

TABULATION OF LENGTH

STATION	LINEAR FEET	
	ROADWAY	MAJOR STRUCTURE
PEORIA STREET 103+45.32 BEGIN ROADWAY 116+93.91 END ROADWAY	1,348.59	
BELFORD AVENUE 3+72.13 BEGIN ROADWAY 12+68.32 END ROADWAY	896.19	
TOTALS	2,244.78	0.00
SUMMARY	LIN. FT.	MILES
Roadway	2,244.78	0.43
GROSS AND NET LENGTH	2,244.78	0.43
PEORIA STREET DESIGN DATA		
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	
BELFORD AVENUE DESIGN DATA		
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	

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

INDEX OF SHEETS

SHEET NO.	SUBSET SHEETS	DESCRIPTION
1	T-1	TITLE SHEET
2	SP-1	STANDARD PLANS LIST
3	GN-1	GENERAL NOTES
4 - 5	TY-1 TO TY-2	TYPICAL SECTIONS
6	SM-1	* SUMMARY OF APPROXIMATE QUANTITIES
7 - 10	TB-1 TO TB-4	* TABULATION OF QUANTITIES
11 - 12	GM-1 TO GM-2	GEOMETRIC LAYOUT
13 - 17	RM-1 TO RM-5	REMOVAL AND RESET PLANS
18 - 24	RD-1 TO RD-7	ROADWAY DETAILS
25	DA-1	* ROADWAY DATA
26 - 30	PL-1 TO PL-5	ROADWAY PLANS
31	PR-1	ROADWAY PROFILE
32	CJ-1	CONCRETE JOINTING PLAN
33	ID-1	INTERSECTION & CURB RETURN DETAILS
34	DT-1	* TABULATION OF STORM DRAIN QUANTITIES
35	DD-1	DRAINAGE DETAILS
36	DR-1	DRAINAGE PLAN
37	EL-1	GESC TITLE SHEET
38	ET-1	* TABULATION OF EROSION CONTROL QUANTITIES
39	EI-1	INITIAL GRADING AND EROSION CONTROL PLAN
40	EN-1	INTERIM GRADING AND EROSION CONTROL PLAN
41	EF-1	FINAL GRADING AND EROSION CONTROL PLAN
42 - 55	1 TO 14	GESC PLAN STANDARD NOTES AND DETAILS
56	TT-1	* TRAFFIC SIGNAL ITEM TABULATION AND SYMBOLS
57 - 58	TS-1 TO TS-2	TRAFFIC SIGNAL MODIFICATION PLANS
59 - 74	CS-1 TO CS-16	ROADWAY CROSS SECTIONS

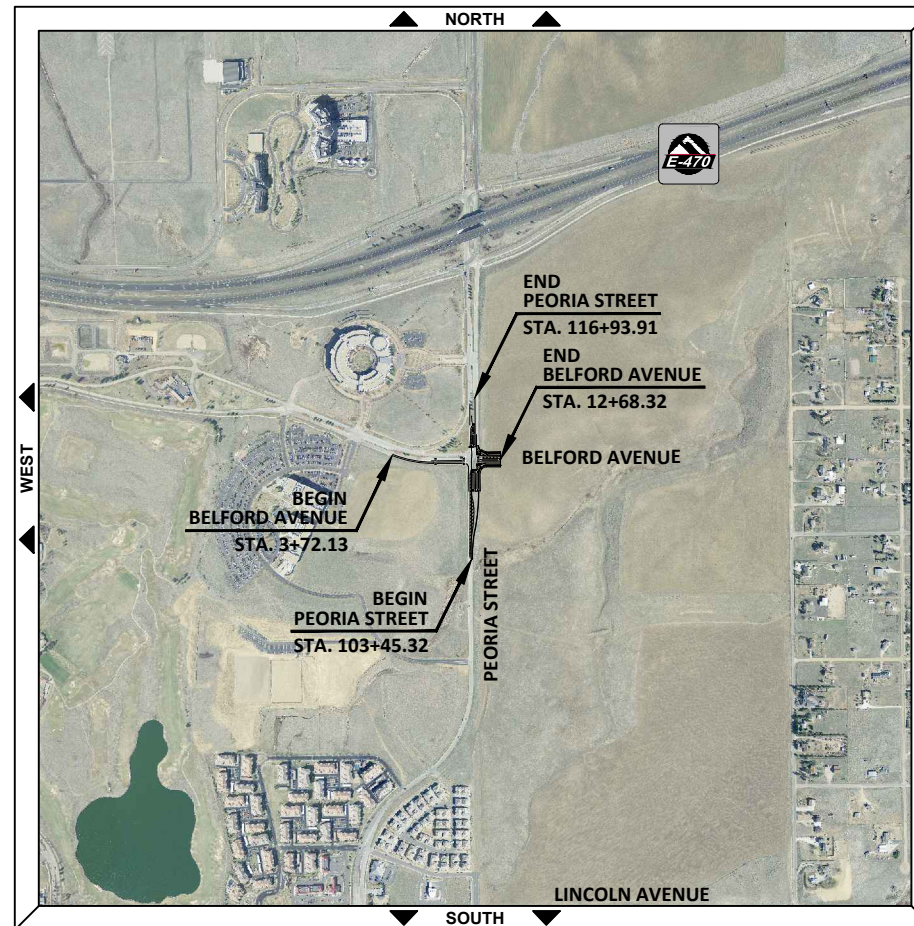
* SHEETS TO BE COMPLETED POST F.O.R. SUBMITTAL

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



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.

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

Print Date: 5/13/2016 3:34:15 PM

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Horizontal Scale: NTS Vertical Scale: NTS

**FELSBURG
HOLT &
ULLEVIG**
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Centennial, CO 80111
tel 303.721.1440
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(R-X)



Sheet Revisions

Date	Comments	Initials



As Constructed

No Revisions:

Revised:

Void:

**PEORIA & BELFORD INTERSECTION
TITLE SHEET**

Designer:	DCS	Structure	
Detailer:	JHH	Numbers	
Subset:	TITLE	Sheets:	T-1 of 1

Project No./Code

Sheet Number 1

I:\115360-01 - Compark at Belford\CADD\Drawings\Peoria\, Dustin.Shaklee

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)	8
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)	19-30
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 checked="" type="checkbox"/>	CONCRETE PAVEMENT JOINTS (5 SHEETS) (REVISED ON JULY 24, 2012)	34-38
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, 2010)	41
M-601-2	<input type="checkbox"/>	DOUBLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2010)	42-43
M-601-3	<input type="checkbox"/>	TRIPLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2010)	44-45
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)	50-53
M-603-2	<input type="checkbox"/>	REINFORCED CONCRETE PIPE (REVISED ON OCTOBER 02, 2014)	54
M-603-3		PRECAST CONCRETE BOX CULVERT	55
M-603-4	<input type="checkbox"/>	CORRUGATED POLYETHYLENE PIPE (AASHTO M294) (REVISED ON OCT. 02, 2014)	56
M-603-5	<input type="checkbox"/>	POLYVINYL CHLORIDE (PVC) PIPE (AASHTO M304) (REVISED ON OCT. 02, 2014)	57
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)	74-92
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)	93-96
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)	107-109
M-607-10		PICKET SNOW FENCE	110
M-607-15		ROAD CLOSURE GATE (9 SHEETS)	111-119
M-608-1	<input checked="" type="checkbox"/>	CURB RAMPS (7 SHEETS) (REVISED ON JUNE 16, 2014)	120-125
M-609-1	<input type="checkbox"/>	CURBS, GUTTERS, AND SIDEWALKS (4 SHEETS) (REVISED ON JULY 24, 2012)	126-129
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 DECEMBER 12, 2013)	158-159
S-614-2		CLASS I SIGNS	160
S-614-3		CLASS II SIGNS	161
S-614-4	<input type="checkbox"/>	CLASS III SIGNS (3 SHEETS) (REVISED ON DECEMBER 17, 2014)	162-164
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)	167-168
S-614-8	<input type="checkbox"/>	TUBULAR STEEL SIGN SUPPORT DETAILS (6 SHEETS) (REVISED ON OCTOBER 23, 2014)	169-173
S-614-9		PEDESTRIAN PUSH BUTTON POST ASSEMBLY	174
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		CONCRETE BARRIER SIGN POST INSTALLATIONS	182
S-614-22		TYPICAL MULTI-SIGN INSTALLATIONS	183
S-614-40	<input checked="" type="checkbox"/>	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS (5 SHEETS) (REVISED ON APRIL 2, 2015)	184-188
S-614-40A	<input type="checkbox"/>	ALTERNATIVE TRAFFIC SIGNAL INSTALLATION DETAILS (4 SHEETS) (REVISED ON APRIL 2, 2015)	189-192
S-614-41	<input type="checkbox"/>	TEMPORARY SPAN WIRE SIGNALS (REVISED ON APRIL 2, 2015)	193
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 NOVEMBER 03, 2014)	
S-614-50	<input type="checkbox"/>	STATIC SIGN MONOTUBE STRUCTURES (12 SHEETS) (REVISED ON NOVEMBER 28, 2012)	208-219
S-614-60	<input type="checkbox"/>	DYNAMIC SIGN MONOTUBE STRUCTURES (14 SHEETS) (REVISED ON NOVEMBER 28, 2012)	220-233
S-627-1	<input type="checkbox"/>	PAVEMENT MARKINGS (5 SHEETS) (REVISED ON JUNE 10, 2014)	234-238
S-630-1	<input checked="" type="checkbox"/>	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (24 SHEETS) (REVISED ON DECEMBER 08, 2014)	239-258
S-630-2		BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) AND VERTICAL PANELS	259
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)	263-264
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 March 29, 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: 5/13/2016 3:34:41 PM		Sheet Revisions				As Constructed		PEORIA & BELFORD INTERSECTION STANDARD PLANS LIST		Project No./Code	
File Name: G115360-01SPL01.dwg		Date	Comments	Initials		No Revisions:					
Horizontal Scale: NTS Vertical Scale: NTS					Revised:		Designer: DCS	Structure Numbers			
 6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832					Void:		Detailer: JHH		Sheet Number 2		
							Subset: GENERAL	Sheets: SP-1 of 1			

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 POTHOLING.

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.

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

STANDARD ABBREVIATION/DEFINITIONS

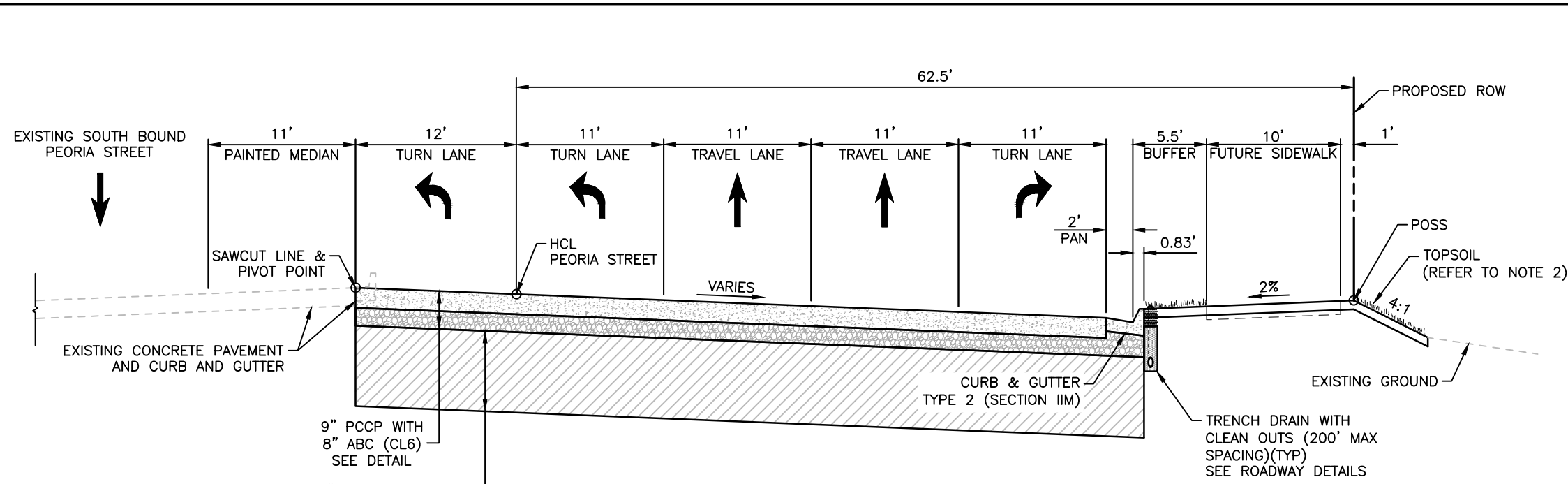
THE FOLLOWING IS A LIST OF ABBREVIATIONS USED IN THE CONTRACT DOCUMENTS:

- 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
- R – PROPERTY LINE

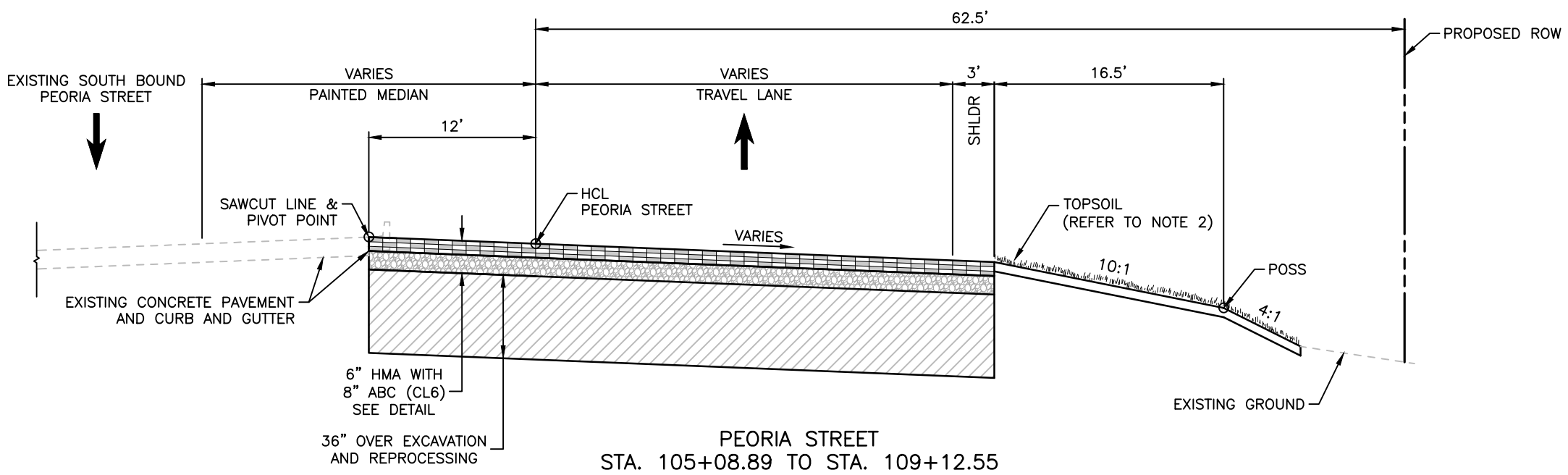
This project is subject to a permit with the Colorado Department of Health for Stormwater Discharges Associated with Construction Activities. The permit shall be obtained by the Contractor. The Contractor shall prepare all applications required and submit to the Colorado Department of Health. The Contractor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

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Print Date: 5/13/2016 3:35:07 PM		Sheet Revisions				As Constructed		PEORIA & BELFORD INTERSECTION GENERAL NOTES		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 1	Sheet Number 3		



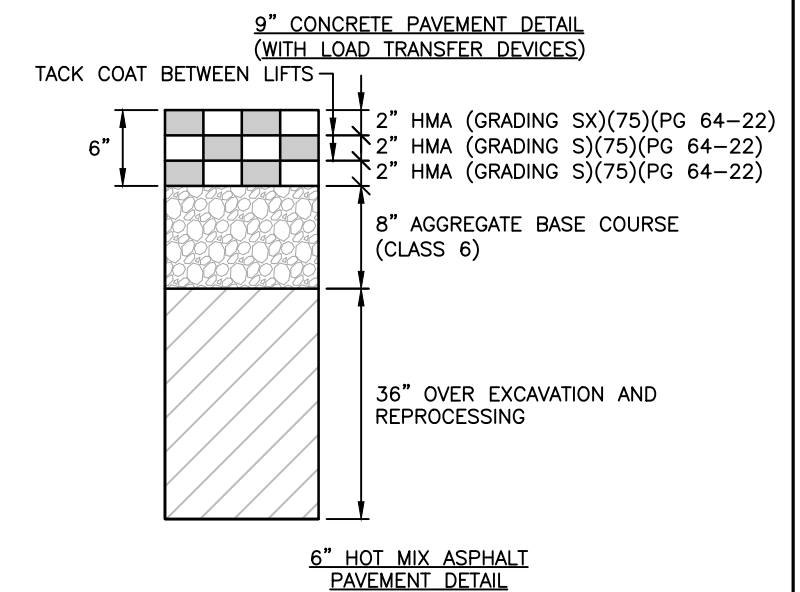
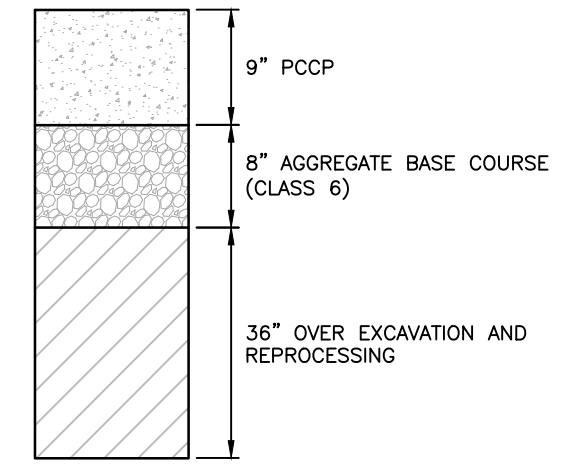
PEORIA STREET
STA. 109+12.55 TO STA. 110+62.57



PEORIA STREET
STA. 105+08.89 TO STA. 109+12.55

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



- 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.

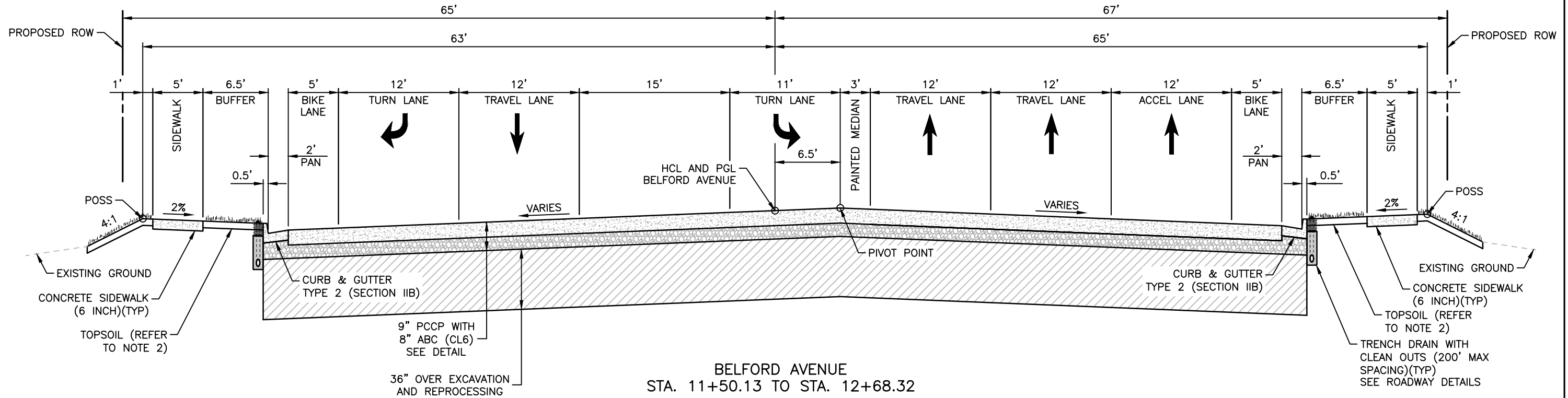


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Centennial, CO 80111
tel 303.721.1440
fax 303.721.0832

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Date	Comments	Initials	

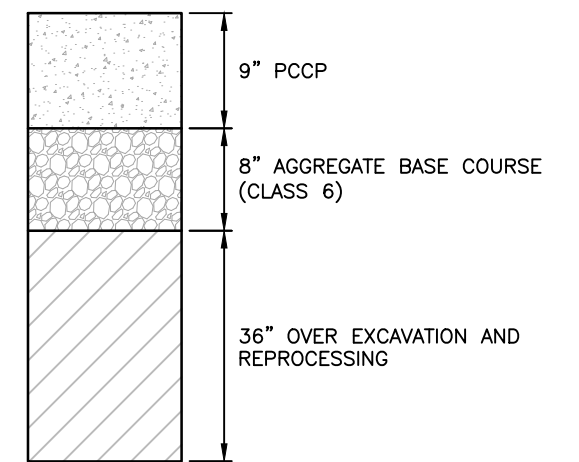
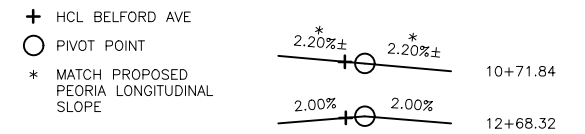
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Void:	Subset: ROADWAY	Sheets: TY-1 of 2	Sheet Number 4

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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.
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Date	Comments	Initials



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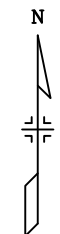
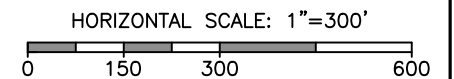
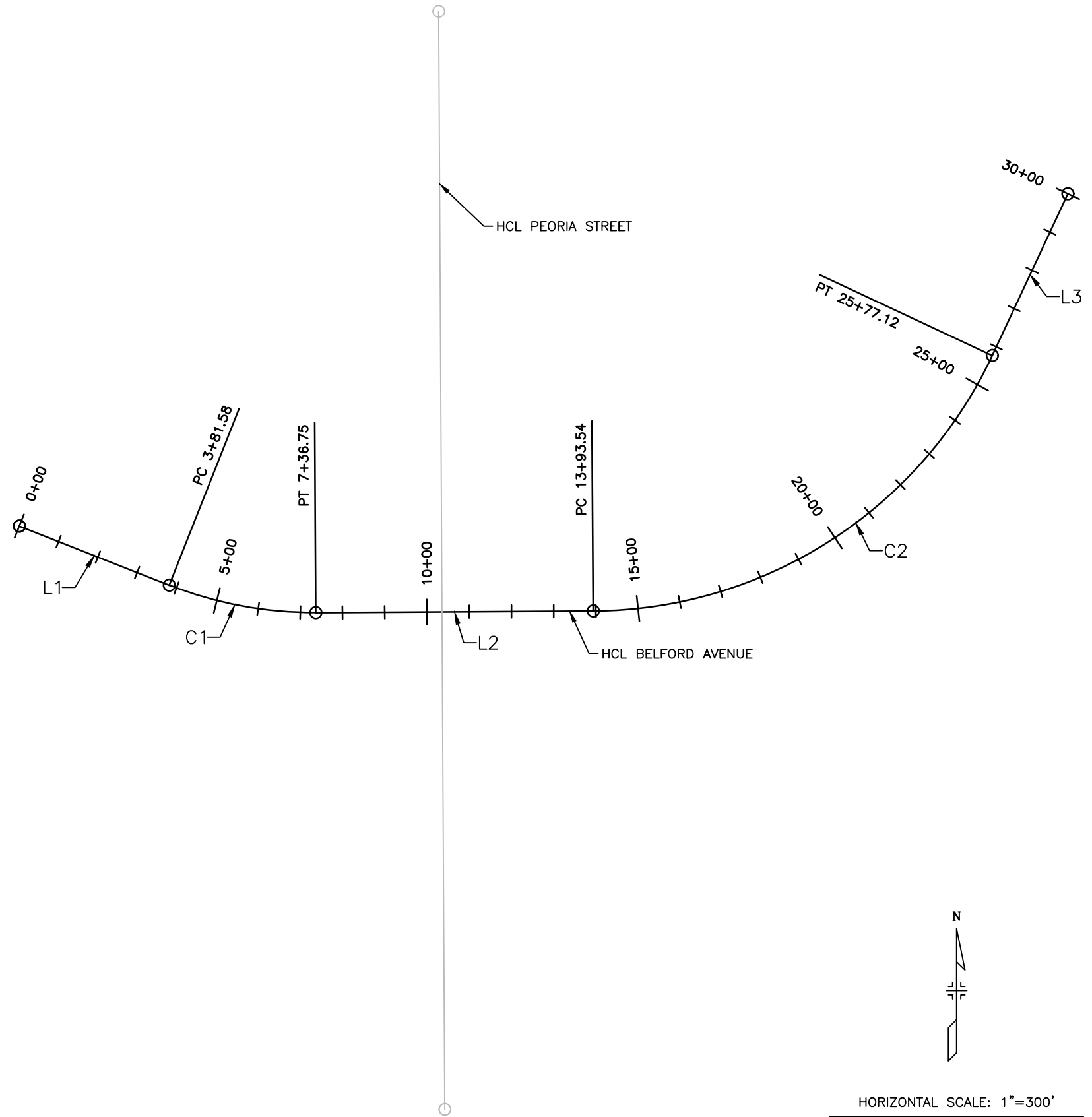
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HCL - BELFORD									
NO.		STATION	NORTHING	EASTING	LENGTH	LINE/CHORD BEARING	DELTA	TANGENT	RADIUS
L1		0+00.00 3+81.58	25463.6349 25323.5186	86262.0518 86616.9751	381.58'	S68°27'24.97"E			
C1	PC= PI= PT=	3+81.58 5+61.36 7+36.75	25323.5186 25257.5049 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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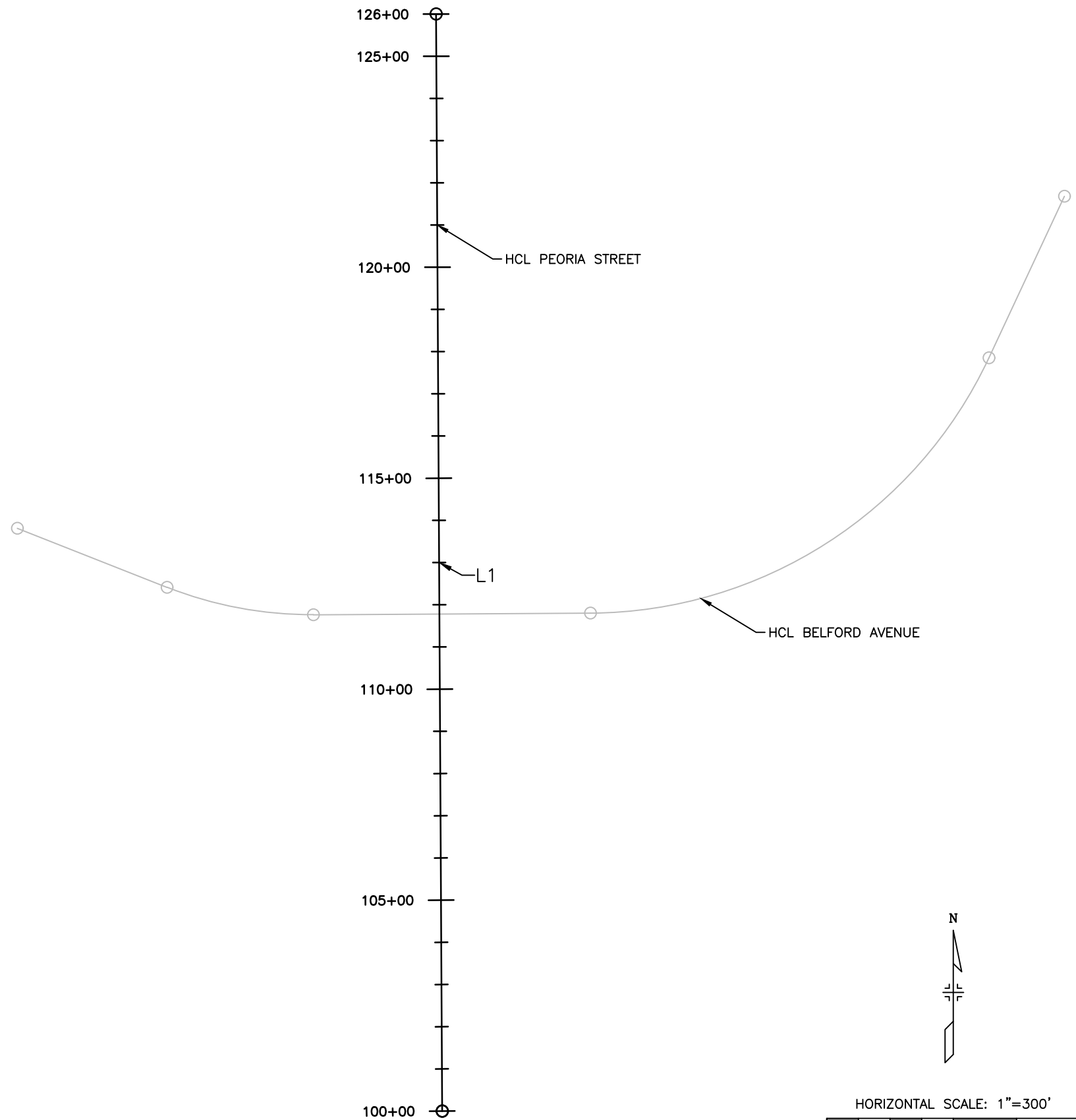
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Void:	Subset: ROADWAY	Sheets: GM-1 of 2	Sheet Number 11

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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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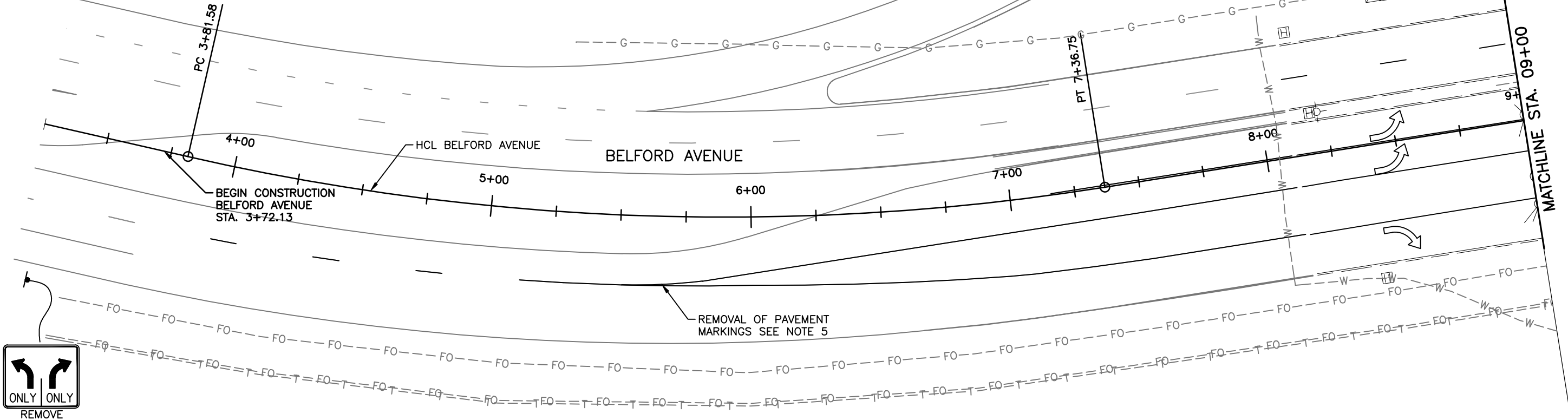


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6380 S FIDDLERS GREEN CIRCLE, STE 400
GREENWOOD VILLAGE, CO 80111

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

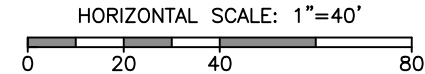


NOTES:

- 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.
- TEMPORARY CONSTRUCTION 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.
- FOR REMOVAL AND RESET OF THE DRAINAGE RELATED ITEMS, REFER TO THE DRAINAGE PLANS.
- FOR REMOVAL AND RESET OF THE TRAFFIC SIGNAL RELATED ITEMS, REFER TO THE TRAFFIC SIGNAL PLANS.
- XX 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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Construction Managers • Environmental Scientists • Landscape Architects • Planners

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PEORIA & BELFORD INTERSECTION REMOVAL AND RESET PLAN - BELFORD STA. 3+25 TO STA. 9+00			
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Subset:	ROADWAY	Sheets:	RM-1 of 5

Project No./Code
Sheet Number
13



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REMOVAL OF PAVEMENT
MARKINGS SEE NOTE 5

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

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

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

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- 3) FOR REMOVAL AND RESET OF THE DRAINAGE RELATED ITEMS, REFER TO THE DRAINAGE PLANS.
- 4) FOR REMOVAL AND RESET OF THE TRAFFIC SIGNAL RELATED ITEMS, REFER TO THE TRAFFIC SIGNAL PLANS.
- 5) SEE PEORIA SHEETS FOR REMOVAL OF PAVEMENT MARKINGS.

