
	LOC LIMITS OF CONSTRUCTION

- NOTES:
- UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
  - PERMANENT SLOPE AND DRAINAGE EASEMENTS SHALL NOT BE CLEARED AND GRUBBED UNLESS IT IS REQUIRED IN ORDER TO CONSTRUCT THE ROADWAY SECTION. THE CONTRACTOR SHALL USE PARTICULAR CARE TO MINIMIZE DAMAGE TO PLANTINGS WITHIN THE PROPERTY.
  - SEE COVER SHEET OF DOUGLAS COUNTY STANDARD NOTES AND DETAILS (SHEET 1 OF 14) FOR LEGEND OF BMP NAMES AND SYMBOLS.
  - PROTECT ALL EXISTING VEGETATION PER DIRECTION OF THE DOUGLAS COUNTY ENGINEER.



**LEGEND**

- TOP OF CUT
- - - - - TOE OF FILL
- ➔ DIRECTION OF FLOW
- RIPRAP (SPECIAL)

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 fax 303.721.0832

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 Construction Managers • Environmental Scientists • Landscape Architects • Planners

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No Revisions:	Designer: CDT	Structure Numbers	
Revised:	Detailer: KLT		
Void:	Subset: EROSION	Sheets: El-1 of 1	Sheet Number 41

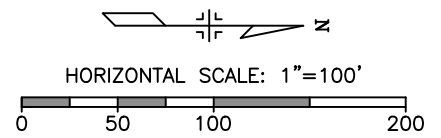
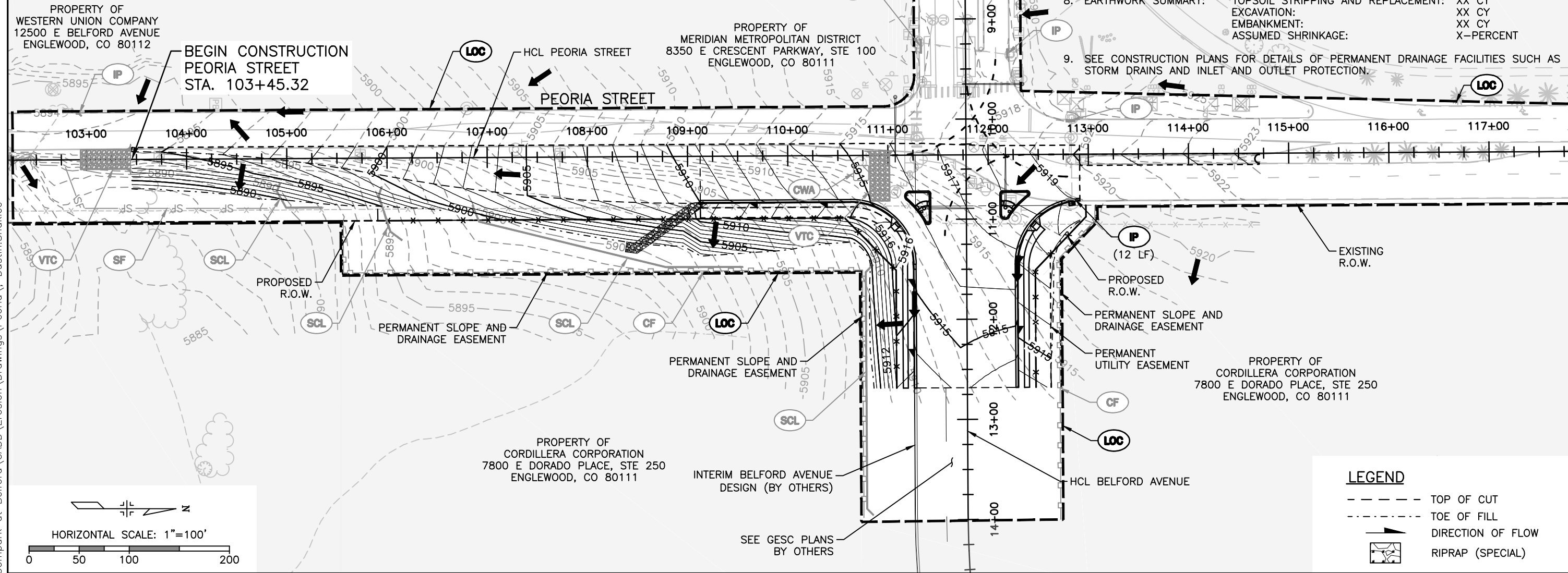
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BMP LEGEND	
	CD CHECK DAM
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	CWA CONCRETE WASHOUT AREA
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  - SHADED AREAS OUTSIDE LIMITS OF CONSTRUCTION SHALL NOT BE DISTURBED. CONSTRUCTION FENCE OR CONSTRUCTION MARKERS TO DELINEATE LIMITS OF CONSTRUCTION SHALL BE INSTALLED PRIOR TO ANY OTHER WORK ON SITE.
  - SHADED BMPs ARE INSTALLED IN PHASE 1 AND SHALL BE LEFT IN PLACE IN PHASE 2.
  - ALL INTERIM BMPs, INCLUDING SEEDING AND MULCHING OF DISTURBED AREAS, MUST BE COMPLETED PRIOR TO ISSUANCE OF ANY CURB AND GUTTER PERMITS.
  - EARTHWORK SUMMARY:
 

TOPSOIL STRIPPING AND REPLACEMENT:	XX CY
EXCAVATION:	XX CY
EMBANKMENT:	XX CY
ASSUMED SHRINKAGE:	X-PERCENT
  - SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS AND INLET AND OUTLET PROTECTION.



**LEGEND**

	TOP OF CUT
	TOE OF FILL
	DIRECTION OF FLOW
	RIPRAP (SPECIAL)

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Revised:	Detailer:	KLT	
Void:	Subset:	EROSION	
	Structure Numbers	Sheets:	Sheet Number 42

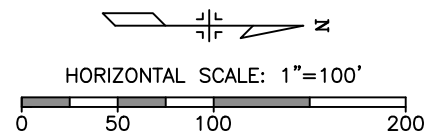
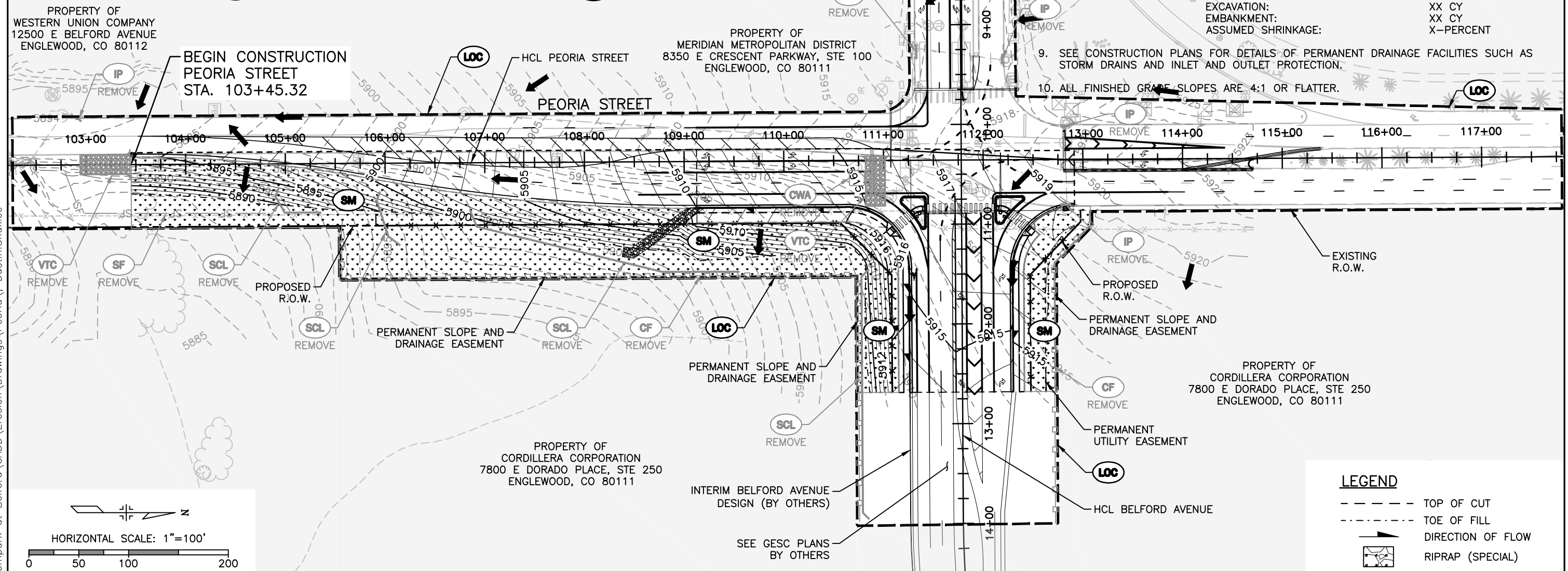
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  - SEE COVER SHEET OF DOUGLAS COUNTY STANDARD NOTES AND DETAILS (SHEET 1 OF 14) FOR LEGEND OF BMP NAMES AND SYMBOLS.
  - PROTECT ALL EXISTING VEGETATION PER DIRECTION OF THE DOUGLAS COUNTY ENGINEER.
  - SHADED AREAS OUTSIDE LIMITS OF CONSTRUCTION SHALL NOT BE DISTURBED. CONSTRUCTION FENCE OR CONSTRUCTION MARKERS TO DELINEATE LIMITS OF CONSTRUCTION SHALL BE INSTALLED PRIOR TO ANY OTHER WORK ON SITE.
  - SHADED BMPs ARE INSTALLED IN PHASE 1 AND SHALL BE LEFT IN PLACE IN PHASE 2.
  - ALL INTERIM BMPs, INCLUDING SEEDING AND MULCHING OF DISTURBED AREAS, MUST BE COMPLETED PRIOR TO ISSUANCE OF ANY CURB AND GUTTER PERMITS.
  - EARTHWORK SUMMARY:
 

TOPSOIL STRIPPING AND REPLACEMENT:	XX CY
EXCAVATION:	XX CY
EMBANKMENT:	XX CY
ASSUMED SHRINKAGE:	X-PERCENT
  - SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS STORM DRAINS AND INLET AND OUTLET PROTECTION.
  - ALL FINISHED GRADE SLOPES ARE 4:1 OR FLATTER.



**LEGEND**

- TOP OF CUT
- - - - - TOE OF FILL
- ▶ DIRECTION OF FLOW
- RIPRAP (SPECIAL)

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


## GRADING, EROSION, AND SEDIMENT CONTROL (GESC) GENERAL NOTES

1. THE DOUGLAS COUNTY ENGINEER'S SIGNATURE AFFIXED TO THIS DOCUMENT INDICATES THE DOUGLAS COUNTY PUBLIC WORKS ENGINEERING HAS REVIEWED THE DOCUMENT AND FOUND IT IN GENERAL COMPLIANCE WITH THE DOUGLAS COUNTY GRADING, EROSION AND SEDIMENT CONTROL (GESC) CRITERIA MANUAL. THE DOUGLAS COUNTY DIRECTOR OF ENGINEERING SERVICES, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES NO RESPONSIBILITY (OTHER THAN AS STATED ABOVE) FOR THE COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS.
2. THE ADEQUACY OF THIS GESC PLAN LIES WITH THE ORIGINAL DESIGN ENGINEER.
3. THE GESC PLAN SHALL BE CONSIDERED VALID FOR TWO (2) YEARS FROM THE DATE OF ACCEPTANCE BY DOUGLAS COUNTY, AFTER WHICH TIME THE PLAN SHALL BE VOID AND WILL BE SUBJECT TO RE-REVIEW AND RE-ACCEPTANCE BY DOUGLAS COUNTY.
4. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE DOUGLAS COUNTY PUBLIC WORKS ENGINEERING. DOUGLAS COUNTY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO THE GESC MANUAL, GESC PLAN OR GESC PERMIT.
5. THE PLACEMENT OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs) SHALL BE IN ACCORDANCE WITH THE DOUGLAS COUNTY ACCEPTED GESC PLAN AND THE DOUGLAS COUNTY GESC MANUAL, AS AMENDED.
6. ANY VARIATION IN MATERIAL, TYPE OR LOCATION OF EROSION AND SEDIMENT CONTROL BMPs FROM THE DOUGLAS COUNTY ACCEPTED GESC PLAN WILL REQUIRE APPROVAL FROM AN ACCOUNTABLE REPRESENTATIVE OF THE DOUGLAS COUNTY PUBLIC WORKS ENGINEERING.
7. AFTER THE GESC PLAN HAS BEEN ACCEPTED, THE GESC PERMIT APPLIED FOR, FEES AND FISCAL SECURITY SUBMITTED TO THE COUNTY, AND THE GESC FIELD MANUAL OBTAINED AND REVIEWED, THE CONTRACTOR MAY INSTALL THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMPs INDICATED ON THE ACCEPTED GESC PLAN.
8. THE FIRST BMP TO BE INSTALLED ON THE SITE SHALL BE CONSTRUCTION FENCE, MARKERS, OR OTHER APPROVED MEANS OF DEFINING THE LIMITS OF CONSTRUCTION, INCLUDING CONSTRUCTION LIMITS ADJACENT TO STREAM CORRIDORS AND OTHER AREAS TO BE PRESERVED.
9. AFTER INSTALLATION OF THE INITIAL-STAGE EROSION AND SEDIMENT CONTROL BMPs, THE PERMITTEE SHALL CALL THE DOUGLAS COUNTY ENGINEERING PERMITS STAFF AT 303-860-7487 TO SCHEDULE A PRECONSTRUCTION MEETING AT THE PROJECT SITE. THE REQUEST SHALL BE MADE A MINIMUM OF THREE BUSINESS DAYS PRIOR TO THE REQUESTED MEETING TIME. NO CONSTRUCTION ACTIVITIES SHALL BE PLANNED WITHIN 24 HOURS AFTER THE PRECONSTRUCTION MEETING.
10. THE OWNER OR OWNER'S REPRESENTATIVE, THE GESC MANAGER, THE GENERAL CONTRACTOR, AND THE GRADING SUBCONTRACTOR, IF DIFFERENT FROM THE GENERAL CONTRACTOR, MUST ATTEND THE PRECONSTRUCTION MEETING. IF ANY OF THE REQUIRED PARTICIPANTS FAIL TO ATTEND THE PRECONSTRUCTION MEETING, OR IF THE GESC FIELD MANUAL IS NOT ON SITE, OR IF THE INSTALLATION OF THE INITIAL BMPs ARE NOT APPROVED BY THE DOUGLAS COUNTY GESC INSPECTOR, THE APPLICANT WILL HAVE TO PAY A REINSPECTION FEE, ADDRESS ANY PROBLEMS WITH BMP INSTALLATION, AND CALL TO RESCHEDULE THE MEETING, WITH A CORRESPONDING DELAY IN THE START OF CONSTRUCTION. DOUGLAS COUNTY STRONGLY ENCOURAGES THE APPLICANT TO HAVE THE ENGINEER OF RECORD AT THE PRECONSTRUCTION MEETING.
11. CONSTRUCTION SHALL NOT BEGIN UNTIL THE DOUGLAS COUNTY EROSION CONTROL INSPECTOR APPROVES THE INSTALLATION OF THE INITIAL BMPs AND THE APPROVED GESC PERMIT IS PICKED UP FROM THE COUNTY AND IS IN-HAND ON THE SITE. THE COMPLETED PERMIT WILL BE AVAILABLE WITHIN 24-HOURS AFTER THE INSTALLATION OF THE INITIAL BMPs ARE APPROVED.
12. THE GESC MANAGER SHALL STRICTLY ADHERE TO THE DOUGLAS COUNTY-APPROVED LIMITS OF CONSTRUCTION AT ALL TIMES. THE DOUGLAS COUNTY PUBLIC WORKS ENGINEERING MUST APPROVE ANY CHANGES TO THE LIMITS OF CONSTRUCTION AND, AT THE DISCRETION OF THE ENGINEERING DIVISION, ADDITIONAL EROSION/SEDIMENT CONTROLS MAY BE REQUIRED IN ANY ADDITIONAL AREAS OF CONSTRUCTION.
13. THE MAXIMUM AREA OF CONSTRUCTION SHALL BE LIMITED TO 40 ACRES (70 ACRES IF APPROVED FOR SOIL MITIGATION OPERATIONS) TO REDUCE THE AMOUNT OF LAND DISTURBED AT ANY ONE TIME. LARGER SITES SHALL BE DIVIDED INTO PHASES THAT ARE EACH 40 (OR 70) ACRES OR LESS IN SIZE. THESE PROJECTS SHALL CONDUCT GRADING ACTIVITIES IN ACCORDANCE WITH THE ACCEPTED GESC PLAN. BMP INSTALLATION AND APPROVAL BY DOUGLAS COUNTY AT THE START AND COMPLETION OF EACH PHASE SHALL BE CONDUCTED IN ACCORDANCE WITH THE PROCEDURES OUTLINED IN THE GESC MANUAL AND/OR GESC FIELD MANUAL.
14. PRIOR TO ANY CONSTRUCTION ACTIVITY, THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES. FOR INFORMATION, CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 1-800-922-1987 OR FAX AT 303-534-6700.
15. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS.
16. THE GESC PERMIT SHALL BE VALID FOR A PERIOD OF ONE (1) YEAR.
17. A COPY OF THE GESC PERMIT, ACCEPTED GESC PLANS AND THE GESC FIELD MANUAL SHALL BE ON SITE AT ALL TIMES.
18. THE GESC MANAGER SHALL BE RESPONSIBLE FOR ENSURING THAT THE SITE REMAINS IN COMPLIANCE WITH THE GESC PERMIT AND SHALL BE THE PERMITTEE'S CONTACT PERSON WITH THE COUNTY FOR ALL MATTERS PERTAINING TO THE GESC PERMIT. THE GESC MANAGER SHALL BE PRESENT AT THE SITE THE MAJORITY OF THE TIME AND SHALL BE AVAILABLE THROUGH A 24-HOUR CONTACT NUMBER. IN THE EVENT THAT THE CONTRACTOR'S GESC MANAGER IS NOT ON SITE AND CANNOT BE REACHED DURING A VIOLATION, THE ALTERNATE GESC MANAGER SHALL BE CONTACTED. IF NEITHER THE GESC MANAGER NOR ALTERNATE GESC MANAGER CAN BE CONTACTED DURING ANY VIOLATION, A STOP WORK ORDER SHALL BE ISSUED.
19. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE THROUGH THE DOUGLAS COUNTY-APPROVED ACCESS POINT. A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT ALL ACCESS POINTS ON THE SITE. ADDITIONAL STABILIZED CONSTRUCTION ENTRANCES MAY BE ADDED WITH AUTHORIZATION FROM THE DOUGLAS COUNTY PUBLIC WORKS ENGINEERING.
20. THE GESC MANAGER IS RESPONSIBLE FOR CLEANUP OF SEDIMENT OR CONSTRUCTION DEBRIS TRACKED ONTO ADJACENT PAVED AREAS. PAVED AREAS INCLUDING STREETS ARE TO BE KEPT CLEAN THROUGHOUT BUILD-OUT AND SHALL BE CLEANED, WITH A STREET SWEEPER OR SIMILAR DEVICE, AT FIRST NOTICE OF ACCIDENTAL TRACKING OR AT THE DISCRETION OF THE DOUGLAS COUNTY EROSION CONTROL INSPECTOR. STREET WASHING IS NOT ALLOWED. DOUGLAS COUNTY RESERVES THE RIGHT TO REQUIRE ADDITIONAL MEASURES TO ENSURE AREA STREETS ARE KEPT FREE OF SEDIMENT AND/OR CONSTRUCTION DEBRIS.

21. APPROVED EROSION AND SEDIMENT CONTROL BMPs SHALL BE MAINTAINED AND KEPT IN GOOD REPAIR FOR THE DURATION OF THIS PROJECT. AT A MINIMUM, THE GESC MANAGER SHALL INSPECT ALL BMPs IN ACCORDANCE WITH THE ACCEPTED GESC PLAN AND GESC MANUAL. LEVEL III VIOLATIONS SHALL BE CORRECTED IMMEDIATELY AFTER THE PERMITTEE(S) NOTICE THE VIOLATION(S) OR ARE NOTIFIED OF THE VIOLATION(S). GENERALLY DOUGLAS COUNTY WILL REINSPECT FOR COMPLIANCE WITHIN 48 HOURS OF NOTIFICATION OF LEVEL III VIOLATIONS. LEVEL II VIOLATIONS SHALL BE CORRECTED IMMEDIATELY, OR AS DIRECTED BY A DOUGLAS COUNTY EROSION CONTROL INSPECTOR. ACCUMULATED SEDIMENT AND CONSTRUCTION DEBRIS SHALL BE REMOVED AND PROPERLY DISPOSED.
22. STRAW BALES ARE NOT A DOUGLAS COUNTY ACCEPTED SEDIMENT CONTROL BMP.
23. TOPSOIL SHALL BE STRIPPED AND STOCKPILED IN THE LOCATION SHOWN ON THE ACCEPTED GESC PLAN. THE GESC MANAGER SHALL SCHEDULE AN INSPECTION WITH THE DOUGLAS COUNTY EROSION CONTROL INSPECTOR AS SOON AS TOPSOIL STRIPPING IS COMPLETED. FAILURE TO SCHEDULE SUCH INSPECTION OR FAILURE TO STOCKPILE TOPSOIL SHALL RESULT IN ISSUANCE OF A STOP WORK ORDER. THE STOP WORK ORDER SHALL REMAIN IN PLACE UNTIL TOPSOIL IS STOCKPILED ON SITE OR APPROPRIATE SOIL AMENDMENTS ARE STOCKPILED ON SITE.
24. THE ACCEPTED GESC PLAN MAY REQUIRE CHANGES OR ALTERATIONS AFTER APPROVAL TO MEET CHANGING SITE OR PROJECT CONDITIONS OR TO ADDRESS INEFFICIENCIES IN DESIGN OR INSTALLATION. THE GESC MANAGER SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER AND DOUGLAS COUNTY PUBLIC WORKS ENGINEERING FOR ANY PROPOSED CHANGES.
25. LINING OF TEMPORARY SWALES AND DITCHES SHALL BE IN ACCORDANCE WITH THE GESC CRITERIA MANUAL.
26. NO PERMANENT EARTH SLOPES GREATER THAN 3:1 SHALL BE ALLOWED.
27. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE LIMITS OF CONSTRUCTION DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE GESC MANAGER. THE GESC MANAGER SHALL BE HELD RESPONSIBLE FOR OBTAINING ACCESS RIGHTS TO ADJACENT PROPERTY, IF NEEDED, AND REMEDIATING ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, PROPERTIES, ETC. RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
28. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
29. SOILS THAT WILL BE STOCKPILED FOR MORE THAN THIRTY (30) DAYS SHALL BE SEEDING AND MULCHED WITHIN FOURTEEN (14) DAYS OF STOCKPILE CONSTRUCTION. NO STOCKPILES SHALL BE PLACED WITHIN ONE HUNDRED (100) FEET OF A DRAINAGE WAY UNLESS APPROVED BY THE DOUGLAS COUNTY PUBLIC WORKS ENGINEERING.
30. ALL CHEMICAL OR HAZARDOUS MATERIAL SPILLS WHICH MAY ENTER WATERS OF THE STATE OF COLORADO, WHICH INCLUDE BUT ARE NOT LIMITED TO, SURFACE WATER, GROUND WATER AND DRY GULLIES OR STORM SEWER LEADING TO SURFACE WATER, SHALL BE IMMEDIATELY REPORTED TO THE CDPHE PER CRS 25-8-601, AND DOUGLAS COUNTY. RELEASES OF PETROLEUM PRODUCTS AND CERTAIN HAZARDOUS SUBSTANCES LISTED UNDER THE FEDERAL CLEAN WATER ACT (40 CFR PART 116) MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER AS WELL AS THE CDPHE. CONTACT INFORMATION FOR CDPHE, DOUGLAS COUNTY AND THE NATIONAL RESPONSE CENTER CAN BE FOUND IN APPENDIX A OF THE GESC MANUAL, AS AMENDED. SPILLS THAT POSE AN IMMEDIATE RISK TO HUMAN LIFE SHALL BE REPORTED TO 911. FAILURE TO REPORT AND CLEAN UP ANY SPILL SHALL RESULT IN ISSUANCE OF A STOP WORK ORDER.
31. ALL WORK ON SITE SHALL STAY A MINIMUM OF ONE HUNDRED (100) FEET AWAY FROM ANY DRAINAGEWAY, WETLAND, ETC. UNLESS OTHERWISE NOTED ON AN ACCEPTED DOUGLAS COUNTY GESC PLAN.
32. ALL PROJECTS SHALL BALANCE EARTHWORK QUANTITIES ON SITE. IN THE EVENT A VARIANCE IS GRANTED BY THE COUNTY DIRECTOR OF ENGINEERING SERVICES TO ALLOW IMPORT OR EXPORT OF MATERIAL, THE PERMITTEE SHALL HAVE A GESC PERMIT IN HAND FOR THE IMPORT OR EXPORT SITE PRIOR TO ANY TRANSPORTING OF EARTHEN MATERIAL. THE GESC MANAGER SHALL NOTIFY THE DOUGLAS COUNTY GESC INSPECTOR OF THE LOCATION AND PERMIT NUMBERS OF BOTH THE EXPORTING AND IMPORTING SITES PRIOR TO ANY IMPORT/ EXPORT OPERATIONS.
33. THE USE OF REBAR, STEEL STAKES OR STEEL FENCE POSTS FOR STAKING OR SUPPORT OF ANY EROSION OR SEDIMENT CONTROL BMP IS PROHIBITED (EXCEPT STEEL TEE-POSTS FOR USE IN SUPPORTING CONSTRUCTION FENCE).
34. THE CLEANING OF CONCRETE DELIVERY TRUCK CHUTES IS RESTRICTED TO APPROVED CONCRETE WASH OUT LOCATIONS ON THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CONCRETE TO THE STORM SEWER SYSTEM IS PROHIBITED. ALL CONCRETE WASTE SHALL BE PROPERLY CLEANED UP AND DISPOSED AT AN APPROPRIATE LOCATION.
35. ALL DEWATERING ON SITE SHALL BE COORDINATED WITH A DOUGLAS COUNTY GESC INSPECTOR AND BE FREE OF SEDIMENT IN ACCORDANCE WITH THE GESC MANUAL.
36. ALL PERMANENT INSTALLATIONS OF PIPES FOR STORM SEWERS, SLOPE DRAINS, AND CULVERTS, TOGETHER WITH RIPRAP APRONS OR OTHER INLET AND OUTLET PROTECTION, REQUIRE INSPECTION BY DOUGLAS COUNTY PUBLIC WORKS ENGINEERING (SEPARATE FROM GESC INSPECTIONS).
37. ALL DISTURBED AREAS SHALL BE DRILL SEEDING AND CRIMP MULCHED IN ACCORDANCE WITH THE GESC CRITERIA MANUAL WITHIN THIRTY DAYS OF INITIAL EXPOSURE OR WITHIN FOURTEEN (14) DAYS OF SUBSTANTIAL COMPLETION (AS DEFINED BY DOUGLAS COUNTY) OF AN AREA, WHICHEVER IS LESS. THIS MAY REQUIRE MULTIPLE MOBILIZATIONS FOR SEEDING AND MULCHING.
38. ALL SLOPES STEEPER THEN 4:1 REQUIRED EROSION CONTROL BLANKETING.
39. HYDRAULIC SEEDING AND HYDRAULIC MULCHING ARE NOT AN ACCEPTABLE METHOD OF SEEDING OR MULCHING IN DOUGLAS COUNTY.
40. NO CURB AND GUTTER PERMITS SHALL BE ISSUED UNTIL ALL DISTURBED AREAS ARE DRILL SEEDING AND CRIMP MULCHED.
41. NO PAVING PERMITS SHALL BE ISSUED UNTIL ALL INTERIM INLET PROTECTION IS INSTALLED AND APPROVED BY THE EROSION CONTROL INSPECTOR.
42. A FINAL GESC INSPECTION SHALL BE CONDUCTED FOR CERTIFICATE OR TEMPORARY CERTIFICATE OF OCCUPANCY OR INITIAL ACCEPTANCE.
43. ALL REMAINING AREAS THAT ARE NOT LANDSCAPED OR OTHERWISE STABILIZED SHALL BE COVERED WITH EROSION CONTROL BLANKETING. ALL EROSION CONTROL BLANKETS AND NETTING SHALL BE MADE OF 100% NATURAL AND BIODEGRADABLE MATERIAL; NO PLASTIC OR OTHER SYNTHETIC MATERIAL, EVEN IF PHOTODEGRADABLE, SHALL BE ALLOWED. SEEDING IS NOT REQUIRED UNDER BLANKETS THAT ARE USED FOR TEMPORARY EROSION CONTROL IN AREAS THAT ARE NOT LANDSCAPED OR OTHERWISE STABILIZED.

DETAIL NO.	SHEET NO.
1	2
2	2
3	2
4	3
5	3
6	3
7	4
8	4
9	5
10	6
11	7
12	7
13	7
14	8
15	9
16	9
17	10
18	11
19	11
20	11
21	12
22	12
23	13
24	13
25	13

### BMP LEGEND

	CHECK DAM
	COMPOST BLANKET
	COMPOST FILTER BERM
	CONCRETE WASHOUT AREA
	CONSTRUCTION FENCE
	CONSTRUCTION MARKERS
	DEWATERING
	DIVERSION DITCH
	EROSION CONTROL BLANKET
	INLET PROTECTION
	REINFORCED CHECK DAM
	REINFORCED ROCK BERM
	RRB FOR CULVERT PROTECTION
	SEDIMENT BASIN
	SEDIMENT CONTROL LOG
	SEDIMENT TRAP
	SEEDING AND MULCHING
	SILT FENCE
	STABILIZED STAGING AREA
	SURFACE ROUGHENING
	TEMPORARY SLOPE DRAIN
	TEMPORARY STREAM CROSSING
	TERRACING
	VEHICLE TRACKING CONTROL
	VTC WITH WHEEL WASH
	ROCK AND RIPRAP GRADATIONS
	LIMITS OF CONSTRUCTION

Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.

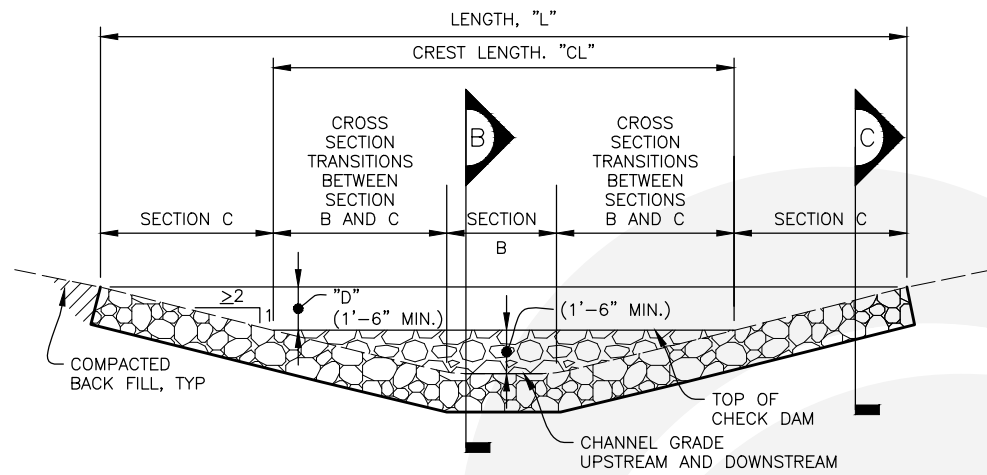


# GESC

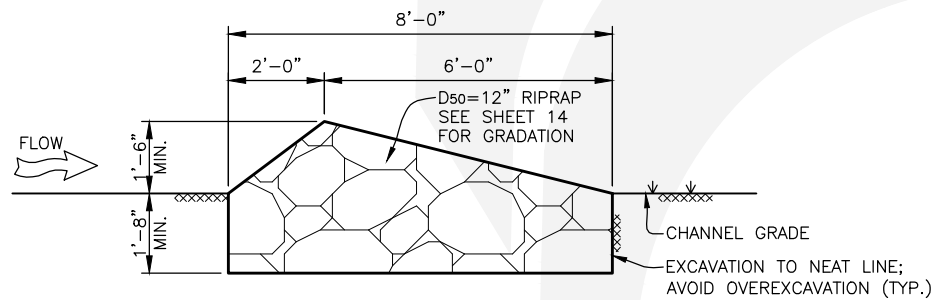
GRADING, EROSION, AND SEDIMENT CONTROL

GESC PLAN  
STANDARD NOTES  
AND DETAILS

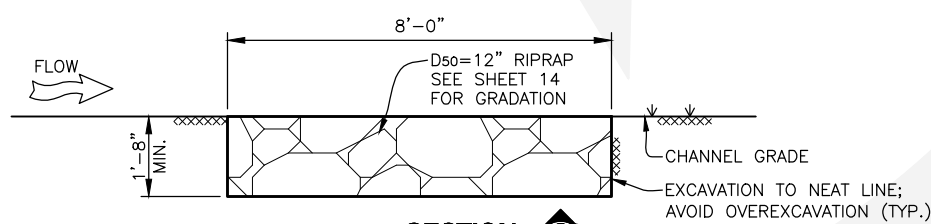
SHEET  
1 OF 14



**ELEVATION**  
SCALE: 1" = 5'-0"



**SECTION B**  
SCALE: 1/2" = 1'-0"



**SECTION C**  
SCALE: 1/2" = 1'-0"

**CHECK DAM INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATIONS OF CHECK DAMS.
  - CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM).
  - LENGTH, "L", CREST LENGTH, "CL", AND DEPTH, "D".
- CHECK DAMS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND-DISTURBING ACTIVITIES.
- RIPRAP UTILIZED FOR CHECK DAMS SHALL HAVE A  $D_{50}$  MEDIAN STONE SIZE OF 12".
- RIPRAP PAD SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'-8".
- THE ENDS OF THE CHECK DAM SHALL BE A MINIMUM OF 1'-6" HIGHER THAN THE CENTER OF THE CHECK DAM.

**CHECK DAM MAINTENANCE NOTES**

- THE GESC MANAGER SHALL INSPECT CHECK DAMS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
- SEDIMENT ACCUMULATED UPSTREAM OF CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CHECK DAM IS WITHIN 1/2 OF THE HEIGHT OF THE CREST.
- CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY.
- WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACK FILL. ANY DISTURBED AREA SHALL BE SEEDED AND MULCHED AND COVERED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

**CD CHECK DAM**

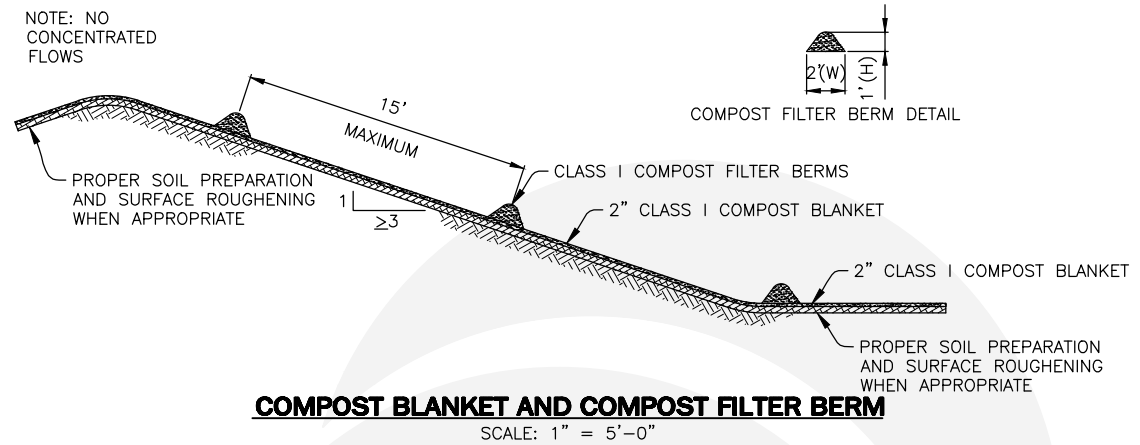
**1**

**CB COMPOST BLANKET**

**2**

**CFB COMPOST FILTER BERM**

**3**



**COMPOST BLANKET AND COMPOST FILTER BERM**

SCALE: 1" = 5'-0"

**COMPOST BLANKET NOTES:**

- SEE PLAN VIEW FOR AREA OF COMPOST BLANKET.
- MAY BE USED IN PLACE OF STRAW MULCH OR EROSION CONTROL BLANKET IN AREAS WHERE ACCESS IS DIFFICULT DUE TO LANDSCAPING OR OTHER OBJECTS OR IN AREAS WHERE A SMOOTH TURF GRASS FINISH IS DESIRED.
- SHALL ONLY BE UTILIZED IN AREAS WHERE SHEET FLOW CONDITIONS PREVAIL; SHALL BE PROHIBITED IN AREAS OF POSSIBLE CONCENTRATED FLOW.
- SOIL PREPARATION SHALL BE COMPLETE PER THE SPECIFICATIONS OUTLINED IN THESE CRITERIA PRIOR TO APPLICATION.
- WHEN TURF GRASS FINISH IS NOT DESIRED, SURFACE ROUGHENING ON SLOPES SHALL TAKE PLACE PRIOR TO APPLICATION.
- SHALL BE EVENLY APPLIED AT A DEPTH OF 2 INCH.
- MAYBE APPLIED UTILIZING PNEUMATIC BLOWER, OR BY HAND.
- SEEDING SHALL BE DRILLED PRIOR TO THE APPLICATION OF COMPOST OR SEED MAY BE COMBINED AND BLOWN WITH THE PNEUMATIC BLOWER.
- COMPOST FILTER BERM SHALL BE UTILIZED ON SLOPES WITH A MAXIMUM SPACING OF 15 FEET PER THE REQUIREMENTS FOUND IN THE COMPOST FILTER BERM SECTION.
- THE GESC MANAGER SHALL INSPECT WEEKLY, DURING AND AFTER ANY STORM EVENT.
- COMPOST USED IN THE APPLICATION OF THE COMPOST BLANKET SHALL BE A CLASS I COMPOST AS DEFINED BY THE FOLLOWING PHYSICAL, CHEMICAL, AND BIOLOGICAL PARAMETERS:

PARAMETERS	CLASS I COMPOST FOR COMPOST BLANKET
MINIMUM STABILITY INDICATOR	STABLE TO VERY STABLE
SOLUBLE SALTS	MAXIMUM 5mmhos/cm
PH	6.0 - 8.0
AG INDEX	> 10
MATURITY INDICATOR EXPRESSED AS PERCENTAGE OF GERMINATION/VIGOR	80+/80+
MATURITY INDICATOR EXPRESSED AS AMMONIA N/ NITRATE N RATIO	< 4
MATURITY INDICATOR EXPRESSED AS CARBON TO NITROGEN RATIO	20:1
TESTED FOR CLOPYRALID	YES/NEGATIVE RESULT
MOISTURE CONTENT	30-60 %
ORGANIC MATTER CONTENT	25-45 % OF DRY WEIGHT
PARTICLE SIZE DISTRIBUTION	3" (75mm) 100% PASSING 1" (25mm) 95% TO 100% PASSING 3/4" (19mm) 85% TO 90% PASSING 3/8" (9.5mm) 50% TO 60% PASSING #4 20 TO 35% PASSING
PRIMARY, SECONDARY NUTRIENTS; TRACE ELEMENT	MUST BE REPORTED
TESTING AND TEST REPORT SUBMITTAL REQUIREMENTS	STA + CLOPYRALID
ORGANIC MATTER PER CUBIC YARD	MUST REPORT
CHEMICAL CONTAMINANTS	MEET OR EXCEED US EPA CLASS A STANDARD, 40 CFR 503.1 TABLES 1 & 3 LEVELS
MINIMUM MANUFACTURING/PRODUCTION REQUIREMENT	FULLY PERMITTED UNDER COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION
RISK FACTOR RELATING TO PLANT GERMINATION AND HEALTH	LOW

NOTE: CLOPYRALID IS THE COMMON NAME OF A HERBICIDE THAT KILLS BROAD-LEAVED WEEDS SUCH AS DANDELIONS, CLOVER AND THISTLE.

**COMPOST FILTER BERM NOTES:**

- SEE PLAN VIEW FOR LENGTH OF COMPOST FILTER BERM.
- SHALL BE APPLIED TO ALL SLOPES RECEIVING A COMPOST BLANKET AT 15' INCREMENTS.
- FILTER BERMS SHALL RUN PARALLEL TO THE CONTOUR.
- FILTER BERMS SHALL BE A MINIMUM OF 1' H x 2' W.
- FILTER BERMS SHALL BE APPLIED UTILIZING PNEUMATIC BLOWER, OR BY HAND.
- SHALL ONLY BE UTILIZED IN AREAS WHERE SHEET FLOW CONDITIONS PREVAIL; SHALL BE PROHIBITED IN AREAS OF POSSIBLE CONCENTRATED FLOW.
- SOIL PREPARATION SHALL BE COMPLETE PER THE SPECIFICATIONS OUTLINED IN THESE CRITERIA PRIOR TO APPLICATION.
- WHEN TURF GRASS FINISH IS NOT DESIRED, SURFACE ROUGHENING ON SLOPES SHALL TAKE PLACE PRIOR TO APPLICATION.
- SEEDING SHALL BE DRILLED BEFORE THE APPLICATION OF COMPOST OR SEED MAY BE COMBINED AND BLOWN WITH THE PNEUMATIC BLOWER.
- THE GESC MANAGER SHALL INSPECT WEEKLY, DURING AND AFTER ANY STORM EVENT.
- COMPOST USED IN THE APPLICATION OF THE COMPOST BLANKET SHALL BE A CLASS I COMPOST AS DEFINED BY THE FOLLOWING PHYSICAL, CHEMICAL, AND BIOLOGICAL PARAMETERS:

PARAMETERS	CLASS I COMPOST FOR COMPOST FILTER BERM
MINIMUM STABILITY INDICATOR	STABLE TO VERY STABLE
SOLUBLE SALTS	MAXIMUM 5mmhos/cm
PH	6.0 - 8.0
AG INDEX	> 10
MATURITY INDICATOR EXPRESSED AS PERCENTAGE OF GERMINATION/VIGOR	80+/80+
MATURITY INDICATOR EXPRESSED AS AMMONIA N/ NITRATE N RATIO	< 4
MATURITY INDICATOR EXPRESSED AS CARBON TO NITROGEN RATIO	20:1
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MOISTURE CONTENT	30-60 %
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PARTICLE SIZE DISTRIBUTION	3" (75mm) 100% PASSING 1" (25mm) 95% TO 100% PASSING 3/4" (19mm) 85% TO 90% PASSING 3/8" (9.5mm) 50% TO 60% PASSING #4 20 TO 35% PASSING
PRIMARY, SECONDARY NUTRIENTS; TRACE ELEMENT	MUST BE REPORTED
TESTING AND TEST REPORT SUBMITTAL REQUIREMENTS	STA + CLOPYRALID
ORGANIC MATTER PER CUBIC YARD	MUST REPORT
CHEMICAL CONTAMINANTS	MEET OR EXCEED US EPA CLASS A STANDARD, 40 CFR 503.1 TABLES 1 & 3 LEVELS
MINIMUM MANUFACTURING/PRODUCTION REQUIREMENT	FULLY PERMITTED UNDER COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION
RISK FACTOR RELATING TO PLANT GERMINATION AND HEALTH	LOW

NOTE: IF A BIOSOLID COMPOST IS TO BE UTILIZED IT SHALL BE PRODUCED BY A FACILITY IN POSSESSION OF A VALID NOTICE OF AUTHORIZATION (NOA) FOR THE UNRESTRICTED USE AND DISTRIBUTION BY THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT. THE NOA SHALL BE PROVIDED UPON REQUEST TO DOUGLAS COUNTY.

NOTE: A LAB TEST DETAILING THE CHEMICAL, PHYSICAL, AND BIOLOGICAL PARAMETERS SHALL BE PROVIDED UPON REQUEST BY DOUGLAS COUNTY.

Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

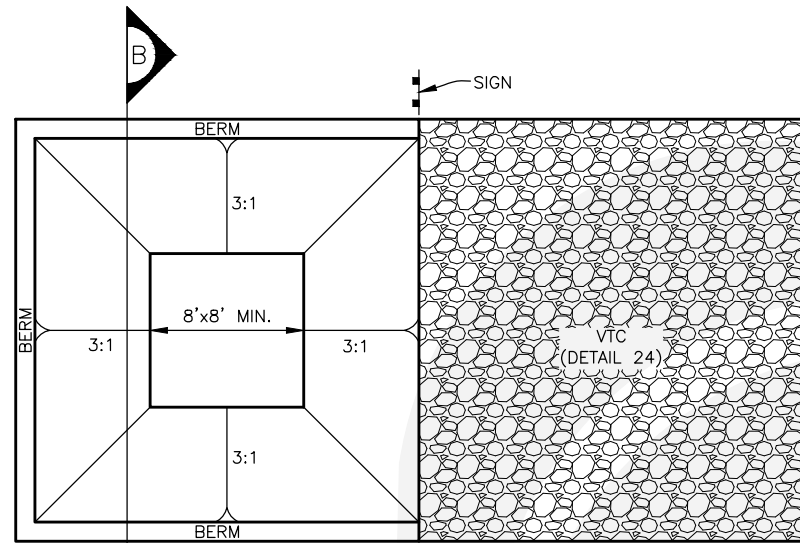
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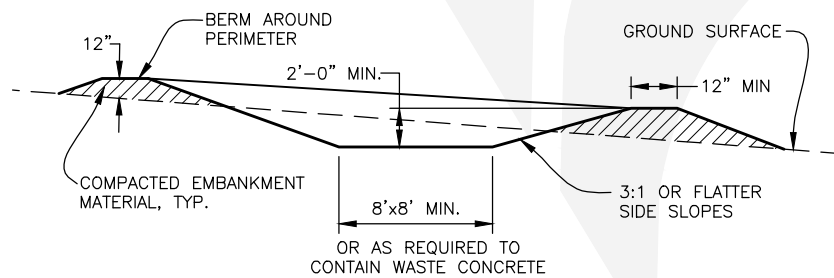
**GESC GRADING, EROSION, AND SEDIMENT CONTROL**

**GESC PLAN STANDARD NOTES AND DETAILS**

**SHEET 2 OF 14**



**PLAN**  
SCALE: 1" = 5'-0"



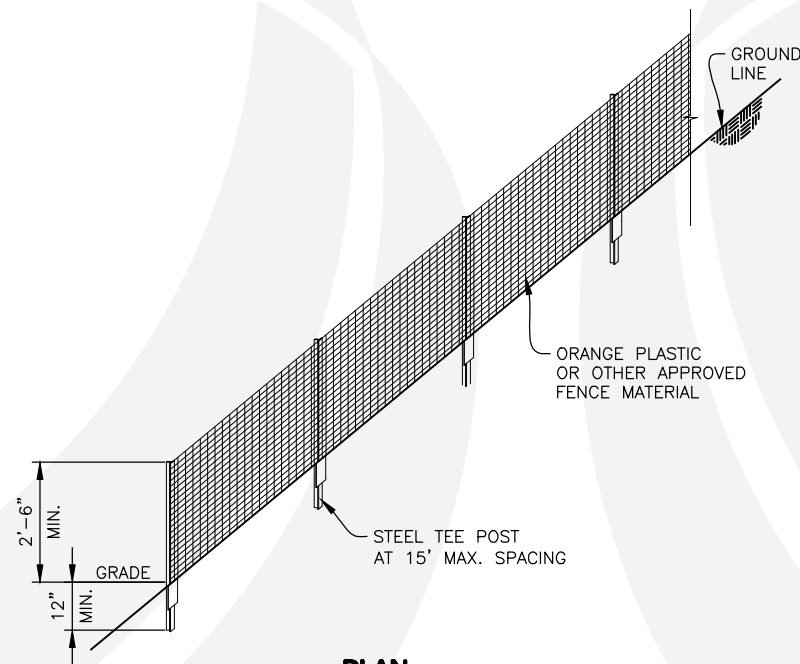
**SECTION B**  
SCALE: 1" = 5'-0"

**CONCRETE WASHOUT AREA INSTALLATION NOTES**

1. SEE PLAN VIEW FOR:  
- LOCATIONS OF CONCRETE WASHOUT AREA.
2. THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
3. VEHICLE TRACKING CONTROL (DETAIL 24) IS REQUIRED AT THE ACCESS POINT.
4. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. EXCAVATED MATERIAL SHALL BE UTILIZED IN PERIMETER BERM CONSTRUCTION.
6. DURABLE PORTABLE CONCRETE WASHOUT BASINS OR TUBS MAY BE USED WITH THE APPROVAL OF THE EROSION CONTROL INSPECTOR.

**CONCRETE WASHOUT AREA MAINTENANCE NOTES**

1. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
2. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
3. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.
4. INSPECT WEEKLY, DURING AND AFTER ANY STORM EVENT.



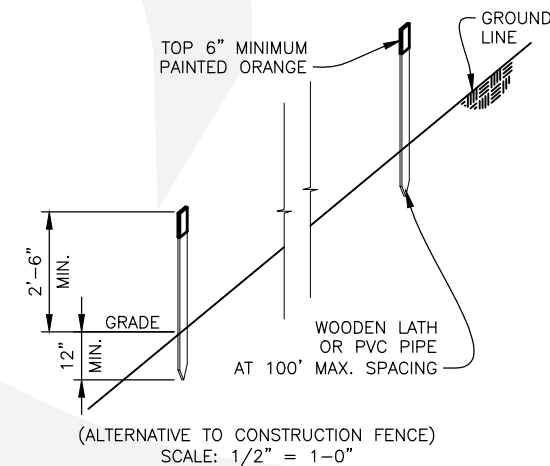
**PLAN**  
SCALE: 1/2" = 1'-0"

**CONSTRUCTION FENCE INSTALLATION NOTES**

1. SEE PLAN VIEW FOR:  
- TYPE OF CONSTRUCTION LIMIT INDICATOR (FENCE OR MARKERS).  
- LOCATION AND LENGTH OF FENCE OR LINE OF MARKERS.
2. CONSTRUCTION FENCE OR MARKERS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO OTHER BMPs AND ANY LAND-DISTURBING ACTIVITIES.
3. STEEL TEE POSTS SHALL BE UTILIZED FOR SUPPORT OF CONSTRUCTION FENCE. MAXIMUM SPACING FOR TEE POSTS SHALL BE 15'.

**CONSTRUCTION FENCE MAINTENANCE NOTES**

1. ANY DAMAGED FENCE OR MARKERS SHALL BE REPAIRED ON A DAILY BASIS.
2. FENCE OR MARKERS SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF ANY DISTURBED AREA EXISTS AFTER FENCE REMOVAL, IT SHALL BE DRILL SEEDDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.



Sheet Revisions		
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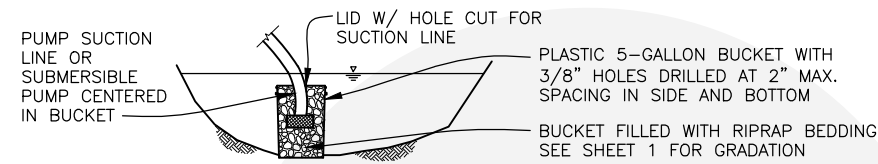
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



**GESC** GRADING, EROSION, AND SEDIMENT CONTROL

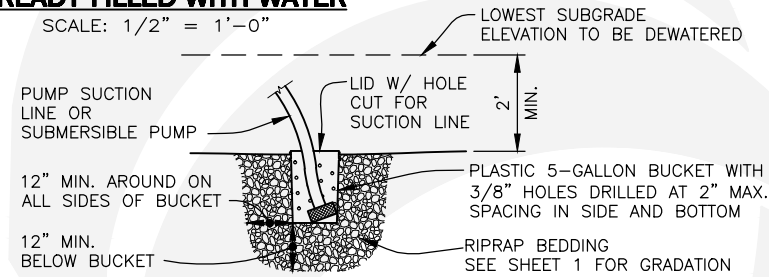
**GESC PLAN**  
STANDARD NOTES  
AND DETAILS

**SHEET**  
3 OF 14



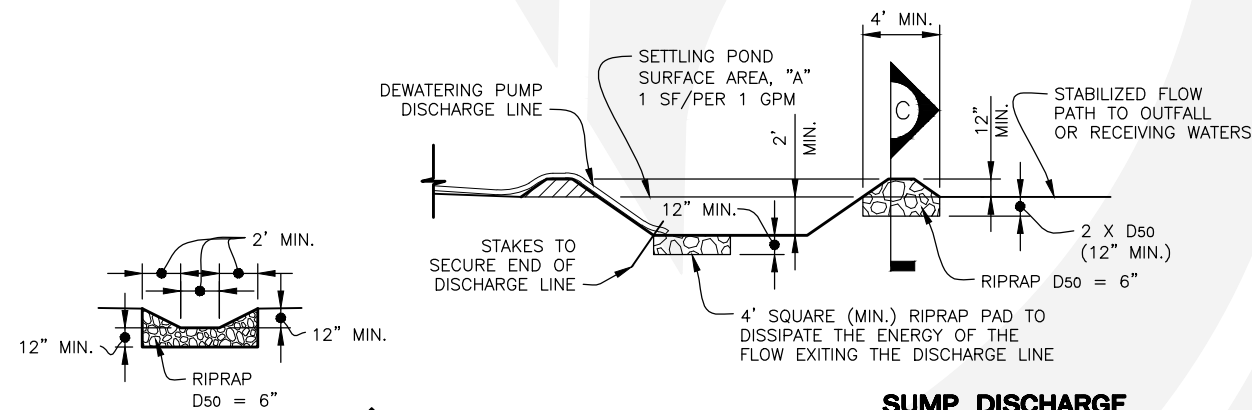
**ALTERNATIVE FOR DRAINING POND  
ALREADY FILLED WITH WATER**

SCALE: 1/2" = 1'-0"



**DEWATERING SUMP FOR SUBMERSIBLE PUMP**

SCALE: 1/2" = 1'-0"



**BASIN OUTLET - SECTION C**

SCALE: 1" = 5'-0"

**DEWATERING INSTALLATION NOTES**

1. THE PERMITTEE(S) SHALL SCHEDULE AN ONSITE INSPECTION WITH THE EROSION CONTROL INSPECTOR PRIOR TO ANY SITE DEWATERING OPERATIONS BEGIN.
2. THE GESC MANAGER SHALL OBTAIN A CONSTRUCTION DEWATERING PERMIT (DEWATERING PERMIT) FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) PRIOR TO ANY DEWATERING OPERATIONS THAT REQUIRE A DEWATERING PERMIT.
3. AT A MINIMUM, THE DEWATERING BMPs SHALL CONSIST OF THE FOLLOWING:  
PRE-FILTER ON THE SUCTION END OF THE PUMP/HOSE.  
FILTER BMP PRIOR TO FINAL DISCHARGE, AND  
ENERGY DISSIPATING BMP AT THE DISCHARGE END OF THE HOSE/PUMP.
4. THE TYPE AND PLACEMENT OF DEWATERING CONTROLS SHALL BE COORDINATED WITH, AND APPROVED BY, THE EROSION CONTROL INSPECTOR PRIOR TO THE DISCHARGE OF ANY WATER.

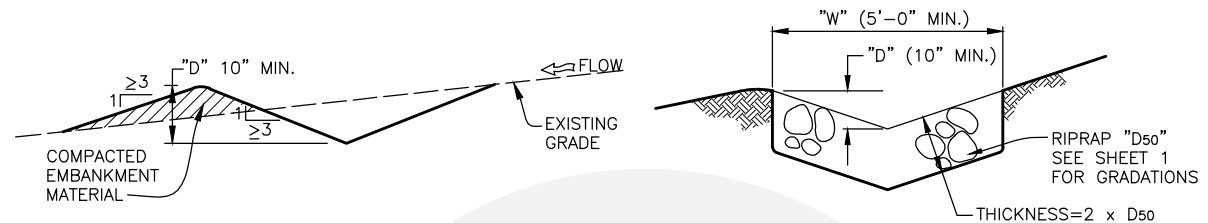
**DEWATERING MAINTENANCE NOTES**

1. THE GESC MANAGER SHALL INSPECT DEWATERING SYSTEMS AND PERFORM ANY NECESSARY REPAIRS OR MAINTENANCE ON A HOURLY BASIS.
2. TEMPORARY SETTLING BASINS SHALL BE REMOVED WHEN NO LONGER NEEDED FOR DEWATERING OPERATIONS. ANY DISTURBED AREA SHALL BE DRILL SEEDDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.



**DEWATERING**

**7**

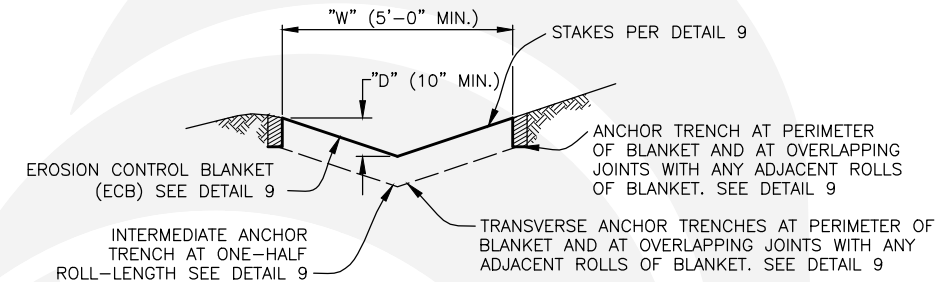


**UNLINED**

LONGITUDINAL SLOPE ≤ 0.5%  
SCALE: 1/2" = 1'-0"

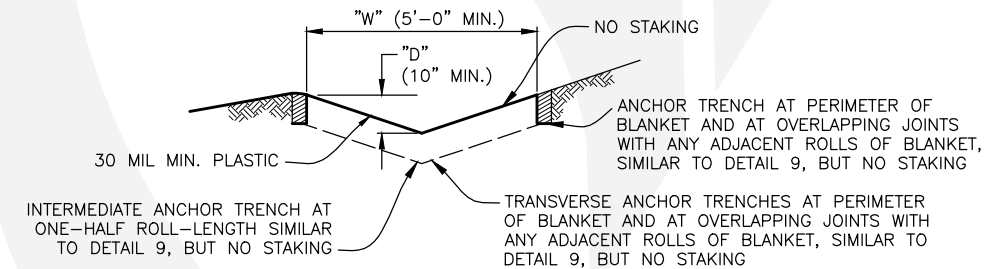
**RIPRAP LINED**

LONGITUDINAL SLOPE 3% TO 33%  
SCALE: 1/2" = 1'-0"



**EROSION CONTROL BLANKET (ECB) LINED**

LONGITUDINAL SLOPE 0.5% TO 3%  
SCALE: 1/2" = 1'-0"



**PLASTIC LINED**

LONGITUDINAL SLOPE 3% TO 33%  
SCALE: 1/2" = 1'-0"

**DIVERSION DITCH INSTALLATION NOTES**

1. SEE PLAN VIEW FOR:  
- LOCATION OF DIVERSION DITCH.  
- TYPE OF DITCH (UNLINED, ECB LINED, PLASTIC LINED OR RIPRAP LINED).  
- LENGTH OF EACH TYPE OF DITCH.  
- DEPTH, "D", AND WIDTH, "W" DIMENSIONS.  
- FOR ECB LINED DITCH, EROSION CONTROL BLANKET TYPE (SEE DETAIL 9).  
- FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, "D50".
2. SEE DRAINAGE PLANS FOR DETAILS OF ANY PERMANENT CONVEYANCE FACILITIES OR DIVERSION DITCHES EXCEEDING A 2-YEAR FLOW RATE OF 10 CFS.
3. DIVERSION DITCHES INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
4. FOR ECB LINED DITCHES, INSTALLATION OF EROSION CONTROL BLANKET SHALL CONFORM TO THE REQUIREMENTS OF DETAIL 9.
5. IN LOCATIONS WHERE CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION DITCH, THE PERMITTEES SHALL INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12-INCHES.

**DIVERSION DITCH MAINTENANCE NOTES**

1. THE GESC MANAGER SHALL INSPECT DIVERSION DITCHES WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
2. DIVERSION DITCHES ARE TO REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION, OR, IF APPROVED BY THE COUNTY, LEFT IN PLACE.
3. IF DIVERSION DITCHES ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.



**DIVERSION DITCH**

**8**

Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

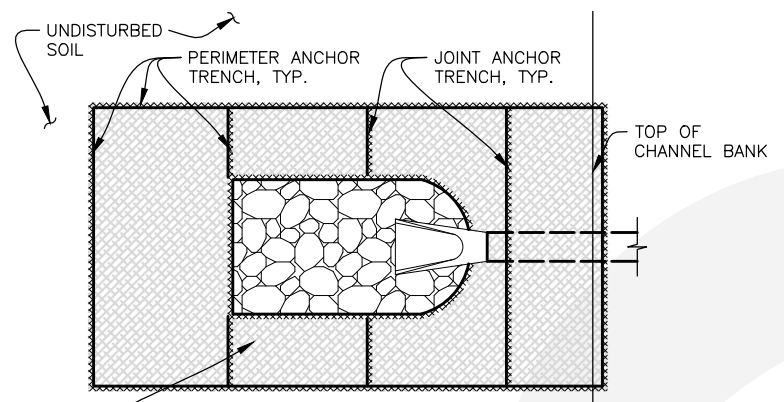
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



**GESC GRADING, EROSION, AND SEDIMENT CONTROL**

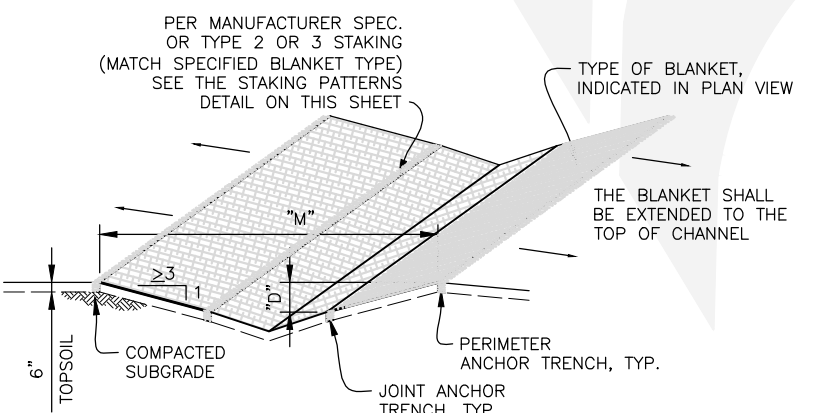
**GESC PLAN STANDARD NOTES AND DETAILS**

**SHEET 4 OF 14**

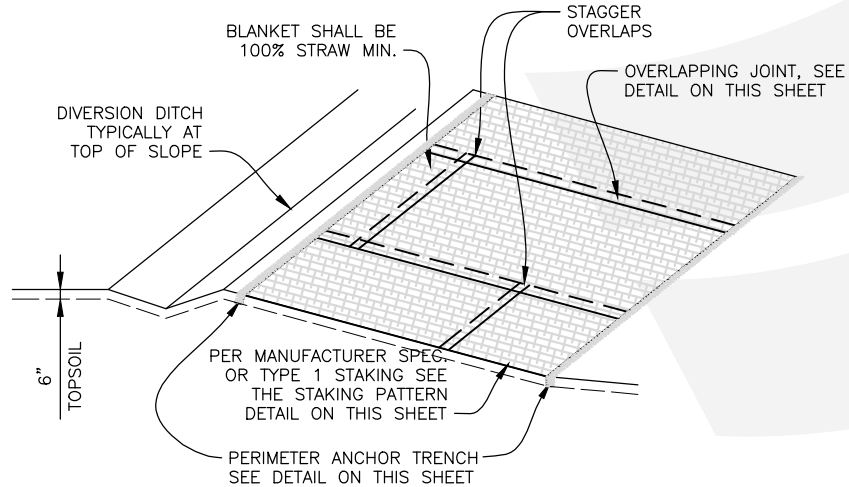


TYPE OF BLANKET AS INDICATED IN PLAN VIEW, IN ALL DISTURBED AREAS OF STREAMS AND DRAINAGE CHANNELS TO DEPTH "D" ABOVE CHANNEL INVERT. BLANKET SHALL GENERALLY BE ORIENTED PARALLEL TO FLOW DIRECTION. STAKING PATTERN SHALL MATCH BLANKET TYPE.

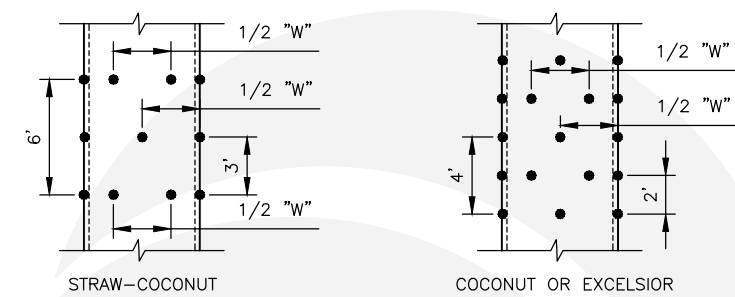
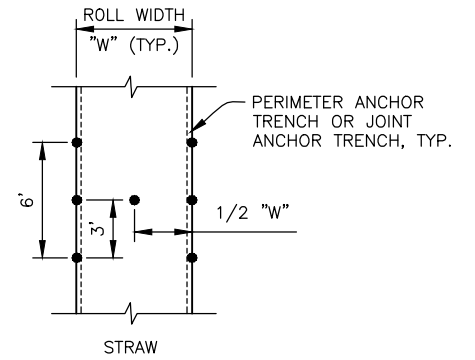
**IN DISTURBED AREAS OF STREAMS AND DRAINAGE CHANNELS**  
SCALE: 1" = 5'-0"



**IN DIVERSION DITCH OR SMALL DITCH DRAINAGEWAY**  
SCALE: 1" = 5'-0"

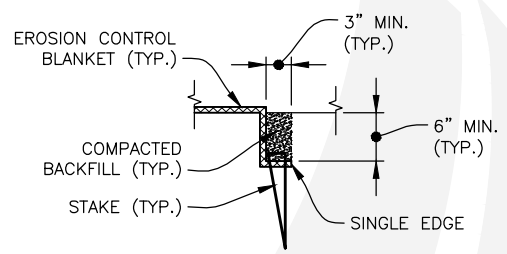


**OUTSIDE OF STREAMS AND DRAINAGE CHANNELS**  
SCALE: 1" = 5'-0"

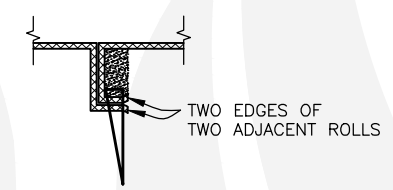


**STAKING PATTERNS**

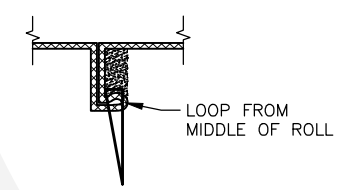
SCALE: 1" = 5'-0"  
SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION. IF NO MANUFACTURER'S SPECIFICATION IS AVAILABLE USE THE ACCEPTABLE STAKING PATTERN (AS SHOWN ABOVE),



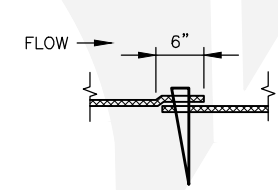
**PERIMETER ANCHOR TRENCH**  
SCALE: 1" = 1'-0"



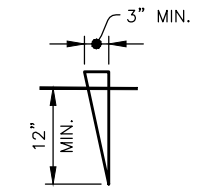
**JOINT ANCHOR TRENCH**  
SCALE: 1" = 1'-0"



**INTERMEDIATE ANCHOR TRENCH**  
SCALE: 1" = 5'-0"



**OVERLAPPING JOINT**  
SCALE: 1" = 1'-0"



**WOOD STAKE DETAIL**  
SCALE: 1" = 1'-0"  
MINIMUM THICKNESS 1/2"

**EROSION CONTROL BLANKET INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION OF PERIMETER OF EROSION CONTROL BLANKET.
  - TYPE OF BLANKET (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR).
  - AREA "A" IN SQUARE YARDS OF EACH TYPE OF BLANKET.
- ALL EROSION CONTROL BLANKETS AND NETTING SHALL BE MADE OF 100% NATURAL AND BIODEGRADABLE MATERIAL; NO PLASTIC OR OTHER SYNTHETIC MATERIAL, EVEN IF PHOTO DEGRADABLE, SHALL BE ALLOWED.
- IN AREAS WHERE EROSION CONTROL BLANKET IS SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING BELOW THE BLANKET IN ACCORDANCE WITH THE REQUIREMENTS OF DETAIL 17, SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO BLANKET INSTALLATION AND THE BLANKET SHALL BE IN FULL CONTACT WITH SUBGRADE, NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- PERIMETER ANCHOR TRENCH SHALL BE USED AT OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL BLANKET INSTALLATIONS IN A DRAINAGEWAY EXCEPT STRAW, WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF THE ROLL LENGTH FOR COCONUT AND EXCELSIOR BLANKETS.
- THE OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER FOR BLANKETS ON SLOPES.
- MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKET SHALL CONFORM TO TABLE 7.1.

**EROSION CONTROL BLANKET INSTALLATION NOTES - CONTINUED**

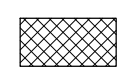
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING EROSION CONTROL BLANKET SHALL BE RESEEDED AND MULCHED IN ACCORDANCE WITH DETAIL 17.
- SEE DRAINAGE DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION MEASURES THAT MAY EXCEED THE DESIGN CONDITIONS ASSOCIATED WITH THE DETAILS ABOVE.
- METAL STAKES OR STAPLES MAY BE USED FOR EROSION CONTROL BLANKET INSTALLATIONS OUTSIDE OF DRAINAGE CHANNELS.

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	NETTING MIN.
STRAW*	-	100%	-	DOUBLE/NATURAL
STRAW-COCONUT	30% MIN.	70% MAX.	-	DOUBLE/NATURAL
COCONUT	100%	-	-	DOUBLE/NATURAL
EXCELSIOR	-	-	100%	DOUBLE/NATURAL

\* FOR OUTSIDE OF STREAMS AND DRAINAGE CHANNELS

**EROSION CONTROL BLANKET MAINTENANCE NOTES**

- THE GESC MANAGER SHALL INSPECT EROSION CONTROL BLANKETS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS AS NECESSARY.
- EROSION CONTROL BLANKET IS TO BE LEFT IN PLACE UNLESS REQUESTED TO BE REMOVED BY THE COUNTY.
- ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE RE-INSTALLED. ANY SUBGRADE AREAS BELOW THE BLANKET THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE EROSION CONTROL BLANKET REINSTALLED.



**ECB** EROSION CONTROL BLANKET 9

Sheet Revisions			
1	DOUGLAS COUNTY REISSUE		1/13

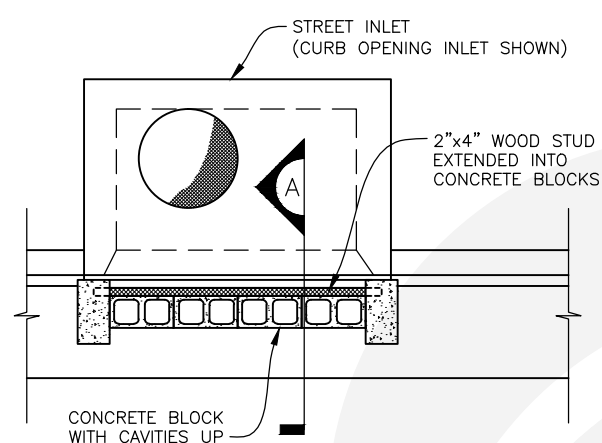
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



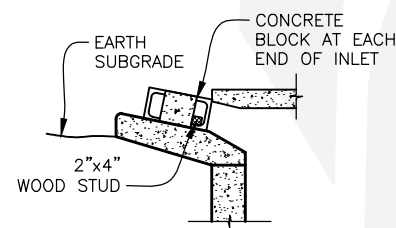
**GESC** GRADING, EROSION, AND SEDIMENT CONTROL

**GESC PLAN STANDARD NOTES AND DETAILS**

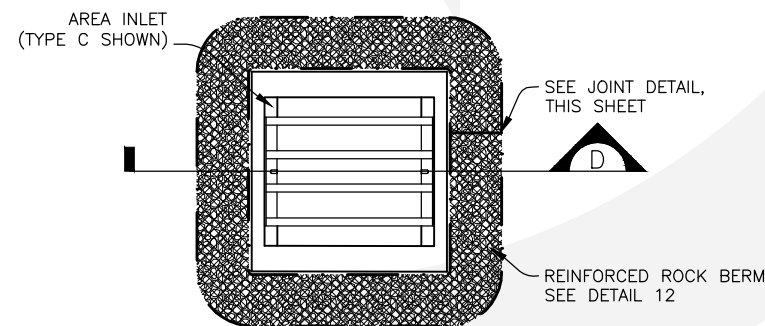
**SHEET 5 OF 14**



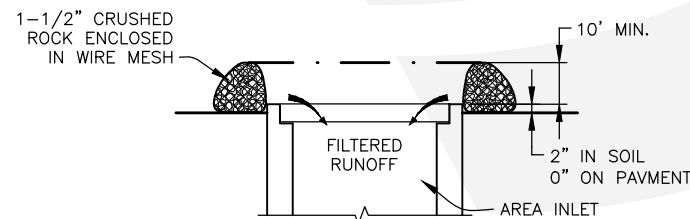
**INTERIM CONFIGURATION  
(BEFORE PAVING) STREET INLET - PLAN**  
SCALE: 1/2" = 1'-0"



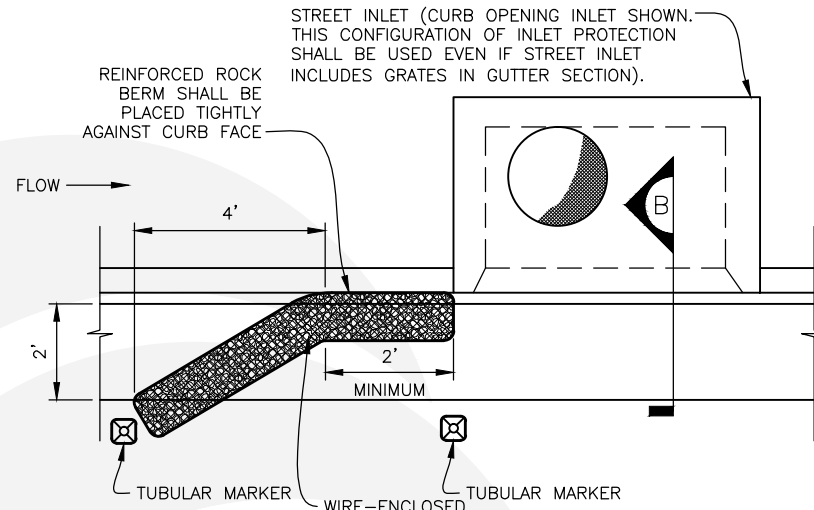
**SECTION A**  
SCALE: 1/2" = 1'-0"



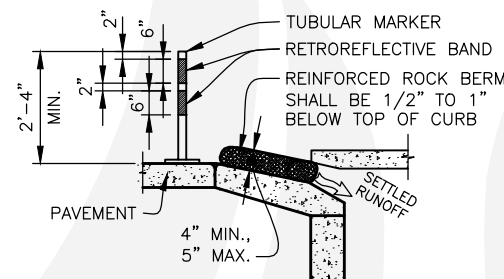
**AREA INLET - PLAN**  
SCALE: 1/2" = 1'-0"



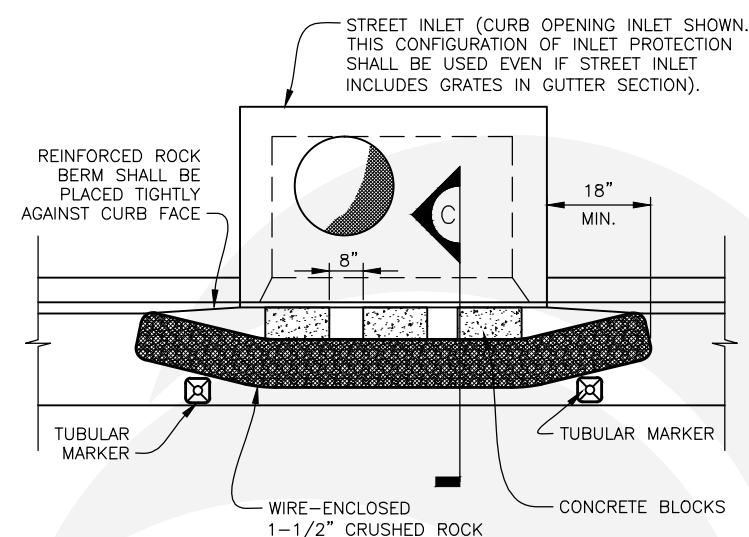
**SECTION D**  
SCALE: 1/2" = 1'-0"



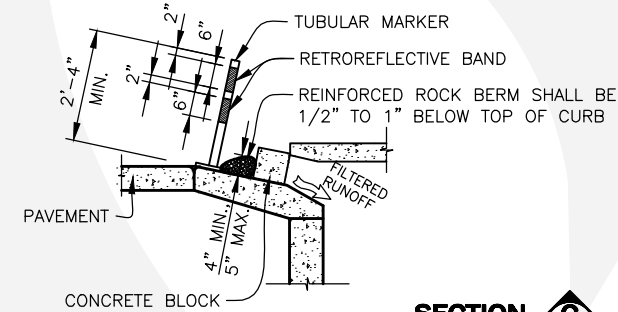
**STREET INLET ON CONTINUOUS GRADE  
(AFTER PAVING) - PLAN**  
SCALE: 1/2" = 1'-0"



**SECTION B**  
SCALE: 1/2" = 1'-0"

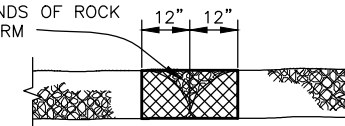


**STREET INLET IN SUMP (AFTER PAVING) - PLAN**  
SCALE: 1/2" = 1'-0"



**SECTION C**  
SCALE: 1/2" = 1'-0"

ANY GAP AT JOINT SHALL BE FILLED WITH 1 1/2" CRUSHED ROCK AND WRAPPED WITH ADDITIONAL WIRE MESH SECURED TO ENDS OF ROCK REINFORCED BERM



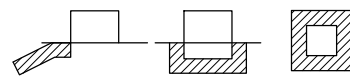
**JOINT DETAIL**  
SCALE: 1/2" = 1'-0"

**INLET PROTECTION INSTALLATION NOTES**

1. INTERIM CONFIGURATION OF INLET PROTECTION IN STREETS SHALL BE INSTALLED WITHIN 48-HOURS OF POURING INLET. INLET PROTECTION (AFTER PAVEMENT) SHALL BE INSTALLED WITHIN 48 HOURS AFTER PAVING IS PLACED.
2. INLET PROTECTION AT AREA INLETS SHALL BE INSTALLED WITHIN 48-HOURS OF POURING INLET.
3. CRUSHED ROCK SHALL BE FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON SHEET 14 (1-1/2"). RECYCLED CONCRETE MEETING THIS GRADATION MAY BE USED.
4. WIRE MESH SHALL BE FABRICATED OF 20 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE"). ROLL WIDTH SHALL BE 48-INCHES.
5. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
6. REINFORCED ROCK BERM SHALL BE CONSTRUCTED IN ONE PIECE OR SHALL BE CONSTRUCTED USING JOINT DETAIL.
7. TUBULAR MARKERS SHALL MEET REQUIREMENTS OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED.
8. THE TOP OF REINFORCED ROCK BERM SHALL BE 1/2"-1" BELOW TOP OF CURB.

**INLET PROTECTION MAINTENANCE NOTES**

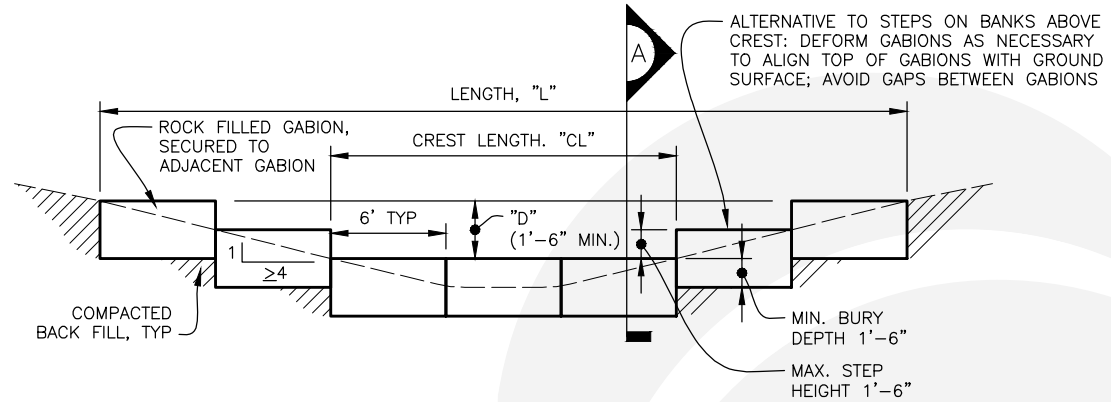
1. THE GESC MANAGER SHALL INSPECT INLET PROTECTION WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY. MORE FREQUENT INSPECTIONS AND REPAIRS SHALL BE REQUIRED DURING WINTER CONDITIONS DUE TO FREEZE/THAW PROBLEMS.
2. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF ROCK BERM IS WITHIN 2-1/2 INCHES OF THE CREST.
3. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED, UNLESS THE COUNTY APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
4. WHEN INLET PROTECTION AT AREA INLETS ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDING AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.



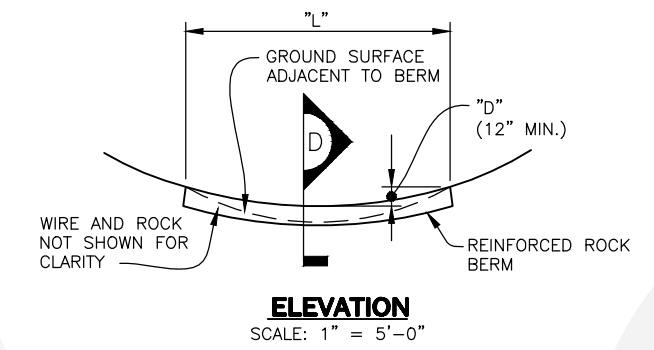
**IP INLET PROTECTION 10**

Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

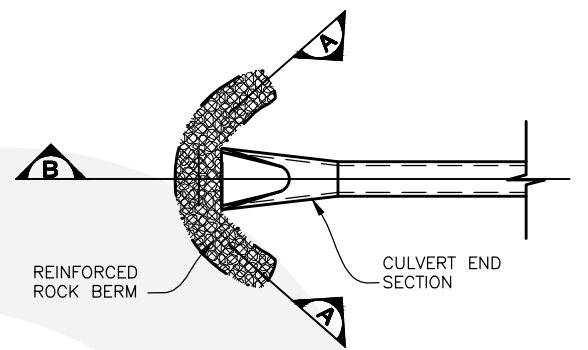
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



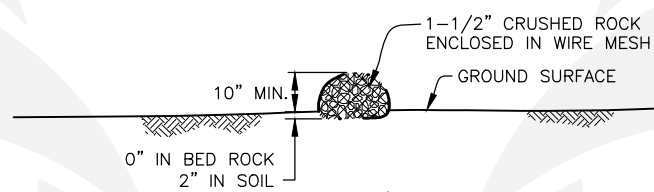
**REINFORCED - ELEVATION**  
SCALE: 1" = 5'-0"



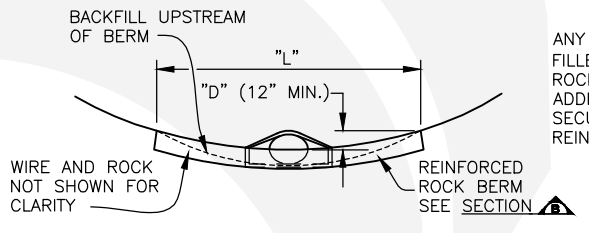
**ELEVATION**  
SCALE: 1" = 5'-0"



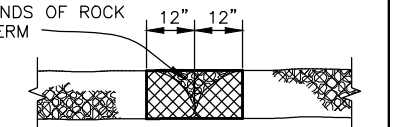
**PLAN**  
SCALE: 1" = 5'-0"



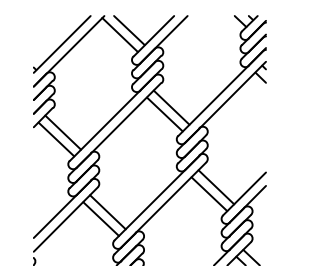
**SECTION D**  
SCALE: 1/2" = 1'-0"



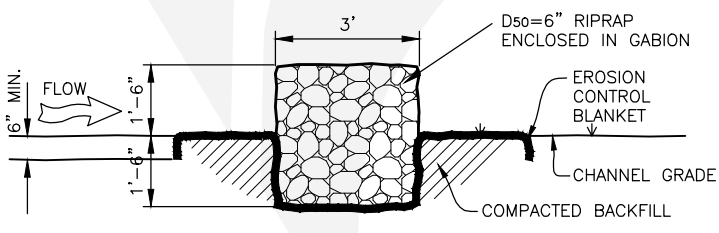
**SECTION A**  
SCALE: 1" = 5'-0"



**JOINT DETAIL**  
SCALE: 1/2" = 1'-0"



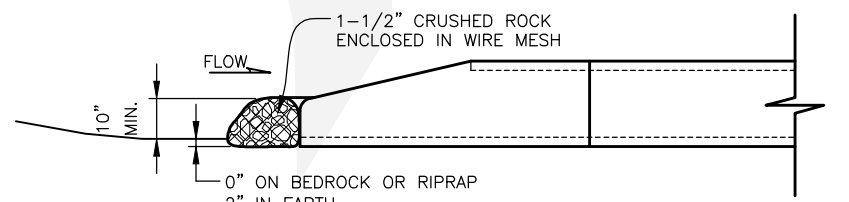
**BLOW UP OF TWISTED WIRE GABION**  
SCALE: NTS



**REINFORCED - SECTION A**  
SCALE: 1/2" = 1'-0"

ANY GAP AT JOINT SHALL BE FILLED WITH 1 1/2" CRUSHED ROCK AND WRAPPED WITH ADDITIONAL WIRE MESH SECURED TO ENDS OF ROCK REINFORCED BERM

**JOINT DETAIL**  
SCALE: 1/2" = 1'-0"



**SECTION B**  
SCALE: 1/2" = 1'-0"

**REINFORCED ROCK BERM INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATIONS OF REINFORCED ROCK BERMS.
  - LENGTH, "L", AND DEPTH, "D" DIMENSIONS.
- REINFORCED ROCK BERM SECTION APPLIES TO CULVERT INLET FILTER AND INLET PROTECTION.
- CRUSHED ROCK SHALL BE FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON SHEET 14 (1-1/2"). RECYCLED CONCRETE MEETING THIS GRADATION MAY BE USED.
- WIRE MESH SHALL BE FABRICATED OF 20 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE"). ROLL WIDTH SHALL BE 48-INCHES.
- WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
- FOR CONCENTRATED FLOW AREAS THE ENDS OF THE REINFORCED ROCK BERM SHALL BE 12" HIGHER THAN THE CENTER OF THE BERM.

**REINFORCED ROCK BERM MAINTENANCE NOTES**

- THE GESC MANAGER SHALL INSPECT REINFORCED ROCK BERM WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
- SEDIMENT ACCUMULATED UPSTREAM OF REINFORCED ROCK BERM SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF FILTER IS WITHIN 5 INCHES OF THE CREST.
- REINFORCED ROCK BERMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED.
- WHEN REINFORCED ROCK BERMS ARE REMOVED, ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

**INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATIONS OF CULVERT INLET FILTERS.
  - LENGTH, "L", AND DEPTH, "D".
- CRUSHED ROCK SHALL BE FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON SHEET 14 (1-1/2"). RECYCLED CONCRETE MEETING THIS GRADATION MAY BE USED.
- WIRE MESH SHALL BE FABRICATED OF 20 GAUGE WIRE TWISTED INTO A MESH WITH A MAXIMUM OPENING OF 1.0 INCH (COMMONLY TERMED "CHICKEN WIRE"). ROLL WIDTH SHALL BE 48-INCHES.
- WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6-INCH CENTERS ALONG ALL JOINTS AND AT 2-INCH CENTERS ON ENDS OF BERM.
- THE ENDS OF THE REINFORCED ROCK BERM SHALL BE 12" HIGHER THAN THE CENTER OF THE BERM.

**MAINTENANCE NOTES**

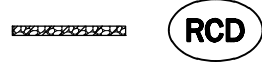
- THE GESC MANAGER SHALL INSPECT CULVERT INLET FILTER WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
- SEDIMENT ACCUMULATED UPSTREAM OF CULVERT INLET FILTER SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF FILTER IS 1/2 THE HEIGHT OF THE REINFORCED ROCK BERM.
- RRB FOR CULVERT PROTECTION ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY.
- WHEN CULVERT INLET FILTERS ARE REMOVED, ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

**REINFORCED CHECK DAM INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATIONS OF CHECK DAMS.
  - CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM).
  - LENGTH, "L", CREST LENGTH, "CL", AND DEPTH, "D".
- CHECK DAMS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND-DISTURBING ACTIVITIES.
- REINFORCED CHECK DAMS, GABIONS SHALL HAVE GALVANIZED TWISTED WIRE NETTING WITH A MAXIMUM OPENING DIMENSION OF 4-1/2" AND A MINIMUM WIRE THICKNESS OF 0.10". WIRE "HOG RINGS" AT 4" SPACING OR OTHER APPROVED MEANS SHALL BE USED AT ALL GABION SEAMS AND TO SECURE THE GABION TO THE ADJACENT GABION.
- RIPRAP UTILIZED FOR CHECK DAMS SHALL HAVE A D<sub>50</sub> MEDIAN STONE SIZE OF 12".
- THE CHECK DAM SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'-6".
- EROSION BLANKET SHALL BE PLACED IN THE REINFORCED CHECK DAM TRENCH EXTENDING A MINIMUM OF 1'-6" ON BOTH THE UPSTREAM AND DOWNSTREAM SIDES OF THE REINFORCED CHECK DAM.

**REINFORCED CHECK DAM MAINTENANCE NOTES**

- THE GESC MANAGER SHALL INSPECT CHECK DAMS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
- SEDIMENT ACCUMULATED UPSTREAM OF CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CHECK DAM IS WITHIN 1/2 OF THE HEIGHT OF THE CREST.
- CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY.
- WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACK FILL. ANY DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED AND COVERED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.



**RCD REINFORCED CHECK DAM 11**



**RRB REINFORCED ROCK BERM 12**



**RRC RRB FOR CULVERT PROTECTION 13**

Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

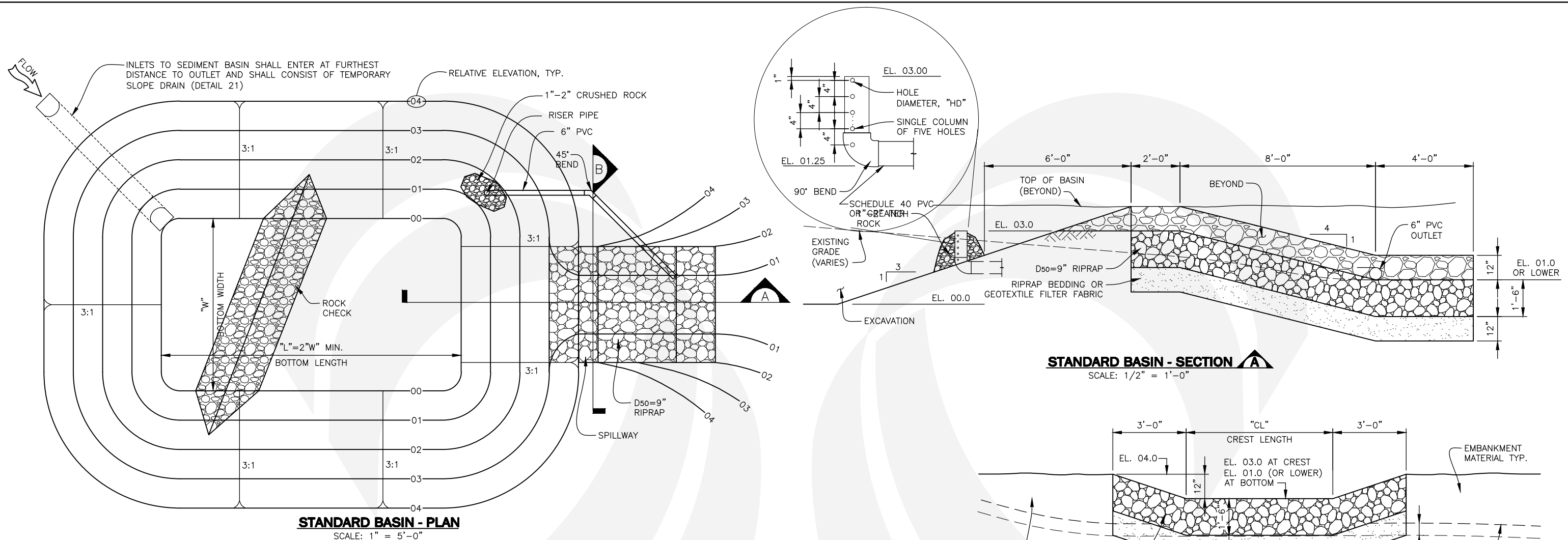
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



**GESC GRADING, EROSION, AND SEDIMENT CONTROL**

**GESC PLAN STANDARD NOTES AND DETAILS**

**SHEET 7 OF 14**



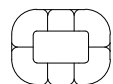
**SEDIMENT BASIN INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION OF SEDIMENT BASIN.
  - TYPE OF BASIN (STANDARD BASIN OR NON-STANDARD BASIN).
  - FOR STANDARD BASIN, CREST LENGTH, "CL", BOTTOM WIDTH, "W", AND HOLE DIAMETER, "HD".
  - FOR NON-STANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT, "H", NUMBER OF COLUMNS, "N", HOLE DIAMETER, "HD", AND PIPE DIAMETER "D".
- FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
- SEDIMENT BASINS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY.
- EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
- EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY WITHIN 2 PERCENTAGE POINTS OF OPTIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
- PIPE SCH 40 OR GREATER SHALL BE USED.
- THE DETAILS SHOWN ON THIS SHEET PERTAIN TO STANDARD SEDIMENT BASIN(S) IDENTIFIED ON THE GESC PLAN VIEW DRAWINGS USED FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

**SEDIMENT BASIN MAINTENANCE NOTES**

- THE GESC MANAGER SHALL INSPECT SEDIMENT BASIN WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY.
- SEDIMENT ACCUMULATED IN SEDIMENT BASIN SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1.0 FOOT.
- SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY.
- IF SEDIMENT BASINS ARE REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

SIZING INFORMATION FOR STANDARD SEDIMENT BASIN			
Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	16	2.0	7/16
2	22	4.0	5/8
3	27	6.0	3/4
4	31	8.0	7/8
5	35	10.0	1.0
6	38	12.0	1 1/8
7	41	14.0	1 1/4
8	44	16.0	1 1/4
9	47	18.0	1 3/8
10	49	20.0	1 3/8
11	52	22.0	1 1/2
12	54	24.0	1 1/2
13	56	26.0	1 5/8
14	59	28.0	1 5/8
15	61	30.0	1 5/8



SB

SEDIMENT BASIN

14

Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

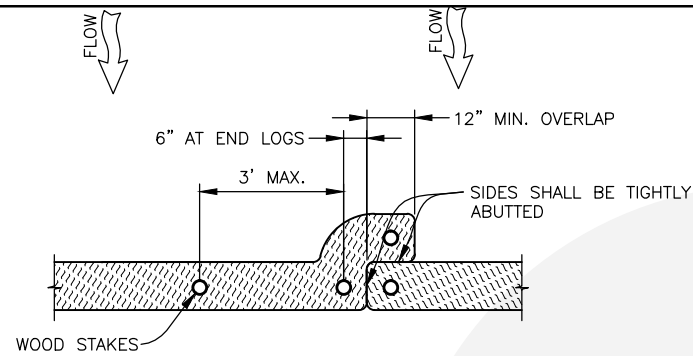
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



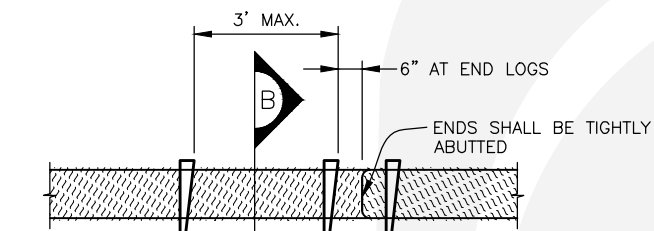
**GESC** GRADING, EROSION, AND SEDIMENT CONTROL

**GESC PLAN STANDARD NOTES AND DETAILS**

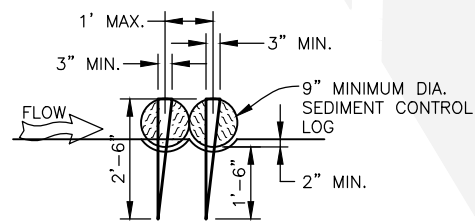
**SHEET 8 OF 14**



**PLAN**  
SCALE: 1/2" = 1'-0"



**ELEVATION**  
SCALE: 1/2" = 1'-0"



**SECTION B**  
SCALE: 1/2" = 1'-0"

**SEDIMENT CONTROL LOG INSTALLATION NOTES**

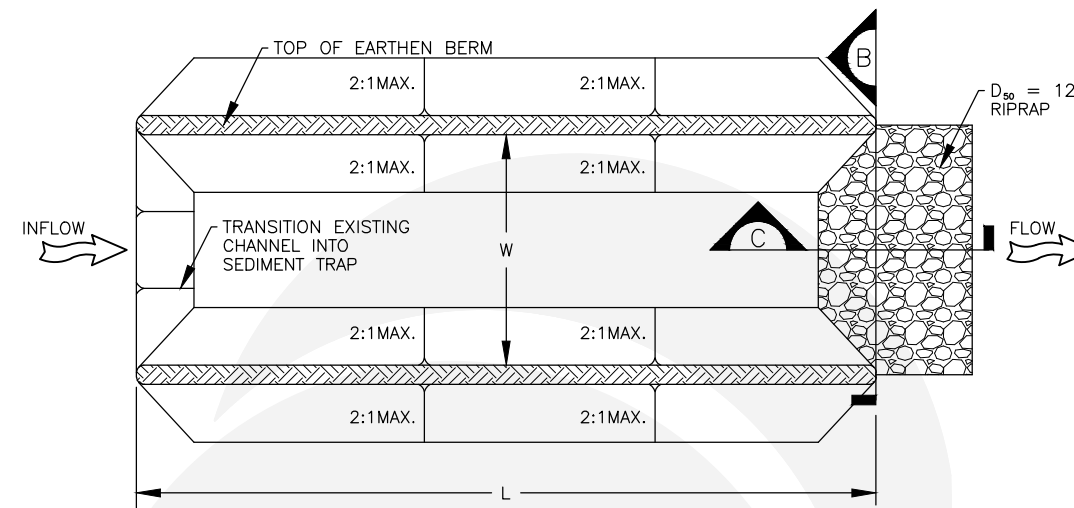
1. SEE PLAN VIEW FOR:  
- LOCATION AND LENGTH OF SEDIMENT CONTROL LOG.
2. SEDIMENT CONTROL LOGS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR, OR COCONUT FIBER.
4. NOT FOR USE IN CONCENTRATED FLOW AREAS.
5. THE SEDIMENT CONTROL LOG SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 2".

**SEDIMENT CONTROL LOG MAINTENANCE NOTES**

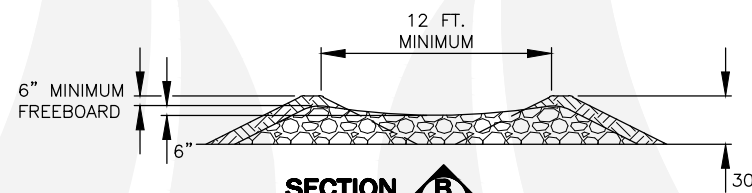
1. THE GESC MANAGER SHALL INSPECT SEDIMENT CONTROL LOGS DAILY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOGS SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN 1/2 THE HEIGHT OF THE CREST OF LOG.
3. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.



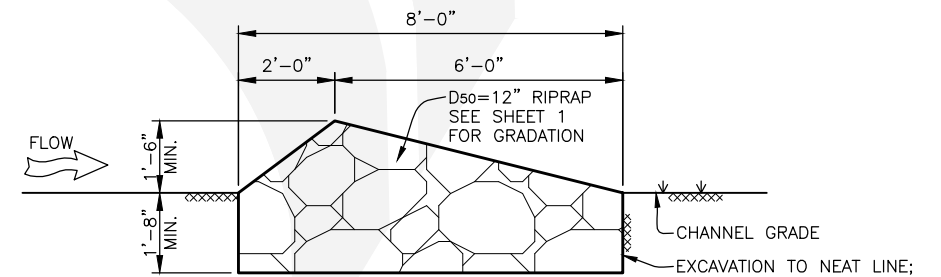
**SCL SEDIMENT CONTROL LOG 15**



**PLAN**  
SCALE: 1" = 5'-0"



**SECTION B**  
SCALE: 1" = 5'-0"



**SECTION C**  
SCALE: 1/2" = 1'-0"

**SEDIMENT TRAP INSTALLATION NOTES**

1. SEE PLAN VIEW FOR:  
- LOCATION, LENGTH AND WIDTH OF SEDIMENT TRAP.
2. SEDIMENT TRAPS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
3. SEDIMENT TRAP BERM SHALL BE CONSTRUCTED FROM MATERIAL FROM EXCAVATION. THE BERM SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
4. RIPRAP OUTLET SHALL BE CONSTRUCTED WITH D<sub>50</sub>=12" RIPRAP WITH A MINIMUM OVERFLOW OF 6".
5. THE TOP OF THE EARTHEN BERM SHALL BE A MINIMUM OF 6" HIGHER THAN THE TOP OF THE RIPRAP OUTLET STRUCTURE.
6. THE ENDS OF THE RIPRAP OUTLET STRUCTURE SHALL BE MINIMUM OF 6" HIGHER THAN THE CENTER OF THE OUTLET STRUCTURE.

**SEDIMENT TRAP MAINTENANCE NOTES**

1. THE GESC MANAGER SHALL INSPECT SEDIMENT TRAPS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF RIPRAP SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN 1/2 THE HEIGHT OF THE RIPRAP OUTLET STRUCTURE.
3. SEDIMENT TRAPS SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVERAGE IS APPROVED BY THE COUNTY.
4. WHEN SEDIMENT TRAPS ARE REMOVED THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR STABILIZED IN A MANNER APPROVED BY THE COUNTY.



**ST**

**SEDIMENT TRAP**

**16**

Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



**GESC GRADING, EROSION, AND SEDIMENT CONTROL**

**GESC PLAN STANDARD NOTES AND DETAILS**

**SHEET 9 OF 14**

**SEEDING AND MULCHING INSTALLATION NOTES**

1. SEE PLAN VIEW FOR:
  - AREA OF SEEDING AND MULCHING.
  - TYPE OF SEED MIX (PERMANENT, TEMPORARY, OR LOW-GROWTH).
2. ALL BRANDS FURNISHED SHALL BE FREE FROM SUCH NOXIOUS SEEDS AS RUSSIAN OR CANADIAN THISTLE, COARSE FESCUE, EUROPEAN BINDWEED, JOHNSON GRASS, KNAP WEED AND LEAFY SPURGE.
3. THE SEEDER SHALL FURNISH TO THE CONTRACTOR A SIGNED STATEMENT CERTIFYING THAT THE SEED FURNISHED IS FROM A LOT THAT HAS BEEN TESTED BY A RECOGNIZED LABORATORY. SEED WHICH HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED IN TRANSIT OR IN STORAGE WILL NOT BE ACCEPTABLE. SEED TICKETS SHALL BE PROVIDED TO DOUGLAS COUNTY UPON REQUEST.
4. DRILL SEEDING MIX SHALL CONFORM TO THE TABLE ON THE RIGHT:
5. IF THE SEED AVAILABLE ON THE MARKET DOES NOT MEET THE MINIMUM PURITY AND GERMINATION PERCENTAGES SPECIFIED, THE SUBCONTRACTOR MUST COMPENSATE FOR A LESSER PERCENTAGE OF PURITY OR GERMINATION BY FURNISHING SUFFICIENT ADDITIONAL SEED TO EQUAL THE SPECIFIED PRODUCT. THE TAGS FROM THE SEED MIXES MUST BE SUPPLIED TO THE CONTRACTOR AND FORWARDED TO THE DOUGLAS COUNTY EROSION CONTROL INSPECTOR.
6. THE FORMULA USED FOR DETERMINING THE QUANTITY OF PURE LIVE SEED (PLS) SHALL BE (POUNDS OF SEED) X (PURITY) X (GERMINATION) = POUNDS OF PURE LIVE SEED (PLS).
7. PERMANENT SEED MIX SHALL BE USED UNLESS OTHERWISE APPROVED BY THE COUNTY.
8. ALL AREAS TO BE SEEDDED AND MULCHED SHALL HAVE NATIVE TOPSOIL OR APPROVED SOIL AMENDMENTS SPREAD TO A DEPTH OF AT LEAST 6 INCHES (LOOSE DEPTH). HAUL ROADS AND OTHER COMPACTED AREAS SHALL BE LOOSENESED TO A DEPTH OF 6 INCHES PRIOR TO SPREADING TOPSOIL.
9. SOIL IS TO BE THOROUGHLY LOOSENESED (TILLED) TO A DEPTH OF AT LEAST 6 INCHES PRIOR TO SEEDING. THE TOP 6 INCHES OF THE SEED BED SHALL BE FREE OF ROCKS GREATER THAN 4 INCHES AND SOIL CLODS GREATER THAN 2 INCHES. SEEDING OVER ANY COMPACTED AREAS THAT HAVEN'T BEEN THOROUGHLY LOOSENESED SHALL BE REJECTED.
10. SEED IS TO BE APPLIED USING A MECHANICAL DRILL TO A DEPTH NOT LESS THAN 1/4 INCH AND NOT MORE THAN 3/4 INCH. ROW SPACING SHALL BE NO MORE THAN 6 INCHES. MATERIAL USED FOR MULCH SHALL CONSIST OF LONG-STEMMED STRAW. AT LEAST 50 PERCENT OF THE MULCH, BY WEIGHT, SHALL BE 10 INCHES OR MORE IN LENGTH. MULCH SHALL BE APPLIED AND MECHANICALLY ANCHORED TO A DEPTH OF AT LEAST 2 INCHES. MULCH SHALL BE APPLIED AT A RATE OF 4000 LB. OF STRAW PER ACRE.
11. IF THE PERMITEE DEMONSTRATES TO THE COUNTY THAT IT IS NOT POSSIBLE TO DRILL SEED, SEED IS TO BE UNIFORMLY BROADCAST AT TWO TIMES THE DRILLED RATE, THEN LIGHTLY HARROWED TO PROVIDE A SEED DEPTH OF APPROXIMATELY 1/4 INCH, THEN ROLLED TO COMPACT, THEN MULCHED AS SPECIFIED ABOVE.
12. SEEDING AND MULCHING SHALL BE COMPLETED WITHIN 30 DAYS OF INITIAL EXPOSURE OR 14 DAYS AFTER GRADING IS SUBSTANTIALLY COMPLETE IN A GIVEN AREA (AS DEFINED BY THE COUNTY). THIS MAY REQUIRE MULTIPLE MOBILIZATIONS FOR SEEDING AND MULCHING.
13. MULCH SHALL BE APPLIED WITHIN 24-HOURS OF SEEDING.
14. TACKIFIER SHOULD BE UTILIZED TO HELP WITH STRAW DISPLACEMENT.

**SEEDING AND MULCHING MAINTENANCE NOTES**

1. SEEDDED AND MULCHED AREAS SHALL BE INSPECTED FOR REQUIRED COVERAGE MONTHLY FOR A PERIOD OF TWO YEARS FOLLOWING INITIAL SEEDING. REPAIRS AND RE-SEEDING AND MULCHING SHALL BE UNDERTAKEN AFTER THE FIRST GROWING SEASON FOR ANY AREAS FAILING TO MEET THE REQUIRED COVERAGE.
2. REQUIRED COVERAGE FOR STANDARD, OPEN SPACE AND LOW GROWTH SEED MIXES SHALL BE DEFINED AS FOLLOWS:
  1. THREE (3) PLANTS PER SQUARE FOOT WITH A MINIMUM HEIGHT OF 3 INCHES. THE 3 PLANTS PER SQUARE FOOT SHALL BE OF THE VARIETY AND SPECIES FOUND IN THE DOUGLAS COUNTY-APPROVED MIX.
  2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO- FEET BY TWO- FEET OR EQUIVALENT).
  3. FREE OF ERODED AREAS.
  4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC MANUAL.
3. REQUIRED COVERAGE FOR TURF GRASS AREAS SHALL BE DEFINED AS FOLLOWS:
  1. AT LEAST 80% VEGETATIVE COVER OF GRASS SPECIES PLANTED.
  2. NO BARE AREAS LARGER THAN 4 SQUARE FEET (TWO- FEET BY TWO- FEET OR EQUIVALENT).
  3. FREE OF ERODED AREAS.
  4. FREE FROM INFESTATION OF NOXIOUS WEEDS IN ACCORDANCE WITH SECTION 6.4 OF THE GESC MANUAL.
4. RILL AND GULLY EROSION SHALL BE FILLED WITH TOPSOIL PRIOR TO RESEEDING. THE RESEEDING METHOD SHALL BE APPROVED BY THE COUNTY.

**DOUGLAS COUNTY PERMANENT DRILL SEEDING MIX**

SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
BIG BLUESTEM	KAW	PNWS	10	1.1
YELLOW INDIANGRASS	CHEYENNE	PNWS	10	1
SWITCHGRASS	BLACKWELL	PNWS	10	0.4
SIDEOATS GRAMA	VAUGHN	PNWB	10	0.9
WESTERN WHEATGRASS	ARRIBA	PNCS	10	1.6
BLUE GRAMA	HACHITA	PNWB	10	0.3
THICKSPIKE WHEATGRASS	CRITANA	PNCS	10	1
PRAIRIE SANDREED	GOSHEN	PNWS	10	0.7
GREEN NEEDLEGRASS	LODORM	PNCB	10	1
SLENDER WHEATGRASS	PRYOR	PNCB	5	0.6
STREAMBANK WHEATGRASS	SODAR	PNCS	5	0.6
TOTAL				9.2

**DOUGLAS COUNTY TEMPORARY DRILL SEEDING MIX**

SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
SMOOTH BROMEGRASS	LINCOLN	PICS	30	3.9
INTERMEDIATE WHEATGRASS	OAHE	PICS	30	4.5
PUBESCENT WHEATGRASS	LUNA	PICS	30	4.2
ANNUAL RYEGRASS	N/A	AICB	10	0.8
TOTAL				13.4

**DOUGLAS COUNTY LOW-GROWTH DRILL SEEDING MIX**

SPECIES	VARIETY	NOTES	% IN MIX	POUNDS OF PLS PER ACRE
BUFFALOGRASS	TEXOKA	PNWS	20	3.2
BLUE GRAMA	HACHITA	PNWB	20	0.6
WESTERN WHEATGRASS	ARRIBA	PNCS	20	3.2
SIDEOATS GRAMA	VAUGHN	PNWB	20	1.8
THICKSPIKE WHEATGRASS	CRITANA	PNCS	10	1
STREAMBANK WHEATGRASS	SODAR	PNCS	10	1.2
TOTAL				11.0

NOTES:  
 P=PERENNIAL  
 A=ANNUAL  
 N=NATIVE  
 I=INTRODUCED  
 W=WARM SEASON  
 C=COOL SEASON  
 S=SOD FORMER  
 B=BUNCHGRASS



**SM SEEDING AND MULCHING 17**

Sheet Revisions		
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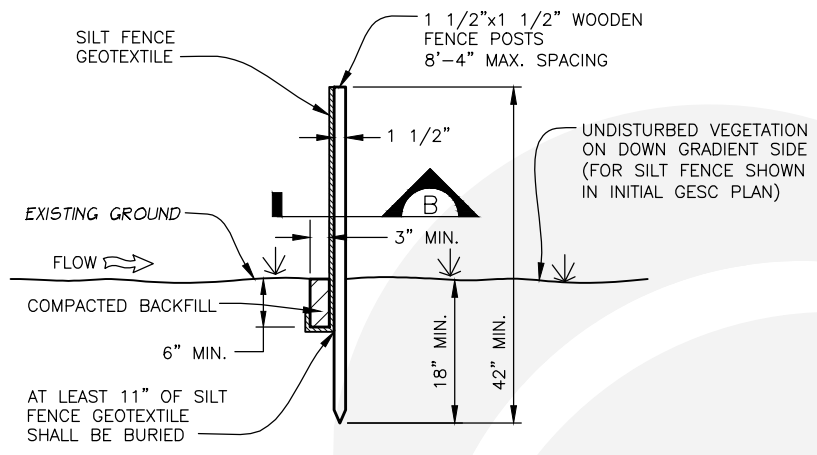
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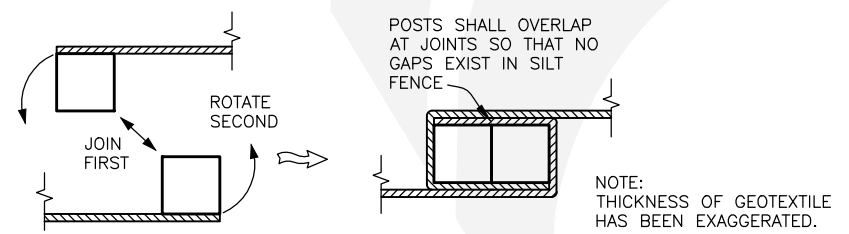
**GESC GRADING, EROSION, AND SEDIMENT CONTROL**

**GESC PLAN STANDARD NOTES AND DETAILS**

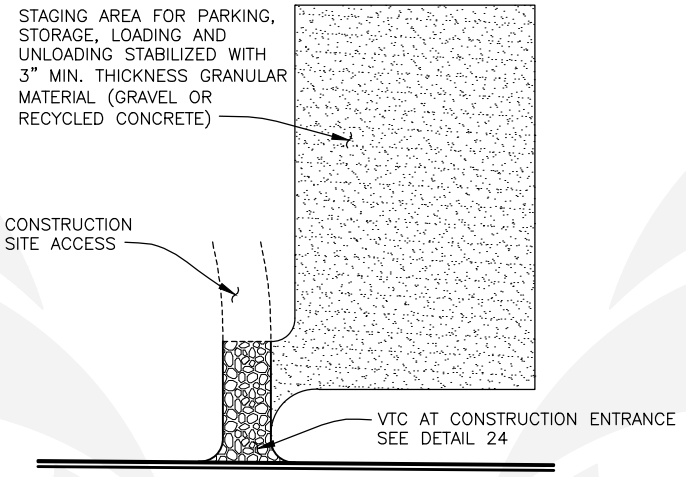
**SHEET 10 OF 14**



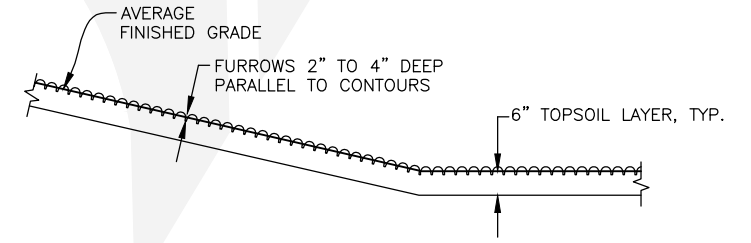
**ELEVATION**  
SCALE: 1" = 1'-0"



**JOINTS - SECTION B**  
SCALE: N.T.S.



**PLAN**  
SCALE: 1" = 40'-0"



**ELEVATION**  
SCALE: 1/2" = 1'-0"

**STABILIZED STAGING AREA INSTALLATION NOTES**

1. SEE PLAN VIEW FOR GENERAL LOCATION OF STAGING AREA. CONTRACTOR MAY MODIFY LOCATION AND SIZE OF STABILIZED STAGING AREA WITH COUNTY APPROVAL.
2. STABILIZED STAGING AREA SHALL BE LARGE ENOUGH TO FULLY CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
3. IF REQUIRED BY THE COUNTY, SITE ACCESS ROADS SHALL BE STABILIZED IN THE SAME MANNER AS THE STAGING AREA.
4. STAGING AREA SHALL BE STABILIZED PRIOR TO ANY OTHER OPERATIONS ON THE SITE.
5. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM OF 3" OF GRANULAR MATERIAL (GRAVEL OR RECYCLED CONCRETE).

**STABILIZED STAGING AREA MAINTENANCE NOTES**

1. THE GESC MANAGER SHALL INSPECT THE STABILIZED STAGING AREA WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. GESC MANAGER SHALL PROVIDE ADDITIONAL THICKNESS OF GRANULAR MATERIAL IF ANY RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.
3. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
4. ANY ACCUMULATED DIRT OR MUD SHALL BE REMOVED FROM THE SURFACE OF THE STABILIZED STAGING AREA.
5. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE COUNTY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

**SURFACE ROUGHENING INSTALLATION NOTES**

1. SURFACE ROUGHENING SHALL BE PROVIDED ON ALL FINISHED GRADES (SLOPES AND "FLAT" AREAS) WITHIN 2 DAYS OF COMPLETION OF FINISHED GRADE (FOR AREAS NOT RECEIVING TOPSOIL) OR WITHIN 2 DAYS OF TOPSOIL PLACEMENT.
2. AREAS WHERE BUILDING FOUNDATIONS, PAVEMENT, OR SOD IS TO BE PLACED WITHIN 7-DAYS OF FINISHED GRADING DO NOT NEED TO BE SURFACE ROUGHENED.
3. DISTURBED SURFACES SHALL BE ROUGHENED USING RIPPING OR TILLING EQUIPMENT ON THE CONTOUR OR TRACKING UP AND DOWN A SLOPE USING EQUIPMENT TREADS.

**SURFACE ROUGHENING MAINTENANCE NOTES**

1. THE GESC MANAGER SHALL INSPECT THE SURFACE ROUGHENING WEEKLY, DURING AND AFTER ANY STORM EVENT, AND MAKE REPAIRS.
2. VEHICLES AND EQUIPMENT SHALL GENERALLY BE CONFINED TO ACCESS DRIVES AND SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.
3. IN NON-TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE.
4. IN AREAS NOT SEEDED AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER ANY RILL EROSION.

**SILT FENCE INSTALLATION NOTES**

1. SEE PLAN VIEW FOR:
  - LOCATION AND LENGTH OF FENCE.
2. ANCHOR TRENCH SHALL BE EXCAVATED WITH TRENCHER, OR WITH SILT FENCE INSTALLATION MACHINE; NO ROAD GRADERS, BACKHOES, ETC. SHALL BE USED. TRENCH SHALL BE COMPACTED BY HAND, WITH "JUMPING JACK", OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
3. SILT FENCE GEOTEXTILE SHALL MEET THE FOLLOWING REQUIREMENTS:
  - 6-TO 12-GALLONS PER MINUTE PER SQUARE FOOT FLOW CAPACITY.
  - 90 LB. TENSILE STRENGTH PER ASTM D4622.
  - UV DESIGN AT 500 HRS MIN. 70% STRENGTH RETAINED PER ASTM D4355.
4. SILT FENCE INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.

**SILT FENCE MAINTENANCE NOTES**

1. THE GESC MANAGER SHALL INSPECT SILT FENCE DAILY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT REACHES A DEPTH OF 6-INCHES.
3. SILT FENCE SHALL BE REMOVED WHEN THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED BY THE COUNTY. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.



Sheet Revisions		
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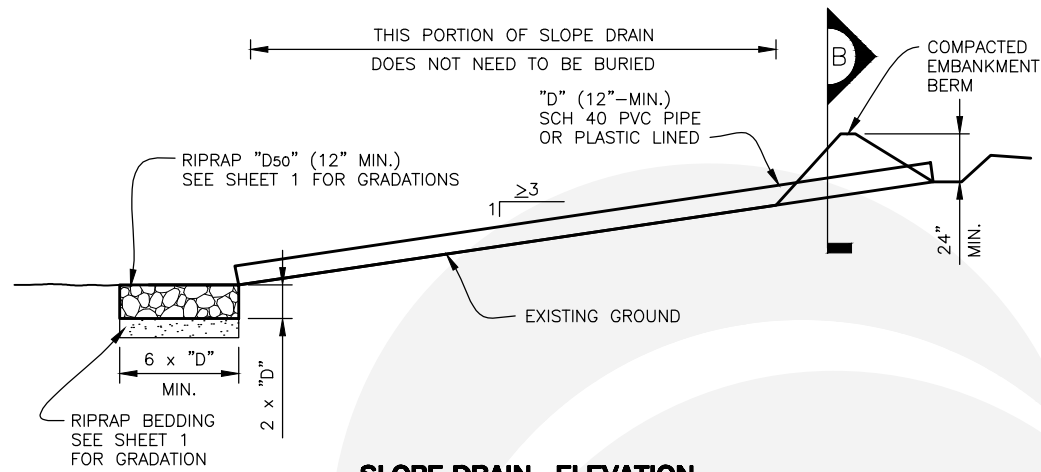
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



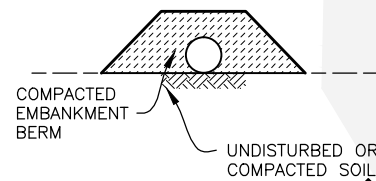
**GESC** GRADING, EROSION, AND SEDIMENT CONTROL

**GESC PLAN**  
STANDARD NOTES  
AND DETAILS

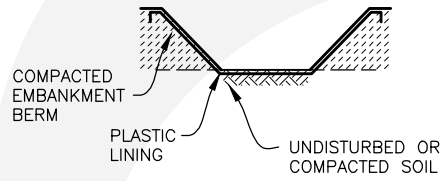
**SHEET**  
11 OF 14



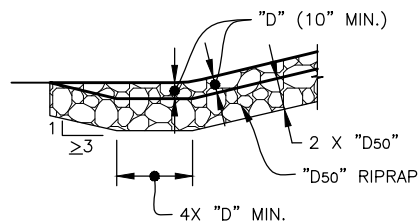
**SLOPE DRAIN - ELEVATION**  
SCALE: 1" = 5'-0"



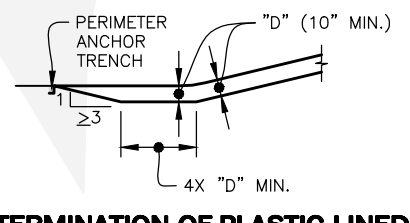
**SLOPE DRAIN - SECTION**  
SCALE: 1" = 5'-0"



**PLASTIC LINED DRAIN - OPTION**  
SCALE: 1" = 5'-0"



**TERMINATION OF RIPRAP LINED SLOPE DRAIN**  
SCALE: 1" = 5'-0"



**TERMINATION OF PLASTIC LINED SLOPE DRAIN**  
SCALE: 1" = 5'-0"

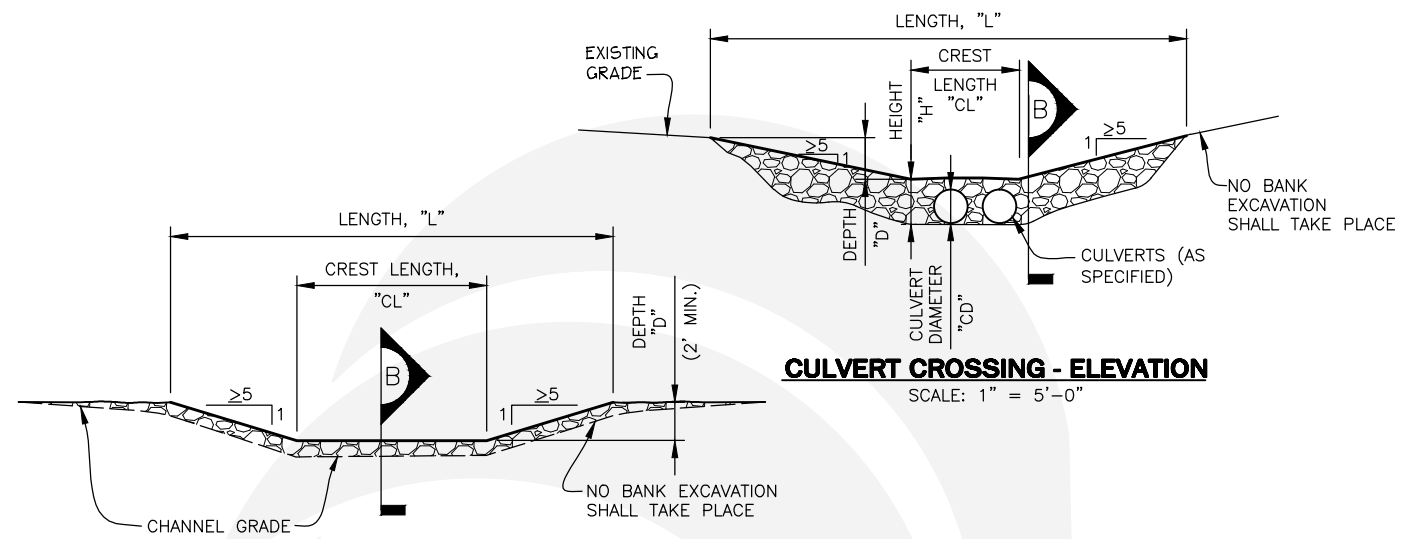
**SLOPE DRAIN INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATION AND LENGTH OF SLOPE DRAIN.
  - PIPE DIAMETER, "D", AND RIPRAP SIZE, "D<sub>50</sub>".
- SLOPE DRAIN DIMENSIONS SHALL BE CONSIDERED MINIMUM DIMENSIONS; CONTRACTOR MAY ELECT TO INSTALL LARGER FACILITIES. ANY DAMAGE TO SLOPE OR SLOPE DRAIN DURING RUNOFF EVENTS SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- SLOPE DRAINS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY UPSTREAM LAND-DISTURBING ACTIVITIES.
- FOR TEMPORARY SLOPE DRAINS, PIPE MAY BE INSTALLED ON TOP OF SLOPE; HOWEVER, 12" MIN. COVER AT TOP OF SLOPE SHALL BE PROVIDED.
- A RIPRAP PAD SHALL BE PLACED AT THE OUTFALL OF THE SLOPE DRAIN.

**SLOPE DRAIN MAINTENANCE NOTES**

- THE GESC MANAGER SHALL INSPECT SLOPE DRAINS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS AS NECESSARY.
- TEMPORARY SLOPE DRAINS ARE TO REMAIN IN PLACE UNTIL NO LONGER NEEDED, BUT SHALL BE REMOVED PRIOR TO THE END OF CONSTRUCTION. WHEN SLOPE DRAINS ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

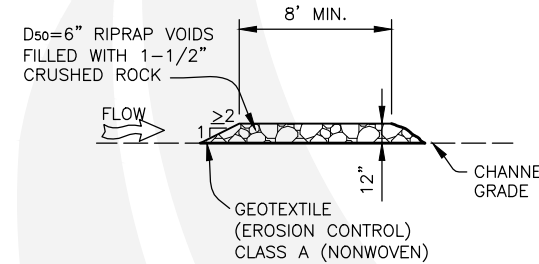
**TSD** TEMPORARY SLOPE DRAIN **21**



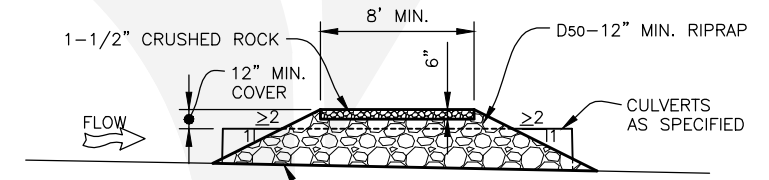
**CULVERT CROSSING - ELEVATION**  
SCALE: 1" = 5'-0"



**FORD CROSSING - ELEVATION**  
SCALE: 1" = 5'-0"



**FORD CROSSING - SECTION**  
SCALE: 1" = 5'-0"



**CULVERT CROSSING - SECTION**  
SCALE: 1" = 5'-0"

**TEMPORARY STREAM CROSSING INSTALLATION NOTES**

- SEE PLAN VIEW FOR:
  - LOCATIONS OF TEMPORARY STREAM CROSSING.
  - STREAM CROSSING TYPE (FORD OR CULVERT).
  - FOR FORD CROSSING: LENGTH, "L", CREST LENGTH, "CL", AND DEPTH, "D".
  - FOR CULVERT CROSSING : LENGTH, "L", CREST LENGTH, "CL", CROSSING HEIGHT, "H", DEPTH, "D", CULVERT DIAMETER, "CD", AND NUMBER, TYPE AND CLASS OR GAUGE OF CULVERTS.
- TEMPORARY STREAM CROSSING DIMENSIONS, D50, AND NUMBER OF CULVERTS INDICATED (FOR CULVERT CROSSING) SHALL BE CONSIDERED MINIMUM DIMENSIONS; ENGINEER MAY ELECT TO INSTALL LARGER FACILITIES. ANY DAMAGE TO STREAM CROSSING OR EXISTING STREAM CHANNEL DURING BASEFLOW OR FLOOD EVENTS SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- SEE SHEET 14 FOR RIPRAP AND 1-1/2" CRUSHED ROCK GRADATIONS.
- FOR A TEMPORARY STREAM CROSSING THAT WILL CARRY LOADS, THE TEMPORARY STREAM CROSSING MUST BE DESIGNED BY THE DESIGN ENGINEER.

**TEMPORARY STREAM CROSSING MAINTENANCE NOTES**

- THE GESC MANAGER SHALL INSPECT STREAM CROSSINGS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
- SEDIMENT ACCUMULATED UPSTREAM OF STREAM CROSSINGS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF CROSSING IS WITHIN 6-INCHES OF THE CREST (FORD CROSSING) OR GREATER THAN AN AVERAGE DEPTH OF 12-INCHES (CULVERT CROSSING).
- STREAM CROSSINGS ARE TO REMAIN IN PLACE UNTIL NO LONGER NEEDED, BUT SHALL BE REMOVED PRIOR TO THE END OF CONSTRUCTION.
- WHEN STREAM CROSSINGS ARE REMOVED, THE DISTURBED AREA SHALL BE DRILL SEEDED AND CRIMP MULCHED AND COVERED WITH EROSION CONTROL BLANKET OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

**TSC** TEMPORARY STREAM CROSSING **22**

Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

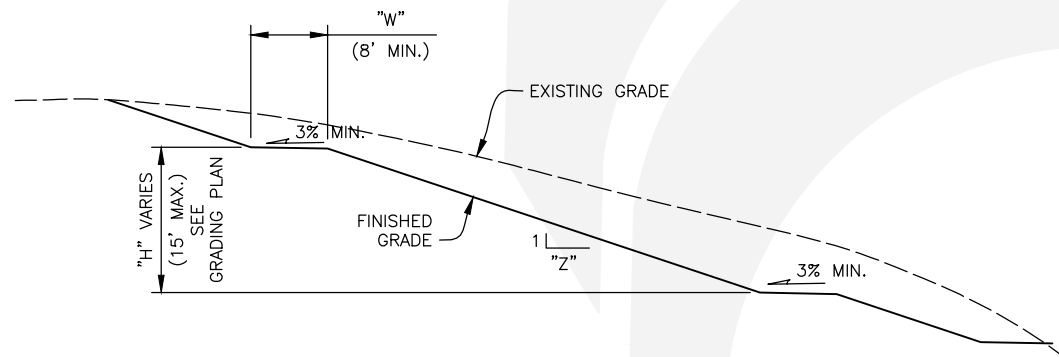
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



**GESC** GRADING, EROSION, AND SEDIMENT CONTROL

**GESC PLAN STANDARD NOTES AND DETAILS**

**SHEET 12 OF 14**



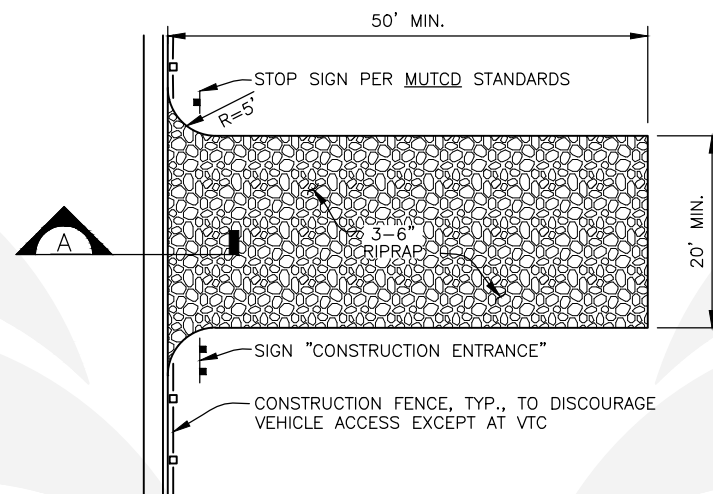
**ELEVATION**  
SCALE: 1/2" = 1'-0"

**TERRACING INSTALLATION NOTES**

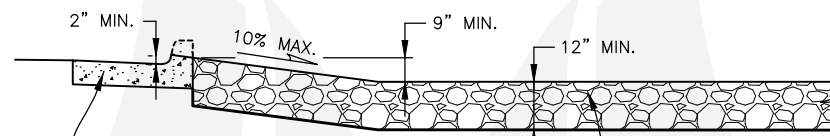
- SEE PLAN VIEW FOR:  
- WIDTH, "W", AND SLOPE, "Z".
- TERRACING IS NOT REQUIRED FOR SLOPES OF 4 TO 1 OR FLATTER.
- EARTH (VEGETATED) SLOPES STEEPER THAN 3 TO 1 ARE NOT ALLOWED ON THE SITE.

**TERRACING MAINTENANCE NOTES**

- THE GESC MANAGER SHALL INSPECT THE TERRACING WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
- ANY RILL EROSION OCCURRING ON SLOPES SHALL BE REPAIRED AND RESEEDED AND MULCHED IN ACCORDANCE WITH DETAIL 17.



**PLAN**  
SCALE: 1" = 10'-0"



NO MATERIAL INCLUDING WOOD, PIPES, GRAVEL, OR ASPHALT, SHALL BE PLACED IN GUTTER TO FACILITATE MOUNTING CURB; HOWEVER, CURB MAY BE CUT DOWN TO A HEIGHT OF 2" OR HIGHER FOR EASIER ACCESS AND REPLACED AT PROJECT COMPLETION WITH A DOUGLAS COUNTY RIGHT-OF-WAY USE AND CONSTRUCTION PERMIT; DOUGLAS COUNTY TEMPORARY CONSTRUCTION ACCESS PERMIT IS REQUIRED FOR ALL VTCs

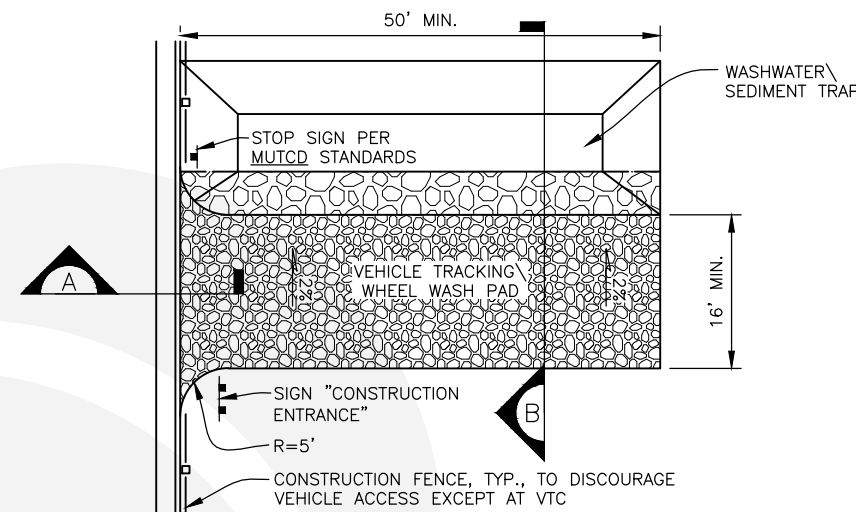
**SECTION A**  
SCALE: 1/2" = 1'-0"

**VEHICLE TRACKING CONTROL INSTALLATION NOTES**

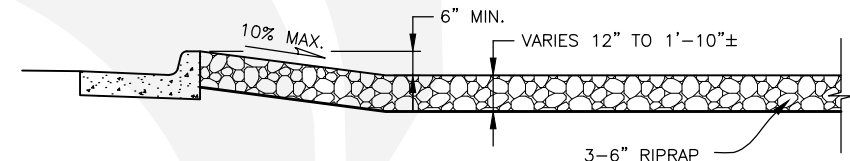
- VEHICLE TRACKING CONTROL PADS SHALL BE INSTALLED AT EVERY ACCESS POINT TO SITE.
- VEHICLE TRACKING CONTROL PADS SHALL CONSIST OF HARD, DENSE, DURABLE STONE, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE OR BOULDERS WILL NOT BE ACCEPTABLE. THE STONES SHALL BE 3" WITH A MAXIMUM SIZE OF 6". THE STONE SHALL HAVE A SPECIFIC GRAVITY OF AT LEAST 2.6. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTIONS.
- ANY CRACKED OR DAMAGED CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED BY PERMITTEE.
- A DOUGLAS COUNTY TEMPORARY CONSTRUCTION ACCESS PERMIT IS REQUIRED FOR EACH POINT ONTO DOUGLAS COUNTY R.O.W.
- A STOP SIGN INSTALLED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED, SHALL BE INSTALLED FOR EXITING TRAFFIC AT THE VTC.

**VEHICLE TRACKING CONTROL MAINTENANCE NOTES**

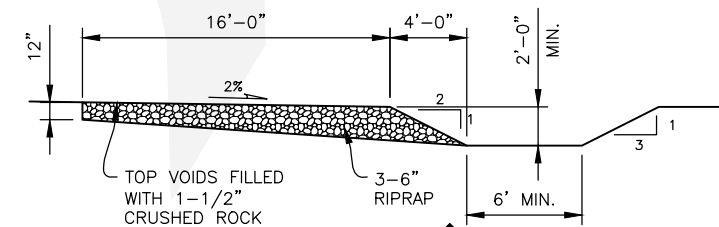
- GESC MANAGER SHALL INSPECT VEHICLE TRACKING CONTROL DAILY. GRAVEL SURFACE SHALL BE CLEAN AND LOOSE ENOUGH TO RUT SLIGHTLY UNDER WHEEL LOADS AND CAUSE LOOSE GRAVEL TO DISLODGE MUD FROM TIRES. WHEN GRAVEL BECOMES COMPACTED OR FILLED WITH SEDIMENT SO THAT THE EFFECTIVENESS OF THE PAD IS DIMINISHED, CONTRACTOR SHALL RIP, TURN OVER, OR OTHERWISE LOOSEN GRAVEL, PLACE ADDITIONAL NEW GRAVEL, OR REPLACE WITH NEW GRAVEL AS NECESSARY TO RESTORE EFFECTIVENESS.
- VEHICLE TRACKING CONTROL SHALL BE REMOVED AT THE END OF CONSTRUCTION, THE GRAVEL MATERIAL REMOVED OR, IF APPROVED BY THE COUNTY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.



**PLAN**  
SCALE: 1" = 10'-0"



**SECTION A**  
SCALE: 1/2" = 1'-0"



**SECTION B**  
SCALE: 1" = 5'-0"

**VEHICLE TRACKING CONTROL WITH WHEEL WASH INSTALLATION NOTES**

- ALTHOUGH NOT NORMALLY USED, THE COUNTY RESERVES THE RIGHT TO REQUIRE VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES AT SITES WHERE TRACKING ONTO PAVED AREAS BECOMES A SIGNIFICANT PROBLEM.
- IF VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES ARE REQUIRED, ALL WHEELS ON EVERY VEHICLE LEAVING THE SITE SHALL BE CLEANED OF MUD USING A PRESSURE-WASHER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A WATER SOURCE.
- VEHICLE TRACKING CONTROL PADS SHALL CONSIST OF HARD, DENSE, DURABLE STONE, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE OR BOULDERS WILL NOT BE ACCEPTABLE. THE STONES SHALL BE 3" WITH A MAXIMUM SIZE OF 6". THE STONE SHALL HAVE A SPECIFIC GRAVITY OF AT LEAST 2.6. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTIONS.
- ANY CRACKED OR DAMAGED CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED BY CONTRACTOR.
- A STOP SIGN INSTALLED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED, SHALL BE INSTALLED FOR EXITING TRAFFIC AT THE VTC.

**VEHICLE TRACKING CONTROL WITH WHEEL WASH MAINTENANCE NOTES**

- GESC MANAGER SHALL INSPECT VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES DAILY. ACCUMULATED SEDIMENTS SHALL BE REMOVED FROM PAD SURFACE.
- ACCUMULATED SEDIMENT IN THE WASHWATER/SEDIMENT TRAP SHALL BE REMOVED WHEN THE SEDIMENT DEPTH REACHES AN AVERAGE OF 12-INCHES.
- VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITY SHALL BE REMOVED AT THE END OF CONSTRUCTION, THE RIPRAP MATERIAL REMOVED OR, IF APPROVED BY THE COUNTY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

**TER TERRACING 23**

**VTC VEHICLE TRACKING CONTROL 24**

**WW VTC WITH WHEEL WASH 25**

Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



**GESC GRADING, EROSION, AND SEDIMENT CONTROL**

**GESC PLAN STANDARD NOTES AND DETAILS**

**SHEET 13 OF 14**

## ROCK AND RIPRAP GRADATIONS

**TABLE 1. RIPRAP GRADATIONS**

D50 MEDIAN STONE SIZE (INCHES)	% OF MATERIAL SMALLER THAN TYPICAL STONE	TYPICAL STONE EQUIVALENT DIAMETER (INCHES)	TYPICAL STONE WEIGHT (POUNDS)
6	70 - 100	12	85
	50 - 70	9	35
	35 - 50	6	10
	2 - 10	2	0.4
9	70 - 100	15	160
	50 - 70	12	85
	35 - 50	9	35
	2 - 10	3	1.3
12	70 - 100	21	440
	50 - 70	18	275
	35 - 50	12	85
	2 - 10	4	3
18	100	30	1280
	50 - 70	24	650
	35 - 50	18	275
	2 - 10	6	10
24	100	42	3500
	50 - 70	33	1700
	35 - 50	24	650
	2 - 10	9	35

**TABLE 2. RIPRAP BEDDING**

SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	CLASS A
3"	100
1 1/2"	20 - 90
NO. 4	0 - 20
NO. 200	0 - 3

MATCHES SPECIFICATIONS FOR CDOT CLASS A FILTER MATERIAL AND UDFCD TYPE 1 BEDDING. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.

**TABLE 3. 1 1/2" CRUSHED ROCK**

SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	NO. 4
2"	100
1 1/2"	90 - 100
1"	20 - 55
3/4"	0 - 15
3/8"	0 - 5

MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.

Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

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**GESC** GRADING, EROSION, AND SEDIMENT CONTROL

**GESC PLAN STANDARD NOTES AND DETAILS**

**SHEET 14 OF 14**

TABULATION OF SIGNING AND STRIPING QUANTITIES

ITEM NO.	ITEM DESCRIPTION	UNITS	QUANTITY
202-00810	REMOVAL OF GROUND SIGN	EACH	3
202-00821	REMOVAL OF SIGN PANEL	EACH	3
210-00815	RESET SIGN PANEL	EACH	3
612-00001	DELINEATOR (TYPE I)	EACH	6
614-00011	SIGN PANEL (CLASS I)	SF	123
614-00012	SIGN PANEL (CLASS II)	SF	58
614-00216	STEEL SIGN POST (2 X 2 INCH TUBING)	LF	123
627-00011	PAVEMENT MARKING PAINT (WATERBORNE)	GAL	47
627-40010	METHYL METHACRYLATE PAVEMENT MARKING (WORD SYMBOL)	SF	290
627-40011	METHYL METHACRYLATE PAVEMENT MARKING (X WALK STOP LINE)	SF	736

NOTES:

- ALL SIGNAGE AND STRIPING FOR PUBLIC AND/OR PRIVATE ROADWAYS, WALKWAYS OR BICYCLE TRAILS OPEN TO PUBLIC TRAVEL SHALL CONFORM TO THE MOST RECENT VERSION OF THE FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE COLORADO SUPPLEMENTAL MUTCD, AND THE DOUGLAS COUNTY SIGNAGE AND STRIPING SUPPLEMENT.
- ALL STREET NAMES SHOWN ARE FOR INFORMATION ONLY. FOR ACCEPTED STREET NAMES, REFER TO THE RECORDED FINAL PLAT FOR THIS SUBDIVISION.
- STRIPING MATERIAL WILL BE:  
LONG LINE: WATERBORNE PAINT PER CDOT SPECIFICATIONS.  
ARROW LEGEND: METHYL-METHACRYLATE
- ALL PAVEMENT MARKINGS ARE SUBJECT TO MATERIAL CHANGES DUE TO SEASON AND/OR WEATHER. TEMPORARY MARKING MATERIALS MAY BE REQUIRED. SPECIFIED FINAL PAVEMENT MARKING MATERIALS SHALL BE INSTALLED WHEN SEASON/WEATHER ALLOW.
- ALL SIGNS INSTALLED IN RAISED MEDIANS (OR IN CONCRETE) SHALL BE INSTALLED USING THE KLEEN BREAK MODEL 425 ANCHORS AND COUPLERS FROM XCESSORIES SQUARED DEVELOPMENT AND MANUFACTURING INC.
- KLEEN BREAK MODEL 425 ANCHORS ALSO NEED TO BE INSTALLED PER XCESSORIES SQUARED DEVELOPMENT AND MANUFACTURING INC, DRAWING # XKB425-20-CI "SQUARE POST SIGN SUPPORT INSTALLATION INSTRUCTIONS" AT THE TIME OF ISLAND CONSTRUCTION FOR ALL KNOWN FUTURE SIGNS.

TABULATION OF TRAFFIC SIGNS

SIGN NO.	PLAN SHEET	SIGN CODE	SIGN PANEL SIZE W" x H"	BACKGROUND COLOR	REMARKS	SIGN PANEL (SF)			REMOVAL OF GROUND SIGN EACH	REMOVAL OF SIGN PANEL EACH	RESET SIGN PANEL EACH	614-00216 Steel Sign Post (2x2 Inch Tubing) LF
						CLASS I 614-00011	CLASS II 614-00012	CLASS III 614-00013				
1	SS-1	W6-3	36 x 36	YELLOW			9.0					11.0
2	SS-1	W1-4R	36 x 36	YELLOW			9.0					11.0
3A 3B 3C	SS-1	W2-4 W13-1 W16-8								1 1 1		
4	SS-2	W4-3	36 x 36	YELLOW			9.0					11.0
5	SS-2	R4-7						1				
6	SS-2	R10-6	24 x 36	WHITE			6.0					10.0
7	SS-2	R3-7R	30 x 30	WHITE			6.25					9.5
8A 8B	SS-2	W11-2 W16-7P	36 x 36 24 x 12	FL-Y-G FL-Y-G			9.0 2.0					11.0
9A 9B	SS-2	W11-2 W16-7P	36 x 36 24 x 12	FL-Y-G FL-Y-G			9.0 2.0					11.0
10	SS-2	R3-17	30 x 24	WHITE			5.0					9.0
11	SS-2	W4-3	36 x 36	YELLOW			9.0					11.0
12	SS-2	R3-7R	30 x 30	WHITE			6.25					9.5
13	SS-3	SPECIAL			BELFORD (RIGHT) GUIDE SIGN			1				
14	SS-3	R4-7	24 x 30	WHITE			5.00					9.5
15	SS-4	LANE USE SIGN						1				
16	SS-4	R3-7R	30 x 30	WHITE			6.25					9.5
A	TS-1	R3-5L	30 x 36		MOUNT ON MAST ARM		7.50					
B	TS-1	R3-5L	30 x 36		MOUNT ON MAST ARM		7.50					
C	TS-1	STREET NAME			RESET ONTO NEW SIGNAL POLE						1	
D	TS-1	R9-3a	24 x 24		MOUNT ON SIGNAL POLE		4.00					
E	TS-1	R3-5L	30 x 36		MOUNT ON MAST ARM		7.50					
F	TS-1	R3-5L	30 x 36		MOUNT ON MAST ARM		7.50					
G	TS-1	R3-5R	30 x 36		MOUNT ON MAST ARM		7.50					
H	TS-1	STREET NAME			RESET ONTO NEW SIGNAL POLE						1	
I	TS-1	R9-3a	24 x 24		MOUNT ON SIGNAL POLE		4.00					
J	TS-1	R3-5L	30 x 36		MOUNT ON MAST ARM		7.50					
K	TS-1	R3-5L	30 x 36		MOUNT ON MAST ARM		7.50					
L	TS-1	STREET NAME			RESET ONTO NEW SIGNAL POLE						1	
M	TS-1	R9-3a	24 x 24		MOUNT ON SIGNAL POLE		4.00					
N	TS-1	R9-3a	24 x 24		MOUNT ON SIGNAL POLE		4.00					
O	TS-1	R3-5L	30 x 36		MOUNT ON MAST ARM		7.50					
P	TS-1	STREET NAME	9 x 60		MOUNT ON SIGNAL POLE		3.75					
Q	TS-1	R9-3a	24 x 24		MOUNT ON SIGNAL POLE		4.00					
R	TS-1	R9-3a	24 x 24		MOUNT ON SIGNAL POLE		4.00					
TOTAL						123.0	58.0	0.0	3	3	3	123

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Print Date: 8/17/2016 10:18:47 PM		As Constructed		PEORIA & BELFORD INTERSECTION TABULATION OF SIGNING AND STRIPING QUANTITIES		Project No./Code
File Name: S115360-01TAB01.dwg		No Revisions:		Designer: DCS Detailer: JHH		
Horizontal Scale: NTS      Vertical Scale: NTS		Revised:		Structure Numbers		
 6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832	Sheet Revisions Date      Comments      Initials		Void:		Subset: TRAFFIC      Sheets: ST-1 of 1	Sheet Number 58

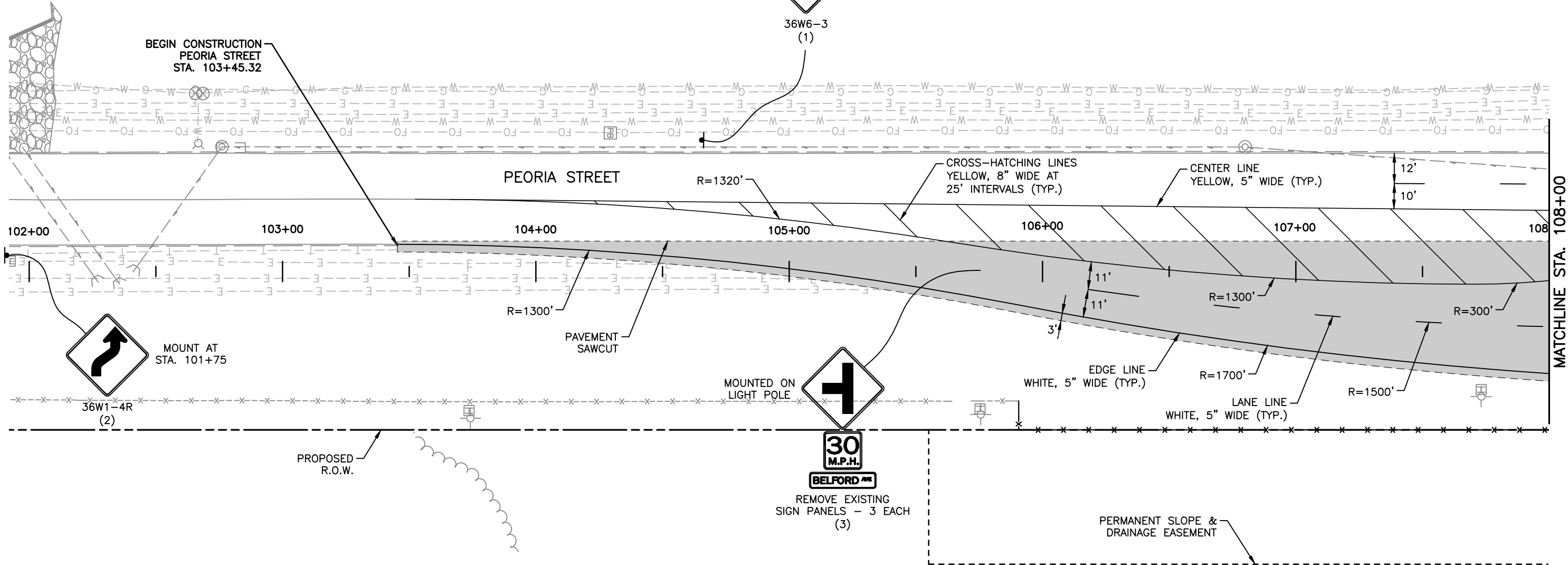


Know what's below.  
Call before you dig.



36W6-3  
(1)

BEGIN CONSTRUCTION  
PEORIA STREET  
STA. 103+45.32

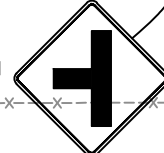


MOUNT AT  
STA. 101+75

36W1-4R  
(2)

PROPOSED  
R.O.W.

MOUNTED ON  
LIGHT POLE

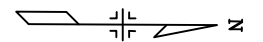


REMOVE EXISTING  
SIGN PANELS - 3 EACH  
(3)

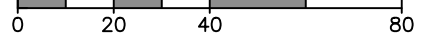
PERMANENT SLOPE &  
DRAINAGE EASEMENT

**LEGEND**

- TRENCH DRAIN
- FENCE BARBED WIRE WITH METAL POSTS
- MEDIAN COVER MATERIAL PATTERNED CONCRETE (4 INCH)
- LIMITS OF CONCRETE PAVEMENT (9 INCH)
- LIMITS OF HOT MIX ASPHALT (6 INCH)



HORIZONTAL SCALE: 1"=40'



**NOTES:**

1. UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
2. ALL SIGNAGE AND STRIPING FOR PUBLIC AND/OR PRIVATE ROADWAYS, WALKWAYS OR BICYCLE TRAILS OPEN TO PUBLIC TRAVEL SHALL CONFORM TO THE MOST RECENT VERSION OF THE FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE COLORADO SUPPLEMENTAL MUTCD, AND THE DOUGLAS COUNTY SIGNAGE AND STRIPING SUPPLEMENT.
3. ALL STREET NAMES SHOWN ARE FOR INFORMATION ONLY. FOR ACCEPTED STREET NAMES, REFER TO THE RECORDED FINAL PLAT FOR THIS SUBDIVISION.
4. STRIPING MATERIAL WILL BE:  
LONG LINE: WATERBORNE PAINT PER CDOT SPECIFICATIONS.  
ARROW LEGEND: METHYL-MYTHACRYLATE
5. ALL PAVEMENT MARKINGS ARE SUBJECT TO MATERIAL CHANGES DUE TO SEASON AND/OR WEATHER. TEMPORARY MARKING MATERIALS MAY BE REQUIRED. SPECIFIED FINAL PAVEMENT MARKING MATERIALS SHALL BE INSTALLED WHEN SEASON/WEATHER ALLOW.
6. ALL SIGNS INSTALLED IN RAISED MEDIANS (OR IN CONCRETE) SHALL BE INSTALLED USING THE KLEEN BREAK MODEL 425 ANCHORS AND COUPLERS FROM XCESSORIES SQUARED DEVELOPMENT AND MANUFACTURING INC.
7. KLEEN BREAK MODEL 425 ANCHORS ALSO NEED TO BE INSTALLED PER XCESSORIES SQUARED DEVELOPMENT AND MANUFACTURING INC, DRAWING # XKB425-20-CI "SQUARE POST SIGN SUPPORT INSTALLATION INSTRUCTIONS" AT THE TIME OF ISLAND CONSTRUCTION FOR ALL KNOWN FUTURE SIGNS.