MATCHLINE STA. 09+00

SEE SHEET RM-04 FOR
ADDITIONAL INTERSECTION
INFORMATION.

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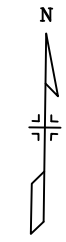
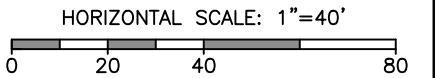
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LEGEND

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

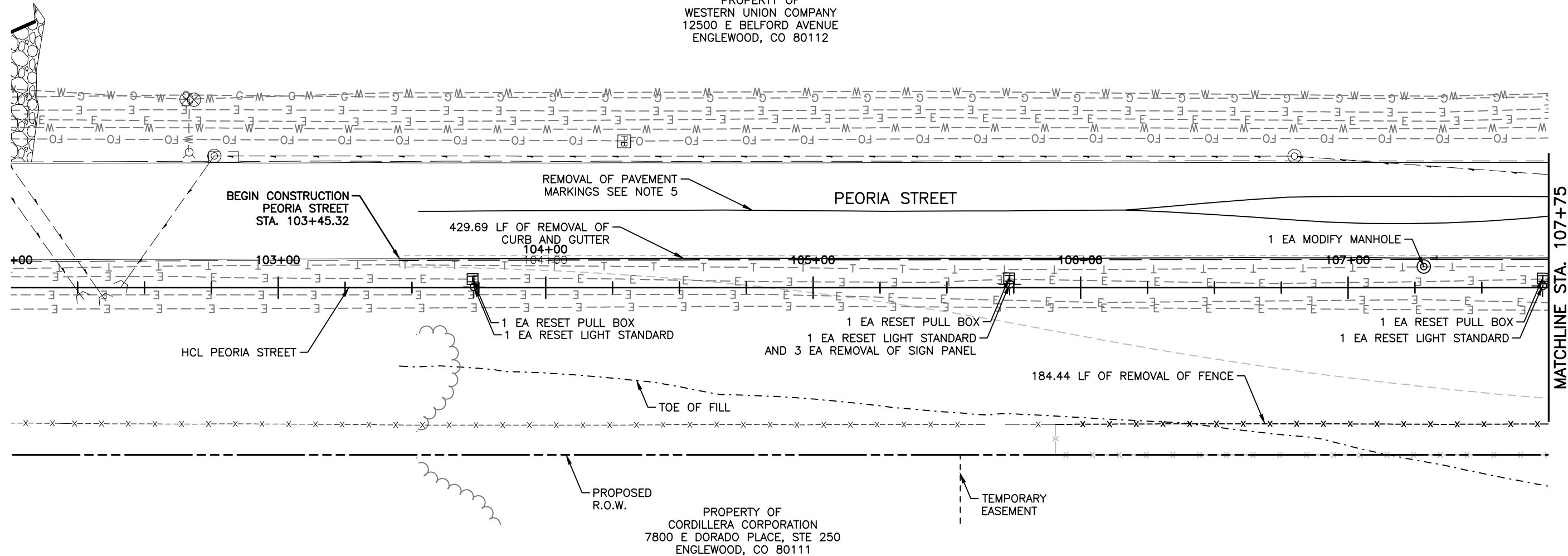


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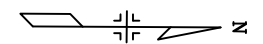


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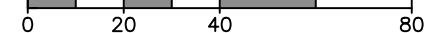
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- 4) FOR REMOVAL AND RESET OF THE TRAFFIC SIGNAL RELATED ITEMS, REFER TO THE TRAFFIC SIGNAL PLANS.
- 5) XX SF OF REMOVAL OF PAVEMENT MARKINGS THIS SHEET.

LEGEND

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



HORIZONTAL SCALE: 1"=40'



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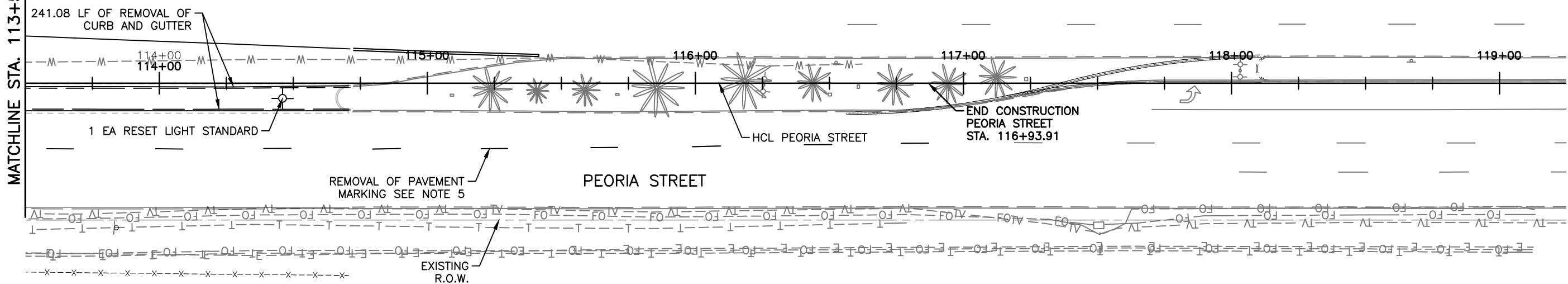
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Revised:	Detailer: JHH	Numbers	
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GREENWOOD VILLAGE, CO 80111

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

MATCHLINE STA. 113+50



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

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) TEMPORARY CONSTRUCTION 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.
- 3) FOR REMOVAL AND RESET OF THE DRAINAGE RELATED ITEMS, REFER TO THE DRAINAGE PLANS.
- 4) FOR REMOVAL AND RESET OF THE TRAFFIC SIGNAL RELATED ITEMS, REFER TO THE TRAFFIC SIGNAL PLANS.
- 5) XX SF OF REMOVAL OF PAVEMENT MARKINGS THIS SHEET.

LEGEND



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No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: JHH		
Void:	Subset: ROADWAY	Sheets: RM-5 of 5	Sheet Number 17

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:

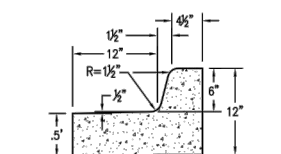
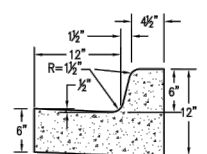
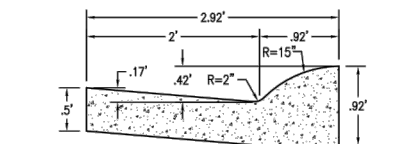
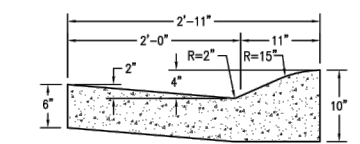
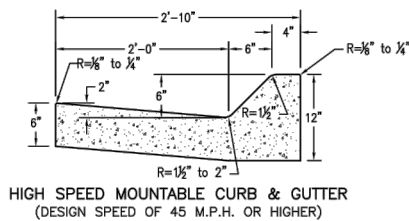
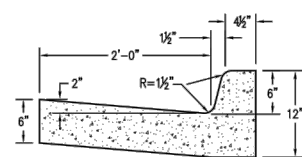
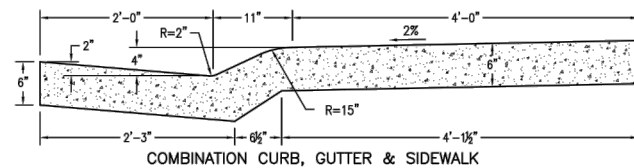
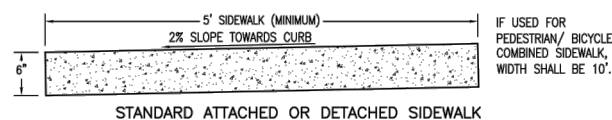
- GUTTERS SHALL BE AT LEAST 6" THICK.
- ALL CURBS SHALL USE THE CATCH SECTION UNLESS OTHERWISE NOTED.
- ALL COMBINATION CURB, GUTTER AND SIDEWALKS TO BE 6" THICK (MIN.), SIDEWALKS WITH VERTICAL CURB AND GUTTER TO BE 6" THICK (MIN.).
- NON-LANDSCAPED MEDIAN ISLANDS SHALL BE COVERED WITH AN ACCEPTABLE 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

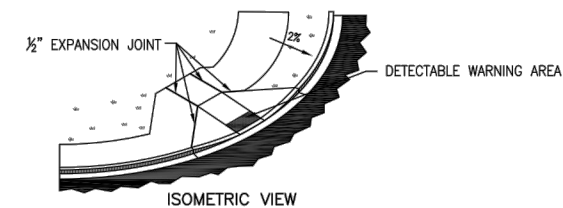
Revised: _____

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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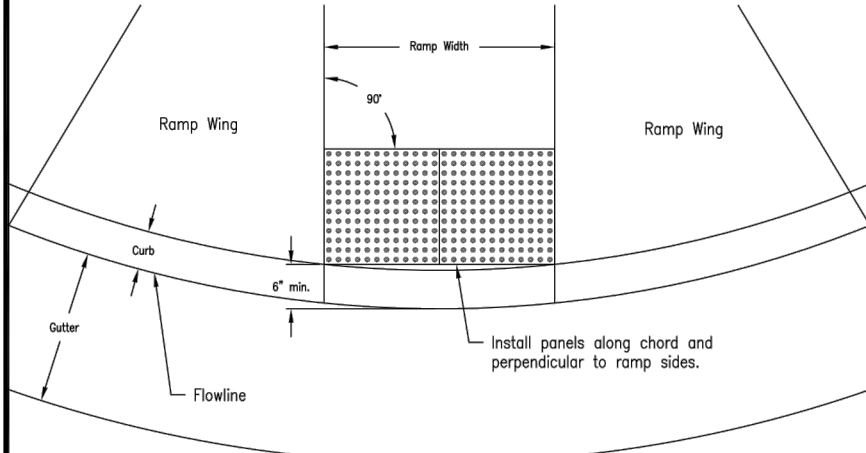
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Panel Installation Notes:

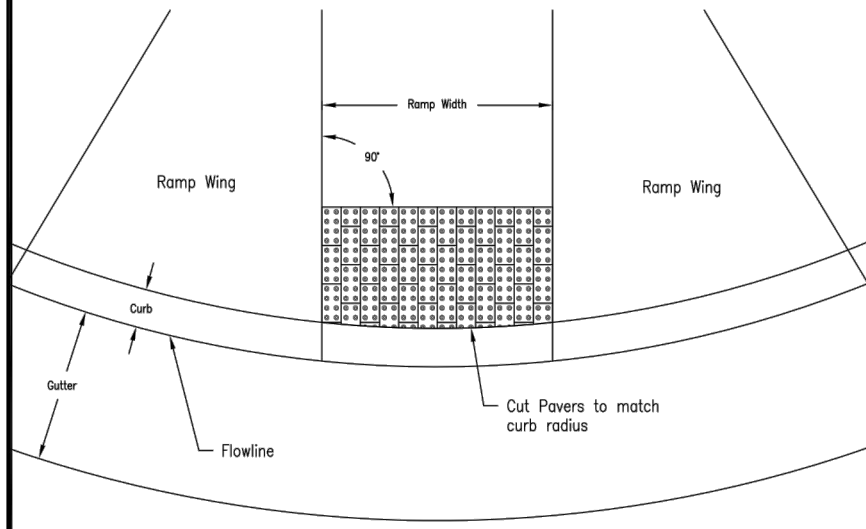
1. DETECTABLE WARNING PANELS, 24" X 24" OR 24" X 30" IN SIZE, SHALL BE PREFABRICATED REDDISH WITH TRUNCATED DOMES AND COMPLY WITH ADA REQUIREMENTS. ONLY FULL PANELS SHALL BE USED TO OBTAIN SPECIFIC RAMP THROAT WIDTH, (I.E. TWO 24" PANELS FOR A 4' RAMP, TWO 30" PANELS FOR A 5' RAMP, ETC.)
2. PRIOR TO 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.



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

Paver Installation Notes:

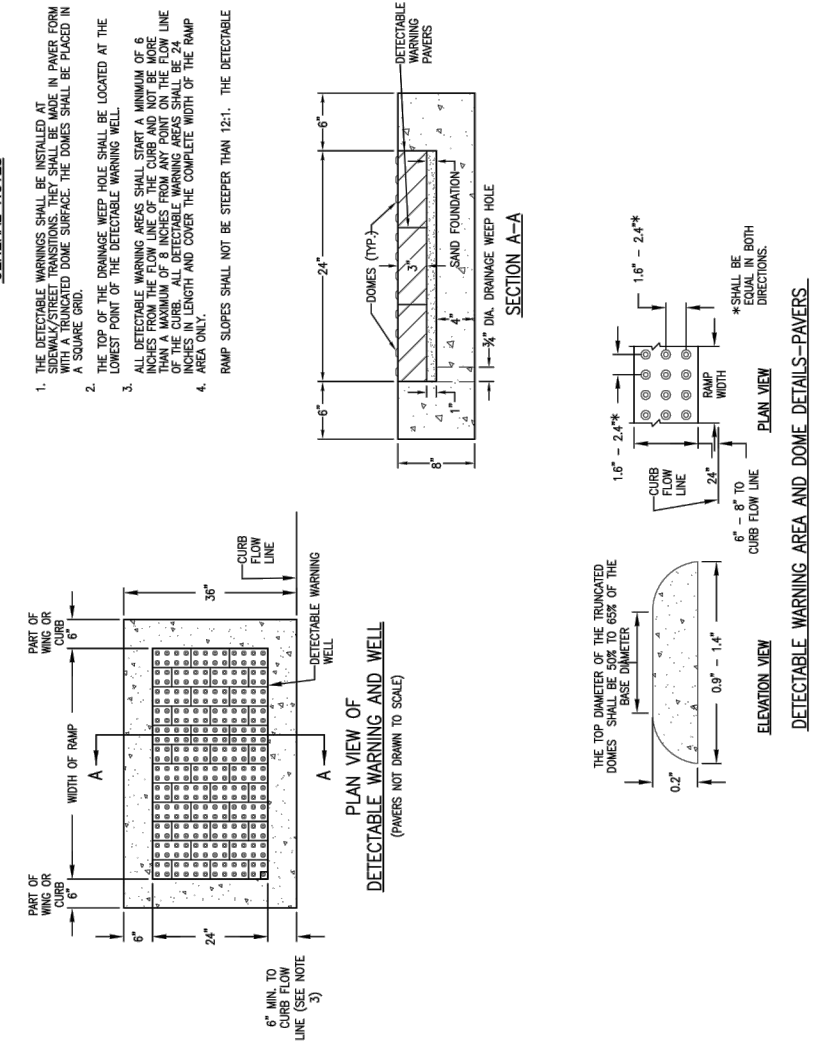
1. DETECTABLE WARNING PAVERS SHALL BE PREFABRICATED REDDISH INTEGRALLY COLORED TRUNCATED DOMES SURFACED CONCRETE OR MASONRY PAVERS. PAVERS SHALL MEET THE REQUIREMENTS OF ASTM C 902 OR ASTM C 936 AND COMPLY WITH ADA REQUIREMENTS.
2. PRIOR TO START OF WORK, CONTRACTOR SHALL SUBMIT, TO CITY ENGINEER FOR 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 SECTIONS 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.



CURB RAMP WITH PAVER DETECTABLE WARNING AREA INSTALLATION		Issued: 05/2013
		Revised: _____
Drawing No. SP.18c		

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



CURB RAMP WITH PAVER DETECTABLE WARNING AREA INSTALLATION		Issued: 05/2013
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Drawing No. SP.18d		

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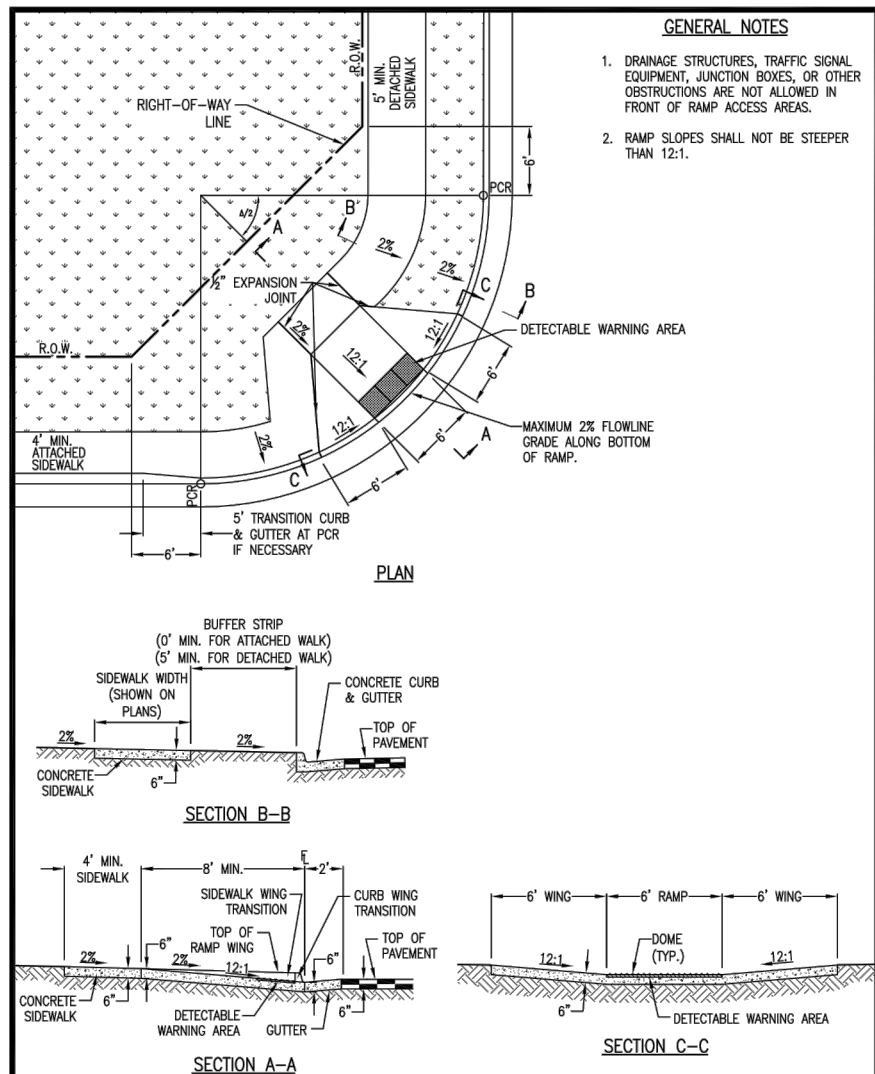
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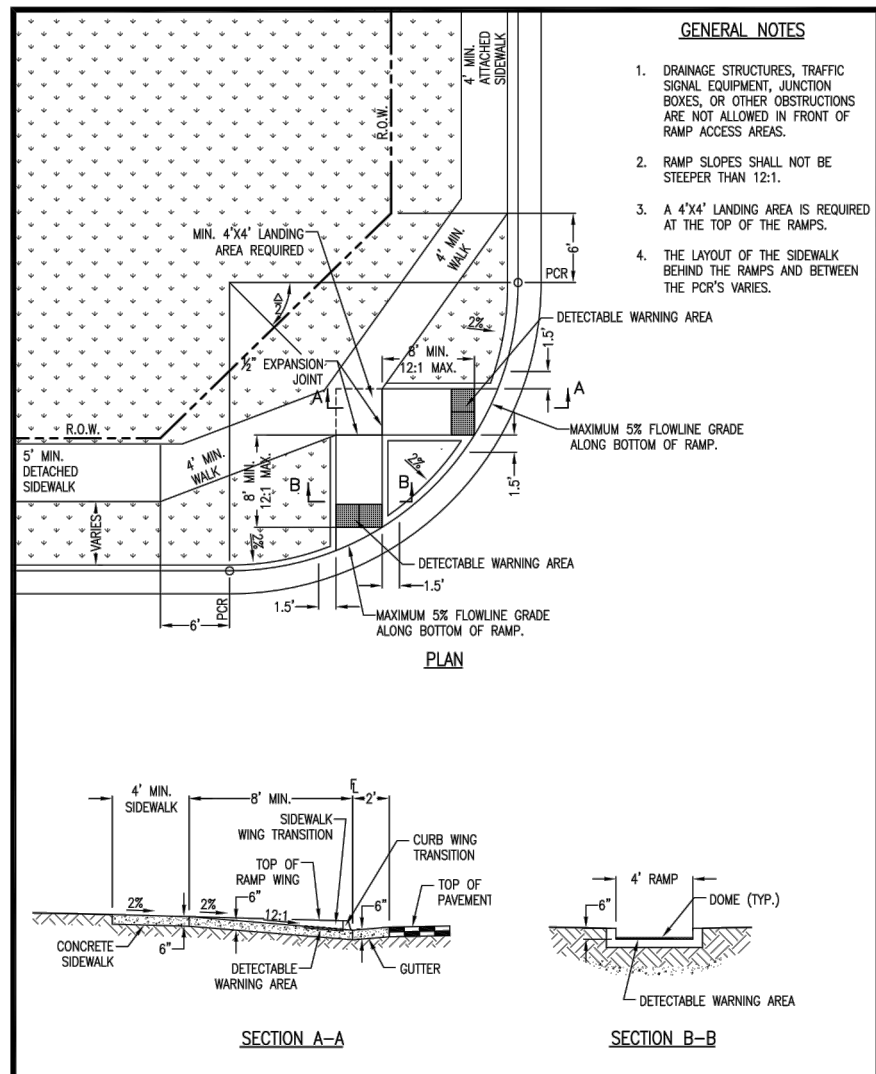


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M-608-1

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

Issued: 05/2013
Revised: _____
Drawing No. **SP.19a**

DOUGLAS COUNTY COLORADO

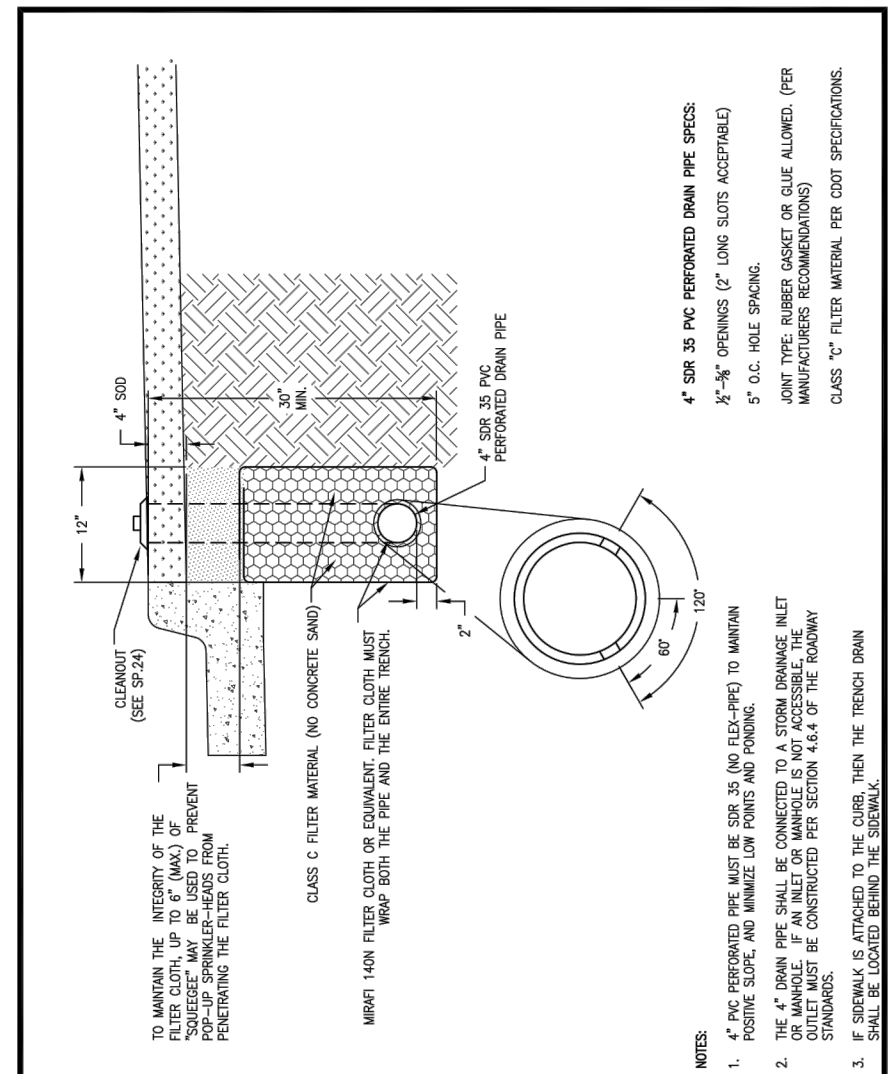


REFERENCE:

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

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

DOUGLAS COUNTY COLORADO



TRENCH DRAIN

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Drawing No. **SP.23a**

DOUGLAS COUNTY COLORADO

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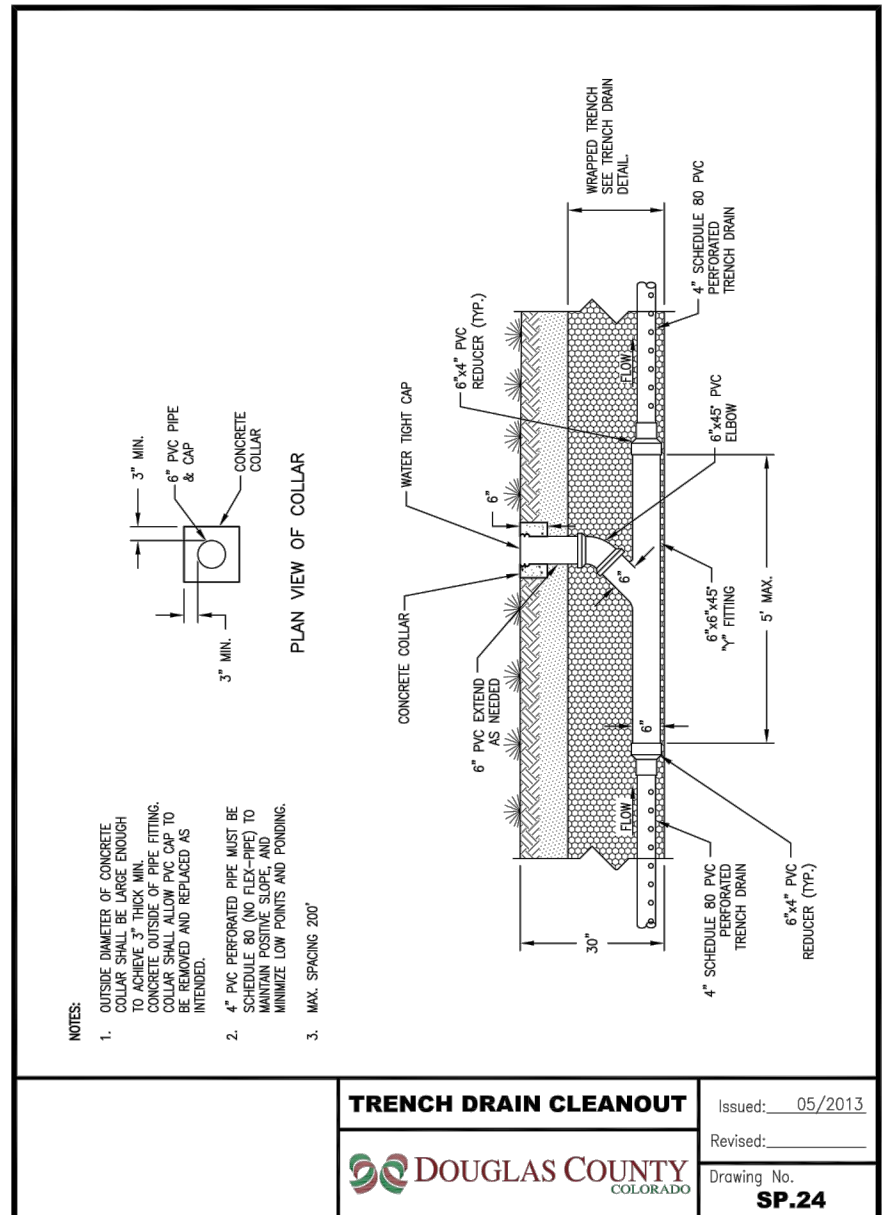
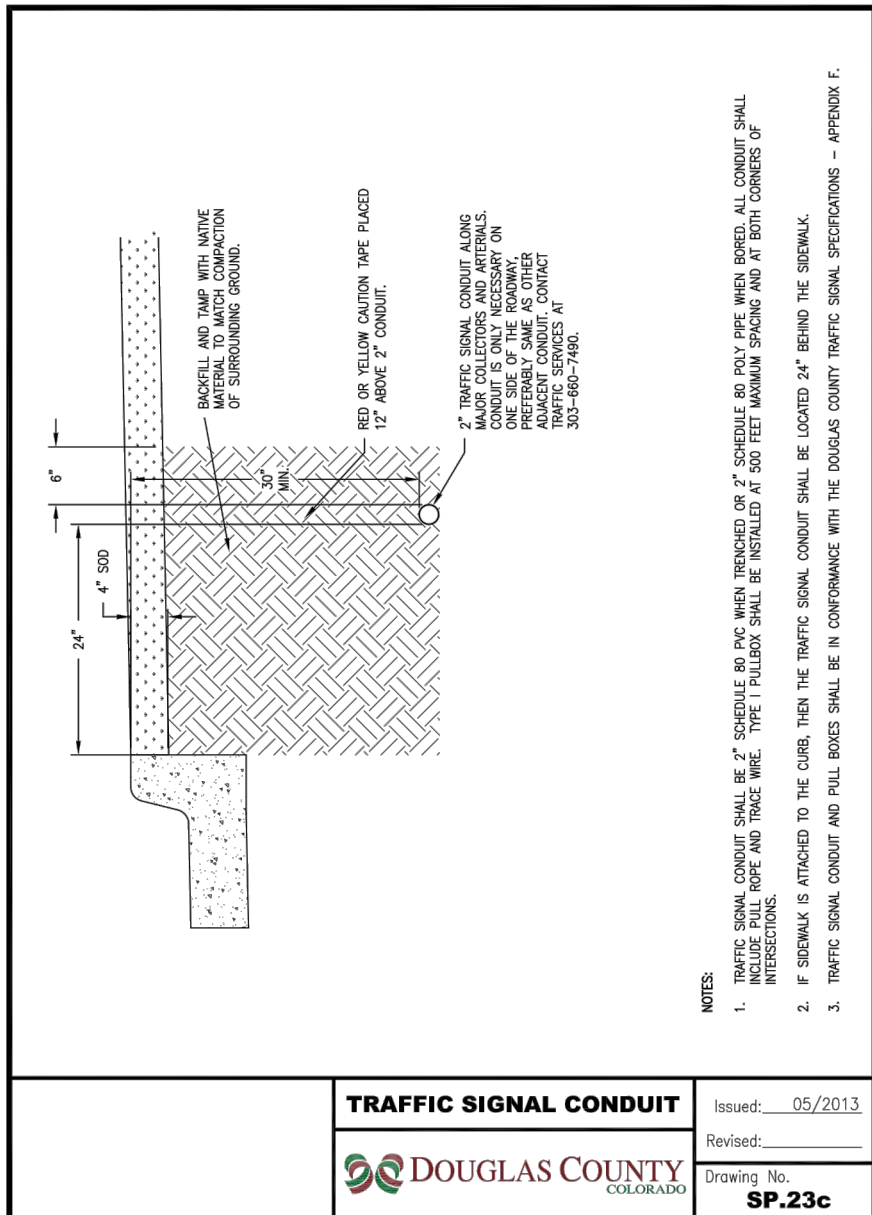
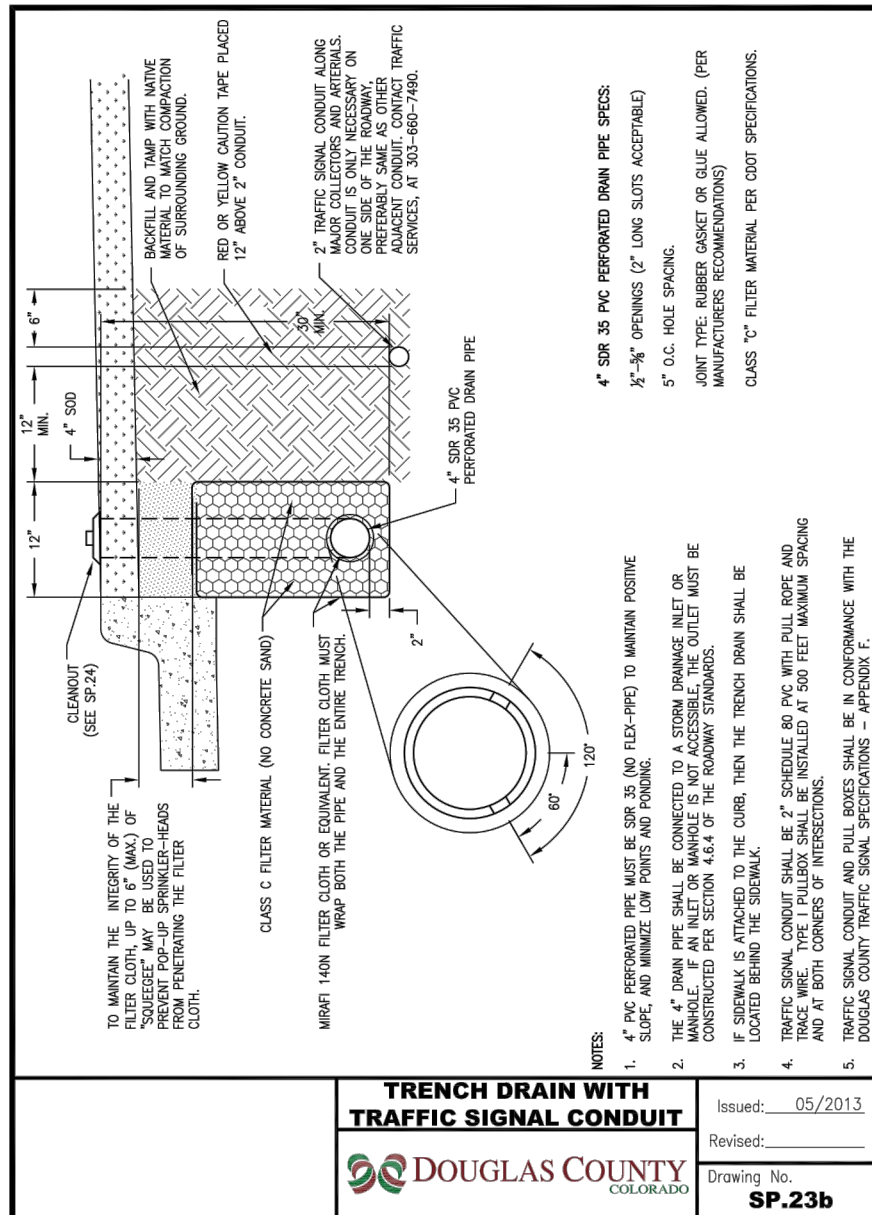
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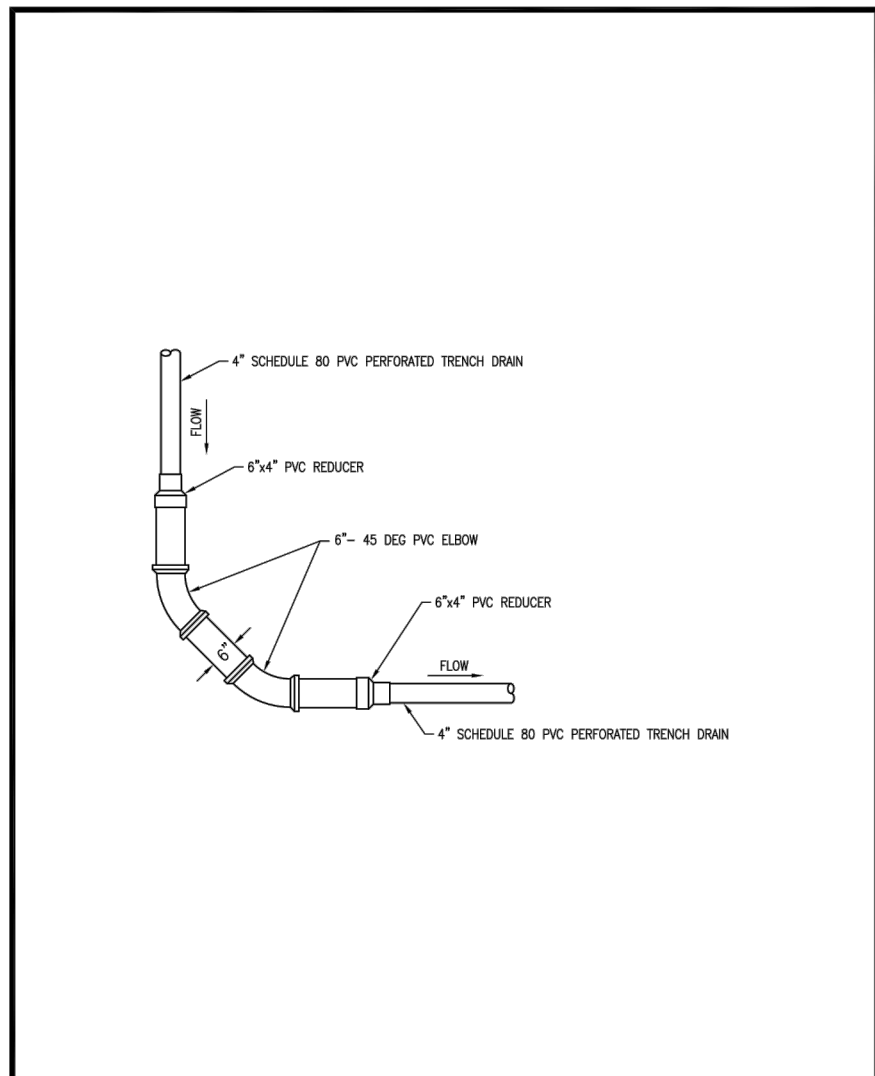
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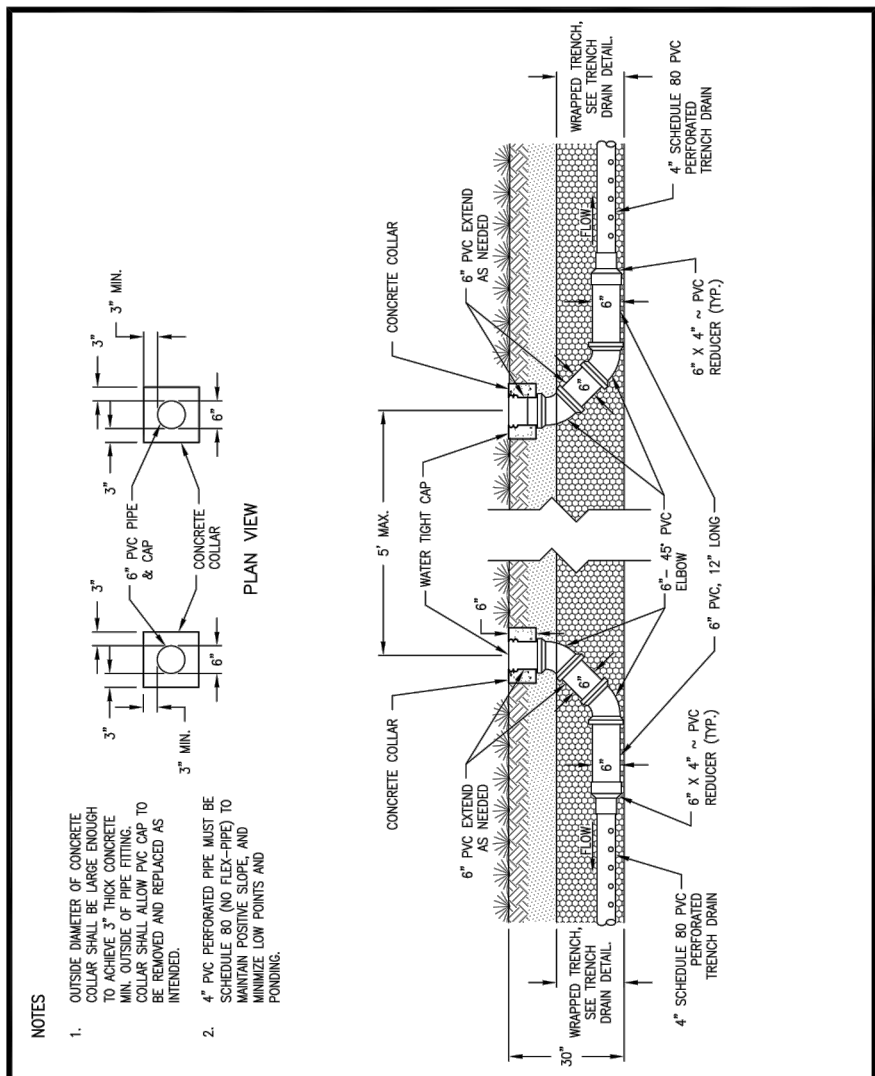
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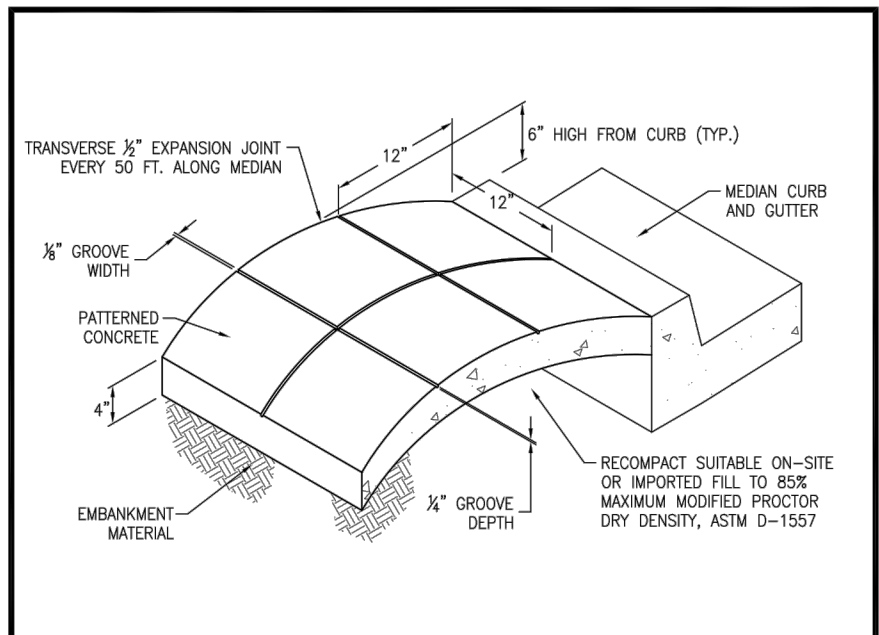
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TRENCH DRAIN 90° CORNER Issued: 05/2013
 Revised: _____
 Drawing No. **SP.25**



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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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.

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

GENERAL NOTES

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

PAVEMENT THICKNESS (T)	THE DIM SIZE	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

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

GENERAL NOTES

- THIS STANDARD PLAN DOES NOT APPLY TO THIN CONCRETE OVERLAYS (INTERLOCKING).
- LOCATE JOINTS AT A MINIMUM OF 2 FEET FROM A CURB.
- IN THE CONCRETE PAVED AREAS, JOINTS SHALL BE LOCATED AT THE END OF THE PAVED AREA UNLESS OTHERWISE INDICATED BY THE ENGINEER. IN THIS CASE, JOINTS SHALL BE CONSTRUCTED ONLY WHERE NECESSARY ON THE WORK OF THE CONTRACTOR.
- WHEREAS THE CONTRACTOR IS TO CONSTRUCT JOINTS WITHIN 40 FEET OF THE JOINT.
- IN ALL CONCRETE JOINTS, THE JOINT SEALANT SHALL BE PLACED IN 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

TYPICAL CONCRETE JOINT LAYOUT		Issued: 05/2013
DOUGLAS COUNTY COLORADO		Revised: _____
		Drawing No. SP.33a

Sheet Revisions		
Date	Comments	Initials



JOINT LEGEND

- EXPANSION CONTRACTION
- LONGITUDINAL CONTRACTION
- LONGITUDINAL CONTRACTION
- LONGITUDINAL CONTRACTION
- LONGITUDINAL CONTRACTION
- LONGITUDINAL 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, THE PROJECT HAS UNLIMITED LIABILITY FOR APPROVAL OF THE CHANGES. THE JOINT LAYOUT SHALL BE CONSTRUCTED ONLY WHERE INDICATED ON THE PLAN.
- TRANSVERSE JOINTS SHALL BE PLACED AT SPACINGS OF 40 FEET, THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNLINED JOINT.
- ON A LANE DIVIDED HIGHWAY, THE 2' LANE DIRECTIONAL PAVEMENT AND BOTH SHOULDERS SHALL BE PLACED AT SPACINGS OF 40 FEET.
- ON A ROAD WITH SHOULDERS, THE 2' FOOT OF 4' FOOT END OF ROAD WIDTH DIMENSION MAY BE INCREASED TO 4'.
- LONGITUDINAL JOINT LOCATIONS AT SPREAD CHANGES SHALL BE USED IF APPROVED.

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

TYPICAL CONCRETE JOINT LAYOUT

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

JOINT LEGEND

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

GENERAL NOTES

- THIS STANDARD DOES NOT APPLY TO THIN CONCRETE OVERLAY (INTERLOCKING).
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- 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, THE PROJECT HAS UNLIMITED LIABILITY FOR APPROVAL OF THE CHANGES. THE JOINT LAYOUT SHALL BE CONSTRUCTED ONLY WHERE INDICATED ON THE PLAN.
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TYPICAL CONCRETE JOINT LAYOUT

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

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

TYPICAL CONCRETE JOINT LAYOUT

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

JOINT LEGEND

- EXPANSION CONTRACTION
- LONGITUDINAL CONTRACTION
- LONGITUDINAL CONTRACTION
- LONGITUDINAL CONTRACTION
- LONGITUDINAL CONTRACTION
- LONGITUDINAL 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).
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TYPICAL CONCRETE JOINT LAYOUT

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

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

TYPICAL CONCRETE JOINT LAYOUT

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

Sheet Revisions		
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Void:	

PEORIA & BELFORD INTERSECTION ROADWAY DETAILS	
Designer:	DCS
Detailer:	JHH
Subset:	ROADWAY
Structure Numbers:	
Sheets:	RD-7 of 7

Project No./Code	
Sheet Number	24

IN PROGRESS

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Print Date: 5/13/2016 3:42:46 PM		<table border="1"> <thead> <tr> <th colspan="3">Sheet Revisions</th> </tr> <tr> <th>Date</th> <th>Comments</th> <th>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>			Sheet Revisions			Date	Comments	Initials										As Constructed		PEORIA & BELFORD INTERSECTION ROADWAY DATA		Project No./Code	
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Date	Comments	Initials																							
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 6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832						Designer: DCS Structure Detailer: JHH Numbers																			
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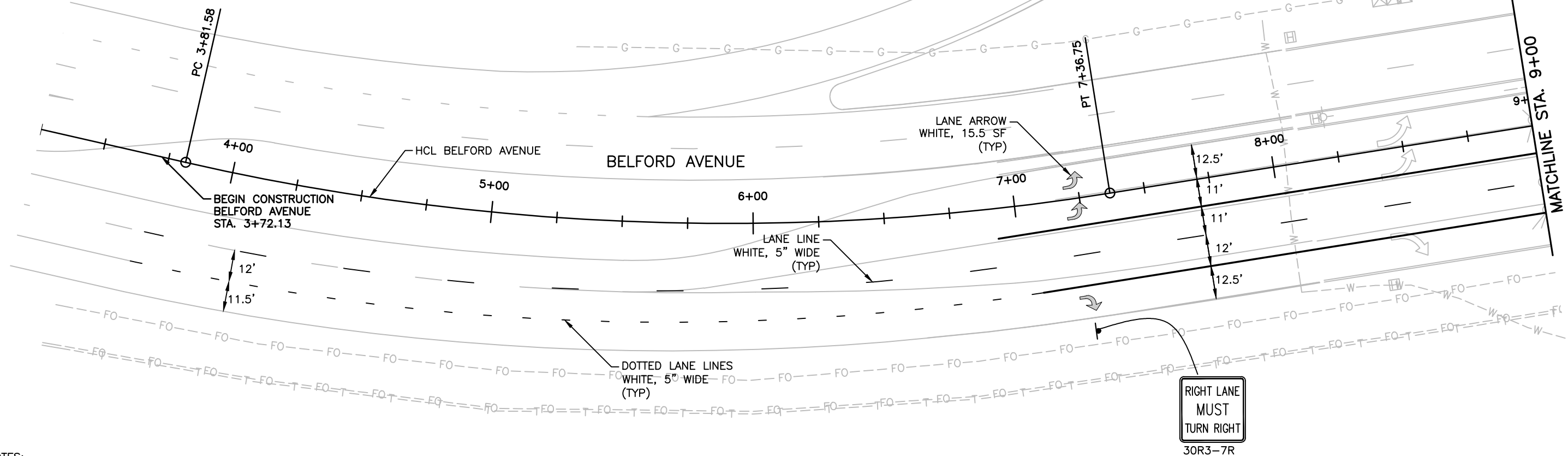
WORD AND SYMBOL NOTES

- LEFT TURN ARROW - 2x 15.5 SF
- RIGHT TURN ARROW - 1x 15.5 SF

PROPERTY OF
SHEA COLORADO LLC
6380 S FIDDLERS GREEN CIRCLE, STE 400
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

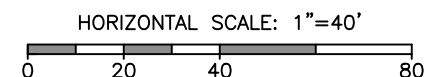


NOTES:

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. TEMPORARY CONSTRUCTION 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.
3. SEE ROADWAY DATA, 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)
- [Stippled Pattern] LIMITS OF CONCRETE PAVEMENT (9 INCH)
- [Solid Grey] LIMITS OF HOT MIX ASPHALT (6 INCH)



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No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: JHH		
Void:	Subset: ROADWAY	Sheets: PL-1 of 5	Sheet Number 26



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



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

NOTES:

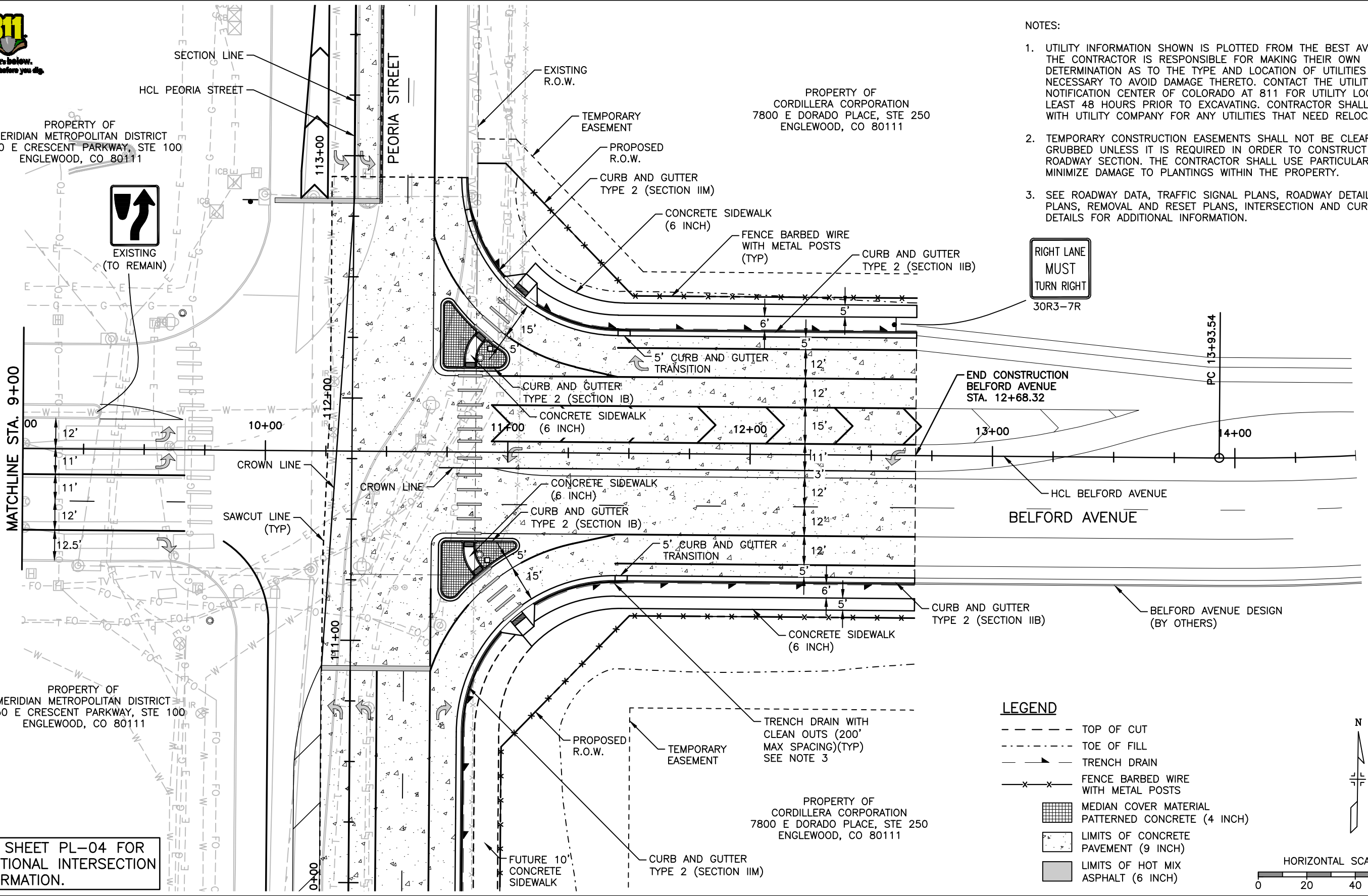
- UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS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

RIGHT LANE
MUST
TURN RIGHT
30R3-7R

MATCHLINE STA. 9+00

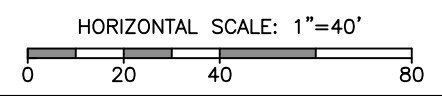
PROPERTY OF
MERIDIAN METROPOLITAN DISTRICT
8350 E CRESCENT PARKWAY, STE 100
ENGLEWOOD, CO 80111

SEE SHEET PL-04 FOR
ADDITIONAL INTERSECTION
INFORMATION.



LEGEND

- TOP OF CUT
- - - - - TOE OF FILL
- >- TRENCH DRAIN
- x-x- FENCE BARBED WIRE WITH METAL POSTS
- [Grid Pattern] MEDIAN COVER MATERIAL
- [Stippled Pattern] 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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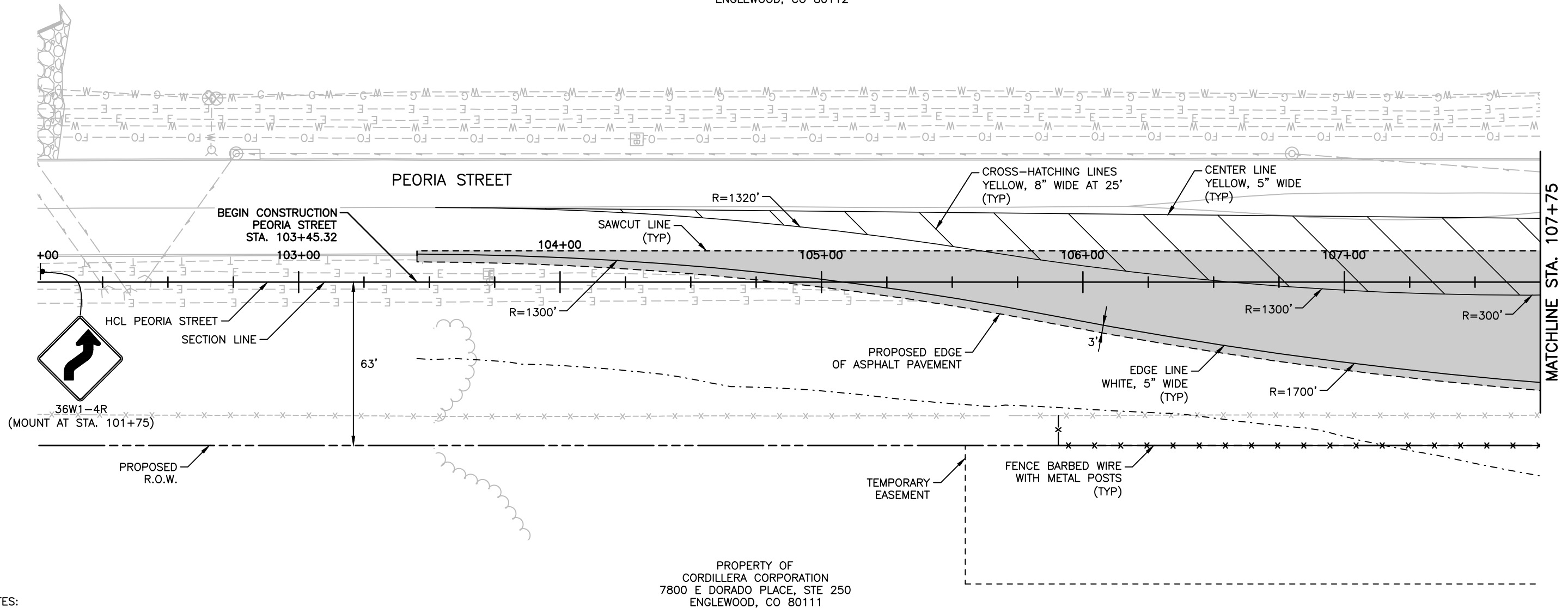
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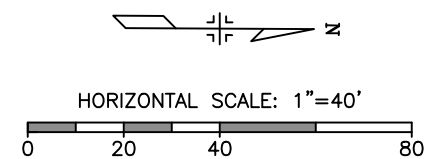
PROPERTY OF
WESTERN UNION COMPANY
12500 E BELFORD AVENUE
ENGLEWOOD, CO 80112



- NOTES:
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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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Sheet Revisions			
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No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: JHH		
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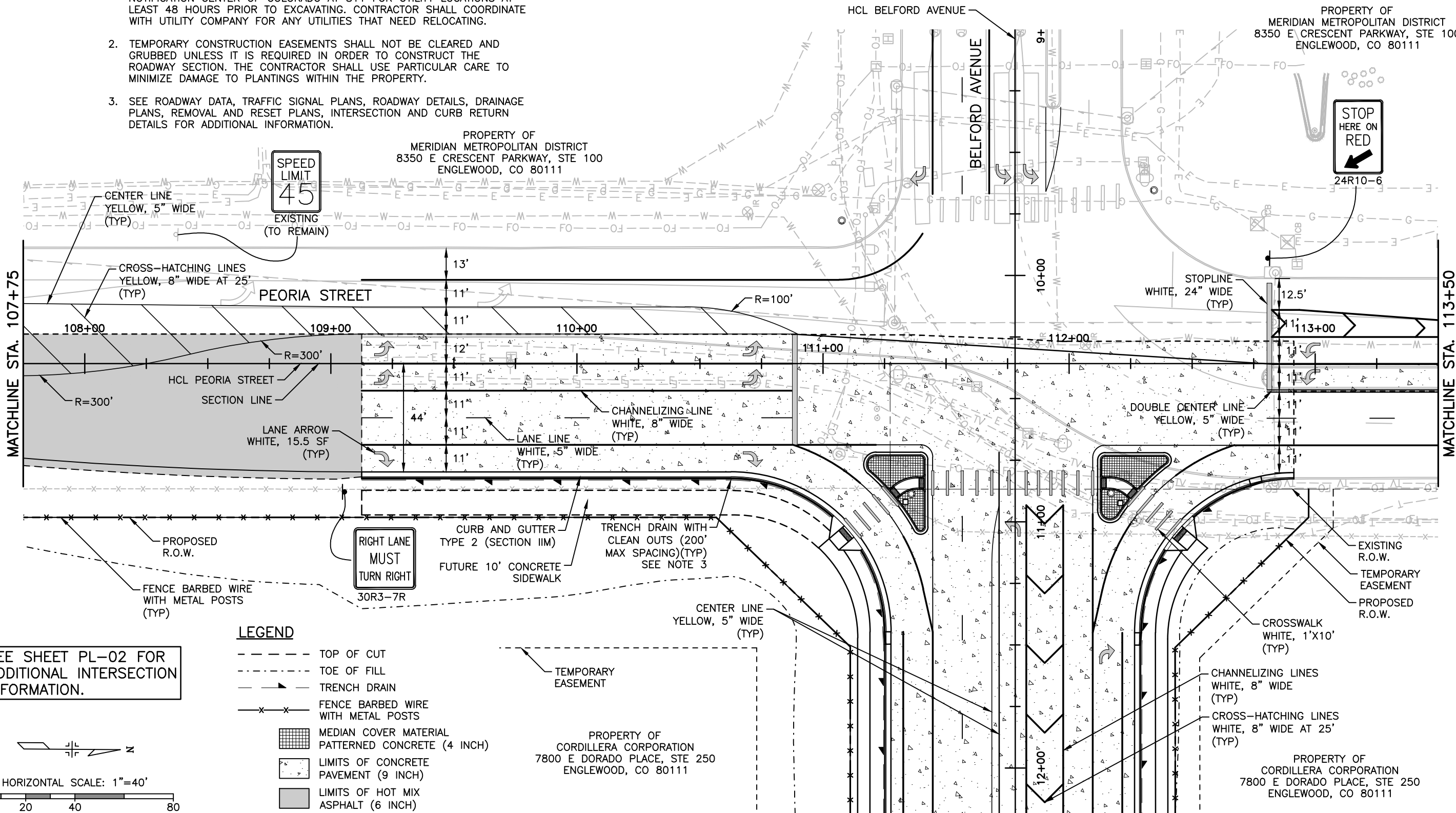


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- SEE ROADWAY DATA, TRAFFIC SIGNAL PLANS, ROADWAY DETAILS, DRAINAGE PLANS, REMOVAL AND RESET PLANS, INTERSECTION AND CURB RETURN DETAILS FOR ADDITIONAL INFORMATION.