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Centennial, CO 80111  
tel 303.721.1440  
fax 303.721.0832

(R-X)



**Sheet Revisions**

Date	Comments	Initials



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Construction Managers • Environmental Scientists • Landscape Architects • Planners

As Constructed

No Revisions:

Revised:

Void:

PEORIA & BELFORD INTERSECTION  
SIGNING AND STRIPING PLAN  
STA. 102+00 TO STA. 108+00

Designer:	DCS	Structure	
Detailer:	DCS	Numbers	
Subset:	TRAFFIC	Sheets:	SS-1 of 4

Project No./Code

Sheet Number 59

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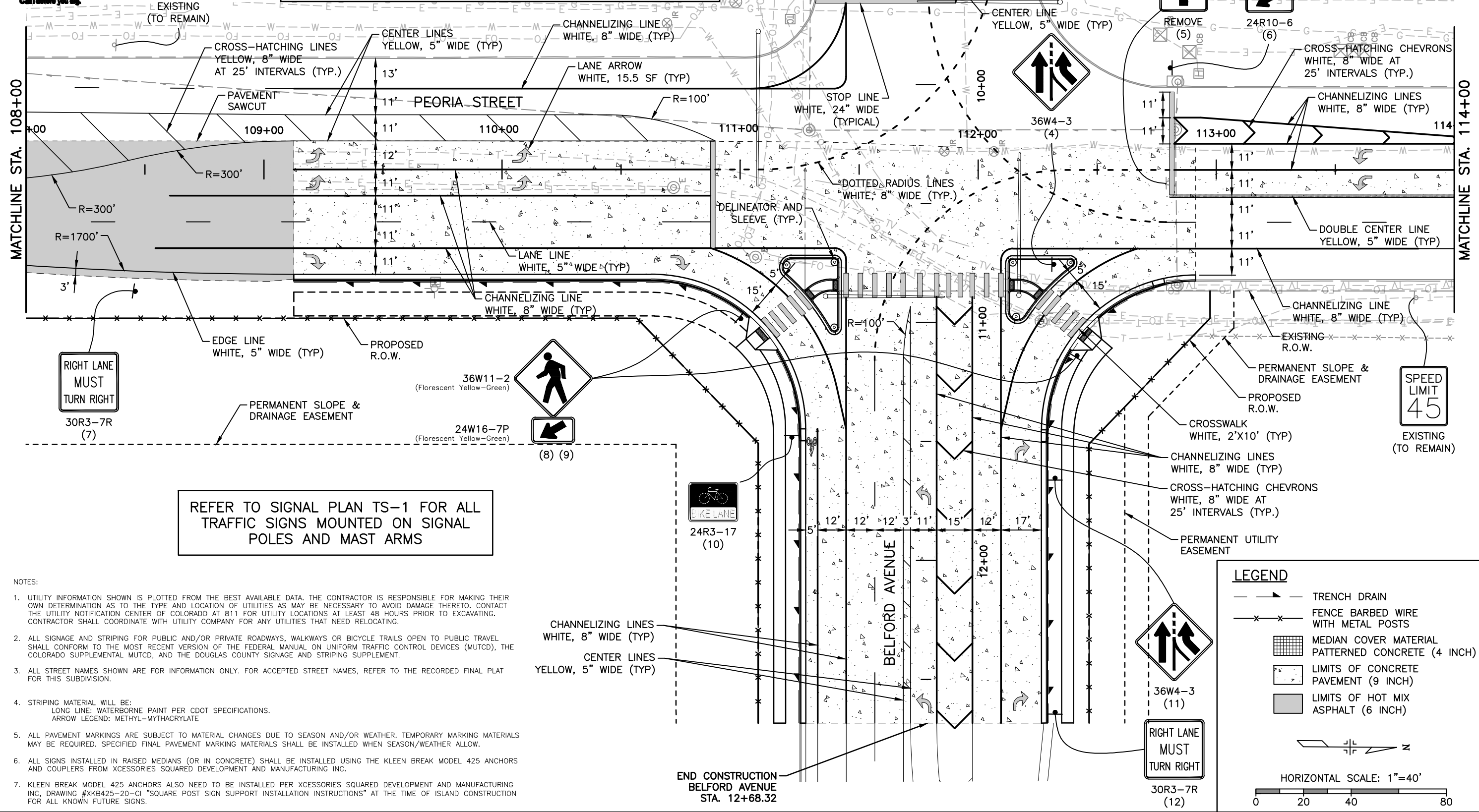
SPEED LIMIT 45

DELINEATOR LEGEND

TYPE I (CRYSTAL) ○

WORD AND SYMBOL NOTES

LEFT TURN ARROW - 8x 15.5 SF  
RIGHT TURN ARROW - 4x 15.5 SF  
BIKE SYMBOL - 1x 10.5 SF



REFER TO SIGNAL PLAN TS-1 FOR ALL TRAFFIC SIGNS MOUNTED ON SIGNAL POLES AND MAST ARMS

- NOTES:
- UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
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**LEGEND**

- TRENCH DRAIN
- FENCE BARBED WIRE WITH METAL POSTS
- MEDIAN COVER MATERIAL PATTERNED CONCRETE (4 INCH)
- LIMITS OF CONCRETE PAVEMENT (9 INCH)
- LIMITS OF HOT MIX ASPHALT (6 INCH)

HORIZONTAL SCALE: 1"=40'

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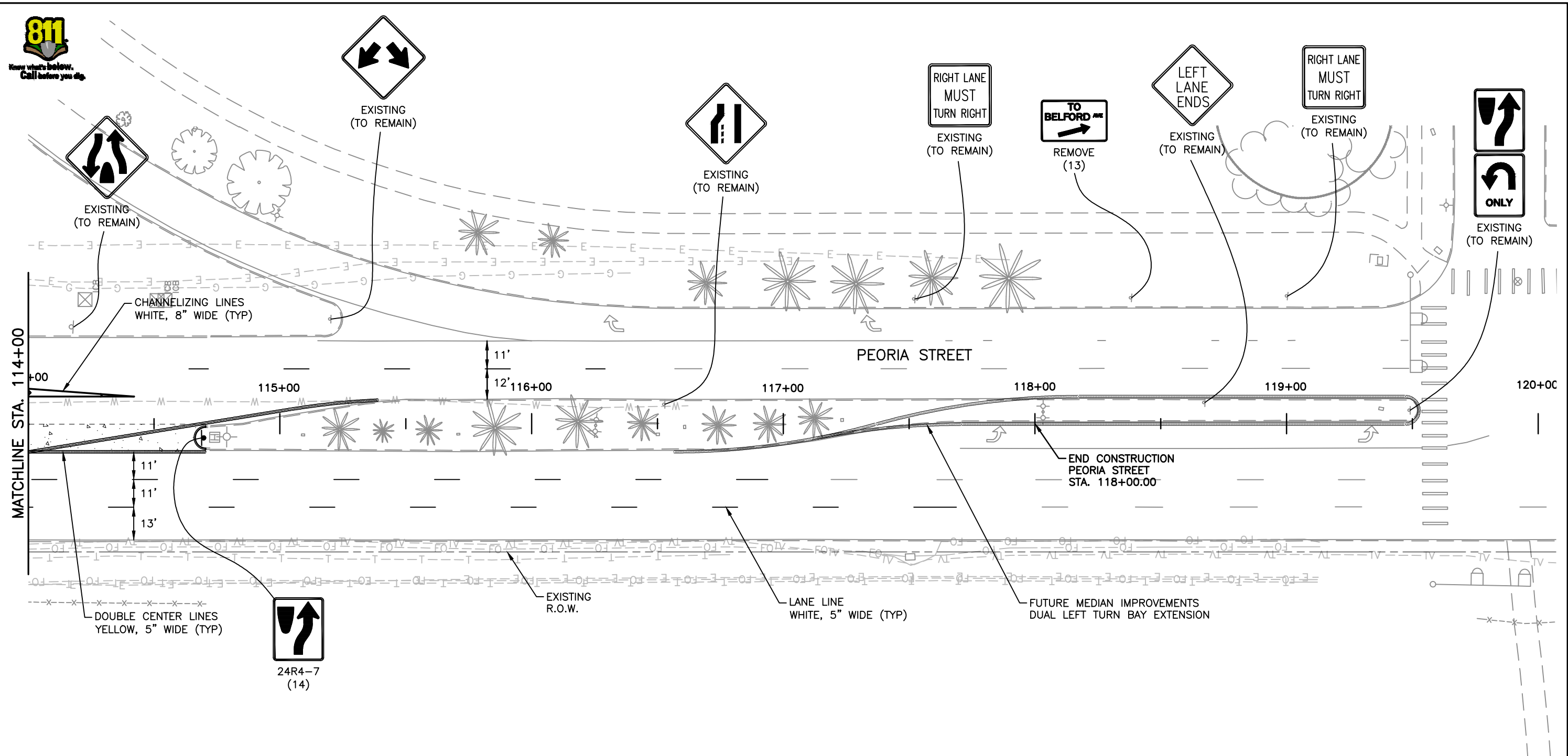
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 Centennial, CO 80111  
 tel 303.721.1440  
 fax 303.721.0832

Sheet Revisions			
Date	Comments	Initials	

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No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: DCS		
Void:	Subset: TRAFFIC	Sheets: SS-2 of 4	Sheet Number 60

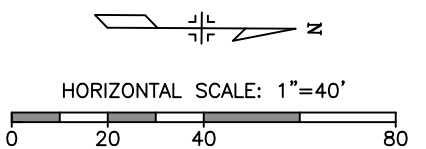


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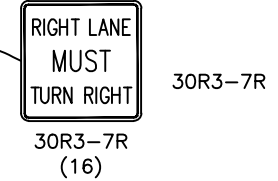
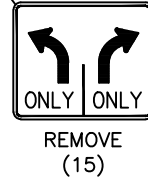
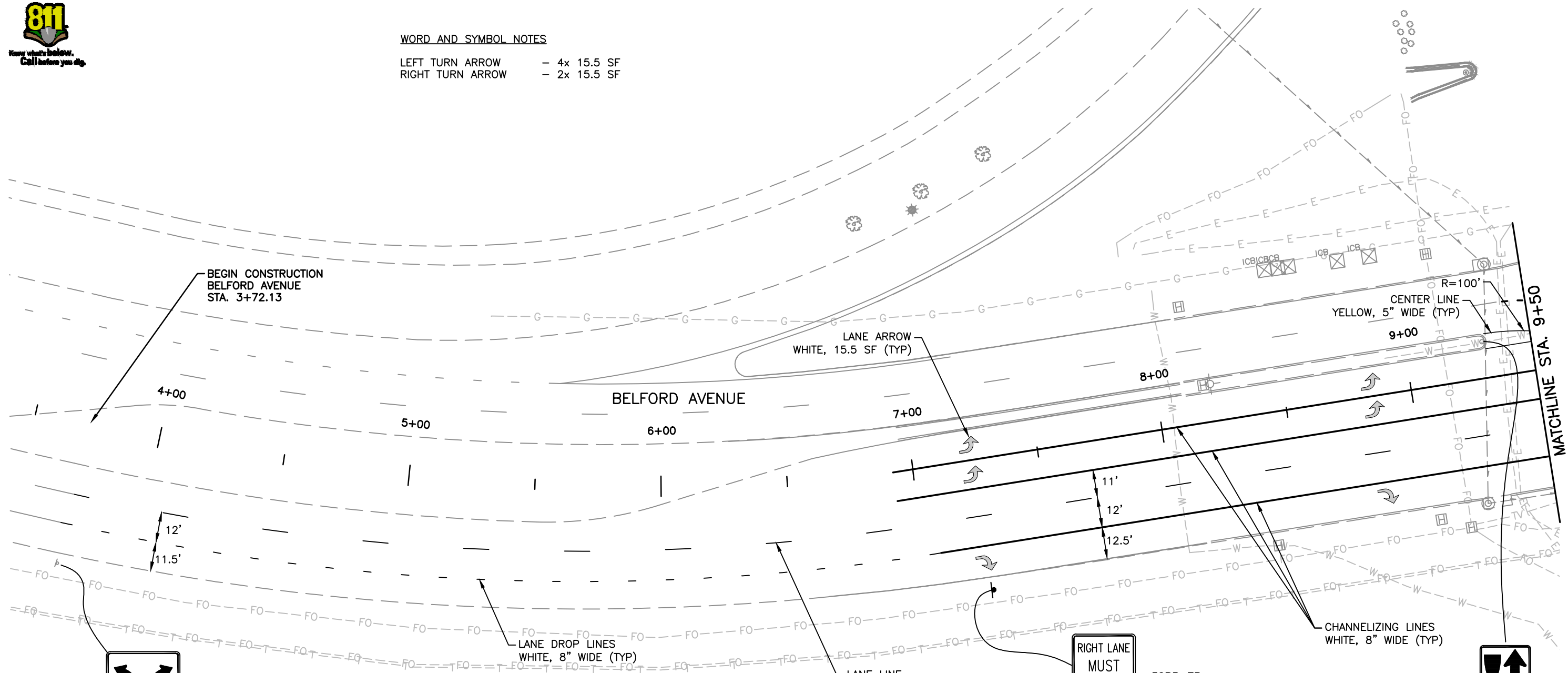
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No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: DCS		
Void:	Subset: TRAFFIC	Sheets: SS-3 of 4	Sheet Number 61



**WORD AND SYMBOL NOTES**

- LEFT TURN ARROW - 4x 15.5 SF
- RIGHT TURN ARROW - 2x 15.5 SF

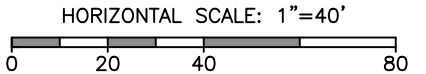


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No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: DCS		
Void:	Subset: TRAFFIC	Sheets: SS-4 of 4	Sheet Number 62

**GENERAL TRAFFIC SIGNAL NOTES**

1. All construction and materials shall be in accordance with Douglas County Standards and Specifications, the latest edition of the MUTCD, and the project construction drawings and specifications included herein. In cases of omission from County Standards and Specifications, the most current edition of the Colorado Department of Transportation (CDOT) Standard Specifications for Road and Bridge Construction and the latest edition of the CDOT Standard Plans, M & S Standards shall apply.
2. The bid quantities of the project are the result of careful quantity takeoff by the Engineer. The Contractor shall, however, satisfy themselves as to the accuracy of all quantities and bring any discrepancies to the attention of the Engineer, in writing, at his earliest opportunity.
3. All signal cable is continuous from connections made in the hand hole compartment of the signal pole to the terminal compartment in the controller cabinet. Splicing shall not be permitted unless specifically approved by the Engineer.
4. The Contractor is required to provide submittals on all equipment to Douglas County Traffic Services for review. The County shall review the required submittals and return comments within 5 working days.
5. Upon completion of work, the Contractor shall provide record As-Built drawings, corrected plans, and any other additional data required by the County.
6. Traffic signal installation and all associated work shall be 100% complete prior to flash turn on. This includes all punch list items and operational luminaires.
7. All signs shall be attached to mast arms using Pelco Astro-Brac or approved equal.
8. Whenever multiple cables feed equipment on a single pole each cable shall contain a neutral wire.
9. All conduits shall have a mule tape/pull rope left in when construction is completed.
10. All conduits to include 14 AWG solid core THHN wire through the entire run to facilitate future locating.
11. Each vehicle signal head on mast arms shall have a louvered aluminum backplate, black in color.
12. All electric systems shall be properly grounded in accordance with the specifications. A ground rod shall be installed for each pole and controller cabinet foundation.
13. Signal heads shall be wired separately from the signal head to the above ground hand hole at the base of the signal pole (on overhead splices). A separate 21 conductor cable shall run from the controller cabinet to the traffic pole hand hole with no splices.
14. Signal heads shall be Polycarbonate and black in color. Mast arm signal heads shall use Pelco Astro Brac or Sky-Brac type mounting brackets.
15. The Contractor is responsible for delivery of the new traffic poles to the project site.
16. All hand hole splices shall be Buchanan type using the Pres-sure-tool part #C-24 crimping tool.
17. When fiber interconnect is being installed, a minimum of 100ft. shall be coiled in each home run/comm vault and a minimum of 25ft. in each pull box.
18. The contractor shall provide the luminaire wiring and final hook up.
19. Contractor shall be responsible for resetting (adjusting) all detection zones.
20. The Contractor shall not damage signal equipment identified for removal or reset. All removed traffic equipment shall be returned in good condition to the Traffic Shop (3080 N Industrial Way, Castle Rock, CO). Delivery of existing equipment shall be incidental to the corresponding Removal Pay Item.
21. Contractor shall install ADA push button and instructional type decals (R10-3e). The ped push buttons shall include piezo-driven solid state switch.
22. All vehicle and pedestrian indications shall be approved solid state LED type and black in color. All vehicle indications shall be 12-inch. All pedestrian indications shall be 16-inch, with a countdown timer.
23. The installation shall include two (2) Opticom Detector GTT Model 722 with two (2) GTT Model 762 Opticom Discriminator cards or approved equal.
24. All construction shall be 100% complete including punch list items prior to flash / turn on.
25. Contractor to maintain traffic signal operations at all times. If the signal operations cannot be maintained at all times, the contractor can notify the Douglas County Sheriff, 48 hours in advance, and request uniformed traffic control support. Any uniformed traffic control shall be incidental to the Traffic Control Lump Sum.
26. The Contractor shall notify Douglas County Traffic Services at 303-660-7490, requesting that County staff be present during installation. 48 hour notice is required.
27. All labor, equipment, incidental material, wiring necessary for the installation of traffic signal pole, head installations, cabinet modifications (including signal phase changes and video detection modifications), and other devices shall be provided by the Contractor and shall not be paid for separately, but included in the cost of the work.
28. The Contractor shall coordinate with Douglas County Traffic Services for updating the traffic signal controller with new timing/phasing plans. This work shall be paid for as Traffic Signal Controller Cabinet Modifications, Lump Sum.















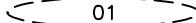

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TABULATION OF TRAFFIC SIGNAL ITEMS

ITEM NO.	ITEM DESCRIPTION	UNITS	TOTAL	NOTES
1	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	LS	1	Per Plan TS-2 and Section 15.10a of the Douglas County Specs
2	RESET TRAFFIC SIGNAL EQUIPMENT	LS	1	
3	COMMON TRENCH	LF	50	
4	COMMON BORE	LF	295	All Street Crossings
5	PVC CONDUIT 2" (Within Common Bore or Trench)	LF	435	
6	PVC CONDUIT 3" (Within Common Bore or Trench)	LF	785	
7	TRAFFIC SIGNAL LIGHT POLE, 50' MAST ARM	EACH	1	Includes Footing
8	TRAFFIC SIGNAL LIGHT POLE, 60' MAST ARM	EACH	2	Includes Footing
9	TRAFFIC SIGNAL LIGHT POLE, 65' MAST ARM	EACH	1	Includes Footing
10	TRAFFIC SIGNAL HEAD, 3-SECTION, 12' LENSES	EACH	10	
11	TRAFFIC SIGNAL HEAD, 3-SECTION, 12' LENSES "ARROW"	EACH	11	
12	PEDESTRIAN HEAD (16-INCH) (COUNTDOWN)	EACH	2	
13	PEDESTRIAN PUSH BUTTONS	EACH	2	Includes R10-3e Signs
14	INTERSECTION DETECTION SYSTEM (CAMERA)	EACH	4	
15	PULL BOX (TYPE I)	EACH	1	
16	PULL BOX (TYPE II)	EACH	4	
17	OPTICOM GTT 762 CARD	EACH	2	
18	OPTICOM GTT 722 HEAD	EACH	2	
19	TRAFFIC SIGNAL CONTROLLER CABINET MODIFICATIONS	LS	1	
20	TRAFFIC SIGNAL (TEMPORARY)	LS	1	

TRAFFIC SIGNAL SYMBOLS

	SIGNAL POLE AND MAST ARM
	SIGNAL PEDESTAL POLE
	TRAFFIC SIGNAL HEAD & BACKPLATE
	TRAFFIC SIGNAL HEAD
	SIGNAL HEAD - PEDESTRIAN
	PEDESTRIAN PUSH BUTTON AND SIGN
	SIGNAL CONTROLLER CABINET (EXISTING)
	PULL BOX - TYPE I
	PULL BOX - TYPE II
	SIGNAL CONDUIT (PVC SCH. 80)
	SIGN PANEL
	LUMINAIRE
	FIRE PREEMPTION UNIT
	VEHICLE DETECTOR CAMERA
	VIDEO DETECTION ZONE & PHASE
	SIGNAL COMMUNICATION ANTENNA

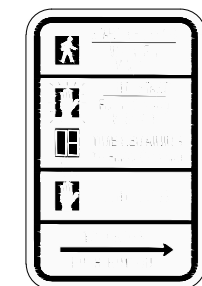
NOTE:  
ALL TRAFFIC SIGNAL EQUIPMENT AND CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE LATEST DOUGLAS COUNTY STANDARDS AND SPECIFICATIONS.

TRAFFIC SIGNAL MAST ARM POLES AND FOUNDATION SCHEDULE (SEE PLAN TS-1)

POLE	TRAFFIC SIGNAL POLE			LOCATION AND SIZE OF CAISSON			
	POLE STANDARD	MAST ARM	STREET LIGHT POLE	NORTHING	EASTING	DIAMETER	LENGTH
A	DOUG-201-60-20	60 FT	YES - 20' EXT. ARM	25299.6	87315.6	42"	16'
B	DOUG-201-50-20	50 FT	YES - 20' EXT. ARM	25218.4	87316.4	42"	16'
C	DOUG-201-65-20	65 FT	YES - 20' EXT. ARM	25189.6	87205.3	42"	16'
D	DOUG-201-60-20	60 FT	YES - 20' EXT. ARM	25316.3	87192.3	42"	16'

- POLE LOCATIONS ARE APPROXIMATE ONLY AND SHALL BE FIELD VERIFIED TO AVOID ANY CONFLICTS.
- CAISSON DIMENSIONS SHOWN ARE MINIMUM.
- TOP OF CAISSON SHALL BE SIX (6) INCHES BELOW FINISHED GRADE (OR THE NEAREST TOP-BACK OF CURB/SIDEWALK).

PED PUSH BUTTON SIGN



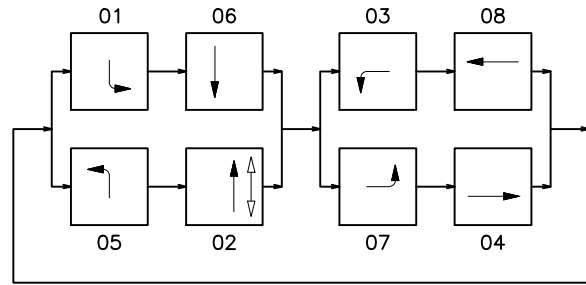
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9"x12"

(1-Right and 1-Left Arrow Panels)

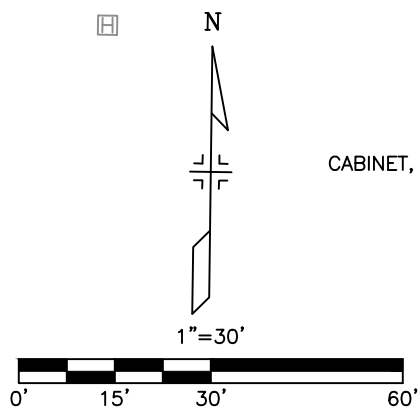
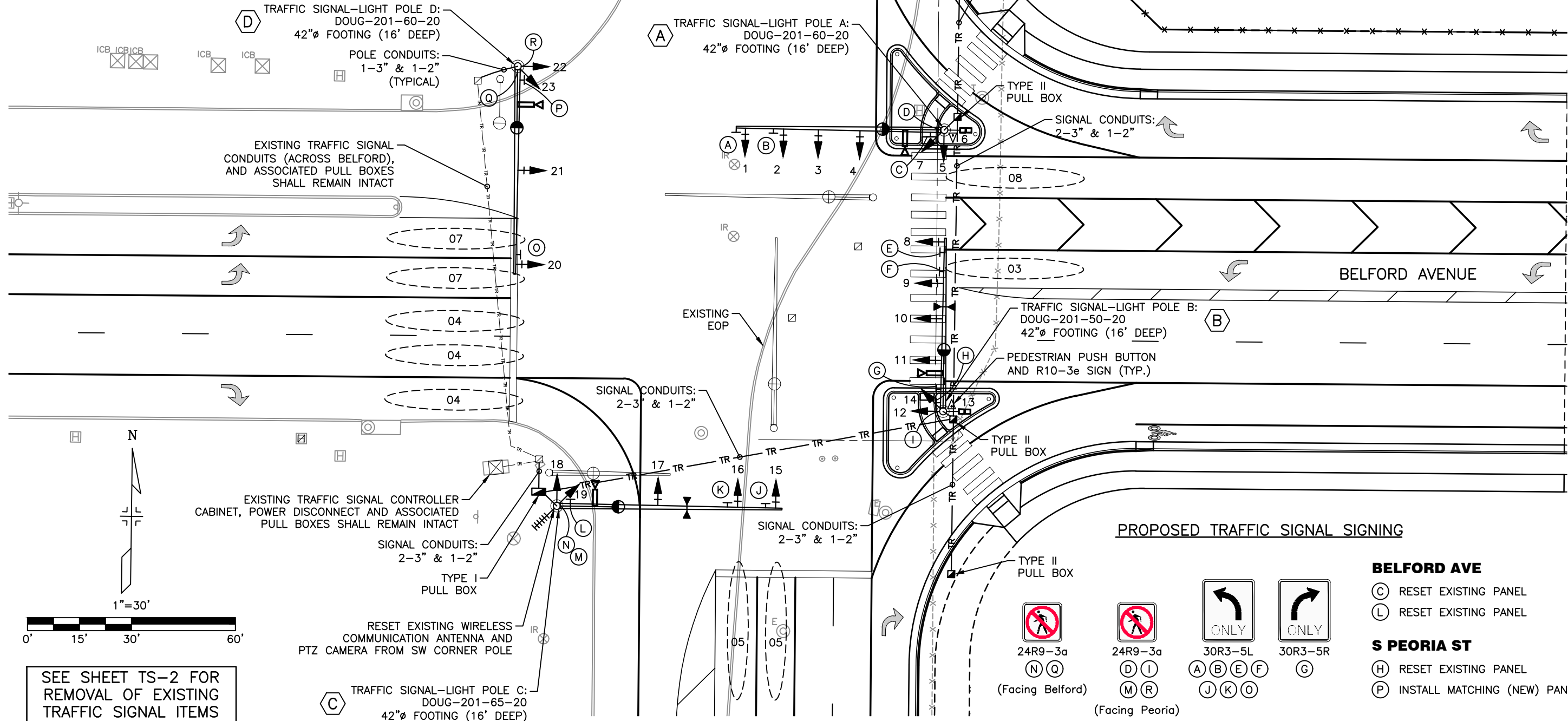
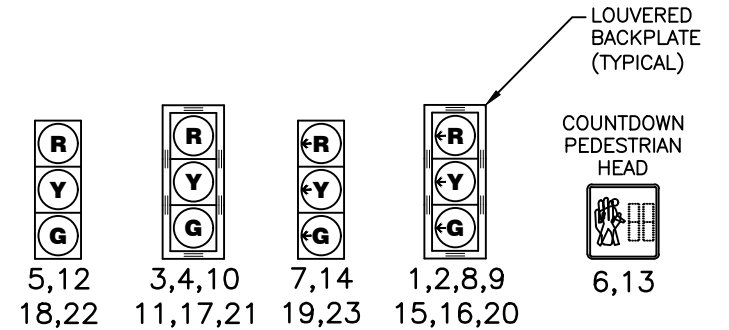
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File Name: T115360-01SIG-TAB.dwg		No Revisions:		ITEM TABULATION AND SYMBOLS		
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 6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832	(R-X) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sheet Revisions Date      Comments      Initials	Void:	Detailer: LCL Subset: TRAFFIC	Sheets: TT-1 of 1	Sheet Number <b>64</b>

**SIGNAL PHASING**

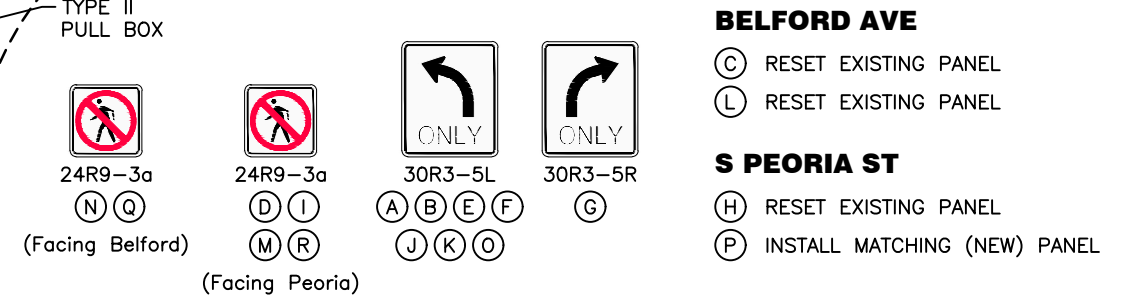


**PROPOSED SIGNAL HEADS**



SEE SHEET TS-2 FOR REMOVAL OF EXISTING TRAFFIC SIGNAL ITEMS

**PROPOSED TRAFFIC SIGNAL SIGNING**



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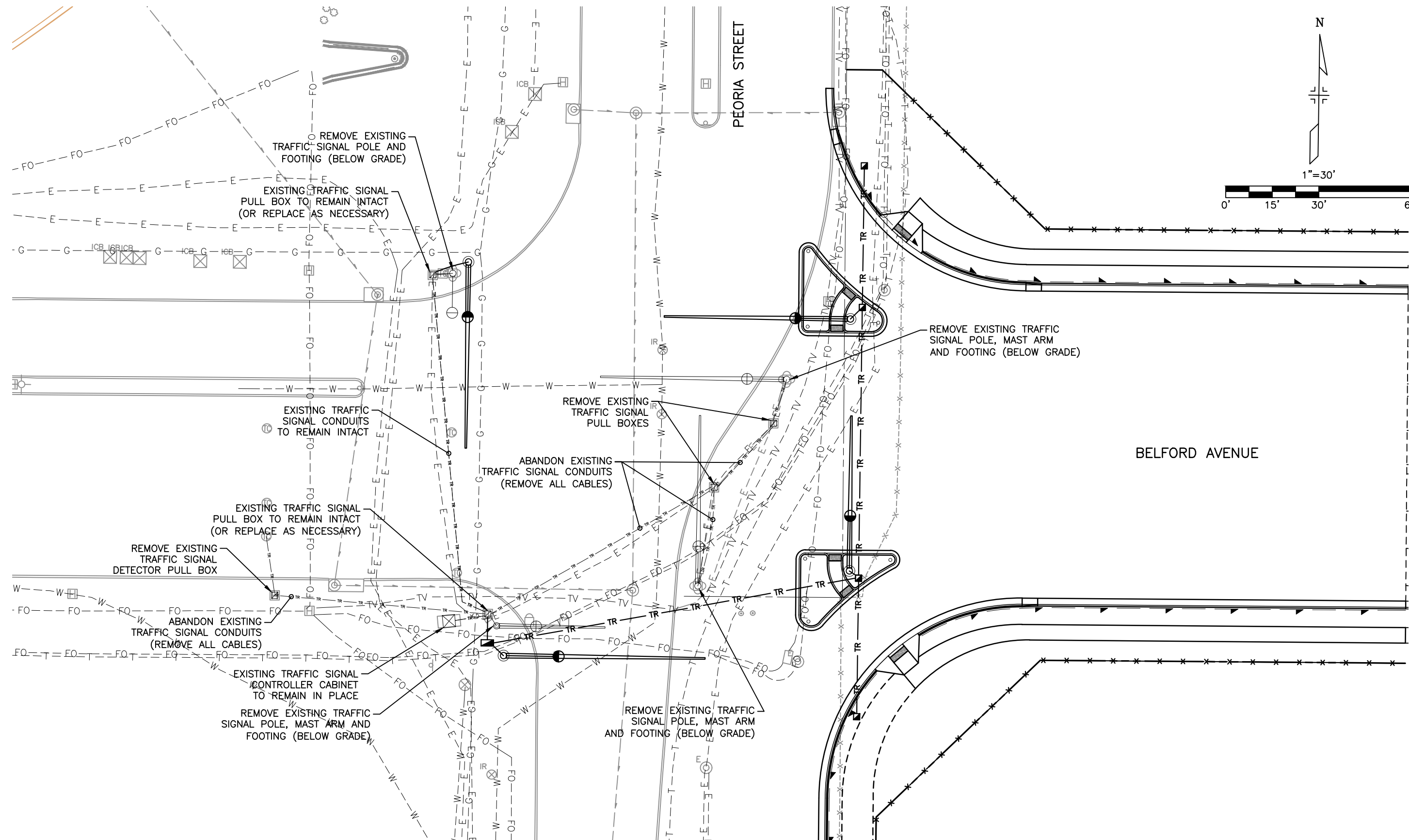
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Void:	Subset:	TRAFFIC Sheets:	TS-1 of 2

Sheet Number	65
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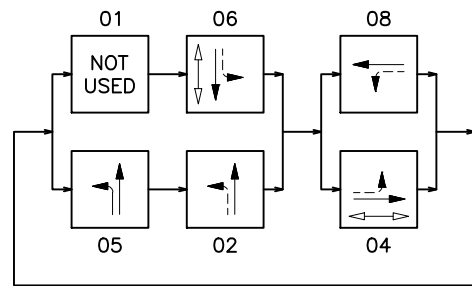
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**PEORIA & BELFORD INTERSECTION  
 TRAFFIC SIGNAL MODIFICATION PLAN**

Designer: LCL Structure  
 Detailer: LCL Numbers  
 Subset: TRAFFIC Sheets: TS-2 of 2

Project No./Code  
 Sheet Number **66**

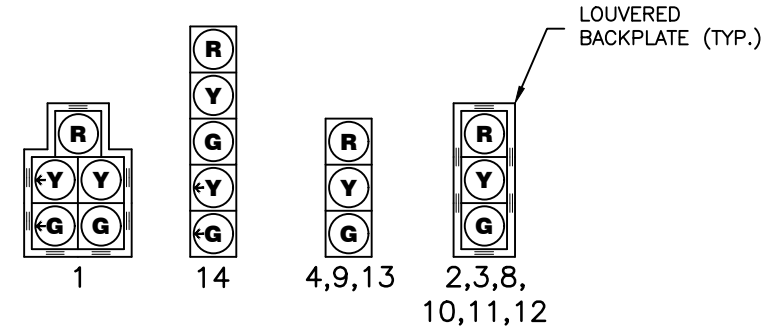
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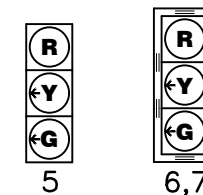
**KEY**

- ← PROTECTED MOVEMENT
- ↔ PERMISSIVE MOVEMENT
- ↔ PED MOVEMENTS

**EXISTING SIGNAL HEADS (TO REMAIN)**



**EXISTING SIGNAL HEADS (TO BE MODIFIED)**



TEMPORARILY CHANGE GREEN AND YELLOW "ARROW" INDICATIONS WITH SOLID "BALL" INDICATIONS

**TEMPORARY SIGNAL HEADS**



R10-6

CONSTRUCTION ACCESS (APPROXIMATE)

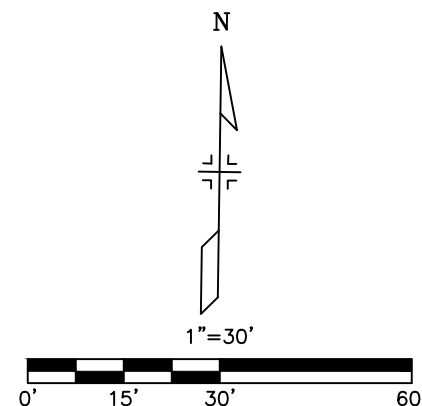
SEE PLAN SET (BY OTHERS) FOR INFORMATION EAST OF PEORIA STREET.

MODIFY CURB FOR CONSTRUCTION ACCESS

TELETECH ACCESS

TEMPORARY VEHICLE DETECTION CAMERA

EXISTING CONTROLLER (TO REMAIN)



NOTE:  
TEMPORARY TRAFFIC SIGNAL TO BE PAID FOR AS 630-86800 TRAFFIC SIGNAL (TEMPORARY) LUMP SUM. ALL ITEMS DEPICTED ON THIS PLAN, INCLUDING PLACEMENT, MODIFICATION, AND REMOVAL SHALL BE INCLUDED IN THIS PAY ITEM.

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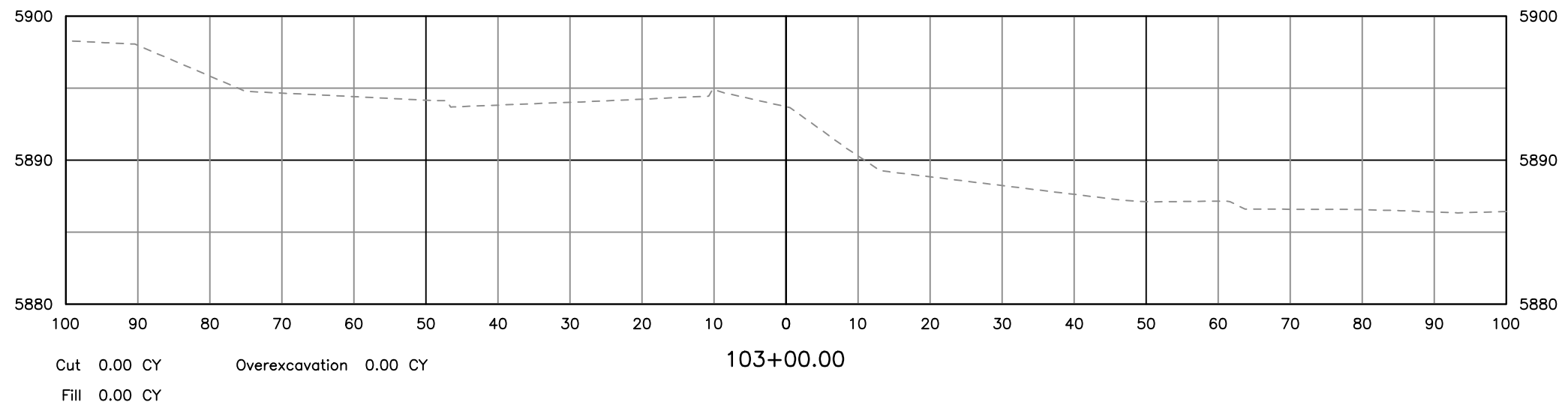
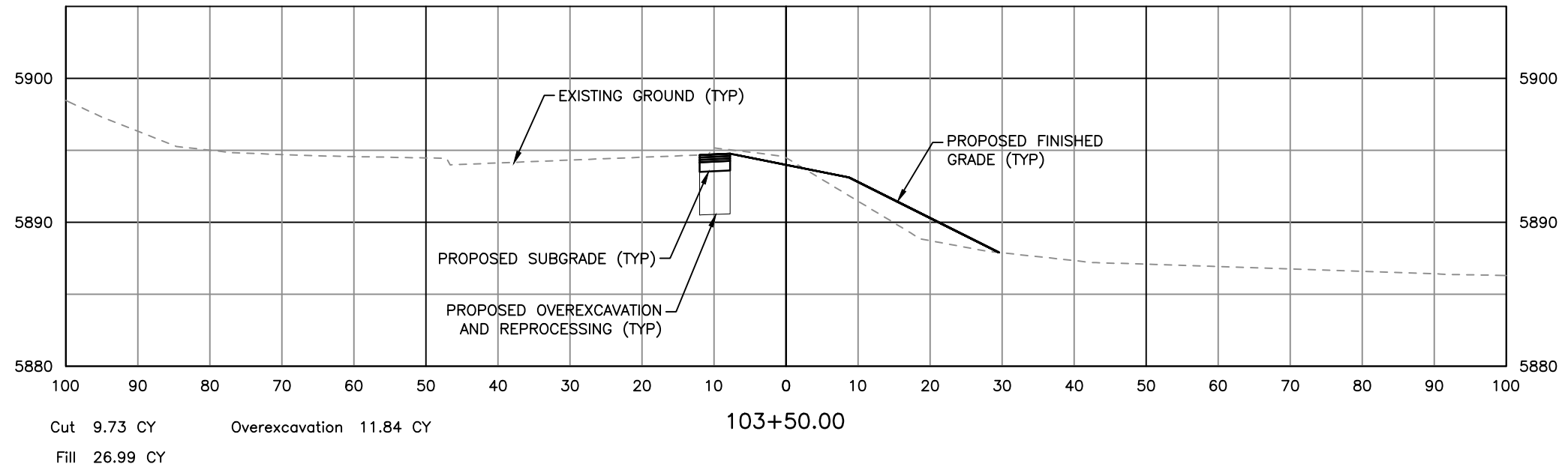
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Void:	Subset: TRAFFIC	Sheets: TM-1 of 1	Sheet Number 67

NOTES:

- CROSS SECTIONS REFLECT EARTHWORK VOLUMES THAT ARE CALCULATED FROM THE PROPOSED SUBGRADE (BOTTOM OF AGGREGATE BASE COURSE) TO THE EXISTING GROUND WITHOUT ADJUSTMENT FOR EXISTING TOPSOIL STRIPPING AND STOCKPILE, EXISTING PAVEMENT REMOVAL, AND PROPOSED TOPSOIL QUANTITIES. THE OVEREXCAVATION AND REPROCESSING QUANTITIES ARE CALCULATED AND LISTED SEPARATELY.
- FINAL GEOTECHNICAL REPORT TO DETERMINE FINAL PAVEMENT SECTION DETAILS.



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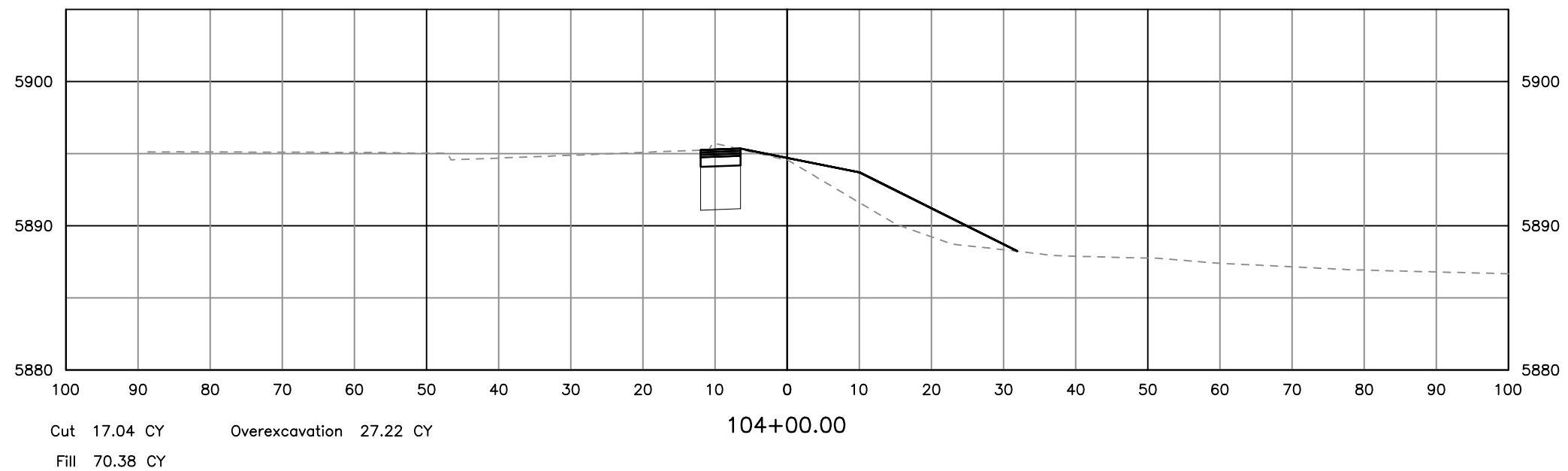
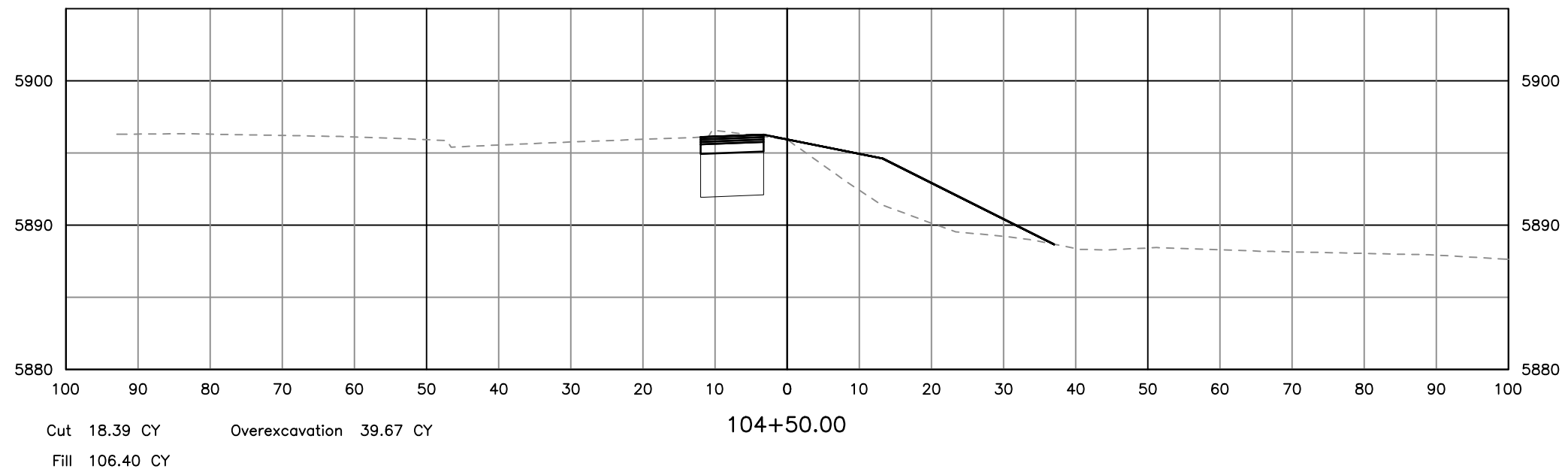
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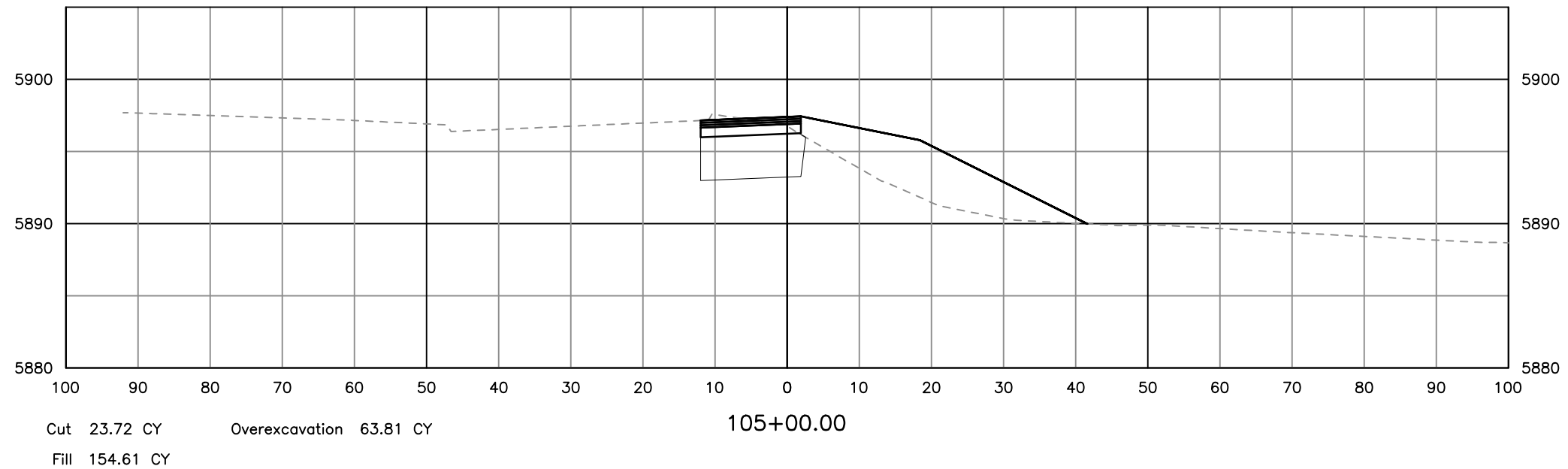
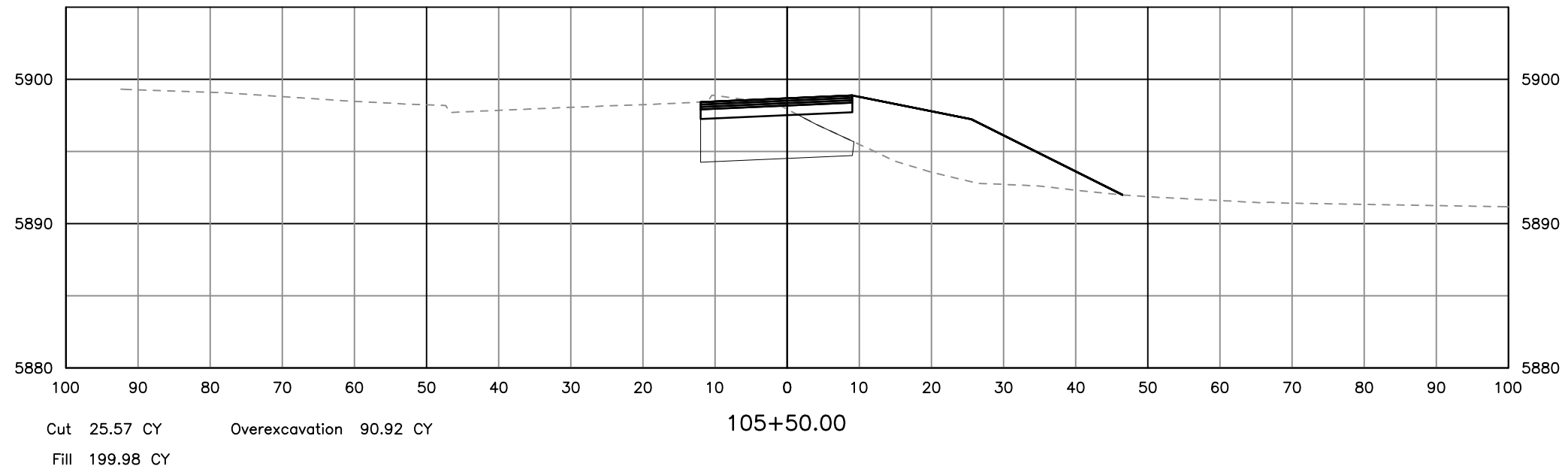
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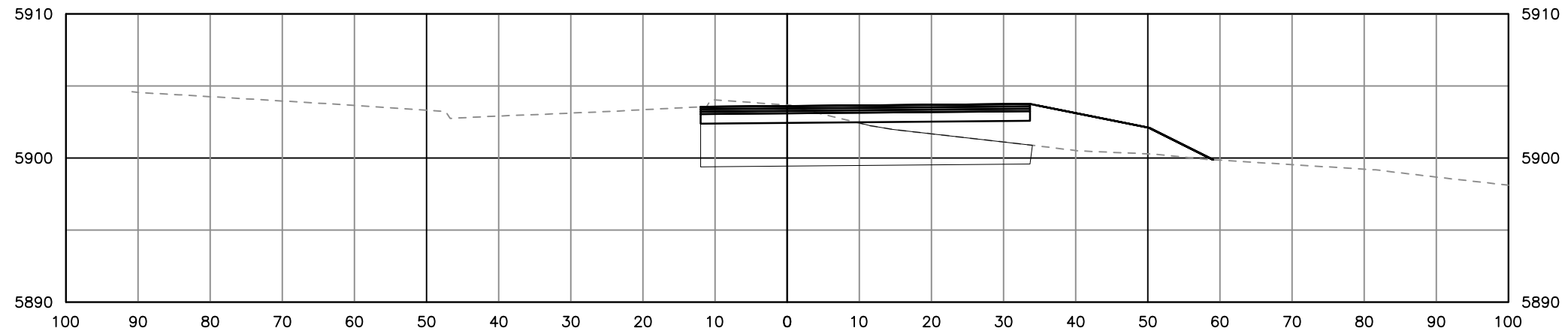
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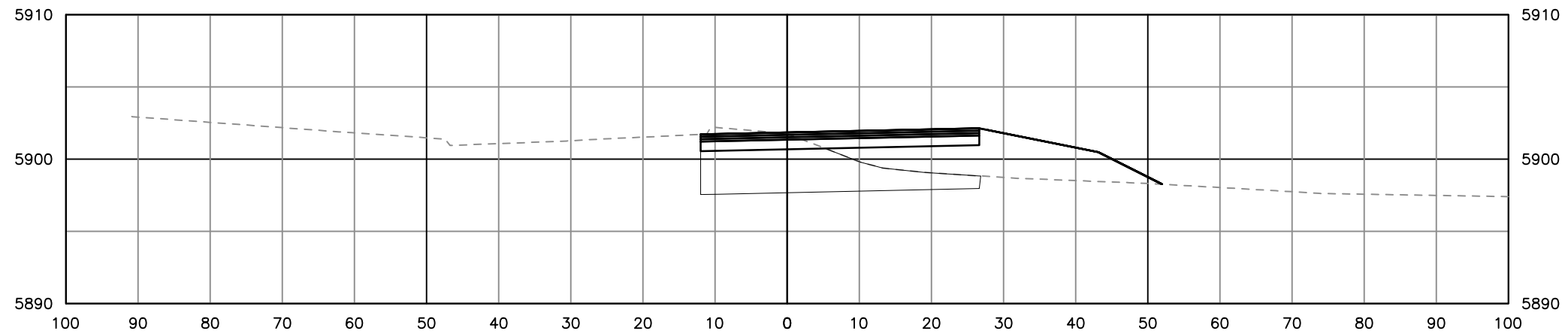
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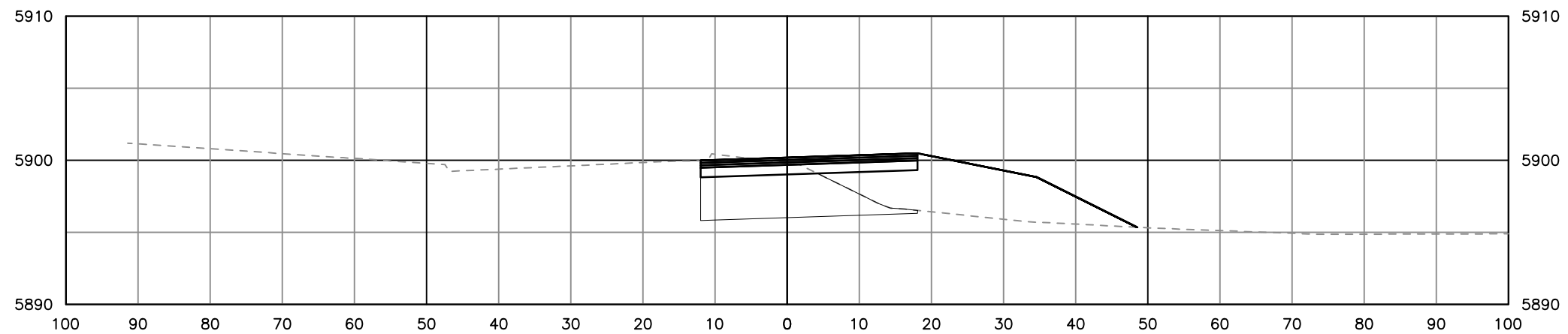
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Void:	Subset: SECTIONS	Sheets: CS-3 of 16	Sheet Number 70



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 Fill 141.03 CY  
 107+00.00




Cut 33.10 CY      Overexcavation 141.07 CY  
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 106+50.00



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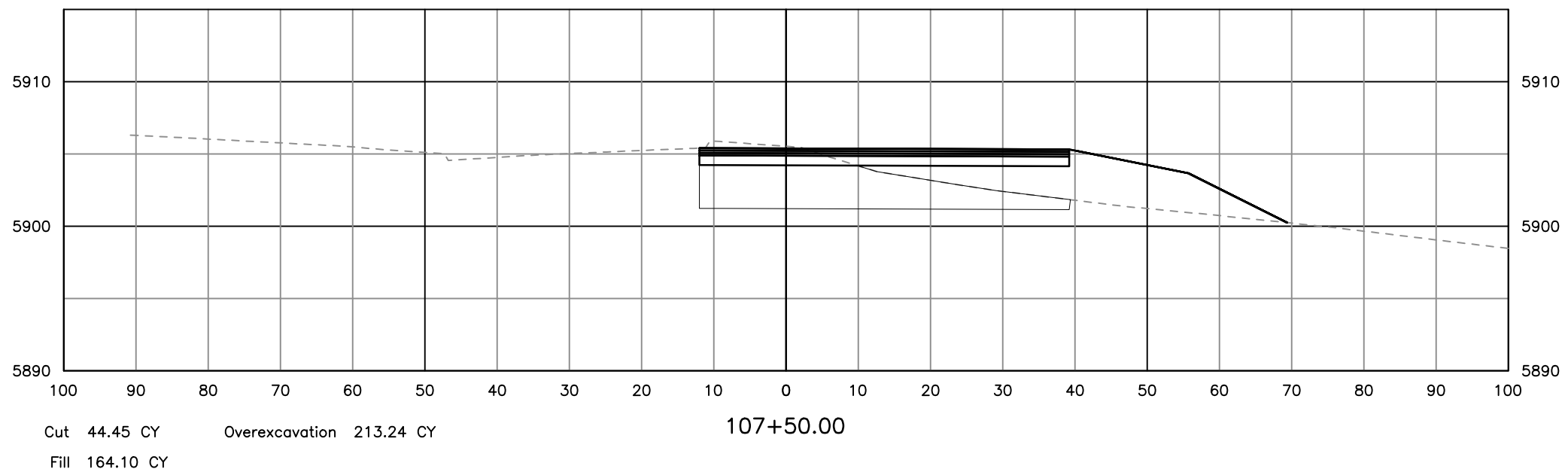
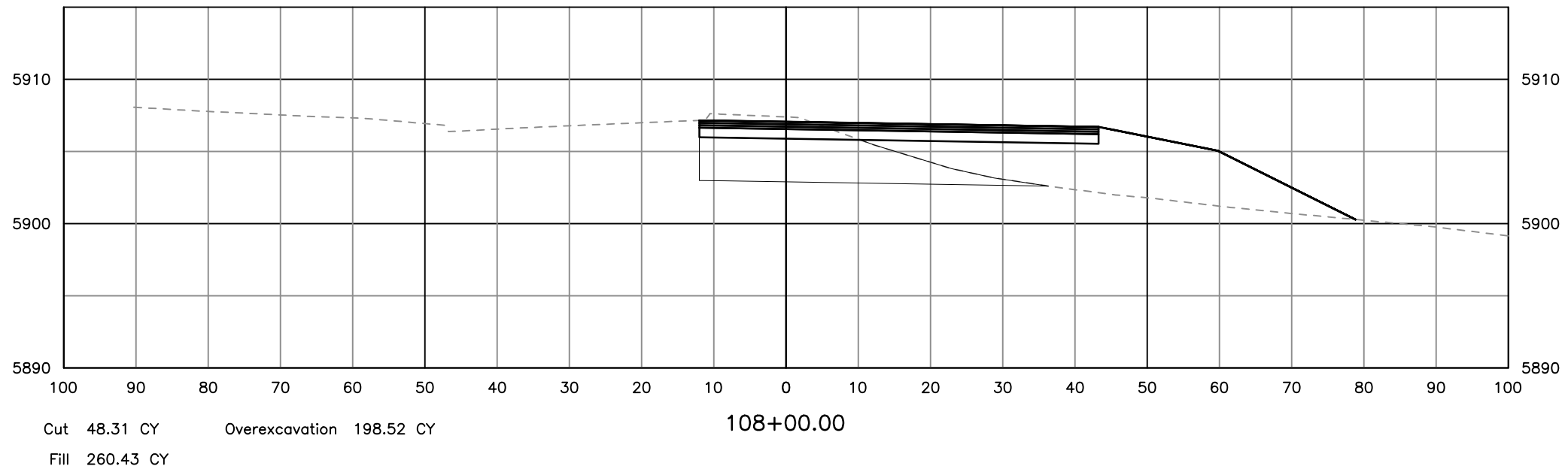
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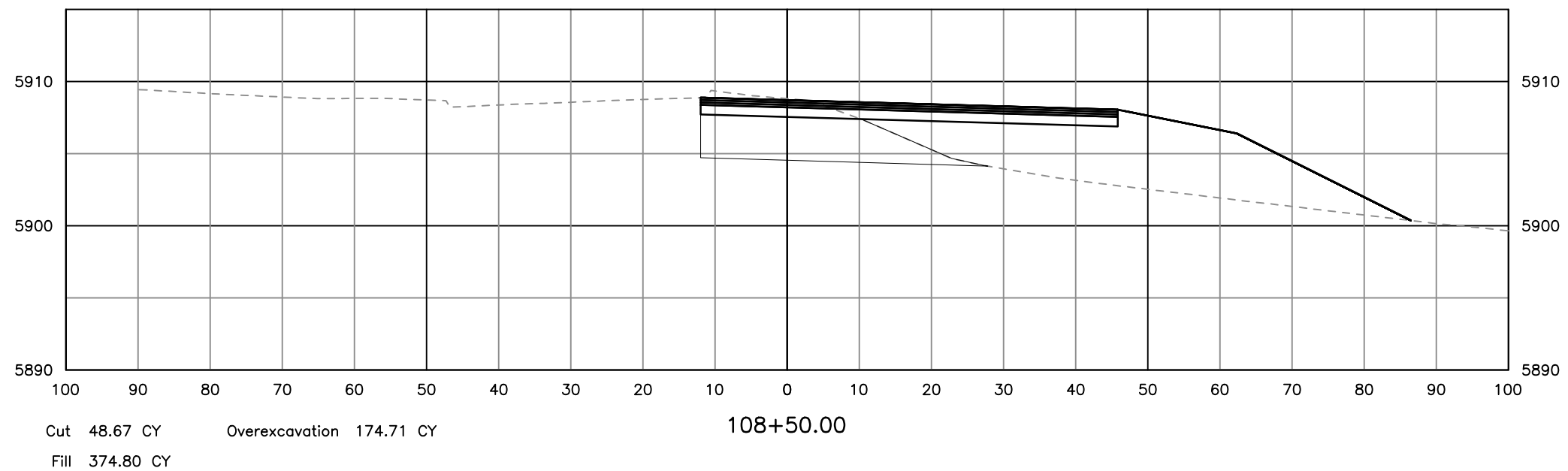
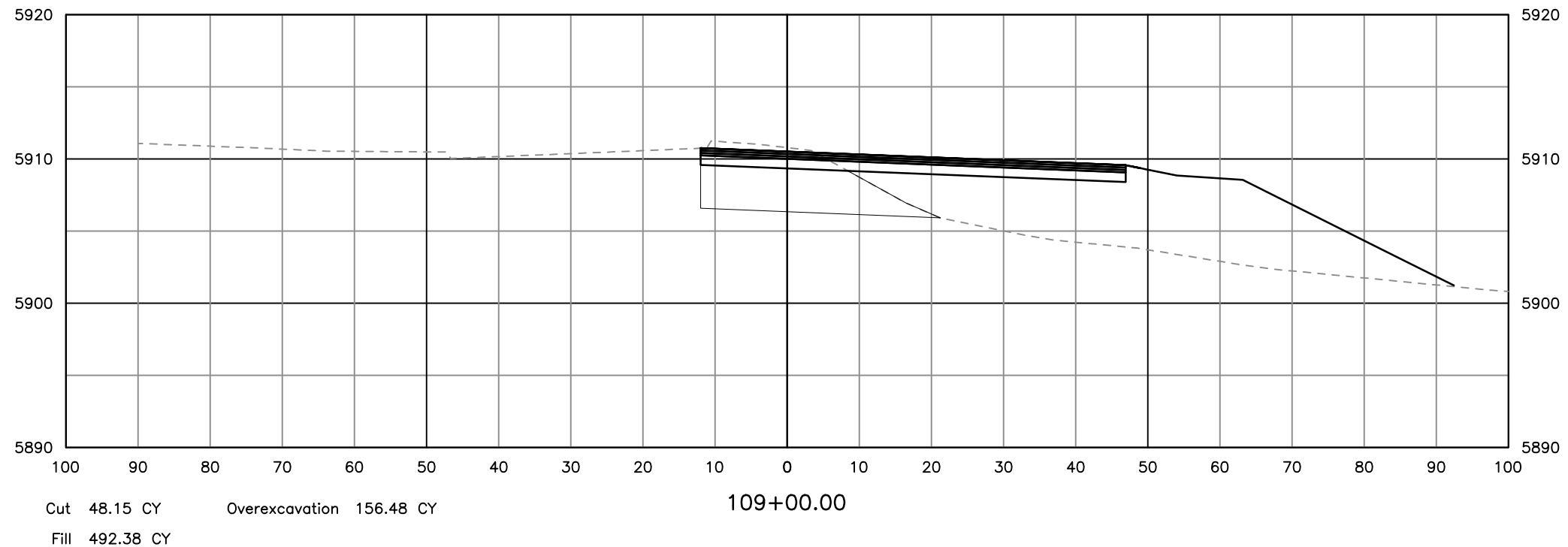
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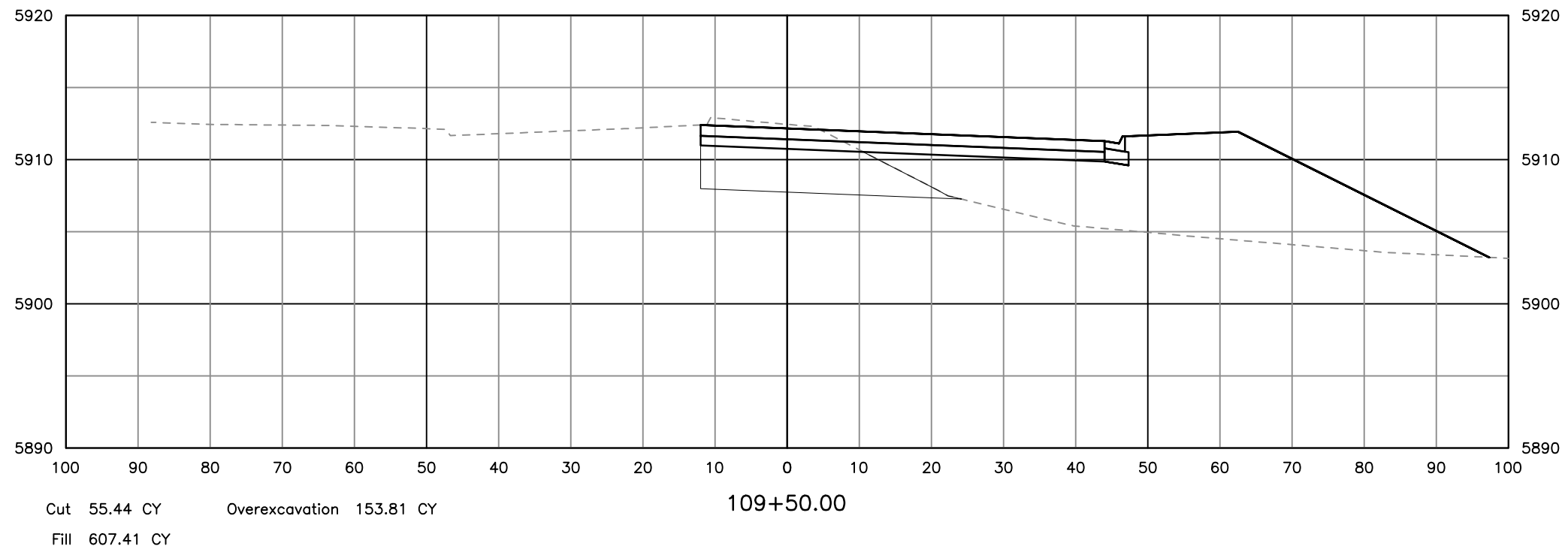
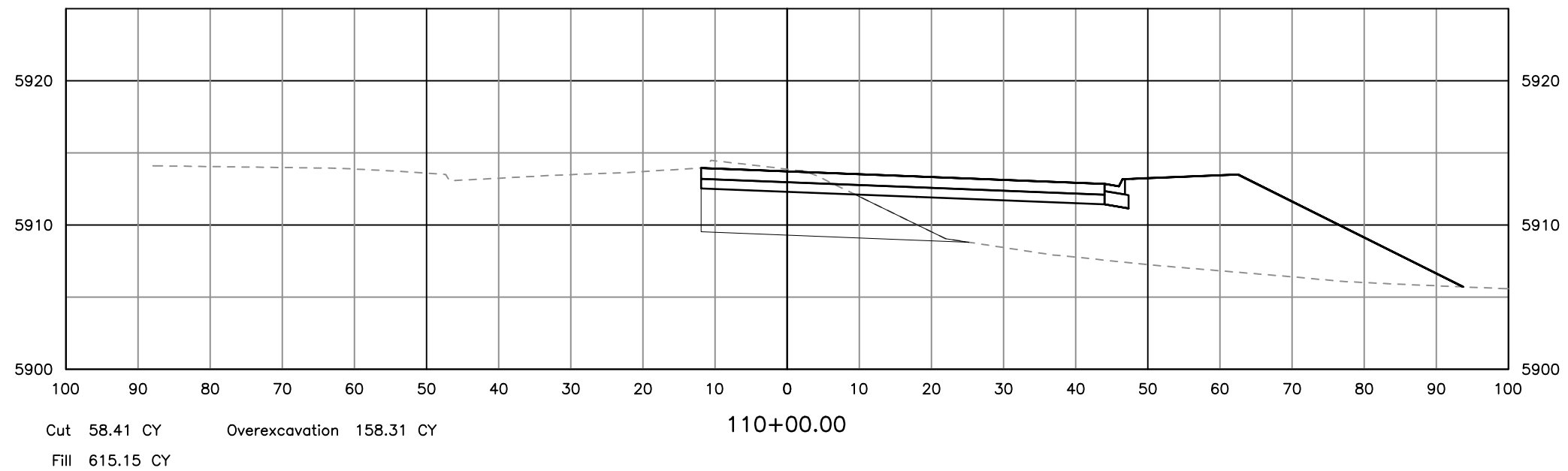
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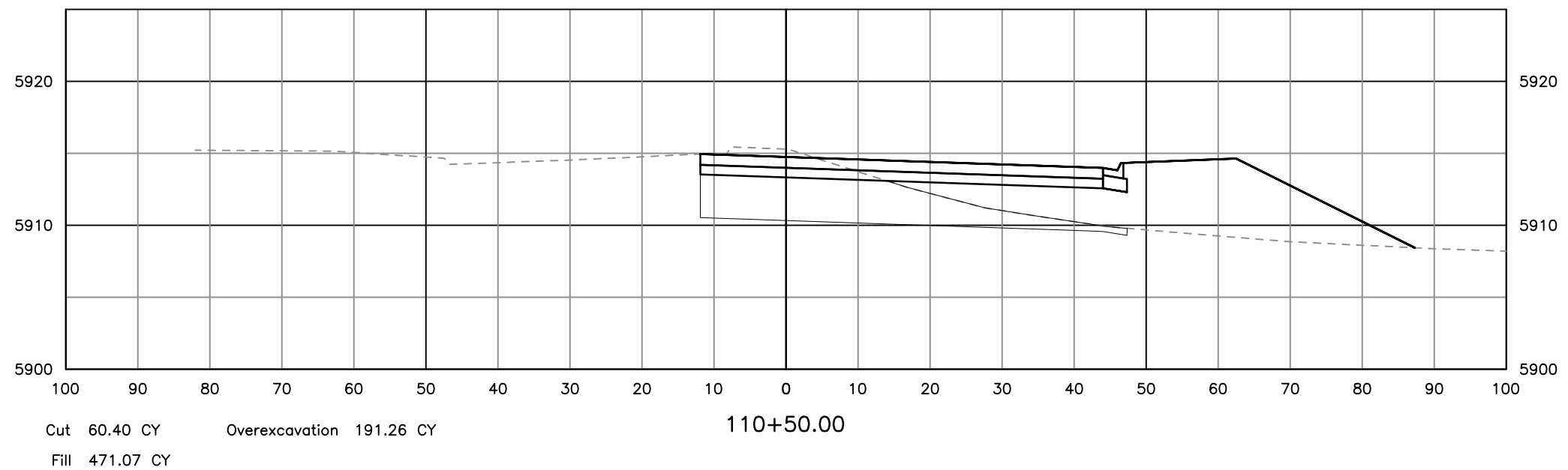
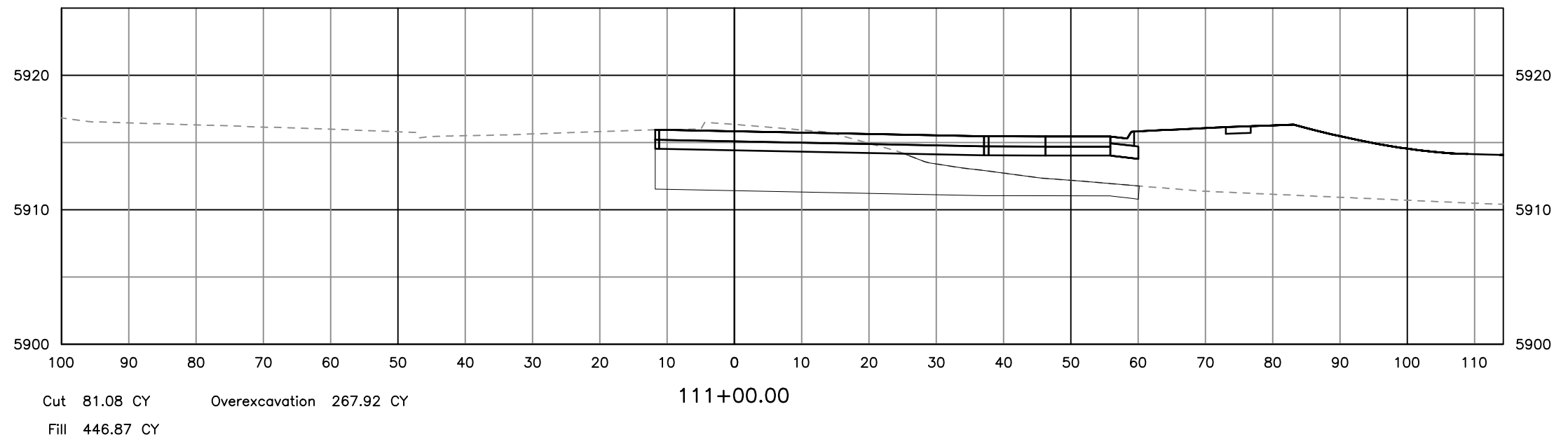
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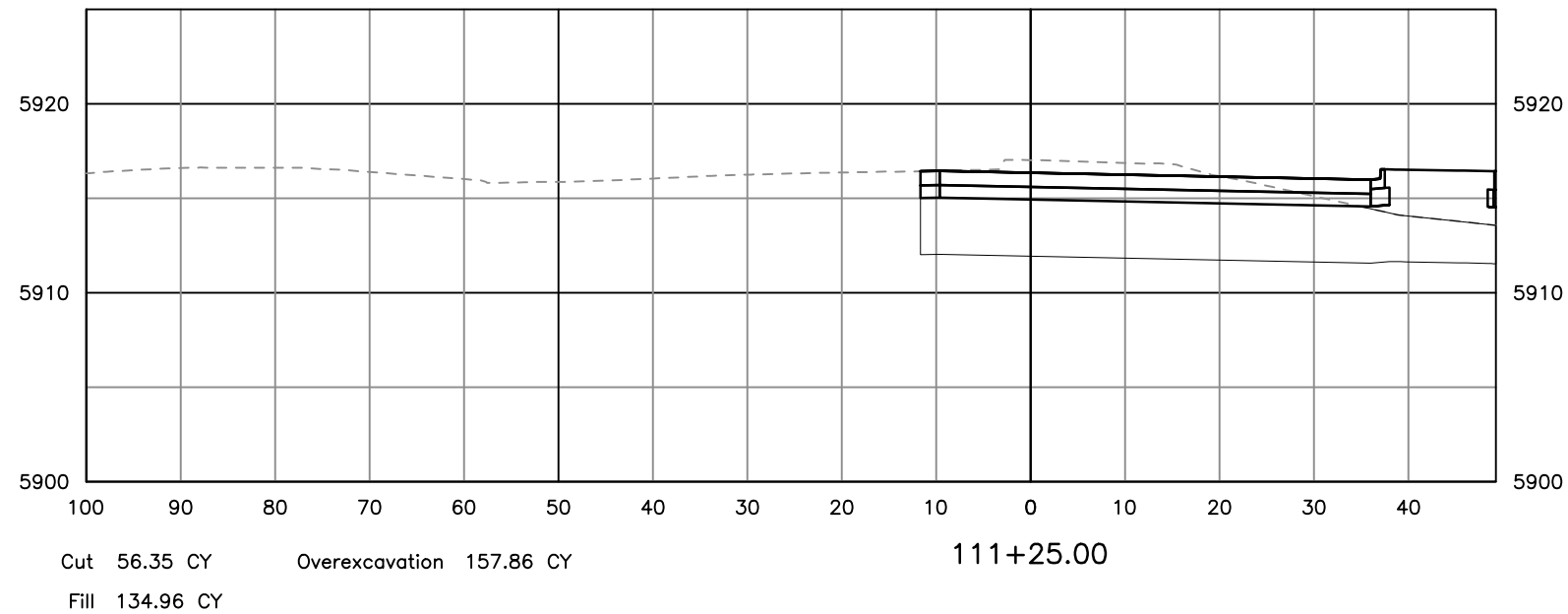
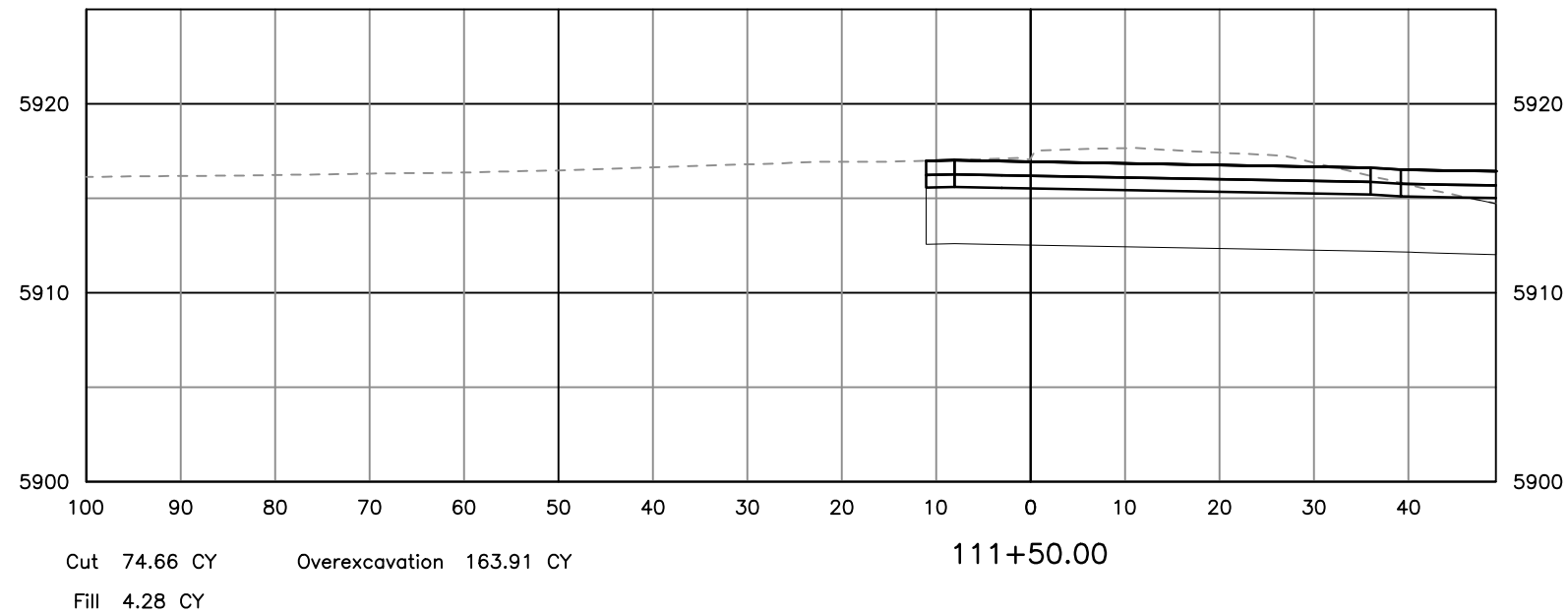
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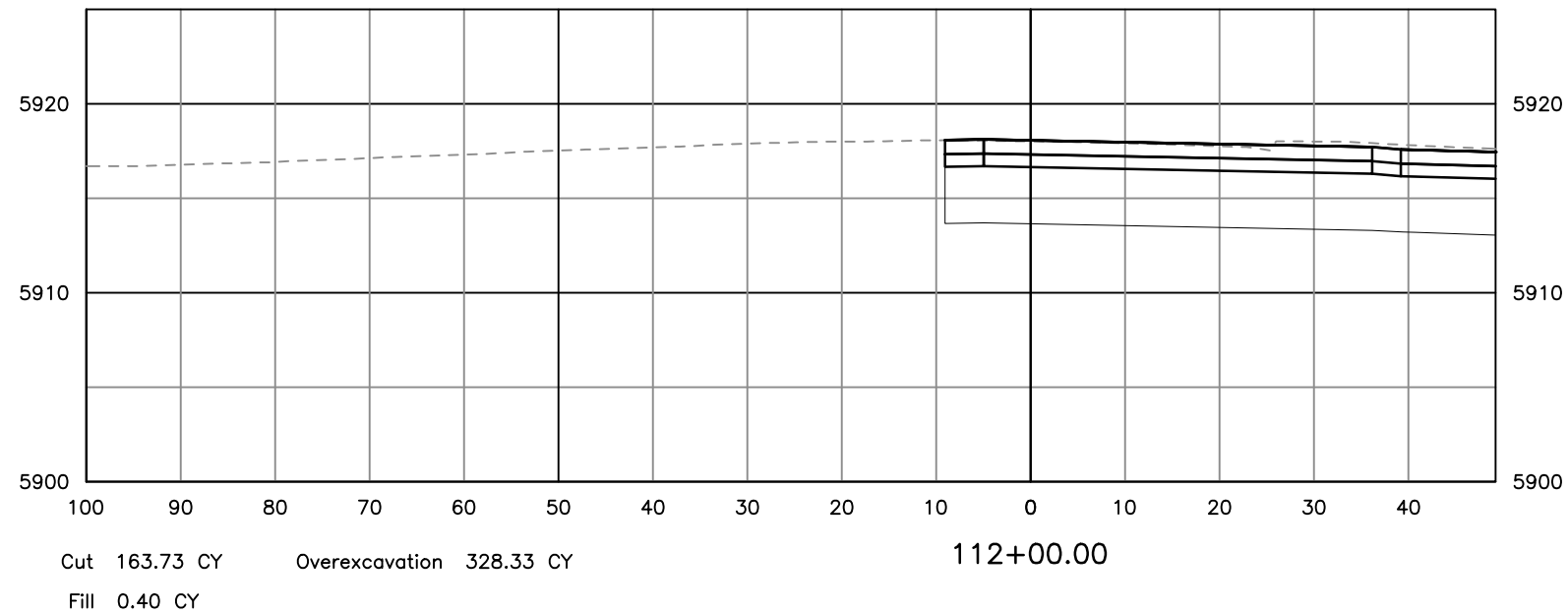
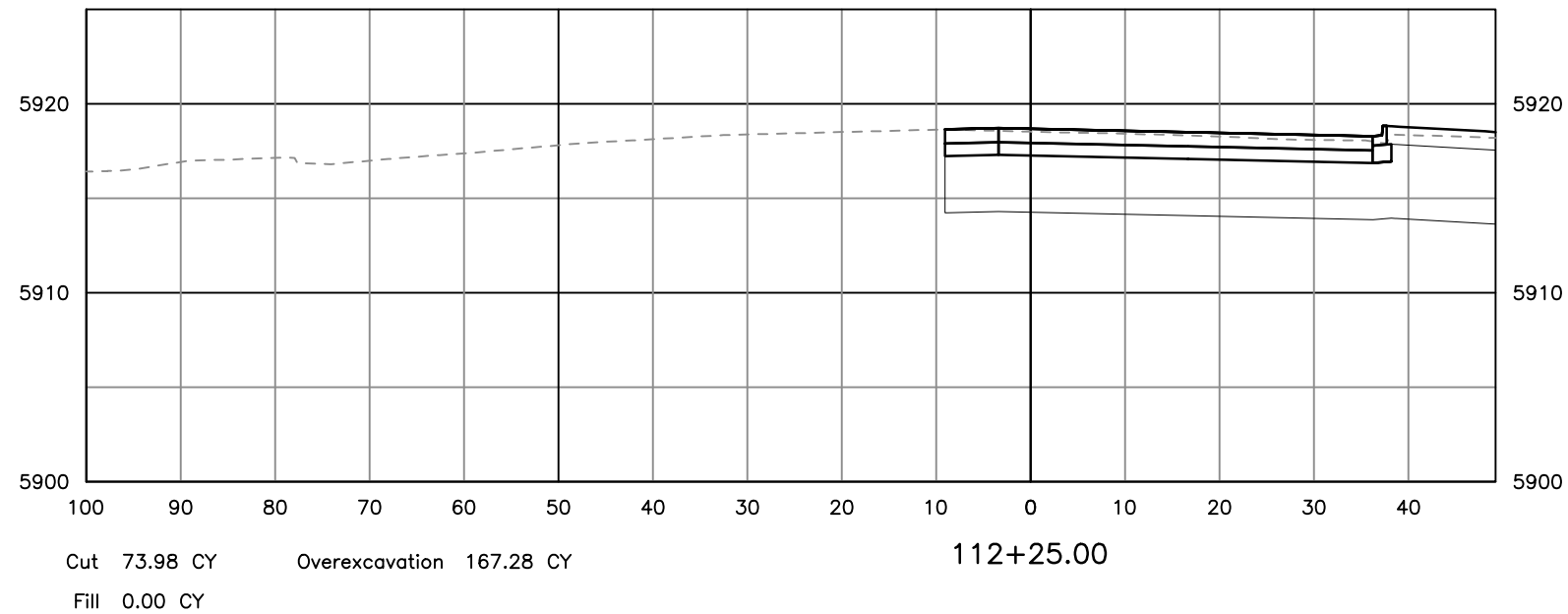
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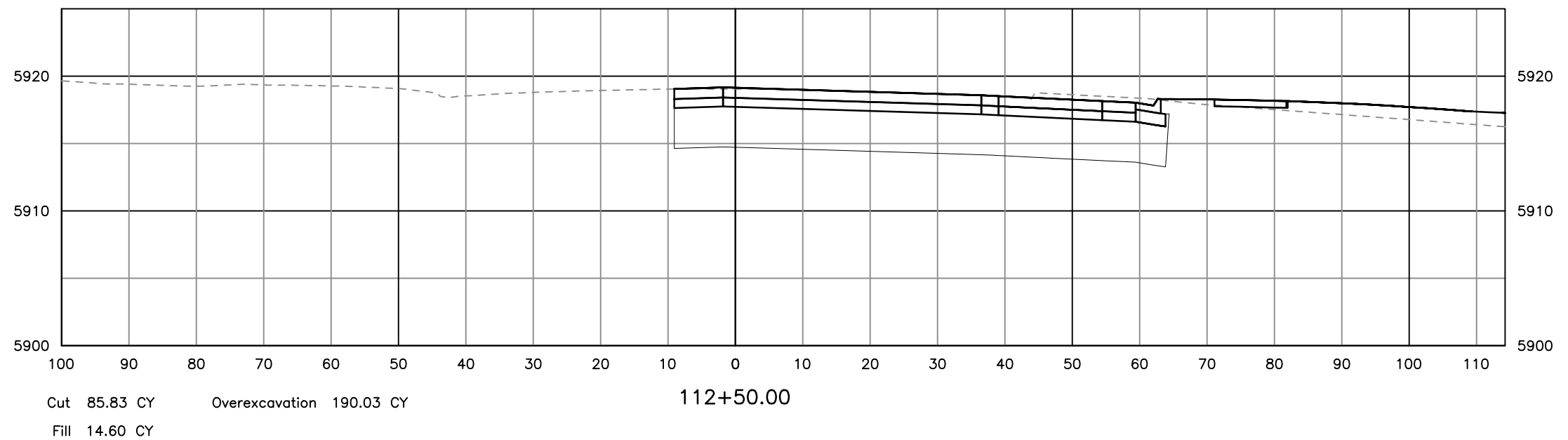
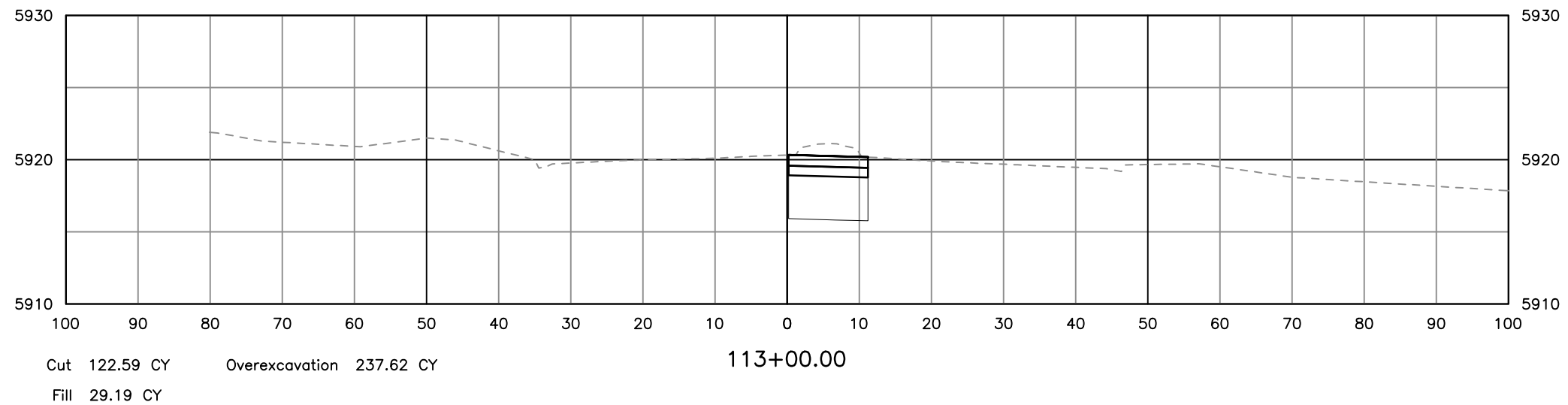
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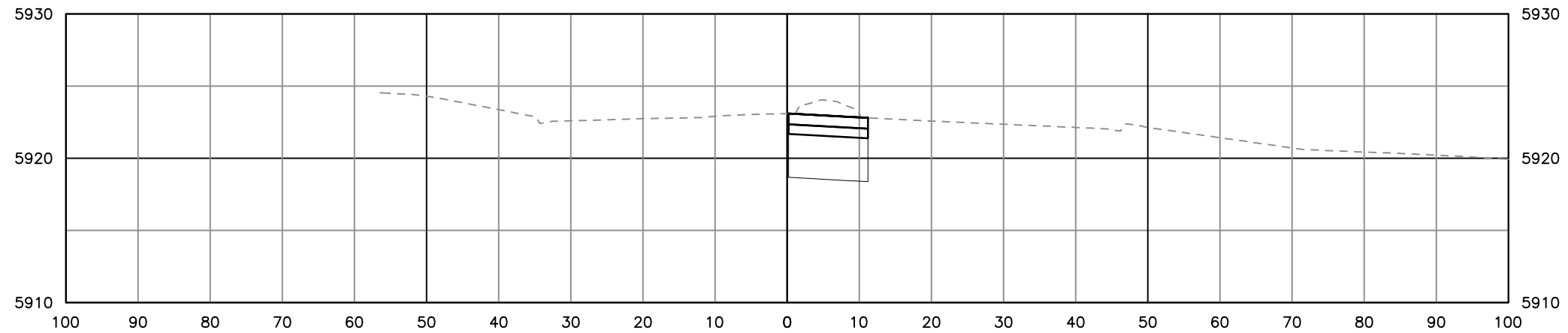