WORD AND SYMBOL NOTES

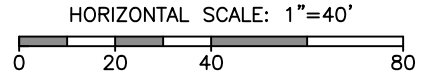
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- RIGHT TURN ARROW - 4x 15.5 SF



SEE SHEET PL-02 FOR ADDITIONAL INTERSECTION 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)
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- - - - - TEMPORARY EASEMENT



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No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: JHH		
Void:	Subset: ROADWAY	Sheets: PL-4 of 5	Sheet Number 29



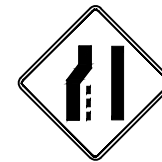
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ENGLEWOOD, CO 80111

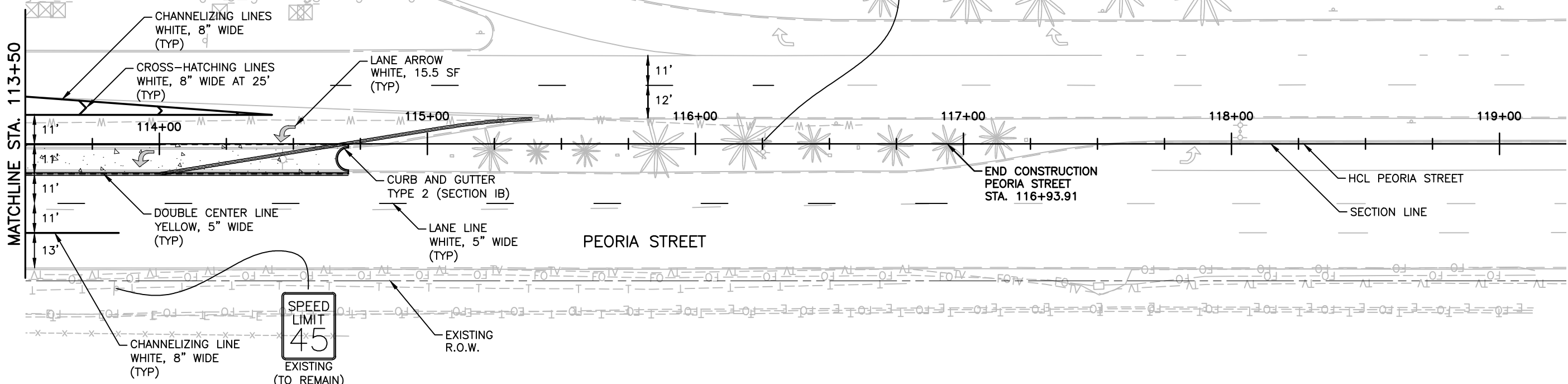
WORD AND SYMBOL NOTES

LEFT TURN ARROW - 2x 15.5 SF

PROPERTY OF
SHEA COLORADO LLC
6380 S FIDDLERS GREEN CIRCLE, STE 400
GREENWOOD VILLAGE, CO 80111



EXISTING
(TO REMAIN)



END CONSTRUCTION
PEORIA STREET
STA. 116+93.91

HCL PEORIA STREET
SECTION LINE

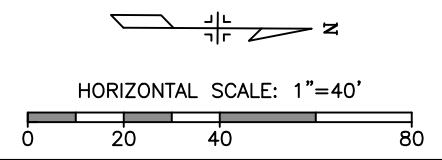
PEORIA STREET

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.
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 - SEE ROADWAY DATA, 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
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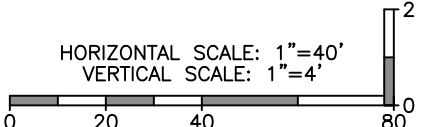
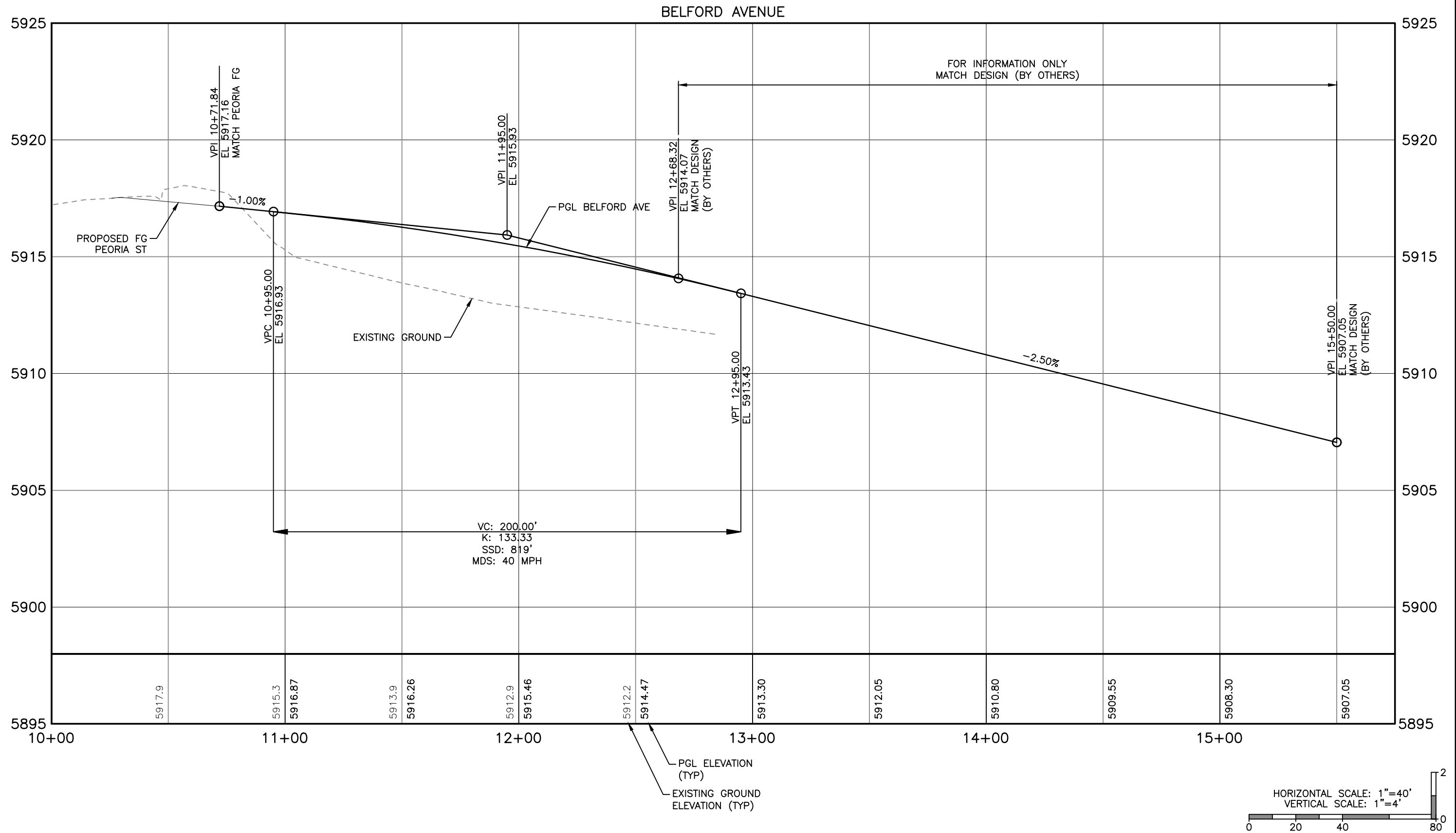
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No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: JHH		
Void:	Subset: ROADWAY	Sheets: PL-5 of 5	Sheet Number 30

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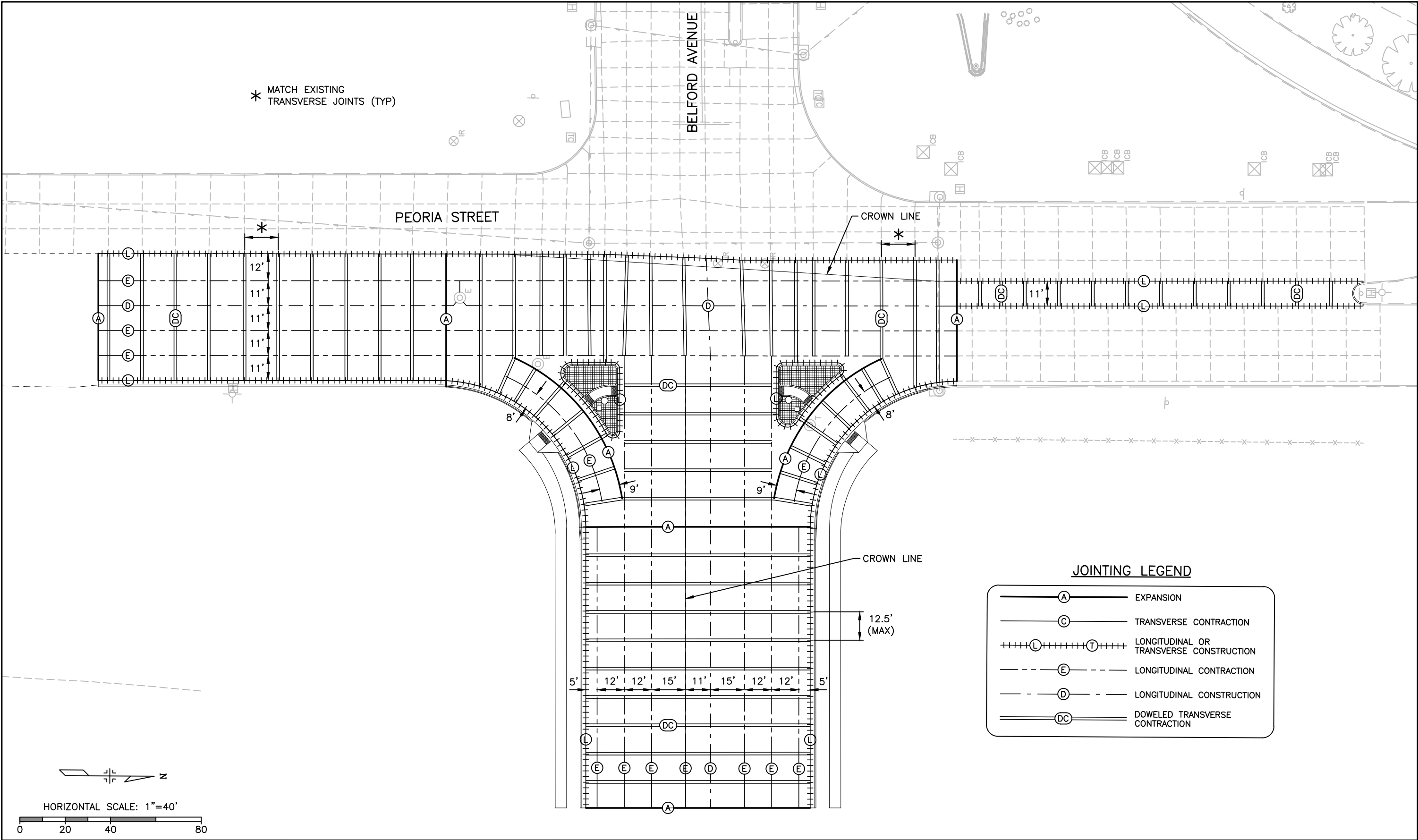


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No Revisions:	Designer: DCS	Structure Numbers	
Revised:	Detailer: JHH		
Void:	Subset: ROADWAY	Sheets: PR-1 of 1	Sheet Number 31



JOINTING LEGEND

A	EXPANSION
C	TRANSVERSE CONTRACTION
L T	LONGITUDINAL OR TRANSVERSE CONSTRUCTION
E	LONGITUDINAL CONTRACTION
D	LONGITUDINAL CONSTRUCTION
DC	DOWELED TRANSVERSE CONTRACTION

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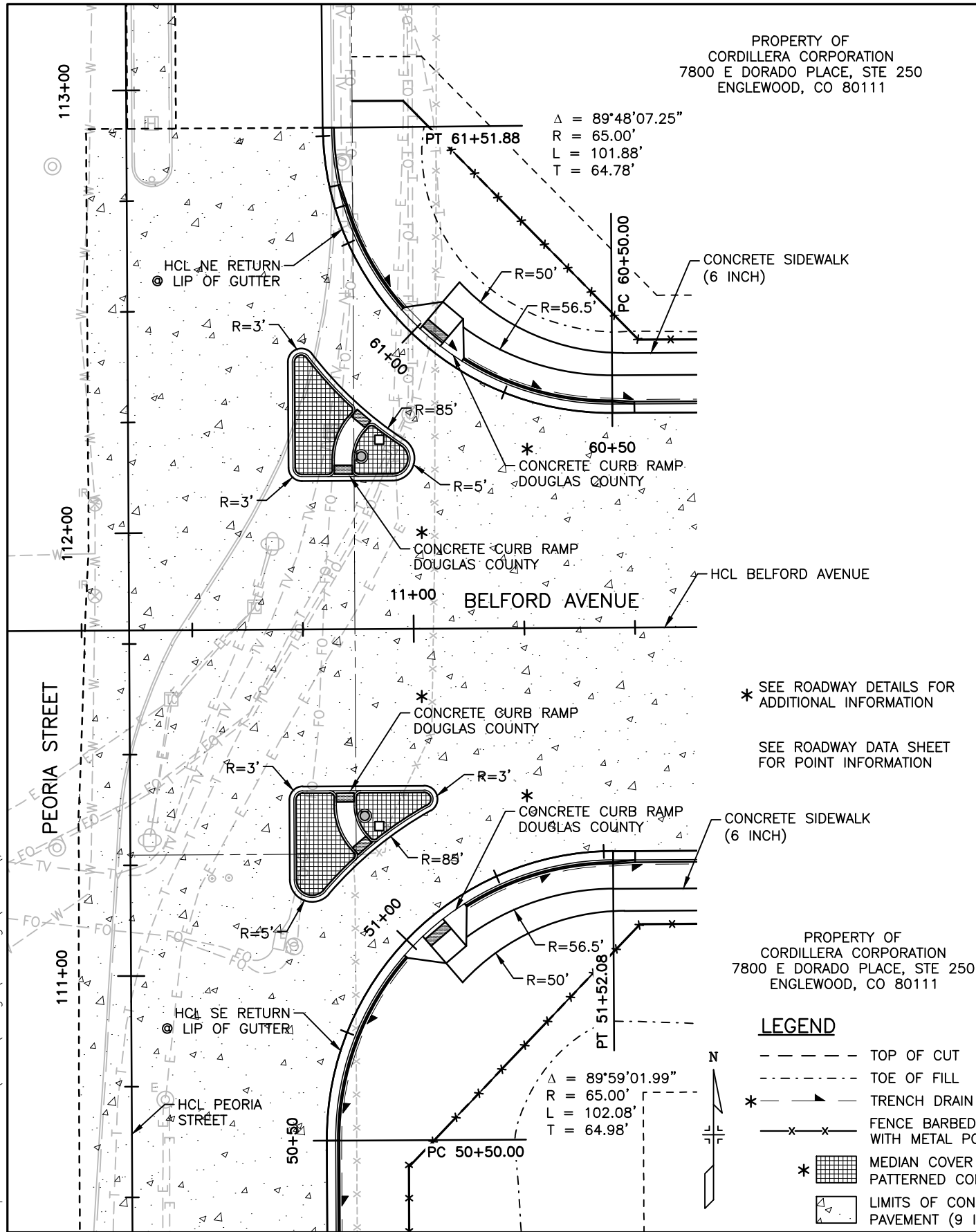
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PEORIA & BELFORD INTERSECTION CONCRETE JOINTING PLAN			
Designer:	DCS	Structure	
Detailer:	DCS	Numbers	
Subset:	ROADWAY	Sheets:	CJ-1 of 1

Project No./Code	
Sheet Number	32

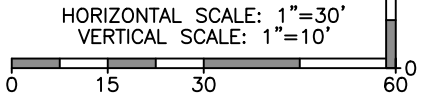
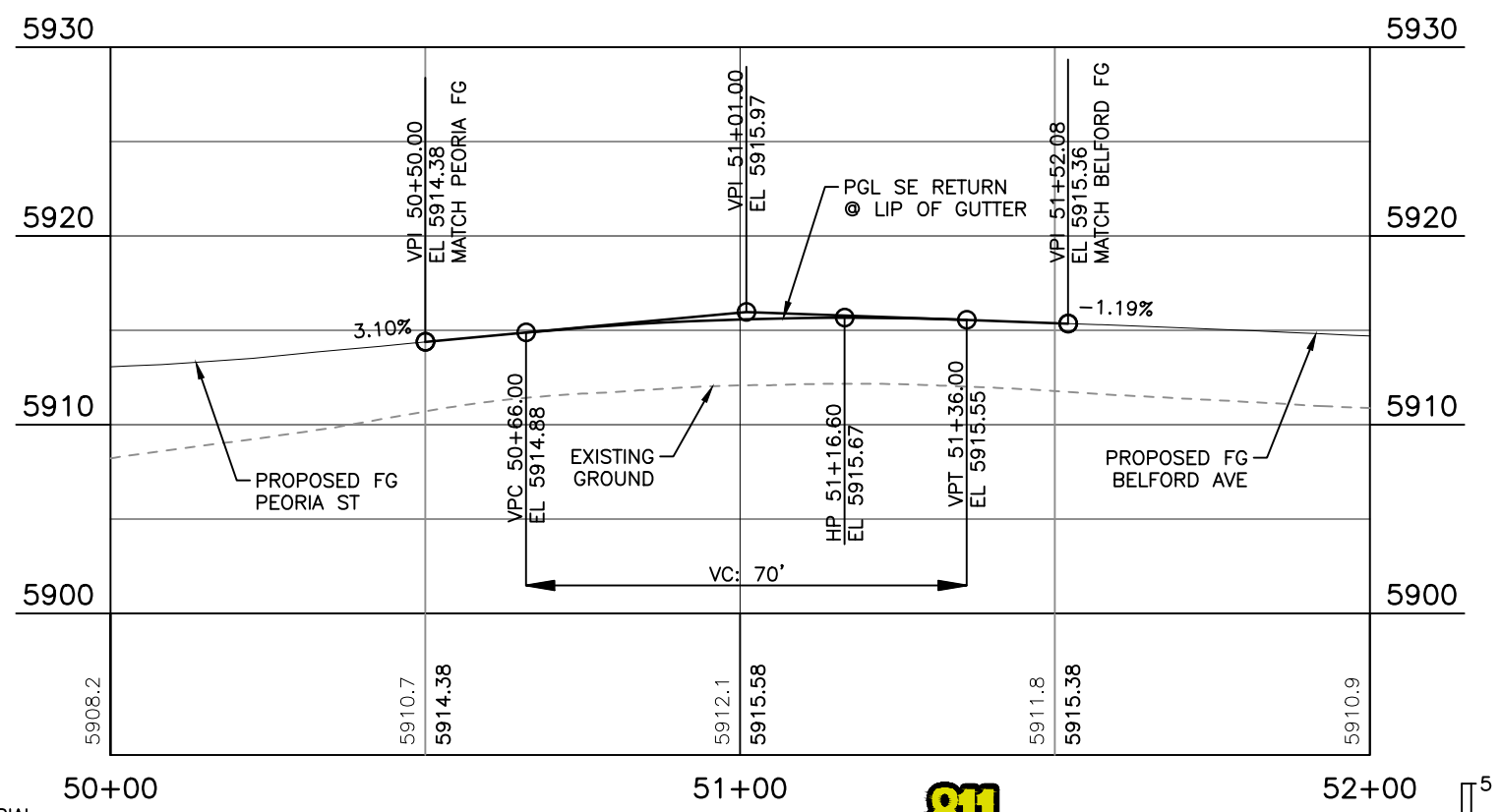
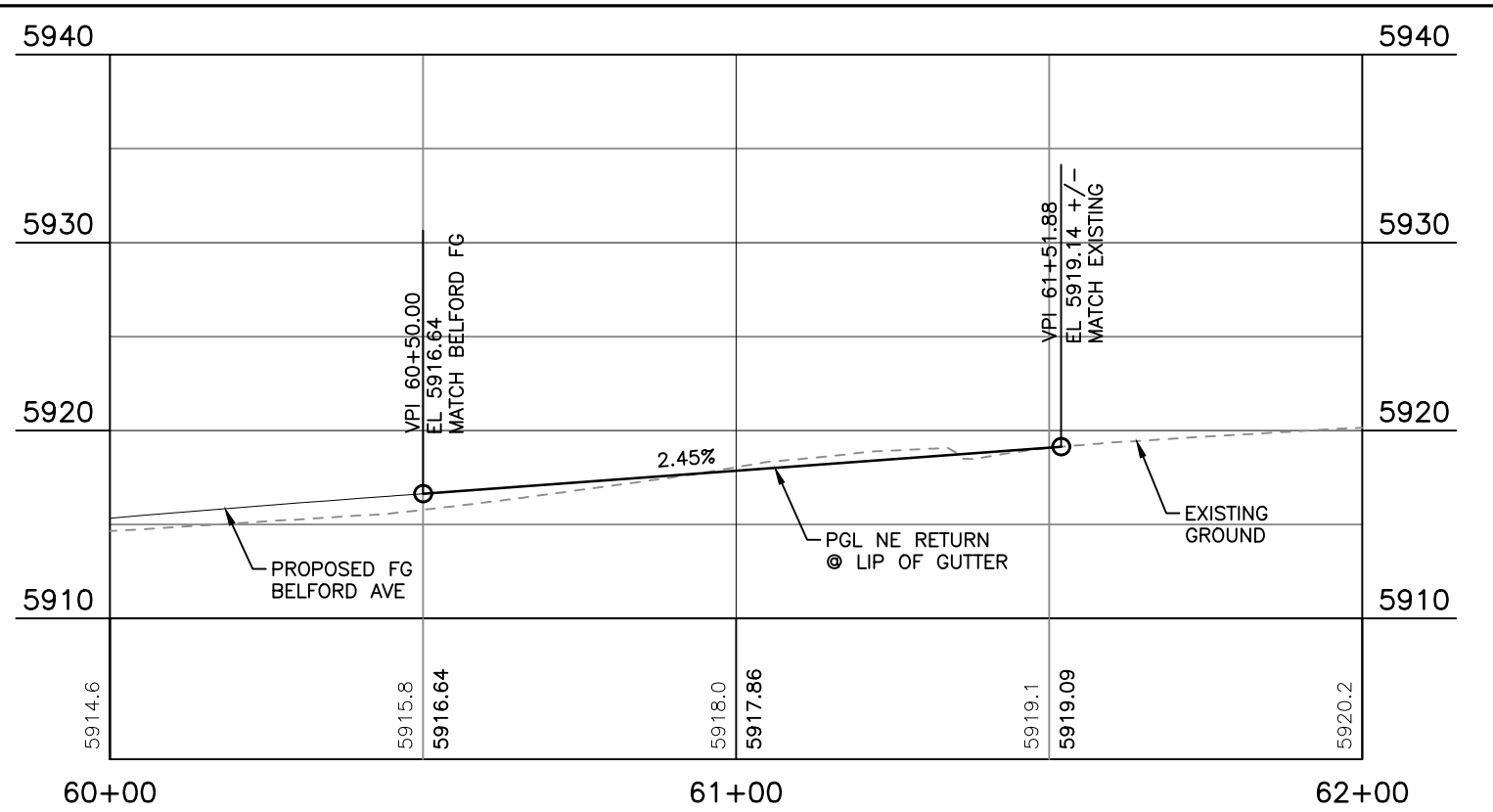
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* SEE ROADWAY DETAILS FOR
ADDITIONAL INFORMATION

SEE ROADWAY DATA SHEET
FOR POINT INFORMATION

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



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Horizontal Scale: 1"=30' Vertical Scale: 1"=10'

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Revised:	Detailer:	DCS	Numbers	
Void:	Subset:	ROADWAY	Sheets:	ID-1 of 1

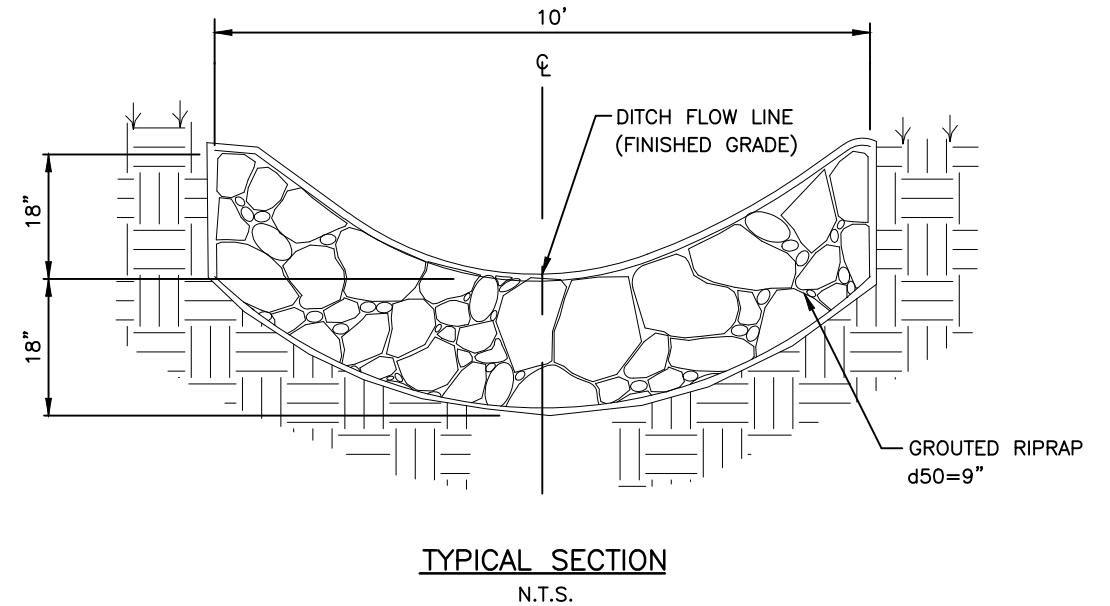
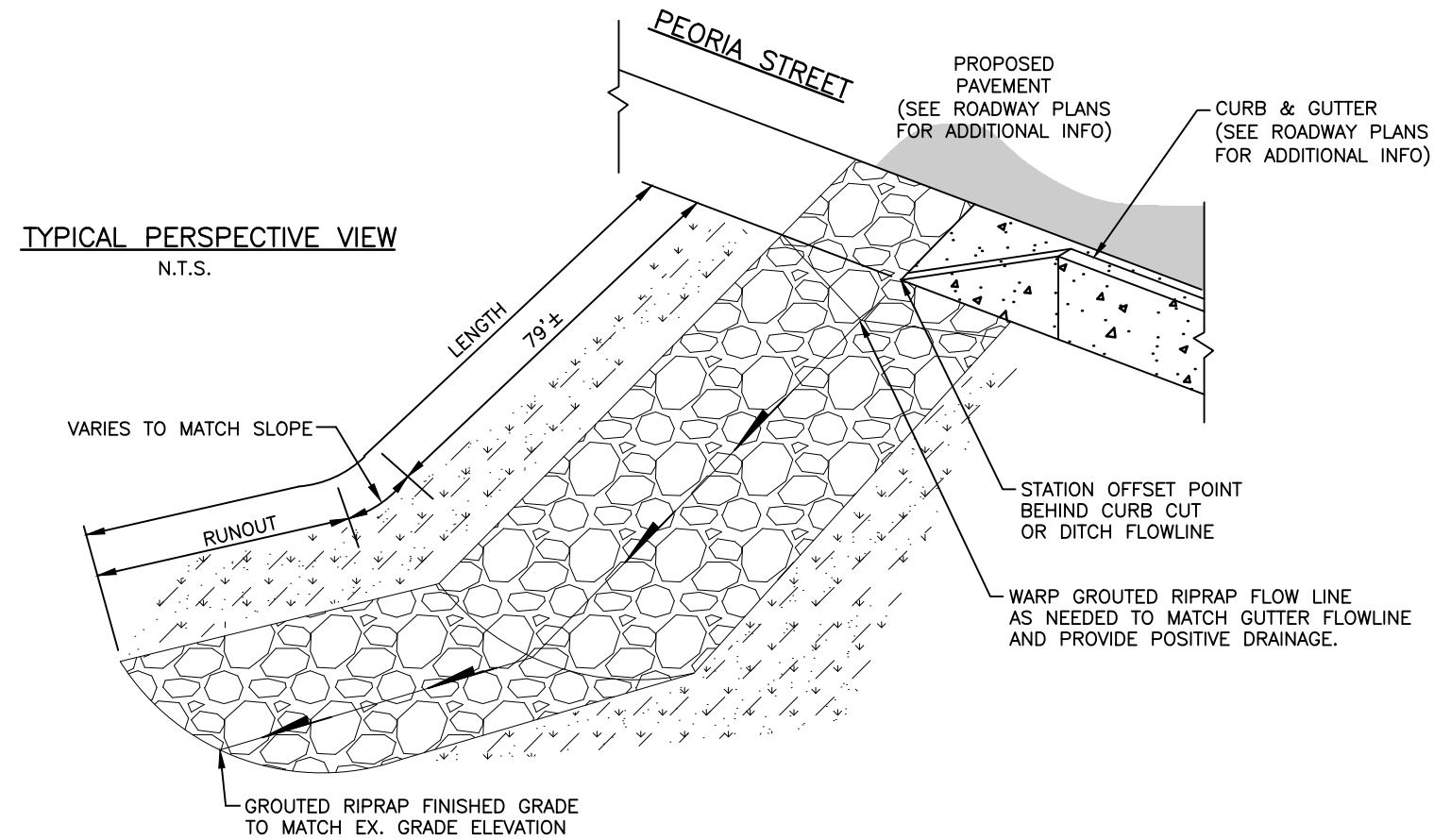
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IN PROGRESS

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Date	Comments	Initials																							
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 6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832				Designer: CDT Detailer: CDT		Structure Numbers																			
				Void:		Subset: DRAINAGE Sheets: DT-1 of 1		Sheet Number 34																	





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 TABULATION OF STORM SEWER SYSTEM 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.