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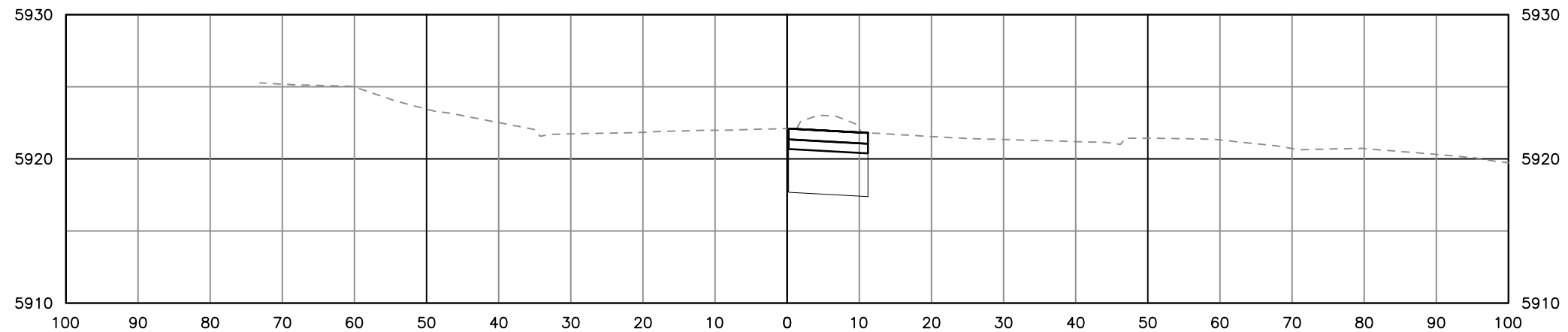


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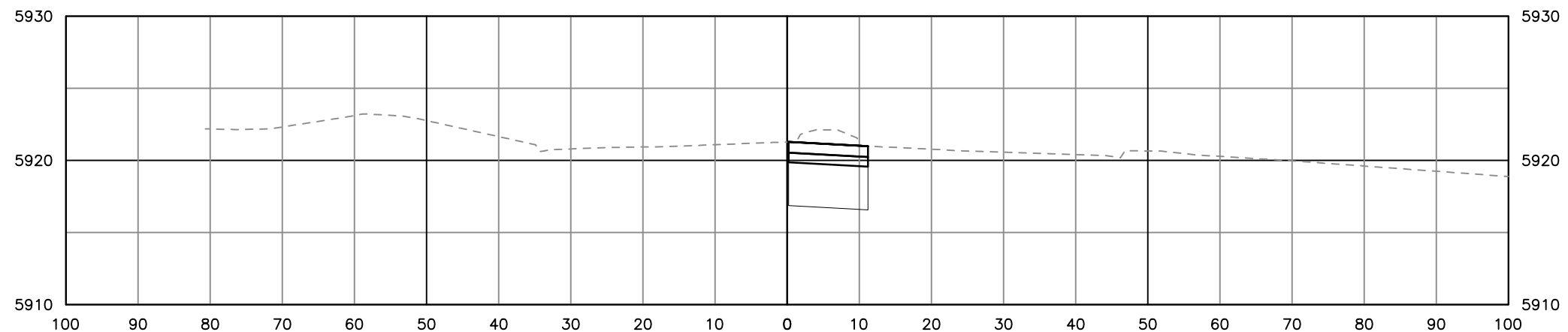
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114+50.00



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114+00.00



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113+50.00

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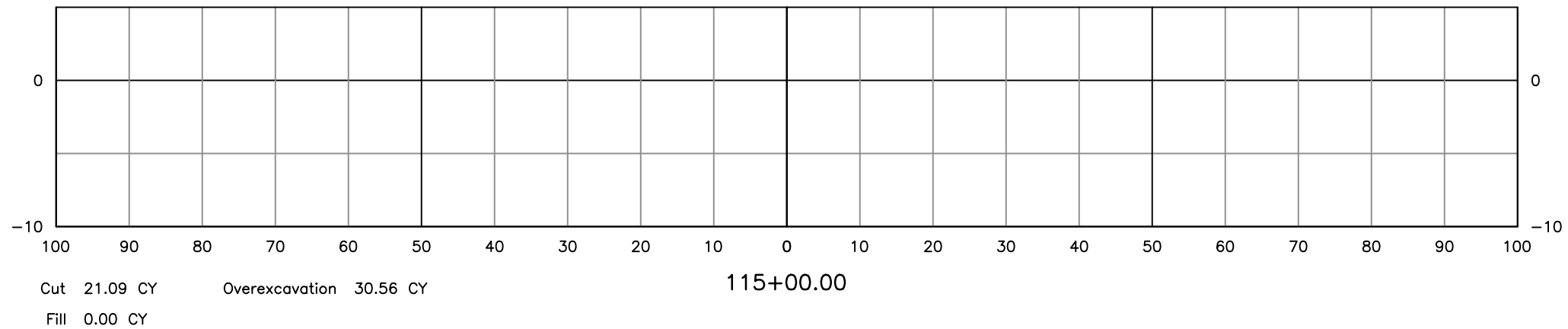
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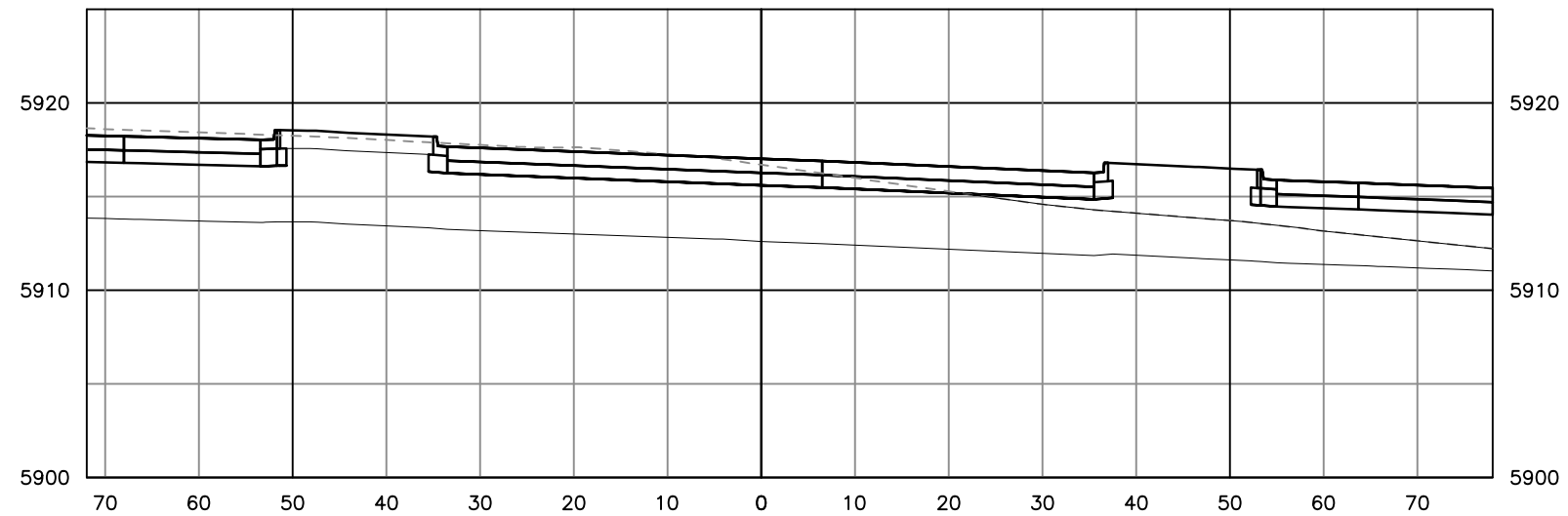
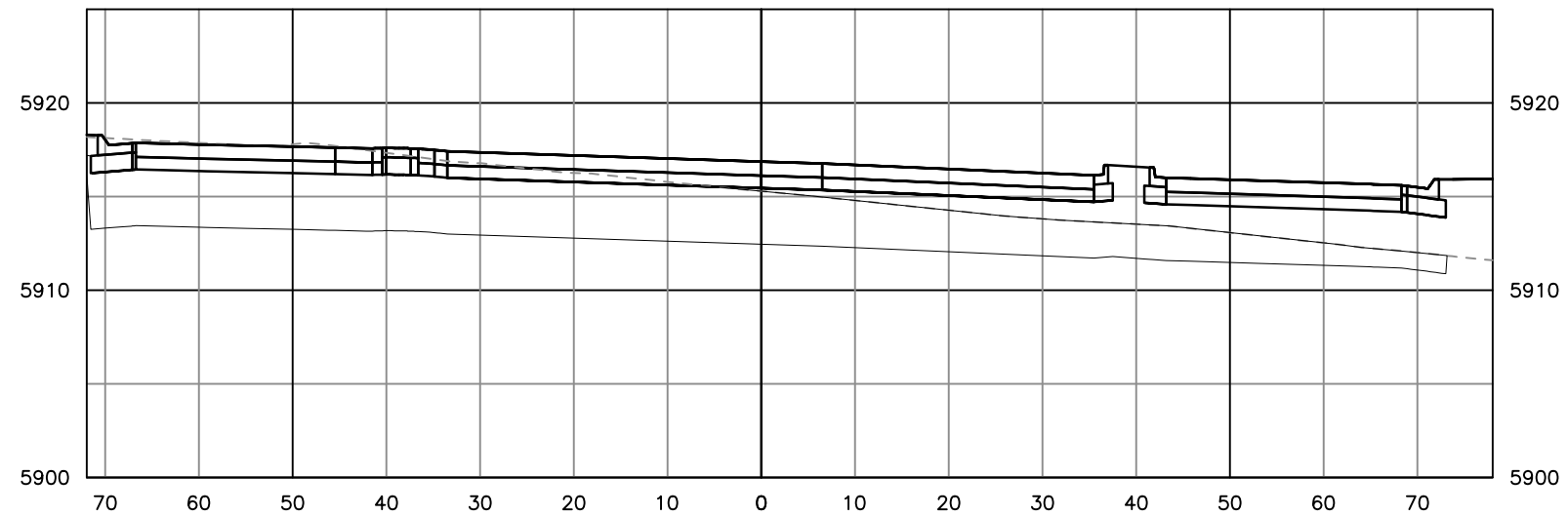


**Manhard**  
CONSULTING LTD

800 E. Arapaho Court, Suite 110, Centennial, CO 80112 ph 303.708.0900 fax 303.708.0400 manhard.com  
 Civil Engineers • Surveyors • Water Resources Engineers • Water & Wastewater Engineers  
 Construction Managers • Environmental Scientists • Landscape Architects • Planners

As Constructed	PEORIA & BELFORD INTERSECTION ROADWAY CROSS SECTIONS PEORIA		Project No./Code
No Revisions:	Designer: DCS	Structure	
Revised:	Detailer: DCS	Numbers	
Void:	Subset: SECTIONS	Sheets: CS-13 of 16	Sheet Number 80

I:\115360-01 - Compare at Belford\CADD\Design\Drawings\Peoria\ Dustin.Shaklee



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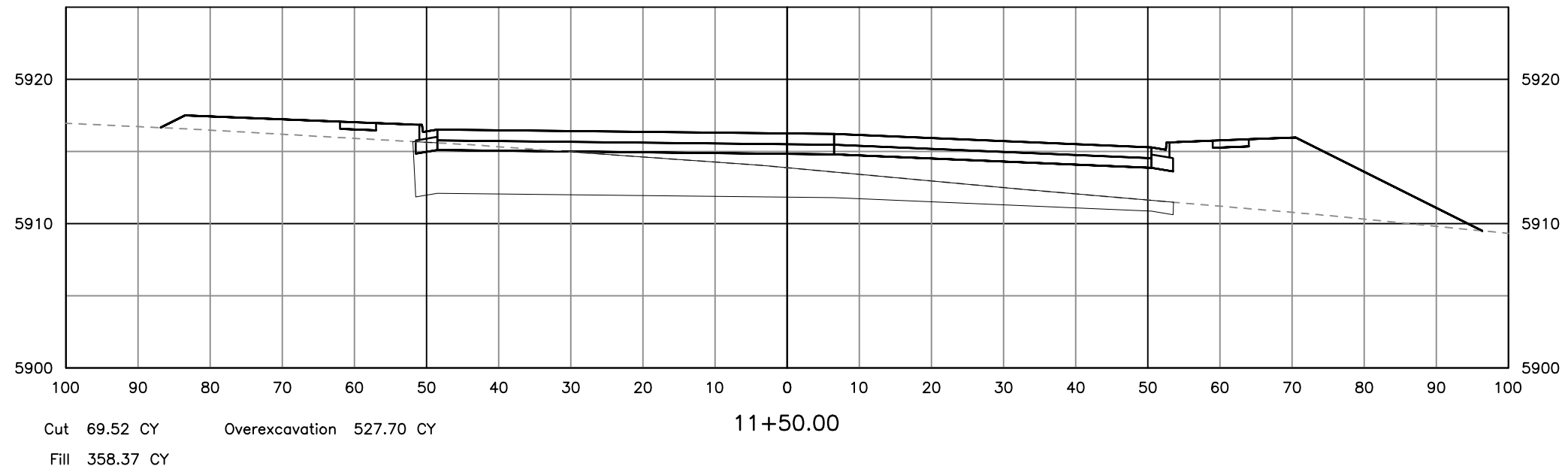
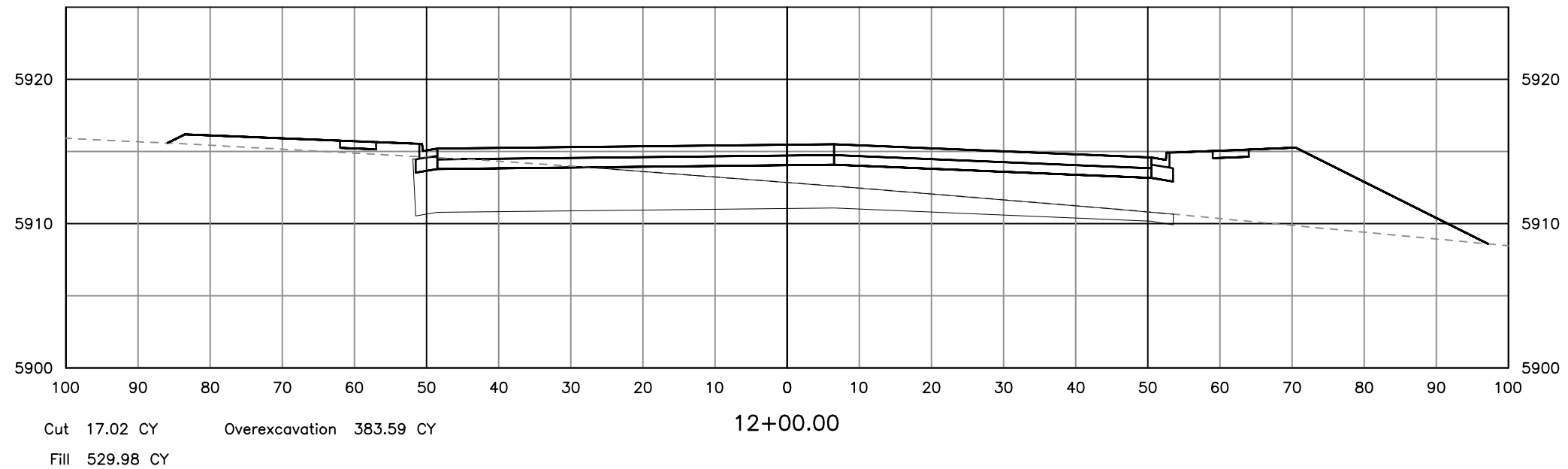
**FELSBURG  
 HOLT &  
 ULLEVIG**  
 6300 South Syracuse Way, Suite 600  
 Centennial, CO 80111  
 tel 303.721.1440  
 fax 303.721.0832

Sheet Revisions		
Date	Comments	Initials



As Constructed	PEORIA & BELFORD INTERSECTION ROADWAY CROSS SECTIONS BELFORD		Project No./Code
No Revisions:	Designer: DCS	Structure	
Revised:	Detailer: DCS	Numbers	
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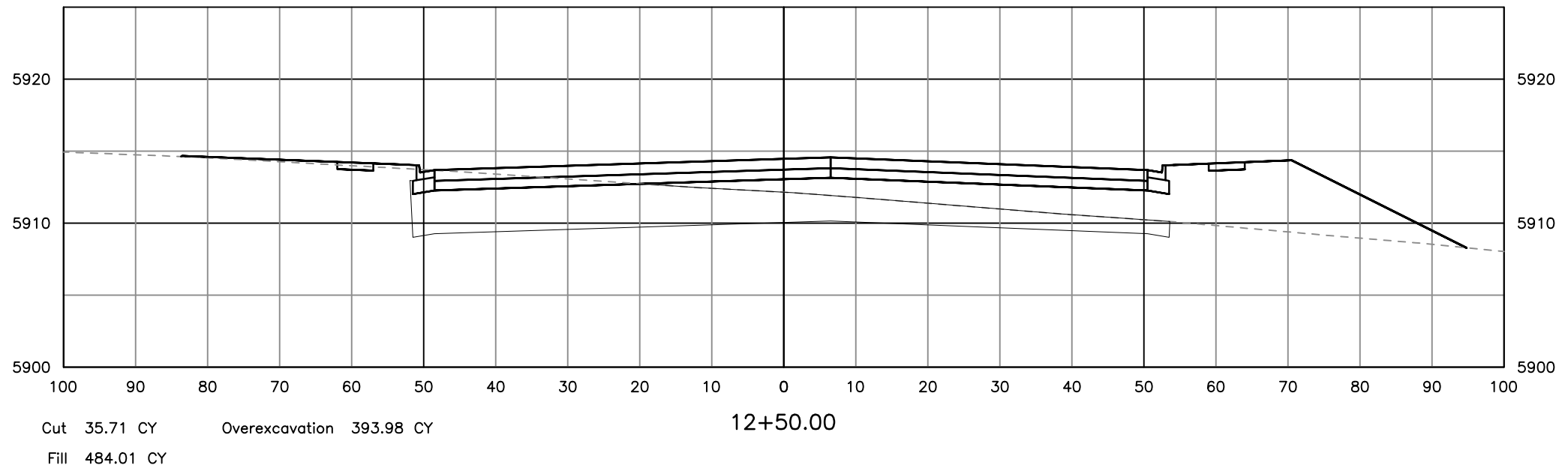
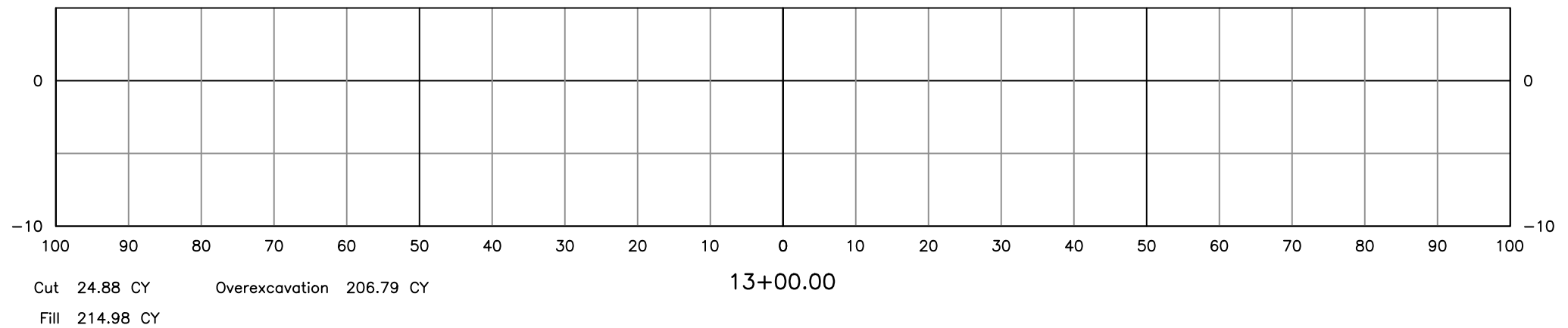
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6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832	

Sheet Revisions		
Date	Comments	Initials



As Constructed	PEORIA & BELFORD INTERSECTION ROADWAY CROSS SECTIONS BELFORD		Project No./Code
No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: DCS		
Void:	Subset: SECTIONS	Sheets: CS-15 of 16	Sheet Number 82

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6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832	

Sheet Revisions		
Date	Comments	Initials



As Constructed	PEORIA & BELFORD INTERSECTION		Project No./Code
	ROADWAY CROSS SECTIONS		
	BELFORD		
No Revisions:	Designer: DCS	Structure	Sheet Number 83
Revised:	Detailer: DCS	Numbers	
Void:	Subset: SECTIONS	Sheets: CS-16 of 16	



# DOUGLAS COUNTY STANDARD SIGNAL DETAILS

UPDATED JANUARY 2016


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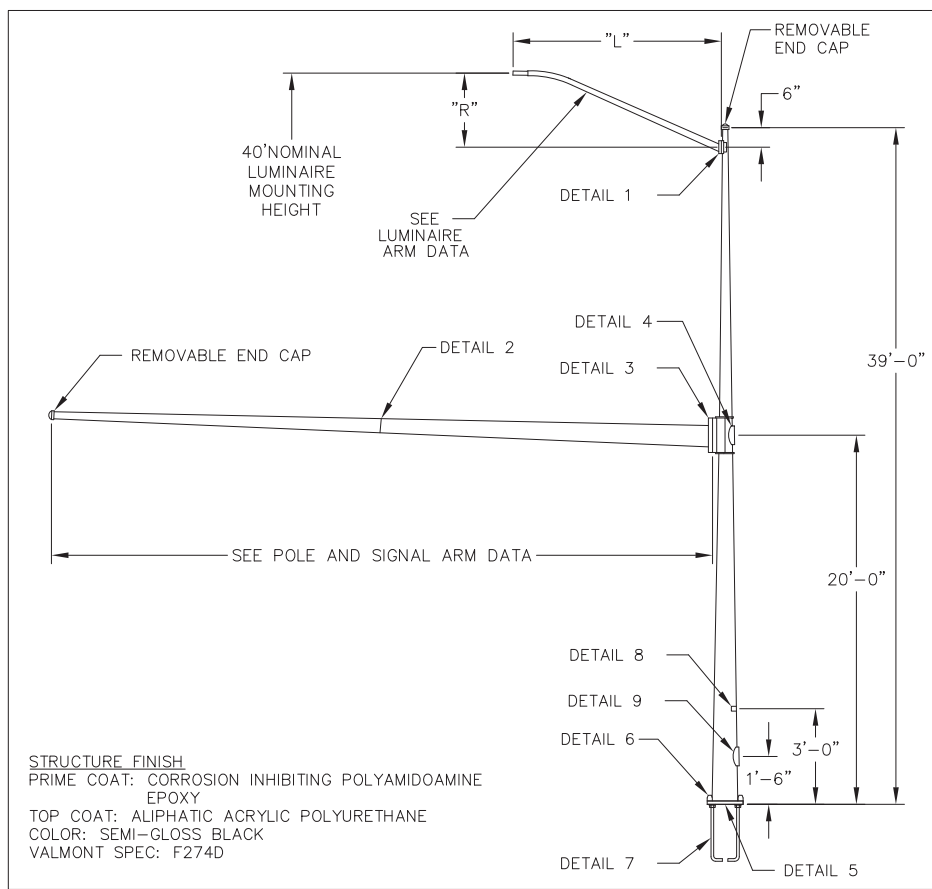
1	TITLE SHEET
2	MAST ARM AND SIGNAL HEADS
3	MAST ARM ATTACHMENT AND POLE BASE
4	PEDESTRIAN POLE
5	LUMINAIRE POLE
6	MAST ARM POLE FOOTINGS (20' THROUGH 80')
7	TEMPORARY SPAN WIRE POLE
8	PEDESTRIAN PUSH BUTTON POLE PEDESTAL POLE
9	CONTROLLER CABINET INSTALLATION
10	SIGNAL HEADS & MOUNTING GENERAL WIRING NOTES
11	PERMANENT (PRECAST) PULL BOX TEMPORARY (PLASTIC) PULL BOX
12	PULL BOX (SPECIAL) LOOP DETECTOR LEAD-IN

### SHEET NO. CONTENTS

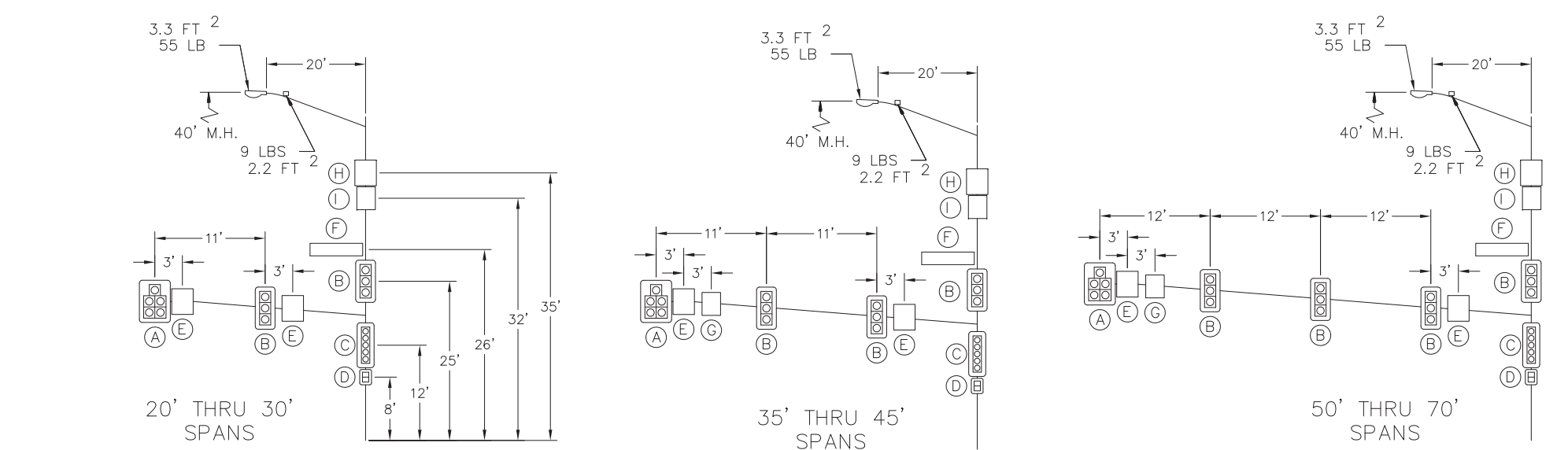
13	DETECTORS CONDUIT INSTALLATIONS
14	UNDERGROUND POWER SCHEMATIC- SIGNALS / GROUND TRENCHING
15	UNDERGROUND POWER FEED OVERHEAD POWER FEED
16	SCHOOL FLASHING BEACONS - SIDE OF ROAD
17	SCHOOL FLASHING BEACON - OVERHEAD
18	WARNING / REGULATORY FLASHING BEACON TYPICAL CROSSWALK MARKING
19	ILLUMINATED STREET NAME SIGN
20	BLANK-OUT REGULATORY / WARNING SIGN
21	SIGNAL PHASING

 DOUGLAS COUNTY PUBLIC WORKS ENGINEERING DIVISION 100 THIRD STREET CASTLE ROCK, COLORADO 80104 303-660-7490	DOUGLAS COUNTY STANDARD SIGNAL DETAILS	
	TITLE SHEET	
ORIGINAL 6-93 00/16 DATE:	DESIGNED BY:	JOB NO.
REVISION JANUARY 2016 REVISION APRIL 2002 REVISION APRIL 2003	SCALE:	DRAWN BY:
		SHEET NO. 1 OF 21

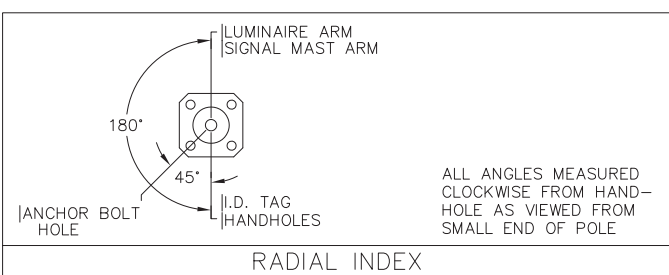
**BID SET ONLY 10-7-16**



STRUCTURE FINISH  
 PRIME COAT: CORROSION INHIBITING POLYAMIDOAMINE EPOXY  
 TOP COAT: ALIPHATIC ACRYLIC POLYURETHANE  
 COLOR: SEMI-GLOSS BLACK  
 VALMONT SPEC: F274D



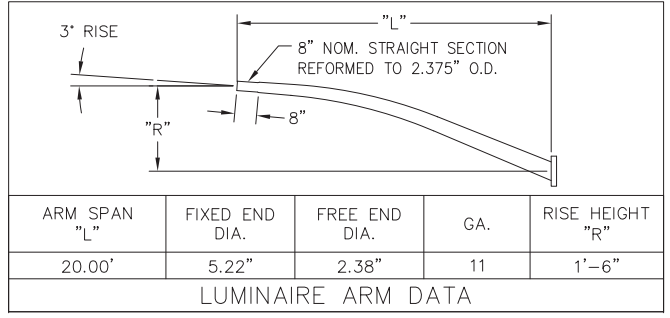
DOUG - 101 - 30 - 20  
 LUMINAIRE ARM LENGTH  
 MAST ARM LENGTH  
 POLE TYPE (01 DESIGNATES AASHTO YEAR)  
 DOUGLAS COUNTY POLE SERIES



MATERIAL DATA					
COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)	COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
ALL TAPERED SHAFTS	A595 GR.A OR A572	55	LUMINAIRE ATTACHMENT	A36	36
POLE BASE	A572 GR.50	50	LUMINAIRE CONN. BOLTS	SAE GR.5	--
SIGNAL ARM ATTACHMENT	A572 GR.50	50	GALVANIZING-HARDWARE	A153	--
SIGNAL ARM CONN. BOLTS	A325	--	ANCHOR BOLTS	F1554 GR.55	55

POLE DESIGN AND SPANS	POLE TUBE				POLE BASE				ANCHOR BOLT				SIGNAL ARM TUBE			
	BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	GAUGE OR THK. (IN)	SQUARE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE / SLOT "Z" (IN)	DIA. "K" (IN)	LENGTH (IN)	HOOK "H" (IN)	THREAD LENGTH "U" (IN)	FIXED END DIA. (IN)	FREE END DIA. (IN)	GAUGE OR THICK (IN)	SPAN (FT)
DOUG-101 20'-40'	17.00	11.54	39.00	0.250	23.00	23.00	2.00	2.00	1.75	84.00	6.00	8.00	8.00	5.20	7	20.00
	17.00	11.54	39.00	0.250	23.00	23.00	2.00	2.00	1.75	84.00	6.00	8.00	10.00	6.50	7	25.00
	17.00	11.54	39.00	0.250	23.00	23.00	2.00	2.00	1.75	84.00	6.00	8.00	11.00	6.80	7	30.00
	17.00	11.54	39.00	0.250	23.00	23.00	2.00	2.00	1.75	84.00	6.00	8.00	12.50	7.60	5	35.00
	17.00	11.54	39.00	0.250	23.00	23.00	2.00	2.00	1.75	84.00	6.00	8.00	13.00	7.40	3	40.00
DOUG-201 45'-70'	18.50	13.04	39.00	0.250	25.00	24.00	2.00	2.25	2.00	84.00	6.00	10.00	12.50	6.56	DET.2	45.00
	18.50	13.04	39.00	0.250	25.00	24.00	2.00	2.25	2.00	84.00	6.00	10.00	13.00	6.36	DET.2	50.00
	18.50	13.04	39.00	0.250	25.00	24.00	2.00	2.25	2.00	84.00	6.00	10.00	14.00	6.66	DET.2	55.00
	18.50	13.04	39.00	0.250	25.00	24.00	2.00	2.25	2.00	84.00	6.00	10.00	14.50	6.46	DET.2	60.00
	18.50	13.04	39.00	0.250	25.00	24.00	2.00	2.25	2.00	84.00	6.00	10.00	15.00	6.26	DET.2	65.00
DOUG-301 75'-80'	20.00	14.54	39.00	0.313	27.00	26.00	2.00	2.50	2.25	89.00	7.00	12.00	16.50	6.36	DET.2	75.00
	20.00	14.54	39.00	0.313	27.00	26.00	2.00	2.50	2.25	89.00	7.00	12.00	17.50	6.66	DET.2	80.00

DEVICE	DESCRIPTION	PROJECTED AREA (FT²)	WEIGHT (LBS)
(A)	12"-5 SEC. SIGNAL WITH BACKPLATE (STACKED)	13.72	96.00
(B)	12"-3 SEC. SIGNAL WITH BACKPLATE	8.67	53.00
(C)	12"-5 SEC. SIGNAL WITH BACKPLATE (VERTICAL)	13.33	96.00
(D)	DUAL-2 SEC.-PEDESTRIAN	8.00	80.00
(E)	30" X 36" REGULATORY SIGN	7.50	25.00
(F)	21" X 144" BACK TO BACK STREET NAME SIGNS	21.00	200.00
(G)	24" X 30" REGULATORY SIGN	5.00	20.00
(H)	36" X 36" REGULATORY SIGN	9.00	30.00
(L)	18" X 30" REGULATORY SIGN	3.75	15.00



ARM SPAN "L"	FIXED END DIA.	FREE END DIA.	GA.	RISE HEIGHT "R"
20.00'	5.22"	2.38"	11	1'-6"

REV	DRAWN BY-DATE	CHECK BY-DATE	DESCRIPTION
B	MAW2 01/24/13	MAW2 01/25/13	DETAIL 6-NUT CVR WAS FLOWER POT TYPE
A	MRL1 07/08/09	MRL1 07/08/09	ADDED ID TAG TO POLE
---	MRL1 04/11/07	MRL1 02/01/08	

TITLE DOUGLAS COUNTY, COLORADO  
 TRAFFIC SIGNAL STRUCTURES  
 AASHTO 2001 DESIGN

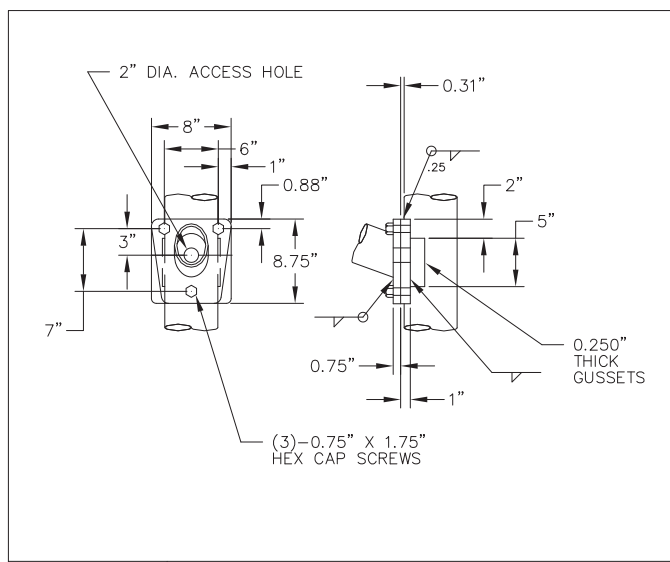
MAST ARM AND SIGNAL HEADS

VALMONT INDUSTRIES, INC. RESERVES THE RIGHT TO INSTALL VARIOUS, ENGINEER APPROVED, MATERIAL HANGING ACCOMMODATIONS TO FACILITATE THE MANUFACTURING PROCESS.

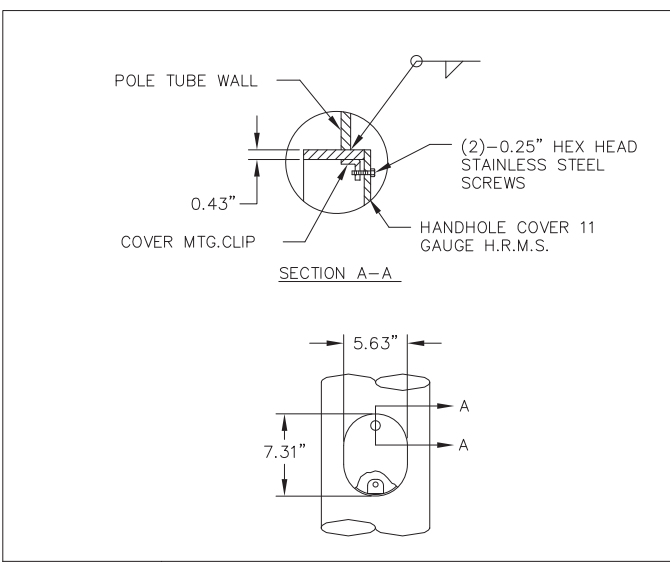


PAGE NUMBER: 1 OF 4	SHEET NO. 2 OF 21
DRAWING NUMBER DB00798	REV B

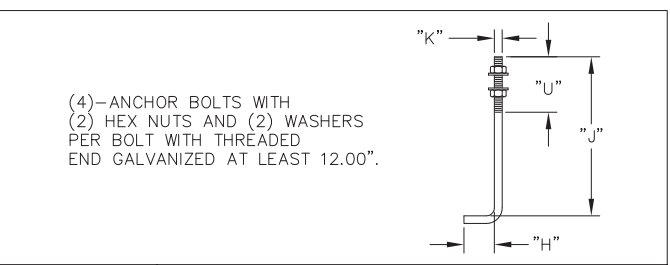




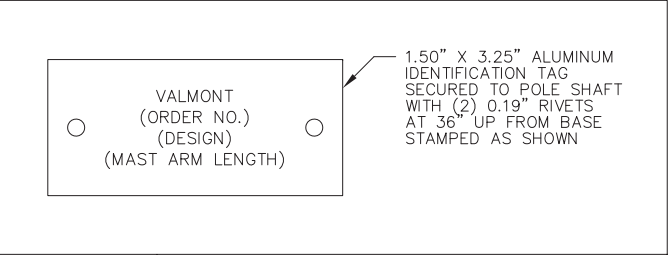
DETAIL 1 | LUMINAIRE ARM ATTACHMENT



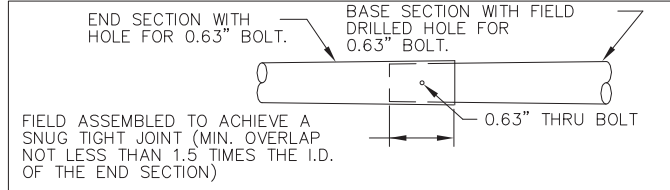
DETAIL 4 | UPPER HANDHOLE



DETAIL 7 | ANCHOR BOLT

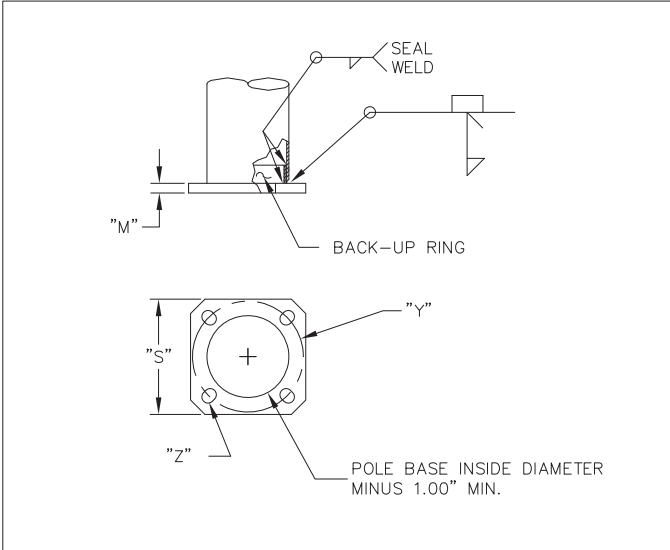


DETAIL 8 | I.D. TAG

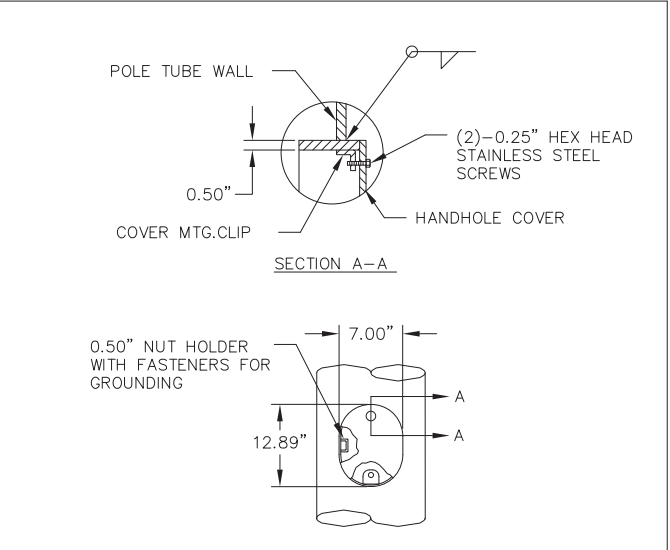


SPAN	BASE SECTION		END SECTION		GAUGE
	LENGTH	GAUGE	BASE DIA.	LENGTH	
45'	15.72'	0.313"	11.00"	31.72'	7
50'	19.29'	0.313"	11.00"	33.15'	7
55'	19.42'	0.313"	12.00"	38.15'	7
60'	15.97'	0.375"	13.00"	46.72'	7
65'	19.54'	0.375"	13.00"	48.15'	7
70'	23.11'	0.375"	13.00"	49.58'	7
75'	30.26'	0.375"	13.00"	47.44'	7
80'	37.40'	0.375"	13.00"	45.30'	7

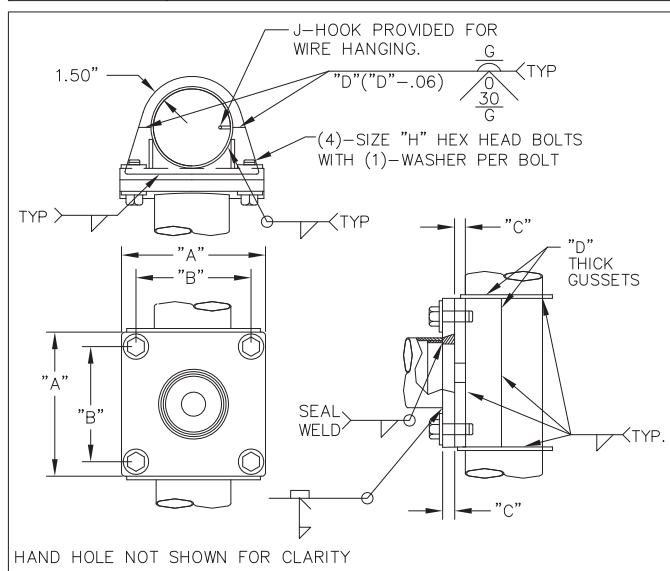
DETAIL 2 | SIGNAL ARM SLIP JOINT



DETAIL 5 | POLE BASE



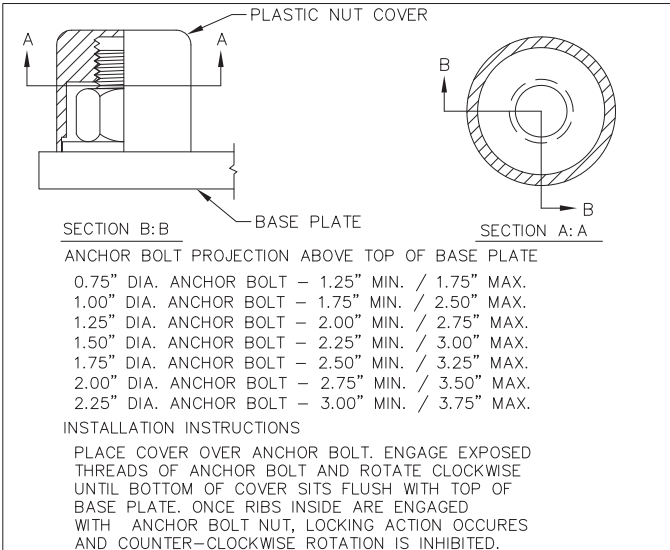
DETAIL 9 | LOWER HANDHOLE



SIGNAL ARM ATTACHMENT DATA

POLE TYPE	"A"	"B"	"C"	"D"	"H"
DOUG-101	21.75"	18.50"	1.750"	0.500"	1.25" X 3.75"
DOUG-201	24.25"	20.50"	2.000"	0.625"	1.50" X 4.25"
DOUG-301	26.75"	23.00"	2.000"	0.625"	1.50" X 4.25"

DETAIL 3 | SIGNAL ARM ATTACHMENT



DETAIL 6 | NUT COVER

THESE TRAFFIC SIGNAL SUPPORT STRUCTURES ARE DESIGNED IN ACCORDANCE WITH LOADING AND ALLOWABLE STRESS REQUIREMENTS OF 2001 AASHTO "STANDARDS SPECIFICATION FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", FOURTH EDITION. WIND LOADS ARE BASED ON A BASIC WIND SPEED OF 100 MPH WITH A RECURRENCE INTERVAL OF 50 YEARS, AND A FATIGUE CATEGORY OF 2. FATIGUE LOADS ARE BASED ON THE REQUIREMENTS OF SECTION 11.7 AND THE FOLLOWING DESIGN LOADS:

VORTEX SHEDDING: NOT APPLICABLE FOR STRUCTURES WITH A TAPER OF AT LEAST 0.14 IN/FT, PER AASHTO.

NATURAL WIND GUSTS: THE YEARLY MEAN WIND SPEED FOR NATURAL WIND GUSTS WILL BE ASSUMED TO BE 11.2 MPH.

GALLOPING: STRUCTURES ARE NOT DESIGNED TO RESIST PERIODIC GALLOPING FORCES.

TRUCK-INDUCED GUST: STRUCTURES ARE DESIGNED TO INCLUDE TRUCK-INDUCED GUSTS. (THE SPECIFIED AVERAGE TRUCK SPEED IS 65 MPH)

AASHTO 2001 SPECIFICATIONS

TITLE DOUGLAS COUNTY, COLORADO TRAFFIC SIGNAL STRUCTURES AASHTO 2001 DESIGN

MAST ARM ATTACHMENT AND POLE BASE

VALMONT INDUSTRIES, INC. RESERVES THE RIGHT TO INSTALL VARIOUS, ENGINEER APPROVED, MATERIAL HANGING ACCOMMODATIONS TO FACILITATE THE MANUFACTURING PROCESS.



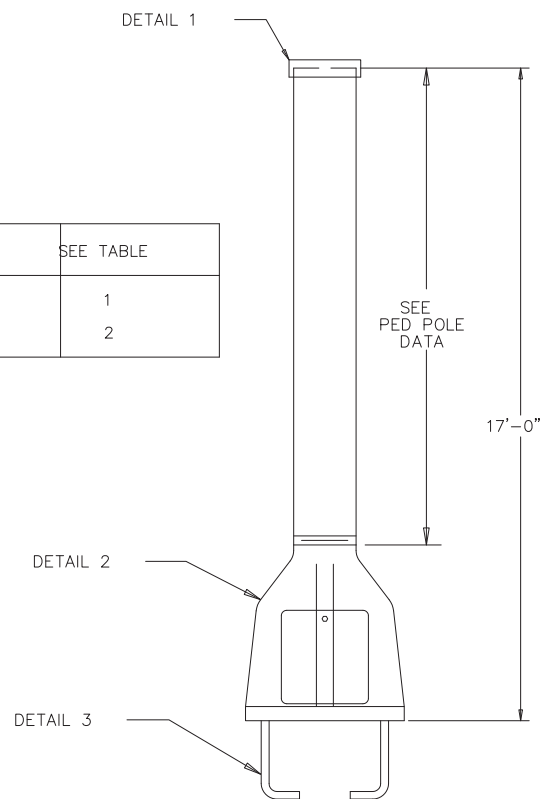
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REV: B



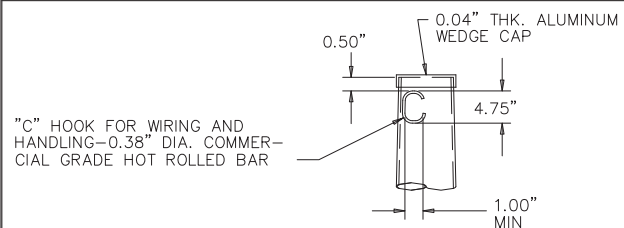
SHEET NO. 3 OF 21

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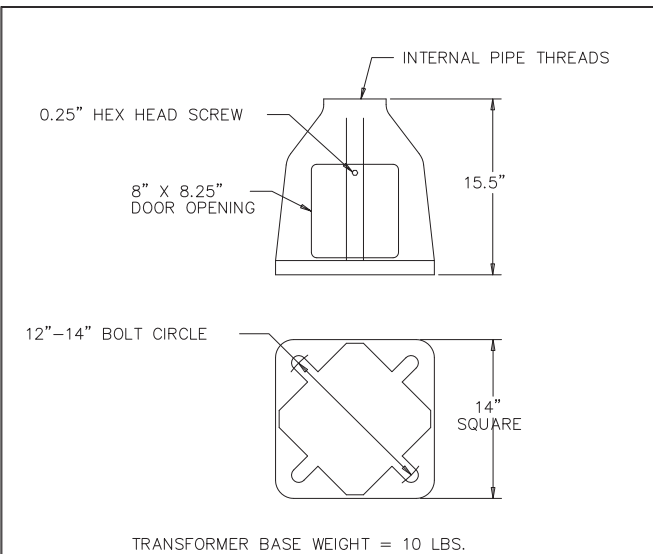
FOR THIS INFORMATION	SEE TABLE
MEMBER SIZES	1
MATERIAL DATA	2



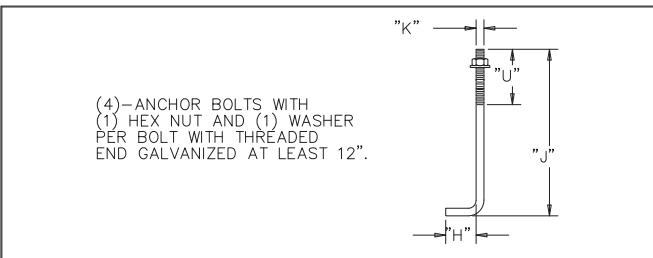
DOUG POLE SERIES



DETAIL 1 POLE TOP



DETAIL 2 TRANSFORMER BASE



DETAIL 3 ANCHOR BOLT

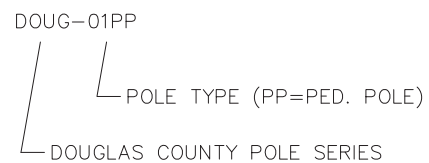
TABLE 2: MATERIAL DATA

COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
4" SCH.40 PIPE	A501, A513, A618 OR A500 GR.B	36
ALUM. TRANSFORMER BASE	CLASS 356.0-T6	
ANCHOR BOLTS	AASHTO M314 GR.55	55

STRUCTURE FINISH  
PRIME COAT: CORROSION INHIBITING POLYAMIDOAMINE EPOXY  
TOP COAT: ALIPHATIC ACRYLIC POLYURETHANE  
COLOR: SEMI-GLOSS BLACK  
VALMONT SPEC: F274D

TABLE 1: POLE SCHEDULE

DESIGNATION		POLE DATA					ANCHOR BOLT DATA			
POLE SERIES	POLE TYPE	BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	THICK (IN)	TRANSFORMER BASE TYPE	DIA. "K" (IN)	LENGTH "J" (IN)	HOOK "H" (IN)	THREAD LENGTH "U" (IN)
DOUG01	PP	4.50	4.50	15.83	0.237	TUCKER	0.75	17	3	6



DESIGNATION EXAMPLE



SHEET NO.  
4 OF 21

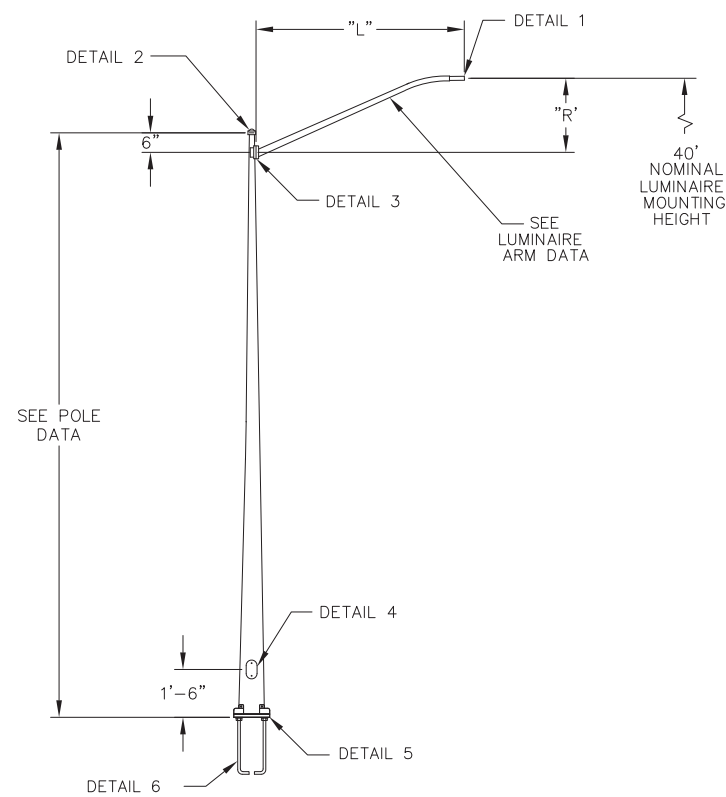
TITLE  
DOUGLAS COUNTY, COLORADO  
TRAFFIC SIGNAL STRUCTURES  
AASHTO 2001 DESIGN

PEDESTRIAN  
POLE

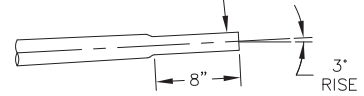
VALMONT INDUSTRIES, INC. RESERVES  
THE RIGHT TO INSTALL VARIOUS,  
ENGINEER APPROVED, MATERIAL HANGING  
ACCOMMODATIONS TO FACILITATE THE  
MANUFACTURING PROCESS.

**valmont**  
Valley, NE 68064  
(402) 359-2201

PAGE NUMBER: 3 OF 4  
DRAWING NUMBER: DB00798  
REV: B

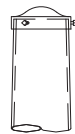


8" NOMINAL STRAIGHT SECTION REFORMED TO 2.38" O.D.



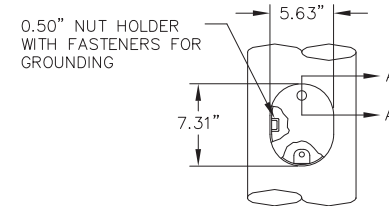
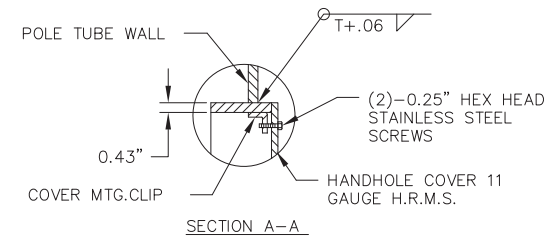
DETAIL 1 | ARM END

CAST POLE TOP CAP HELD IN PLACE WITH 3 SET SCREWS.

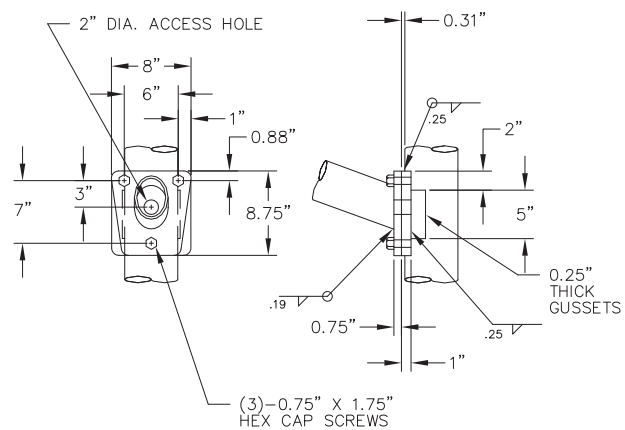


DETAIL 2 | POLE TOP

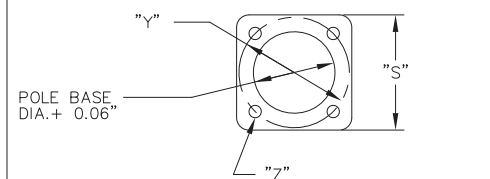
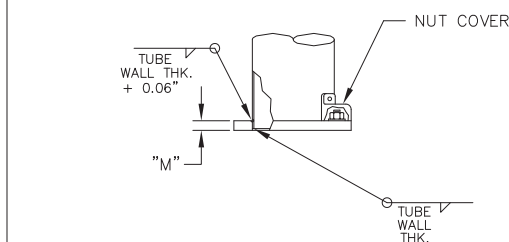
(T = SHAFT WALL THICKNESS)



DETAIL 4 | HANDHOLE



DETAIL 3 | LUMINAIRE ARM ATTACHMENT



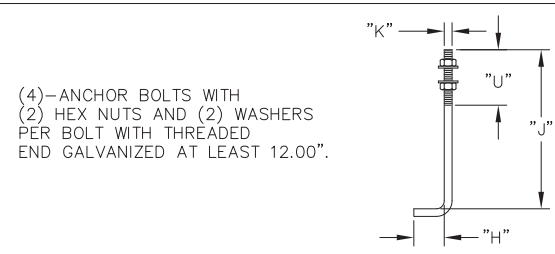
DETAIL 5 | POLE BASE

MATERIAL DATA

COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)	COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
POLE SHAFT	A595 GR.A	55			
ARM SHAFT	A595 GR.A	55			
POLE BASE	A572 GR.50	50			
SIMPLEX PLATE	A36	36			
GUSSET PLATES	A36	36			
LUMINAIRE CONN. BOLTS	SAE GR.5				
ANCHOR BOLTS	F1554 GR.55	--			
GALVANIZING-HARDWARE	A153	55			

POLE AND LUMINAIRE ARM DATA

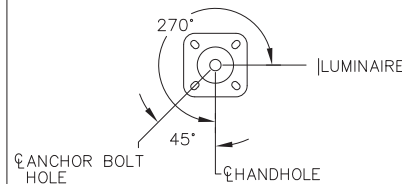
DESIGN	POLE TYPE	POLE TUBE					POLE BASE				ANCHOR BOLT				LUMINAIRE ARM TUBE			
		BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	GAUGE OR THICK (IN)	SQUARE "S" (IN)	BOLT CIRCLE "M" (IN)	THK. "N" (IN)	HOLE / SLOT "Z" (IN)	DIA. "K" (IN)	LENGTH "J" (IN)	HOOK "H" (IN)	THREAD LENGTH "U" (IN)	FIXED END DIA. (IN)	FREE END DIA. (IN)	GAUGE OR THICK (IN)	SPAN "L" (FT)	RISE "R" (FT)
DOUG-01	32	11.00	5.54	39.00	7	15.00	15.00	1.25	1.75	1.50	54.00	6.00	8.00	5.22	2.40	11	20.00	1.50



DETAIL 6 | ANCHOR BOLT

STRUCTURE FINISH  
 PRIME COAT: CORROSION INHIBITING POLYAMIDOAMINE EPOXY  
 TOP COAT: ALIPHATIC ACRYLIC POLYURETHANE  
 COLOR: SEMI-GLOSS BLACK  
 VALMONT SPEC: F274D

DOUG - 0132 - 20  
 DOUGLAS COUNTY POLE SERIES  
 LUMINAIRE ARM LENGTH  
 POLE TYPE (01 DESIGNATES AASHTO YEAR)



ALL ANGLES MEASURED CLOCKWISE FROM HAND-HOLE AS VIEWED FROM SMALL END OF POLE

RADIAL INDEX

TITLE DOUGLAS COUNTY, COLORADO LIGHTING STRUCTURES AASHTO 2001 DESIGN

LUMINAIRE POLE

VALMONT INDUSTRIES, INC. RESERVES THE RIGHT TO INSTALL VARIOUS, ENGINEER APPROVED, MATERIAL HANGING ACCOMMODATIONS TO FACILITATE THE MANUFACTURING PROCESS.

valmont  
 Valley, NE 68064  
 (402) 359-2201

PAGE NUMBER: 4 OF 4  
 DRAWING NUMBER: DB00798  
 SHEET NO. 5 OF 21  
 REV: B



# EXISTING MAST ARM DRILLED PIER SCHEDULE

DC DWG	POLE SERIES/TYPE	EXISTING MAST ARM LENGTH (ft)	SHAFT DIAMETER (in)	SHAFT LENGTH		REINFORCING		DESIGN SERVICE LOADS			
				L (ft)	LBR (ft)	VERTICAL	HORIZONTAL TIES	AXIAL (lbs)	SHEAR (lbs)	TORSION (ft/lb)	MOMENT (ft/lb)
DB00349	DOUG 1, 2 & 3	0 - 60	42	14'-0	6'-0	(19) #8	#5 @ 6 1/4" OC	4,681	4,708	119,317	115,994
	DOUG 4 & 5	65 - 70	42	14'-6	6'-0	(19) #8	#5 @ 5 1/2" OC	5,109	4,564	144,316	126,674

# NEW MAST ARM DRILLED PIER SCHEDULE

DC DWG	POLE SERIES/TYPE	NEW MAST ARM LENGTH (ft)	SHAFT DIAMETER (in)	SHAFT LENGTH		REINFORCING		DESIGN SERVICE LOADS			
				L (ft)	LBR (ft)	VERTICAL	HORIZONTAL TIES	AXIAL (lbs)	SHEAR (lbs)	TORSION (ft/lb)	MOMENT (ft/lb)
DB00798	DOUG 101	20 - 40	36	14'-6	6'-0	(16) #8	#5 @ 8" OC	4,836	5,328	59,407	125,353
	DOUG 201	45 - 70	42	16'-0	7'-0	(19) #8	#5 @ 6" OC	6,555	5,585	128,708	162,241
	DOUG 301	75 - 80	42	17'-0	7'-6	(23) #8	#5 @ 4 3/4" OC	7,981	5,960	169,115	212,572

## GENERAL NOTES

- THE GEOTECHNICAL REPORT PREPARED BY YEH AND ASSOCIATES, INC. NUMBER 28-033, DATED MARCH 19, 2008 PROVIDED CRITERIA FOR THE FOUNDATION DESIGN FOR THE PROJECT. RE: DRILLED PIER TABLE FOR SOIL INPUT DATA FOR L-PILE COMPUTER PROGRAM.
- NO SPLICING OF VERTICAL REINFORCEMENT IS PERMITTED.

### A. DRILLED PIER TABLE:

MATERIAL	c (PSF)	φ	γ <sub>t</sub>	K <sub>s</sub>	E50	SOIL TYPE
SOIL	0	28	110	90	--	1
CLAY	750	0	100	--	0.01	2
BEDROCK	3000	0	120	--	0.005	3

- c - COHESION INTERCEPT (PSF)  
 φ - ANGLE OF INTERNAL FRICTION  
 γ<sub>t</sub> - TOTAL UNIT WEIGHT (PCF)  
 K<sub>s</sub> - INITIAL MODULES OF HORIZONTAL SUBGRADE REACTION (PCI) - STATIC  
 SOIL TYPES:  
 1. SAND (REESE)  
 2. SOFT CLAY  
 3. STIFF CLAY W/O FREE WATER

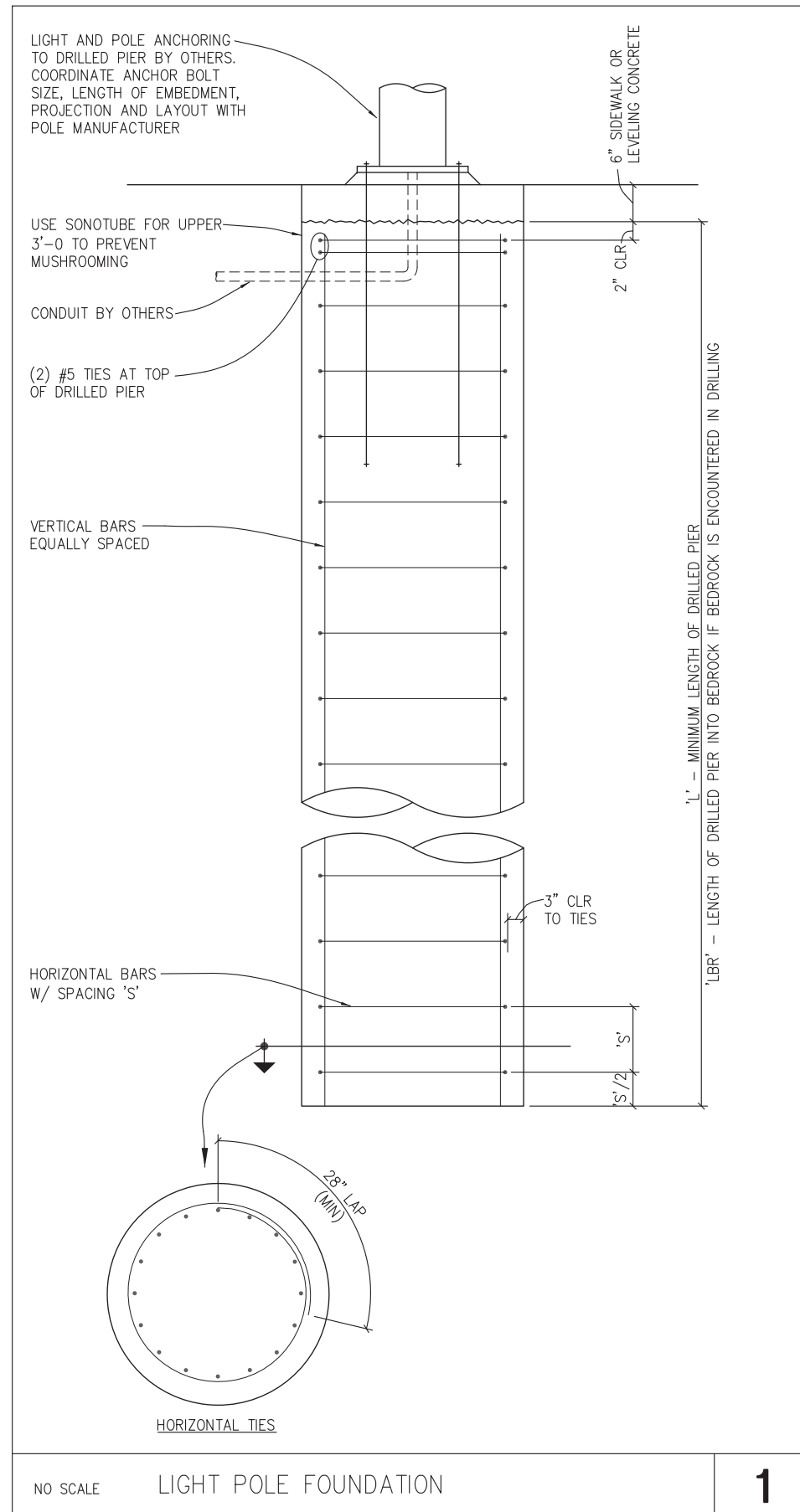
- GEOTECHNICAL ENGINEER SHALL BE PRESENT FULL TIME AT SITE DURING PIER DRILLING FOR DRILLED PIER SHAFT OBSERVATION AND INSPECTION.
- TESTING AGENCY SHALL BE USED TO SAMPLE AND TEST CONCRETE BEING PLACED ON SITE TO VERIFY CORRECT MIX, SLUMP AND DESIGN STRENGTH.
- PIER HOLES SHALL BE PROPERLY CLEANED PRIOR TO PLACEMENT OF CONCRETE.
- CONCRETE SHALL BE PLACED IN HOLE FULL HEIGHT SAME DAY AFTER DRILLING WITH NO CONSTRUCTION JOINTS.
- TREMIE METHOD OF CONCRETE PLACEMENT SHALL BE USED IF MORE THAN 3" OF WATER IS PRESENT AT BOTTOM OF PIER.
- DRILLED PIER LENGTH 'L' IS THE MINIMUM REQUIRED LENGTH AND INCLUDES 2'-0 OF MATERIAL DISCOUNTED FOR DESIGN. IF SOIL MATERIAL IS LOOSE FILL DEEPER THAN 2'-0, DRILLED PIER LENGTH SHALL BE EXTENDED SAME AMOUNT OVER THE 2'-0 LENGTH. IF BEDROCK IS ENCOUNTERED MINIMUM LENGTH IN BEDROCK 'LBR' SHALL BE PROVIDED.
- REINFORCING STEEL SHALL CONFORM TO ASTM A615/A615M, GRADE 60 DEFORMED.

### 10. CONCRETE MIX REQUIREMENTS:

TYPE	INTENDED USE	28 DAY STRENGTH F'C (KSI)	CONC. TYPE LIGHTWEIGHT (LW) NORMAL WT. (NW)	MAX W/C (INCLUDING FLY ASH)	MIN. CEM. MTRL (#/CY) (INC. FLY ASH)	MAX. AGGR. (IN) (1)	SLUMP LIMITS (IN) (0' - 2')	TOTAL AIR LIMITS (%) (2)	CEMENT TYPE	REQ'D ADMIXTURES	OTHER REQUIREMENTS (3)
1	DRILLED PIERS	3	NW	--	470	1	7	6	II	(4)	HRNP

### NOTES:

- FOR THE MAXIMUM COARSE AGGREGATE SIZE INDICATED, USE THE FOLLOWING AGGREGATE SIZE NUMBERS PER ASTM C33:  
 3/4" #67 AGGREGATE  
 1" #57 AGGREGATE
- TOTAL AIR CONTENT LIMITS INCLUDE BOTH ENTRAINED AND ENTRAPPED AIR +/- 1 1/2%. 'N' IN COLUMN INDICATES ADDITION OF ENTRAINED AIR IS NOT PERMITTED.
- ABBREVIATIONS FOR OTHER REQUIREMENTS AS FOLLOWS:  
 HRNP = HIGH RANGE WATER REDUCING ADMIXTURE SHALL NOT BE USED TO OBTAIN HIGH SLUMP UNLESS DATA ARE SUBMITTED DEMONSTRATION SLUMP IS NOT LOST UNTIL CONCRETE IS OVER 90 MINUTES OLD.
- FOR DRILLED PIERS REQUIRED TO BE CASED PROVIDE CONCRETE MIX WITH FLOWABILITY TO PREVENT ARCHING WHEN CASING IS PULLED.

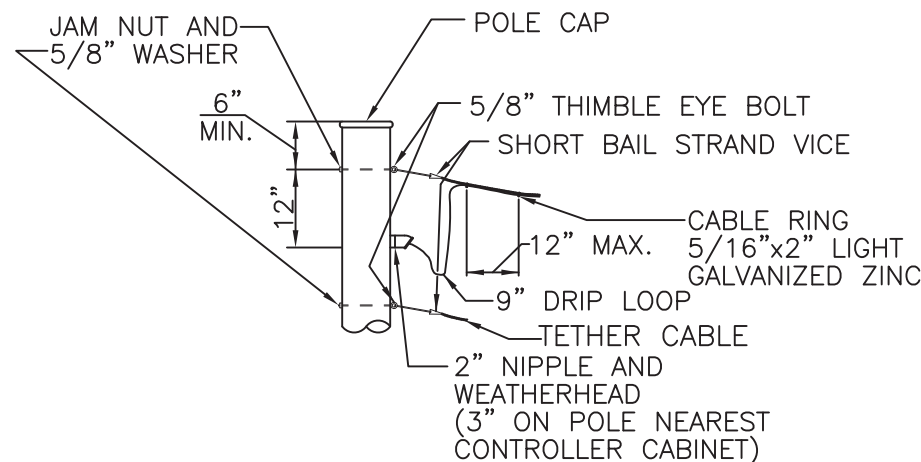
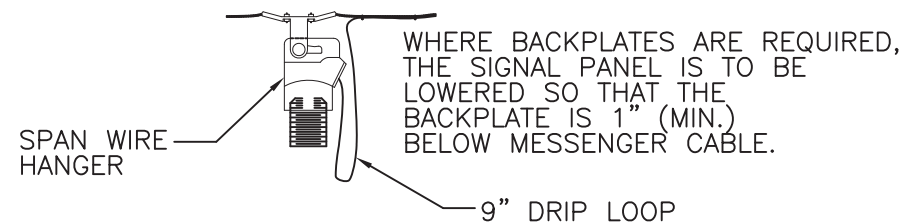
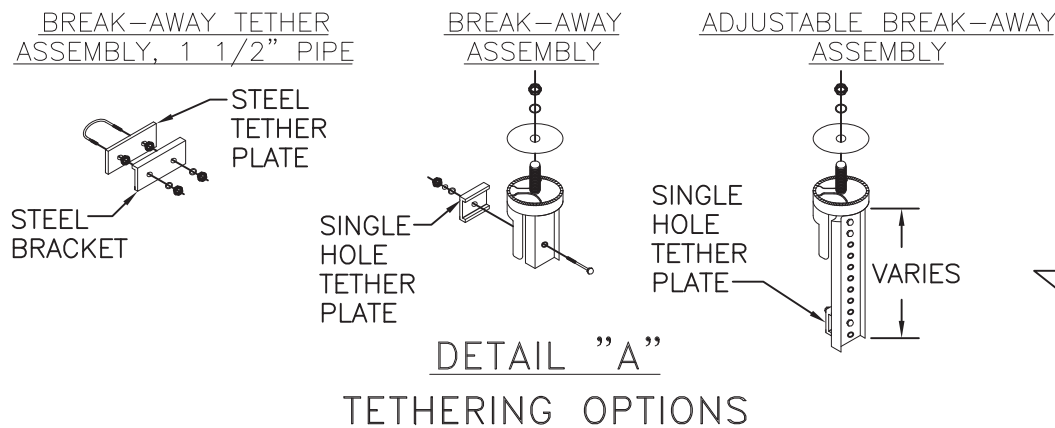
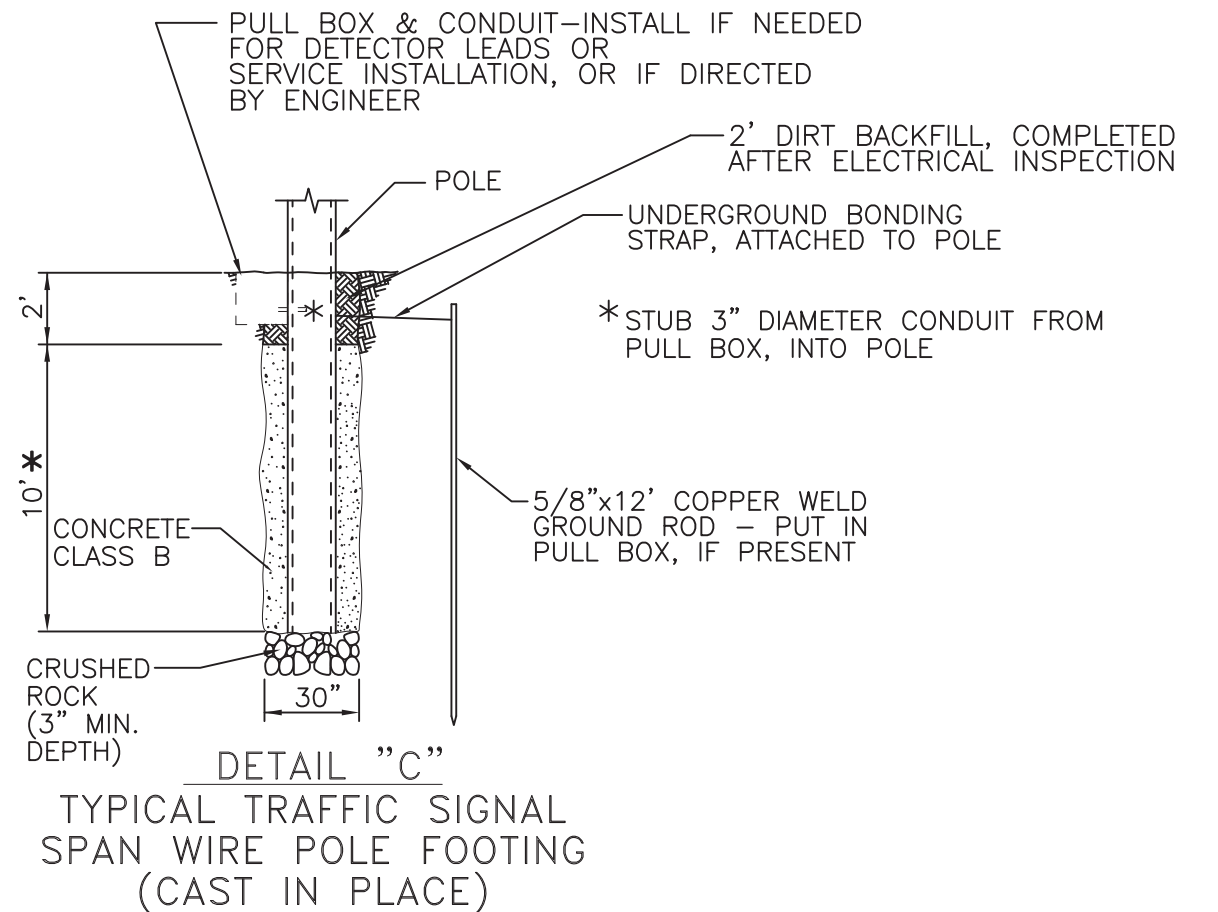
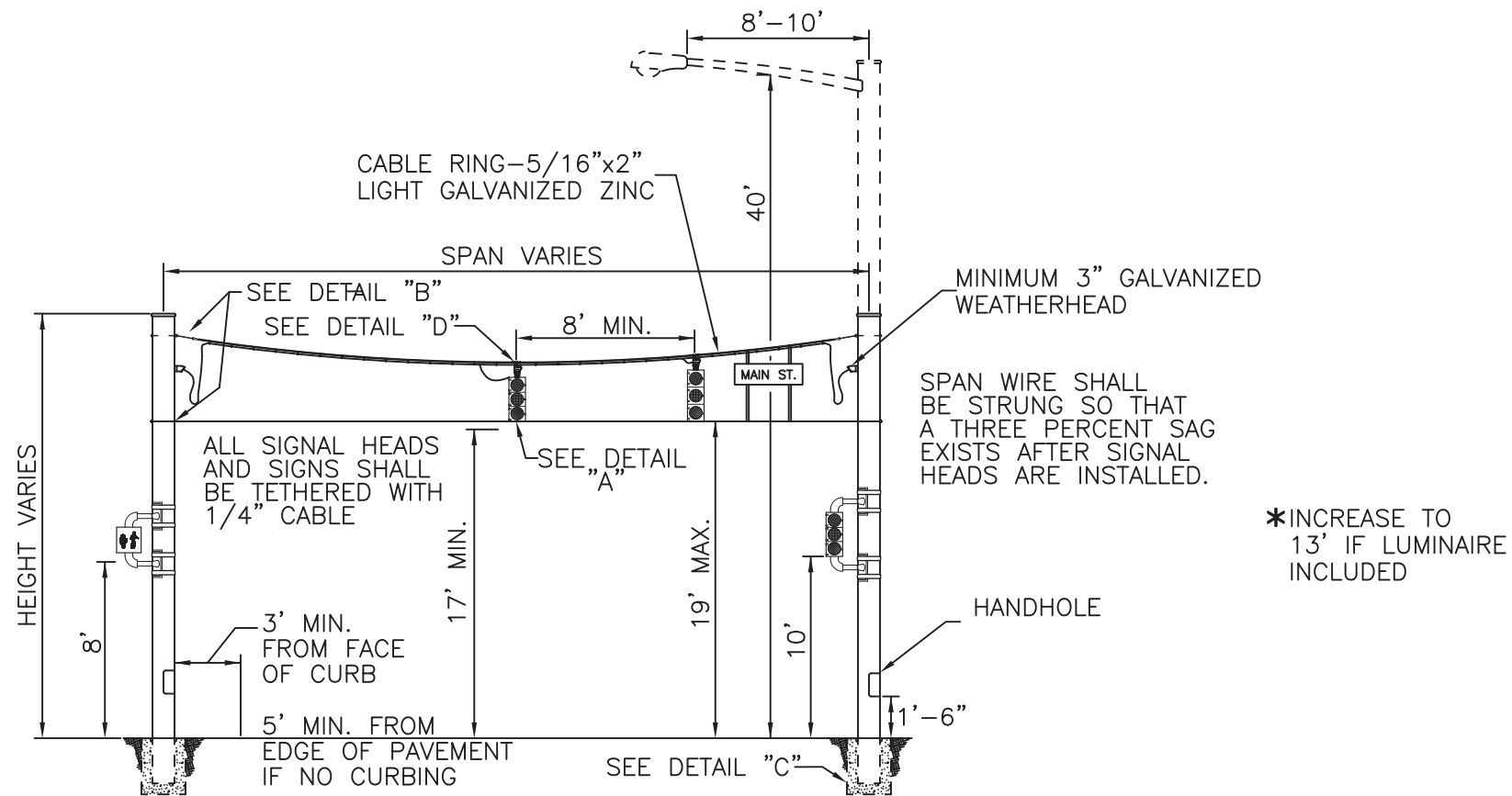


NO SCALE

LIGHT POLE FOUNDATION

1





GENERAL NOTES

- SPAN WIRE POLES SHALL BE FINISHED WITH 1 COAT OF RUST INHIBITIVE PRIMER AND 1 COAT OF A COMPATIBLE TOP COAT SUITABLE FOR LONG-WEARING OUTDOOR USE, SEMI-GLOSS BLACK IN COLOR. POLE SURFACE SHALL BE WIPED CLEAN AND FREE OF DEBRIS PRIOR TO FINISH APPLICATION. FINISH APPLICATION SHALL BE COMPLETED PRIOR TO INSTALLATION OF SIGNAL/PEDESTRIAN HEADS AND PEDESTRIAN PUSH BUTTONS. FOLLOWING INSTALLATION OF THESE ITEMS, CONTRACTOR SHALL TOUCH UP NICKS AND ABRASIONS AS NEEDED.
- DESIGN CRITERIA SHALL MEET LATEST AASHTO EDITION OF "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS," FOR A WIND VELOCITY OF 90 MPH.
- SPAN WIRE POLES SHALL BE FABRICATED OF STEEL WITH A MIN. YIELD STRENGTH OF 35 KSI. AND A MIN. WEIGHT PER LINEAR FOOT AS FOLLOWS: 40.4 LB. FOR 10" DIA. POLES AND 49.5 LB. FOR 12" DIA. POLES. POLES SHALL BE INSTALLED SO THAT THEY WILL BE PLUMB WHEN DEFLECTED BY THE INSTALLED LOAD. SPAN WIRE CABLE SHALL BE A MINIMUM OF 3/8 INCH DIAMETER, RATED AT A MINIMUM OF 13,000 POUNDS.
- SPAN WIRE SIGNAL HEADS SHALL HAVE ONE POWER FEED WIRE IN AND OUT PER HEAD. CONNECTIONS SHALL BE MADE ONLY ON THE SIGNAL HEAD TERMINALS, WITH NO EXTERNAL SPLICES.

DETAIL "D"  
TYPICAL SPAN WIRE MOUNTING

DETAIL "B"  
TYPICAL CABLE AND TETHER 1NSTALLATION

TEMPORARY SPAN WIRE POLE DETAIL

(FOR SPECIAL USE, WITH PRIOR APPROVAL OF COUNTY ONLY)



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PUBLIC WORKS  
ENGINEERING DIVISION  
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DOUGLAS COUNTY  
STANDARD SIGNAL DETAILS

TEMPORARY SPAN WIRE POLE

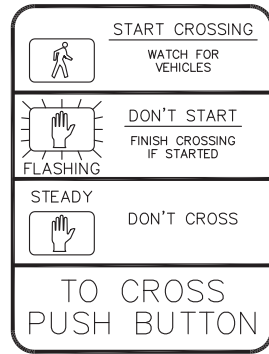
ORIGINAL 6-93 00/16 DATE:	DESIGNED BY: JOB NO.
REVISION JANUARY 2016 SCALE:	DRAWN BY: SHEET NO.
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### FINISH REQUIREMENTS

ALL PEDESTRIAN PUSH BUTTON AND PEDESTAL POLES SHALL BE FACTORY PAINTED WITH A RUST INHIBITIVE EPOXY PRIMER (MIN. DRY FILM THICKNESS OF 2.0 MILS) AND A COMPATIBLE POLYURETHANE TOP COAT LIQUID COATING (MIN. DRY FILM THICKNESS OF 2.0 MILS). ALL ACCESSIBLE INTERIOR SURFACES SHALL BE COATED WITH A RUST INHIBITIVE PRIMER (MIN. DRY FILM THICKNESS OF 1.0 MILS). ALL SURFACES TO BE TREATED SHALL BE ABRASIVE BLASTED TO A NEAR WHITE FINISH.

THE TOP COAT SHALL BE AMERON AMERSHIELD, TNEMEC ENDURA-SHIELD III, NICKLAD 105, OR APPROVED SUBSTITUTE, AND SHALL BE SEMI-GLOSS BLACK IN COLOR. FOLLOWING INSTALLATION OF POLES, CONTRACTOR SHALL USE FACTORY SUPPLIED PAINT TO TOUCH UP NICKS AND ABRASIONS.



R10-3b  
9"x12"

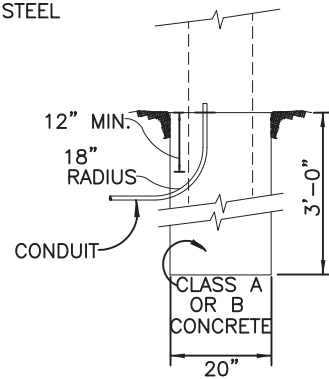
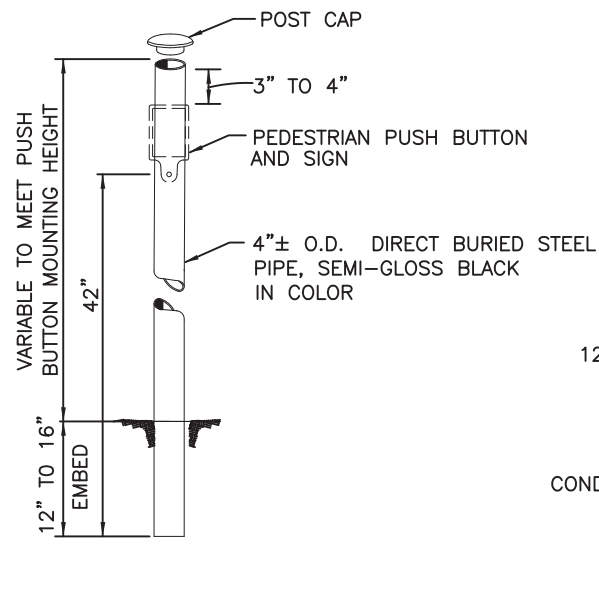
SIGNS SHALL BE LABEL (STICK-ON) TYPE



R10-4b (L or R)  
9"x12"

### TYPICAL PEDESTRIAN PUSH-BUTTON SIGN

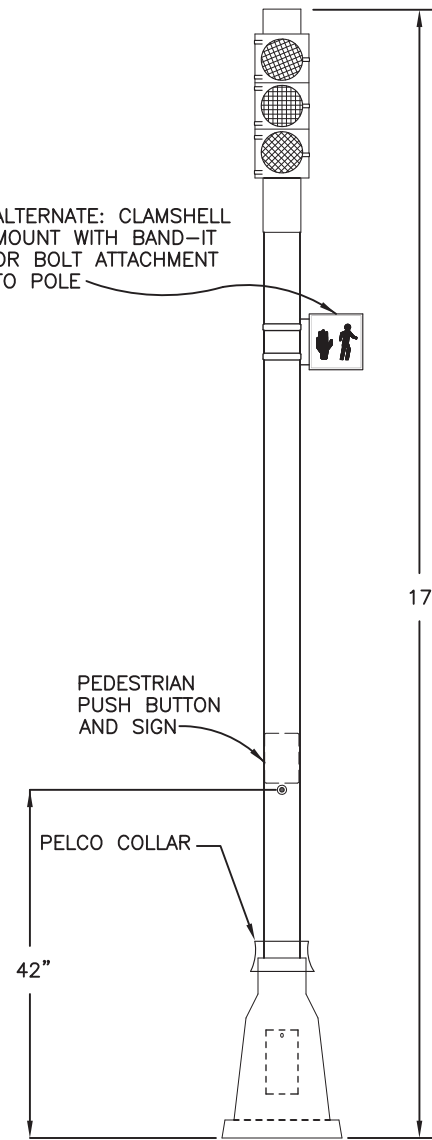
SIGNS SHALL BE MOUNTED SQUARE TO POLE.



FOUNDATION  
DETAIL

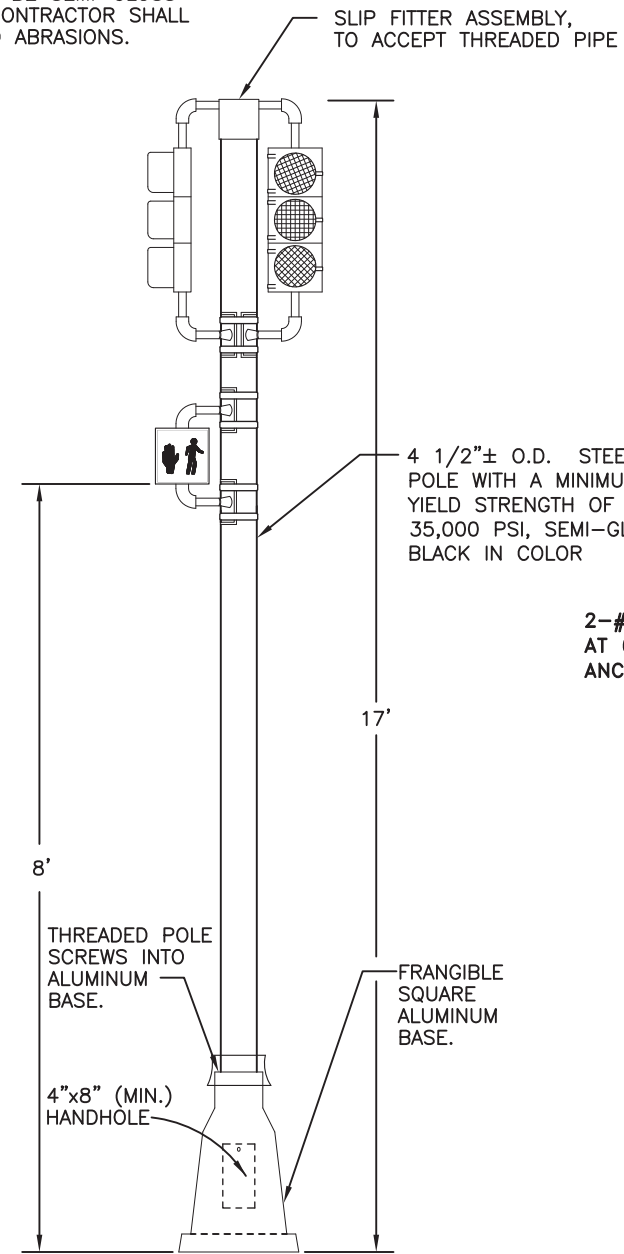
### PEDESTRIAN PUSH BUTTON POLE

ALTERNATE: CLAMHELL MOUNT WITH BAND-IT OR BOLT ATTACHMENT TO POLE



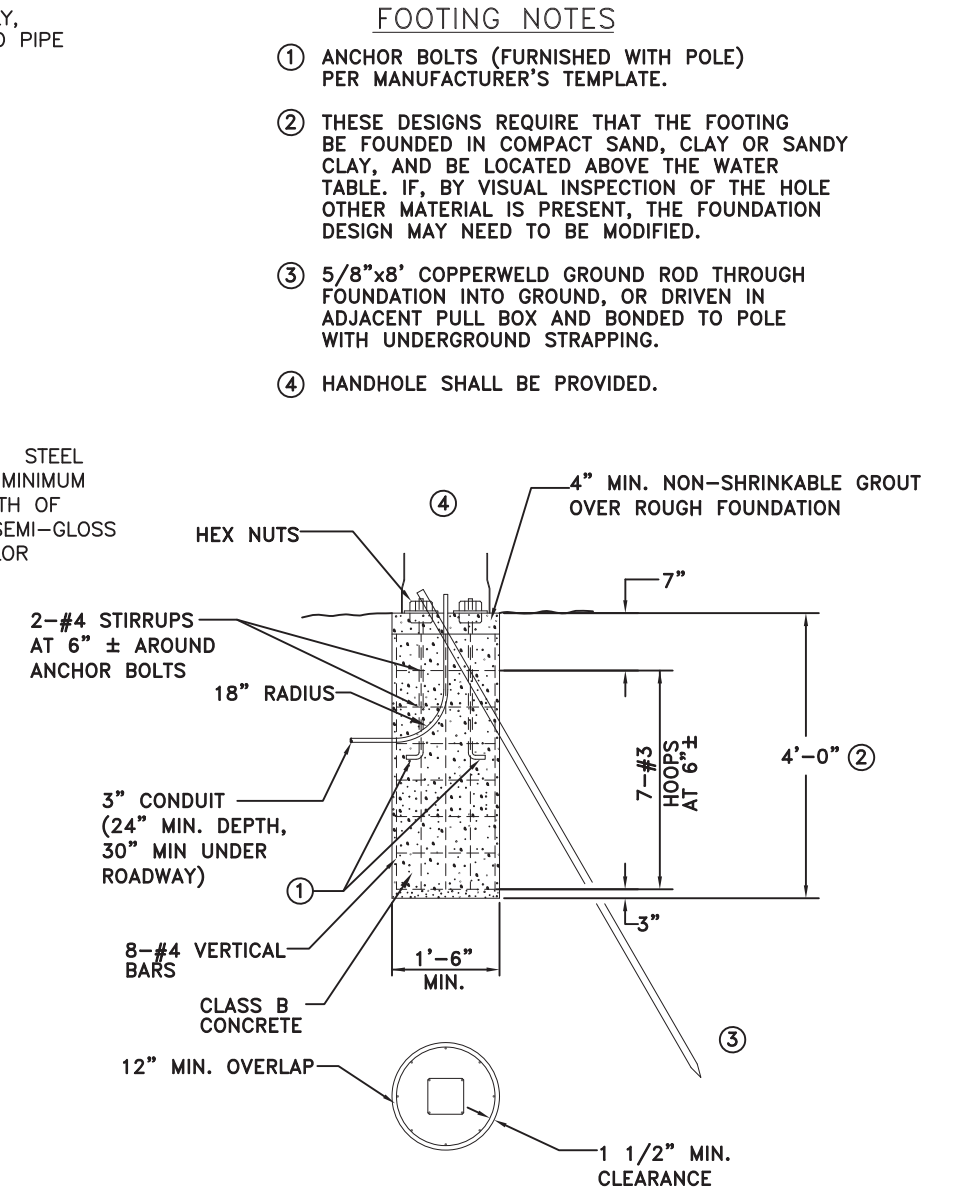
### TYPICAL PEDESTAL POLE DETAIL

1/4" SPLIT PIN SHALL BE INSTALLED IN THE UPPER PORTION OF THE ALUMINUM BASE AND SHALL COMPLETELY PENETRATE BASE AND POLE TO SECURE POLE TO PREVENT MOVEMENT OR TWISTING. PELCO COLLAR TO BE INSTALLED.



### TYPICAL PEDESTAL POLE FOOTING

(CAST IN PLACE)



### FOOTING NOTES

- ① ANCHOR BOLTS (FURNISHED WITH POLE) PER MANUFACTURER'S TEMPLATE.
- ② THESE DESIGNS REQUIRE THAT THE FOOTING BE FOUNDED IN COMPACT SAND, CLAY OR SANDY CLAY, AND BE LOCATED ABOVE THE WATER TABLE. IF, BY VISUAL INSPECTION OF THE HOLE OTHER MATERIAL IS PRESENT, THE FOUNDATION DESIGN MAY NEED TO BE MODIFIED.
- ③ 5/8"x8' COPPERWELD GROUND ROD THROUGH FOUNDATION INTO GROUND, OR DRIVEN IN ADJACENT PULL BOX AND BONDED TO POLE WITH UNDERGROUND STRAPPING.
- ④ HANDHOLE SHALL BE PROVIDED.

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### DOUGLAS COUNTY STANDARD SIGNAL DETAILS

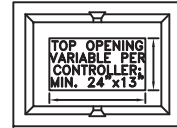
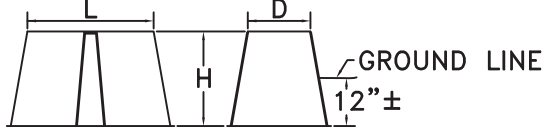
#### PEDESTRIAN PUSH BUTTON POLE PEDESTRIAN POLE

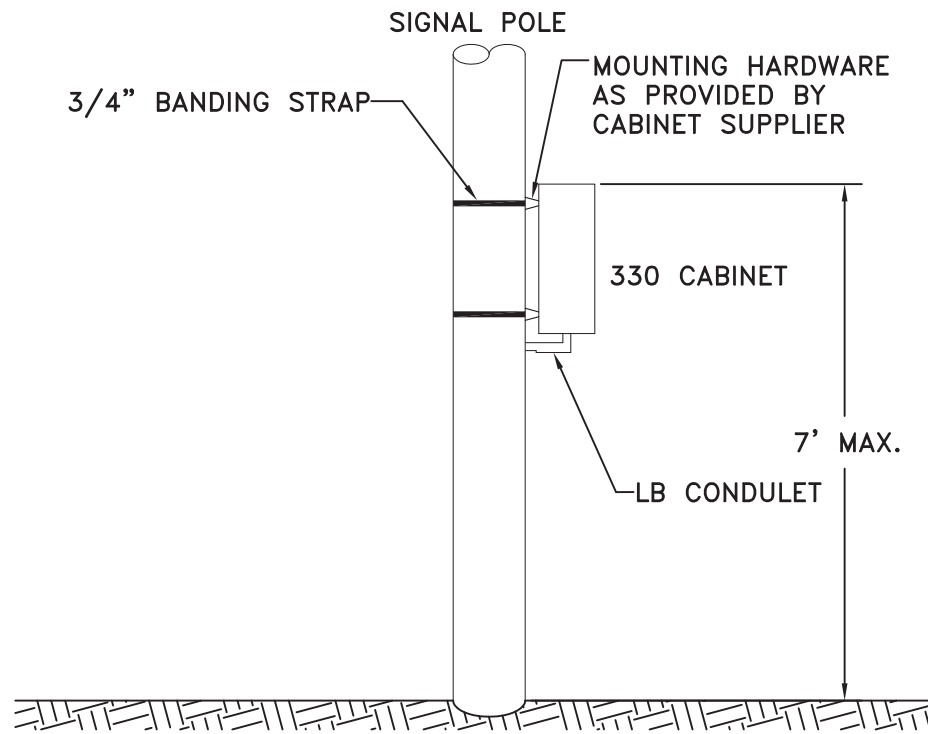
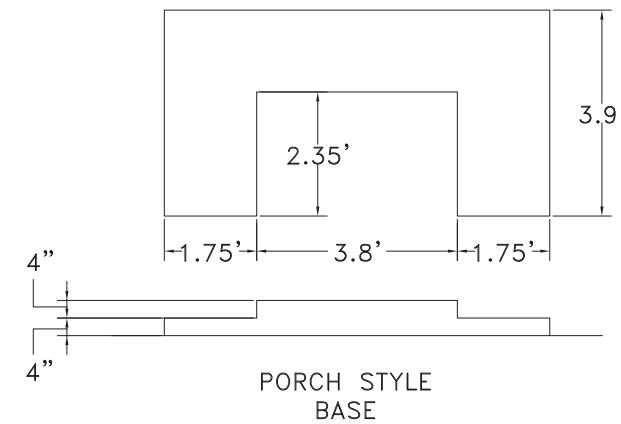
ORIGINAL 6-93 00/16 DATE:	DESIGNED BY: JOB NO.
REVISION JANUARY 2016	DRAWN BY: SHEET NO.
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REVISION APRIL 2003	

**NOTES**

CONTROLLER FOUNDATION SHALL BE PREFORMED TYPE, MANUFACTURED WITH FIRE RETARDANT RESIN AND A COMBINATION OF CHOPPED GLASS STRAYUP AND HAND LAYUP OF GLASS REINFORCEMENT. A 1/2" SHEET OF PLYWOOD SHALL BE EMBEDDED IN THE TOP SURFACE OF THE FOUNDATION. COLOR SHALL BE CEMENT GRAY. FOUNDATION DIMENSIONS (MINIMUMS) SHALL BE AS FOLLOWS:

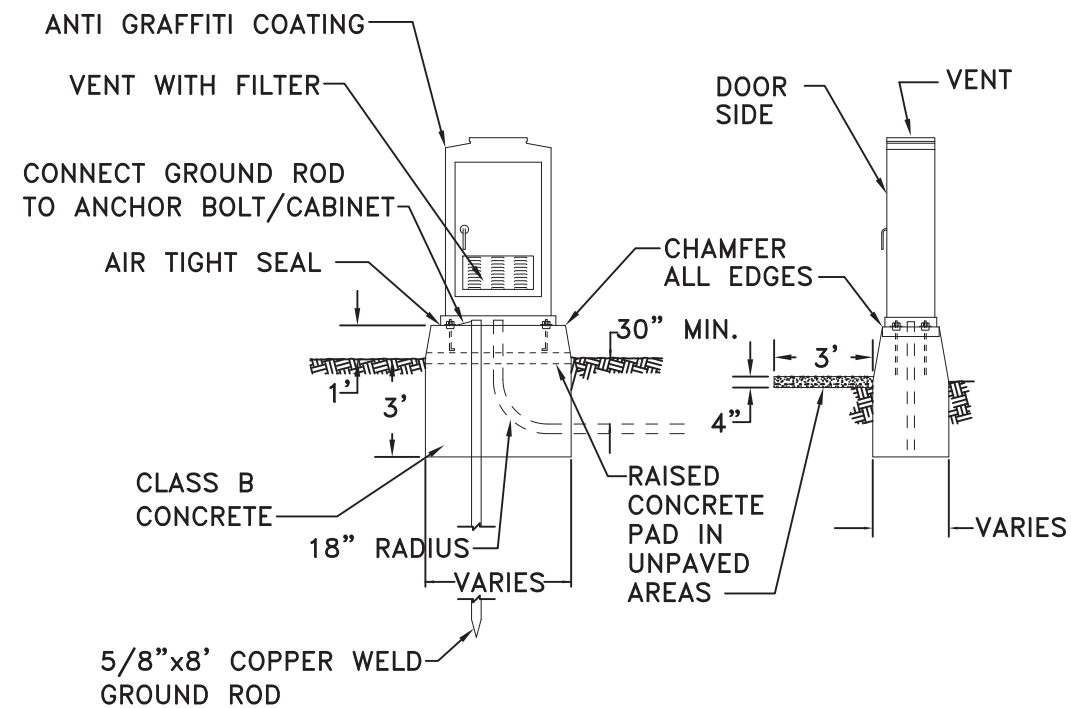
CABINET TYPE	L	D	H
332	44"	26"	24"

TOP VIEW  

  
CONTROLLER FOUNDATION  




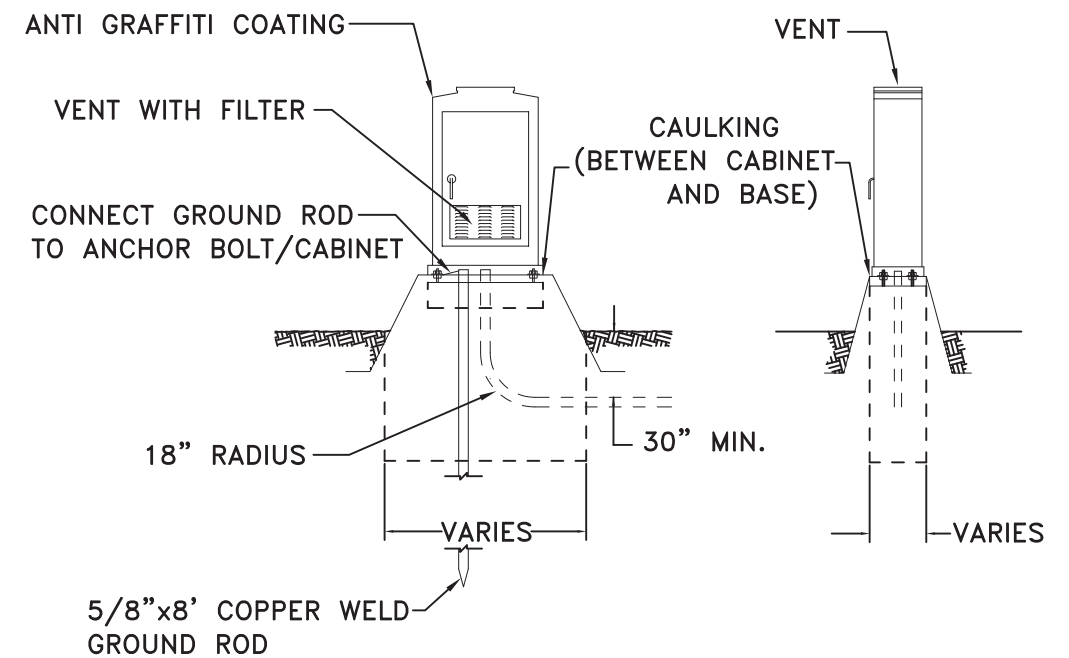
**TYPICAL SIDE-OF-POLE MOUNTED CONTROLLER CABINET**

(FOR SPECIAL USE, WITH PRIOR APPROVAL OF COUNTY ONLY)




**TYPICAL BASE MOUNTED CONTROLLER CABINET INSTALLATION AND CONCRETE FOUNDATION**

(FOR SPECIAL USE, WITH PRIOR APPROVAL OF COUNTY ONLY)



**BASE MOUNTED CONTROLLER CABINET INSTALLATION AND FIBERGLASS FOUNDATION**

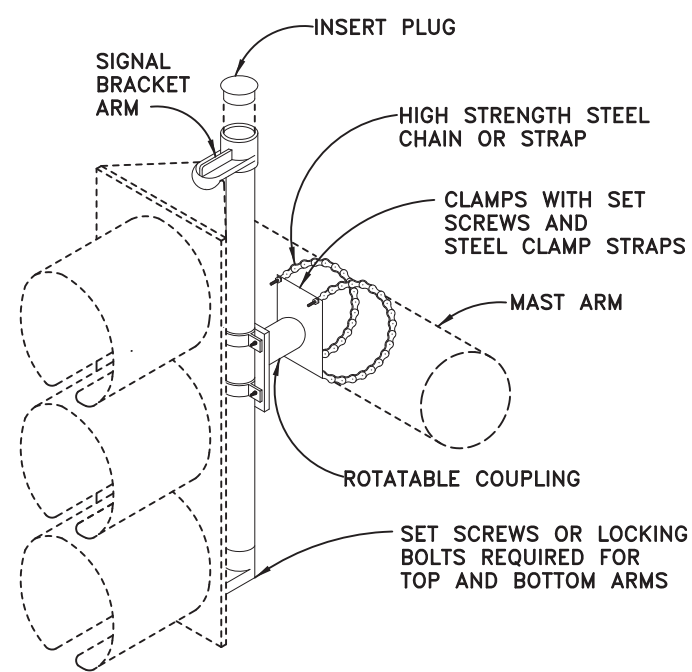


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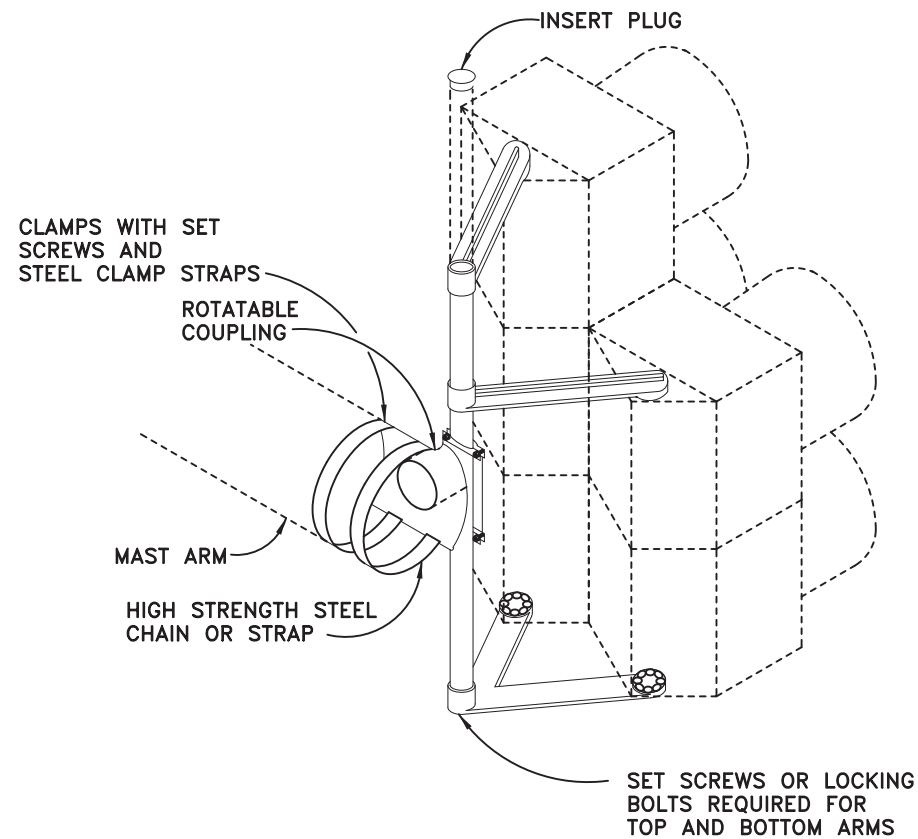
**DOUGLAS COUNTY STANDARD SIGNAL DETAILS**

**CONTROLLER CABINET INSTALLATION**

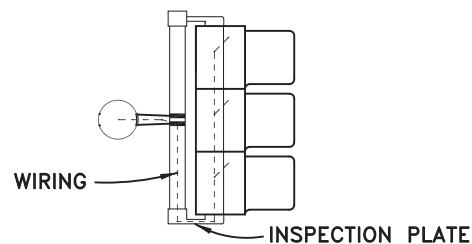
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REVISION APRIL 2003			



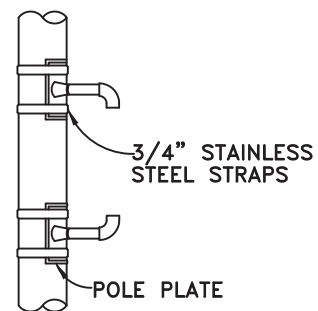
DETAIL OF MAST ARM MOUNTING FOR IN-LINE SIGNAL HEAD (3-SECTION OR 5-SECTION)



DETAIL OF MAST ARM MOUNTING FOR SIDE-BY-SIDE SIGNAL HEAD (5-SECTION)



WIRING DIAGRAM



TYPICAL SIDE OF POLE SIGNAL MOUNTING

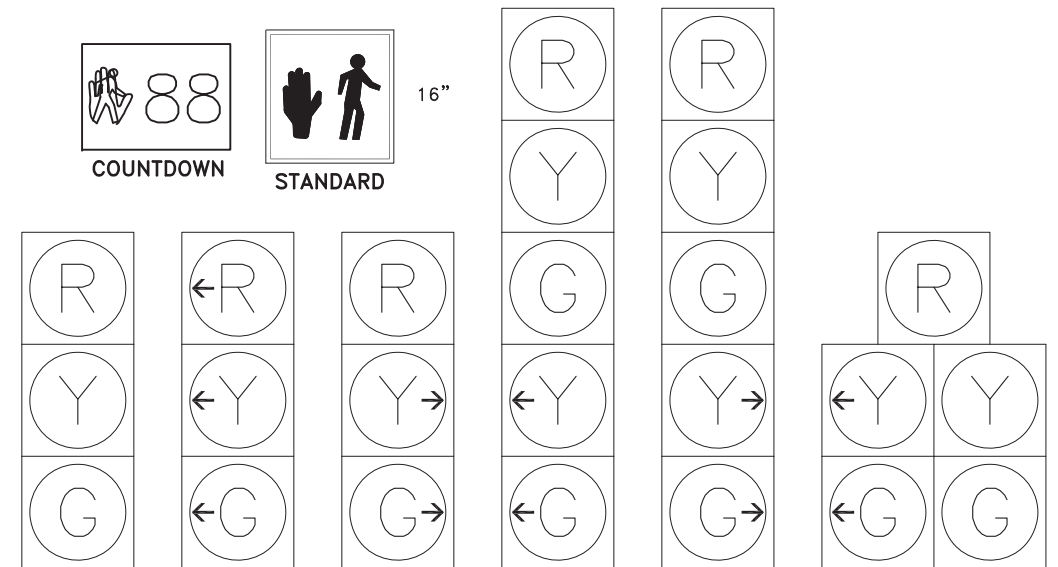
SIGNAL HEAD MOUNTING

MOUNTING NOTES

1. PIPE COUPLINGS FOR SIGNAL BRACKETS SHALL BE EITHER 1-1/2 OR 2 INCH DEPENDING UPON THE SIGNAL HEAD TO BE INSTALLED. SIGNAL BRACKETS SHALL BE FURNISHED BY THE MANUFACTURER OF THE SIGNAL HEADS.
2. UNLESS OTHERWISE SPECIFIED, ALL TRAFFIC SIGNALS MOUNTED ABOVE THE ROADWAY SHALL BE APPROXIMATELY LEVEL WITH ONE ANOTHER AND HAVE A HEIGHT OF 17' TO 19' ABOVE THE PAVEMENT GRADE AT THE ROADWAY CENTER, ALL SIDE-OF-POLE MOUNTED TRAFFIC SIGNALS SHALL HAVE A HEIGHT OF 10' ABOVE GROUND LINE AND PEDESTRIAN SIGNALS SHALL HAVE A HEIGHT OF 8' ABOVE GROUND LINE AS MEASURED TO THE BOTTOM OF THE SIGNAL HEAD HOUSING OR BRACKET.
3. MAST ARM MOUNTED SIGNAL HEADS SHALL USE ASTRO-TYPE MOUNTING BRACKETS. ALL SIGNAL HEADS SHALL BE MOUNTED IN SUCH A MANNER AS TO BE EASILY REMOVED FROM THERE SUPPORTING STRUCTURE.
4. GASKET SEALING COMPOUND SHALL BE USED IN ADDITION TO ANY LEAD WASHERS REQUIRED FOR CREATING A WATER-TIGHT CONNECTION BETWEEN THE SIGNAL HEAD AND MOUNTING BRACKET.
5. SIGNAL HEADS SHALL BE SECURELY AFFIXED BY USE OF A SERRATED COUPLING OR OTHER ACCESSORIES RECOMMENDED BY THE SIGNAL MANUFACTURER.
6. WIRING FROM INSIDE MAST ARM THROUGH A 1" FIELD DRILLED HOLE IN ARM SHALL BE BROUGHT THROUGH THE MOUNTING SUPPORT TUBE AND LOWER ARM (AS SHOWN). FIELD DRILLED HOLES SHALL HAVE RUBBER GROMMETS INSTALLED.

NOTES

1. ALL VEHICLE SIGNAL HEADS SHALL BE POLYCARBONATE WITH 12" SECTIONS AND TUNNEL VISORS. ALL VEHICLE AND PEDESTRIAN SIGNAL FACES SHALL BE LED.
2. ALL VEHICLE AND PEDESTRIAN SIGNAL HEADS SHALL BE BLACK IN COLOR.
3. ALL OVERHEAD SIGNAL HEADS SHALL HAVE LOUVERED BACKPLATES.
4. SIDE OF POLE MOUNT SHALL BE 90° MOUNTS. NO 'T'S ALLOWED SEE "TYPICAL SIDE OF POLE SIGNAL MOUNTING" DRAWING.



TYPICAL PEDESTRIAN AND VEHICLE SIGNAL HEADS

GENERAL WIRING NOTES

1. TRAFFIC SIGNAL CONDUIT SHALL NOT CARRY WIRING OF OTHER UTILITIES.
2. EXCEPT FOR LOOP DETECTOR LEADS, ALL SPLICES SHALL BE IN HANDHOLES AT POLE BASES AND NOT IN PULL BOXES.
3. LOOP DETECTOR LEADS SHALL BE SPLICED IN PULL BOX AT THE SIDE OF THE ROAD, AND NOT IN WATER VALVE PULL BOXES.
4. PEDESTRIAN AND VEHICLE SIGNAL HEADS SHALL BE INDIVIDUALLY WIRED FROM THE POLE BASE TO THE SIGNAL HEAD.
5. CONTRACTOR SHALL PROVIDE 2 WIRING DIAGRAMS OF THE SIGNAL INSTALLATION TO THE COUNTY.
6. UNLESS ALLOWED BY THE ENGINEER, WIRE SHALL NOT OCCUPY MORE THAN 40% OF THE INSIDE AREA OF CONDUIT.



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DOUGLAS COUNTY STANDARD SIGNAL DETAILS

SIGNAL HEADS & MOUNTING GENERAL WIRING NOTES

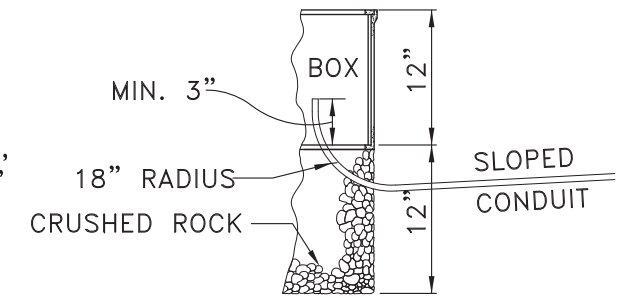
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TABLE OF DIMENSIONS (MINIMUMS)

TYPE	DESCRIPTION	DIMENSIONS (IN.)									
		A	B	C	D	E	F	G	H	J	K
I	LARGE 17x30x12 FOR CONTROLLERS	30 1/2	17 1/2	2	32 1/4	19 1/4	12	26 1/2	13 1/2		
I	LARGE/DEEP 17x30x18 FOR FIBER OPTICS	30 1/2	17 1/2	2	32 1/4	19 1/4	18	26 1/2	13 1/2		
I	LARGE/XTRA DEEP 17x30x24 FOR FIBER OPTICS RUNS	30 1/2	17 1/2	2	32 1/4	19 1/4	24	26 1/2	13 1/2		
II	MEDIUM 13x24x12 FOR SIGNAL POLES	23 1/4	13 3/4	2	25	15 1/2	12	19 1/4	9 3/4		
III	SMALL 12x12x12-FOR DETECTORS & ELECTRICAL SERVICE	12 7/8	12 7/8	5/8	14	14	12 3/4	10 1/2	10 1/2	1	12
VAULT	30x48x18 FOR HOME RUN/FIBER SPLICE	47 5/8	30	3	49 5/8	32 1/8	18	45 5/8	28 1/8		

GENERAL NOTES

- PAVEMENT HOLE FOR PULL BOX SHALL BE SAWCUT TO FULL DEPTH, IN A RECTANGLE THAT EXTENDS 6" BEYOND THE EXPANSE OF THE PULL BOX.

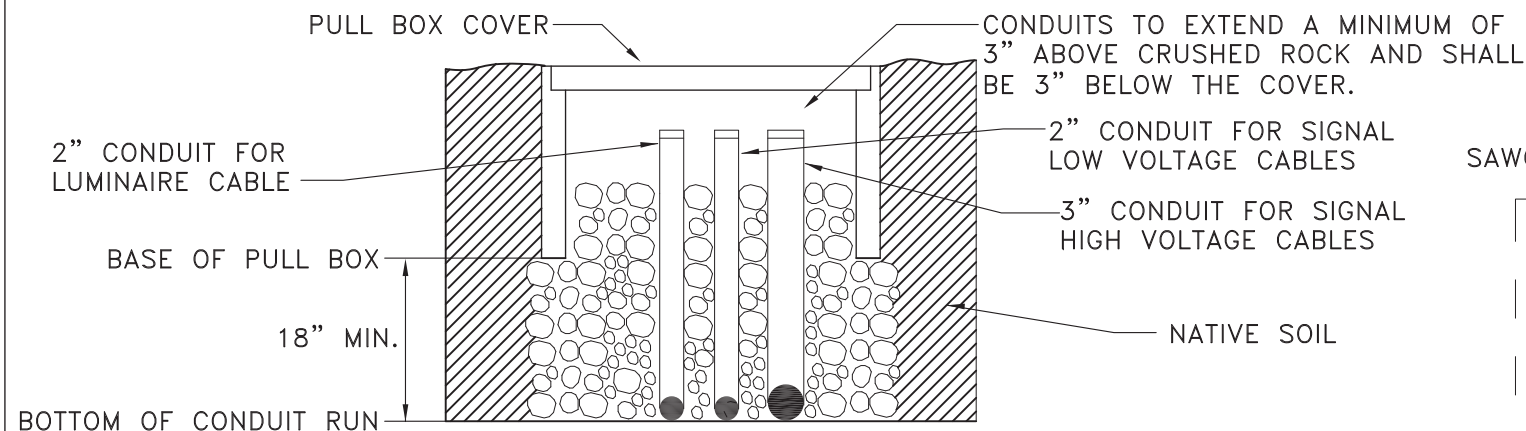


TWO BOXES & EXTENSION

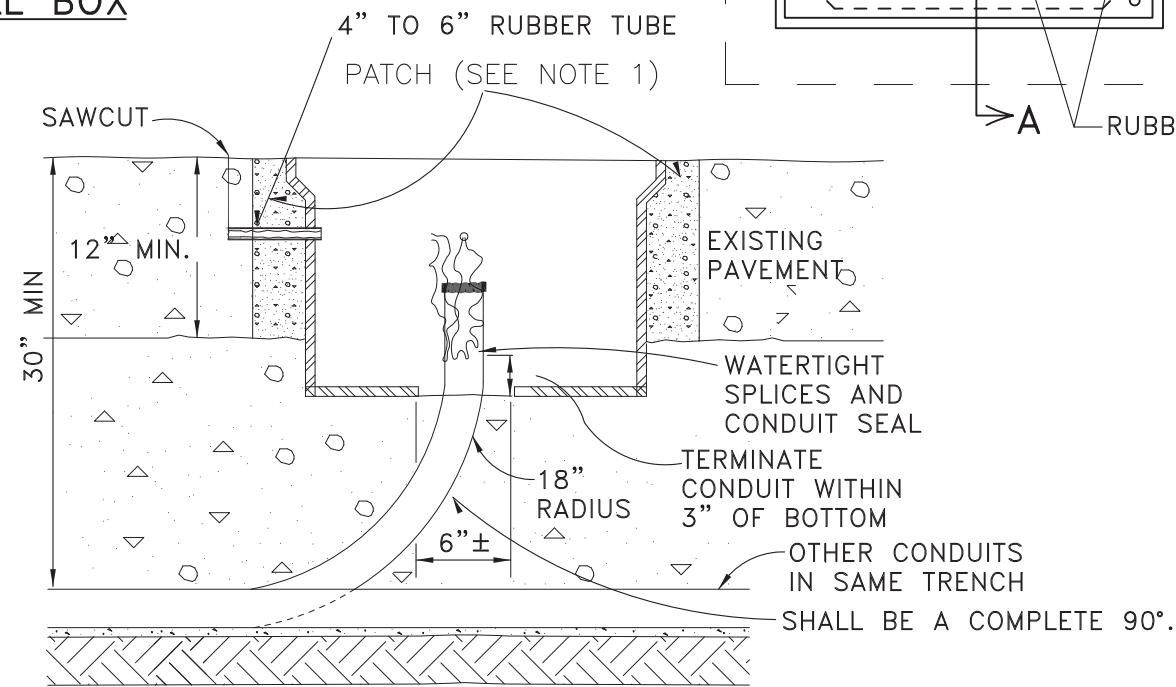
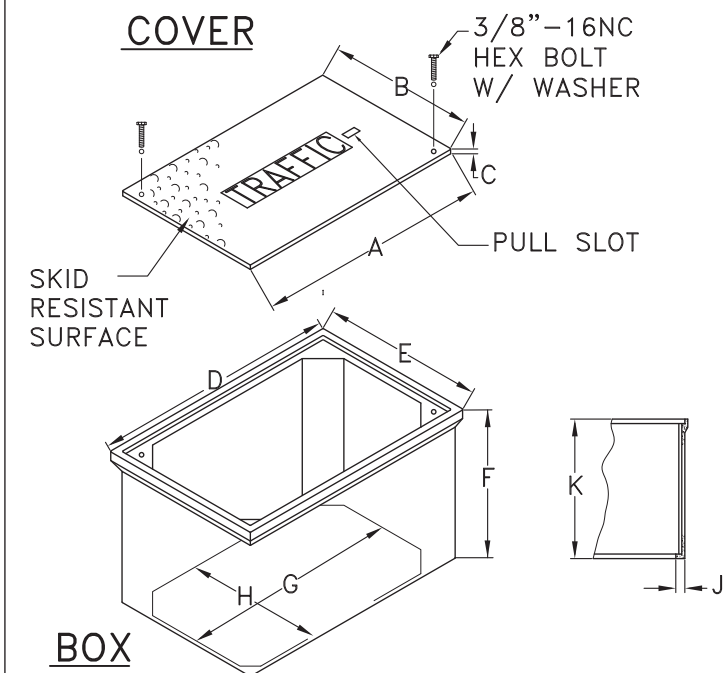
(FOR MODIFICATIONS ONLY)

PERMANENT (PRECAST) PULL BOX  
(FOR USE WITH ALL OPERATIONAL SIGNALS)

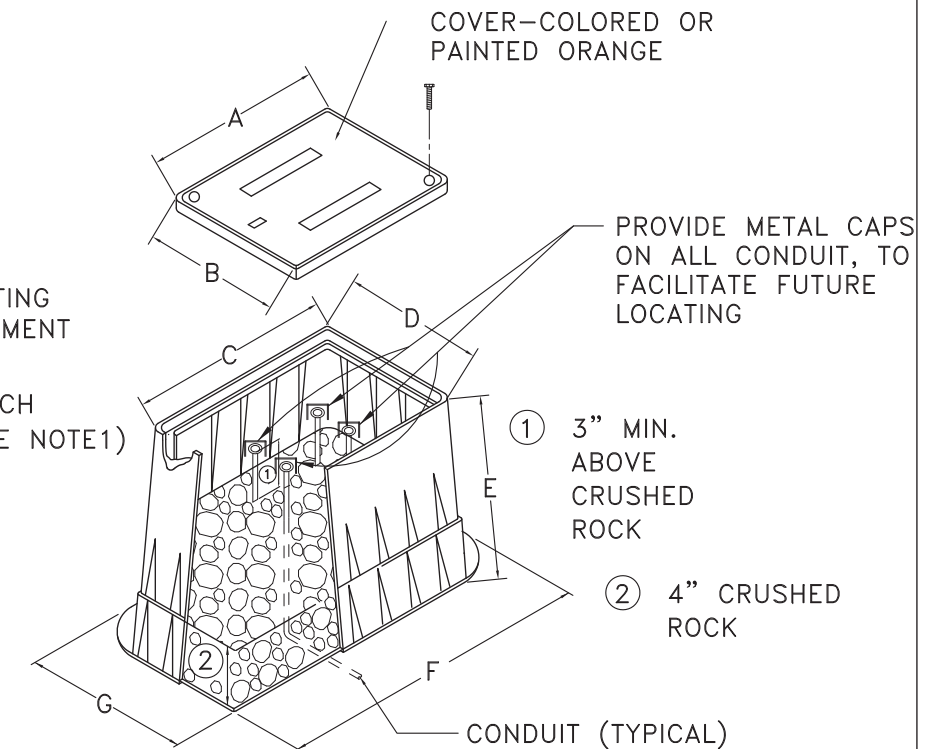
FIBERGLASS REINFORCED POLYMER CONCRETE DESIGNED FOR SERVICE LOAD (MINIMUM) OF 15,000 LBS. OVER A 10" SQUARE



TYPICAL PULL BOX



SECTION A-A



PULL BOX MEASUREMENTS (MINIMUM)						
A	B	C	D	E	F	G
11"	11"	12"	12"	13"	12"	12"

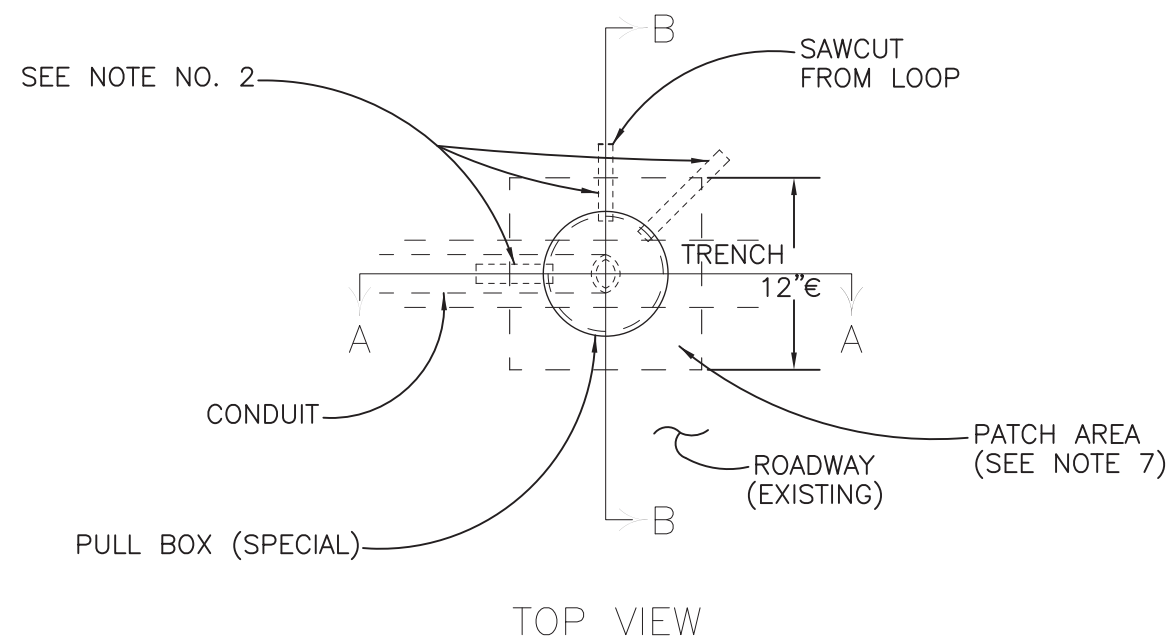
TEMPORARY (PLASTIC) PULL BOX DETAIL  
(FOR USE WHEN APPROVED BY COUNTY FOR SPECIAL INSTALLATIONS)

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100 THIRD STREET  
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303-660-7490

DOUGLAS COUNTY  
STANDARD SIGNAL DETAILS

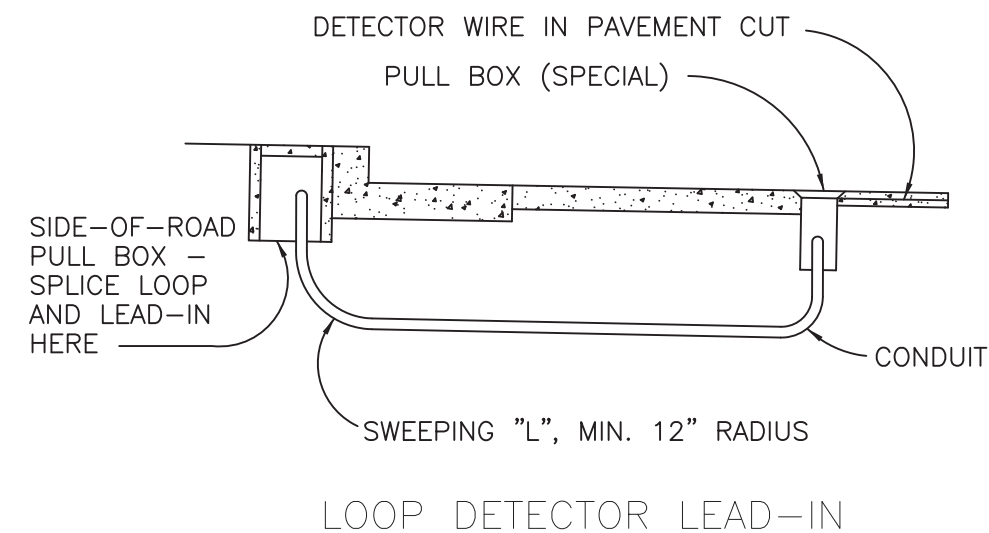
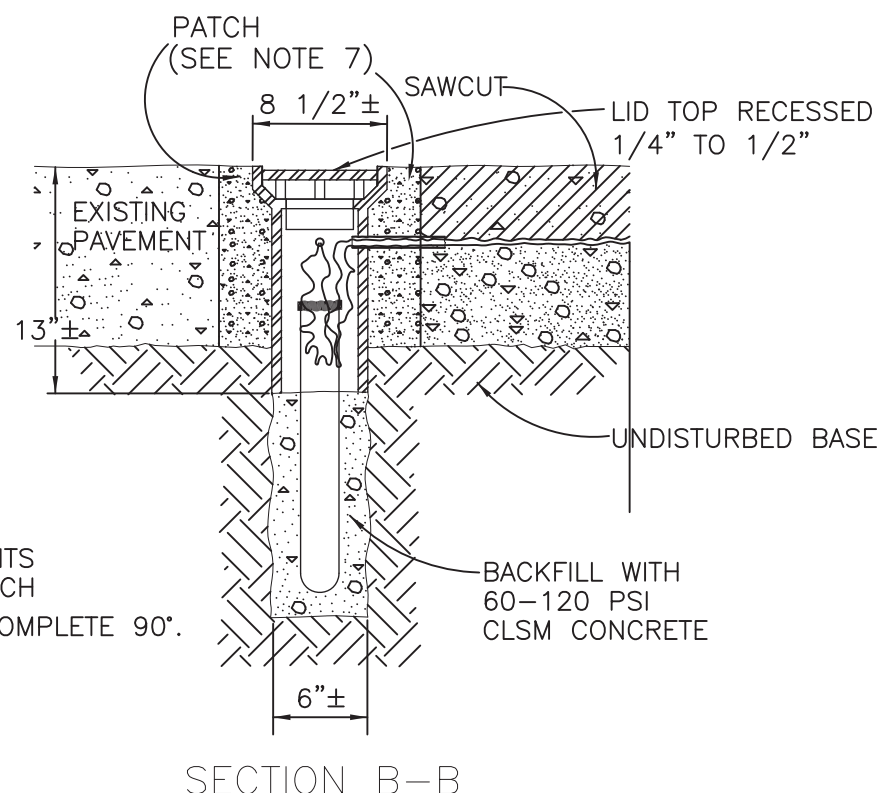
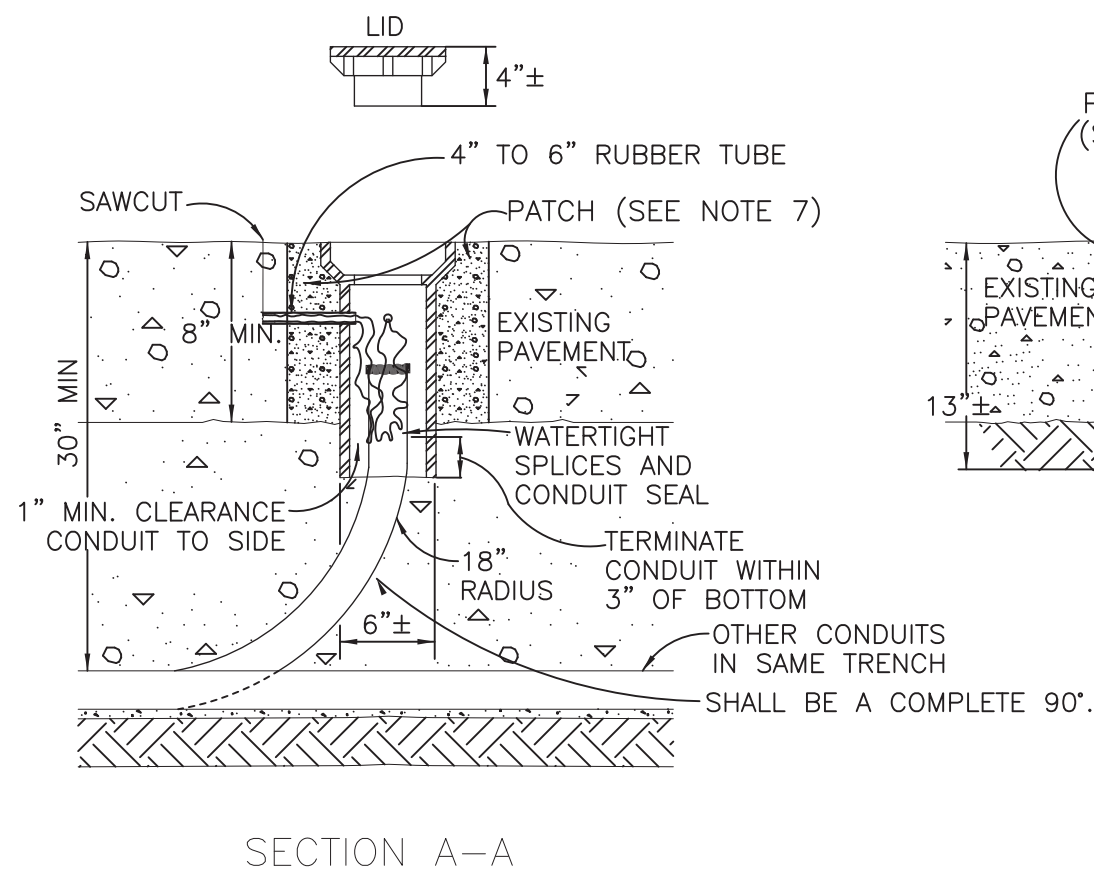
PERMANENT (PRECAST) PULL BOX  
TEMPORARY (PLASTIC) PULL BOX

ORIGINAL 6-93	00/16 DATE:	DESIGNED BY:	JOB NO.
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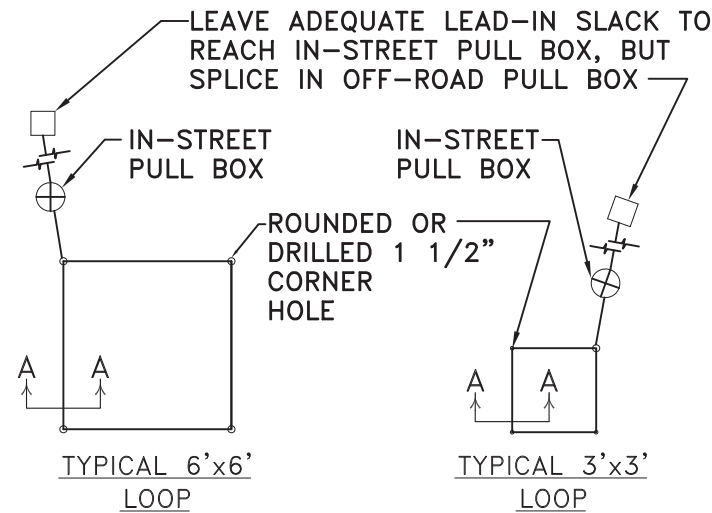
**GENERAL NOTES**

1. PULL BOX (SPECIAL) SHALL BE A WATER VALVE STEM TYPE PULL BOX MADE OF CAST IRON OR STEEL. THE PULL BOX SHALL HAVE CAPABILITY OF ACCEPTING RISER RINGS FOR FUTURE OVERLAYS. THE LID SHALL HAVE THE WORD "TRAFFIC" PRINTED ON IT.
2. PULL BOXES SHALL HAVE 3/4" TO 1" DIAMETER HOLES DRILLED OR TORCHED 3" FROM TOP TO ACCEPT A 4" TO 6" RUBBER TUBE (3/4" GARDEN HOSE). THE NUMBER OF HOLES SHALL BE AS PER PLANS OR AS DIRECTED BY THE ENGINEER.
3. CARE SHALL BE TAKEN DURING BACKFILL COMPACTION TO PREVENT COLLAPSE OF THE TUBES.
4. 2' MINIMUM SLACK OF LOOP WIRES IS TO BE PROVIDED SO THAT ALL TESTING CAN BE DONE OUTSIDE OF THE PULL BOX. SPLICE DETECTOR LEADS IN SIDE-OF-ROAD PULL BOX, NOT IN PULL BOX SPECIAL.
5. PULL BOX IS TO BE LOCATED IN AN AREA OF THE STREET NOT HEAVILY TRAVELED. FOR EDGE-OF-ROAD LOCATIONS, MAINTAIN A MINIMUM OF 12" FROM CONCRETE GUTTER PAN.
6. PAVEMENT HOLE FOR PULL BOX SHALL BE EITHER CORE DRILLED TO FULL DEPTH, OR SAW CUT TO FULL DEPTH IN 12"x12" SQUARE WITH NO OVERLAPPING CUTS. FOR CORE DRILLING AND SAWCUT, GROUT PULL BOX IN PLACE.



**PULL BOX (SPECIAL)**

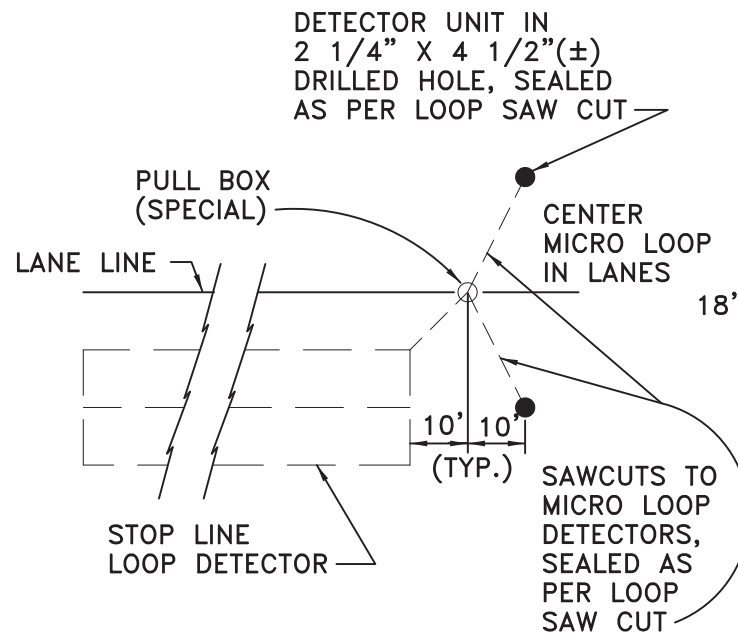
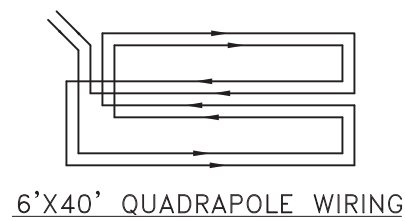
 <p>DOUGLAS COUNTY PUBLIC WORKS ENGINEERING DIVISION 100 THIRD STREET CASTLE ROCK, COLORADO 80104 303-660-7490</p>	<p><b>DOUGLAS COUNTY STANDARD SIGNAL DETAILS</b></p>	
	<p><b>PULL BOX (SPECIAL) LOOP DETECTOR LEAD-IN</b></p>	
<p>ORIGINAL 6-93 00/16 DATE: REVISION JANUARY 2016 REVISION APRIL 2002 SCALE: REVISION APRIL 2003</p>	<p>DESIGNED BY: JOB NO. DRAWN BY: SHEET NO. 12 OF 21</p>	



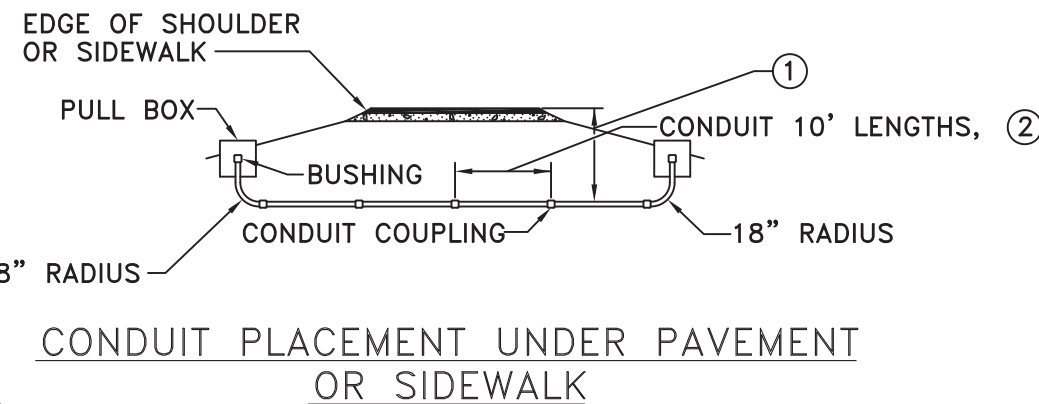
SIZE OF LOOP	NO. OF TURNS
6'x6'	4
3'x3'	4

LOOP TURNS

NO. OF TURNS MAY BE ADJUSTED BY ENGINEER IN FIELD. WIRING CONNECTIONS TO BE FIELD DETERMINED.

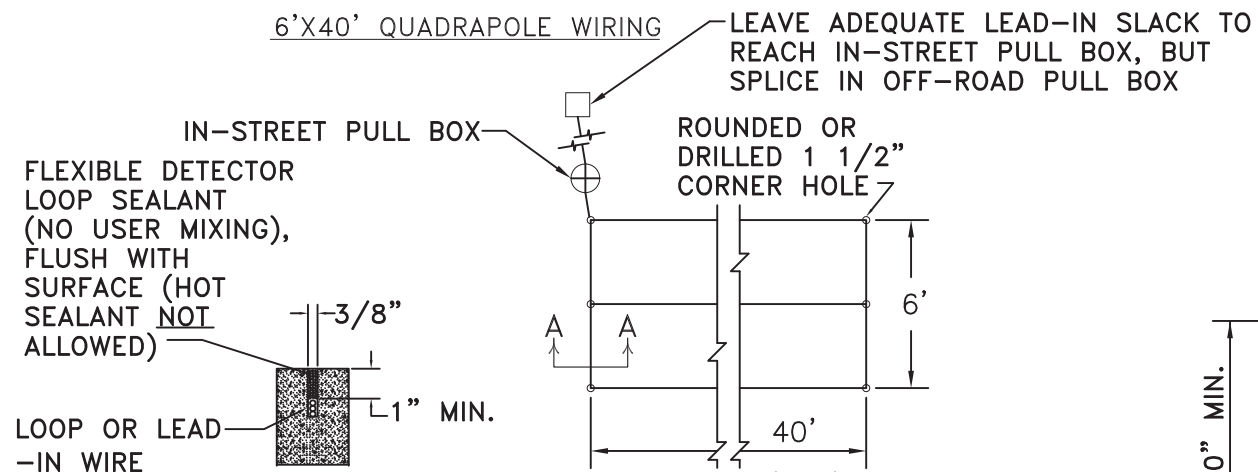


MICRO LOOP DETECTOR



NOTES

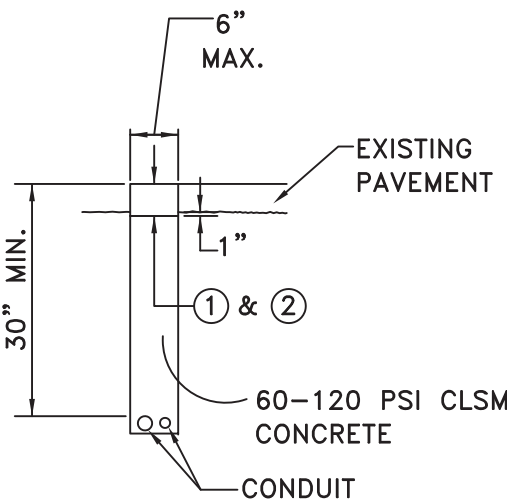
- ① MINIMUM CONDUIT DEPTH: UNDER PAVEMENT 30" UNDER SIDEWALK 24"
- ② ALL PVC CONDUIT SHALL BE SCHEDULE 80



LOOP SAW CUT AND INSTALLATION

NOTES

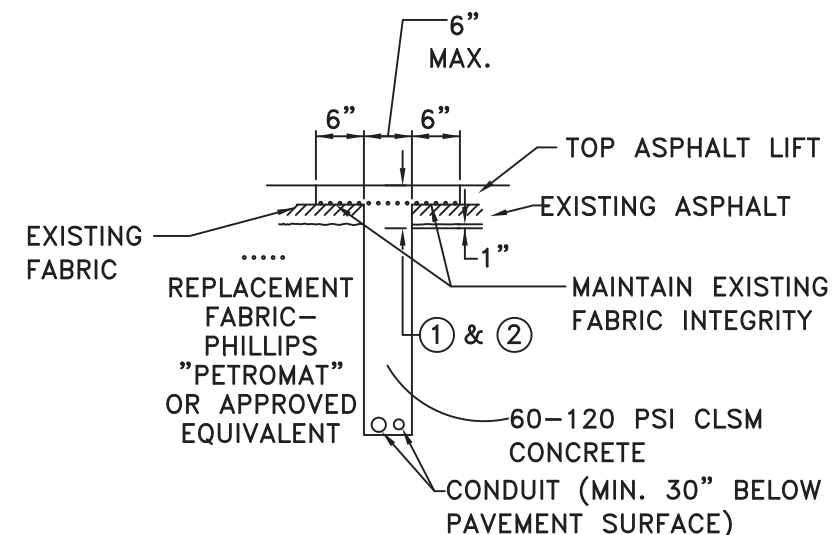
1. ALL DETECTOR LOOPS SHALL BE #14 AWG THHN WIRE ENCASED IN PVC OR POLYETHYLENE TUBING.
2. IMMEDIATELY BEFORE LAYING THE LOOP CABLE, THOROUGHLY CLEAN WITH WATER AND DRY SAW CUT WITH HIGH PRESSURE OIL-FREE COMPRESSED AIR.
3. LOOP WIRE IN ADJACENT LOOPS SHALL BE LAID UNIFORMLY IN EITHER A CLOCKWISE OR COUNTER-CLOCKWISE DIRECTION AND THE LOOP TAGGED TO INDICATE THE DIRECTION.
4. USE A BLUNT, NON-METALLIC INSTRUMENT TO PUSH WIRE INTO SLOT. DO NOT COIL LEADS.
5. LOOP WIRE SHALL BE CONTINUOUS (NO SPLICES) FROM THE PULL BOX. SPLICES IN PULL BOX SHALL BE WATERPROOFED WITH SPLICE KIT.
6. CONTINUITY TEST FOR EACH LOOP SHALL BE CONDUCTED 1) BEFORE ANY LOOP SEALER IS INSTALLED AND 2) AFTER LOOP SEALER IS INSTALLED AND LEAD-IN CABLE IS SPLICED AND TRAINED TO THE CONTROLLER. "RESISTANCE-TO-GROUND" AND "INDUCTANCE" SHALL BE MEASURED AND RECORDED FOR EACH TEST.
7. DETECTOR WIRE ACROSS BRIDGE JOINTS SHALL BE ENCASED IN A 12" SECTION OF 3/4" PVC PIPE THAT SPANS THE JOINT AREA.



CONDUIT TRENCH DETAIL— WITHOUT PAVEMENT FABRIC

NOTES

- ① HOT BITUMINOUS PAVEMENT (PATCHING) OR PORTLAND CEMENT CONCRETE PATCH, FULL DEPTH PLUS 1" (4" MIN). MATCH EXISTING PAVEMENT TYPE.
- ② FOR ASPHALT PATCH, 48 HOUR NOTICE TO THE ENGINEER REQUIRED PRIOR TO INSPECTION



CONDUIT TRENCH DETAIL— WITH PAVEMENT FABRIC

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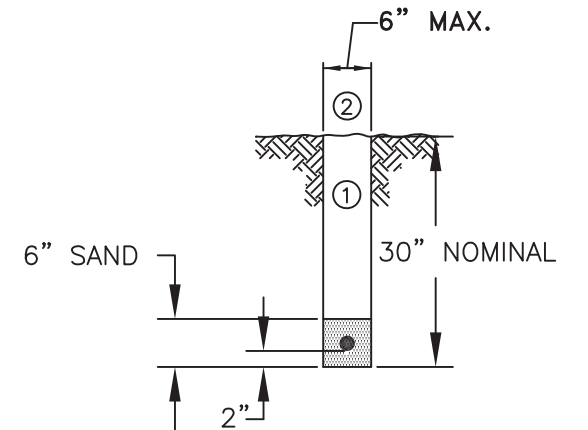
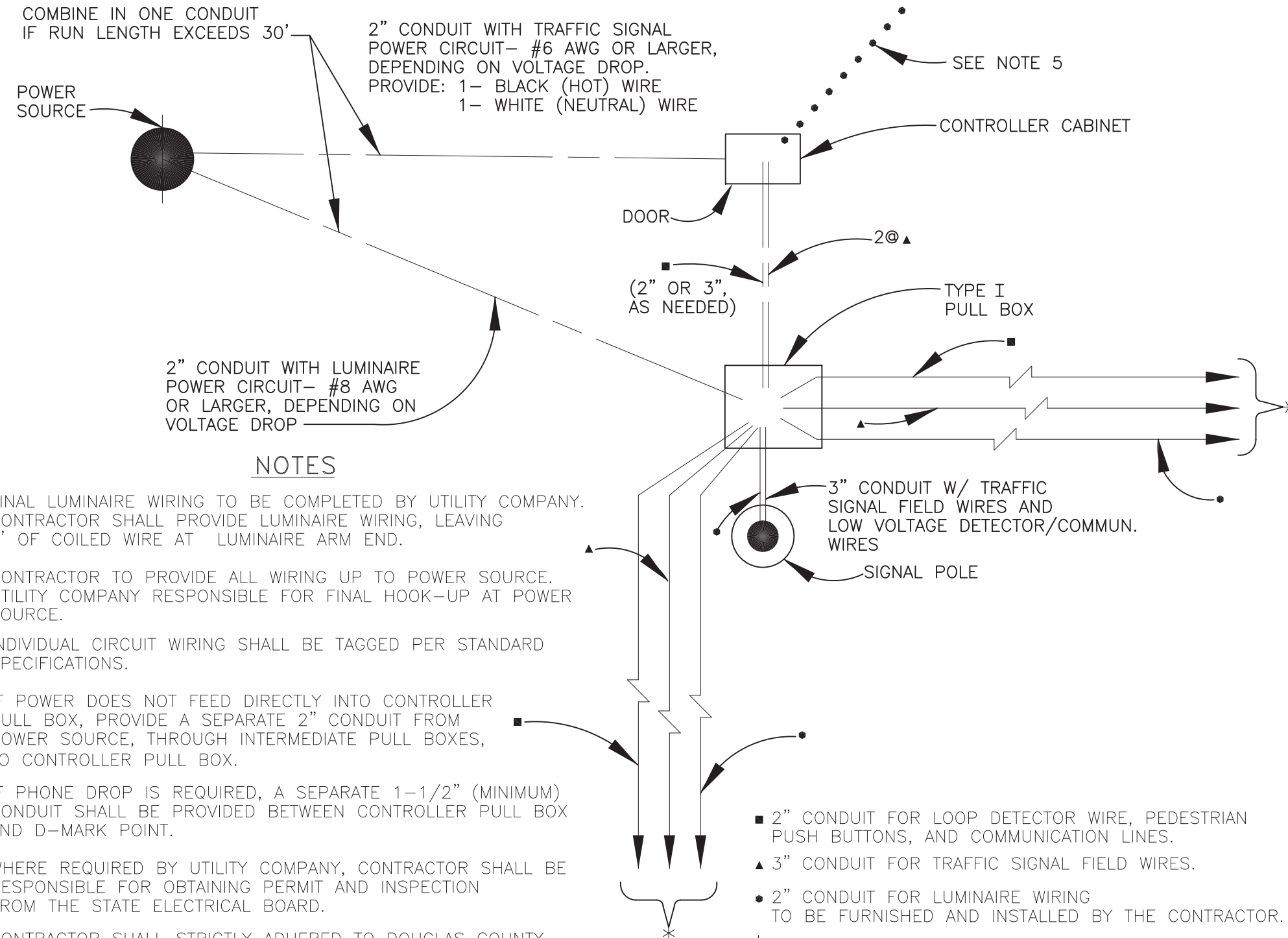
DOUGLAS COUNTY STANDARD SIGNAL DETAILS

DETECTORS CONDUIT INSTALLATIONS

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# UNDERGROUND POWER SOURCE SCHEMATIC FOR SIGNALS WITH LUMINAIRES

(NO SCALE)



## UNDER GRASS/GROUND TRENCHING DETAIL

### NOTES

- ① BACKFILL AND TAMP WITH NATIVE MATERIAL TO MATCH COMPACTION OF SURROUNDING GROUND.
- ② RESEED OR RESOD SURFACE AT DIRECTION OF THE ENGINEER.

### NOTES

1. FINAL LUMINAIRE WIRING TO BE COMPLETED BY UTILITY COMPANY. CONTRACTOR SHALL PROVIDE LUMINAIRE WIRING, LEAVING 3' OF COILED WIRE AT LUMINAIRE ARM END.
2. CONTRACTOR TO PROVIDE ALL WIRING UP TO POWER SOURCE. UTILITY COMPANY RESPONSIBLE FOR FINAL HOOK-UP AT POWER SOURCE.
3. INDIVIDUAL CIRCUIT WIRING SHALL BE TAGGED PER STANDARD SPECIFICATIONS.
4. IF POWER DOES NOT FEED DIRECTLY INTO CONTROLLER PULL BOX, PROVIDE A SEPARATE 2" CONDUIT FROM POWER SOURCE, THROUGH INTERMEDIATE PULL BOXES, TO CONTROLLER PULL BOX.
5. IF PHONE DROP IS REQUIRED, A SEPARATE 1-1/2" (MINIMUM) CONDUIT SHALL BE PROVIDED BETWEEN CONTROLLER PULL BOX AND D-MARK POINT.
6. WHERE REQUIRED BY UTILITY COMPANY, CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMIT AND INSPECTION FROM THE STATE ELECTRICAL BOARD.
7. CONTRACTOR SHALL STRICTLY ADHERED TO DOUGLAS COUNTY ELECTRICAL INSPECTION REQUIREMENTS. CONTACT DOUGLAS COUNTY BUILDING DIVISION AT 303-660-7497 FOR FURTHER INFORMATION.