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.

GROUDED RIPRAP DETAILS

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 Horizontal Scale: NTS Vertical Scale: NTS
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Date	Comments	Initials	



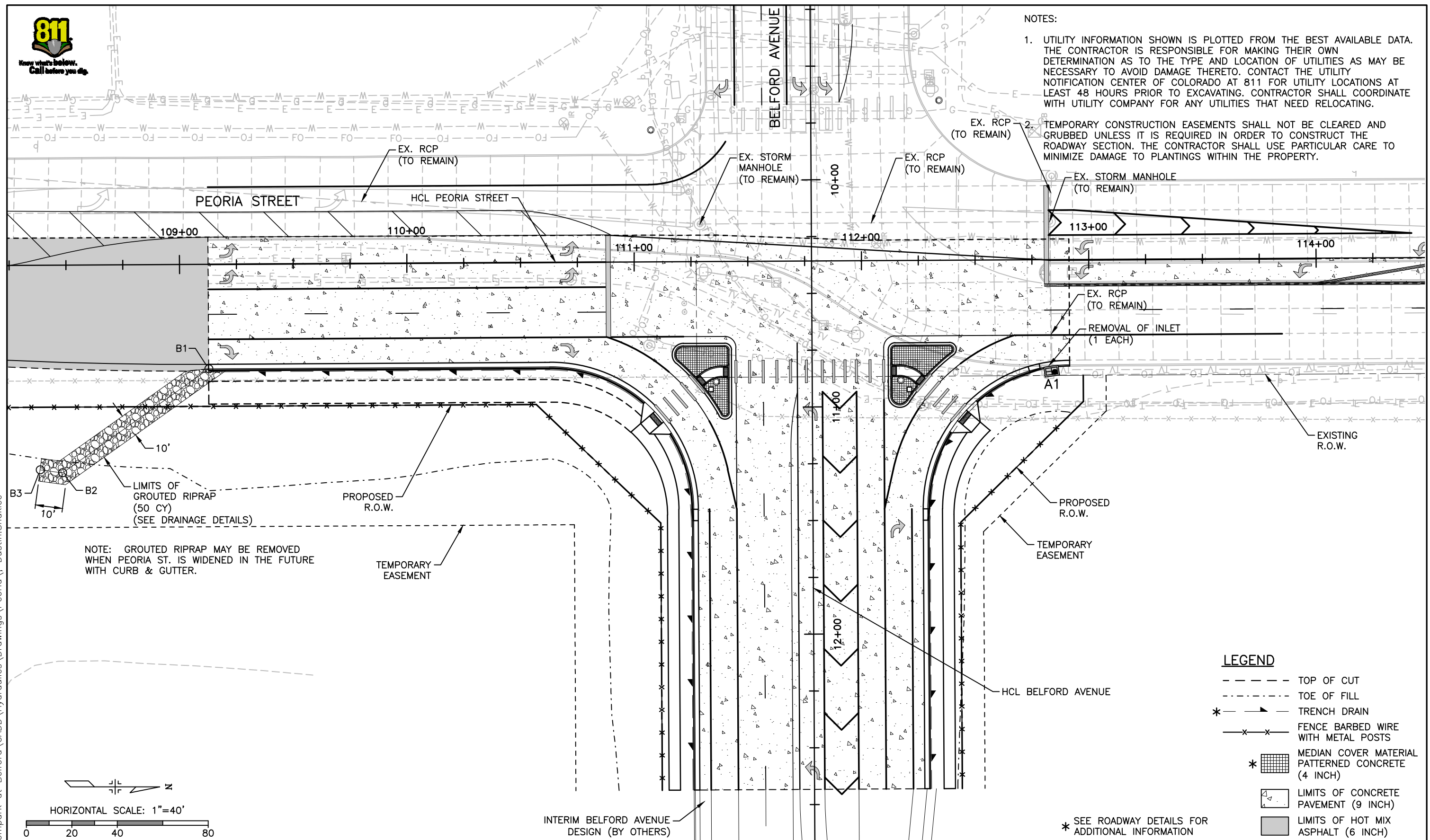
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No Revisions:	GROUDED RIPRAP RUNDOWN DETAIL		
Revised:	Designer: CDT	Structure Numbers	
	Detailer: KLT		
Void:	Subset: DRAINAGE	Sheets: DD-1 of 1	Sheet Number 35

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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.
- TEMPORARY CONSTRUCTION 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.

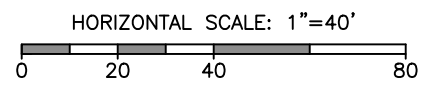


NOTE: GROUTED RIPRAP MAY BE REMOVED WHEN PEORIA ST. IS WIDENED IN THE FUTURE WITH CURB & GUTTER.

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)
- [Solid Grey] LIMITS OF HOT MIX ASPHALT (6 INCH)

* SEE ROADWAY DETAILS FOR ADDITIONAL INFORMATION



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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 **36**

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.

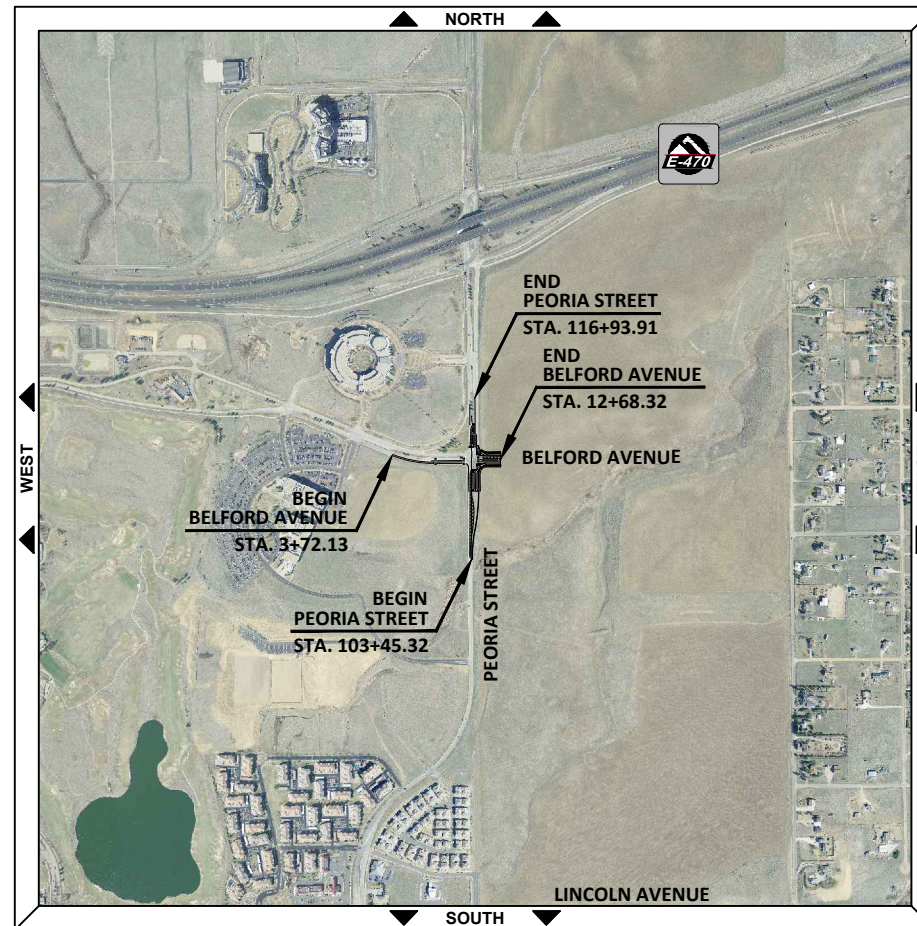
XXXX DATE P.E. NUMBER

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.

INDEX OF SHEETS

SHEET NO.	SUBSET SHEETS	DESCRIPTION
37	EL-1	GESC TITLE SHEET
38	ET-1	* TABULATION OF EROSION CONTROL QUANTITIES
39	EI-1	INITIAL GRADING AND EROSION CONTROL PLAN
40	EN-1	INTERIM GRADING AND EROSION CONTROL PLAN
41	EF-1	FINAL GRADING AND EROSION CONTROL PLAN
42 - 55	1 TO 14	GESC PLAN STANDARD NOTES AND DETAILS

* SHEETS TO BE COMPLETED POST F.O.R. SUBMITTAL

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: 5/13/2016 3:52:13 PM	<p>8008 E. Arapaho Court, Suite 110, Centennial, CO 80112 ph: 303.708.0800 fax: 303.708.0400 manhard.com Civil Engineers • Surveyors • Water Resources Engineers • Water & Wastewater Engineers Construction Managers • Environmental Scientists • Landscape Architects • Planners</p>	As Constructed	PEORIA & BELFORD INTERSECTION GESC TITLE SHEET		Project No./Code												
File Name: E115360-01TTL01.dwg		No Revisions:	Designer:	CDT	Structure												
Horizontal Scale: NTS Vertical Scale: NTS		Revised:	Detailer:	KLT	Numbers												
<p>6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832</p>	<table border="1"> <thead> <tr> <th>Date</th> <th>Comments</th> <th>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>	Date	Comments	Initials										Void:	Subset: EROSION	Sheets: EL-1 of 1	Sheet Number 37
Date	Comments	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	EACH	EACH
INITIAL (EI-1)		1	2						670			1155	230	62
INTERIM (EN-1)														12
FINAL (EF-1)					1.5	1.5								
PROJECT TOTALS	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 (XX HRS). AN EROSION CONTROL SUPERVISOR WILL BE REQUIRED FOR THIS PROJECT AND SHALL BE PAID FOR AS 208 EROSION CONTROL SUPERVISOR (XX DAYS).

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 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 38	



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

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

BEGIN CONSTRUCTION PEORIA STREET
STA. 103+45.32

HCL PEORIA STREET

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

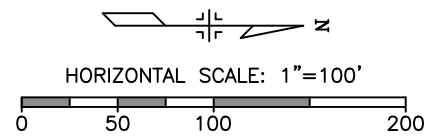
PROPERTY OF CORDILLERA CORPORATION
7800 E DORADO PLACE, STE 250
ENGLEWOOD, CO 80111

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

SEE GESC PLANS BY OTHERS

LEGEND

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



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As Constructed	PEORIA & BELFORD INTERSECTION GRADING & EROSION CONTROL PLAN		Project No./Code
No Revisions:	INITIAL		
Revised:	Designer: CDT	Structure Numbers	
Void:	Detailer: KLT		
	Subset: EROSION	Sheets: El-1 of 1	Sheet Number 39

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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
	WW 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.
 - TEMPORARY CONSTRUCTION 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.
 - 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.

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

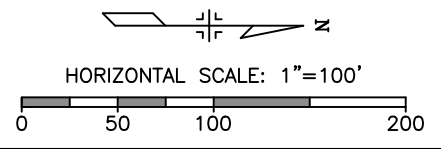
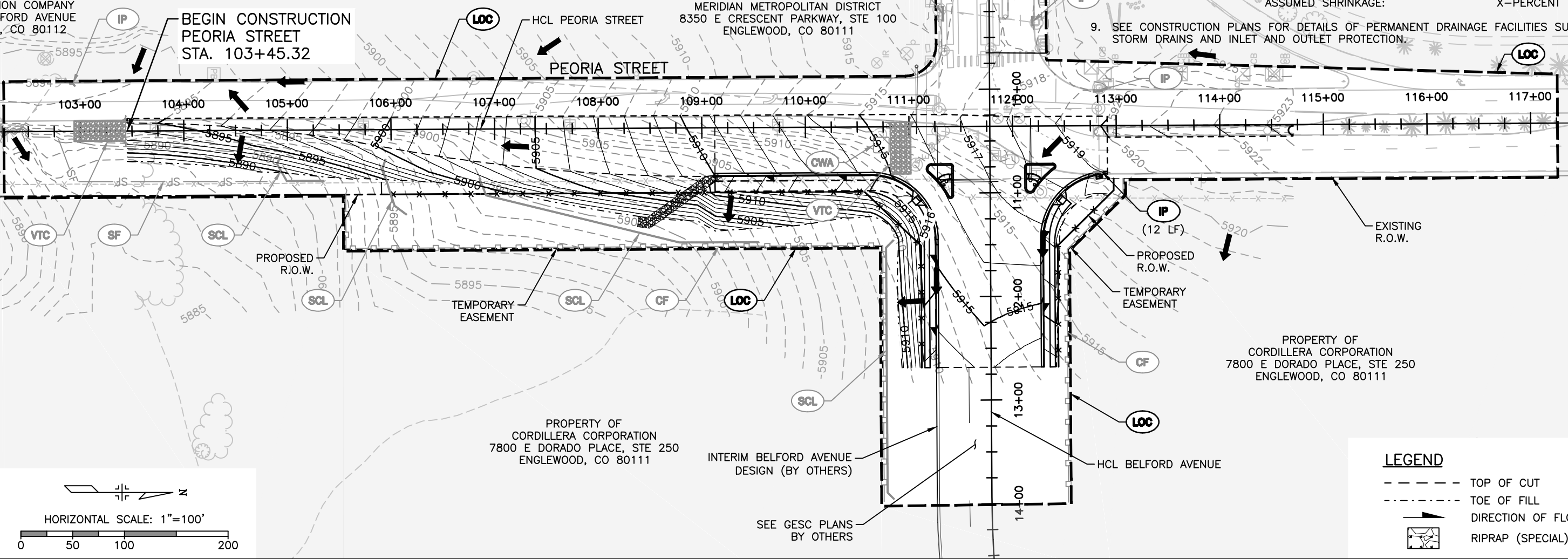
PROPERTY OF
MERIDIAN METROPOLITAN DISTRICT
8350 E CRESCENT PARKWAY, STE 100
ENGLEWOOD, CO 80111

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

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INTERIM BELFORD AVENUE
DESIGN (BY OTHERS)

SEE GESC PLANS
BY OTHERS



LEGEND

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

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 fax 303.721.0832

Sheet Revisions			
Date	Comments	Initials	



As Constructed		PEORIA & BELFORD INTERSECTION GRADING & EROSION CONTROL PLAN INTERIM		Project No./Code
No Revisions:		Designer:	CDT	
Revised:		Detailer:	KLT	
Void:		Subset:	EROSION	
		Structure Numbers:		Sheet Number 40
		Sheets:	EN-1 of 1	

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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
	WW VTC WITH WHEEL WASH
	LOC LIMITS OF CONSTRUCTION

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ASSUMED SHRINKAGE:	X-PERCENT
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 - ALL FINISHED GRADE SLOPES ARE 4:1 OR FLATTER.

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12500 E BELFORD AVENUE
ENGLEWOOD, CO 80112

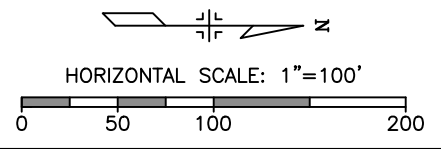
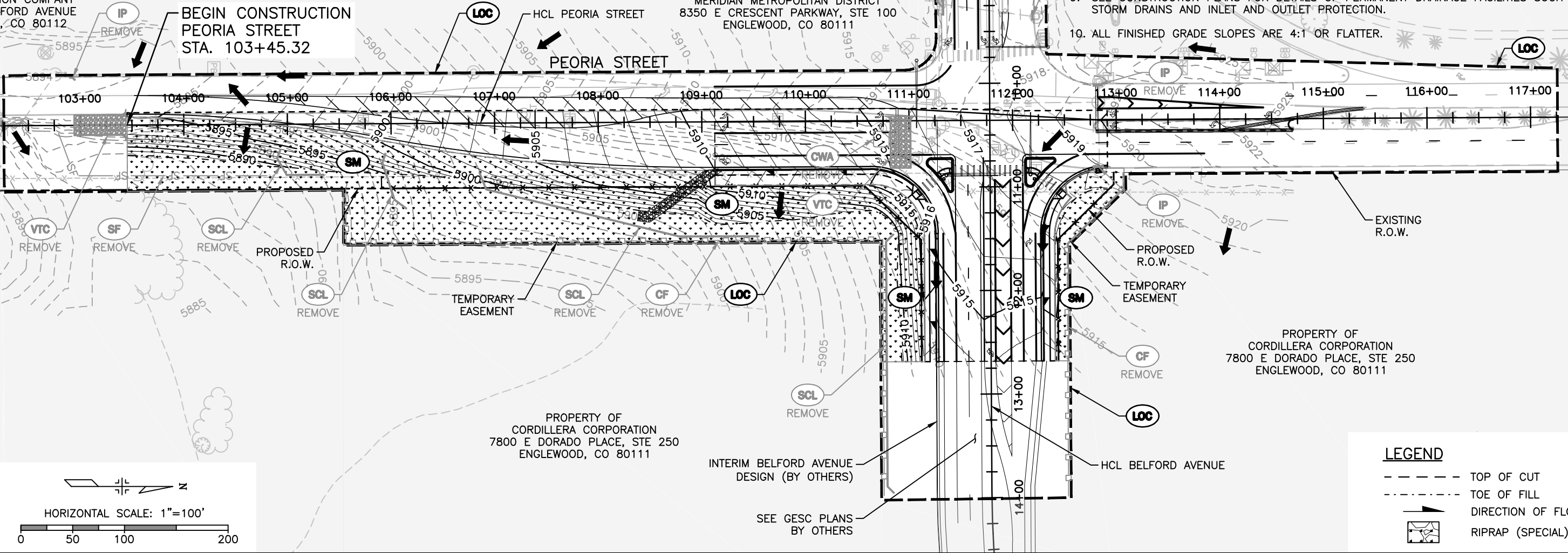
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INTERIM BELFORD AVENUE
DESIGN (BY OTHERS)

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LEGEND

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

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 File Name: E115360-01FIN-PLN01.dwg
 Horizontal Scale: 1"=100' Vertical Scale: NTS

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Sheet Revisions			
Date	Comments	Initials	

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 Civil Engineers • Surveyors • Water Resources Engineers • Water & Wastewater Engineers
 Construction Managers • Environmental Scientists • Landscape Architects • Planners

As Constructed		PEORIA & BELFORD INTERSECTION GRADING & EROSION CONTROL PLAN FINAL		Project No./Code
No Revisions:		Designer:	CDT	
Revised:		Detailer:	KLT	
Void:		Subset:	EROSION	
		Structure Numbers:		
		Sheets:	EF-1 of 1	Sheet Number 41

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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 PERMITEE 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 PERMITEE 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 PERMITEE'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 PERMITEE(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 SEEDED 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 PERMITEE 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 SEEDED 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 SEEDED 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.
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2	2
3	2
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	14

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

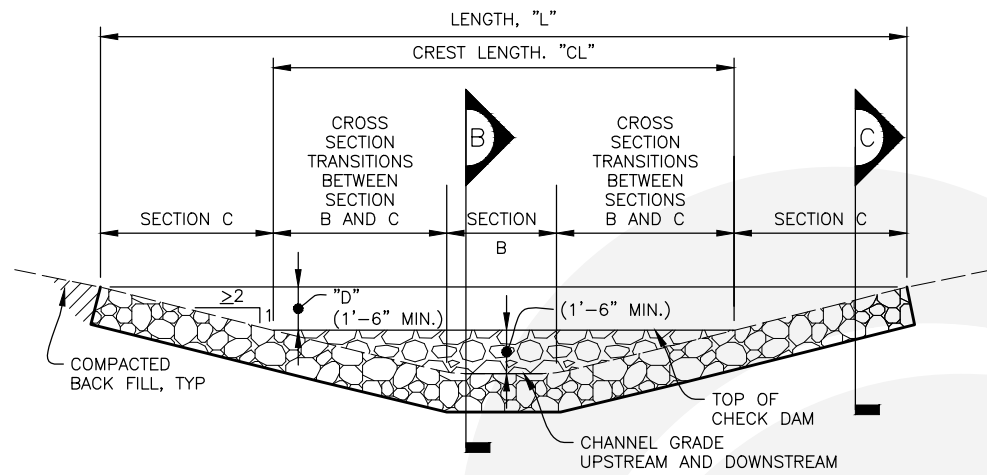
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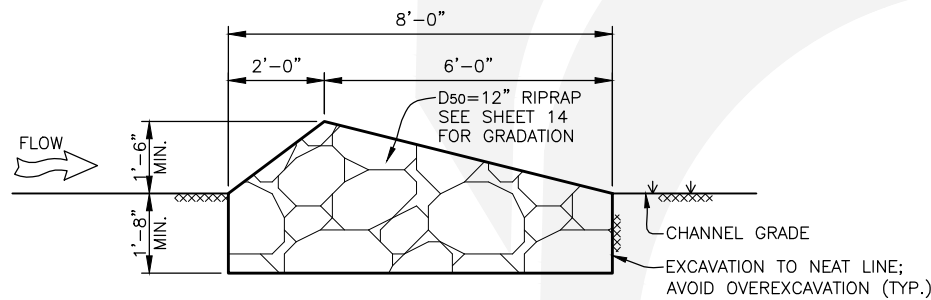
GESC GRADING, EROSION, AND SEDIMENT CONTROL

GESC PLAN STANDARD NOTES AND DETAILS

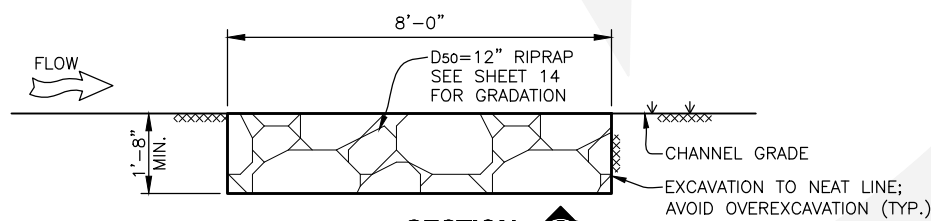
SHEET 1 OF 14



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

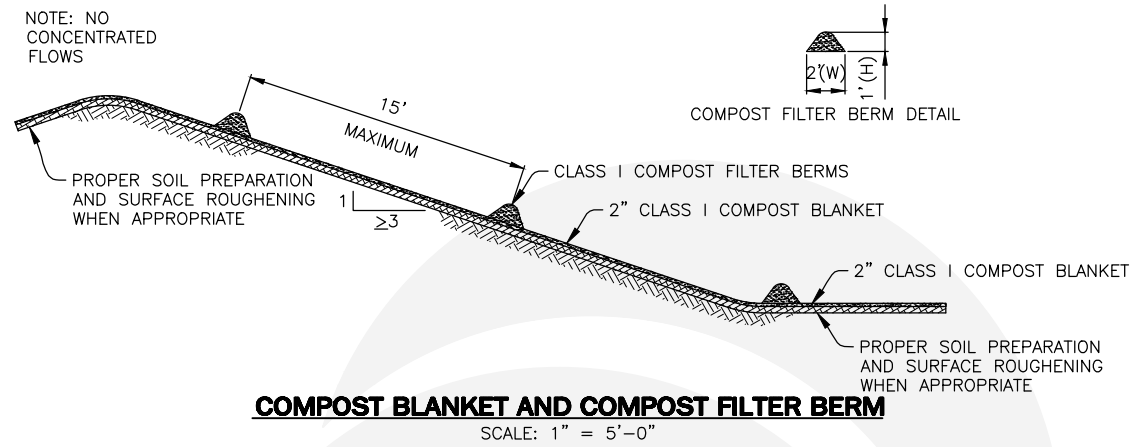
1

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
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: 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

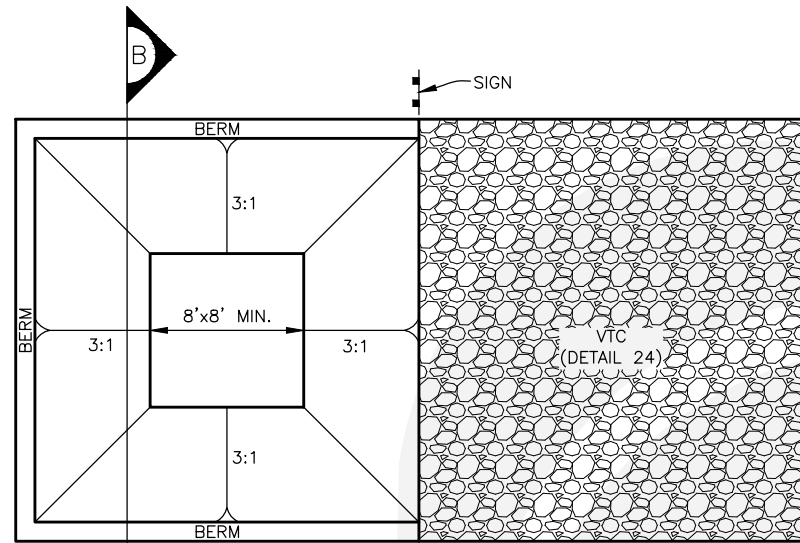
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



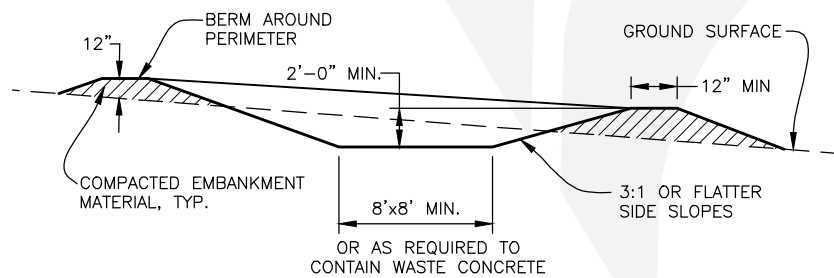
GESC GRADING, EROSION, AND SEDIMENT CONTROL

GESC PLAN STANDARD NOTES AND DETAILS

SHEET 2 OF 14



PLAN
SCALE: 1" = 5'-0"



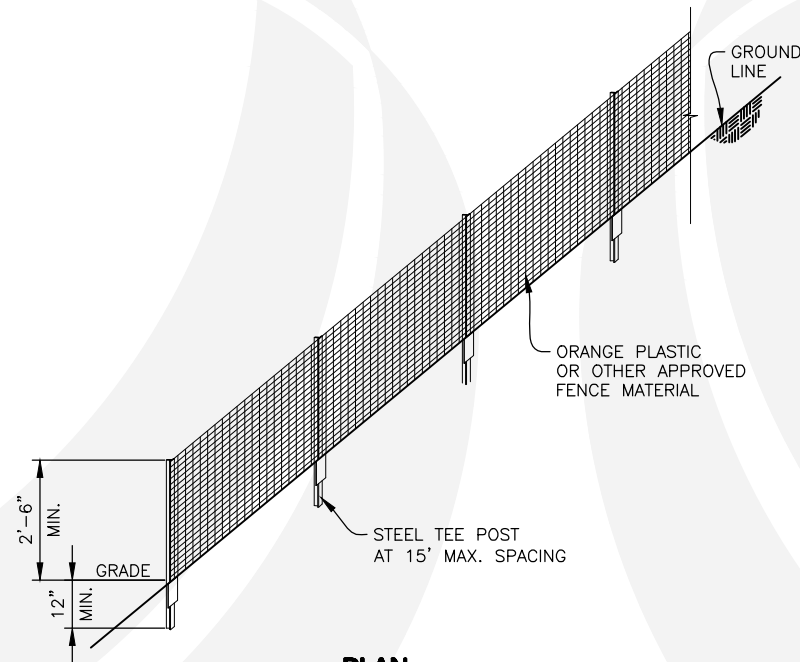
SECTION B
SCALE: 1" = 5'-0"

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.



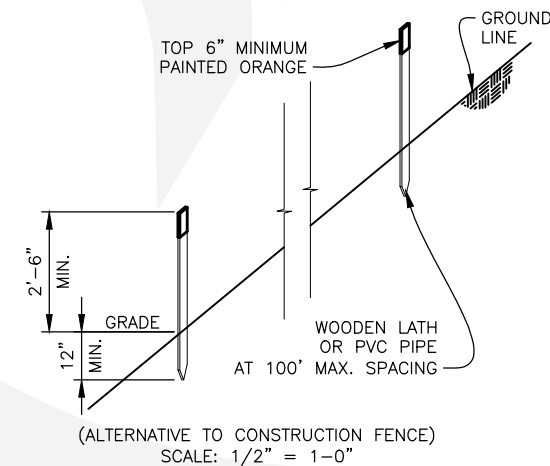
PLAN
SCALE: 1/2" = 1'-0"

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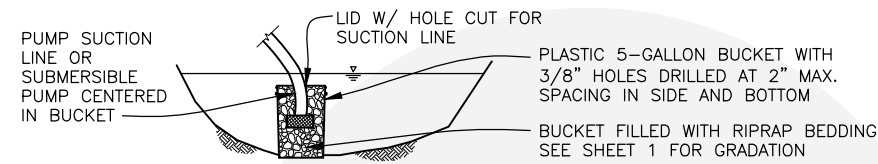
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



GESC GRADING, EROSION, AND SEDIMENT CONTROL

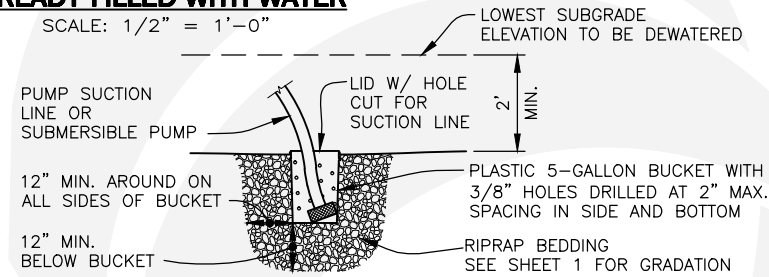
GESC PLAN
STANDARD NOTES
AND DETAILS

SHEET
3 OF 14



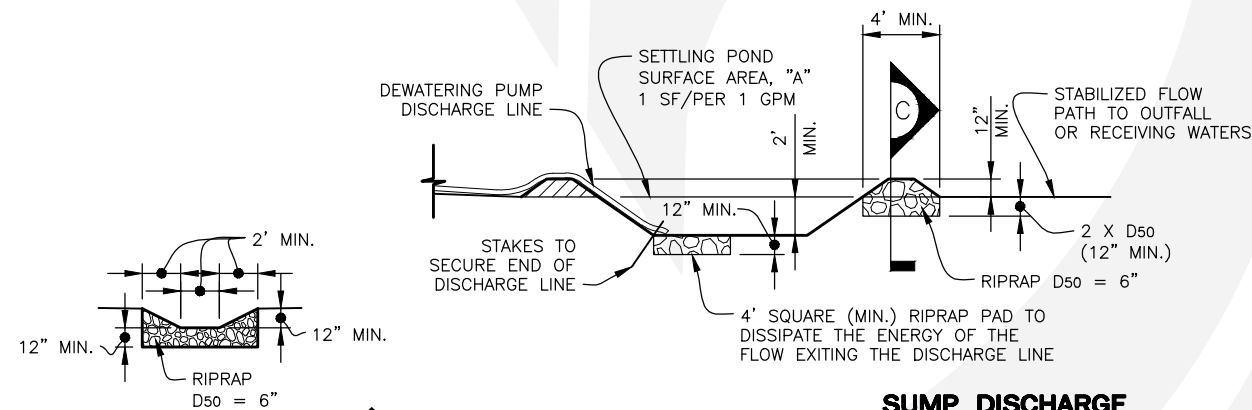
ALTERNATIVE FOR DRAINING POND ALREADY FILLED WITH WATER

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



DEWATERING SUMP FOR SUBMERSIBLE PUMP

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



SUMP DISCHARGE SETTLING BASIN

SCALE: 1" = 5'-0"

BASIN OUTLET - SECTION C

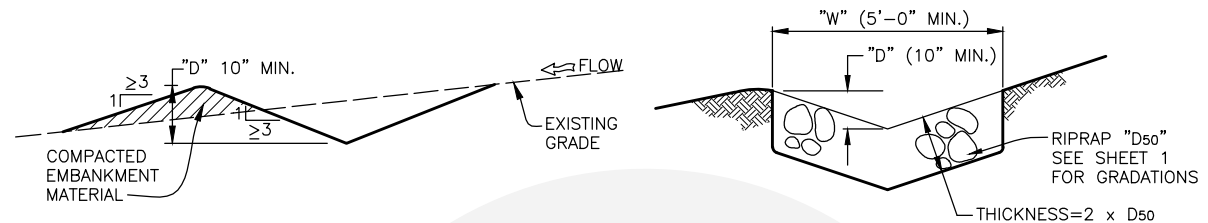
SCALE: 1" = 5'-0"

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 SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

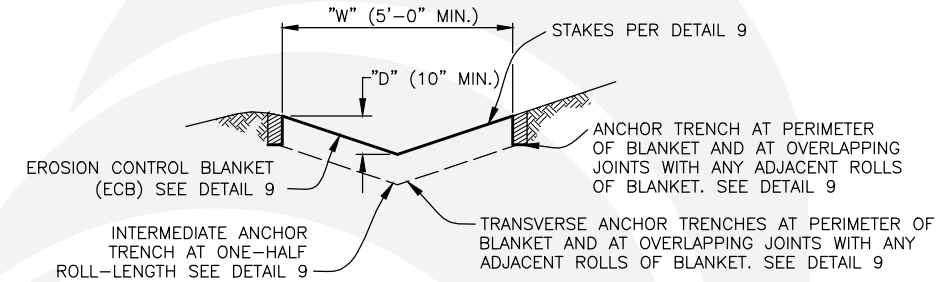


UNLINED

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

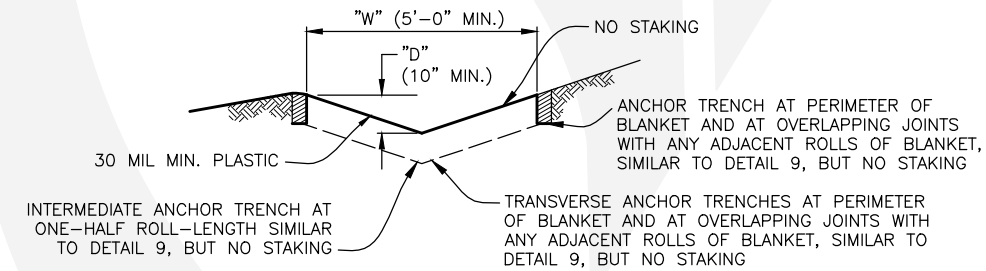
RIPRAP LINED

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 SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.



Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

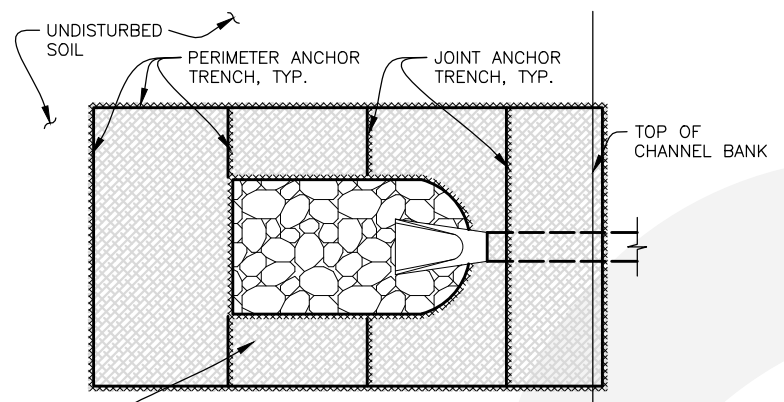
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



GESC GRADING, EROSION, AND SEDIMENT CONTROL

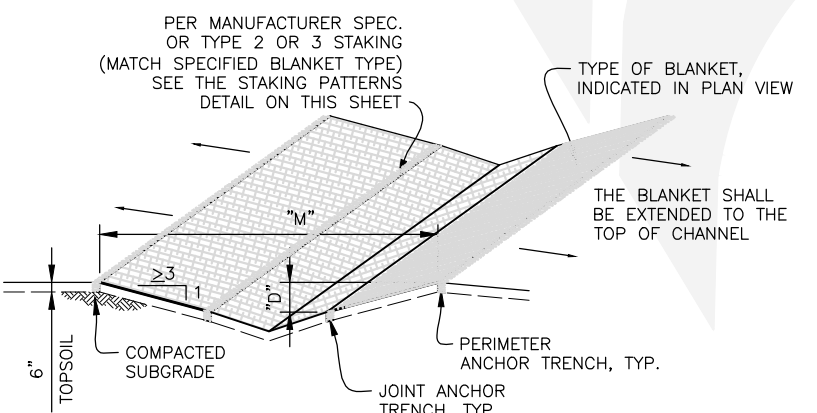
GESC PLAN STANDARD NOTES AND DETAILS

SHEET 4 OF 14

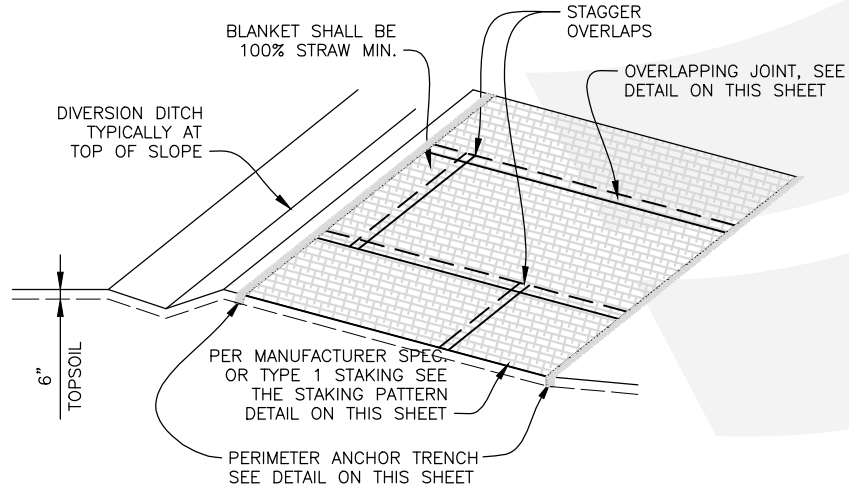


TYPE OF BLANKET AS INDICATED IN PLAN VIEW, IN ALL DISTURBED AREAS OF STREAMS AND DRAINAGE CHANNELS TO DEPTH "D" ABOVE CHANNEL INVERT. BLANKET SHALL GENERALLY BE ORIENTED PARALLEL TO FLOW DIRECTION. STAKING PATTERN SHALL MATCH BLANKET TYPE.

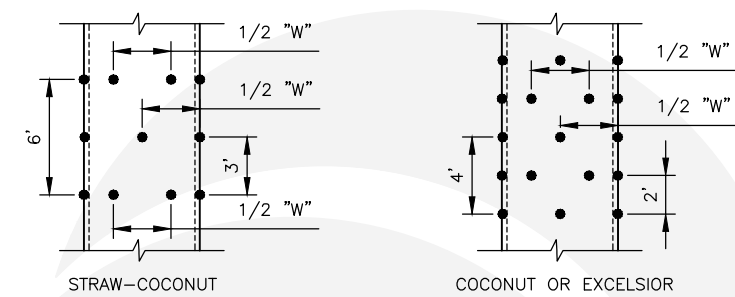
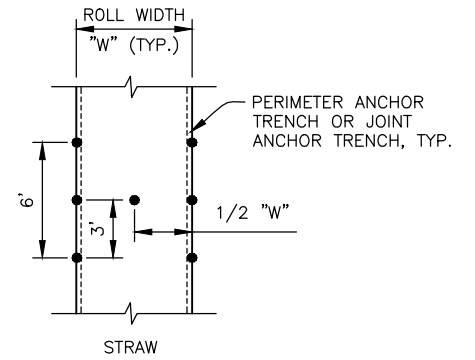
IN DISTURBED AREAS OF STREAMS AND DRAINAGE CHANNELS
SCALE: 1" = 5'-0"



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

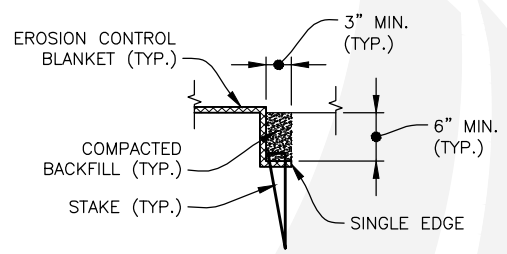


OUTSIDE OF STREAMS AND DRAINAGE CHANNELS
SCALE: 1" = 5'-0"

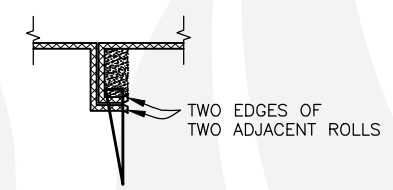


STAKING PATTERNS

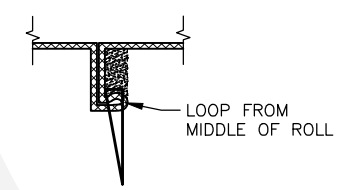
SCALE: 1" = 5'-0"
SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION. IF NO MANUFACTURER'S SPECIFICATION IS AVAILABLE USE THE ACCEPTABLE STAKING PATTERN (AS SHOWN ABOVE),



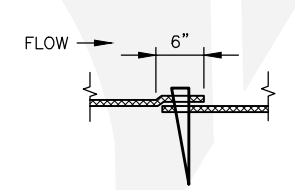
PERIMETER ANCHOR TRENCH
SCALE: 1" = 1'-0"



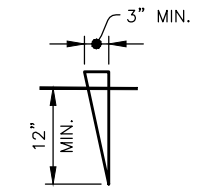
JOINT ANCHOR TRENCH
SCALE: 1" = 1'-0"



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.

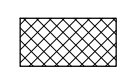
TABLE 7.1 - EROSION CONTROL BLANKET TYPE

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

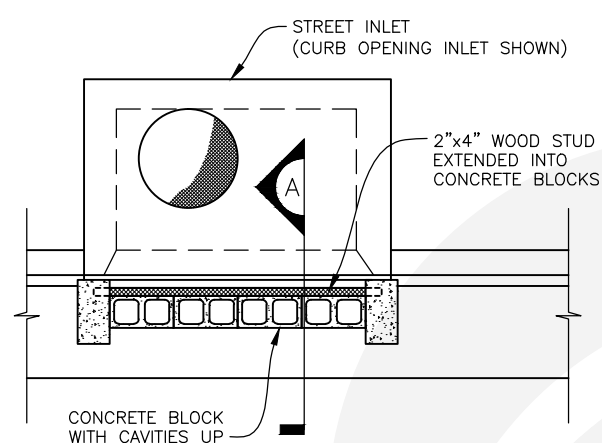
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



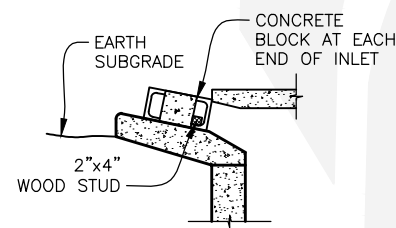
GESC GRADING, EROSION, AND SEDIMENT CONTROL

GESC PLAN STANDARD NOTES AND DETAILS

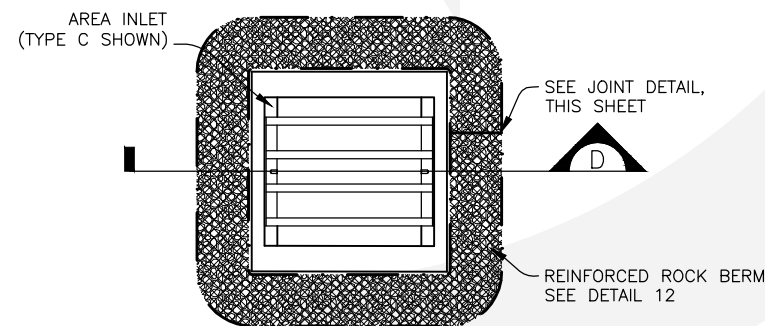
SHEET 5 OF 14



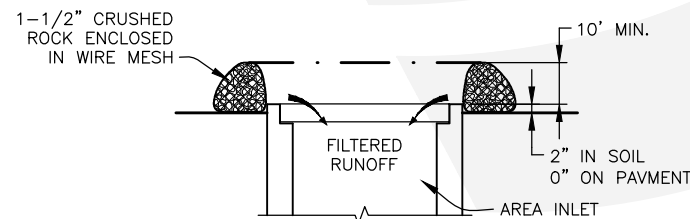
**INTERIM CONFIGURATION
(BEFORE PAVING) STREET INLET - PLAN**
SCALE: 1/2" = 1'-0"



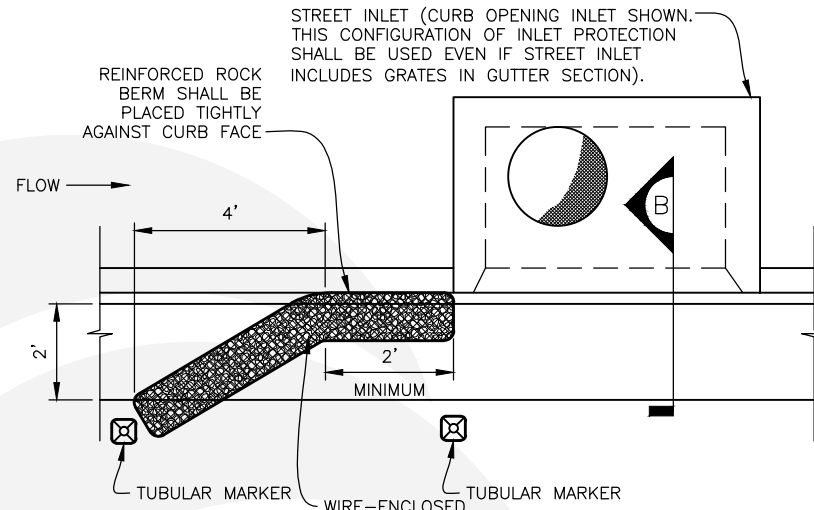
SECTION A
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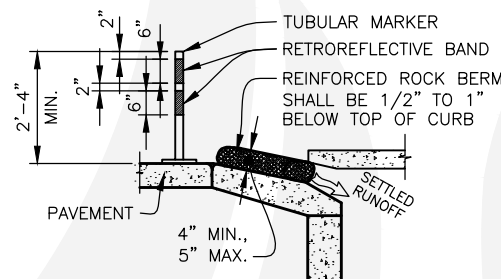
AREA INLET - PLAN
SCALE: 1/2" = 1'-0"



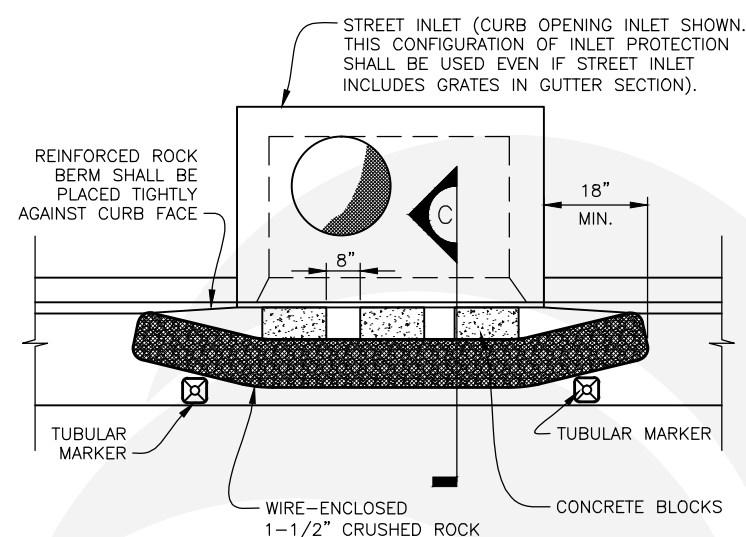
SECTION D
SCALE: 1/2" = 1'-0"



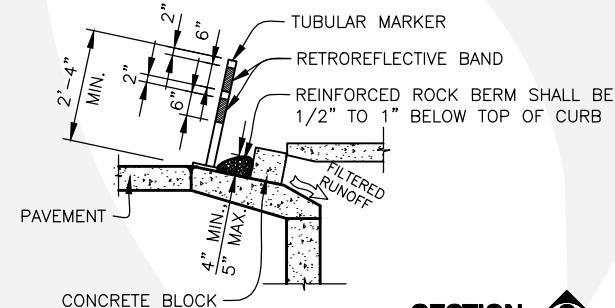
**STREET INLET ON CONTINUOUS GRADE
(AFTER PAVING) - PLAN**
SCALE: 1/2" = 1'-0"



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

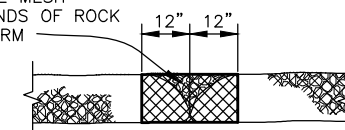


STREET INLET IN SUMP (AFTER PAVING) - PLAN
SCALE: 1/2" = 1'-0"



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



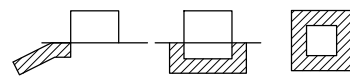
JOINT DETAIL
SCALE: 1/2" = 1'-0"

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

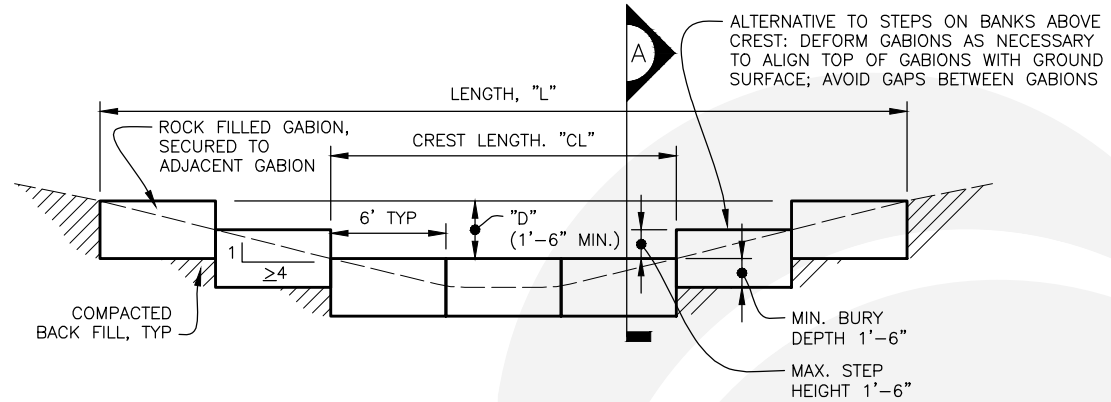
1. THE GESC MANAGER SHALL INSPECT INLET PROTECTION WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY. MORE FREQUENT INSPECTIONS AND REPAIRS SHALL BE REQUIRED DURING WINTER CONDITIONS DUE TO FREEZE/THAW PROBLEMS.
2. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL 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.



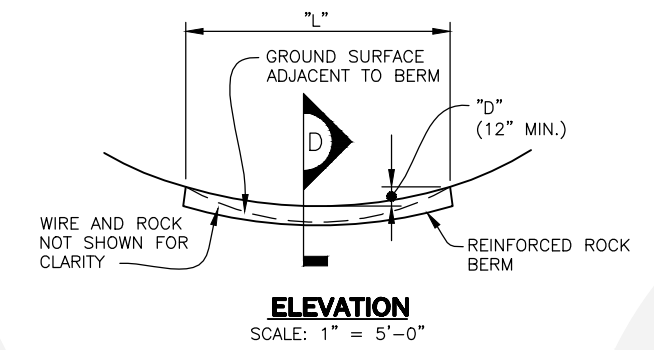
IP INLET PROTECTION 10

Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

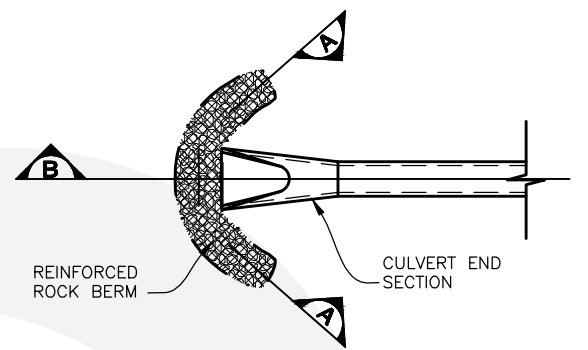
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



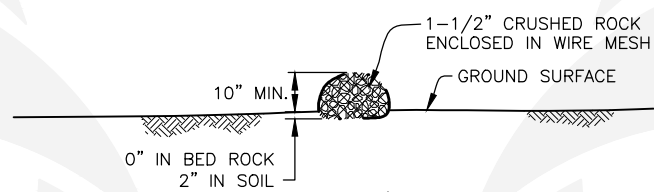
REINFORCED - ELEVATION
SCALE: 1" = 5'-0"



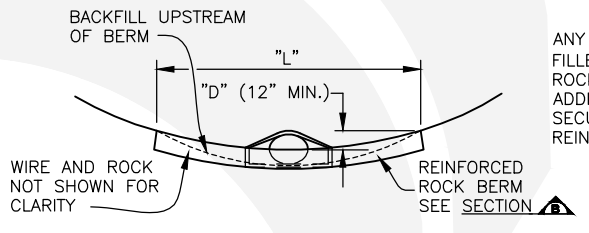
ELEVATION
SCALE: 1" = 5'-0"



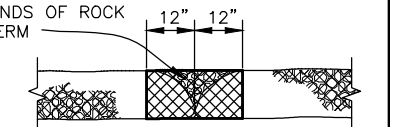
PLAN
SCALE: 1" = 5'-0"



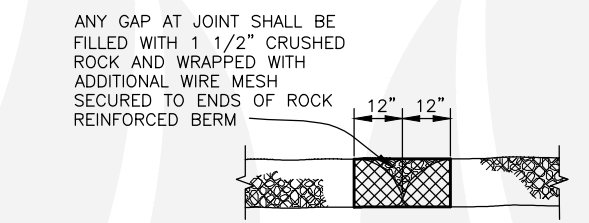
SECTION D
SCALE: 1/2" = 1'-0"



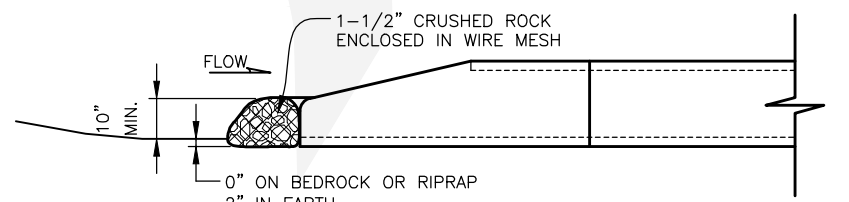
SECTION A
SCALE: 1" = 5'-0"



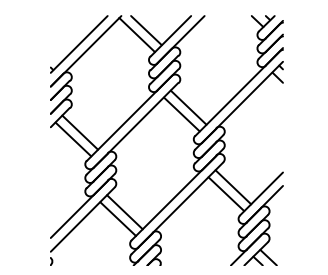
JOINT DETAIL
SCALE: 1/2" = 1'-0"



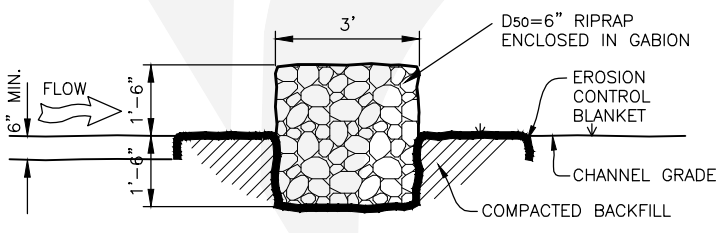
JOINT DETAIL
SCALE: 1/2" = 1'-0"



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



BLOW UP OF TWISTED WIRE GABION
SCALE: NTS



REINFORCED - SECTION A
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 D₅₀ 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.



Sheet Revisions		
1	DOUGLAS COUNTY REISSUE	1/13

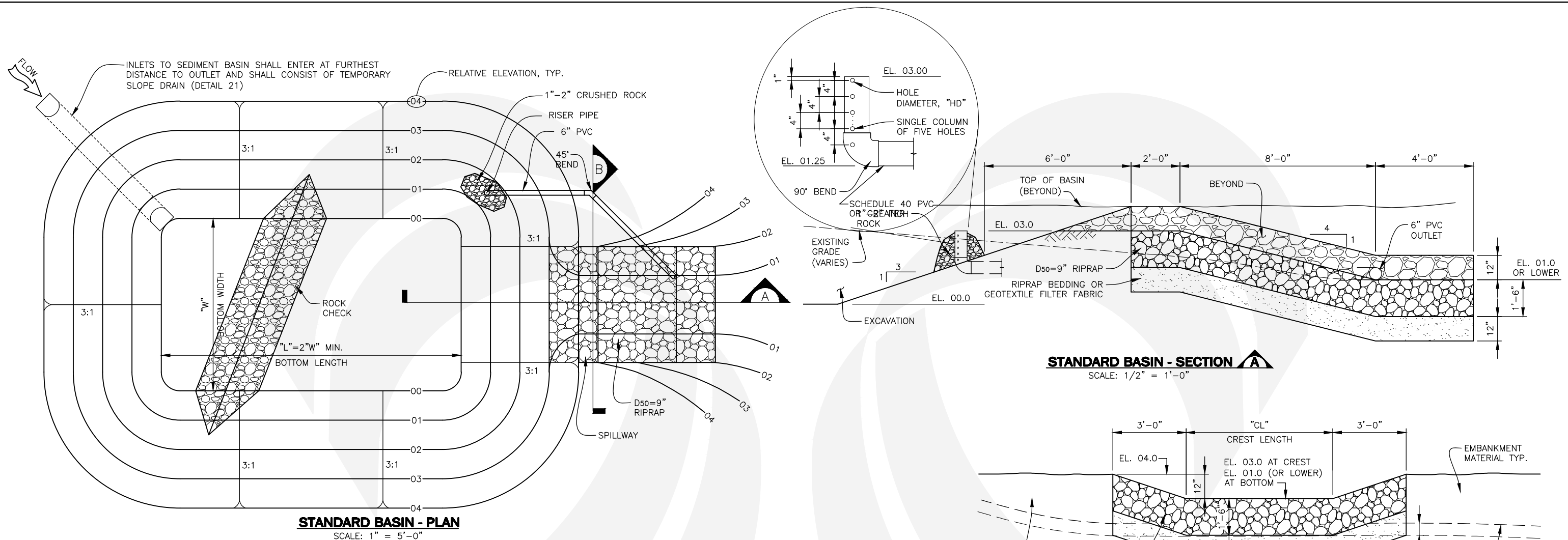
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



GESC GRADING, EROSION, AND SEDIMENT CONTROL

GESC PLAN STANDARD NOTES AND DETAILS

SHEET 7 OF 14



STANDARD BASIN - PLAN
SCALE: 1" = 5'-0"

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

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

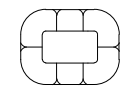
SEDIMENT BASIN INSTALLATION NOTES

- 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

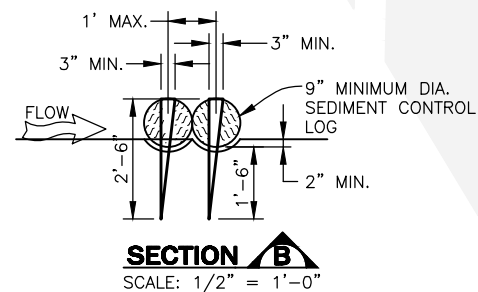
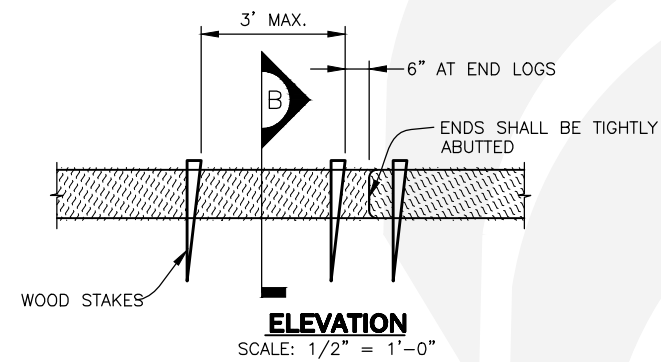
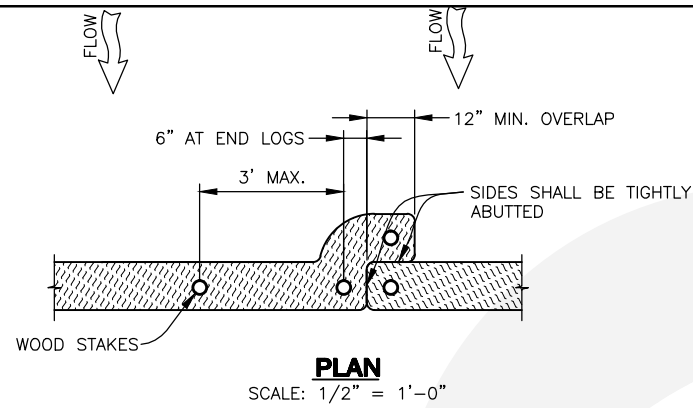
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