- 2" CONDUIT FOR LOOP DETECTOR WIRE, PEDESTRIAN PUSH BUTTONS, AND COMMUNICATION LINES.
- ▲ 3" CONDUIT FOR TRAFFIC SIGNAL FIELD WIRES.
- 2" CONDUIT FOR LUMINAIRE WIRING TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
- \* OVERHEAD WIRE FOR SPAN WIRE INSTALLATION



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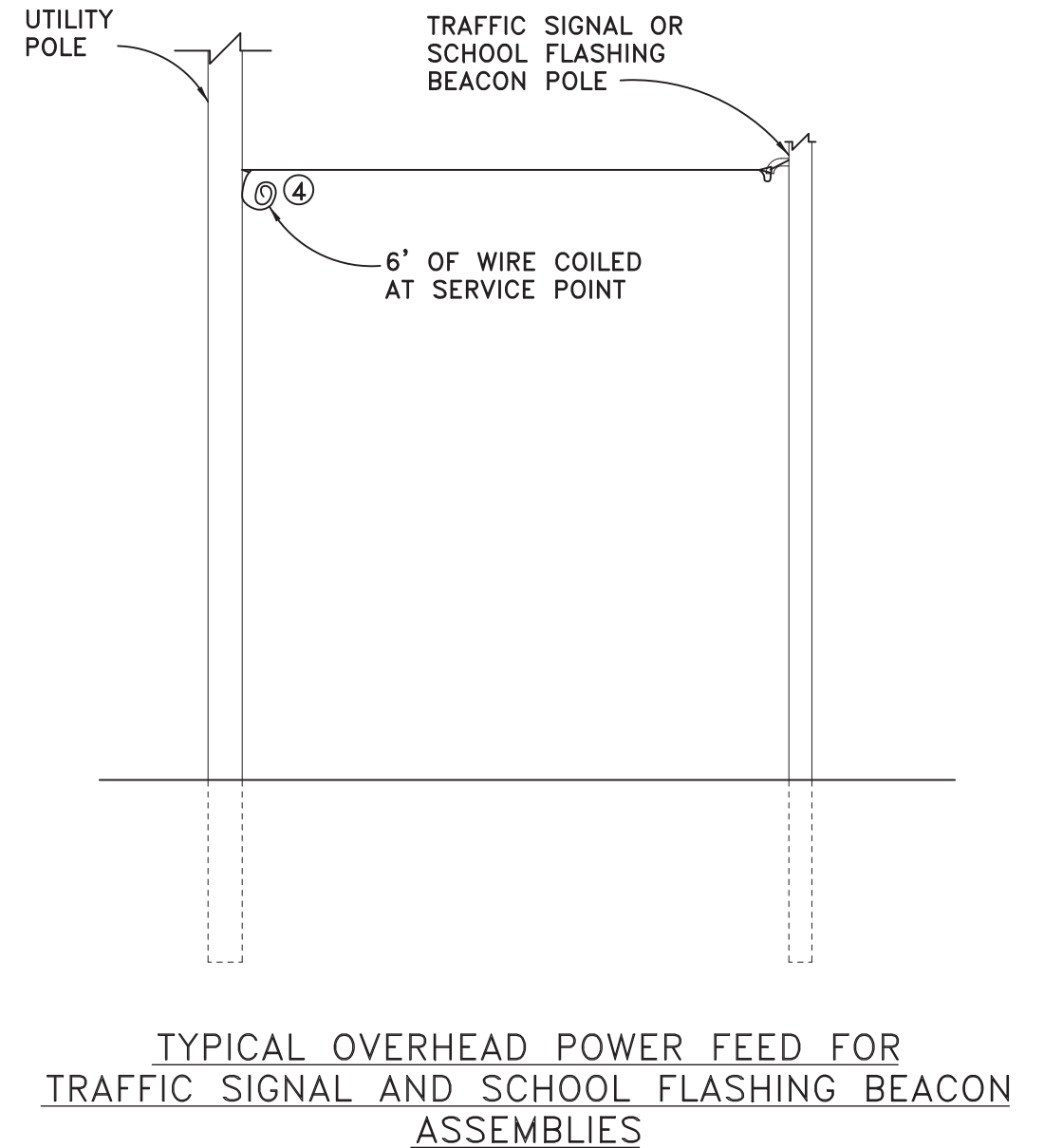
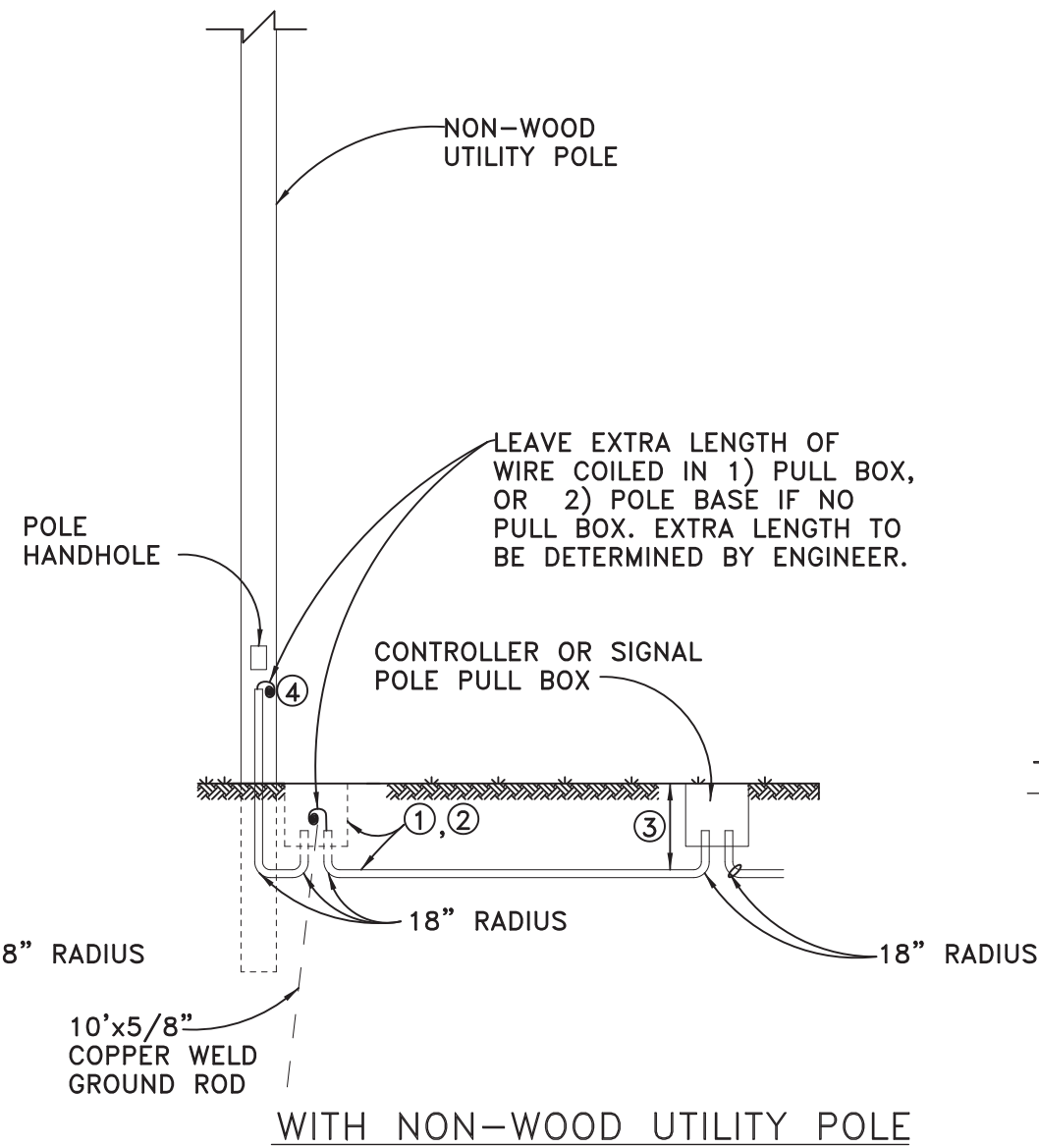
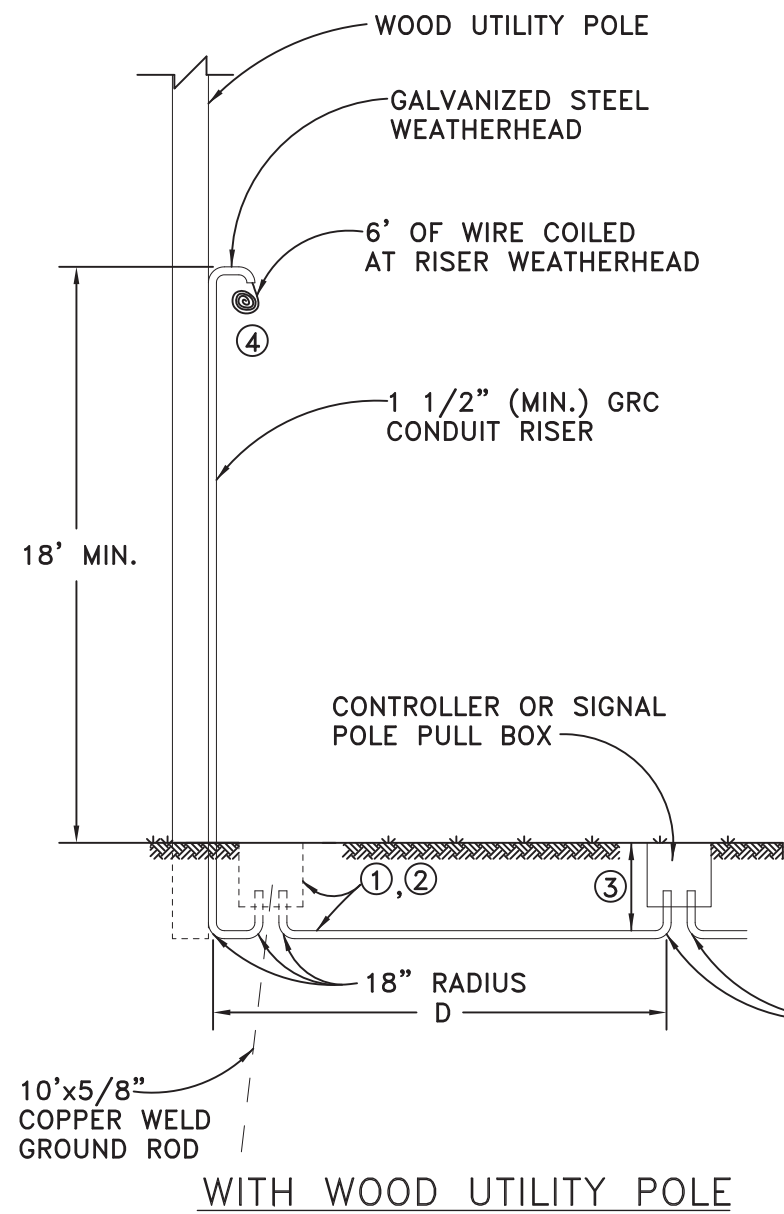
## DOUGLAS COUNTY STANDARD SIGNAL DETAILS

### UNDERGROUND POWER SCHEMATIC- SIGNALS / GROUND TRENCHING

ORIGINAL 6-93	00/16 DATE:	DESIGNED BY: JOB NO.
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**NOTES**

- ① PROVIDE TYPE III PULL BOX/GROUND ROD AND 2" PVC CONDUIT ONLY IF D EXCEEDS 10'
- ② PROVIDE 2" GRC CONDUIT WITHOUT PULL BOX/GROUND ROD IF D IS LESS THAN 10'
- ③ MINIMUM CONDUIT DEPTHS:  
**UNDER GROUND AND PAVEMENT 30"**
- ④ WHERE REQUIRED BY UTILITY COMPANY, CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMIT AND INSPECTION FROM THE STATE ELECTRICAL BOARD.



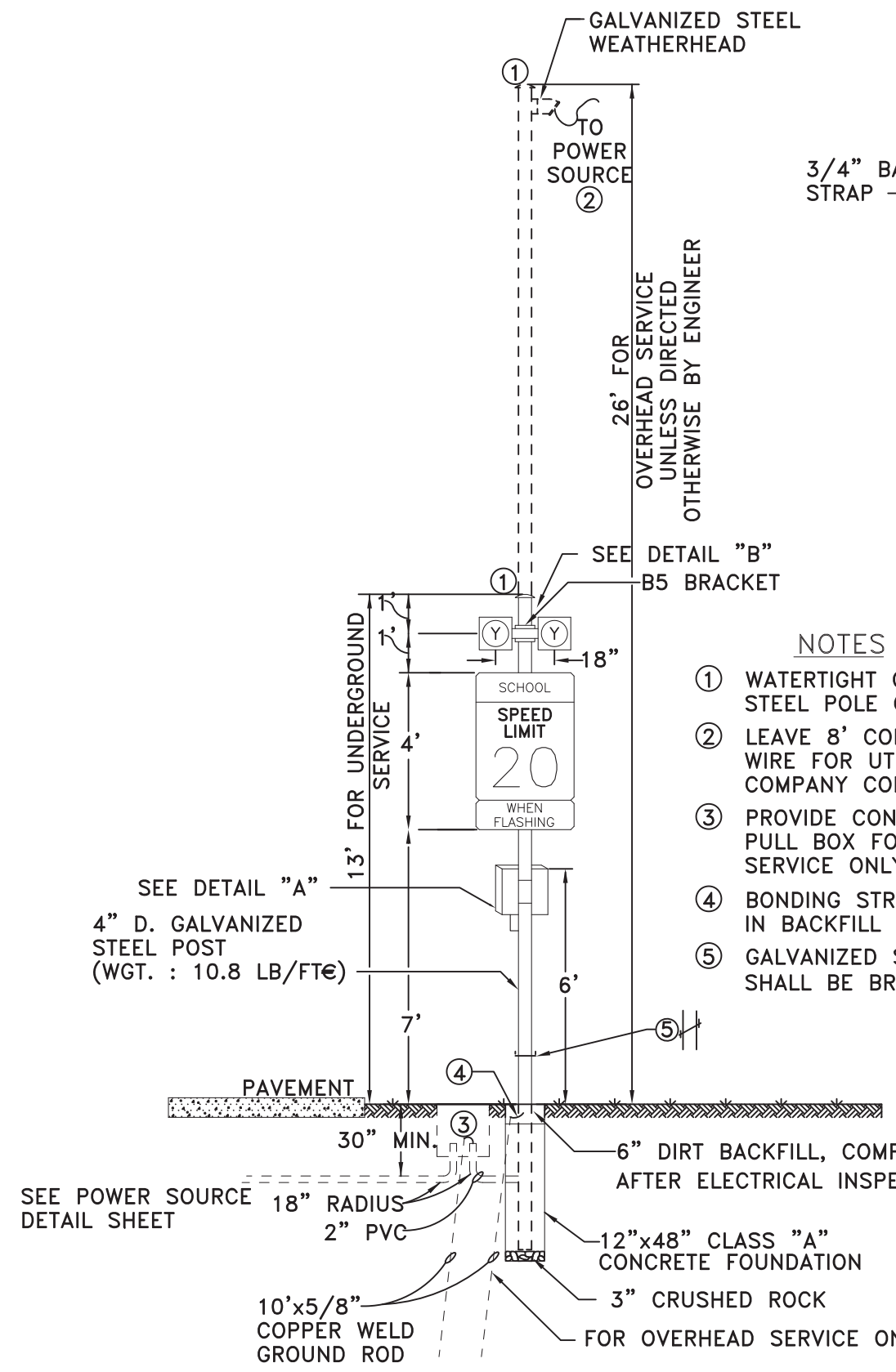
**TYPICAL UNDERGROUND POWER FEED FOR TRAFFIC SIGNALS AND SCHOOL FLASHING BEACON ASSEMBLIES**

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303-660-7490

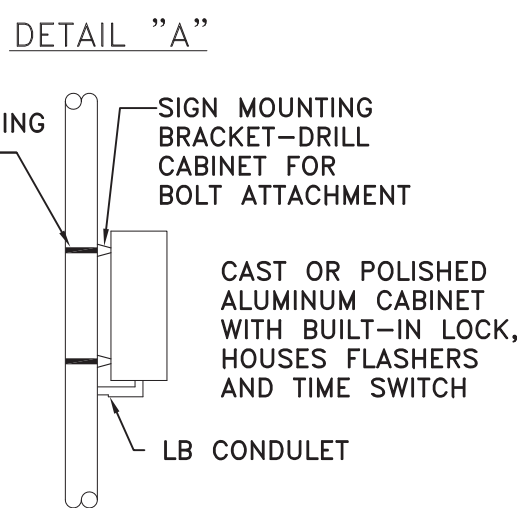
**DOUGLAS COUNTY STANDARD SIGNAL DETAILS**

UNDERGROUND POWER FEED  
OVERHEAD POWER FEED

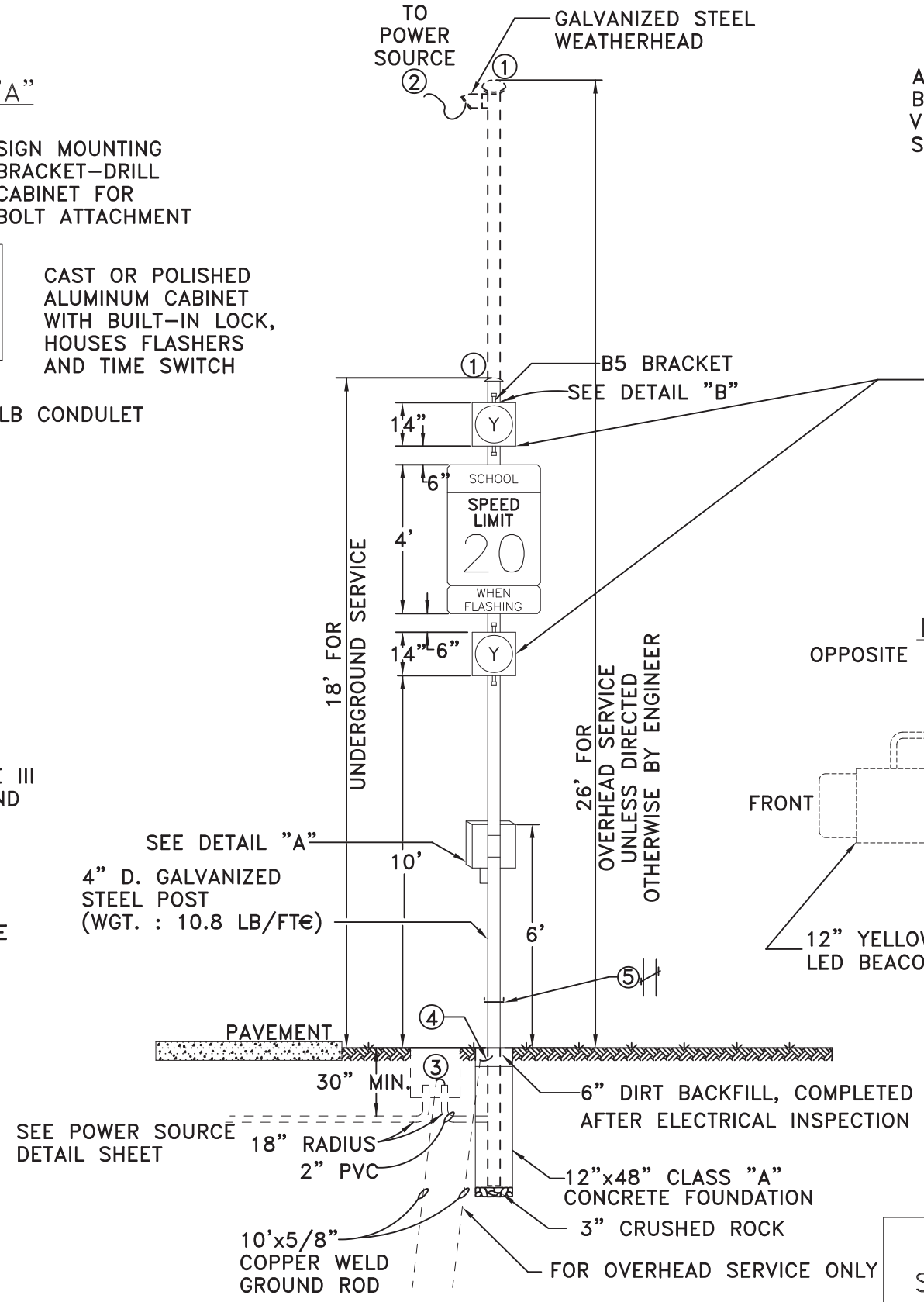
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REVISION JANUARY 2016	SCALE:	DRAWN BY:	SHEET NO.
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REVISION APRIL 2003			



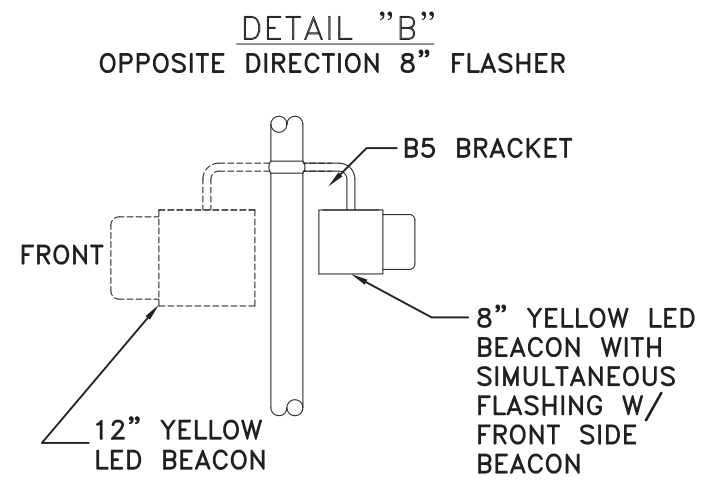
**SCHOOL FLASHING BEACON ASSEMBLY  
SIDE OF ROAD, TYPE 1**



- NOTES**
- ① WATERTIGHT GALVANIZED STEEL POLE CAP
  - ② LEAVE 8' COILED WIRE FOR UTILITY COMPANY CONNECTION
  - ③ PROVIDE CONDUIT AND TYPE III PULL BOX FOR UNDERGROUND SERVICE ONLY
  - ④ BONDING STRAP IN BACKFILL
  - ⑤ GALVANIZED STEEL POLE SHALL BE BREAKAWAY STYLE



**SCHOOL FLASHING BEACON ASSEMBLY  
SIDE OF ROAD, TYPE 2**



**FLASHING BEACONS**  
ALL FLASHING BEACONS SHALL BE POLYCARBONATE WITH TUNNEL VISORS AND BLACK HOUSINGS. SOLAR DESIGN VARIES.



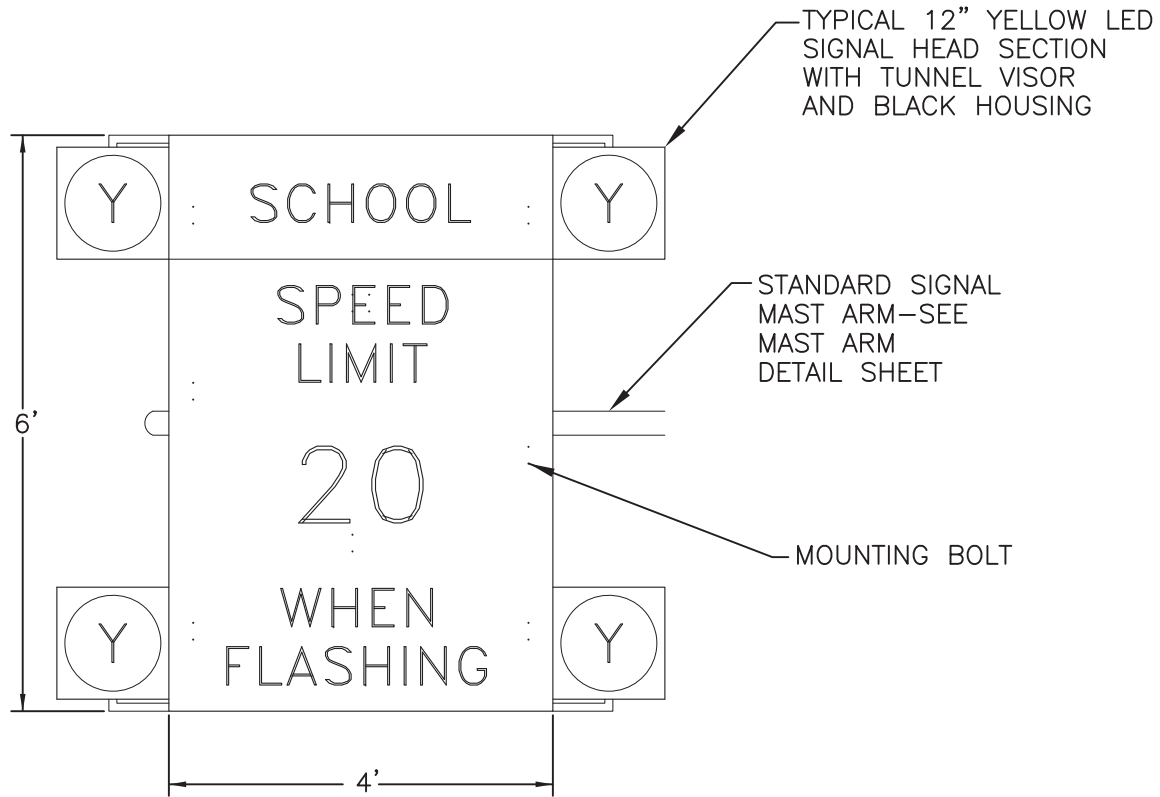
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<b>DOUGLAS COUNTY STANDARD SIGNAL DETAILS</b>	
SCHOOL FLASHING BEACONS- SIDE OF THE ROAD	
ORIGINAL 6-93 00/16 DATE:	DESIGNED BY: JOB NO.
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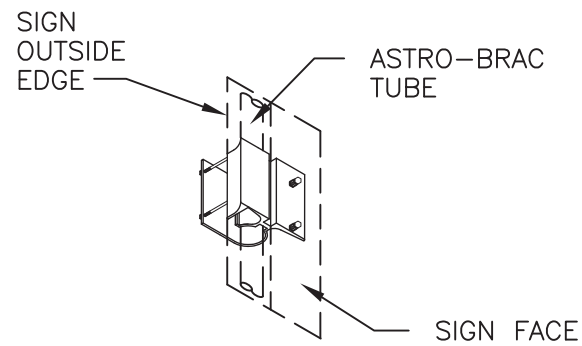
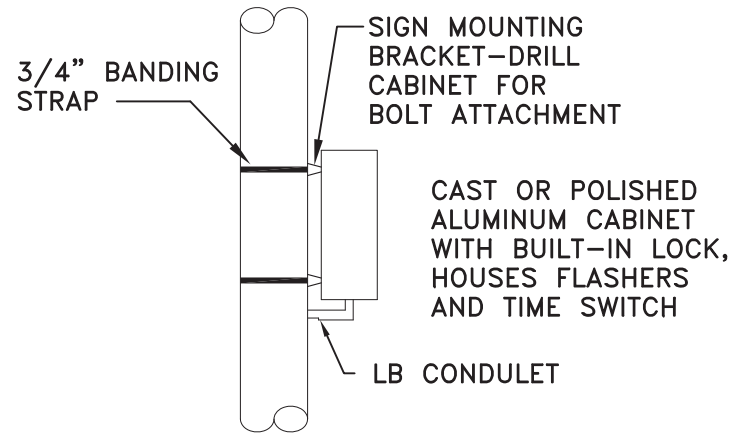
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**FRONT VIEW**

48"x72" SIGN

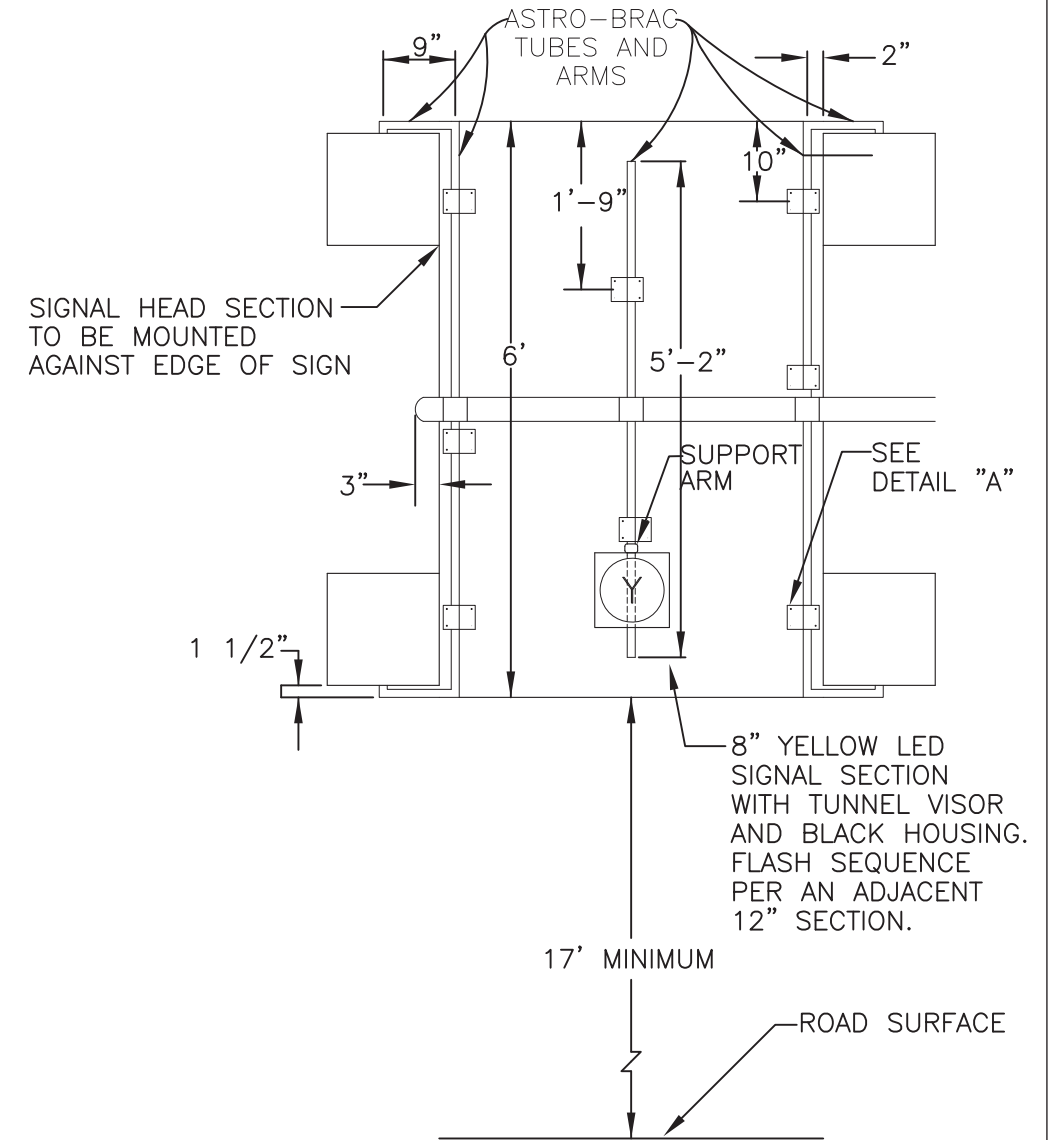


**CABINET AND FLASHER  
DETAIL**

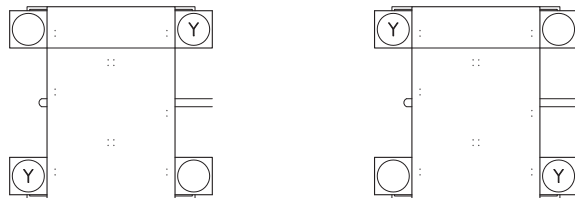


**DETAIL "A"  
SIGN CLAMP**

**BACKVIEW**



FLASHING SEQUENCE SHALL BE:



**PLACEMENT NOTES:**

1. ROADWAY WITH ONE THROUGH LANE: SIGN AND FLASHER ASSEMBLY CENTERED ON THROUGH LANE.
2. ROADWAY WITH TWO THROUGH LANES: SIGN AND FLASHER ASSEMBLY CENTERED ON LANE LINE BETWEEN THROUGH LANES.
3. ROADWAY WITH THREE THROUGH LANES: SIGN AND FLASHER ASSEMBLY CENTERED ON CENTER THROUGH LANE.

**SCHOOL FLASHING BEACON ASSEMBLY—OVERHEAD**



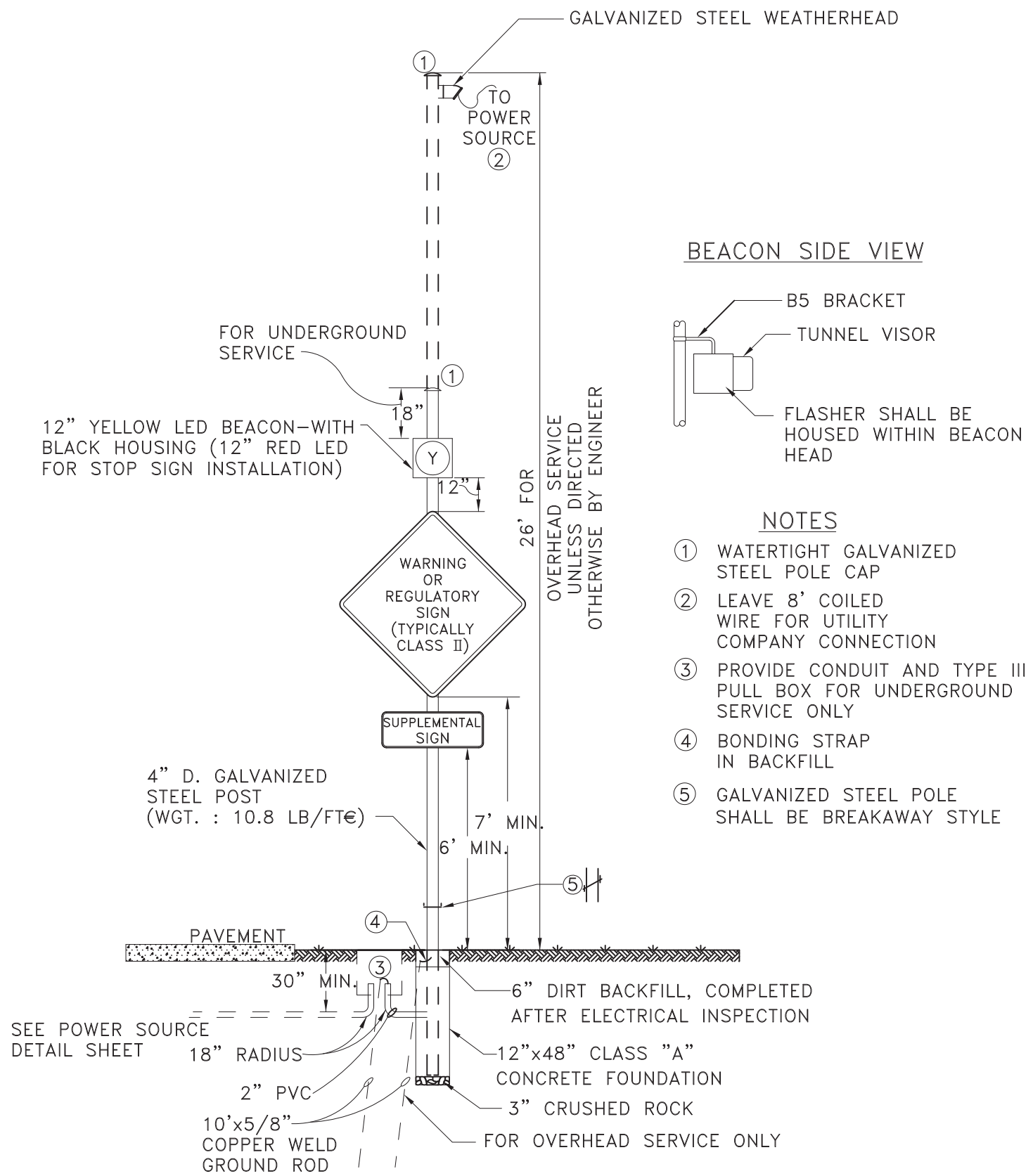
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**DOUGLAS COUNTY  
STANDARD SIGNAL DETAILS**

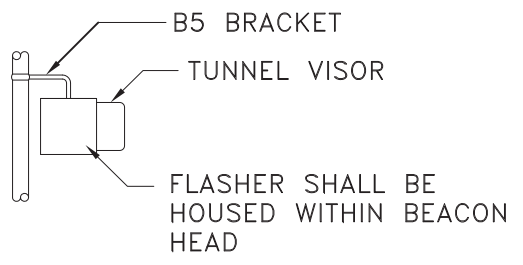
**SCHOOL FLASHING BEACON—OVERHEAD**

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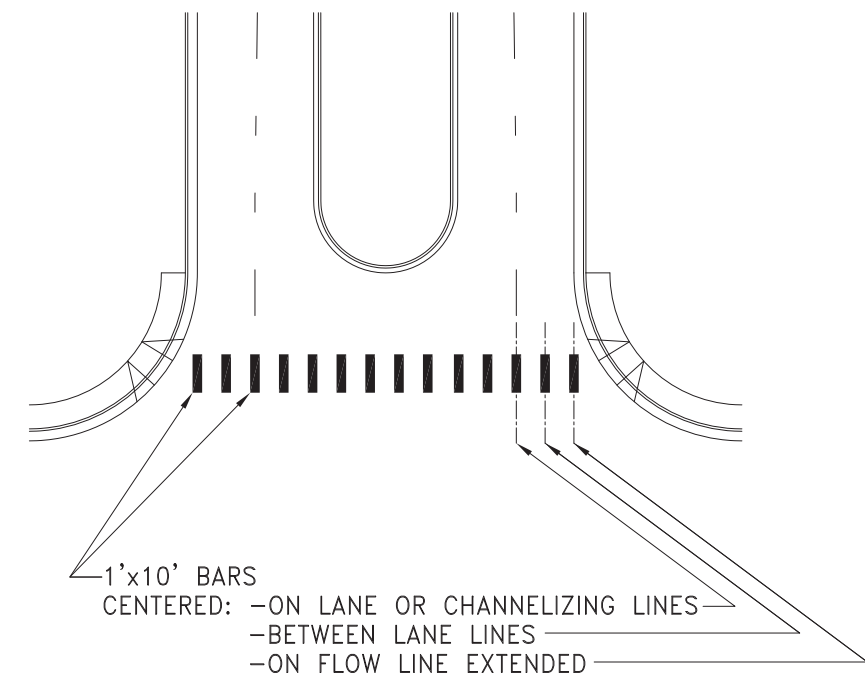


**BEACON SIDE VIEW**




**NOTES**

- ① WATERTIGHT GALVANIZED STEEL POLE CAP
- ② LEAVE 8' COILED WIRE FOR UTILITY COMPANY CONNECTION
- ③ PROVIDE CONDUIT AND TYPE III PULL BOX FOR UNDERGROUND SERVICE ONLY
- ④ BONDING STRAP IN BACKFILL
- ⑤ GALVANIZED STEEL POLE SHALL BE BREAKAWAY STYLE



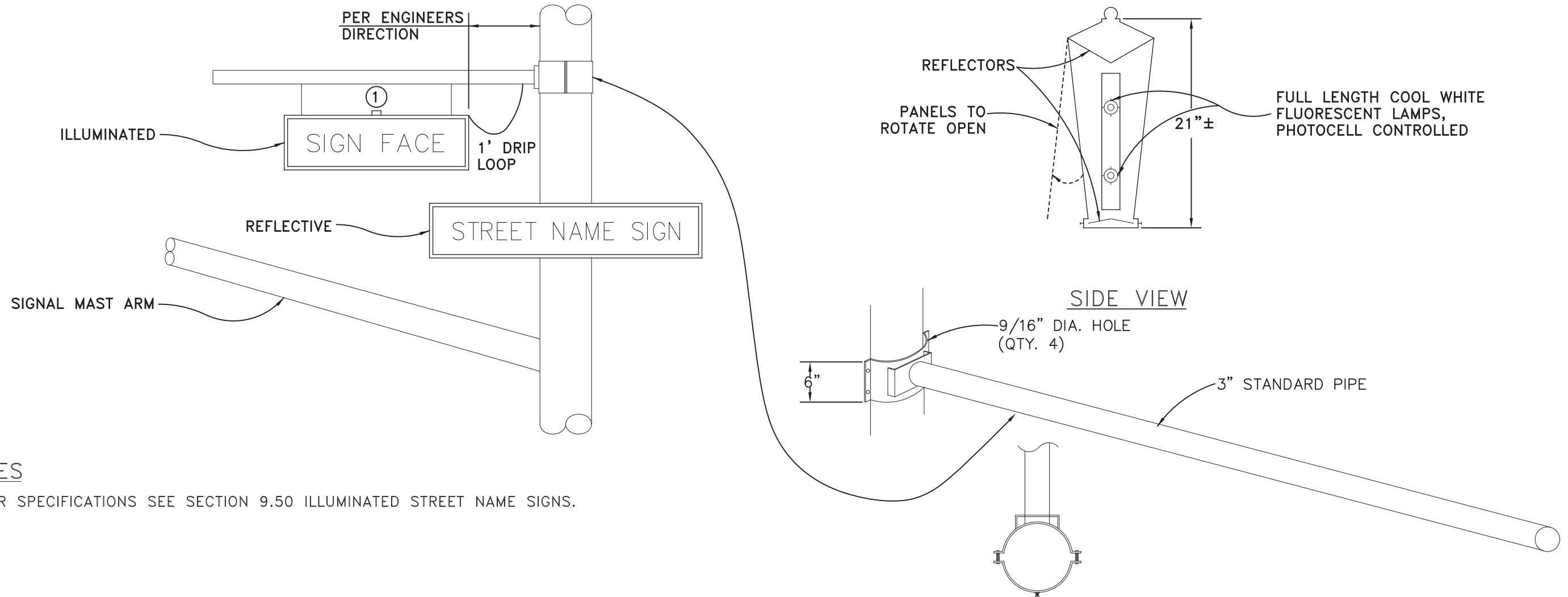
**TYPICAL CROSSWALK MARKING**

**WARNING OR REGULATORY SIGN FLASHING BEACON ASSEMBLY**

 DOUGLAS COUNTY PUBLIC WORKS ENGINEERING DIVISION 100 THIRD STREET CASTLE ROCK, COLORADO 80104 303-660-7490	<b>DOUGLAS COUNTY STANDARD SIGNAL DETAILS</b>	
	WARNING/REGULATORY FLASHING BEACON TYPICAL CROSSWALK MARKING	
ORIGINAL 6-93 00/16 DATE: REVISION JANUARY 2016 REVISION APRIL 2002 SCALE: REVISION APRIL 2003	DESIGNED BY: JOB NO.  DRAWN BY: SHEET NO. 18 OF 21	

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① PHOTOELECTRIC CELL



NOTES

1. FOR SPECIFICATIONS SEE SECTION 9.50 ILLUMINATED STREET NAME SIGNS.

STANDARD MOUNT (OVER MAST ARM)

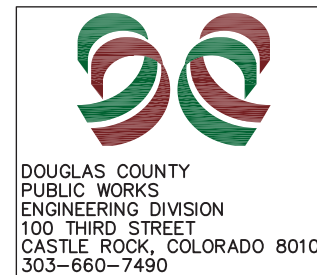
GENERAL NOTES

1. STREET NAME SIGN TO BE FREE-SWINGING OR LIMITED-SWINGING. SIGN FIXTURE AND PANELS SHALL WITHSTAND 90 MPH WIND LOADING, WITH STRUCTURAL REQUIREMENTS MEETING AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS," LATEST EDITION.
2. HOUSING TO BE CONSTRUCTED OF ALUMINUM.
3. NEOPRENE GASKETS SHALL BE INSTALLED BETWEEN THE SIGN PANEL FRAME AND FIXTURE HOUSING TO PREVENT WATER ENTRANCE. SCREENED WEEP HOLES SHALL BE PROVIDED ON HOUSING BOTTOM FOR DRAINAGE.



FOR NORTH/SOUTH OR EAST/WEST STREET INCLUDE LETTER DESIGNATION (5" LETTER) BETWEEN LOGO AND STREET NAME

TYPICAL SIGN LAYOUT



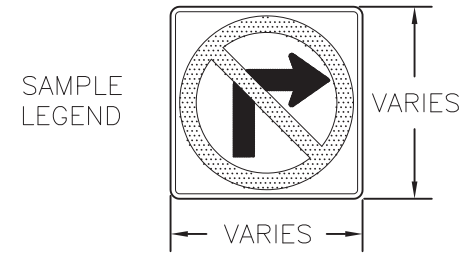
DOUGLAS COUNTY  
STANDARD SIGNAL DETAILS

ILLUMINATED STREET NAME SIGN

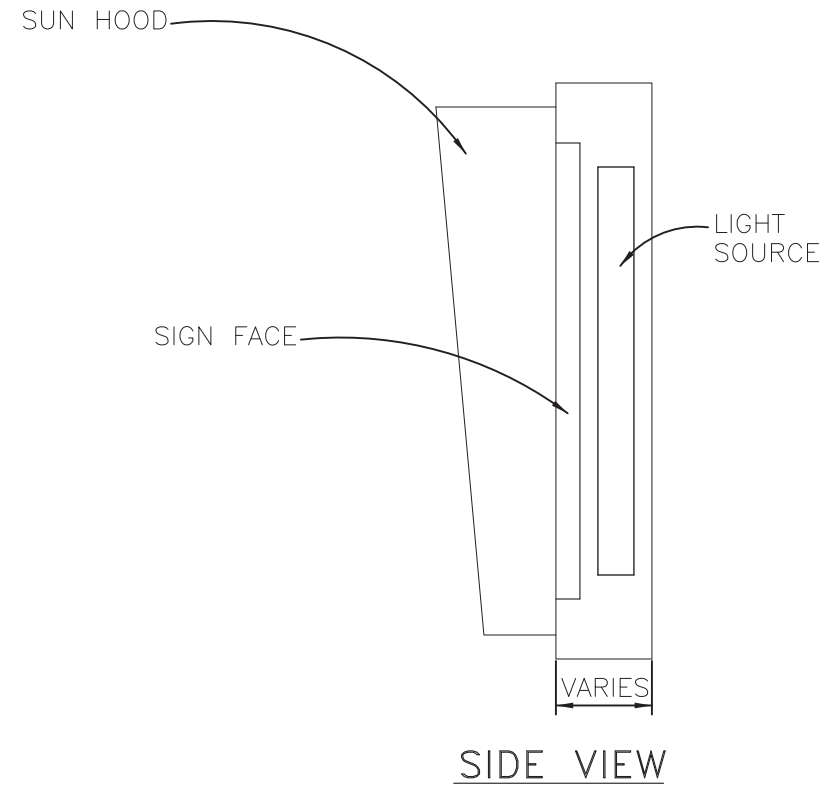
ORIGINAL 6-93 00/16 DATE:	DESIGNED BY: JOB NO.
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**NOTES**

1. SIGN MAY BE SINGLE-SIDED OR DOUBLE SIDED PER ENGINEER'S DIRECTION.
2. SIGN COLOR, LEGEND AND SIZE PER ENGINEER'S DIRECTION.



**TYPICAL SIGN LAYOUT**



**NOTES**

1. LIGHT SOURCE SHALL BE INCANDESCENT, FLUORESCENT OR FIBER OPTIC , PER DIRECTION OF THE ENGINEER. SIGN FACE SHALL BE COMPLETELY BLANK OUT WHEN NOT ENERGIZED.
2. LIGHT SOURCE SHALL BE READILY ACCESSIBLE THROUGH HINGED DOORS OR SLIDING PANELS.
3. LIGHT SOURCE SHALL BE REDUNDANT SUCH THAT WITH FAILURE OF ONE BULB, BALLAST, ETC., SIGN ILLUMINATION SHALL BE SUFFICIENT.
4. HOUSING COLOR PER DIRECTION OF THE ENGINEER.

**GENERAL NOTES**

1. SIGN FIXTURE AND PANELS SHALL WITHSTAND 90 MPH WIND LOADING, WITH STRUCTURAL REQUIREMENTS MEETING AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS," LATEST EDITION.
2. HOUSING SHALL BE CONSTRUCTED OF ALUMINUM UNLESS OTHERWISE DIRECTED BY ENGINEER.
3. NEOPRENE GASKETS SHALL BE INSTALLED BETWEEN THE SIGN PANEL AND FIXTURE HOUSING TO PREVENT WATER ENTRANCE. SCREENED WEEP HOLES SHALL BE PROVIDED ON HOUSING BOTTOM FOR DRAINAGE.
4. BLANKOUT REGULATORY/WARNING SIGNS SHALL BE MOUNTED WITH ASTROTYPE MOUNTING BRACKETS. SEE "SIGNAL HEADS & MOUNTING, GENERAL WIRING NOTES" SHEET FOR FURTHER DETAIL.

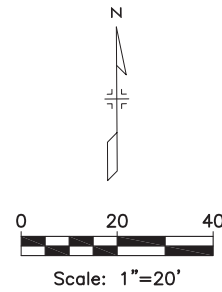


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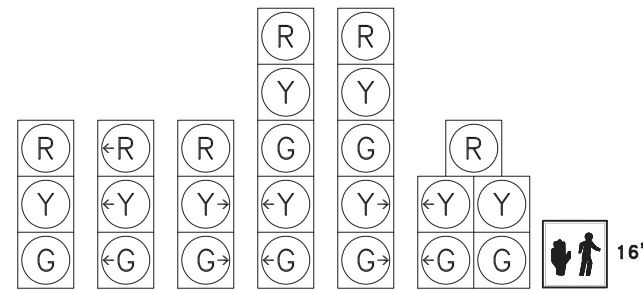
**DOUGLAS COUNTY  
STANDARD SIGNAL DETAILS**

**BLANK-OUT REGULATORY/WARNING SIGN**




























ORIGINAL 6-93 00/16	DATE:	DESIGNED BY:	JOB NO.
REVISION JANUARY 2016	SCALE:	DRAWN BY:	SHEET NO.
REVISION APRIL 2002			20 OF 21
REVISION APRIL 2003			



### SIGNAL HEADS



### LEGEND

-  TRAFFIC SIGNAL POLE
-  SPAN WIRE POLE
-  MAST ARM AND POLE
-  TRAFFIC SIGNAL FACE
-  PEDESTRIAN SIGNAL FACE
-  PEDESTRIAN PUSH BUTTON & SIGN
-  LUMINAIRE
-  TRAFFIC SIGNAL CONTROLLER & CABINET
-  MAST ARM, POLE MOUNTED SIGN W/IDENTIFIER
-  ILLUMINATED STREET NAME SIGN
-  BLANK-OUT REGULATORY SIGN
-  BLANK-OUT WARNING SIGN
-  PULL BOX (TYPE I)
-  PULL BOX (TYPE II)
-  PULL BOX (TYPE III)
-  PULL BOX (SPECIAL)
-  LOOP DETECTOR (6'x40')
-  LOOP DETECTOR (6'x30')
-  LOOP DETECTOR (6'x6')
-  CAMERA
-  MICRO LOOP DETECTOR W/ SAW CUT LEAD
-  CONDUIT-SCHEDULE 80 PVC
-  OPTICOM DETECTOR
-  SF-X SCHOOL FLASHING BEACON (TYPE X)
-  SFO SCHOOL FLASHING BEACON (OVERHEAD)
-  WF WARNING FLASHING BEACON
-  RF REGULATORY FLASHING BEACON

### SIGNAL PHASING

0 2 IS MAIN PHASE

IF MAIN PHASE IS NORTHBOUND

- 0 1 S/B LEFT TURN
- 0 2 N/B THROUGH
- 0 3 W/B LEFT TURN
- 0 4 E/B THROUGH
- 0 5 N/B LEFT TURN
- 0 6 S/B THROUGH
- 0 7 E/B LEFT TURN
- 0 8 W/B THROUGH

IF MAIN PHASE IS EASTBOUND

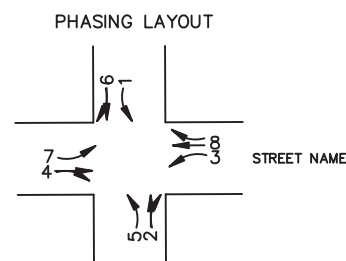

- 0 1 W/B LEFT TURN
- 0 2 E/B THROUGH
- 0 3 N/B LEFT TURN
- 0 4 S/B THROUGH
- 0 5 E/B LEFT TURN
- 0 6 W/B THROUGH
- 0 7 S/B LEFT TURN
- 0 8 N/B THROUGH

### NOTES

ALL VEHICLE SIGNAL HEADS SHALL BE POLYCARBONATE WITH 12" SECTIONS AND TUNNEL VISORS.

ALL VEHICLE AND PEDESTRIAN SIGNAL HEADS SHALL BE BLACK IN COLOR.

BACKPLATES WHERE INDICATED SHALL BE LOUVERED TYPE.

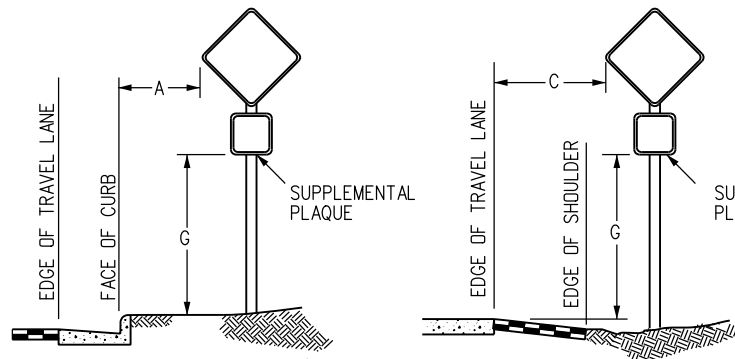



DOUGLAS COUNTY  
PUBLIC WORKS  
ENGINEERING DIVISION  
100 THIRD STREET  
CASTLE ROCK, COLORADO 80104  
303-660-7490

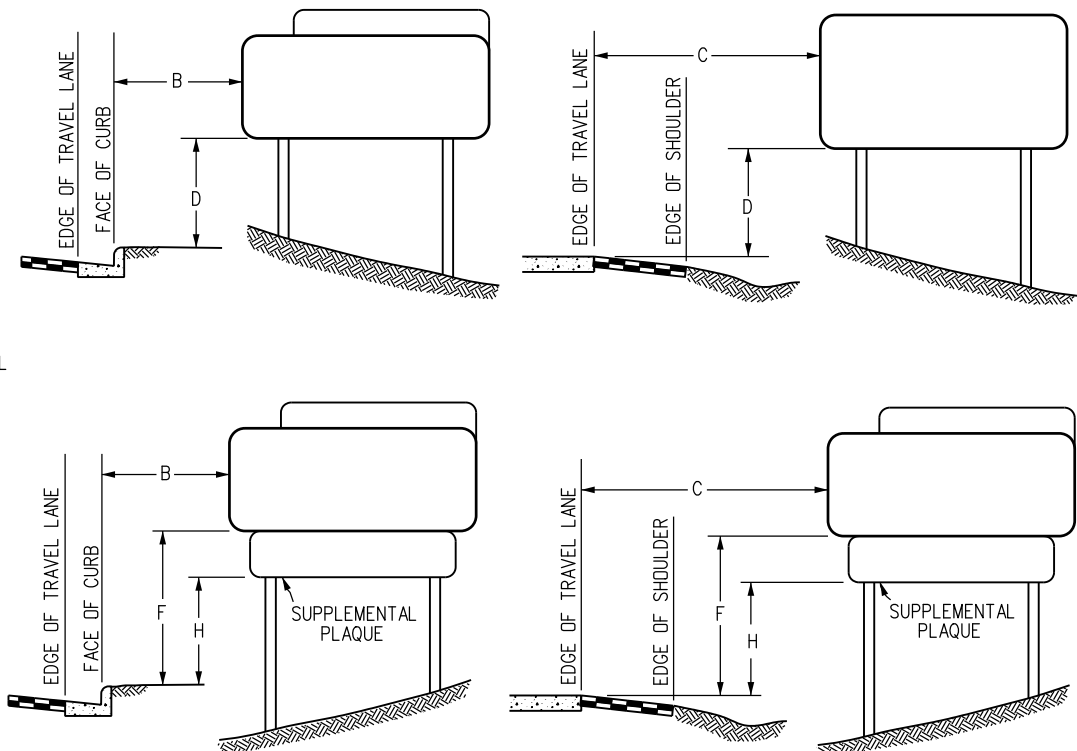
## DOUGLAS COUNTY STANDARD SIGNAL DETAILS

### SIGNAL PHASING

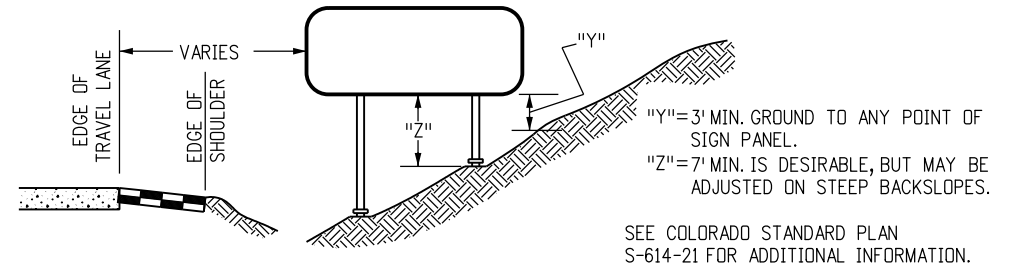
ORIGINAL 6-93	00/16	DATE:	DESIGNED BY:	JOB NO.
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REVISION APRIL 2002				21 OF 21
REVISION APRIL 2003				



**WARNING SIGN PLACEMENT**



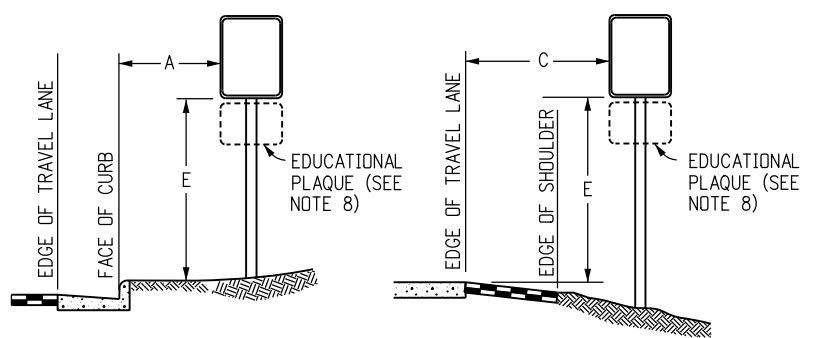
**CLASS III SIGN PLACEMENT**



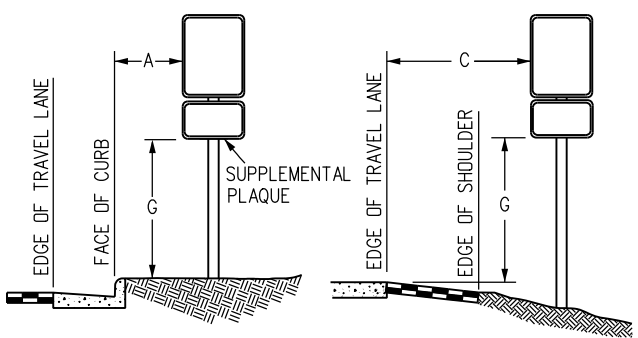
**CLASS III SIGNS, PANEL GROUND CLEARANCE**

**GENERAL NOTES**

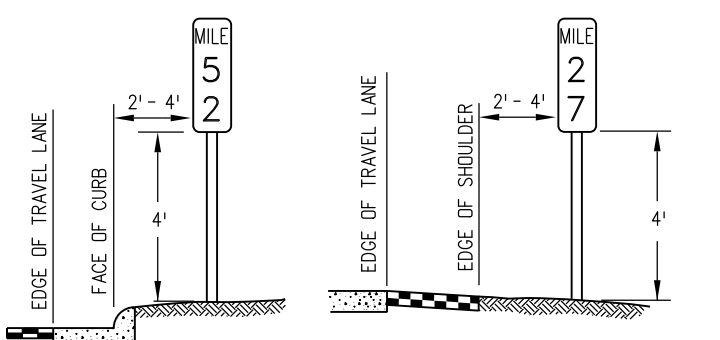
1. THE ENGINEER WILL ESTABLISH GRADES AND LOCATIONS FOR ALL SIGN POSTS IN ACCORDANCE WITH DETAILS SHOWN ON THE PLANS.
2. SPECIAL CARE SHALL BE TAKEN IN SIGN LOCATION TO ENSURE AN UNOBSTRUCTED VIEW OF EACH SIGN.
3. MINIMUM POST EMBEDMENT SHALL BE 3 FT. FOR U-2 POSTS AND 4 IN. X 4 IN. TIMBER POSTS, AND 5 FT. FOR 6 IN. X 6 IN. TIMBER POSTS. FOR FOOTING DEPTH SEE THE APPLICABLE STANDARD.
4. IF A SHOULDER IS WIDER THAN 6 FEET, THE MINIMUM LATERAL OFFSET DISTANCE SHOULD BE 6 FEET FROM EDGE OF SHOULDER, EXCEPT FOR MILE MARKER SIGNS. SEE FIGURE 2A-2(B) OF THE 2009 MUTCD.
5. NORMAL LATERAL PLACEMENT IS MEASURED FROM THE EDGE OF TRAVEL LANE.
6. IN URBAN AREAS, A LATERAL CLEARANCE OF 1 FT. FROM THE CURB FACE IS PERMISSIBLE WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING POLES ARE CLOSE TO THE CURB.
7. TYPICAL POST MOUNTING HEIGHTS FROM GROUND TO BOTTOM OF SIGN PANEL ARE 7, OR 8 FEET. OTHER HEIGHTS MAY BE REQUIRED WHEN SIGNS ARE MOUNTED ON STEEPER FILL OR CUT SLOPES.
8. "EDUCATIONAL PLAQUES" FOR SYMBOL SIGNS WILL NOT BE CONSIDERED WHEN DETERMINING VERTICAL PLACEMENT. FOR INFORMATION OF EDUCATIONAL PLAQUE, SEE PAGE 3 OF THE 2012 CDOT GUIDE SIGNING POLICIES & PROCEDURES, AND SECTION 2M.06 OF THE 2009 MUTCD.
9. WHEN LATERAL PLACEMENT IS 30 FT. OR MORE FOR SIGNS WITHOUT A SUPPLEMENTAL PLAQUE, VERTICAL PLACEMENT D MAY BE REDUCED TO 5 FT. WHEN LATERAL PLACEMENT IS 30 FT. OR MORE, FOR SIGNS WITH A SUPPLEMENTAL PANEL, VERTICAL PLACEMENT E DOES NOT APPLY - USE ONLY VERTICAL PLACEMENT H.
10. NORMAL ANGULAR PLACEMENT IS 0 DEG. SIGNS CLOSER THAN 30 FT. SHOULD BE TURNED SLIGHTLY AWAY TO MINIMIZE SPECULAR REFLECTION. SIGNS PLACED 30 FT. OR MORE SHOULD GENERALLY BE TURNED TOWARD THE ROAD.
11. THE EXIT PANEL IS MOUNTED ON THE RIGHT HAND SIDE FOR RIGHT HAND EXITS AND THE LEFT SIDE FOR LEFT HAND EXITS.
12. POST SHALL BE INSTALLED PLUMB, VERTICAL DEVIATION SHALL NOT EXCEED 1/2 IN. IN 10 FT.
13. ON ALL TWO-LANE, UNDIVIDED HIGHWAYS, THE MILE MARKER AND POST SHALL BE INSTALLED ON THE RIGHT SHOULDER IN THE ASCENDING DIRECTION, WITH THE MILE MARKER PANELS DISPLAYED ON THE FRONT AND BACK SIDE OF THE POST.
14. ON ALL UNDIVIDED MULTI-LANE AND DIVIDED HIGHWAYS, AND INTERSTATES, THE MILE MARKER AND POST SHALL BE INSTALLED ON THE OUTSIDE SHOULDER (OR SIDEWALK IF APPLICABLE) IN BOTH DIRECTIONS OF TRAVEL.
15. VERTICAL SPACING BETWEEN SIGN PANELS SHALL BE 1 TO 1 1/2 IN., TYPICAL.



**REGULATORY, RECREATIONAL AND CULTURAL INFORMATION SIGN PLACEMENT**



**ROUTE MARKER ASSEMBLY PLACEMENT**



NOTE: MILE MARKERS SHALL BE LOCATED IN LINE WITH DELINEATOR POSTS.

**MILE MARKER PLACEMENT**

**PLACEMENT TABLES**

LATERAL PLACEMENT			VERTICAL PLACEMENT						
KEY	ALL CLASSES OF STREETS AND HIGHWAYS		FREEWAYS AND EXPRESSWAYS		CONVENTIONAL STREETS AND HIGHWAYS				
	MINIMUM	NORMAL	MIN.	MAX.	URBAN		RURAL		
					MIN.	MAX.	MIN.	MAX.	
A	2'-0"	15'-0" PLUS CURB	D	7'-0" OR NOTE NO. 9	12'-0"	7'-0"	8'-0"	5'-0"	8'-0"
B	2'-0"	30'-0" OR MORE INCLUDES CURB	E	7'-0"	8'-0"	7'-0"	8'-0"	5'-0"	8'-0"
C	2'-0"	6'-0" PLUS EDGE OF 6'+ WIDE SHOULDER. IF NONE, 15'-0" FROM EDGE OF TRAVEL LANE.	F	8'-0" OR NOTE NO. 9	12'-0"	8'-0"	9'-0"	5'-0"	9'-0"
			G	6'-0"	7'-0"	6'-0"	7'-0"	4'-0"	7'-0"
			H	5'-0"	10'-0"	6'-0"	7'-0"	4'-0"	7'-0"

**Computer File Information**

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Last Modification Date: 12/12/14	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-614-01_1of2.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

**Sheet Revisions**

Date:	Comments
07/24/12	ADDED NOTES 14 AND 15 ON SHEET 1
03/07/14	SHEET 1 - UPDATED DIMENSIONS TO MUTCD STDS
12/12/14	SHEET 1 - CORRECTED BOTTOM PANELS TO PLACQUES

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**Safety & Traffic Engineering Branch**      **KCM/KEN**

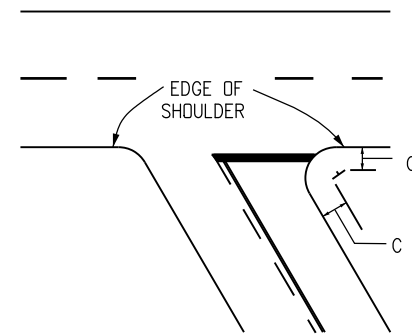
**GROUND SIGN PLACEMENT**

Issued By: Safety & Traffic Engineering Branch July 4, 2012

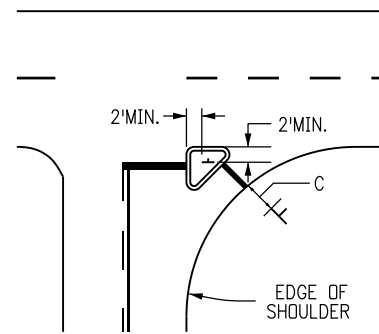
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**S-614-1**

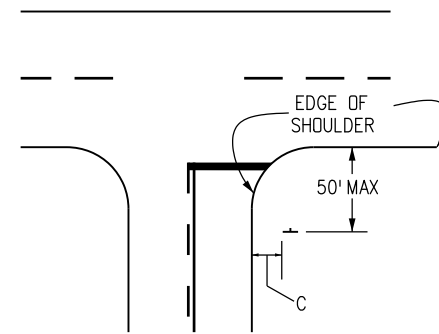
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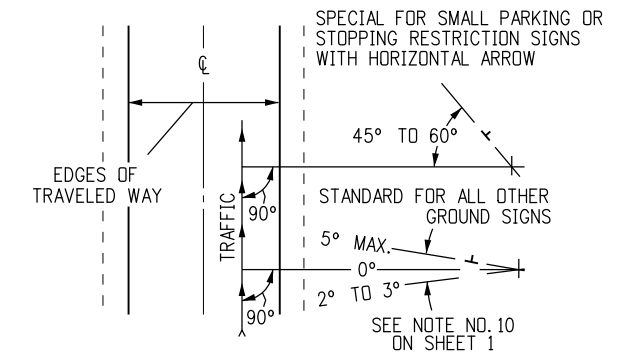
ACUTE ANGLE INTERSECTION



CHANNELIZED INTERSECTION

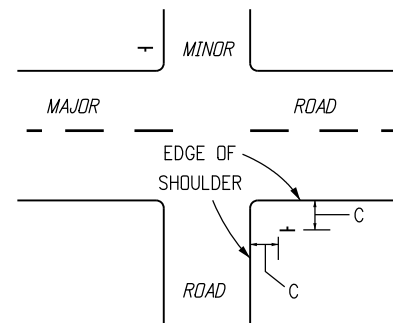


WIDE THROAT INTERSECTION

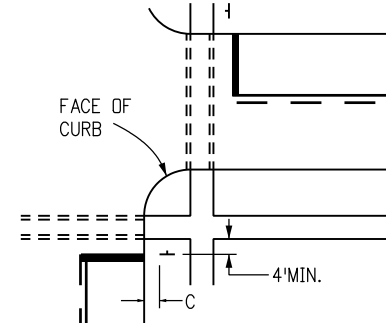


NORMAL ANGULAR PLACEMENT IS 0°. SIGNS CLOSER THAN 30 FT. SHOULD BE TURNED SLIGHTLY AWAY TO MINIMIZE SPECULAR REFLECTION. SIGNS PLACED 30' OR MORE SHOULD GENERALLY BE TURNED TOWARD THE ROAD.

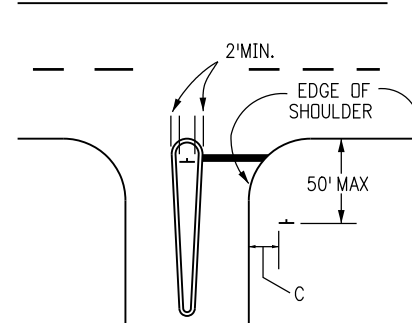
**ANGULAR PLACEMENT**



MINOR CROSSROAD



URBAN INTERSECTION



DIVISIONAL ISLAND

**TYPICAL LOCATIONS-STOP SIGNS AND YIELD SIGNS**

**PLACEMENT TABLES**

LATERAL PLACEMENT			VERTICAL PLACEMENT ( MINIMUM ) ( 9' MAXIMUM )			
KEY	ALL CLASSES OF STREETS AND HIGHWAYS		KEY	FREEWAYS AND EXPRESSWAYS	CONVENTIONAL STREETS AND HIGHWAYS	
	MINIMUM	NORMAL			URBAN	RURAL
*A	2'-0" & NOTE NO.4	15'-0" PLUS CURB OR SHOULDER WIDTH	D	7'-0" OR NOTE NO. 10	7'-0"	5'-0"
*B	2'-0" & NOTE NO.4	30'-0" OR MORE INCLUDES CURB OR SHOULDER	E	6'-0"	7'-0"	5'-0"
*C	2'-0" & NOTE NO.4	6'-0" PLUS CURB OR SHOULDER WIDTH OR IF NONE 15'-0"	F	8'-0" OR NOTE NO. 10	7'-0"	5'-0"
			G	6'-0"	6'-0"	4'-0"
			H	5'-0"	6'-0"	4'-0"

\* SEE NOTE NO. 6 ON SHEET 1

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Sheet Revisions	
Date:	Comments
(R-X)	
(R-X)	
(R-X)	
(R-X)	

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**GROUND SIGN PLACEMENT**  
 Issued By: Safety & Traffic Engineering Branch July 4, 2012

**STANDARD PLAN NO.**  
 S-614-1  
 Sheet No. 2 of 2

**GENERAL NOTES**

1. ALL CONSTRUCTION ZONE TRAFFIC CONTROL DEVICES, INCLUDING BUT NOT LIMITED TO BARRICADES, SIGNS, ARROW PANELS, FLASHING BEACON (PORTABLE), AND CHANNELIZING DEVICES, SHALL BE FURNISHED, INSTALLED, MAINTAINED (INCLUDING WASHING), REPLACED IF DAMAGED, REMOVED WHEN TEMPORARILY NOT IN USE AND RETURNED WHEN REQUIRED, RESET AS NECESSARY DURING THE PROGRESS OF CONSTRUCTION, AND REMOVED ENTIRELY WHEN THE PROJECT IS COMPLETED. ALL DEVICES SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE ATSSA "QUALITY GUIDELINES FOR TEMPORARY TRAFFIC CONTROL DEVICES & FEATURES".
2. WORK ON THE PROJECT SHALL NOT BE STARTED UNTIL ALL REQUIRED TRAFFIC CONTROL DEVICES ARE IN PLACE, AND APPROVED BY THE ENGINEER.
3. WHEN SPEED LIMIT REDUCTION IS REQUIRED, SUCH REDUCTION SHALL BE IN ACCORDANCE WITH CDDT FORM 568, "AUTHORIZATION AND DECLARATION OF TEMPORARY SPEED LIMITS."  
  
WHEN A CHANGE IN AN EXISTING SPEED LIMIT IS REQUIRED, THE R2-1 SIGNS, SHOWN ON THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES, SHOULD BE INSTALLED AT THE LOCATIONS SHOWN ON THE TYPICAL CASES BY R2-1 (OPTIONAL) SIGNS.  
  
AN ADVISORY SPEED PLATE (W13-1P) MAY BE USED WITH A WARNING SIGN WHEN THE MAXIMUM RECOMMENDED SPEED FOR CONDITION NAMED IS LOWER THAN THE POSTED SPEED LIMIT.  
  
THE REGULATORY OR ADVISORY SPEED REDUCTION DISPLAYED SHALL NOT EXCEED 15 MPH PER SIGN INSTALLATION.
4. ANY TRAFFIC CONTROL DEVICE THAT IS DAMAGED, WEATHERED, WORN, OR OTHERWISE DEEMED UNACCEPTABLE BY THE ENGINEER, SHALL BE REPLACED.
5. CONTRACTOR AND PERSONAL VEHICLE PARKING IS PROHIBITED WITHIN THE RIGHT-OF-WAY UNLESS DESIGNATED ON THE PLANS, OR APPROVED BY THE ENGINEER.
6. CONSTRUCTION TRAFFIC SIGNS SHALL BE MEASURED BY THE FOLLOWING SIZES AND DESCRIPTIONS:  
  
PANEL SIZE A      0.01 TO 9.00 SQ. FT. (INCLUDING TYPE 1 AND TYPE 2 BARRICADES).  
PANEL SIZE B      9.01 TO 16.00 SQ. FT.  
PANEL SIZE C      GREATER THAN 16 SQ. FT.  
  
CONSTRUCTION TRAFFIC SIGN (SPECIAL), SQ. FT., MAY BE USED FOR SOME PROJECT SPECIFIC INFORMATION SIGNS.  
  
FOR DETAILED DIMENSIONS OF SIGNS WITH SIGN CODE NUMBERS, SEE "STANDARD HIGHWAY SIGNS" AND THE "COLORADO SUPPLEMENT" THERETO. SIGN LAYOUTS FOR OTHER SIGNS WILL BE FURNISHED IN THE PLANS, TRANSMITTED TO THE ENGINEER AFTER AWARD, OR MAY BE AVAILABLE UPON REQUEST.  
  
W20-5 WARNING SIGNS SHALL BE FURNISHED WITH EXCHANGEABLE PLAQUES READING "RIGHT", "LEFT", "CENTER", "RIGHT 2", ETC. AT NO ADDITIONAL COST.
7. ALL WARNING AND REGULATORY SIGNS SHALL BE POSTED ON BOTH SIDES OF THE ROADWAY ON DIVIDED HIGHWAYS, MULTI-LANE RAMPS, ONE-WAY STREETS, AND AS DIRECTED BY THE ENGINEER, EXCEPT WHERE ONLY ONE SHOULDER IS CLOSED (EX: CASE 11 ON SHEET 7).
8. ADDITIONAL TRAFFIC CONTROL DEVICES ADDRESSING FLAGGING, SPEED REDUCTION, ETC. WILL BE NECESSARY FOR SET-UP AND TAKE-DOWN OF MOST CASE APPLICATIONS; DAILY WORK SITE ACCESS; AND PAVEMENT MARKING REMOVAL AND INSTALLATION OPERATIONS.
9. BASED ON SIGHT DISTANCE AND OTHER CONSIDERATIONS, THE FINAL LOCATIONS OF SIGNS ARE SUBJECT TO APPROVAL OF THE ENGINEER.
10. IF CONSTRUCTION RELATED TRAFFIC CONGESTION BACKS UP BEYOND THE INSTALLED ADVANCE SIGN SEQUENCE, ADDITIONAL ADVANCE SIGNING SHALL BE PLACED BEYOND THE CONGESTION.
11. ALL SIGN MATERIAL SHALL BE SOUND AND DURABLE TO THE DEGREE NECESSARY FOR MAINTAINING EFFECTIVE AND NEAT APPEARING TRAFFIC CONTROLS, AND:
  - a. SIGN PANELS MAY BE FABRICATED FROM PLYWOOD, STEEL, ALUMINUM, OR OTHER SUITABLE MATERIAL.
  - b. REFLECTIVE SHEETING SHALL CONFORM TO ASTM D4956. THE TYPE SHALL BE AS DESCRIBED IN THE STANDARD SPECIFICATIONS AND/OR AS SHOWN ON THE PLANS.
  - c. SYMBOLS AND LEGEND SHALL BE OF GOOD WORKMANSHIP (UNEVEN OR HAND LETTERING WILL NOT BE ACCEPTED).
  - d. PORTABLE OR TEMPORARY MOUNTING SHALL NOT BE CONSTRUCTED OR WEIGHTED BY ANY METHOD OR MATERIAL THAT MAKES THEM HAZARDOUS TO TRAFFIC.
  - e. CERTAIN POST SIZES AND SHAPES REQUIRE A "BREAK-AWAY" DEVICE. SEE THE APPLICABLE STANDARD PLAN. OTHER POST DESIGNS OR SYSTEMS REQUIRE THE SUBMITTAL OF AN FHWA LETTER OF ACCEPTANCE TO THE ENGINEER, AND MUST BE APPROVED BY THE ENGINEER PRIOR TO THEIR USE.
12. ALL CONSTRUCTION SIGN PLACEMENT SHALL BE IN ACCORDANCE WITH STANDARD PLAN "TYPICAL GROUND SIGN PLACEMENT" UNLESS OTHERWISE APPROVED.  
  
SIGNS APPROVED TO BE MOUNTED ON PORTABLE SUPPORTS, OR APPROPRIATE SIGNS MOUNTED ON BARRICADES, MAY BE AT LOWER HEIGHTS, BUT THE BOTTOM OF THE SIGNS SHALL NOT BE LESS THAN ONE FOOT ABOVE THE PAVEMENT ELEVATION.
13. SIGNS MOUNTED ON THE MEDIAN OF DIVIDED HIGHWAYS WHERE MEDIAN BARRIER IS IN PLACE MAY BE MOUNTED ON THE BARRIER WITH A SADDLE TYPE BRACKET. IF THE BRACKET ALLOWS THE SIGN PANEL TO BE TURNED PARALLEL TO THE ROADWAY, THE SIGN MAY REMAIN IN PLACE WHEN NOT APPLICABLE, BUT LAYING THE SIGN PANEL DOWN IN A HORIZONTAL POSITION IS NOT PERMITTED.
14. TRAFFIC CONES SHALL BE AT LEAST 28 INCHES IN HEIGHT. HOWEVER, THE MINIMUM SIZE SHALL BE 36 INCHES WHEN THEY ARE USED ON FREEWAYS AND EXPRESSWAYS, OR DURING NIGHT TIME WORKING HOURS. THEY SHOULD ALSO BE 36 INCHES WHEN USED ON OTHER HIGH SPEED ROADWAYS (45 MPH OR MORE) WITH AN ADT OF 6,000 OR MORE.
15. TYPE 1 BARRICADES SHALL NOT BE USED ON FREEWAYS, EXPRESSWAYS, OR OTHER HIGH SPEED ROADWAYS (55 MPH OR MORE).
16. WHEN TWO-WAY TRAFFIC IS PLACED ON ONE ROADWAY OF A NORMALLY DIVIDED HIGHWAY, OPPOSING TRAFFIC SHALL BE SEPARATED EITHER WITH CONCRETE BARRIER (TEMPORARY), OR WITH CHANNELIZING DEVICES APPROVED FOR THIS APPLICATION, THROUGHOUT THE LENGTH OF TWO-WAY OPERATION. THE TRANSITION ZONES SHALL HAVE CONCRETE BARRIER (TEMPORARY). THE BARRIER SHALL BE TIED TO AN EXISTING STRUCTURE OR GUARD RAIL, FLARED OR EXTENDED, TO MEET CLEAR ZONE REQUIREMENTS, OR FITTED WITH AN IMPACT ATTENUATION DEVICE.
17. CHANNELIZING DEVICE SPACING, IN FEET, SHALL BE AS FOLLOWS:
  - a. FOR TAPERS AND TRANSITIONS, SPACING EQUALS THE NUMERICAL VALUE OF THE SPEED LIMIT. (e.g. 45 MPH = 45 FEET)
  - b. FOR TANGENTS ALONG THE BUFFER SPACE OR WORK AREA, SPACING MAY NOT BE GREATER THAN TWO TIMES THE SPEED LIMIT. (e.g. 50 MPH = 50 FEET TO 100 FEET MAXIMUM)
18. FOR DETAILS ON BARRICADES, CONCRETE BARRIER (TEMPORARY), VERTICAL PANELS, AND FLASHING BEACON (PORTABLE), SEE THE APPLICABLE STANDARD PLANS.
19. FLOOD LIGHTS SHALL BE USED TO ILLUMINATE FLAGGER STATIONS DURING THE HOURS OF DARKNESS UNLESS OTHERWISE APPROVED. A TYPICAL LIGHT SHOULD PROVIDE THE FOLLOWING: A FULLY DIRECTIONAL SWIVEL MOUNT QUARTZ LIGHT SOURCE (500 WATT MINIMUM), SELF-SUPPORTING STAND WITH VARIABLE LIGHT HEIGHT FROM A MINIMUM OF EIGHT FEET ABOVE THE ROADWAY, AND A POWER SOURCE. IT SHALL ILLUMINATE THE STATION AREA AND A FLAGGER ESCAPE PATH, BUT SHALL NOT PRESENT ANY GLARE TO TRAFFIC.
20. FOR TEMPORARY PAVEMENT MARKINGS AND CONTROL POINTS FOR INSTALLING THOSE PAVEMENT MARKINGS FOR UNDIVIDED ROADWAYS THAT ARE BEING CONSTRUCTED UNDER TRAFFIC, FULL COMPLIANCE CENTER LINE, LANE LINE, AND EDGE LINE TEMPORARY MARKINGS SHALL BE IN PLACE AT THE END OF EACH WORK DAY IN ACCORDANCE WITH SECTION 627.03(d)2.  
  
FOR ADDITIONAL PAVEMENT MARKING DETAILS, SEE STANDARD PLAN "TYPICAL PAVEMENT MARKINGS".
21. BUFFER SPACE IS OPTIONAL. NEED MUST BE DETERMINED ON A PROJECT OR SITE SPECIFIC BASIS AS DIRECTED BY THE ENGINEER. WHEN A BUFFER SPACE IS USED, DIMENSIONS AND/OR DEVICES USED ARE TO BE INCORPORATED IN THE TRAFFIC CONTROL PLAN (TCP) OR THE CONTRACTOR'S METHOD OF HANDLING TRAFFIC (MHT).
22. ADDITIONAL VMS SIGNAGE SHOULD BE CONSIDERED AT LEAST A MILE IN ADVANCE OF THE SIGNING SHOWN IN THE DETAIL FOR ANY LANE CLOSURES ON INTERSTATE AND OTHER HIGH SPEED FACILITIES ESPECIALLY WHEN THE LEVEL OF SERVICE IS SIGNIFICANTLY REDUCED AS A RESULT OF CONSTRUCTION. THE LEGENDS SHOULD BE CHANGED TO ADVISE MOTORISTS OF UPCOMING TRAFFIC CONDITIONS AND TO ALERT THEM OF UPCOMING LANE USAGE.  
  
ADDITIONAL ADVANCE WARNING SIGNAGE IS ENCOURAGED IN ALL CASES WHERE TRAFFIC VOLUMES AND SPEEDS ARE HIGH AND/OR WHERE THERE ARE INFREQUENT EXITS. ADDITIONAL SIGNAGE IS ALSO ENCOURAGED IN LOCATIONS WHERE DRIVERS' LINE OF SIGHT TO ADVANCE WARNING SIGNS IS OBSTRUCTED.
23. WHEN ARROW BOARDS ARE USED TO CLOSE MULTIPLE LANES, A SEPARATE ARROW BOARD SHALL BE USED FOR EACH CLOSED LANE.  
  
IF ARROW BOARDS ARE USED FOR SHOULDER WORK, BLOCKING THE SHOULDER, FOR ROADSIDE WORK NEAR THE SHOULDER, OR FOR TEMPORARILY CLOSING ONE LANE ON A TWO-LANE, TWO-WAY ROADWAY, USE THE ARROW BOARDS ONLY IN THE CAUTION MODE.
24. RAISED PAVEMENT MARKERS MAY BE USED TO SUPPLEMENT TEMPORARY STRIPING DURING NON-SNOW PERIODS. THEIR USE IS ENCOURAGED ON HIGHER SPEED FACILITIES WHEN TRAFFIC IS BEING DIVERTED FROM ITS USUAL COURSE.
25. THE TYPICAL CASES DEPICTED IN THIS STANDARD REFLECT THE MINIMUM REQUIREMENTS, UNLESS AS OTHERWISE DIRECTED BY THE PROJECT PLANS AND SPECIFICATIONS, AND/OR THE PROJECT ENGINEER.
26. A SIGNIFICANT PROJECT IS DEFINED AS ONE THAT, ALONE OR IN COMBINATION WITH OTHER CONCURRENT PROJECTS NEARBY, IS ANTICIPATED TO CAUSE SUSTAINED WORK ZONE IMPACTS AT A LOCATION FOR THREE OR MORE CONSECUTIVE DAYS WITH EITHER INTERMITTENT OR CONTINUOUS LANE CLOSURES.

Sheet Revisions	
Date:	Comments
(R-1) 02/06/13	SHEET 13 - UPDATE TO 2009 MUTCD STD
(R-2) 02/26/13	SHEET 1 - UPDATE TO NOTE 1
(R-3) 02/27/13	SHEET 4 - UPDATE TAPER TO MUTCD STD
(R-4) 07/26/13	SHTS 9, 10, 15 & 20 - CORRECTED SIGN CODE DESIGNATION
(R-5) 03/27/14	SHTS 17 & 18 - UPDATED SIGNS AND TMA'S
(R-6) 07/22/14	SHEET 1 - UPDATE TO NOTE 20
(R-7) 12/8/14	SHEETS 17 TO 24 - ADDED AND RENUMBERED SHEET 22 - SIGN CODE UPDATE, W5-40 & W21-50

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**Safety & Traffic Engineering Branch      KCM/KEN**

**TRAFFIC CONTROLS  
FOR HIGHWAY  
CONSTRUCTION**

Issued By: Safety & Traffic Engineering Branch July 4, 2012

**STANDARD PLAN NO.**


**S-630-1**

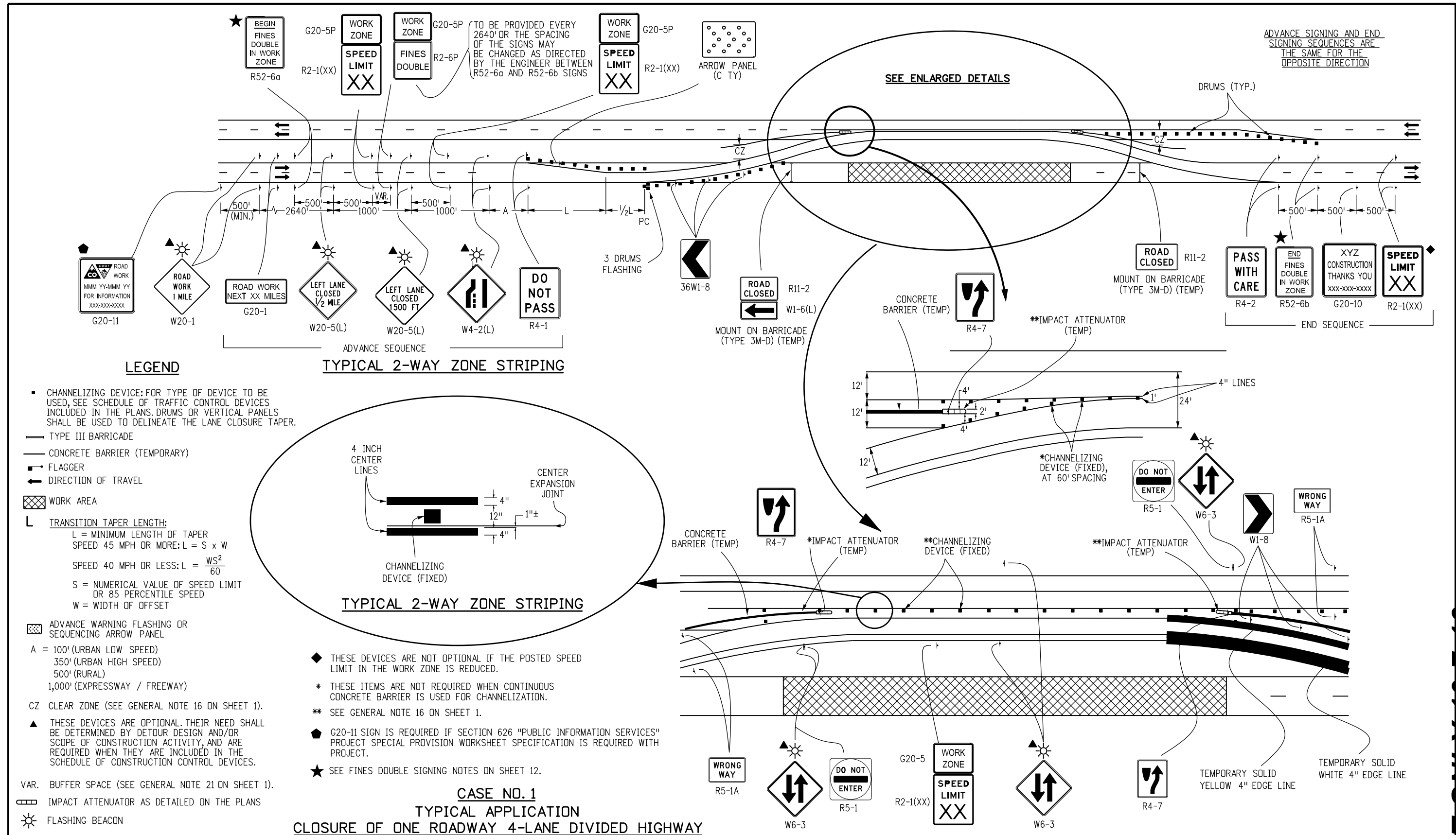
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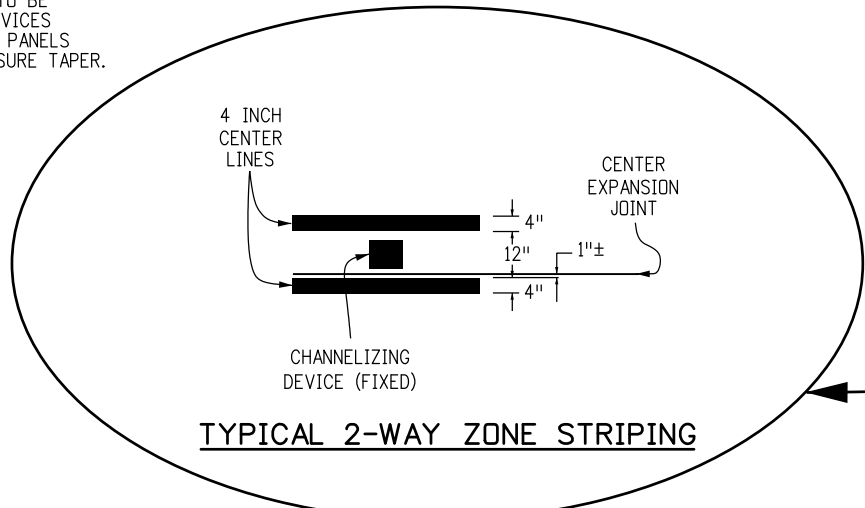
<b>Computer File Information</b>		<b>Sheet Revisions</b>		Colorado Department of Transportation  4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9543 Fax: (303) 757-9219 <b>Safety &amp; Traffic Engineering Branch</b> <b>KCM/MKB</b>	<b>TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION</b>  Issued By: Safety & Traffic Engineering Branch July 4, 2012	<b>STANDARD PLAN NO.</b>	
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**LEGEND**

- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- ← DIRECTION OF TRAVEL
- ▨ WORK AREA
- L TRANSITION TAPER LENGTH:  
 L = MINIMUM LENGTH OF TAPER  
 SPEED 45 MPH OR MORE:  $L = S \times W$   
 SPEED 40 MPH OR LESS:  $L = \frac{WS^2}{60}$   
 S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED  
 W = WIDTH OF OFFSET
- ▨ ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- A = 100' (URBAN LOW SPEED)  
 350' (URBAN HIGH SPEED)  
 500' (RURAL)  
 1,000' (EXPRESSWAY / FREEWAY)
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- VAR. BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- ▨ IMPACT ATTENUATOR AS DETAILED ON THE PLANS
- ☀ FLASHING BEACON

**TYPICAL 2-WAY ZONE STRIPING**



**TYPICAL 2-WAY ZONE STRIPING**

- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- \* THESE ITEMS ARE NOT REQUIRED WHEN CONTINUOUS CONCRETE BARRIER IS USED FOR CHANNELIZATION.
- \*\* SEE GENERAL NOTE 16 ON SHEET 1.
- G20-11 SIGN IS REQUIRED IF SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

**CASE NO. 1  
TYPICAL APPLICATION  
CLOSURE OF ONE ROADWAY 4-LANE DIVIDED HIGHWAY**

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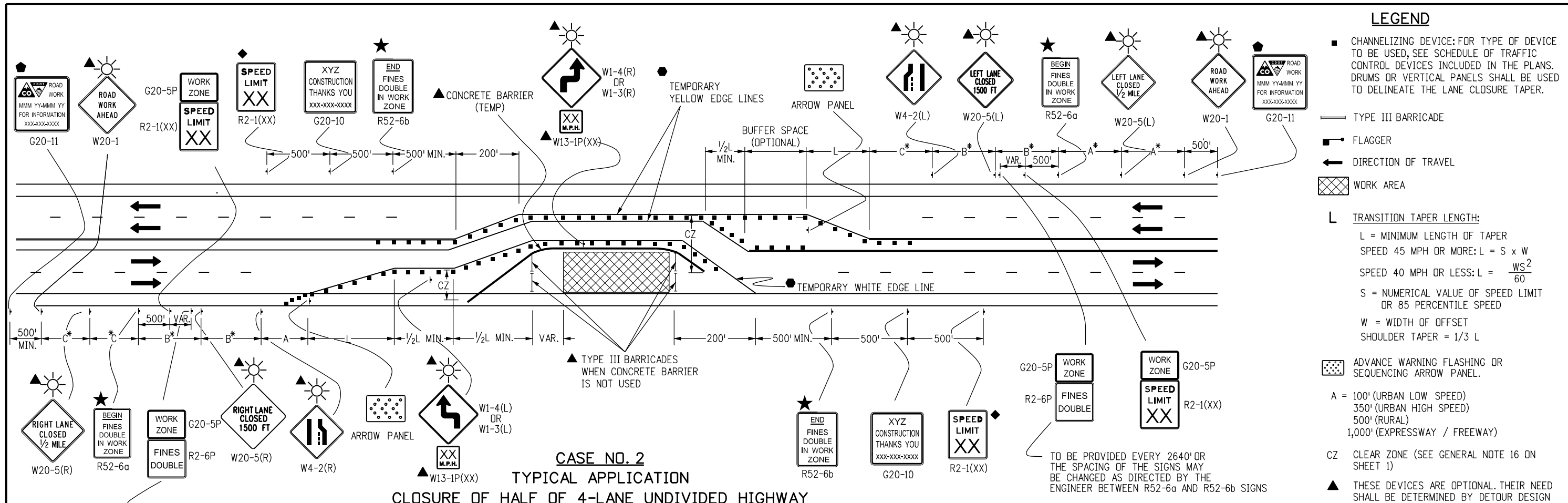
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**TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION**

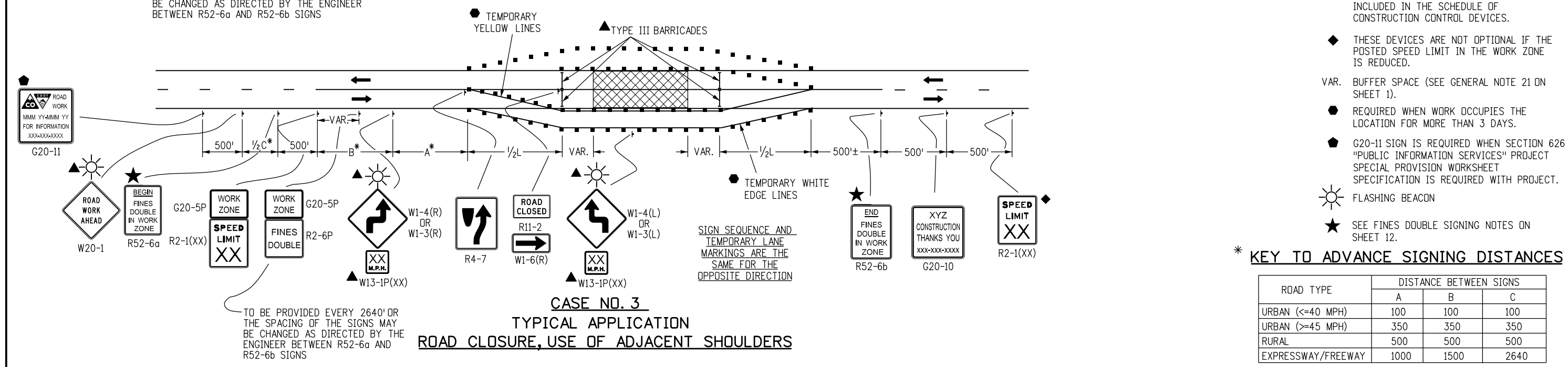
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 Sheet No. 3 of 24

BID SET ONLY 10-7-16



**CASE NO. 2**  
TYPICAL APPLICATION  
CLOSURE OF HALF OF 4-LANE UNDIVIDED HIGHWAY



**CASE NO. 3**  
TYPICAL APPLICATION  
ROAD CLOSURE, USE OF ADJACENT SHOULDERS

**LEGEND**

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- FLAGGER
- ← DIRECTION OF TRAVEL
- ▨ WORK AREA
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S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED  
W = WIDTH OF OFFSET  
SHOULDER TAPER = 1/3 L
- ▨ ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.
- A = 100' (URBAN LOW SPEED)  
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500' (RURAL)  
1,000' (EXPRESSWAY / FREEWAY)
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1)
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- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- VAR. BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ◆ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- ☀ FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

**\* KEY TO ADVANCE SIGNING DISTANCES**

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<=40 MPH)	100	100	100
URBAN (>=45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

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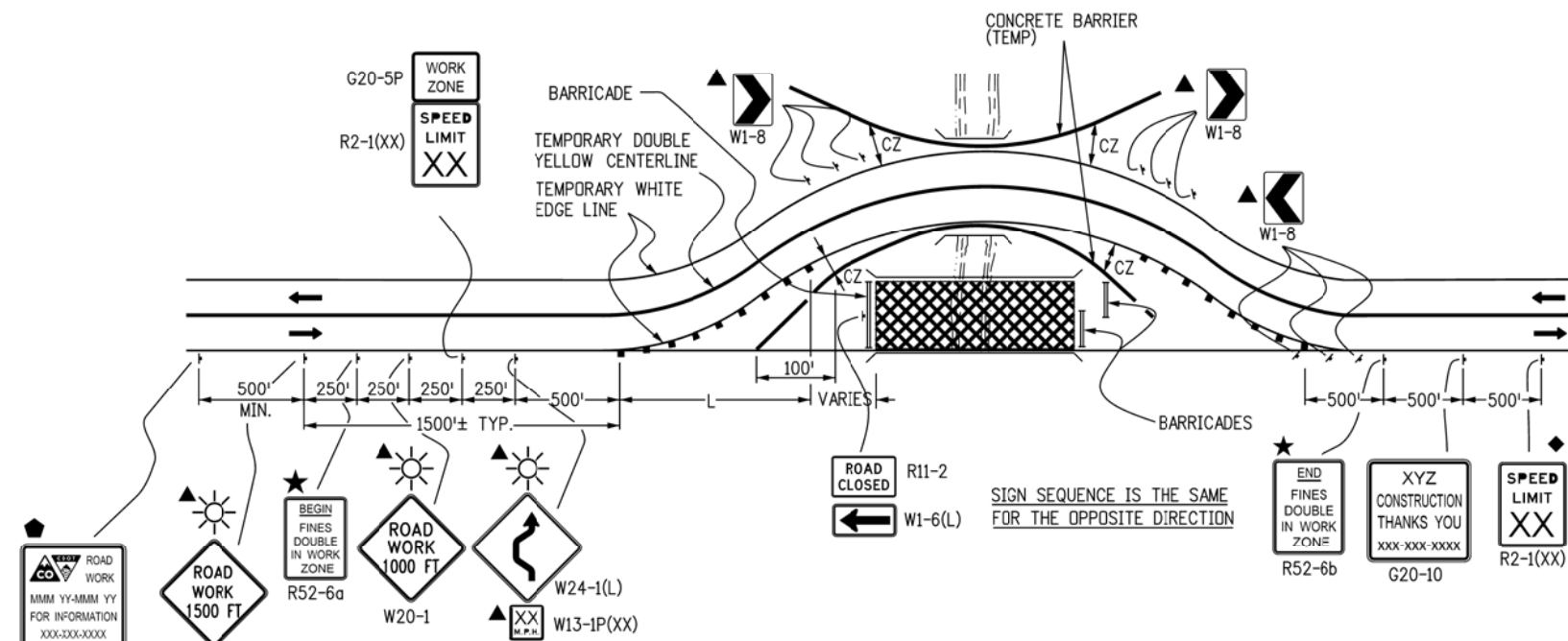
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**TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION**

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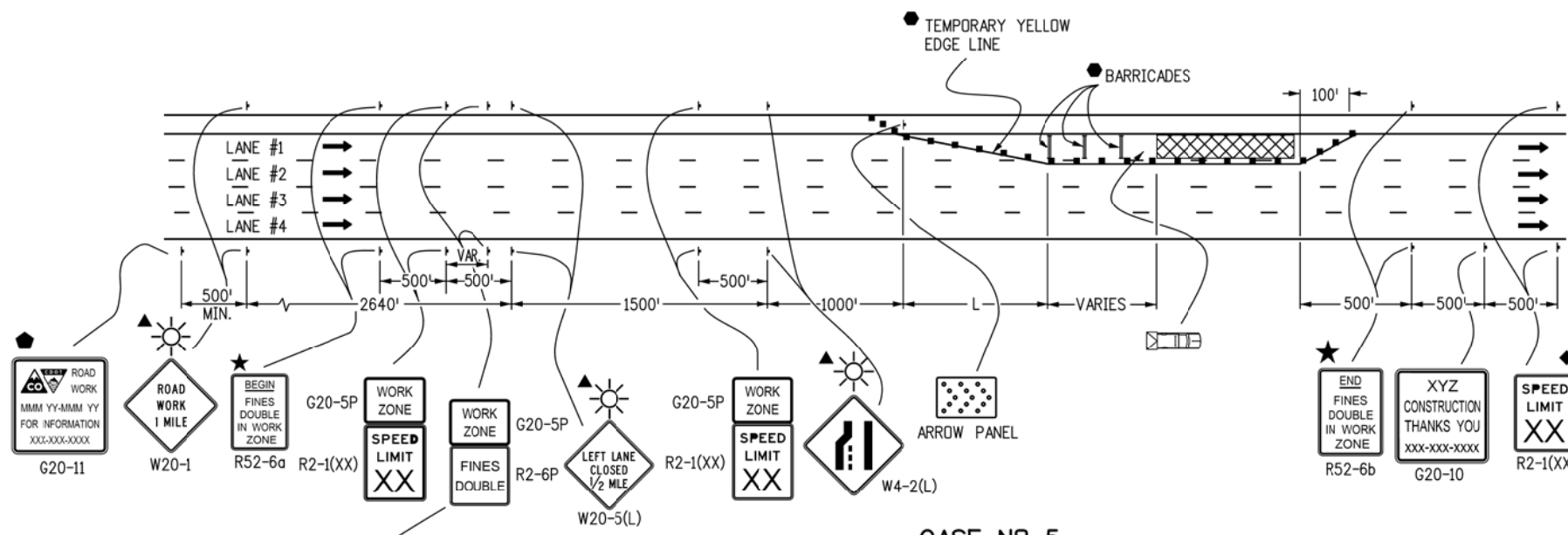
**STANDARD PLAN NO.**  
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**CASE NO. 4**  
**TYPICAL APPLICATION**  
**ROAD CLOSURE, BYPASS DETOUR PROVIDED**

**LEGEND**

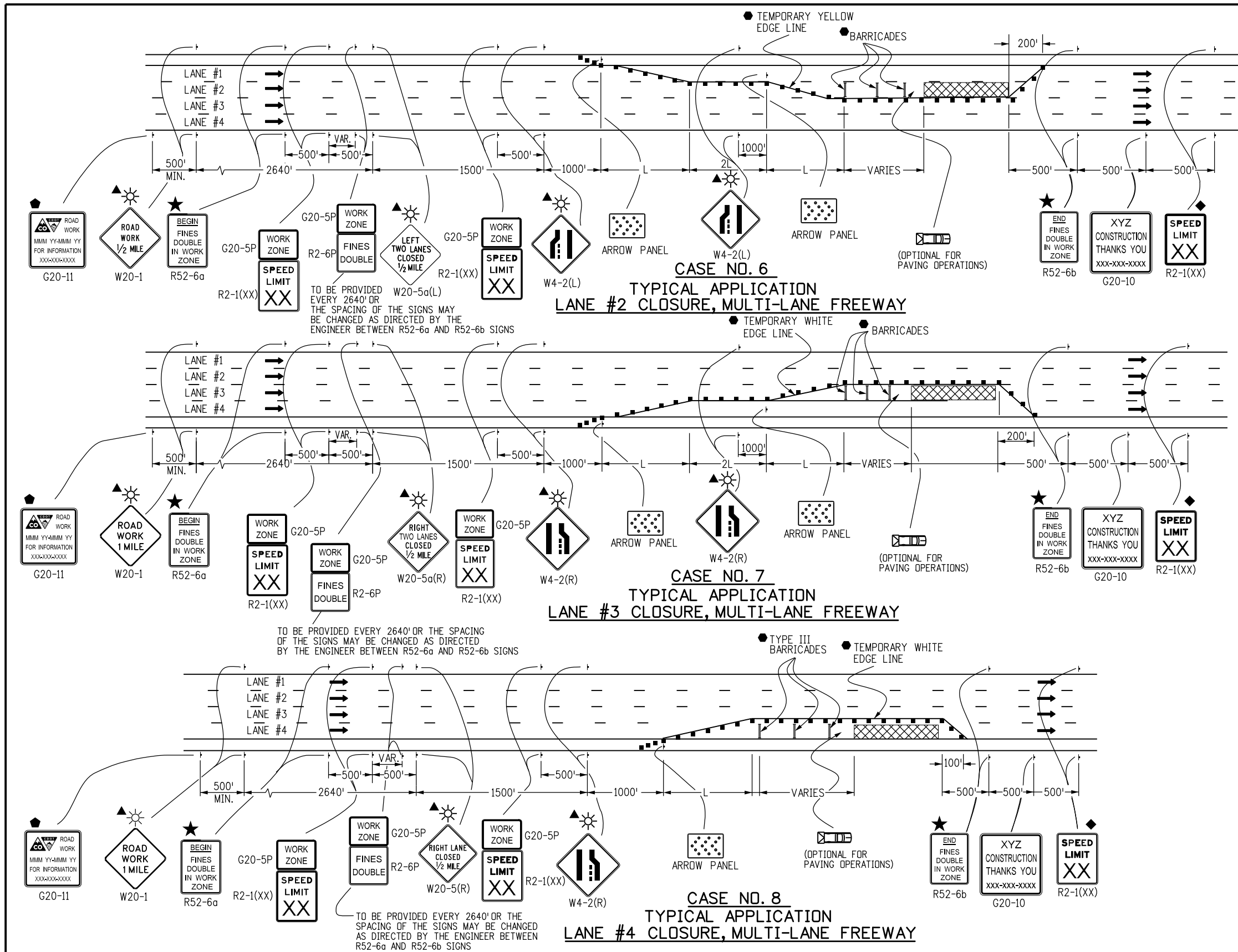
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- CONCRETE BARRIER (TEMPORARY)
- ▲ FLAGGER
- ← DIRECTION OF TRAVEL
- ▨ WORK AREA
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 L = MINIMUM LENGTH OF TAPER  
 SPEED 45 MPH OR MORE:  $L = S \times W$   
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- ▨ MOBILE ATTENUATOR
- ☀ FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.



**CASE NO. 5**  
**TYPICAL APPLICATION**  
**LANE #1 CLOSURE, MULTI-LANE FREEWAY**

TO BE PROVIDED EVERY 2640' OR THE SPACING OF THE SIGNS MAY BE CHANGED AS DIRECTED BY THE ENGINEER BETWEEN R52-6a AND R52-6b SIGNS

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- ### LEGEND
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  - CONCRETE BARRIER (TEMPORARY)
  - FLAGGER
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  - ☀ FLASHING BEACON
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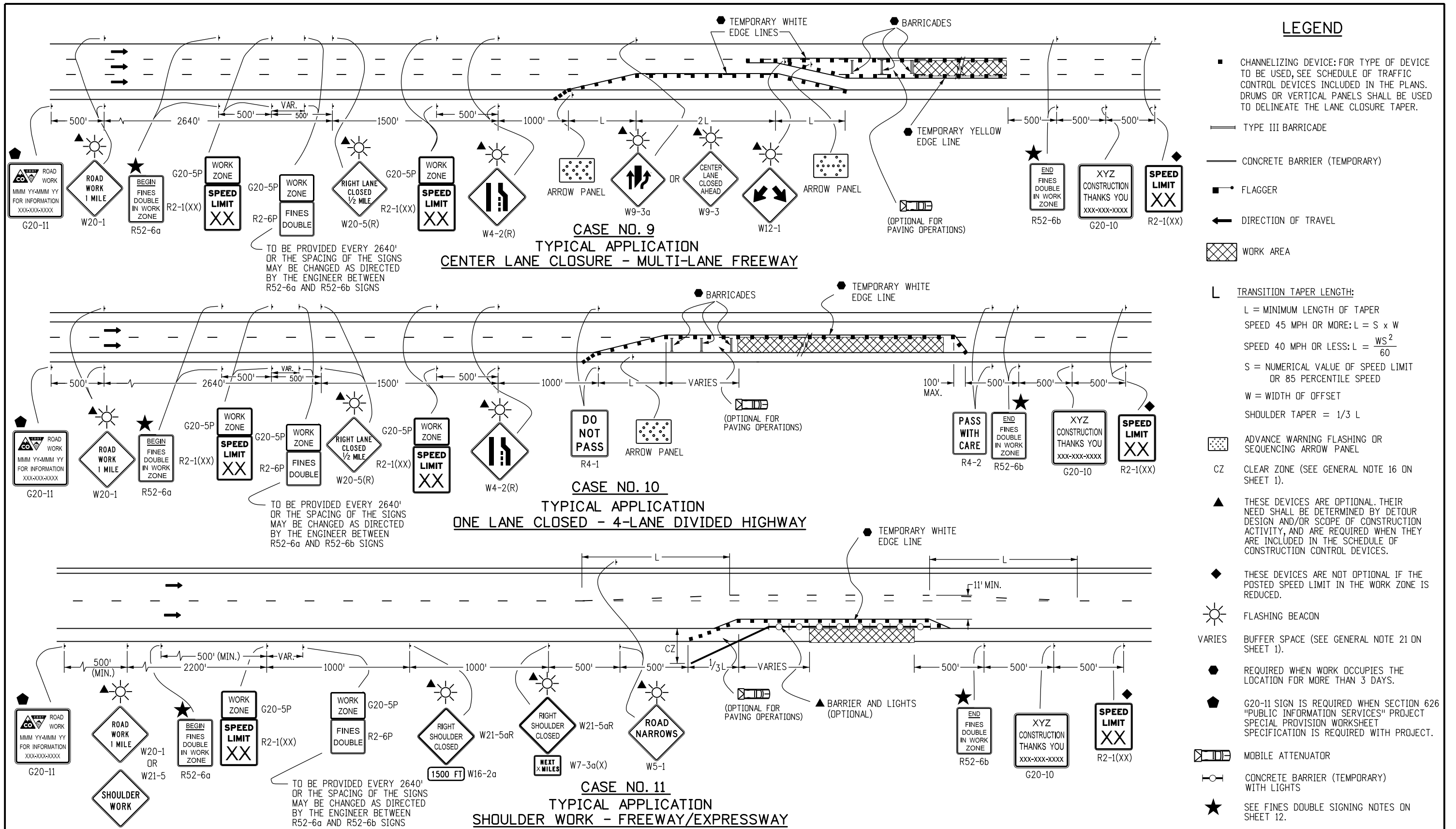
**TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION**

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**STANDARD PLAN NO.**

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Sheet No. 6 of 24



**LEGEND**

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- ▤ MOBILE ATTENUATOR
- CONCRETE BARRIER (TEMPORARY) WITH LIGHTS
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

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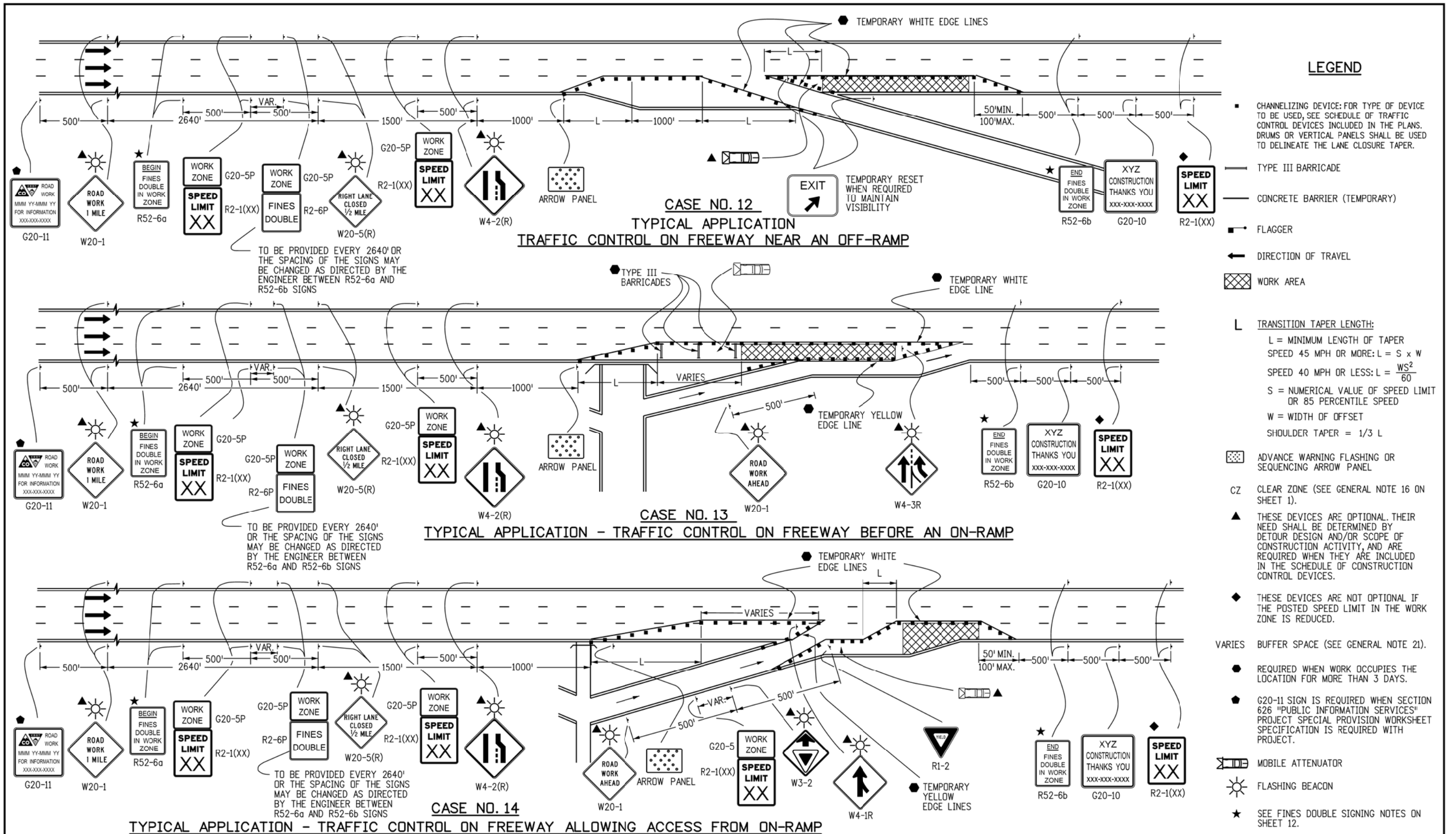
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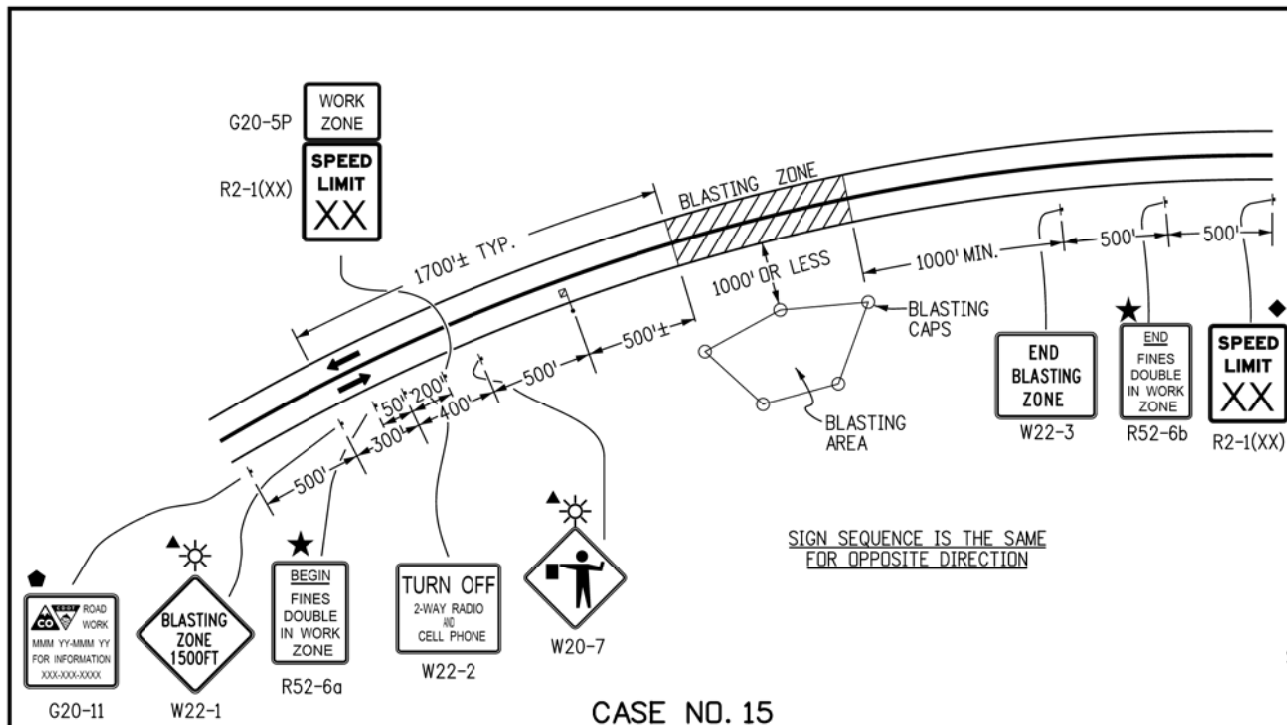
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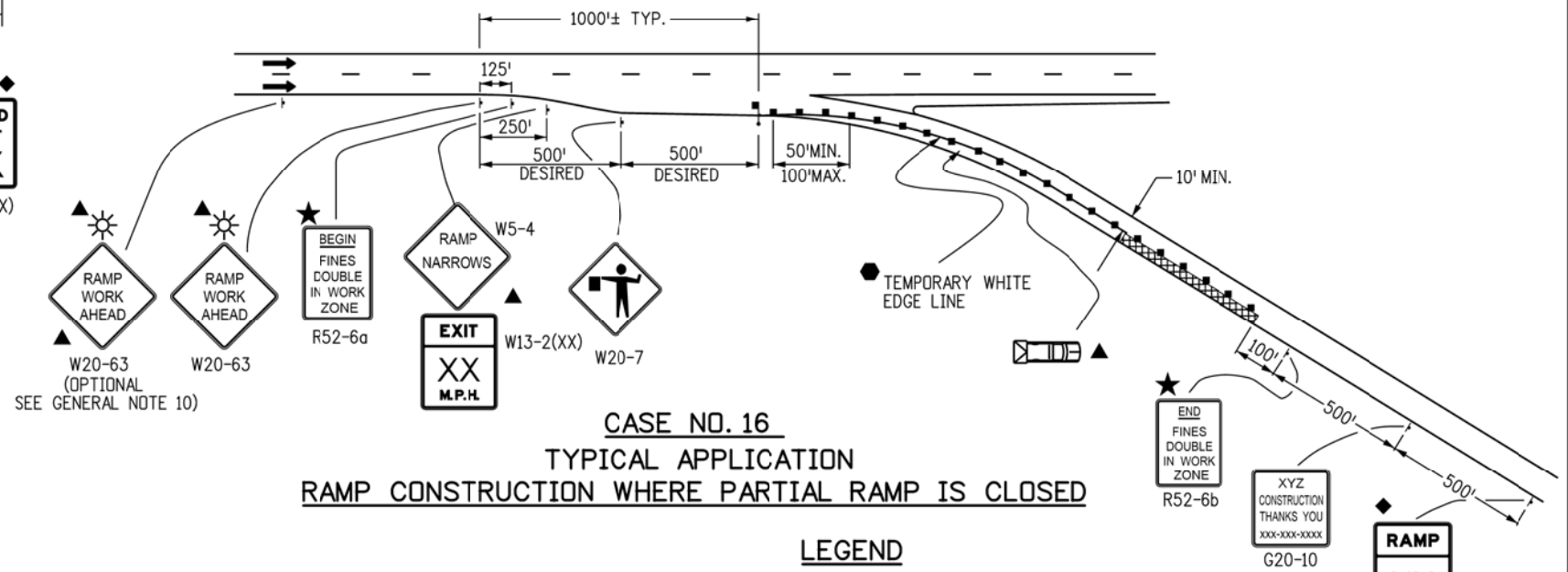
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**CASE NO. 15**  
TYPICAL APPLICATION  
BLASTING ZONE



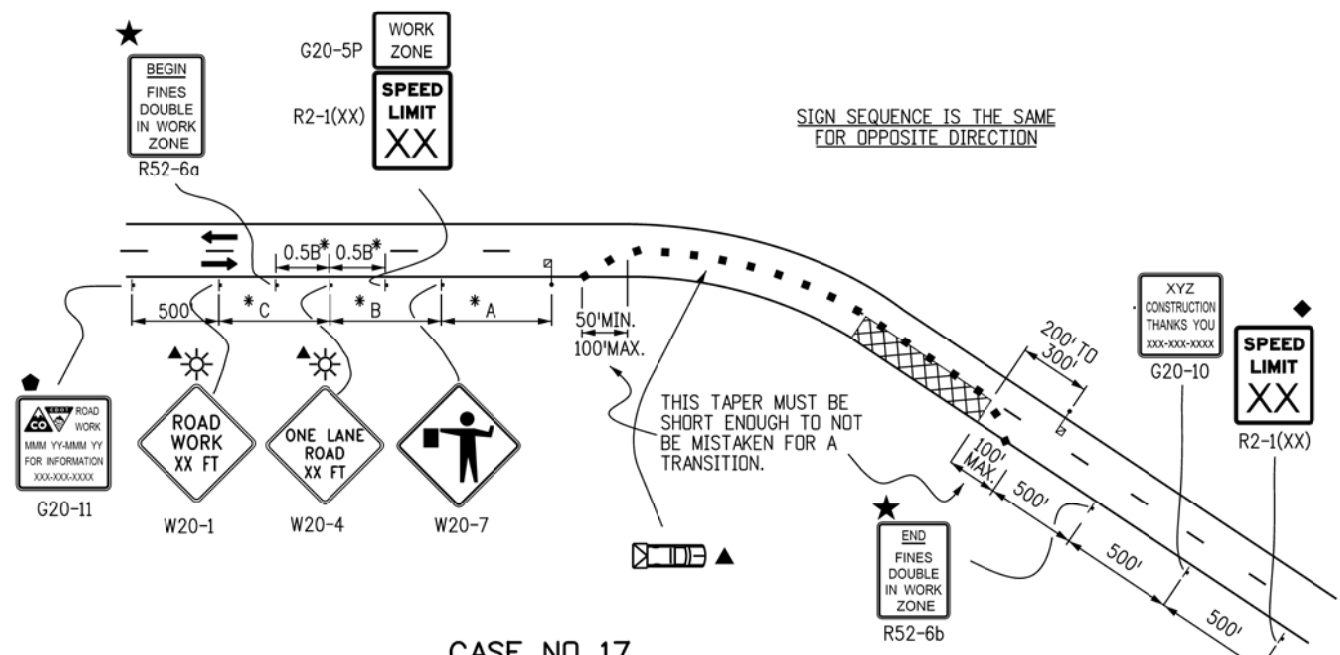
**CASE NO. 16**  
TYPICAL APPLICATION  
RAMP CONSTRUCTION WHERE PARTIAL RAMP IS CLOSED

**LEGEND**

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SHOULDER TAPER = 1/3 L
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- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- ☀ FLASHING BEACON
- REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

**\*KEY TO ADVANCE SIGNING DISTANCES**

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640



**CASE NO. 17**  
TYPICAL APPLICATION  
LANE CLOSURE, 2-LANE HIGHWAY, AT CURVE

**Computer File Information**

Creation Date: 07/04/12	Initials: RRR
Last Modification Date: 07/26/13	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_9of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

**Sheet Revisions**

Date:	Comments
07/26/13	CORRECTED SIGN CODE DESIGNATION FOR FLAGGER (SYMBO) SIGN TO W20-7

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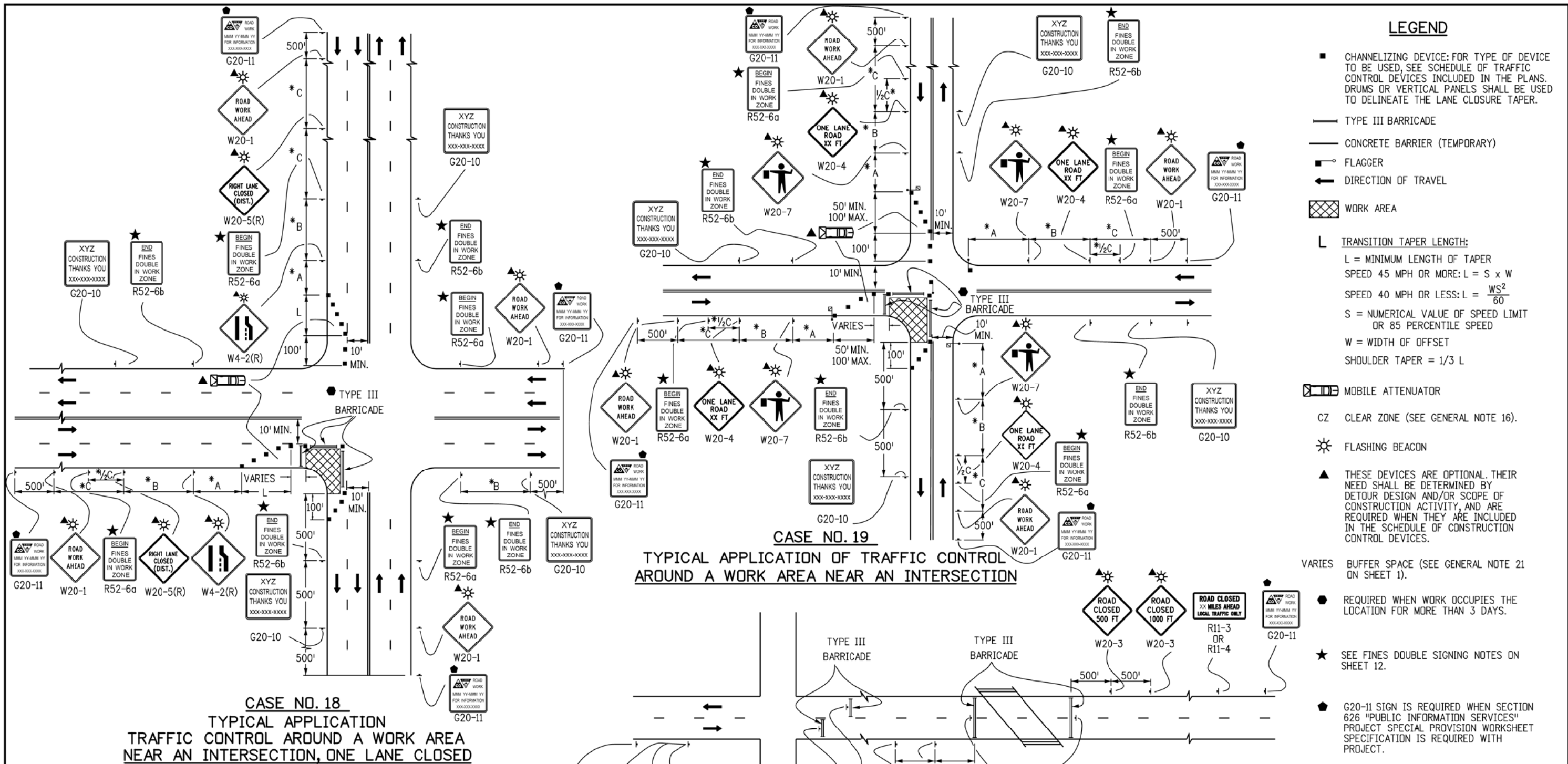
**TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION**

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**STANDARD PLAN NO.**

**S-630-1**

**Sheet No. 9 of 24**



**LEGEND**

- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- ← DIRECTION OF TRAVEL
- ▨ WORK AREA
- L TRANSITION TAPER LENGTH:  
 $L = \text{MINIMUM LENGTH OF TAPER}$   
 SPEED 45 MPH OR MORE:  $L = S \times W$   
 SPEED 40 MPH OR LESS:  $L = \frac{WS^2}{60}$   
 S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED  
 W = WIDTH OF OFFSET  
 SHOULDER TAPER = 1/3 L
- ▭ MOBILE ATTENUATOR
- CZ CLEAR ZONE (SEE GENERAL NOTE 16).
- ☀ FLASHING BEACON
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- VARIES BUFFER SPACE (SEE GENERAL NOTE 21 ON SHEET 1).
- REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
- G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.

**CASE NO. 18**  
 TYPICAL APPLICATION  
 TRAFFIC CONTROL AROUND A WORK AREA  
 NEAR AN INTERSECTION, ONE LANE CLOSED

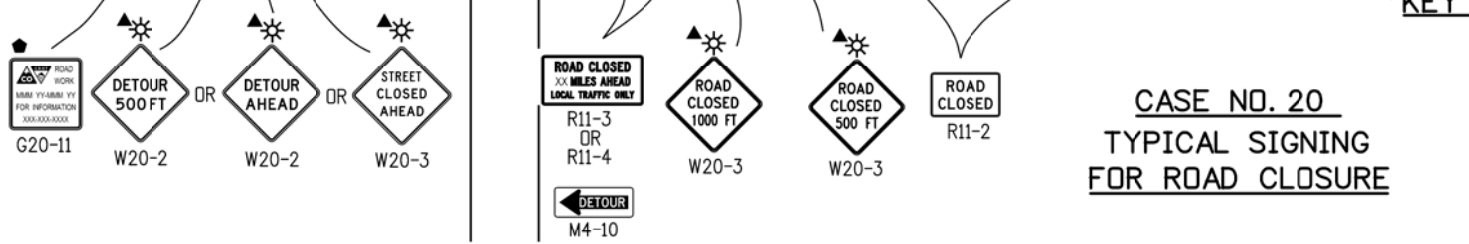
**CASE NO. 19**  
 TYPICAL APPLICATION OF TRAFFIC CONTROL  
 AROUND A WORK AREA NEAR AN INTERSECTION

**NOTES:**

1. SIGN PLACEMENT SHOWN ON CASES 18 AND 19 TYPIFIES RURAL APPLICATIONS. URBAN APPLICATIONS REQUIRE THE SIGNS TO BE PLACED WITHIN ONE, OR PERHAPS TWO, BLOCKS.
2. TRUCK-MOUNTED ATTENUATORS (TMA) OPTIONAL FOR ALL CASES AS DETERMINED BY THE ENGINEER.

**\*KEY TO ADVANCE SIGNING DISTANCES**

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640



**CASE NO. 20**  
 TYPICAL SIGNING  
 FOR ROAD CLOSURE

Computer File Information	
Creation Date: 07/04/12	Initials: RRR
Last Modification Date: 04/02/2015	Initials: TCD
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_10of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions	
Date:	Comments
07/26/13	CORRECTED SIGN CODE DESIGNATION FOR FLAGGER (SYMBOL) SIGN TO W20-7
04/02/20	CORRECTED SIGN CODE DESIGNATION FOR ROAD WORK AHEAD SIGN TO W20-1

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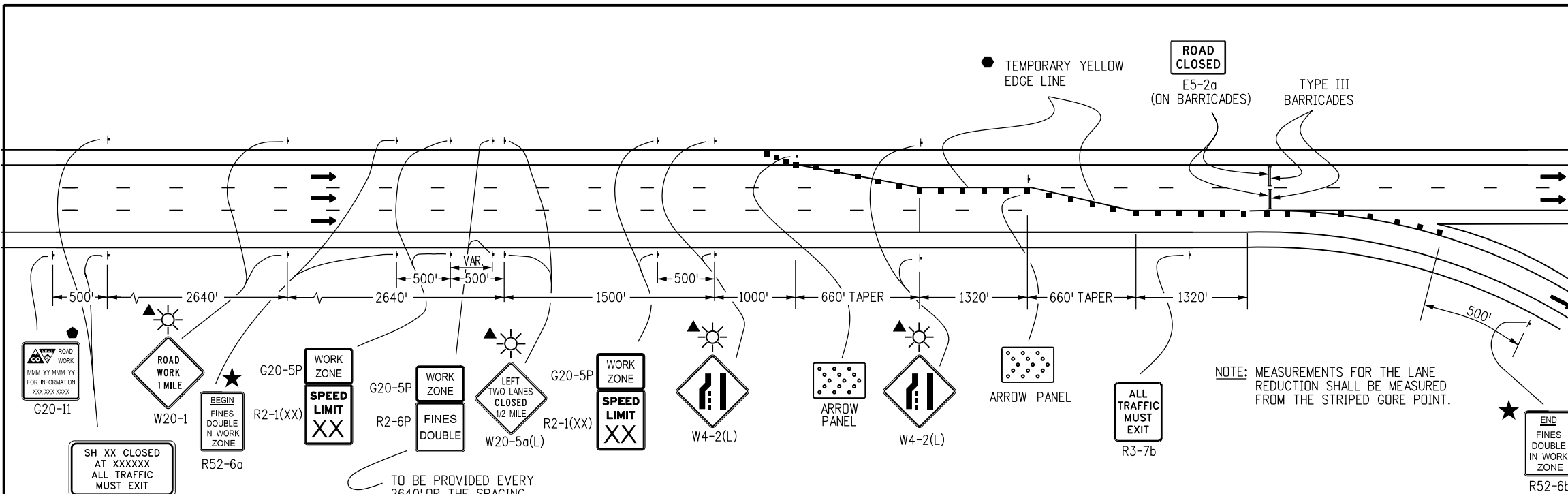
**TRAFFIC CONTROLS  
 FOR HIGHWAY  
 CONSTRUCTION**

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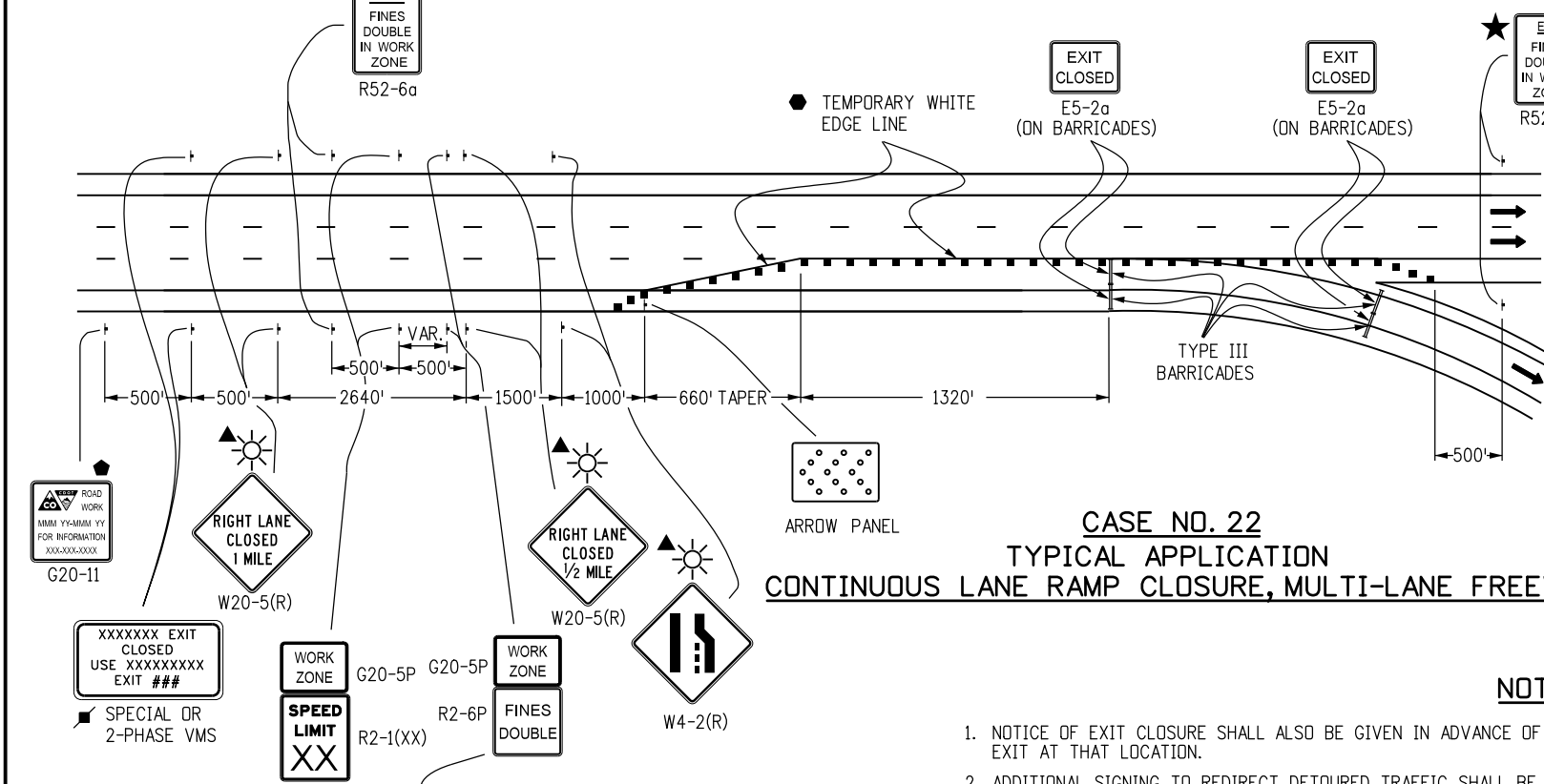
**STANDARD PLAN NO.**  
 S-630-1  
 Sheet No. 10 of 24

**LEGEND**

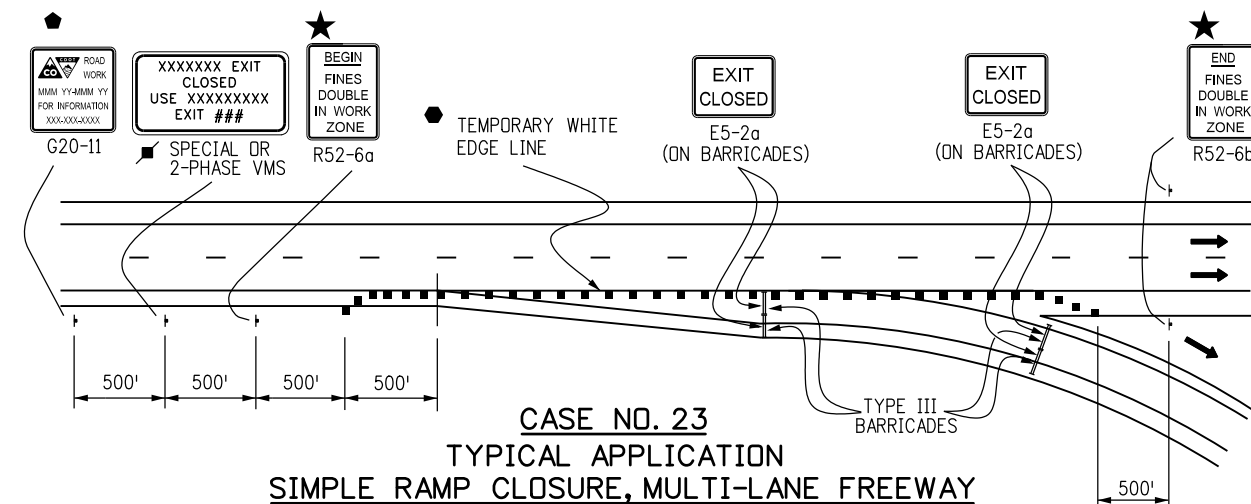
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- THESE DEVICES ARE OPTIONAL. THEIR NEED WILL BE DETERMINED BY THE DESIGNER BASED ON DETOUR DESIGN AND/OR SCOPE OF THE CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE PLANS.
- REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- DIRECTION OF TRAVEL
- TRANSITION TAPER LENGTH:  
 $L = \text{MINIMUM LENGTH OF TAPER}$   
 $\text{SPEED 45 MPH OR MORE: } L = S \times W$   
 $\text{SPEED 40 MPH OR LESS: } L = \frac{WS^2}{60}$   
 $S = \text{NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED}$   
 $W = \text{WIDTH OF OFFSET}$   
 $\text{SHOULDER TAPER} = 1/3 L$
- CLOSURE AND EXIT MESSAGES ON SIGN LEGEND(S) SHOULD BE MODIFIED TO FIT THE SITUATION.
- FLASHING BEACON
- SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.



**CASE NO. 21**  
**TYPICAL APPLICATION**  
**FULL CLOSURE, MULTI-LANE FREEWAY**



**CASE NO. 22**  
**TYPICAL APPLICATION**  
**CONTINUOUS LANE RAMP CLOSURE, MULTI-LANE FREEWAY**



**CASE NO. 23**  
**TYPICAL APPLICATION**  
**SIMPLE RAMP CLOSURE, MULTI-LANE FREEWAY**

**NOTES**

1. NOTICE OF EXIT CLOSURE SHALL ALSO BE GIVEN IN ADVANCE OF THE PREVIOUS EXIT TO PROVIDE MOTORISTS WITH THE OPTION TO EXIT AT THAT LOCATION.
2. ADDITIONAL SIGNING TO REDIRECT DETOURED TRAFFIC SHALL BE PROVIDED FOR IN THE PROJECT'S METHOD OF HANDLING TRAFFIC.
3. FOR LONG TERM SETUPS, A BLACK ON ORANGE "EXIT CLOSED" (E5-2a) PANEL SHALL BE MOUNTED DIAGONALLY ACROSS ALL EXISTING GUIDE SIGNS THAT PERTAIN TO THE CLOSED EXIT.

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Sheet Revisions	
Date:	Comments

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**TRAFFIC CONTROLS**  
**FOR HIGHWAY**  
**CONSTRUCTION**

Issued By: Safety & Traffic Engineering Branch July 4, 2012

**STANDARD PLAN NO.**  
**S-630-1**  
**Sheet No. 11 of 24**

**LEGEND**

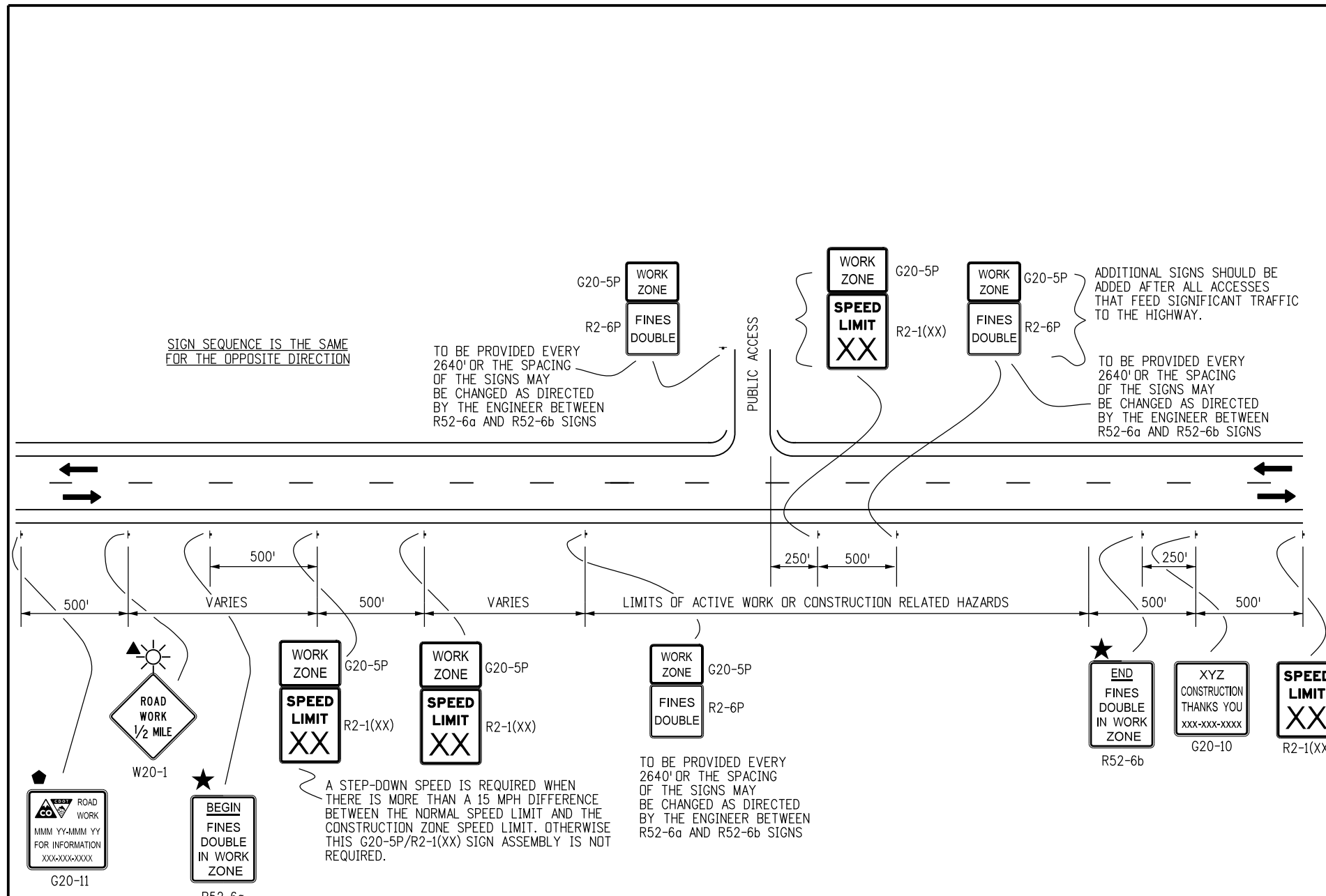
- ← DIRECTION OF TRAVEL
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED WILL BE DETERMINED BY THE DESIGNER BASED ON DETOUR DESIGN AND/OR SCOPE OF THE CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE PLANS.
- ◆ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- ☀ FLASHING BEACON
- ★ FINES DOUBLE SIGNING NOTES, SEE BELOW

**FINES DOUBLE SIGNING NOTES:**

1. SIGNS SHALL NOT BE PLACED SOONER THAN FOUR HOURS BEFORE WORK IS TO BEGIN AND SHALL BE REMOVED AS SOON AS WORK ACTIVITIES ARE CONCLUDED, UNLESS POTENTIAL HAZARDS INTRODUCED AS A RESULT OF THE WORK ARE STILL PRESENT AT THE END OF THE WORK DAY. IF SIGNS ARE LEFT IN PLACE AFTER WORK ACTIVITIES, THE TRAFFIC CONTROL SUPERVISOR SHALL MAKE AN ENTRY IN THEIR DAILY DIARY THAT JUSTIFIES THEIR USE.

"HAZARDS" INCLUDE BUT ARE NOT LIMITED TO:  
 EDGE DROP OFFS  
 EQUIPMENT, WORKERS OR NON-SHIELDED OBJECTS IN THE CLEAR ZONE  
 ROUGH PAVEMENT  
 MAJOR CHANGE IN ALIGNMENT  
 REDUCED SHOULDER WIDTH  
 TEMPORARY GUARD RAIL OR BARRIER  
 LANE CLOSURE

2. SIGNS SHALL ONLY BE PLACED WHERE WORKERS ARE PRESENT IN THE ROADWAY OR CLEAR ZONE OR ARE AT RISK, OR WHERE THERE ARE HAZARDS IN THE TRAVELWAY, SHOULDERS OR CLEAR ZONE.
3. SIGNS SHOULD BE PLACED SO THAT MOTORISTS IMMEDIATELY ASSOCIATE THE SIGNS WITH PRESENT WORK ACTIVITIES. IF THE ZONE OF WORK ACTIVITY MOVES, THE SIGNS SHOULD BE MOVED ACCORDINGLY.
4. SIGNING SHOWN IS REQUIRED TO ENFORCE DOUBLE FINES IN A WORK ZONE. ADDITIONAL SIGNING SHALL BE IN ACCORDANCE WITH THAT NORMALLY REQUIRED FOR THE PARTICULAR WORK ZONE. PLACEMENT OF "FINES DOUBLE" SIGNING MAY BE ADJUSTED AS NEEDED TO PROVIDE A MINIMUM 250' SPACING BETWEEN OTHER SIGNING REQUIRED FOR THE SPECIFIC WORK ZONE SETUP.



**CASE NO. 24  
 TYPICAL APPLICATION  
 "FINES DOUBLE IN WORK ZONE" SIGNING  
 (WITH SPEED REDUCTION)**

Computer File Information	
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Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_12of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions	
Date:	Comments

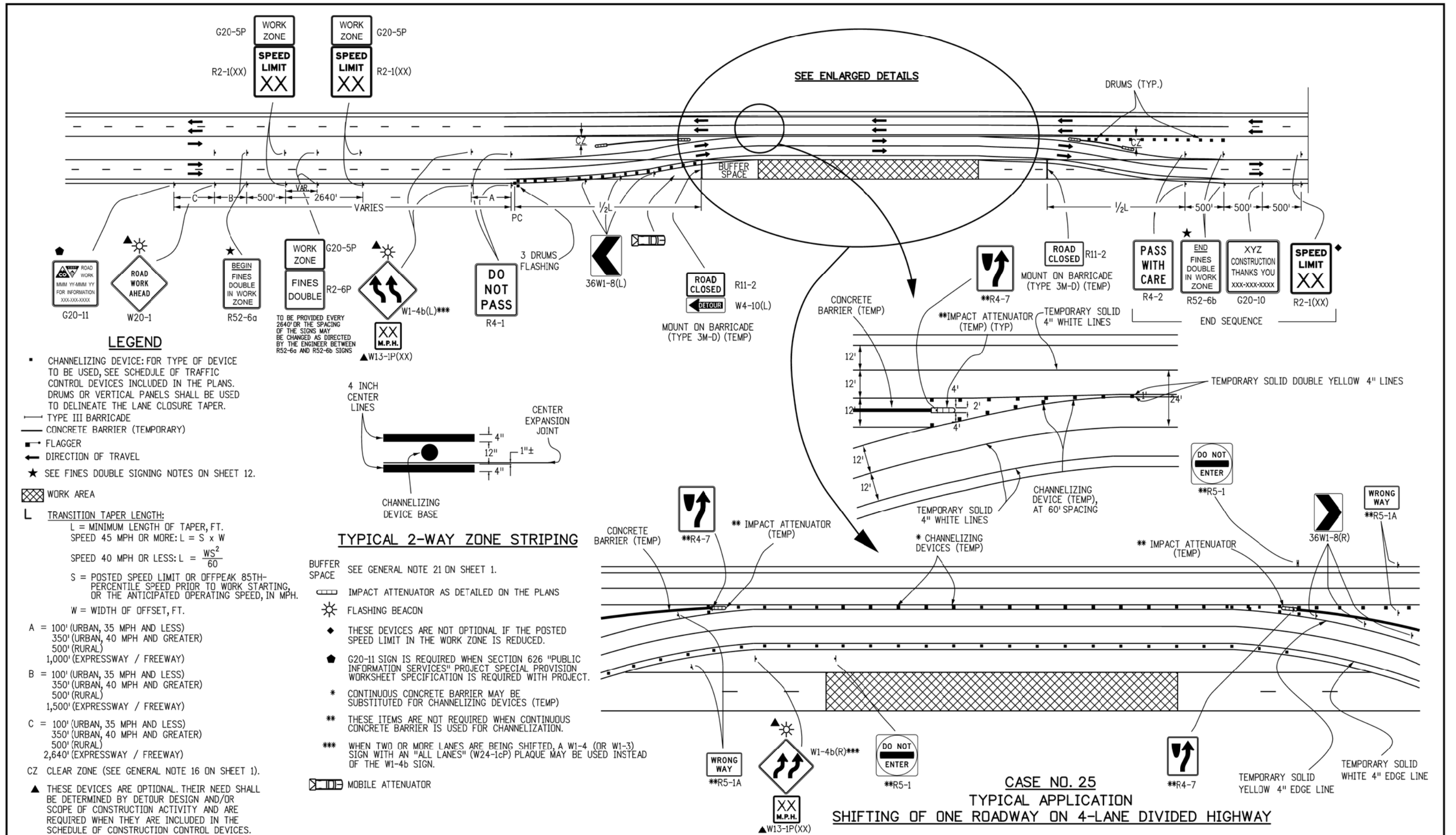
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 FOR HIGHWAY  
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**STANDARD PLAN NO.**  
 S-630-1  
**Sheet No. 12 of 24**



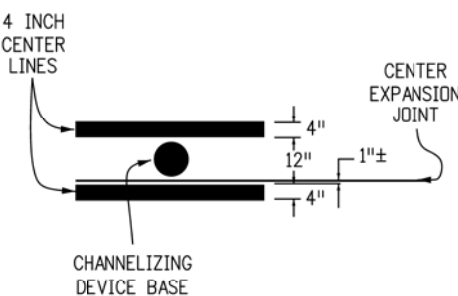
**LEGEND**

- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- ← DIRECTION OF TRAVEL
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

- ▨ WORK AREA
- L TRANSITION TAPER LENGTH:  
 $L = \text{MINIMUM LENGTH OF TAPER, FT.}$   
 SPEED 45 MPH OR MORE:  $L = S \times W$   
 SPEED 40 MPH OR LESS:  $L = \frac{WS^2}{60}$   
 $S = \text{POSTED SPEED LIMIT OR OFFPEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED, IN MPH.}$   
 $W = \text{WIDTH OF OFFSET, FT.}$
- A = 100' (URBAN, 35 MPH AND LESS)  
 350' (URBAN, 40 MPH AND GREATER)  
 500' (RURAL)  
 1,000' (EXPRESSWAY / FREEWAY)
- B = 100' (URBAN, 35 MPH AND LESS)  
 350' (URBAN, 40 MPH AND GREATER)  
 500' (RURAL)  
 1,500' (EXPRESSWAY / FREEWAY)
- C = 100' (URBAN, 35 MPH AND LESS)  
 350' (URBAN, 40 MPH AND GREATER)  
 500' (RURAL)  
 2,640' (EXPRESSWAY / FREEWAY)
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.

**TYPICAL 2-WAY ZONE STRIPING**

- BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.
- IMPACT ATTENUATOR AS DETAILED ON THE PLANS
- ☀ FLASHING BEACON
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- ◆ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- \* CONTINUOUS CONCRETE BARRIER MAY BE SUBSTITUTED FOR CHANNELIZING DEVICES (TEMP)
- \*\* THESE ITEMS ARE NOT REQUIRED WHEN CONTINUOUS CONCRETE BARRIER IS USED FOR CHANNELIZATION.
- \*\*\* WHEN TWO OR MORE LANES ARE BEING SHIFTED, A W1-4 (OR W1-3) SIGN WITH AN "ALL LANES" (W24-1cP) PLAQUE MAY BE USED INSTEAD OF THE W1-4b SIGN.
- ☐ MOBILE ATTENUATOR



**CASE NO. 25**  
**TYPICAL APPLICATION**  
**SHIFTING OF ONE ROADWAY ON 4-LANE DIVIDED HIGHWAY**

**Computer File Information**

Creation Date: 07/04/12	Initials: RRR
Last Modification Date: 02/06/13	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
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**Sheet Revisions**

Date:	Comments
02/06/13	UPDATE TO 2009 MUTCD STANDARD

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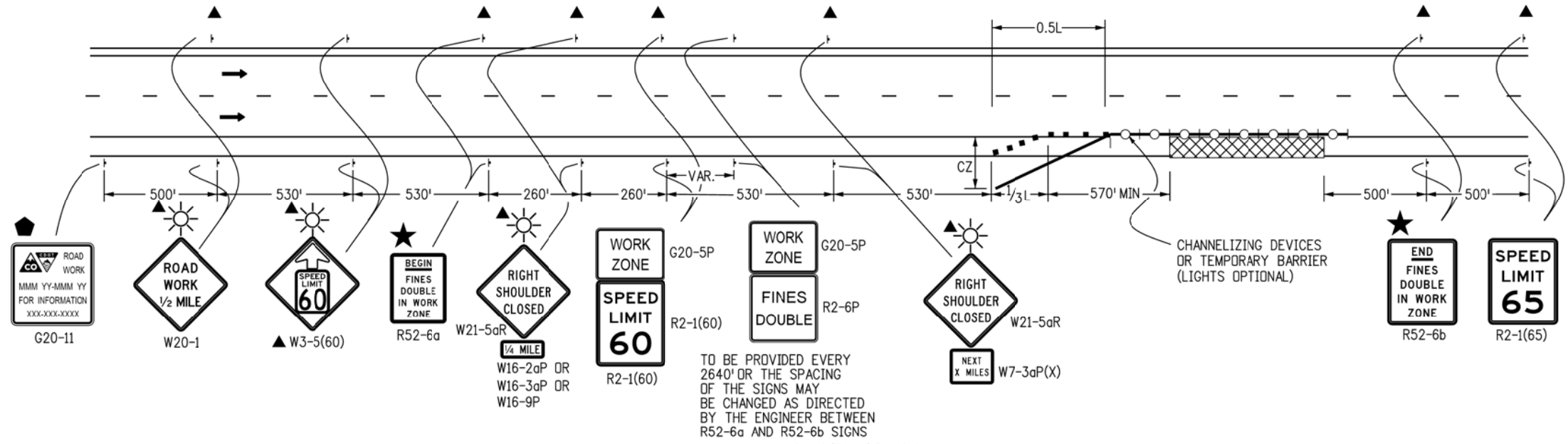
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S-630-1

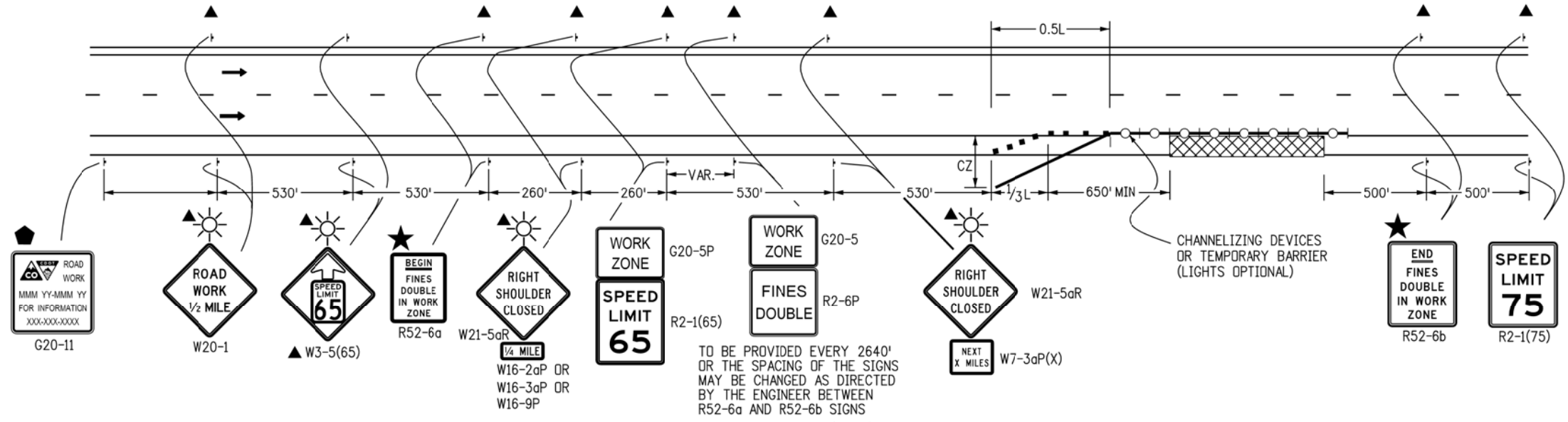
Sheet No. 13 of 24

**LEGEND**

- CHANNELIZING DEVICE; FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRIAGE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- ← DIRECTION OF TRAVEL
- ▨ WORK AREA
- L TRANSITION TAPER LENGTH:  
L = MINIMUM LENGTH OF TAPER  
SPEED 45 MPH OR MORE:  $L = S \times W$   
S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED  
W = WIDTH OF OFFSET  
SHOULDER TAPER =  $1/3 L$
- ▨ ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- CZ CLEAR ZONE (SEE GENERAL NOTE 16 ON SHEET 1).
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY TRAFFIC VOLUMES AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ▨ MOBILE ATTENUATOR
- ☀ FLASHING BEACON
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.



**CASE NO. 26**  
**TYPICAL APPLICATION**  
**SHOULDER WORK - FREEWAY/EXPRESSWAY w/ 65 MPH SPEED LIMIT**  
 WHEN HAZARDS (WORKERS, EQUIPMENT, OR TEMPORARY BARRIER) ARE WITHIN 8 FT OF TRAVEL WAY



**CASE NO. 27**  
**TYPICAL APPLICATION**  
**SHOULDER WORK - FREEWAY/EXPRESSWAY w/ 75 MPH SPEED LIMIT**  
 WHEN HAZARDS (WORKERS, EQUIPMENT, OR TEMPORARY BARRIER) ARE WITHIN 10 FT OF TRAVEL WAY

Computer File Information	
Creation Date: 07/04/12	Initials: RRR
Last Modification Date:	Initials:
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Sheet Revisions	
Date:	Comments
(R-X)	
(R-X)	
(R-X)	
(R-X)	

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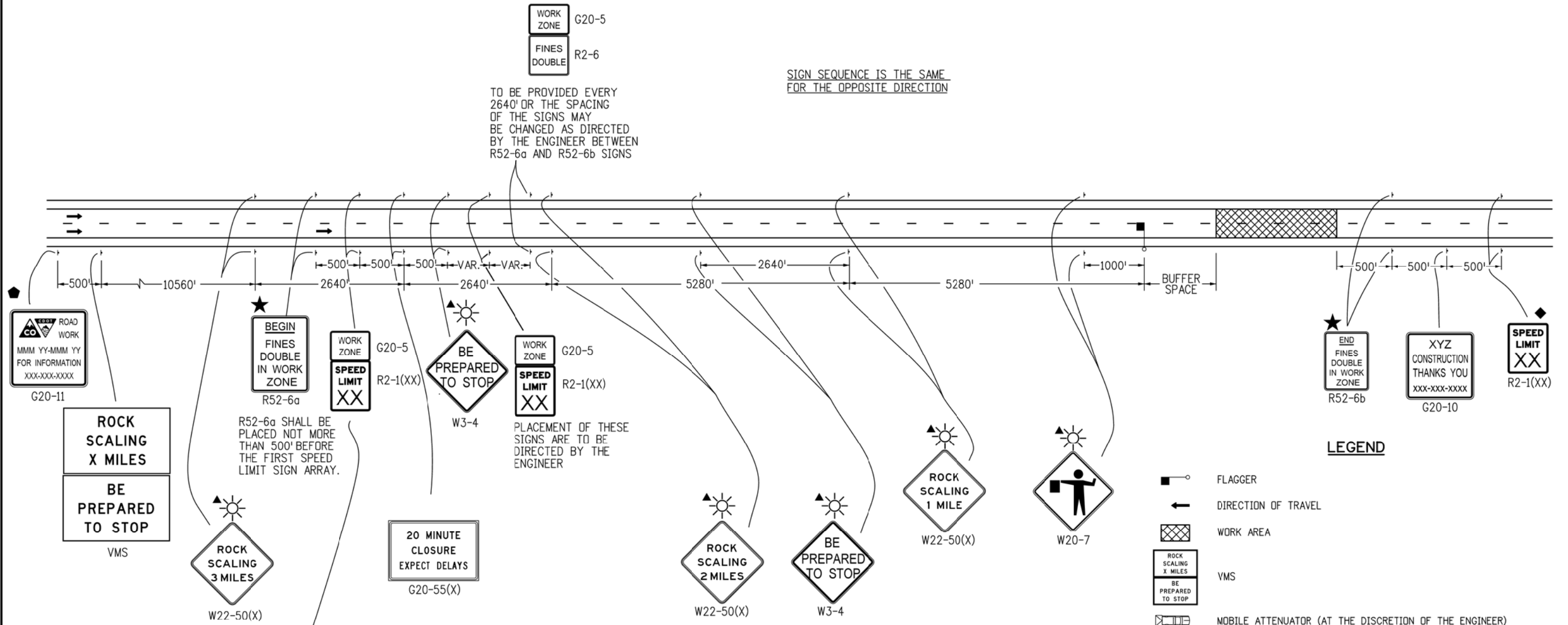
**STANDARD PLAN NO.**

**S-630-1**

**Sheet No. 14 of 24**

SIGN SEQUENCE IS THE SAME FOR THE OPPOSITE DIRECTION

TO BE PROVIDED EVERY 2640' OR THE SPACING OF THE SIGNS MAY BE CHANGED AS DIRECTED BY THE ENGINEER BETWEEN R52-6a AND R52-6b SIGNS



R52-6a SHALL BE PLACED NOT MORE THAN 500' BEFORE THE FIRST SPEED LIMIT SIGN ARRAY.

PLACEMENT OF THESE SIGNS ARE TO BE DIRECTED BY THE ENGINEER

A STEP-DOWN SPEED LIMIT IS REQUIRED WHEN THERE IS MORE THAN A 15 MPH DIFFERENCE BETWEEN THE NORMAL SPEED LIMIT AND THE CONSTRUCTION ZONE SPEED LIMIT. OTHERWISE THIS G20-5P/R2-1(XX) SIGN ASSEMBLY IS NOT REQUIRED.

**CASE NO. 28**  
**TYPICAL APPLICATION**  
**ROCK SCALING - ROAD CLOSURE, 4-LANE DIVIDED HIGHWAY**

- LEGEND**
- FLAGGER
  - DIRECTION OF TRAVEL
  - WORK AREA
  - ROCK SCALING X MILES VMS
  - MOBILE ATTENUATOR (AT THE DISCRETION OF THE ENGINEER)
  - THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
  - THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
  - G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
  - BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.
  - FLASHING BEACON
  - SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.