GESC GRADING, EROSION, AND SEDIMENT CONTROL

GESC PLAN STANDARD NOTES AND DETAILS

SHEET 8 OF 14



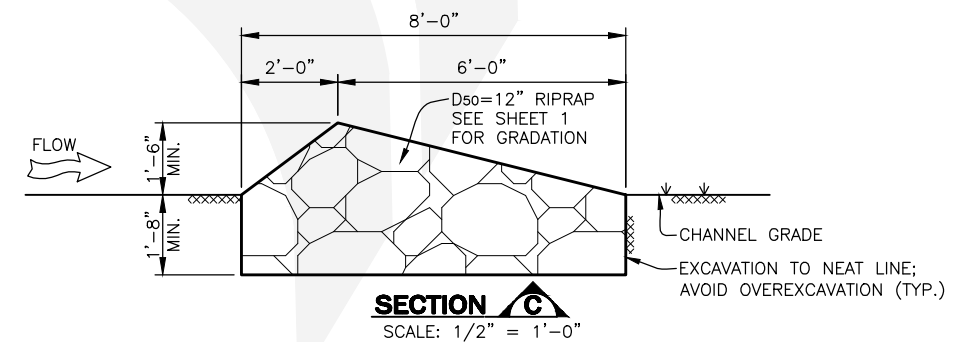
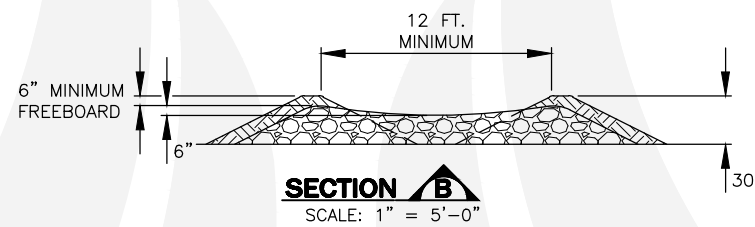
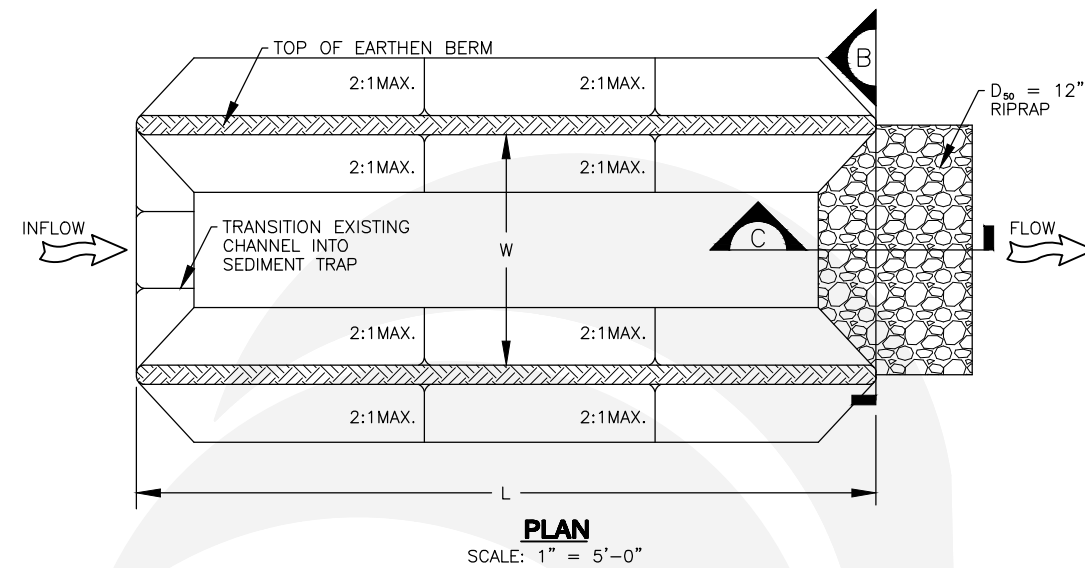
SEDIMENT CONTROL LOG INSTALLATION NOTES

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**



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 D₅₀=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

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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 SEEDED 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 LOOSENEED TO A DEPTH OF 6 INCHES PRIOR TO SPREADING TOPSOIL.
9. SOIL IS TO BE THOROUGHLY LOOSENEED (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 LOOSENEED 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 PERMITTEE 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. SEEDED 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		
1	DOUGLAS COUNTY REISSUE	1/13

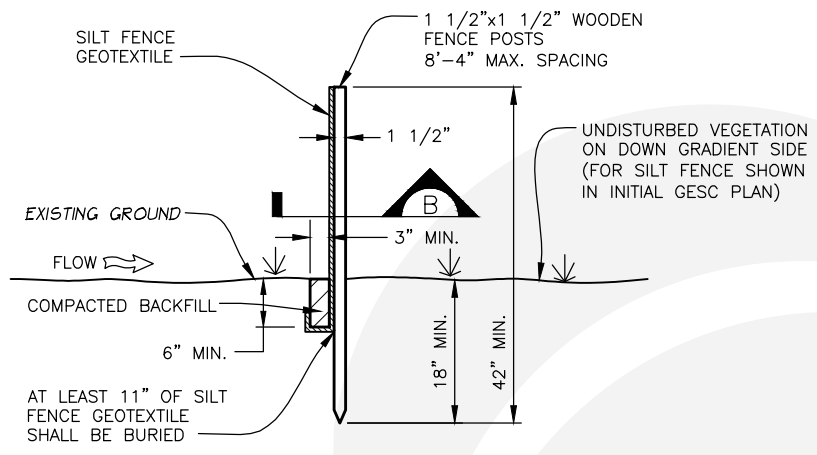
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



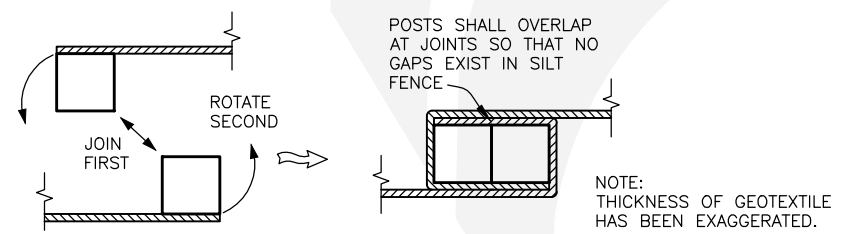
GESC GRADING, EROSION, AND SEDIMENT CONTROL

GESC PLAN STANDARD NOTES AND DETAILS

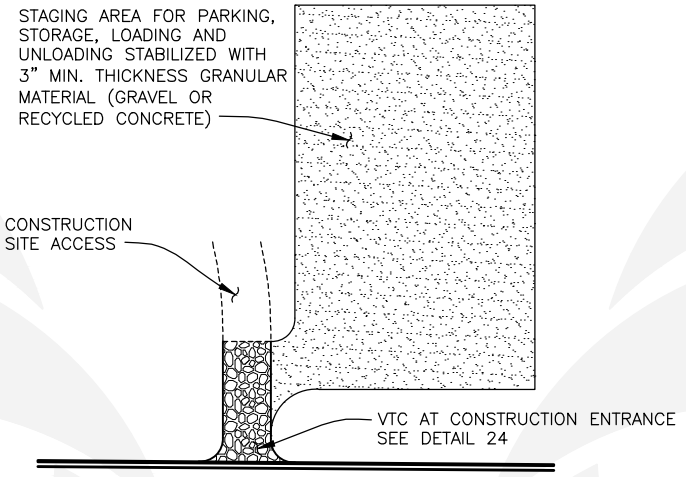
SHEET 10 OF 14



ELEVATION
SCALE: 1" = 1'-0"



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



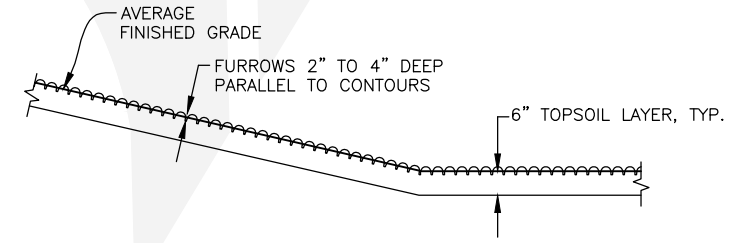
PLAN
SCALE: 1" = 40'-0"

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.



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

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		
1	DOUGLAS COUNTY REISSUE	1/13

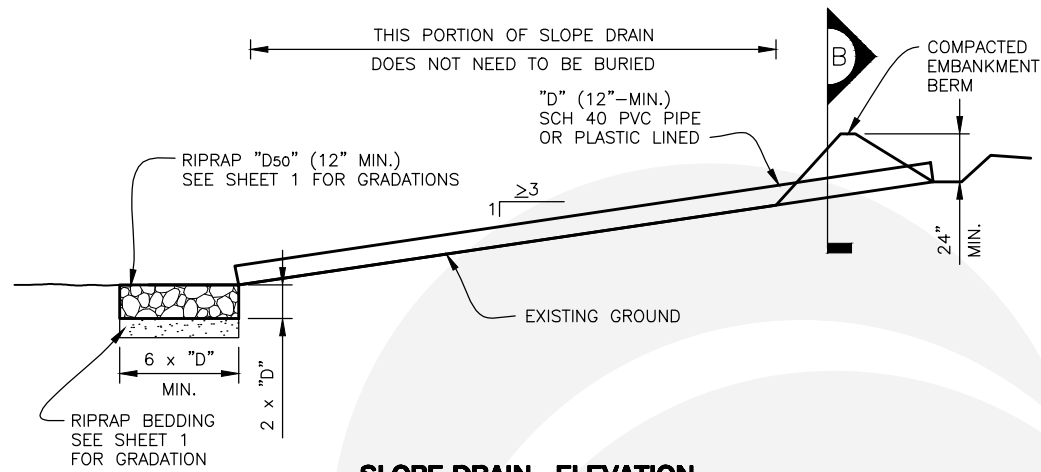
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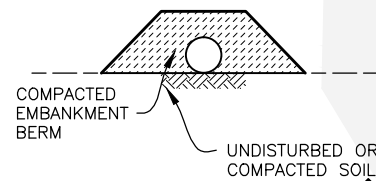
GESC GRADING, EROSION, AND SEDIMENT CONTROL

GESC PLAN
STANDARD NOTES
AND DETAILS

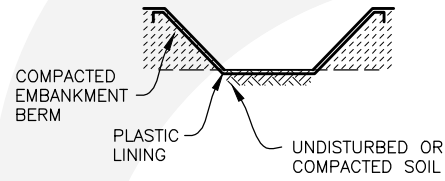
SHEET
11 OF 14



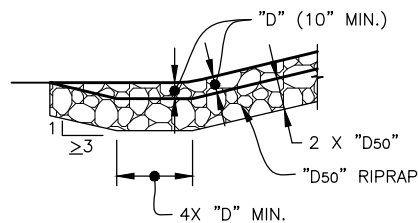
SLOPE DRAIN - ELEVATION
SCALE: 1" = 5'-0"



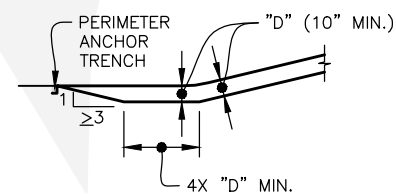
SLOPE DRAIN - SECTION
SCALE: 1" = 5'-0"



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"

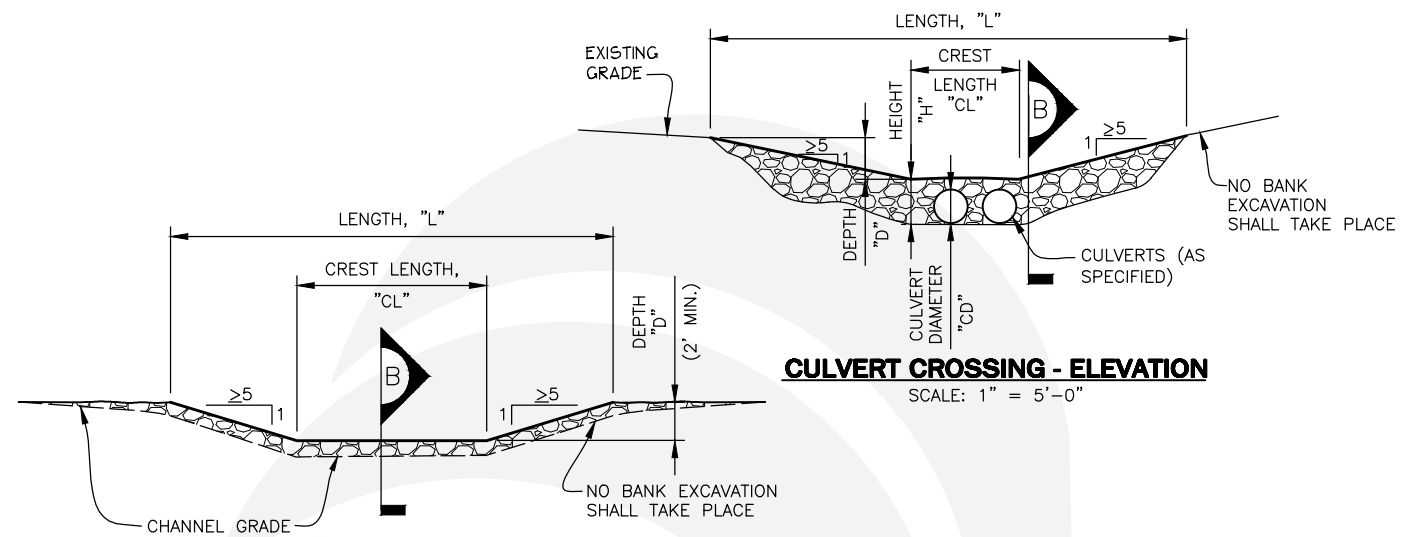
SLOPE DRAIN INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION AND LENGTH OF SLOPE DRAIN.
 - PIPE DIAMETER, "D", AND RIPRAP SIZE, "D₅₀".
- 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.

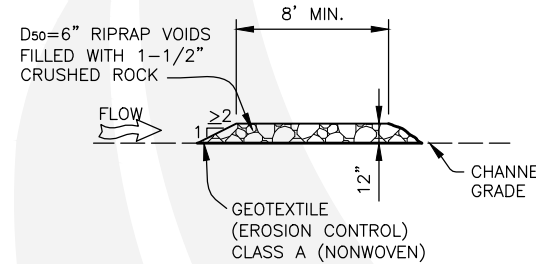
TSD TEMPORARY SLOPE DRAIN **21**



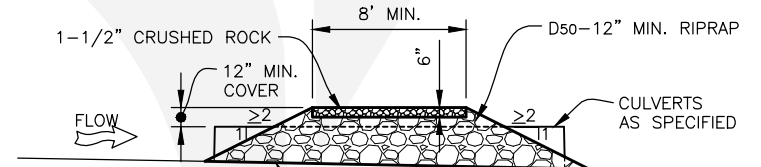
CULVERT CROSSING - ELEVATION
SCALE: 1" = 5'-0"



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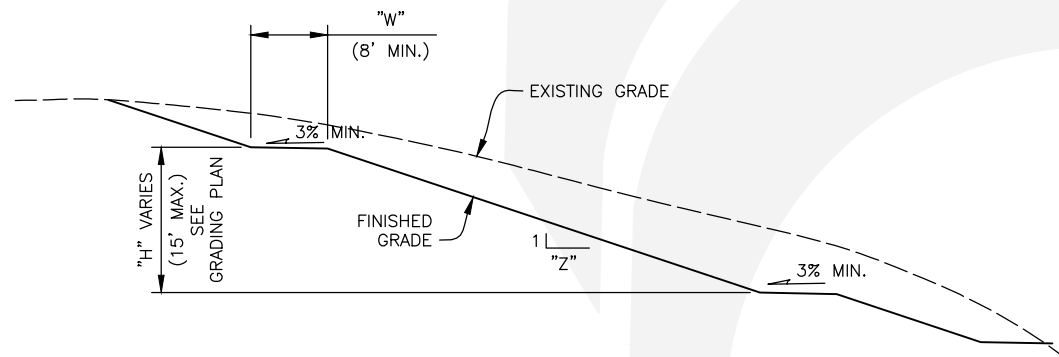
NOTE: SCALES SHOWN ARE FOR 22"x34" SHEETS; ADJUST ACCORDINGLY FOR 11"x17" SHEETS.



GESC GRADING, EROSION, AND SEDIMENT CONTROL

GESC PLAN STANDARD NOTES AND DETAILS

SHEET 12 OF 14



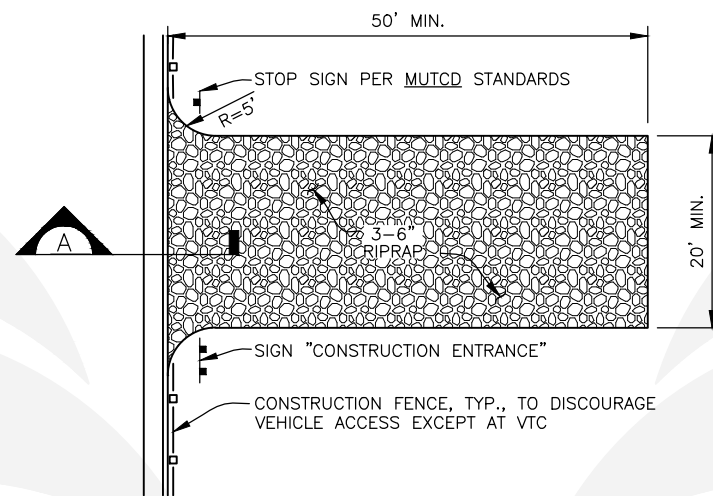
ELEVATION
SCALE: 1/2" = 1'-0"

TERRACING INSTALLATION NOTES

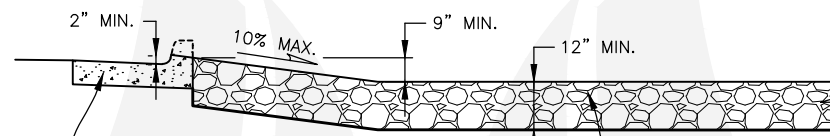
- SEE PLAN VIEW FOR:
- WIDTH, "W", AND SLOPE, "Z".
- TERRACING IS NOT REQUIRED FOR SLOPES OF 4 TO 1 OR FLATTER.
- EARTH (VEGETATED) SLOPES STEEPER THAN 3 TO 1 ARE NOT ALLOWED ON THE SITE.

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

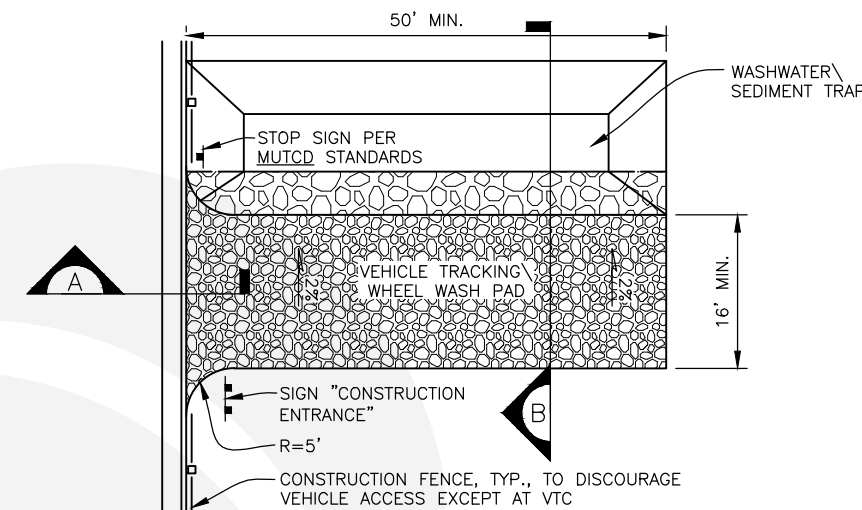
SECTION A
SCALE: 1/2" = 1'-0"

VEHICLE TRACKING CONTROL INSTALLATION NOTES

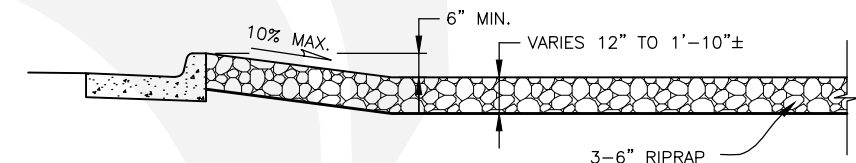
- VEHICLE TRACKING CONTROL PADS SHALL BE INSTALLED AT EVERY ACCESS POINT TO SITE.
- VEHICLE TRACKING CONTROL PADS SHALL CONSIST OF HARD, DENSE, DURABLE STONE, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE OR BOULDERS WILL NOT BE ACCEPTABLE. THE STONES SHALL BE 3" WITH A MAXIMUM SIZE OF 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

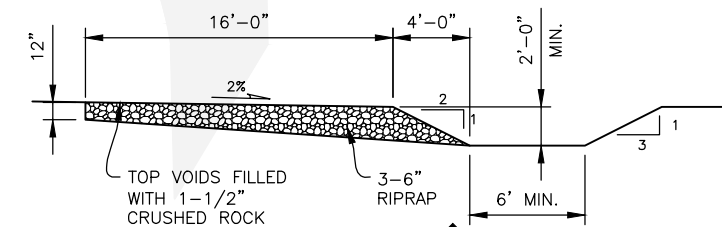
- GESC MANAGER SHALL INSPECT VEHICLE TRACKING CONTROL DAILY. GRAVEL SURFACE SHALL BE CLEAN AND LOOSE ENOUGH TO RUT SLIGHTLY UNDER WHEEL LOADS AND CAUSE LOOSE GRAVEL TO DISLODGE MUD FROM TIRES. WHEN GRAVEL BECOMES COMPACTED OR FILLED WITH SEDIMENT SO THAT THE EFFECTIVENESS OF THE PAD IS DIMINISHED, CONTRACTOR 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 SEEDDED 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 SEEDDED 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

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



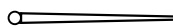













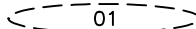

GESC GRADING, EROSION, AND SEDIMENT CONTROL

GESC PLAN STANDARD NOTES AND DETAILS

SHEET 14 OF 14

TABULATION OF TRAFFIC SIGNAL ITEMS

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

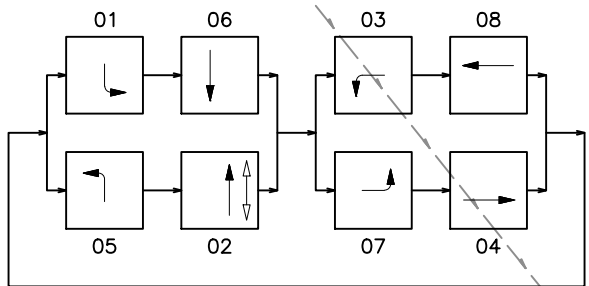
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NOTE:
ALL TRAFFIC SIGNAL EQUIPMENT AND CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE LATEST DOUGLAS COUNTY STANDARDS AND SPECIFICATIONS.

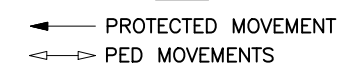
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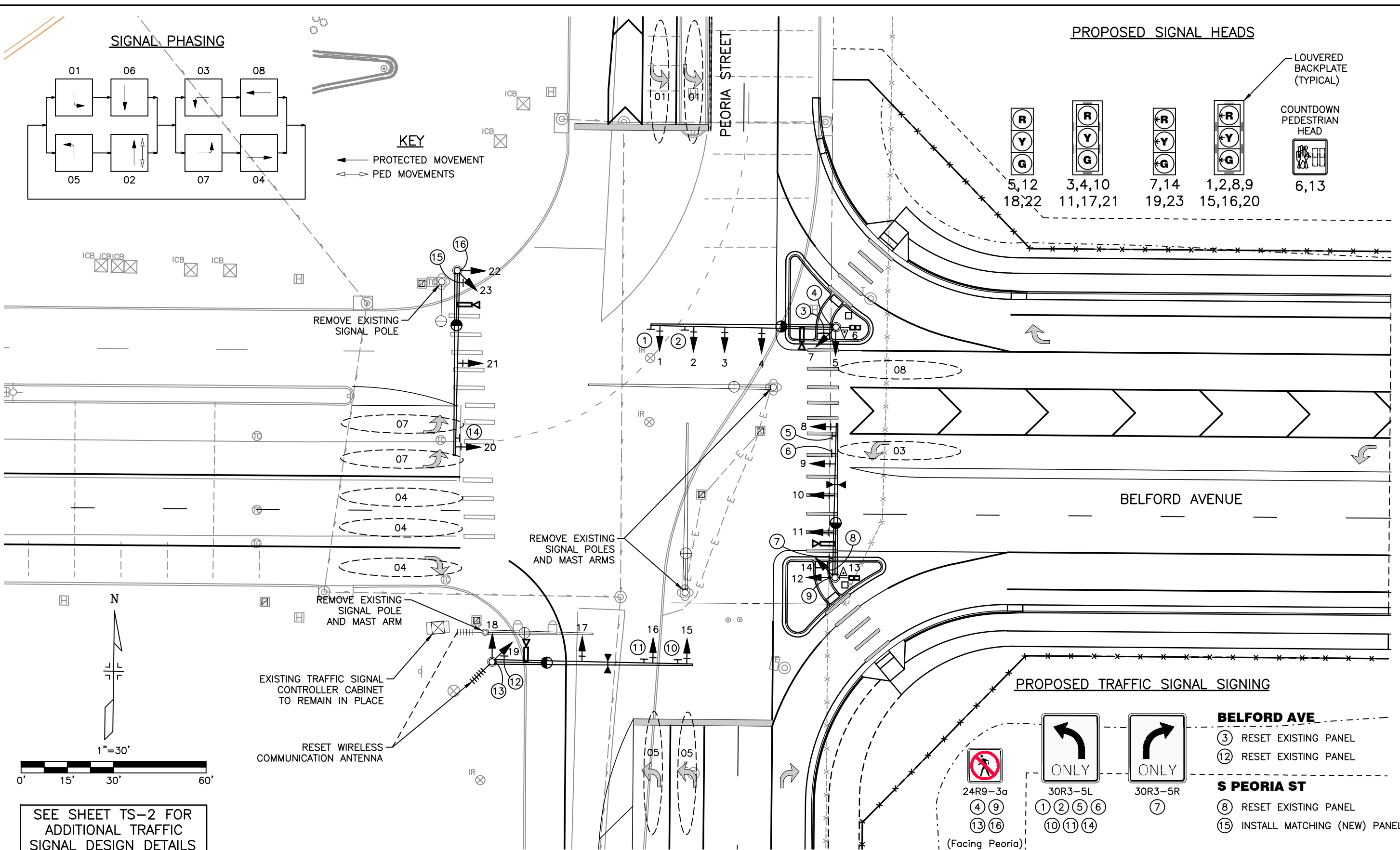
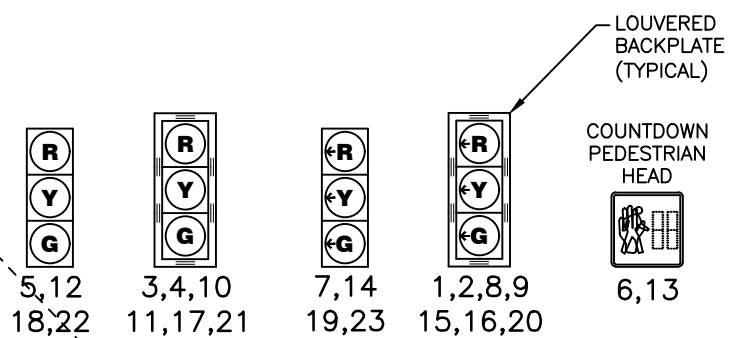
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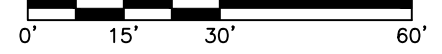


PROPOSED SIGNAL HEADS



N

1"=30'



SEE SHEET TS-2 FOR ADDITIONAL TRAFFIC SIGNAL DESIGN DETAILS

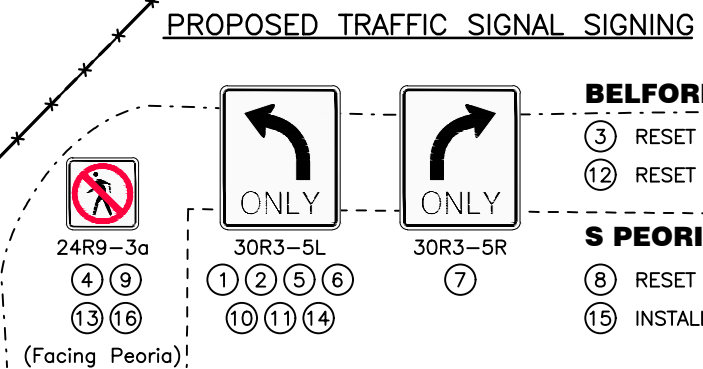
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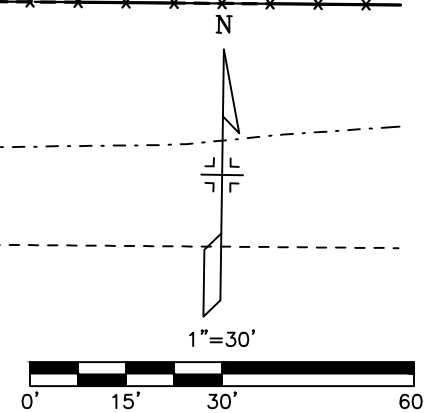
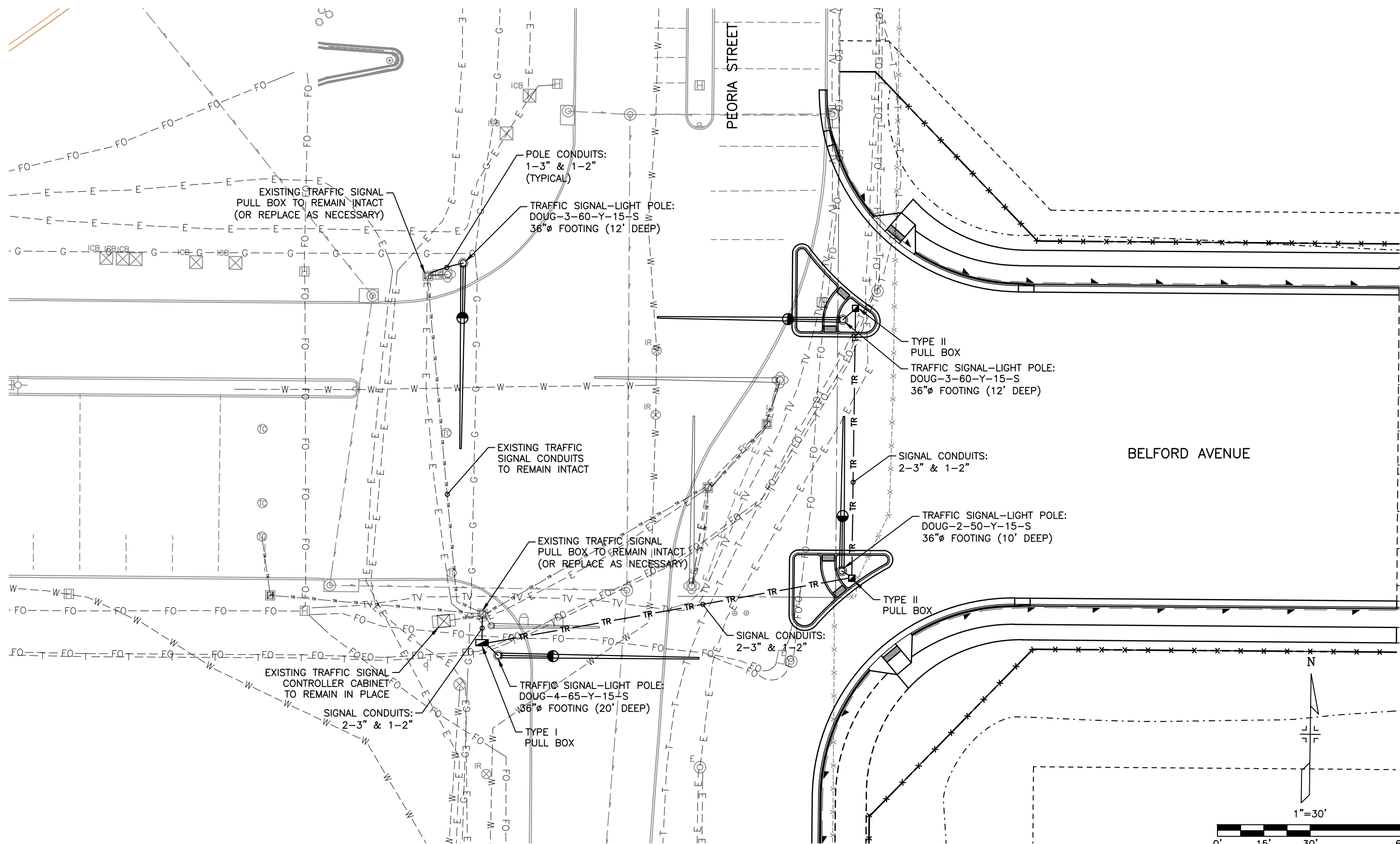
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			Sheet Number 57