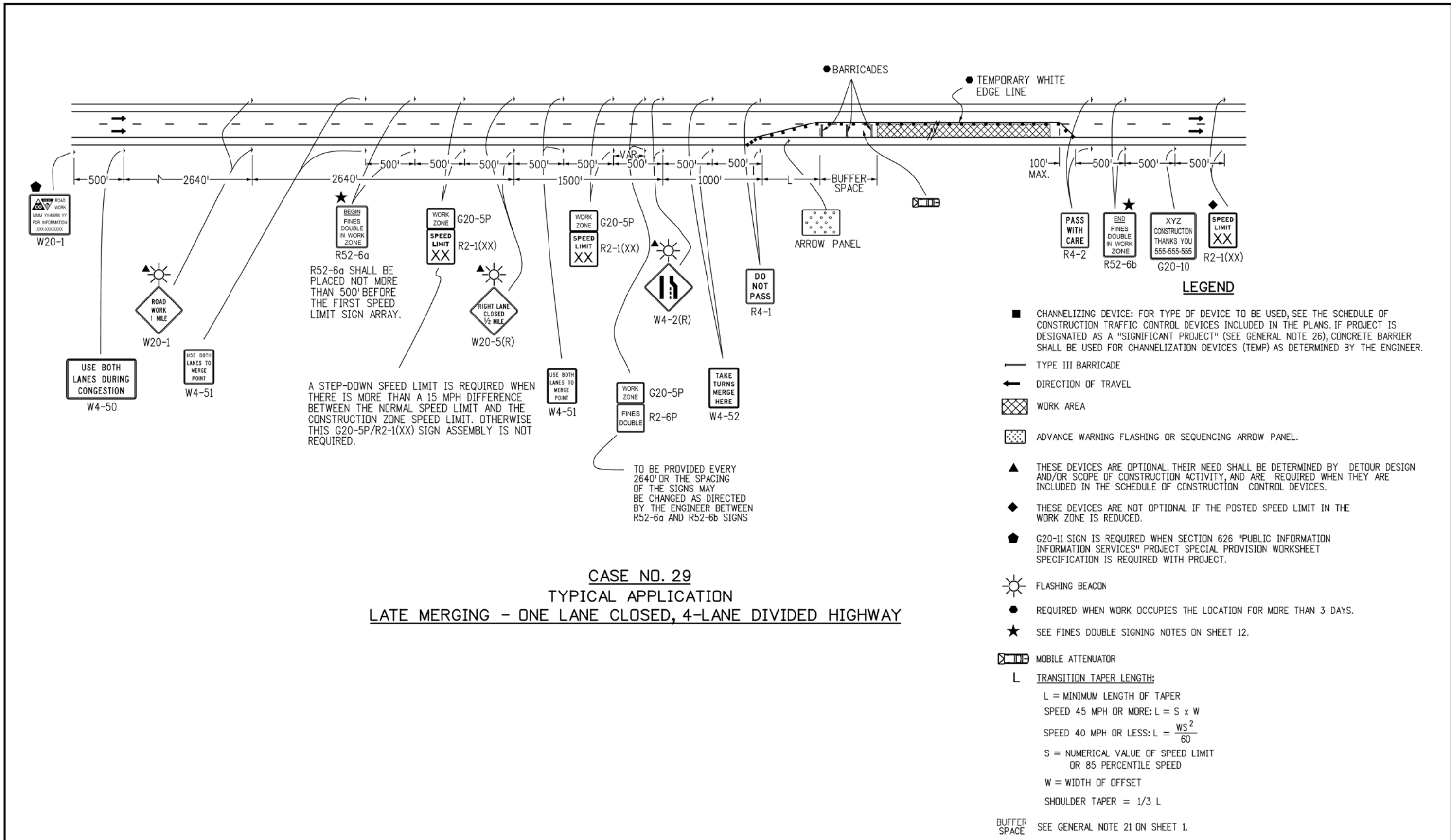
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Sheet Revisions	
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07/26/13	CORRECTED SIGN CODE DESIGNATION FOR FLAGGER (SYMBOL) SIGN TO W20-7

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**CASE NO. 29  
TYPICAL APPLICATION  
LATE MERGING - ONE LANE CLOSED, 4-LANE DIVIDED HIGHWAY**

Computer File Information	
Creation Date: 07/04/12	Initials: RRR
Last Modification Date:	Initials:
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
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Sheet Revisions	
Date:	Comments
06/23/16	IN LEGEND UNDER CHANNELIZING DEVICE UPDATED "NOTE 25" TO "NOTE 26"
(R-1)	
(R-X)	
(R-X)	
(R-X)	

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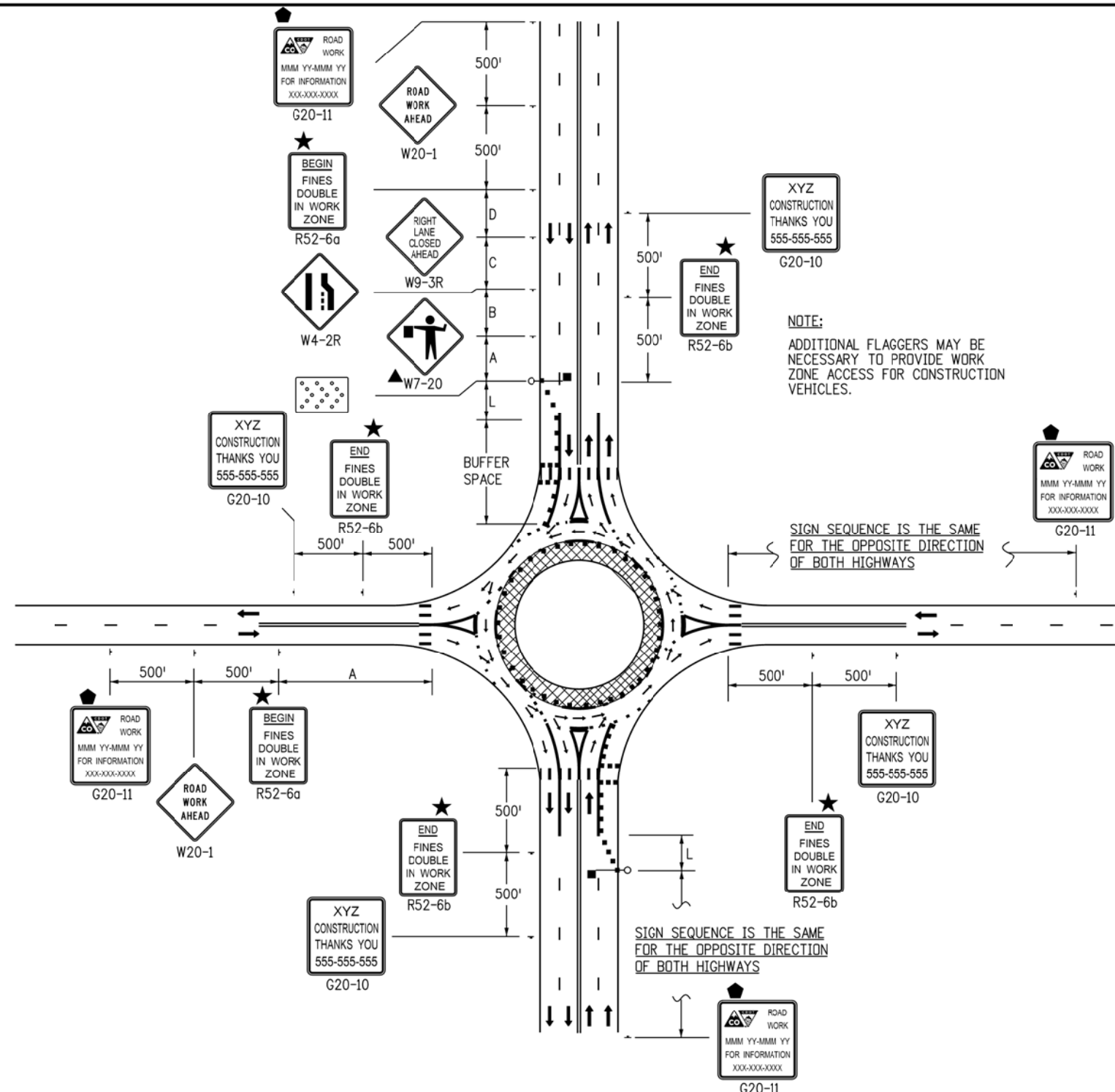
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**TRAFFIC CONTROLS  
FOR HIGHWAY  
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Issued By: Safety & Traffic Engineering Branch July 4, 2012

**STANDARD PLAN NO.**  
S-630-1  
**Sheet No. 16 of 24**





**LEGEND**

- \* A TRUCK DETOUR ROUTE MAY BE NECESSARY TO DIVERT TRUCKS AWAY FROM THE ROUNDABOUT CIRCLE. ALSO NECESSARY IS A STREET NAME AND/OR ROUTE NUMBER SIGN, INFORMING MOTORISTS WHERE THEY NEED TO EXIT THE ROUNDABOUT CIRCLE TO ENTER THE DESIRED STREET AND/OR ROUTE NUMBER.
- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 26), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.
- TYPE III BARRICADE
- ← DIRECTION OF TRAVEL
- ▨ WORK AREA
- ▤ ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- ☀ FLASHING BEACON
- REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
- ▩ MOBILE ATTENUATOR
- L TRANSITION TAPER LENGTH:  
 $L = \text{MINIMUM LENGTH OF TAPER}$   
 $L = \frac{WS^2}{S}$   
 SPEED 45 MPH OR MORE:  $L = \frac{WS^2}{S}$   
 SPEED 40 MPH OR LESS:  $L = \text{---}$   
 $S = \text{NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED}$   
 $W = \text{WIDTH OF OFFSET}$   
 SHOULDER TAPER =  $\frac{1}{3} L$
- BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.
- FLAGGER

**CASE NO. 31**  
**TYPICAL APPLICATION \***  
**ROUNDABOUT - INSIDE LANE CLOSURE FOR TWO-LANE ROUNDABOUT**

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	Initials: KEN
Last Modification Date: 12/08/14	Initials: KEN
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-01_18of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions	
Date:	Comments
12/08/14	NEW SHEET 18. OLD SHEET 18 NOW SHEET 22
06/23/16	IN LEGEND UNDER CHANNELIZING DEVICE UPDATED "NOTE 25" TO "NOTE 26"

Colorado Department of Transportation  
 4201 East Arkansas Avenue  
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 Phone: (303) 757-9543  
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**Safety & Traffic Engineering Branch**      **KCM/MKB**

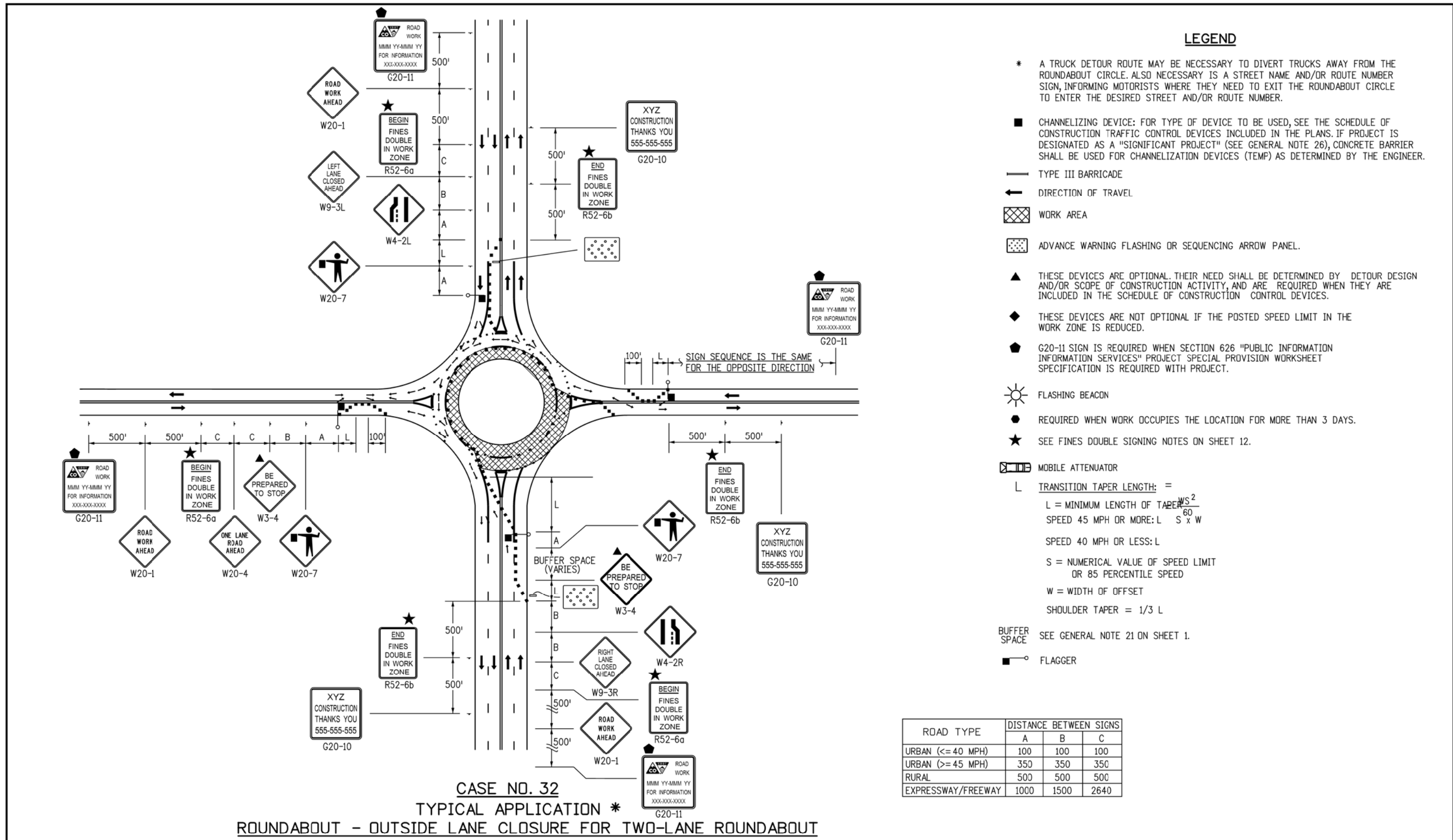
**TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION**

Issued By: Safety & Traffic Engineering Branch July 4, 2012

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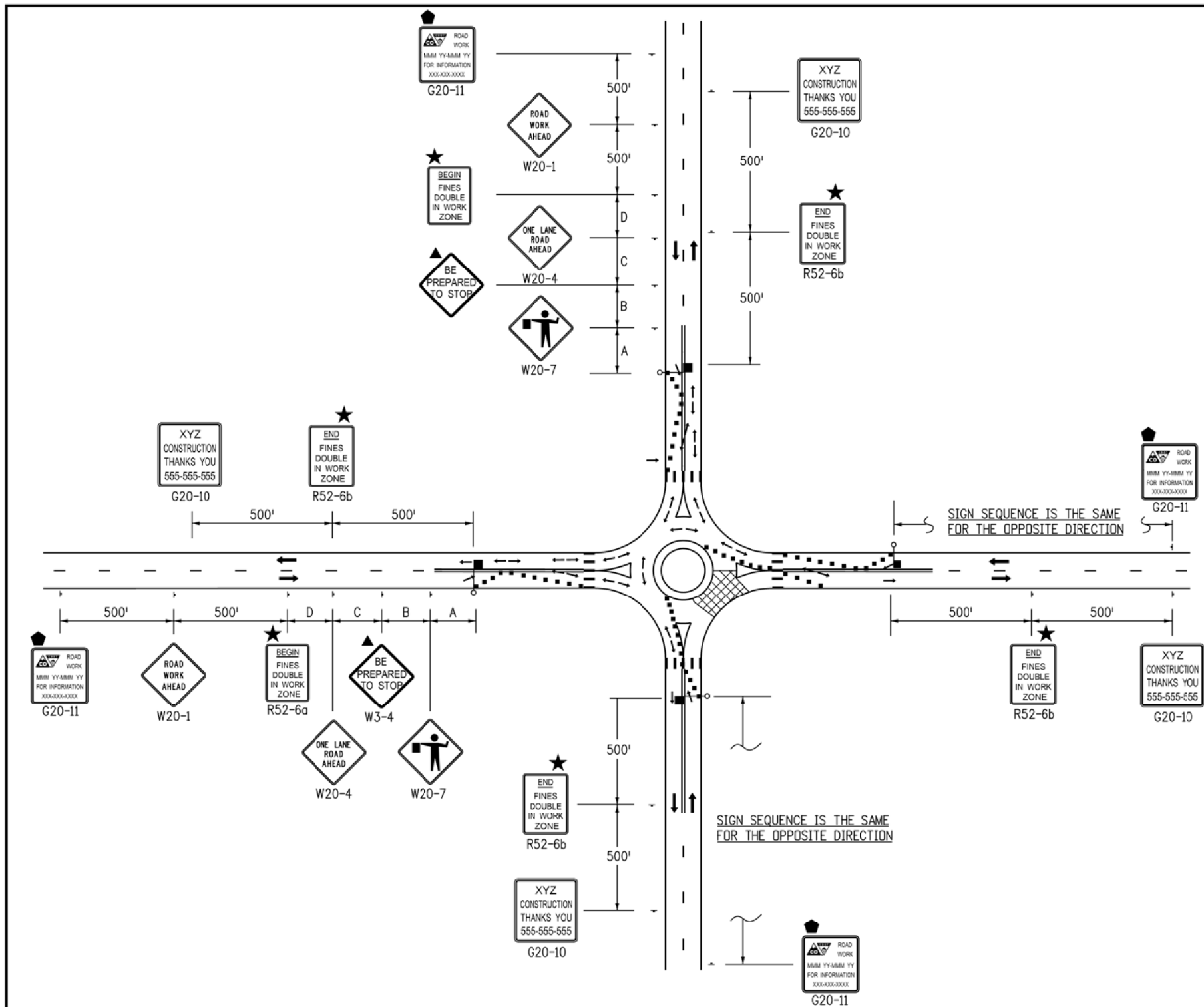
**LEGEND**

- \* A TRUCK DETOUR ROUTE MAY BE NECESSARY TO DIVERT TRUCKS AWAY FROM THE ROUNDABOUT CIRCLE. ALSO NECESSARY IS A STREET NAME AND/OR ROUTE NUMBER SIGN, INFORMING MOTORISTS WHERE THEY NEED TO EXIT THE ROUNDABOUT CIRCLE TO ENTER THE DESIRED STREET AND/OR ROUTE NUMBER.
- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 26), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.
- TYPE III BARRICADE
- ← DIRECTION OF TRAVEL
- ▨ WORK AREA
- ▤ ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.
- ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
- ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
- ◆ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
- ☀ FLASHING BEACON
- REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
- ▤ MOBILE ATTENUATOR
- L TRANSITION TAPER LENGTH: =  $L = \text{MINIMUM LENGTH OF TAPER} \frac{WS^2}{60S \times W}$   
 SPEED 45 MPH OR MORE:  $L = \frac{WS^2}{60S \times W}$   
 SPEED 40 MPH OR LESS: L  
 S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED  
 W = WIDTH OF OFFSET  
 SHOULDER TAPER = 1/3 L
- ▤ BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.
- ▤ FLAGGER

ROAD TYPE	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

**CASE NO. 32**  
**TYPICAL APPLICATION \***  
**ROUNDABOUT - OUTSIDE LANE CLOSURE FOR TWO-LANE ROUNDABOUT**

<b>Computer File Information</b> Creation Date: 07/04/12      Initials: KEN Last Modification Date: 12/08/14      Initials: KEN Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans Drawing File Name: S-630-01_19of24.dgn CAD Ver.: MicroStation V8    Scale: Not to Scale    Units: English	<b>Sheet Revisions</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Date:</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>12/08/14</td> <td>NEW SHEET 19. OLD SHEET 19 NOW SHEET 23</td> </tr> <tr> <td>06/23/16</td> <td>IN LEGEND UNDER CHANNELIZING DEVICE UPDATED "NOTE 25" TO "NOTE 26"</td> </tr> </tbody> </table>	Date:	Comments	12/08/14	NEW SHEET 19. OLD SHEET 19 NOW SHEET 23	06/23/16	IN LEGEND UNDER CHANNELIZING DEVICE UPDATED "NOTE 25" TO "NOTE 26"	Colorado Department of Transportation 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9543 Fax: (303) 757-9219 <b>Safety &amp; Traffic Engineering Branch</b> <b>KCM/MKB</b>	<b>TRAFFIC CONTROLS          FOR HIGHWAY          CONSTRUCTION</b> Issued By: Safety & Traffic Engineering Branch July 4, 2012	<b>STANDARD PLAN NO.</b> <b>S-630-1</b> <b>Sheet No. 19 of 24</b>
Date:	Comments									
12/08/14	NEW SHEET 19. OLD SHEET 19 NOW SHEET 23									
06/23/16	IN LEGEND UNDER CHANNELIZING DEVICE UPDATED "NOTE 25" TO "NOTE 26"									



- ### LEGEND
- \* A TRUCK DETOUR ROUTE MAY BE NECESSARY TO DIVERT TRUCKS AWAY FROM THE ROUNDABOUT CIRCLE. ALSO NECESSARY IS A STREET NAME AND/OR ROUTE NUMBER SIGN, INFORMING MOTORISTS WHERE THEY NEED TO EXIT THE ROUNDABOUT CIRCLE TO ENTER THE DESIRED STREET AND/OR ROUTE NUMBER.
  - CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE THE SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. IF PROJECT IS DESIGNATED AS A "SIGNIFICANT PROJECT" (SEE GENERAL NOTE 26), CONCRETE BARRIER SHALL BE USED FOR CHANNELIZATION DEVICES (TEMP) AS DETERMINED BY THE ENGINEER.
  - TYPE III BARRICADE
  - ← DIRECTION OF TRAVEL
  - ▨ WORK AREA
  - ▤ ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.
  - ▲ THESE DEVICES ARE OPTIONAL. THEIR NEED SHALL BE DETERMINED BY DETOUR DESIGN AND/OR SCOPE OF CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE SCHEDULE OF CONSTRUCTION CONTROL DEVICES.
  - ◆ THESE DEVICES ARE NOT OPTIONAL IF THE POSTED SPEED LIMIT IN THE WORK ZONE IS REDUCED.
  - ◆ G20-11 SIGN IS REQUIRED WHEN SECTION 626 "PUBLIC INFORMATION SERVICES" PROJECT SPECIAL PROVISION WORKSHEET SPECIFICATION IS REQUIRED WITH PROJECT.
  - ☀ FLASHING BEACON
  - REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE THAN 3 DAYS.
  - ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12.
  - ▧ MOBILE ATTENUATOR
  - L TRANSITION TAPER LENGTH: =
    - L = MINIMUM LENGTH OF TAPER  $L = \frac{WS^2}{S}$
    - SPEED 45 MPH OR MORE:  $L = \frac{S^2 W}{60}$
    - SPEED 40 MPH OR LESS: L
    - S = NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED
    - W = WIDTH OF OFFSET
    - SHOULDER TAPER = 1/3 L
  - BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.
  - FLAGGER

**CASE NO. 33**  
**TYPICAL APPLICATION \***  
**ROUNDABOUT - PARTIAL CLOSURE FOR ONE-LANE ROUNDABOUT**

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN (<= 40 MPH)	100	100	100
URBAN (>= 45 MPH)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1500	2640

Computer File Information	
Creation Date: 07/04/12	Initials: KEN
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Sheet Revisions	
Date:	Comments
12/08/14	NEW SHEET 20. OLD SHEET 20 NOW SHEET 24
06/23/16	IN LEGEND UNDER CHANNELIZING DEVICE UPDATED "NOTE 25" TO "NOTE 26"

Colorado Department of Transportation

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**TRAFFIC CONTROLS  
 FOR HIGHWAY  
 CONSTRUCTION**








Issued By: Safety & Traffic Engineering Branch July 4, 2012

**STANDARD PLAN NO.**

**S-630-1**

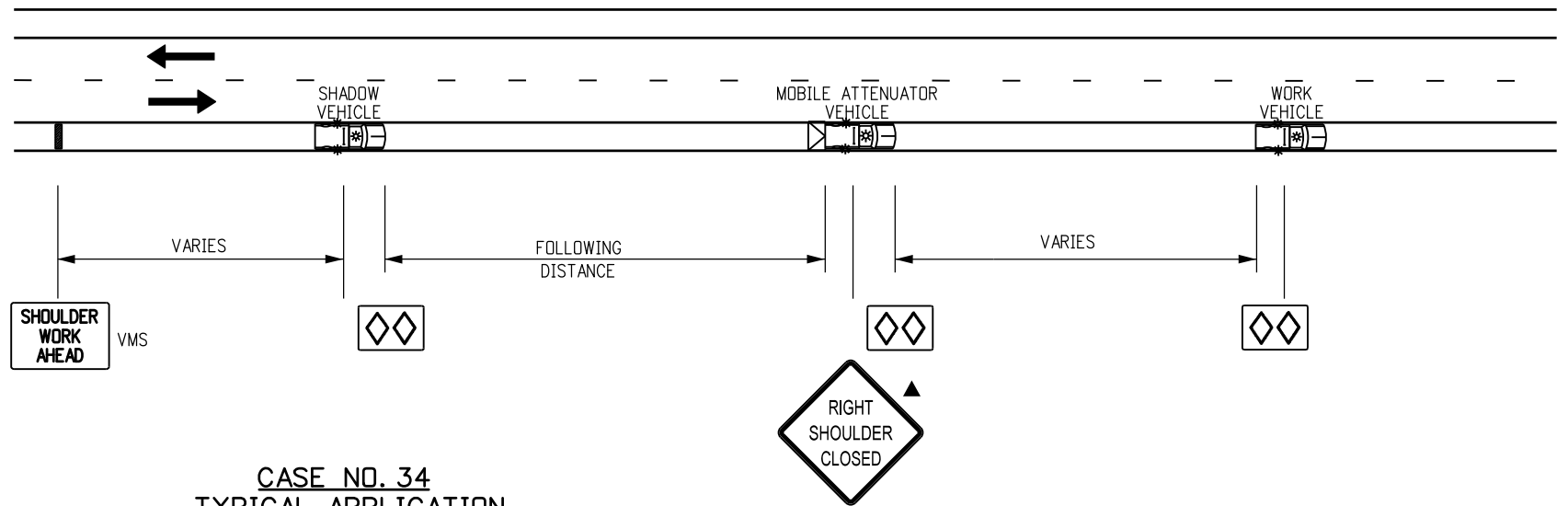
**Sheet No. 20 of 24**

**LEGEND**

-  MOBILE ATTENUATOR VEHICLE, TWO 360-DEGREE YELLOW FLASHING BEACONS, AND YELLOW FLASHING VEHICLE LIGHTS OR STROBES.
-  VARIABLE MESSAGE SIGN (VMS).
-  WHEN VMS IS USED, THE "SHOULDER CLOSED" SIGN BECOMES OPTIONAL.
-  THE "PICK-UP VEHICLES" OR "WARNING VEHICLE" MAY ENCRDACH INTO THE TRAFFIC LANE WHEN THE SHOULDER IS TOO NARROW TO DRIVE ON.
-  IF TRACKING OF THE WET PAINT IS ANTICIPATED, THE USE OF CONES OR STATIONARY "WET PAINT" SIGNS SHALL BE POSTED.
-  THE VARIABLE SEPARATION DISTANCE BETWEEN THE "CONE PLACEMENT VEHICLE" AND "CONE PICKUP VEHICLE" SHALL BE DETERMINED BY THE TRACK DRYING TIME OF THE PAVEMENT MARKING MATERIAL.
-  OPTIONAL

**FOLLOWING DISTANCE CHART FOR WARNING AND MOBILE ATTENUATOR (OR CONE PICKUP) VEHICLE**

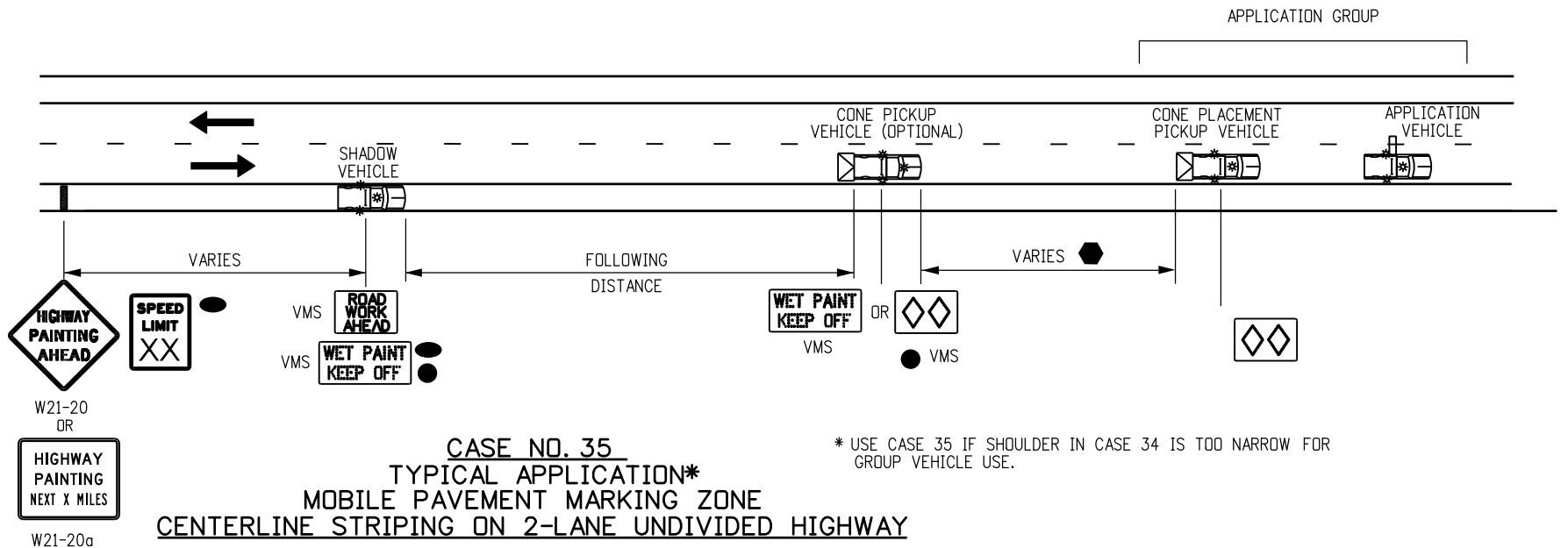
POSTED WZ SPEED LIMIT (MPH)	FOLLOWING DISTANCE (FEET)
0 - 30	250 - 550
35 - 40	325 - 700
45 - 50	600 - 900
55	750 - 1200
60 - 65	1000 - 1400
70 - 75	1200 - 1600



**CASE NO. 34  
TYPICAL APPLICATION  
MOBILE WORK ZONE  
MOBILE SHOULDER CLOSURE ON 2-LANE UNDIVIDED HIGHWAY**

**NOTE**

THE VARIABLE SEPARATION DISTANCE BETWEEN THE "CONE PLACEMENT VEHICLE" AND "CONE PICKUP VEHICLE" SHALL BE DETERMINED BY THE TRACK DRYING TIME OF THE PAVEMENT MARKING MATERIAL.










**CASE NO. 35  
TYPICAL APPLICATION\*  
MOBILE PAVEMENT MARKING ZONE  
CENTERLINE STRIPING ON 2-LANE UNDIVIDED HIGHWAY**

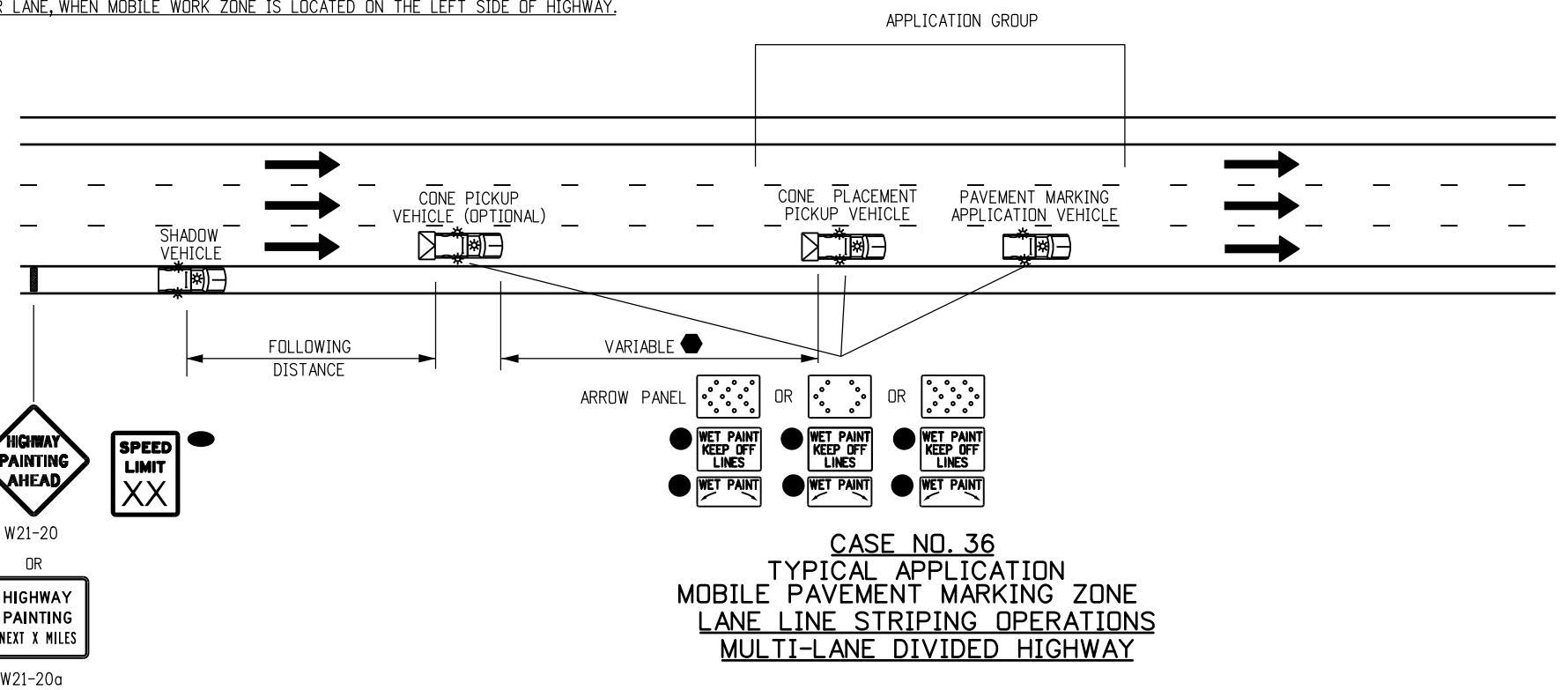
\* USE CASE 35 IF SHOULDER IN CASE 34 IS TOO NARROW FOR GROUP VEHICLE USE.

Computer File Information		Sheet Revisions		Colorado Department of Transportation 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9543 Fax: (303) 757-9219 Safety & Traffic Engineering Branch KCM/NNC	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION Issued By: Safety & Traffic Engineering Branch July 4, 2012	STANDARD PLAN NO.
Creation Date: 07/04/12	Initials: KEN	Date:	Comments			S-630-1
Last Modification Date: 03/16/2016	Initials: NNC	3/27/14	REDUCED NUMBER OF TMA VEHICLES, REVISE VMS AND ADD STATIONARY SIGNS	Sheet No. 21 of 24		
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		12/8/14	FORMERLY SHEET 17.			
Drawing File Name: S-630-1_21of24.dgn		5/20/16	VEHICLE TITLE CHANGE, SIGN REMOVAL NOTE CHANGE FROM 31 TO 34			
CAD Ver.: MicroStation V8	Scale: Not to Scale Units: English	6/23/16	UPDATED NOTE ON BOTTOM RIGHT FROM 34 TO 35 AND 30 TO 34			

FOR CASE #36, VEHICLE/SIGN SEQUENCE IS THE SAME FOR THE LEFT SIDE OF HIGHWAY, WHILE TAPER IS MIRRORED ABOUT THE CENTER LANE, WHEN MOBILE WORK ZONE IS LOCATED ON THE LEFT SIDE OF HIGHWAY.

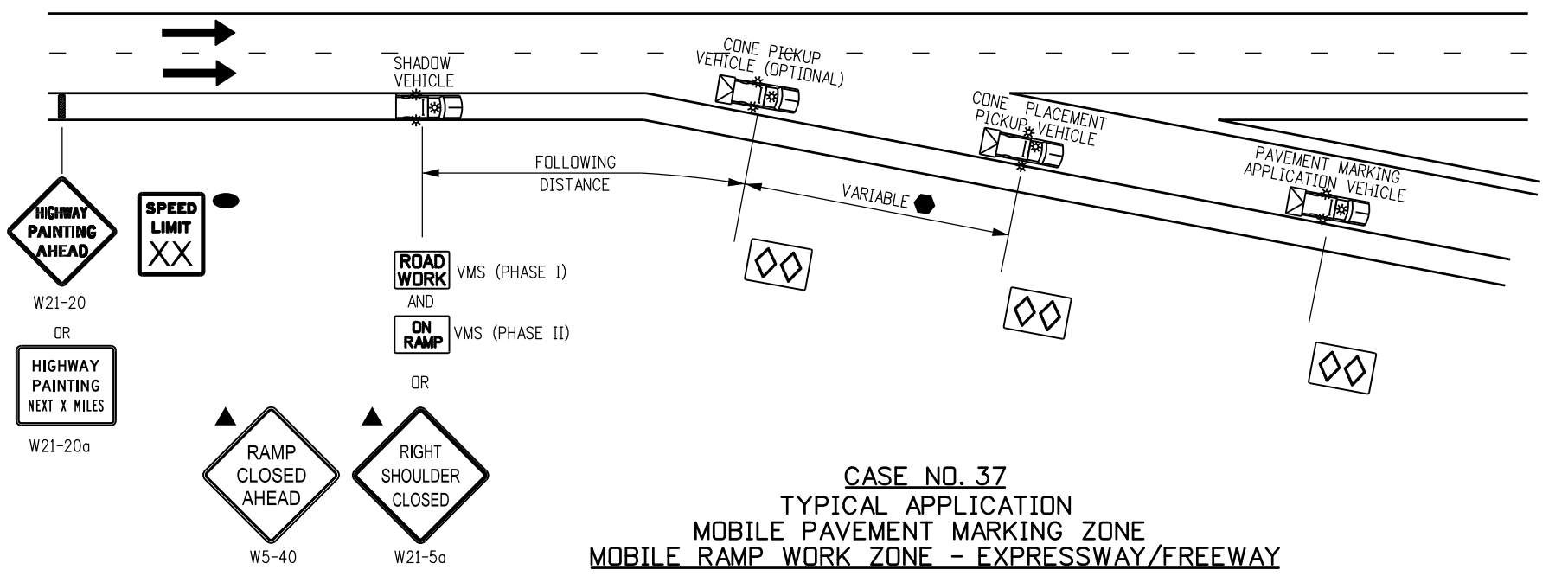
**LEGEND**

-  MOBILE ATTENUATOR VEHICLE, TWO 360-DEGREE YELLOW FLASHING BEACONS, AND YELLOW FLASHING VEHICLE LIGHTS OR STROBES.
-  ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.
-  PORTABLE VARIABLE MESSAGE SIGN (VMS).
-  WHEN THE VMS IS USED, THE "SHOULDER CLOSED" (W21-5aX) OR W21-5bX), AND "RAMP CLOSED AHEAD" SIGNS BECOME OPTIONAL.
-  IF TRACKING OF THE WET PAINT IS ANTICIPATED, THE USE OF CONES OR STATIONARY "WET PAINT" SIGNS SHALL BE POSTED.
-  THE VARIABLE SEPARATION DISTANCE BETWEEN THE "CONE PLACEMENT VEHICLE" AND "CONE PICKUP VEHICLE" SHALL BE DETERMINED BY THE TRACK DRYING TIME OF THE PAVEMENT MARKING MATERIAL.
-  OPTIONAL



**FOLLOWING DISTANCE CHART FOR WARNING VEHICLE AND CONE PICKUP VEHICLES**

POSTED WZ SPEED LIMIT (MPH)	FOLLOWING DISTANCE (FEET)
0 - 30	250 - 550
35 - 40	325 - 700
45 - 50	600 - 900
55	750 - 1200
60 - 65	1000 - 1400
70 - 75	1200 - 1600








**NOTES**

1. THE SIGNING VEHICLES MAY ENCRDACH INTO THE TRAFFIC LANE WHEN THE SHOULDER IS TOO NARROW TO DRIVE ON.
2. IF THE RAMP CANNOT BE REOPENED WITHIN 15 MINUTES, USE CASE NO. 22 OF THE S-630-1 STANDARD PLAN.

<b>Computer File Information</b>		<b>Sheet Revisions</b>		<b>Colorado Department of Transportation</b>		<b>TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION</b>		<b>STANDARD PLAN NO.</b>	
Creation Date: 07/04/12      Initials: KEN		Date:                                      Comments		 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9543 Fax: (303) 757-9219		Issued By: Safety & Traffic Engineering Branch July 4, 2012		S-630-1	
Last Modification Date: 3/16/16      Initials: NNC		3/27/14      REDUCE NUMBER OF TMA VEHICLES, REVISE VMS, AND ADD STATIONARY SIGNS						Sheet No. 22 of 24	
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		12/8/14      FORMERLY SHEET 18.							
Drawing File Name: S-630-1_22of24.dgn		5/20/16      SIGN CODE UPDATE: W5-40 & W21-5a.							
CAD Ver.: MicroStation V8      Scale: Not to Scale      Units: English		6/23/16      REVISED NOTE 32 TO 36, CHANGE VEHICLE TITLE, REMOVE SIGNS		<b>Safety &amp; Traffic Engineering Branch</b> <b>KCM/NNC</b>					
		6/23/16      UPDATED LEGEND FROM "TRUCK MOUNTED ATTENUATOR" TO "MOBILE ATTENUATOR VEHICLE"							

**LEGEND**

-  MOBILE ATTENUATOR TRUCK, TWO 360-DEGREE YELLOW FLASHING BEACONS, AND YELLOW FLASHING VEHICLE LIGHTS OR STROBES.
-  ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.
-  PORTABLE VARIABLE MESSAGE SIGN (VMS).
-  WHEN THE VMS IS USED, THE "RIGHT LANE CLOSED AHEAD" (W9-3X) SIGN BECOMES OPTIONAL.
-  THE "CONE PICK-UP VEHICLE" OR "WARNING VEHICLE" MAY ENCRDACH INTO THE TRAFFIC LANE WHEN THE SHOULDER IS TOO NARROW TO DRIVE ON.

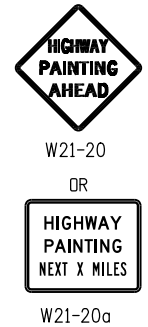
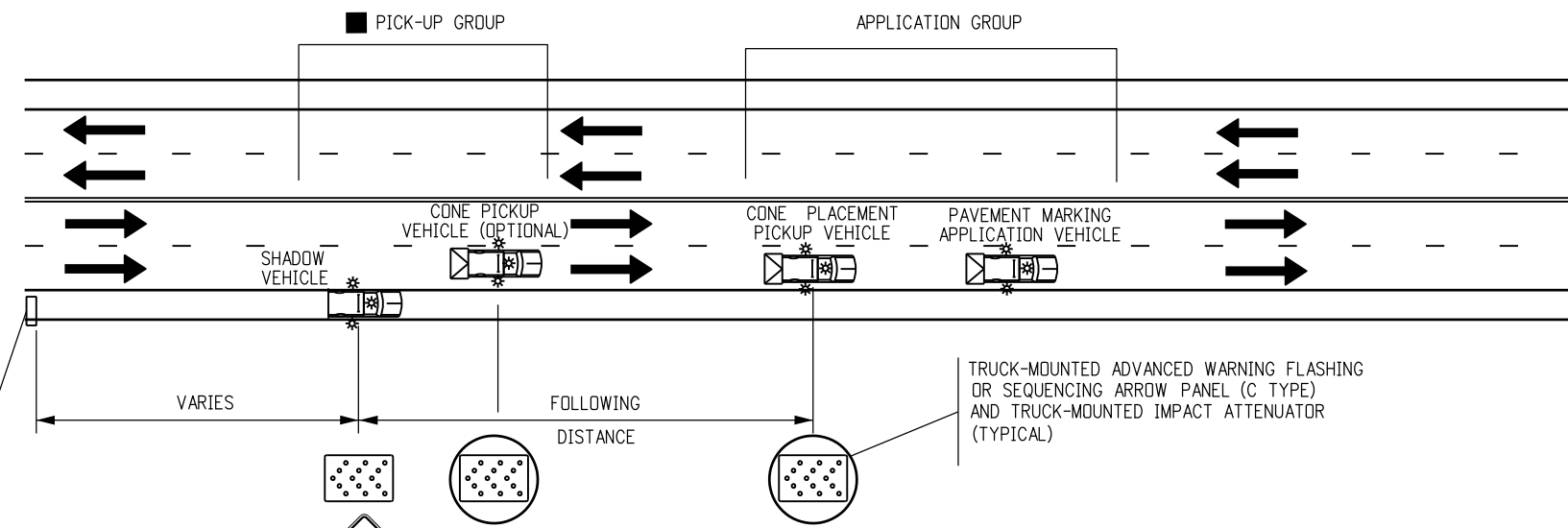
**NOTES**

1. IN ROADWAY WHERE THE AADT IS 2,000 OR LESS, A SINGLE WORK VEHICLE WITH APPROPRIATE WARNING DEVICES ON THE VEHICLE MAY BE USED.
2. RADIO COMMUNICATIONS BETWEEN THE WORKCREW AND THE MOVING BLOCKADE ARE REQUIRED TO ADJUST THE BLOCKADE TO INCREASE OR DECREASE THE CLOSURE TIME. RELEASE TRAFFIC ONLY AFTER CONFIRMATION THAT ALL WORKERS AND THEIR VEHICLES ARE CLEAR OF THE ROADWAY.
3. IF APPLICABLE, ALL RAMP AND ACCESS BETWEEN THE MOVING BLOCKADE AND WORK OPERATION AREA SHALL BE TEMPORARILY CLOSED USING TRAFFIC CONTROL EQUIPMENT AND PERSONNEL. EACH RAMP MUST REMAIN CLOSED UNTIL THE CREW DOING THE WORK GIVES THE "ALL CLEAR" SIGNAL OR UNTIL THE FRONT OF THE MOVING BLOCKADE PASSES THE CLOSED RAMP(S).

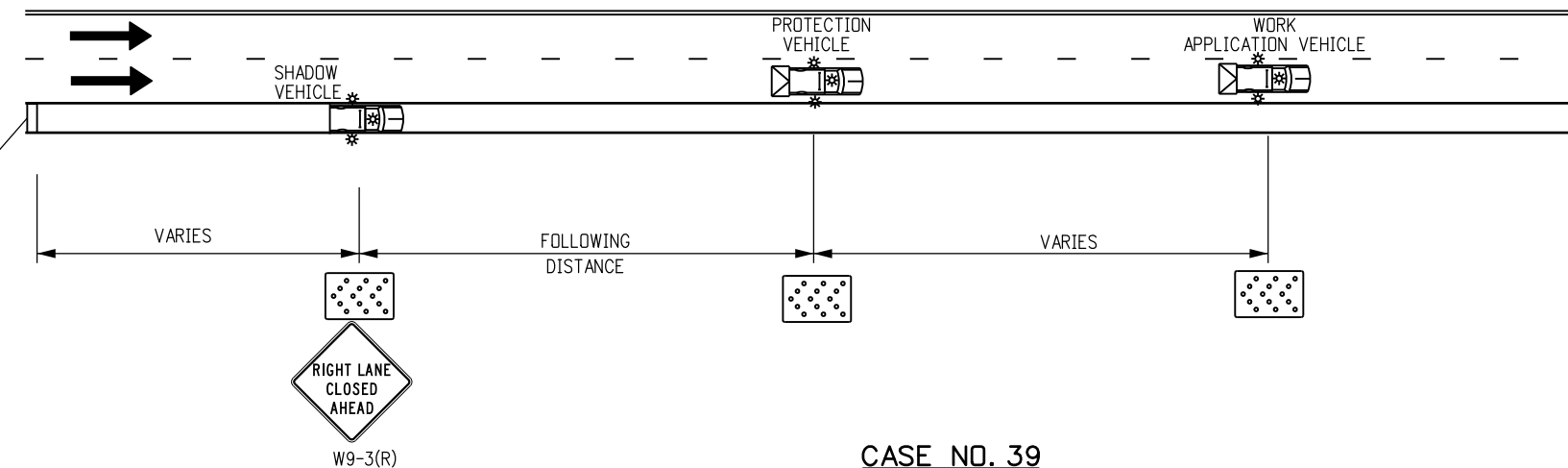
**FOLLOWING DISTANCE CHART FOR WARNING VEHICLE AND SIGNING VEHICLES**

POSTED WZ SPEED LIMIT (MPH)	FOLLOWING DISTANCE (FEET)
0 - 30	250 - 550
35 - 40	325 - 700
45 - 50	600 - 900
55	750 - 1200
60 - 65	1000 - 1400
70 - 75	1200 - 1600

**CASE NO. 38  
TYPICAL APPLICATION  
MOBILE STRIPING OPERATION OF LANE CLOSURE OF MULTI-LANE HIGHWAY  
(NOT FOR USE ON FREEWAYS)**



**CASE NO. 39  
TYPICAL APPLICATION  
MOBILE OPERATION OF LANE CLOSURE OF MULTI-LANE HIGHWAY**



**Computer File Information**

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Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-1_23of24.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

**Sheet Revisions**

Date	Comments
12/8/14	FORMERLY SHEET 19.
05/20/16	CHANGED VEHICLE TITLES; CHANGED SIGN TEXT; ADDED W21-20 & W21-21a
06/23/16	UPDATED LEGEND FROM "TRUCK MOUNTED ATTENUATOR" TO "MOBILE ATTENUATOR VEHICLE"

Colorado Department of Transportation  
  
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**TYPICAL CONSTRUCTION ZONE SIGNS**

THESE SIGNING NOTES ARE INTENDED AS A QUICK REFERENCE FOR TYPICAL SIGN USE AND PLACEMENT IN CONSTRUCTION ZONES.

<p>G20-1 "ROAD/WORK/NEXT XX MILES" - THIS SIGN SHALL BE ERECTED AT THE LIMITS OF ANY ROAD CONSTRUCTION OR MAINTENANCE PROJECT OF MORE THAN TWO (2) MILES IN LENGTH WHERE TRAFFIC IS MAINTAINED THROUGH THE PROJECT.</p> <p>G20-4 "PILOT CAR/FOLLOW ME" - THIS SIGN SHALL BE MOUNTED IN A CONSPICUOUS POSITION ON THE REAR OF A VEHICLE USED FOR GUIDING ONE-WAY TRAFFIC THROUGH OR AROUND THE PROJECT.</p> <p>G20-5P "WORK ZONE" - THIS PLAQUE SHALL BE MOUNTED JUST ABOVE THE WORK ZONE SPEED LIMIT SIGNS PRIOR TO THE WORK ZONE AREA.</p> <p>G20-10 THANK YOU SIGN - THIS SIGN SHOULD BE ERECTED APPROXIMATELY 500 FEET BEYOND THE END OF THE PROJECT.</p> <p>G20-11 CONSTRUCTION PROJECT INFORMATION SIGN - THIS SIGN SHOULD BE ERECTED AS DESCRIBED IN THE SECTION 626 STANDARD SPECIFICATION.</p> <p>G20-55(X) "X MINUTE CLOSURE, EXPECT DELAYS" - THIS SIGN IS INTENDED FOR USE 500 FEET PAST THE "WORK ZONE"/SPEED LIMIT SIGN.</p> <p>M4-9( ) "DETOUR/&lt;&lt;&lt;&lt;&gt;&gt;&gt;&gt;" - THIS SIGN IS USED FOR UNNUMBERED ROUTES; FOR USE IN EMERGENCY SITUATIONS; FOR PERIODS OF SHORT DURATION; OR WHERE, OVER RELATIVELY SHORT DISTANCES, IT IS NOT NECESSARY TO SHOW ROUTE MARKERS TO GUIDE TRAFFIC ALONG THE DETOUR AND BACK TO ITS AUTHORIZED ROUTE.</p> <p>M4-10( ) "DETOUR ARROW" - THIS SIGN SHOULD BE MOUNTED JUST BELOW THE ROAD CLOSED SIGN AT THE POINT WHERE THE DETOUR ROADWAY OR ROUTE HAS BEEN ESTABLISHED DUE TO THE CLOSURE OF THE STREET OR HIGHWAY TO THROUGH TRAFFIC.</p> <p>R2-1( ) "SPEED/LIMIT/XX" - THESE SIGNS ARE INTENDED TO REDUCE TRAFFIC SPEED IN ADVANCE OF THE DAILY WORK AREA WITHIN THE OVERALL PROJECT LIMITS.</p> <p>R2-1(XX) "SPEED/LIMIT/XX" - THIS SIGN IS INTENDED FOR USE 500 FEET PAST THE "THANK YOU" SIGN TO BRING TRAFFIC BACK TO ORIGINAL POSTED SPEED.</p> <p>R2-6P "FINES DOUBLE" - THIS SIGN IS INTENDED FOR USE WITHIN WORK ZONES TO PROVIDE NOTICE OF INCREASED FINES FOR TRAFFIC VIOLATIONS WITHIN WORK ZONES.</p> <p>R4-1 "DO NOT PASS" - THIS SIGN SHOULD BE PLACED AT TRANSITION TAPER POINT.</p> <p>R4-2 "PASS WITH CARE" - THIS SIGN SHOULD BE PLACED AT TRANSITION TAPER POINT.</p> <p>R11-2 "ROAD/CLOSED" - THIS SIGN IS TO BE MOUNTED ON THE BARRICADE THAT IS PLACED BEFORE THE WORK ZONE ENTRANCE TO PROHIBIT TRAFFIC FROM ENTERING THE WORK ZONE.</p> <p>R11-3 "ROAD CLOSED/X MILES AHEAD/L.T.O." - THIS SIGN SHOULD BE PLACED WHERE THROUGH TRAFFIC MUST DETOUR TO AVOID THE CLOSURE OF THE ROAD SOME DISTANCE BEYOND, BUT WHERE THE ROAD IS OPEN TO LOCAL TRAFFIC UP TO THE POINT OF CLOSURE.</p> <p>R11-4 "ROAD CLOSED/TO/THRU TRAFFIC" FOR URBAN USE - THIS SIGN SHOULD BE PLACED WHERE THROUGH TRAFFIC MUST DETOUR TO AVOID THE CLOSURE OF THE ROAD SOME DISTANCE BEYOND, BUT WHERE THE ROAD IS OPEN TO LOCAL TRAFFIC UP TO THE POINT OF CLOSURE.</p> <p>R52-6a "BEGIN FINES DOUBLE IN WORK ZONE" SIGN IS PLACED AT THE BEGINNING OF THE ADVANCED WARNING AREA OF THE TRAFFIC CONTROL ZONE.</p> <p>R52-6b "END FINES DOUBLE IN WORK ZONE" SIGN IS PLACED AFTER WORK ZONE AREA, PAST DOWNSTREAM TAPER SECTION.</p> <p>W1-1( ) "TURN ARROW" - THIS SIGN IS INTENDED FOR USE WHERE ENGINEERING INVESTIGATIONS OF ROADWAY CONDITIONS SHOW THE RECOMMENDED SPEED ON THE TURN TO BE 30 MPH OR LESS. *</p> <p>W1-2( ) "CURVE ARROW" - THIS SIGN IS INTENDED FOR USE WHERE ENGINEERING INVESTIGATIONS OF ROADWAY CONDITIONS SHOW THE RECOMMENDED SPEED ON THE CURVE TO BE IN THE RANGE BETWEEN 30 AND 60 MILES PER HOUR. *</p> <p>W1-3( ) "REVERSE TURN ARROW" - THIS SIGN IS INTENDED FOR USE WHERE TWO TURNS OR THE CURVE AND A TURN IN OPPOSITE DIRECTIONS ARE SEPARATED BY A TANGENT OF LESS THAN 600 FEET. *</p> <p>W1-4( ) "REVERSE CURVE ARROW" - THIS SIGN IS INTENDED FOR USE WHERE TWO CURVES IN OPPOSITE DIRECTIONS ARE SEPARATED BY A TANGENT OF LESS THAN 600 FEET. *</p> <p>W1-6( ) "ARROW" - THIS SIGN SHOULD BE MOUNTED JUST BELOW THE ROAD CLOSED SIGN AT THE POINT WHERE THE DIVERSION HAS BEEN ESTABLISHED DUE TO THE LANE CLOSURE.</p> <p>W3-2 "YIELD AHEAD" - THIS SIGN IS INTENDED FOR USE AT THE APPROACH TO THE YIELD SIGN THAT IS NOT VISIBLE FOR A SUFFICIENT DISTANCE TO PERMIT THE DRIVER TO BRING HIS VEHICLE TO A STOP AT THE YIELD SIGN. *</p> <p>W3-4 "BE PREPARED TO STOP" - THIS SIGN TO BE PLACED 1.5 MILES IN ADVANCED OF A FLAGGER.</p> <p>W4-2(X) "LEFT (RIGHT) LANE TRANSITION SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE REDUCTION IN THE NUMBER OF TRAFFIC LANES IN THE DIRECTION OF TRAVEL ON THE MULTILANE HIGHWAY. *</p> <p>W4-50 "USE BOTH LANES DURING CONGESTION" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE "ROAD WORK X MILE" ADVANCED WARNING SIGN.</p> <p>W4-51 "USE BOTH LANES TO MERGE POINT" - THIS SIGN IS INTENDED TO DIRECT MOTORISTS TO USE BOTH TRAVEL LANES UNTIL THE LANES ARE REDUCED TO ONE LANE.</p> <p>W4-52 "TAKE TURNS MERGE HERE" - THIS SIGN IS INTENDED TO WARN MOTORISTS IN ADVANCED TO MOVE FROM THE CLOSED TRAVEL LANE TO THE OPEN TRAVEL LANE, USUALLY 500 FEET IN ADVANCED OF THE START OF THE TRANSITION TAPER .</p> <p>W5-1 "ROAD NARROWS" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE TRANSITION ON THE ROAD WHERE THE PAVEMENT WIDTH IS REDUCED ABRUPTLY TO A WIDTH SUCH THAT TWO CARS CANNOT PASS WITHOUT REDUCING SPEED. *</p>	<p>W5-2a "NARROW BRIDGE SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A BRIDGE OR CULVERT HAVING A CLEAR TWO-WAY ROADWAY WIDTH OF 16 TO 18 FEET OR ANY BRIDGE OR CULVERT HAVING A ROADWAY CLEARANCE LESS THAN THE WIDTH OF THE APPROACH PAVEMENT. *</p> <p>W5-3 "ONE LANE/BRIDGE" - THIS SIGN SHOULD BE PLACED ON TWO-WAY ROADWAYS IN ADVANCE OF THE BRIDGES OR CULVERTS WHERE THE ROADWAY WIDTH IS LESS THAN 16 FEET (18 FEET FOR COMMERCIAL VEHICLES) OR WHEN THE ALIGNMENT IS POOR ON THE APPROACH TO THE STRUCTURE HAVING A CLEAR ROADWAY WIDTH OF 18 FEET OR LESS. *</p> <p>W6-1 "DIVIDED HIGHWAY SYMBOL" - THIS SIGN SHOULD BE PLACED ON THE APPROACHES TO THE SECTION OF HIGHWAY WHERE OPPOSING FLOWS OF TRAFFIC ARE SEPARATED BY A PHYSICAL MEDIAN.</p> <p>W6-2 "DIVIDED HIGHWAY ENDS SYMBOL" - THIS SIGN SHOULD BE PLACED AT THE END OF THE SECTION OF PHYSICALLY DIVIDED HIGHWAY AS A WARNING OF TWO-WAY TRAFFIC AHEAD.</p> <p>W6-3 "TWO-WAY TRAFFIC SYMBOL" - THIS SIGN IS INTENDED FOR USE TO GIVE WARNING OF TRANSITION FROM A SEPARATED ONE-WAY ROADWAY TO A TWO-WAY ROADWAY. *</p> <p>W7-1 "HILL SYMBOL" - THIS SIGN SHOULD BE PLACED AT A POINT IN ADVANCE OF THE DOWNGRADE WHERE THE LENGTH, PERCENT OF GRADE, HORIZONTAL CURVATURE, OR OTHER PHYSICAL FEATURES REQUIRE SPECIAL CONSIDERATION ON THE PART OF DRIVERS. *</p> <p>W8-1, W8-2 "BUMP"/"DIP" - THESE SIGNS ARE INTENDED FOR USE TO GIVE WARNING OF A SHARP RISE OR DEPRESSION IN THE PROFILE OF THE ROAD THAT IS SUFFICIENTLY ABRUPT TO AFFECT VEHICLE OPERATION OR CAUSE CONSIDERABLE DISCOMFORT TO PASSENGERS. *</p> <p>W8-3a "PAVEMENT ENDS SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE THE PAVEMENT SURFACE CHANGES FROM A HARD-SURFACED PAVEMENT TO THE LOW-TYPE SURFACE OR EARTH ROAD. *</p> <p>W8-4 "SOFT SHOULDER" - THIS SIGN IS INTENDED FOR USE TO WARN OF A SOFT SHOULDER CONDITION THAT COULD PRESENT A PROBLEM TO VEHICLES THAT MAY GET OFF THE PAVEMENT. *</p> <p>W8-5 "SLIPPERY WHEN WET SYMBOL" - THIS SIGN SHOULD BE PLACED IN ADVANCE OF THE CONDITION WHERE THE HIGHWAY SURFACE IS SLIPPERY BEYOND WHAT IS ORDINARY WHEN WET. *</p> <p>W8-9a "SHOULDER DROP-OFF" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A SHOULDER DROP-OFF THAT EXCEEDS THREE INCHES IN HEIGHT. *</p> <p>W8-11 "UNEVEN LANES" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF AN UNEVEN ADJACENT LANE SITUATION THAT EXCEEDS ONE INCH IN HEIGHT. *</p> <p>W9-1( ) "LEFT (RIGHT) LANE ENDS" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE PAVEMENT WIDTH TRANSITION SIGN (W4-2).</p> <p>W9-2( ) "LANE ENDS/MERGE LEFT (RIGHT)" - THIS SIGN IS INTENDED FOR USE AS A SUPPLEMENT TO THE PAVEMENT WIDTH TRANSITION SIGN (W4-2).</p> <p>W9-3 OR W9-3a( ) "CENTER LANE CLOSED AHEAD" - THIS SIGN SHOULD BE USED IN ADVANCE OF THE POINT WHERE WORK OCCUPIES THE CENTER LANE AND TRAFFIC IS DIRECTED TO THE RIGHT OR LEFT OF THE WORK ZONE. *</p> <p>W12-1 "DOUBLE ARROW SYMBOL" - THIS SIGN SHOULD BE PLACED AT THE POINT OF THE OBSTRUCTION IN THE ROADWAY, WHERE TRAFFIC IS PERMITTED TO PASS ON EITHER SIDE OF THE OBSTRUCTION.</p> <p>W12-2 "LOW CLEARANCE SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF AN OBSTRUCTION TO WARN VEHICLE OPERATORS OF CLEARANCES LESS THAN THE MAXIMUM VEHICLE HEIGHT PERMITTED PLUS 12 INCHES. *</p> <p>W13-1P( ) "ADVISORY SPEED PLAQUE" - THIS PLAQUE IS INTENDED TO SUPPLEMENT WARNING SIGNS ONLY AND SHALL NOT BE MOUNTED ALONE. IT IS USED TO INDICATE THE MAXIMUM RECOMMENDED SPEED FOR THE INDICATED CONDITION.</p> <p>W13-3 "ADVISORY RAMP SPEED" - THIS SIGN IS TO BE POSTED TO INFORM MOTORISTS WHAT THE SUGGESTED SPEED LIMIT IS ON A RAMP.</p> <p>W20-1 "ROAD/WORK/AHEAD" - THIS SIGN IS TO BE LOCATED IN ADVANCE OF THE INITIAL ACTIVITY OR DETOUR A DRIVER MAY ENCOUNTER, AND IS INTENDED TO BE USED AS A WARNING OF OBSTRUCTIONS OR RESTRICTIONS.</p> <p>W20-2 "DETOUR/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE POINT AT WHICH TRAFFIC IS DIVERTED OVER A TEMPORARY ROADWAY OR ROUTE.</p> <p>W20-3 "ROAD/CLOSED/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT AT WHICH A ROADWAY IS CLOSED TO ALL TRAFFIC OR TO ALL BUT LOCAL TRAFFIC.</p> <p>W20-4 "ONE LANE/ROAD/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE TRAFFIC IN BOTH DIRECTIONS MUST USE A SINGLE LANE.</p> <p>W20-5( ) "XXX LANE/CLOSED/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE ONE LANE OF A MULTIPLE-LANE ROADWAY IS CLOSED. IT SHOULD BE PROVIDED WITH INTERCHANGEABLE PLAQUES READING "RIGHT", "LEFT", AND "CENTER" AT NO ADDITIONAL COST TO THE PROJECT.</p> <p>W20-7 "FLAGGER SYMBOL" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF ANY POINT AT WHICH A FLAGGER HAS BEEN STATIONED TO CONTROL TRAFFIC THROUGH OR AROUND THE PROJECT. *</p> <p>W20-52 "GROOVED/PAVEMENT/AHEAD" - THIS SIGN IS INTENDED TO BE USED IN ADVANCE OF A ROADWAY THAT HAS BEEN GROOVED AND/OR ROTO MILLED.</p> <p>W21-1a "WORKER SYMBOL" - THIS SIGN IS INTENDED FOR USE IN CONJUNCTION WITH MINOR MAINTENANCE AND PUBLIC UTILITY OPERATIONS FOR THE PROTECTION OF MEN WORKING IN OR NEAR THE ROADWAY.</p>	<p>W21-2 "FRESH/OIL" - THIS SIGN IS INTENDED FOR USE WHERE RE-SURFACING OPERATIONS HAVE RENDERED THE SURFACE OF THE PAVEMENT TEMPORARILY WET, AND OBJECTIONABLE SPLASHING ON VEHICLES MAY OCCUR. *</p> <p>W21-3 "ROAD/MACHINERY/AHEAD" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE AREAS WHERE HEAVY EQUIPMENT IS OPERATING IN OR ADJACENT TO THE ROADWAY. *</p> <p>W21-4 "ROAD/WORK/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF MAINTENANCE FOR MINOR RECONSTRUCTION OPERATIONS IN THE ROADWAY.</p> <p>W21-5 "SHOULDER/WORK" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF THE PROJECT INVOLVING THE SHOULDER, WHERE THE TRAVELED WAY REMAINS UNOBSTRUCTED.</p> <p>W21-6 "SURVEY/CREW" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE A SURVEYING CREW IS WORKING IN OR ADJACENT TO THE ROADWAY. *</p> <p>W21-20 "HIGHWAY PAINTING AHEAD" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF A POINT WHERE A PAINT CREW IS WORKING IN OR ADJACENT TO THE ROADWAY.</p> <p>W21-20a "HIGHWAY PAINTING NEXT X MILES" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF PAINT CREW WORKING IN OR ADJACENT TO THE ROADWAY.</p> <p>W22-1 "BLASTING/ZONE/(DIST.)" - THIS SIGN IS INTENDED FOR USE IN ADVANCE OF ANY POINT OR WORK SITE WHERE THERE ARE EXPLOSIVES BEING USED. THE W22-2 AND W22-3 SIGNS MUST BE USED IN SEQUENCE WITH THIS SIGN.</p> <p>W22-2 "TURN OFF/2-WAY RADIOS/AND/CELLULAR/PHONES" - THIS SIGN IS TO BE USED IN SEQUENCE WITH THE W22-1 AND W22-3 SIGNS AND PLACED AT LEAST 1000 FEET FROM THE BEGINNING OF THE BLASTING ZONE.</p> <p>W22-3 "END/BLASTING/ZONE" - THIS SIGN IS TO BE USED TO DENOTE THE END OF THE RADIO INFLUENCE AREA AND SHALL BE PLACED A MINIMUM OF 1000 FEET FROM THE BLASTING ZONE, EITHER WITH OR PRECEDING THE END CONSTRUCTION SIGN.</p> <p>W22-50(X) "ROCK SCALING X MILE(S)" - THIS SIGN IS INTENDED TO BE USED IN ADVANCE OF A FLAGGER IN ADVANCED OF THE WORK ZONE AREA.</p>
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**ADVANCE PLACEMENT OF WARNING SIGNS**

POSTED OR 85TH PERCENTILE SPEED	ADVANCE PLACEMENT DISTANCE (FEET)								
	CONDITION A	CONDITION B: DECLARATION TO THE LISTED ADVISORY SPEED (MPH) FOR THE CONDITION							
		MPH							
	+	0	10	20	30	40	50	60	70
20	225	●	●	--	--	--	--	--	--
25	325	●	●	●	--	--	--	--	--
30	450	●	●	●	--	--	--	--	--
35	550	●	●	●	●	--	--	--	--
40	650	125	●	●	●	--	--	--	--
45	750	175	125	●	●	●	--	--	--
50	850	250	200	150	100	●	--	--	--
55	950	325	275	225	175	100	●	--	--
60	1100	400	350	300	250	175	●	--	--
65	1200	475	425	400	350	275	175	●	--
70	1250	550	525	500	425	350	250	150	--
75	1350	650	625	600	525	450	350	250	100

+ CONDITION A: SPEED REDUCTION AND LANE CHANGING IN HEAVY TRAFFIC. TYPICAL SIGNS ARE "MERGE" AND "RIGHT LANE ENDS".

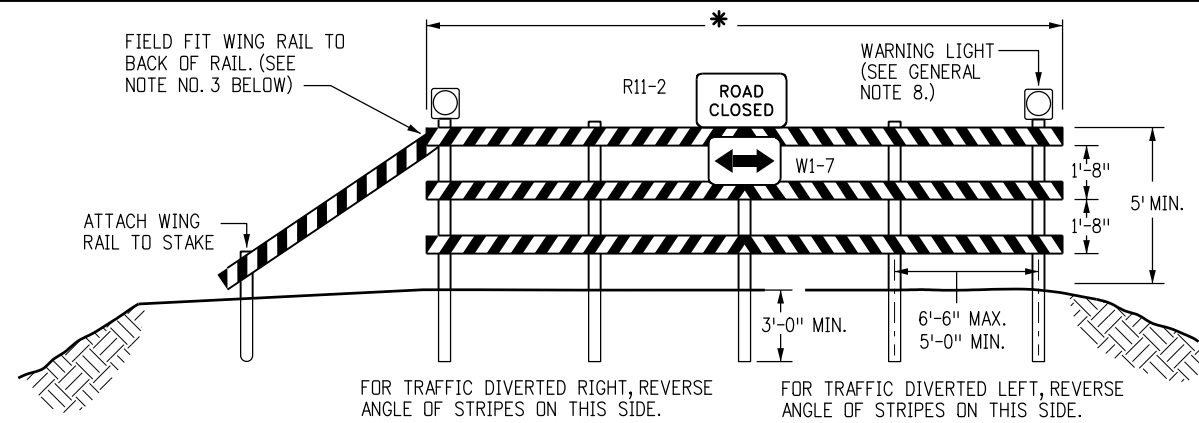
+ + CONDITION B: TYPICAL CONDITIONS ARE THE WARNING OF A POTENTIAL STOP SITUATION AND LOCATIONS WHERE THE ROAD USER MUST DECREASE SPEED TO MANEUVER THROUGH THE WARNED CONDITION. TYPICAL SIGNS ARE "STOP AHEAD", "SIGNAL AHEAD", "YIELD AHEAD", "CURVE", "REVERSE CURVE", "TURN".

● NO SUGGESTED DISTANCES ARE PROVIDED AT THESE SPEEDS, AS THE PLACEMENT IS DEPENDENT ON SITE CONDITIONS AND OTHER SIGNING.

A SUPPLEMENTAL PLAQUE MAY BE USED WITH WARNING SIGNS SPECIFYING THE DISTANCE TO THE CONDITION IF THERE IS AN IN-BETWEEN INTERSECTION THAT MIGHT CONFUSE THE MOTORIST.

\* PLACEMENT SHOULD BE IN ACCORDANCE WITH WARNING SIGN PLACEMENT TABLE.

<b>Computer File Information</b>		<b>Sheet Revisions</b>		<p align="center">Colorado Department of Transportation</p>  <p>4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9543 Fax: (303) 757-9219</p> <p align="center"><b>Safety &amp; Traffic Engineering Branch      KCM/NNC</b></p>	<p align="center"><b>TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION</b></p> <p align="center">Issued By: Safety &amp; Traffic Engineering Branch July 4, 2012</p>	<p align="center"><b>STANDARD PLAN NO.</b></p> <p align="center"><b>S-630-1</b></p> <p align="center"><b>Sheet No. 24 of 24</b></p>
Creation Date: 07/04/12	Initials: KEN	Date:	Comments:			
Last Modification Date: 05/19/16	Initials: NNC	(R-4) 07/26/13	CHANGE W20-7a SIGN CODE TO W20-7			
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans		(R-7) 12/8/14	FORMERLY SHEET 20.			
Drawing File Name: S-630-01_24of24.dgn		(R-8) 05/20/16	ADDED SIGN W21-20 & W21-20a			
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English	(R-X)			



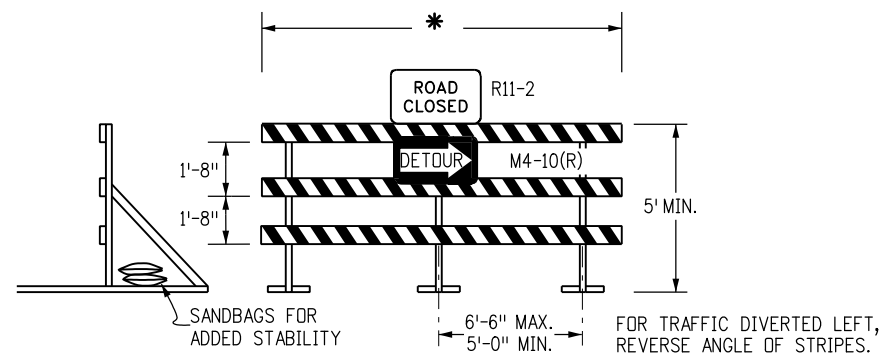
**FIXED**

**\* RAIL LENGTH TABLE**

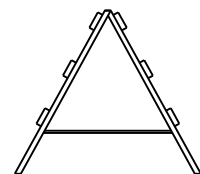
TYPE 3 BARRICADE		LENGTH
FIXED	MOVABLE	
F - A	M - A	8'- 14'
F - B	M - B	15'- 24'
F - C	M - C	25'- 35'
F - D	M - D	> 35'

**NOTES**

- TYPE 3 BARRICADES HAVE 3 REFLECTORIZED RAIL FACES IF FACING TRAFFIC IN ONE DIRECTION AND 6 IF FACING TRAFFIC IN TWO DIRECTIONS.
- THE PORTION OF THE POST ABOVE THE GROUND LINE SHALL BE PAINTED IN ACCORDANCE WITH THE APPROPRIATE GENERAL NOTE.
- DETACHABLE EXTENSION WING RAILS FOR BYPASSING OF CONSTRUCTION EQUIPMENT ARE PERMITTED, WHEN NECESSARY, ON FIXED OR MOVABLE TYPE 3 BARRICADES. THE LENGTH SHALL BE ADEQUATE TO CLOSE THE BORROW PIT AND/OR SHOULDER AS REQUIRED.



**MOVABLE-SKIDS**

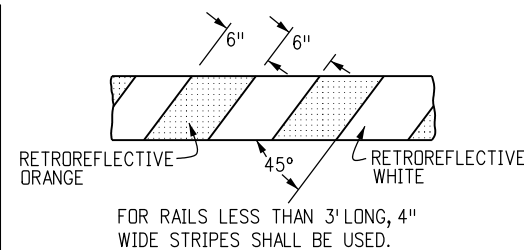


**MOVABLE-HINGED**

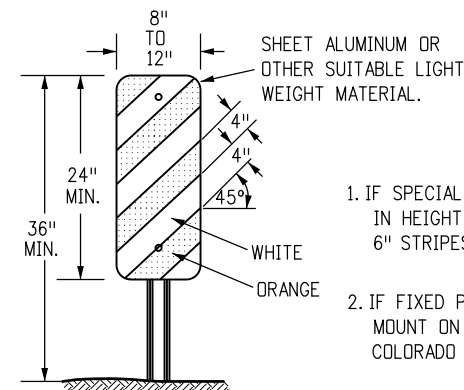
**TYPICAL TYPE 3 BARRICADES**

**TYPICAL BARRICADE CHARACTERISTICS**

BARRICADE DESIGNATIONS	
TYPE 3	
RAIL WIDTH	8" MIN.-12" MAX.
RAIL LENGTH	AS REQUIRED, SEE RAIL LENGTH TABLE
HEIGHT	5' MIN.
USE	TEMPORARY OR PERMANENT
STRIPES	SEE DETAIL OF BARRICADE STRIPING AND APPROPRIATE GENERAL NOTES.

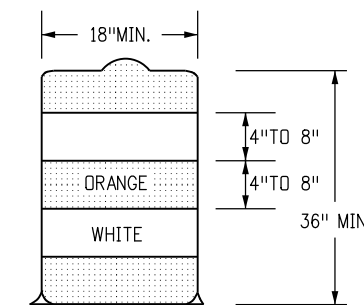


**RAIL STRIPING DETAIL**



- IF SPECIAL PANELS 3' OR GREATER IN HEIGHT ARE REQUIRED, THEN 6" STRIPES SHALL BE USED.
- IF FIXED PLACEMENT IS REQUIRED, MOUNT ON DELINEATOR POST. SEE COLORADO STANDARD PLAN S-612-1.

**TYPICAL VERTICAL PANEL**



- THE 18" MINIMUM DIMENSION SHALL APPLY TO THE SMALLEST MEASUREMENT OF OBLONG, RECTANGULAR, OR FLATTENED SIDE DRUMS.
- THERE SHALL BE AT LEAST TWO ORANGE AND TWO WHITE HORIZONTAL, CIRCUMFERENTIAL, RETROREFLECTIVE STRIPES ON EACH DRUM.

**TYPICAL DRUM**

**GENERAL NOTES**

- THE VARIOUS TYPES, COMBINATIONS AND APPLICATIONS OF SIGNS AND WARNING LIGHTS FOR BARRICADES REQUIRED FOR EACH PROJECT SHALL BE:
  - AS SPECIFIED OR DETAILED IN THE PLANS.
  - AS SHOWN IN APPLICABLE TYPICAL ILLUSTRATIONS.
  - AS CALLED FOR AND SUBJECT TO APPROVAL BY THE ENGINEER.
- TEMPORARY AND PERMANENT BARRICADES TYPE 3 SHALL BE FABRICATED FROM APPROVED CRASH TESTED MATERIALS. SEE SECTION 614 AND 630 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION FOR ADDITIONAL REQUIREMENTS.
- ALL PAINTING SHALL CONFORM WITH THE FOLLOWING:
  - THE APPLICABLE SECTION OF 508 OF THE STANDARD SPECIFICATIONS.
  - ALL SKIDS, BRACES AND POSTS SHALL BE PAINTED WITH 2 COATS OF EXTERIOR WHITE PAINT
  - THE BACKSIDES OF RAILS AND VERTICAL PANEL CHANNELIZING DEVICES FACING ONE DIRECTION OF TRAFFIC ONLY SHALL BE PAINTED WITH "EXTERIOR WHITE PAINT.
  - ALUMINUM OR GALVANIZED STEEL SKIDS, BRACES AND POSTS SHALL NOT BE PAINTED.
- ALL STRIPED SURFACES SHALL CONFORM WITH THE FOLLOWING:
  - THE ENTIRE AREA OF ORANGE AND WHITE STRIPES SHALL BE FABRICATED AS ONE PIECE.
  - HORIZONTAL RAILS, WING RAILS AND VERTICAL PANEL CHANNELIZING DEVICES SHALL HAVE ORANGE AND WHITE STRIPES ON THE FACE SIDE(S) SLANTING DOWNWARD AT A 45° ANGLE TOWARD THE SIDE(S) TO WHICH TRAFFIC IS TO PASS OR TURN.
  - PERMANENT BARRICADES SHALL HAVE RETROREFLECTIVE RED AND WHITE STRIPES. THEY MAY BE USED AT LOCATIONS TO MARK THE END OF A ROAD, STREET OR HIGHWAY THAT ENDS AT A "T" INTERSECTION, OR WHERE THERE IS NO CROSSROAD OR OUTLET.
  - ALL RETROREFLECTIVE SHEETING SHALL CONFORM TO ASTM D4956:
    - ORANGE AND WHITE SHALL BE TYPE II, III OR IV.
    - RED AND WHITE SHALL BE TYPE II, III OR IV.
- FOR ALL WOODEN BARRICADE COMPONENTS NOMINAL LUMBER DIMENSIONS ARE SATISFACTORY.
- ALL SCREWS, BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED OR CADMIUM PLATED.
- STABILITY OF BARRICADES AND CHANNELIZING DEVICES SHALL CONFORM WITH THE FOLLOWING:
  - SKIDS (BASES) OF MOVABLE BARRICADES SHALL BE WEIGHTED WITH SANDBAGS ONLY WHERE NECESSARY TO PROVIDE STABILITY
  - NO MOVABLE OR PORTABLE DEVICE SHALL BE WEIGHTED BY ANY METHOD OR WITH ANY MATERIAL THAT WOULD MAKE THEM HAZARDOUS TO MOTORISTS.
- WARNING LIGHTS USED WITH BARRICADES, DRUMS AND VERTICAL PANELS SHALL CONFORM WITH THE FOLLOWING:
  - USE FLASHING WARNING LIGHTS WHEN DEVICES ARE USED SINGLY, AND STEADY BURN LIGHTS WHEN THEY ARE USED IN A SERIES FOR CHANNELIZATION.
  - THEY SHALL BE POSITIONED ABOVE THE TOP RAIL OF BARRICADES OR ON TOP OF DRUMS AND VERTICAL PANELS.
- CONCRETE BARRIER (TEMPORARY) SHALL CONFORM WITH:
  - PRECAST CONCRETE BARRIER AS SHOWN ON COLORADO STANDARD PLAN M-606-14.
  - BARRIER REFLECTORS SHALL BE INSTALLED THAT MEET THE REQUIREMENTS OF STANDARD TYPICAL DELINEATOR INSTALLATIONS, EXCEPT THE MAXIMUM SPACING SHALL BE 50', AND THEY WILL NOT BE PAID FOR BUT ARE INCLUDED IN THE COST OF THE BARRIER.
  - CONCRETE BARRIER END TREATMENT SHALL BE IN ACCORDANCE WITH CLEAR ZONE CRITERIA, AND PLACED AS SHOWN ON THE PLANS.
- SIGN PANELS MOUNTED ON BARRICADES WILL BE PAID FOR SEPARATELY.

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Last Modification Date:	Initials:
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans	
Drawing File Name: S-630-02_1of1.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

**Sheet Revisions**

Date:	Comments
06/03/16	UPDATED GENERAL NOTES 4 C

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**Safety & Traffic Engineering Branch**

KCM/MKB

**BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) & VERTICAL PANELS**

Issued By: Safety & Traffic Engineering Branch July 4, 2012

**STANDARD PLAN NO.**

S-630-2

Sheet No. 1 of 1