- BELFORD AVE**
- ③ RESET EXISTING PANEL
 - ⑫ RESET EXISTING PANEL
- S PEORIA ST**
- ⑧ RESET EXISTING PANEL
 - ⑮ INSTALL MATCHING (NEW) PANEL



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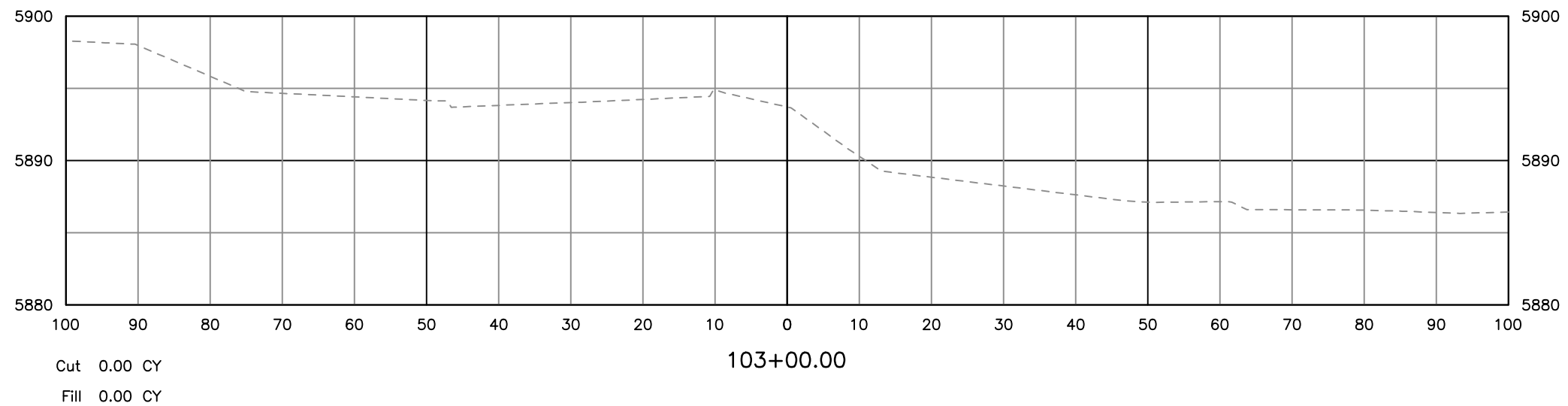
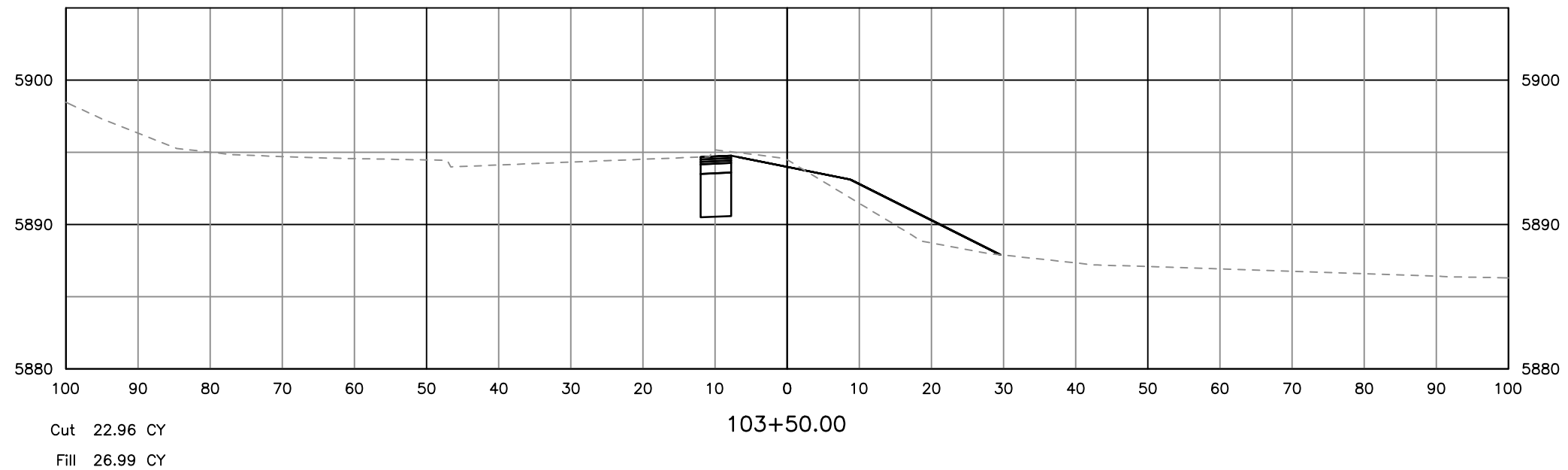
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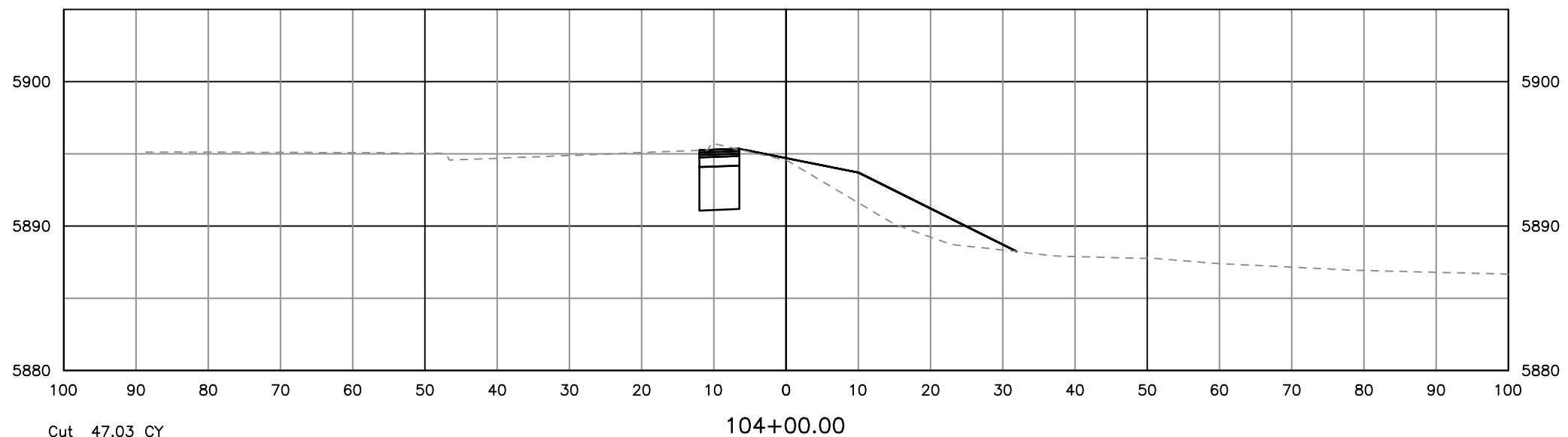
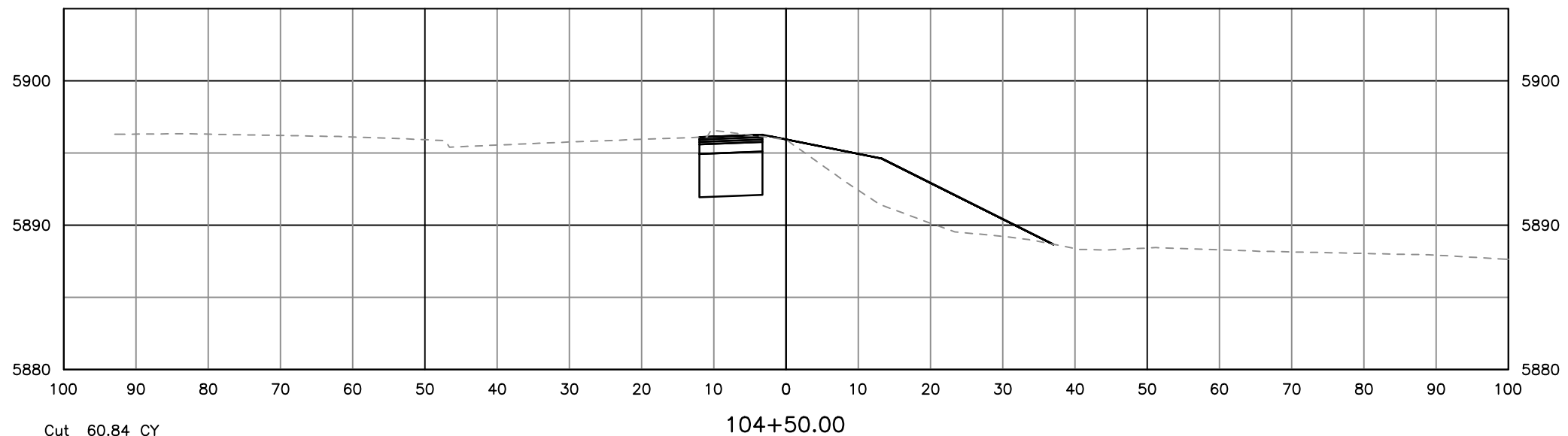
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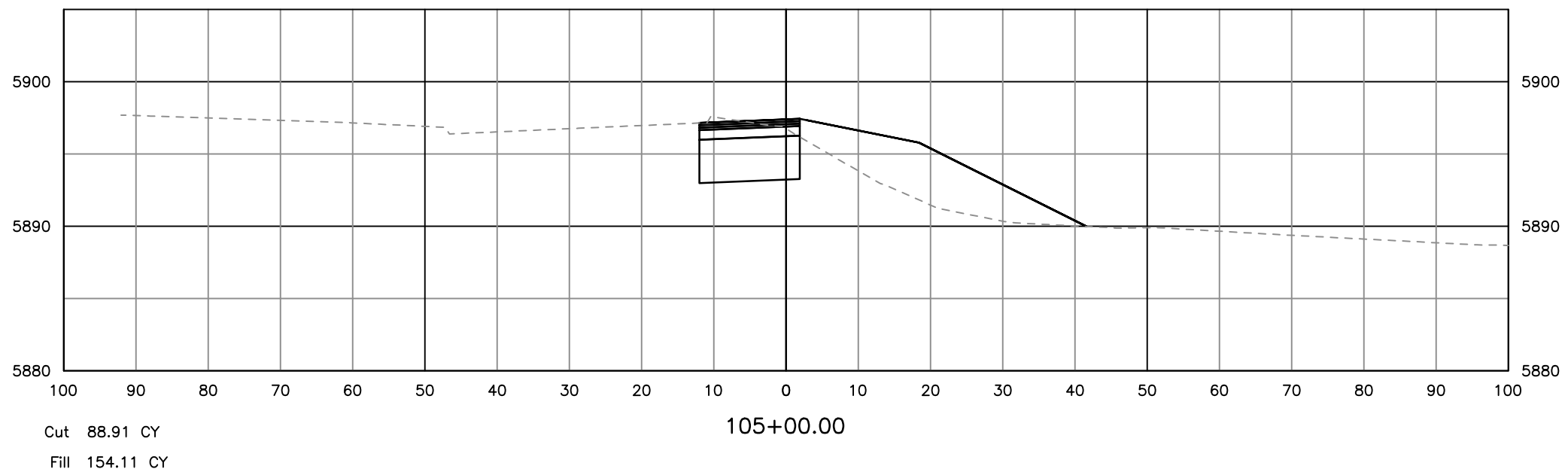
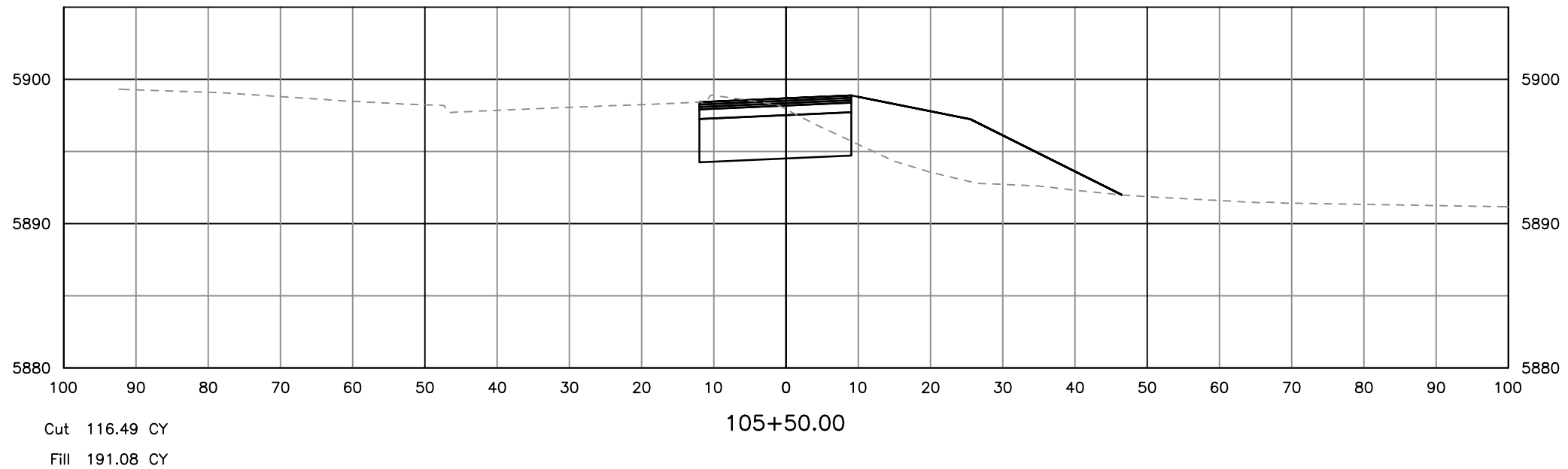
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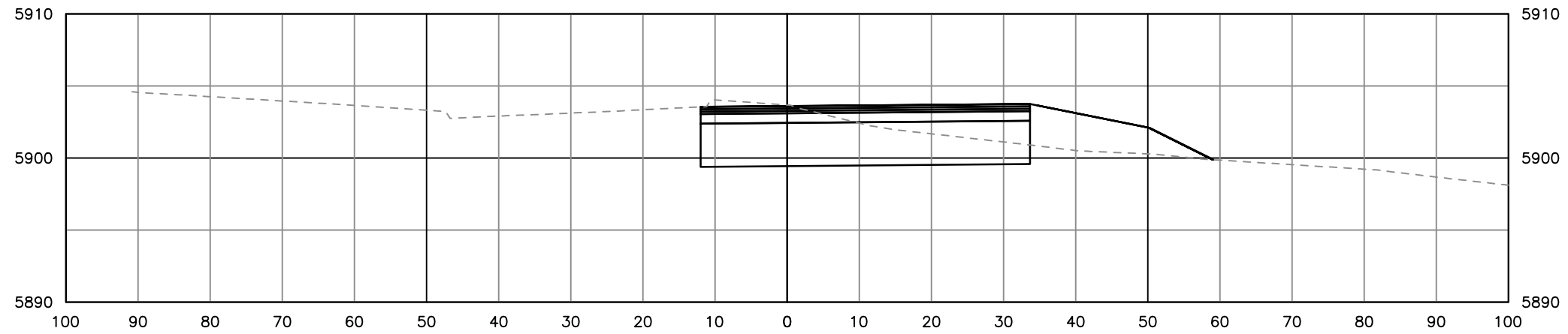


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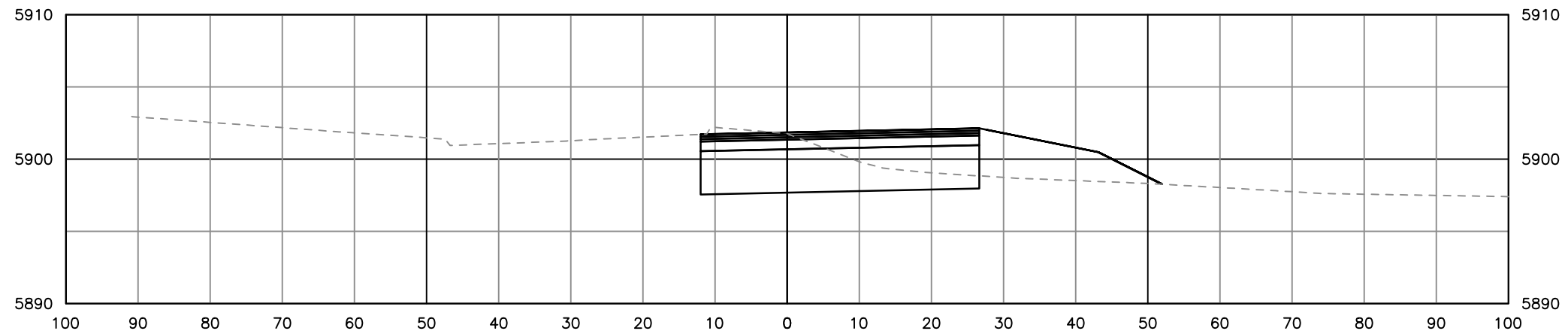
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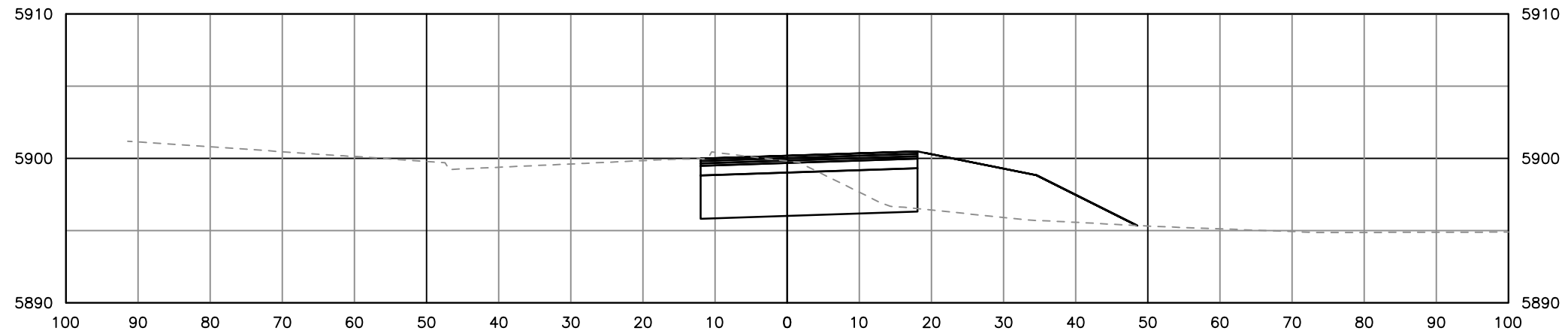
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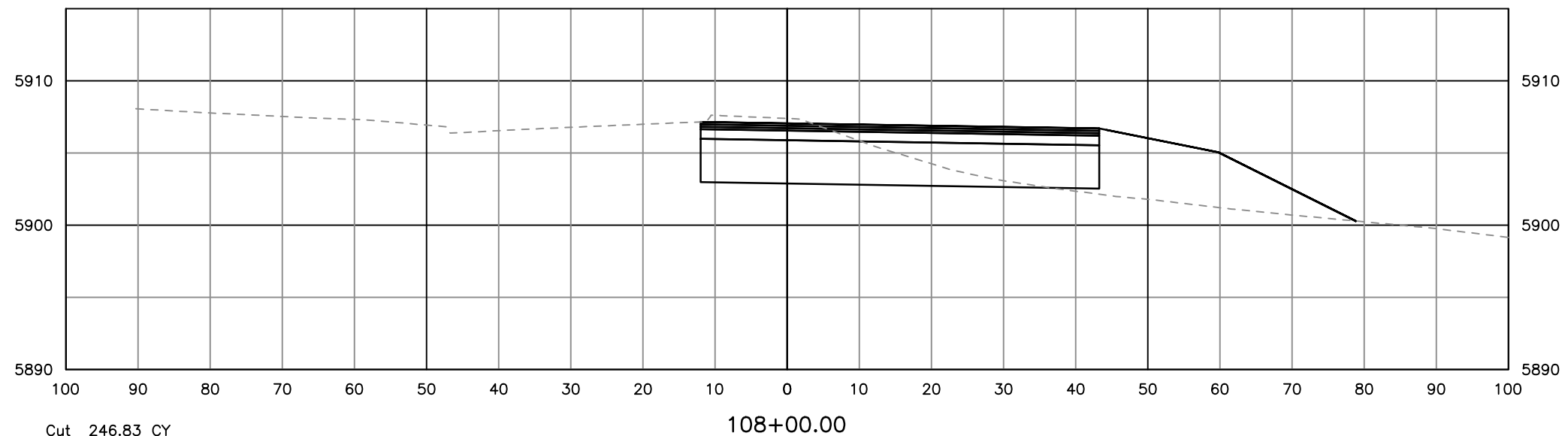
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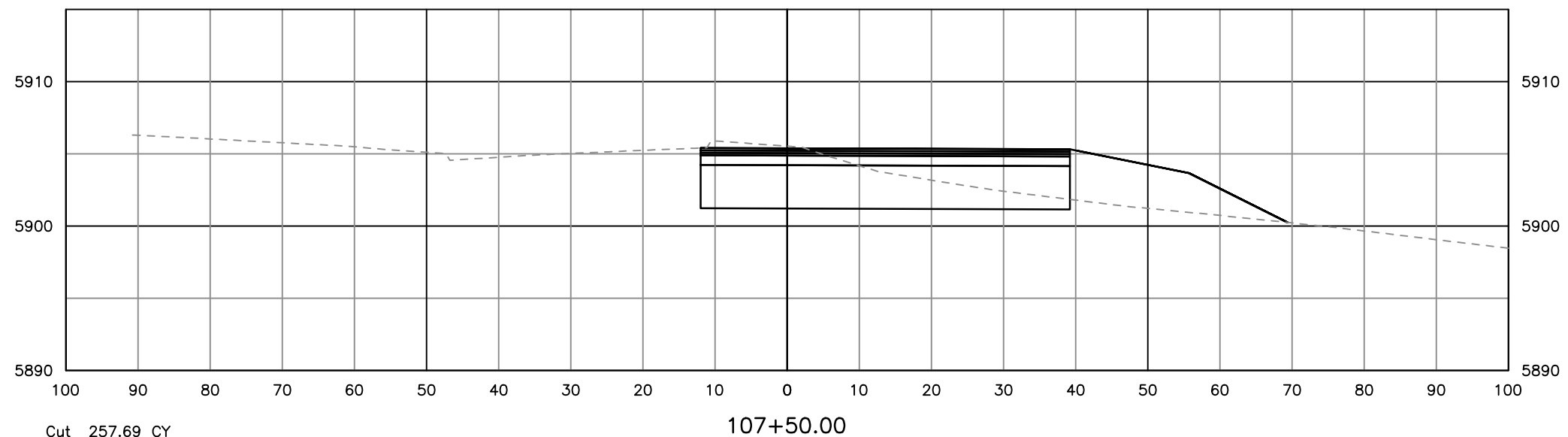
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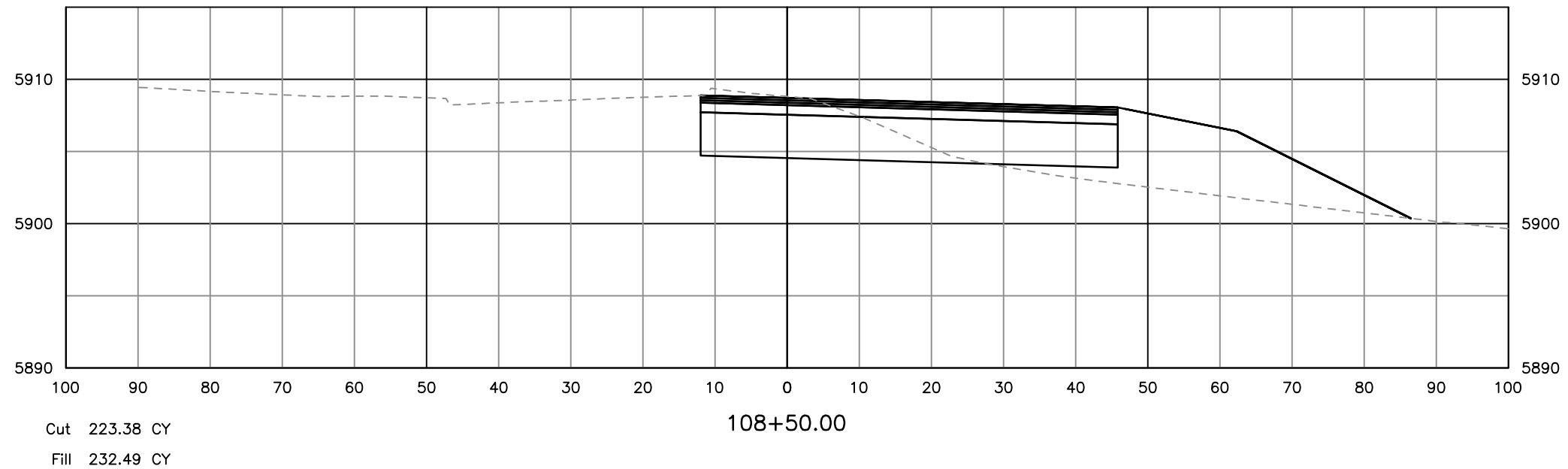
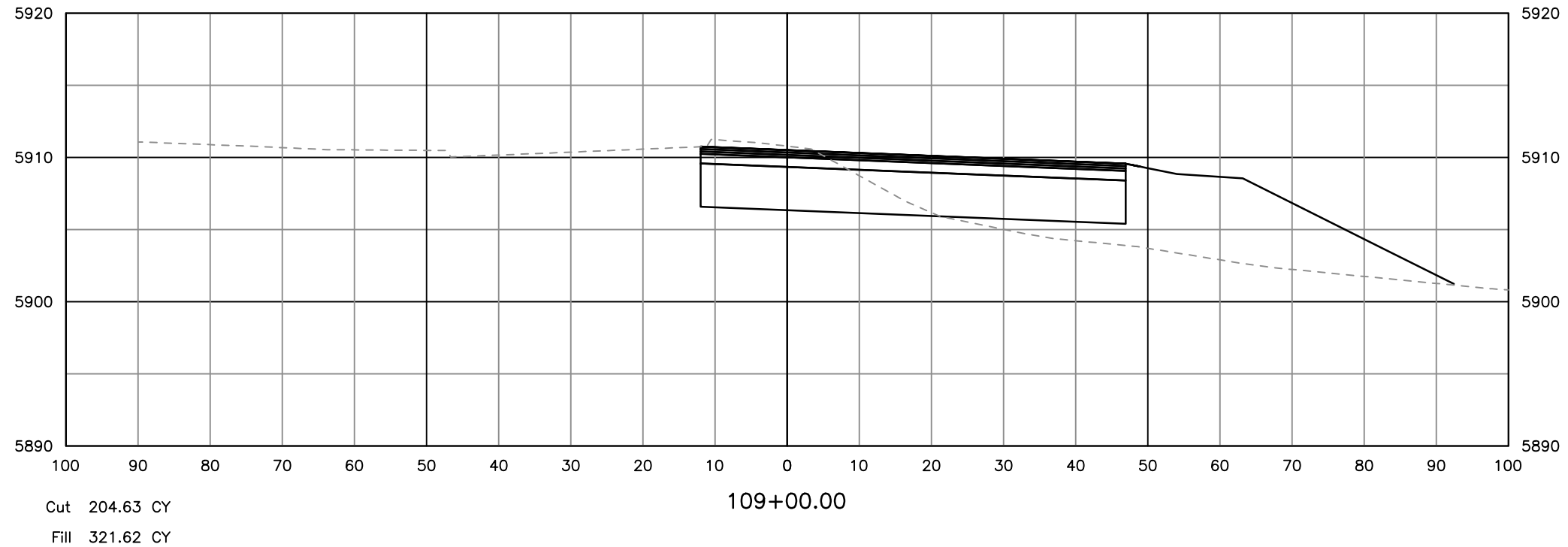
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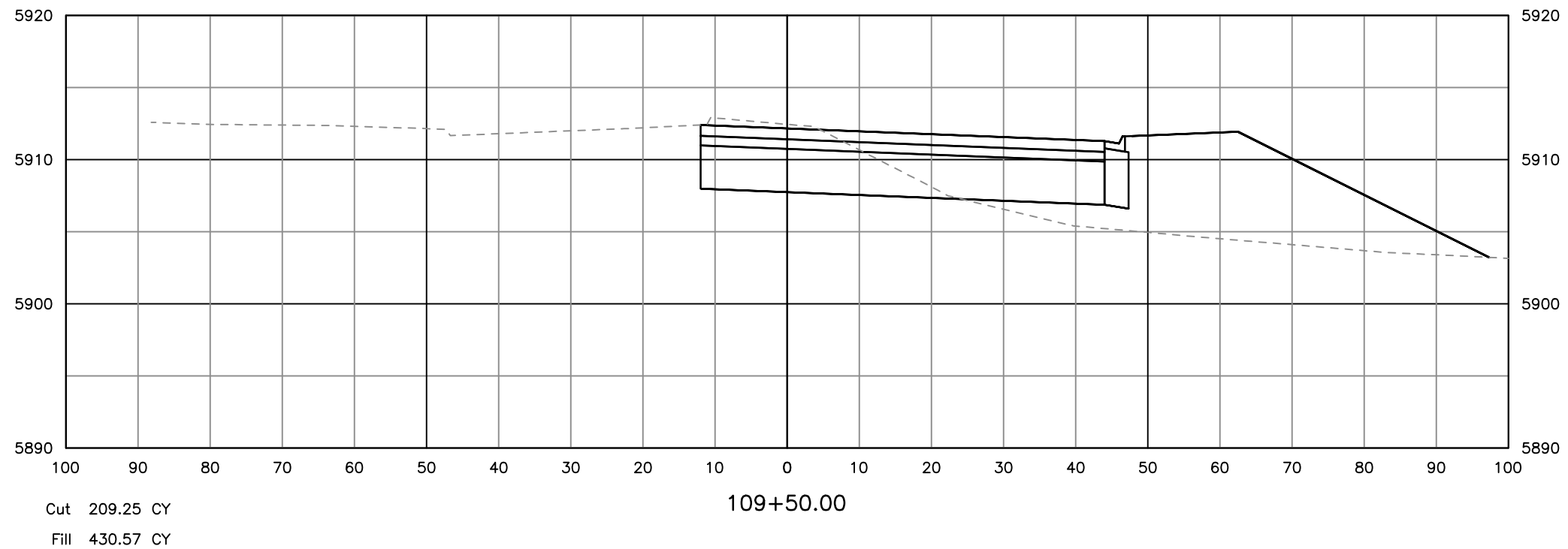
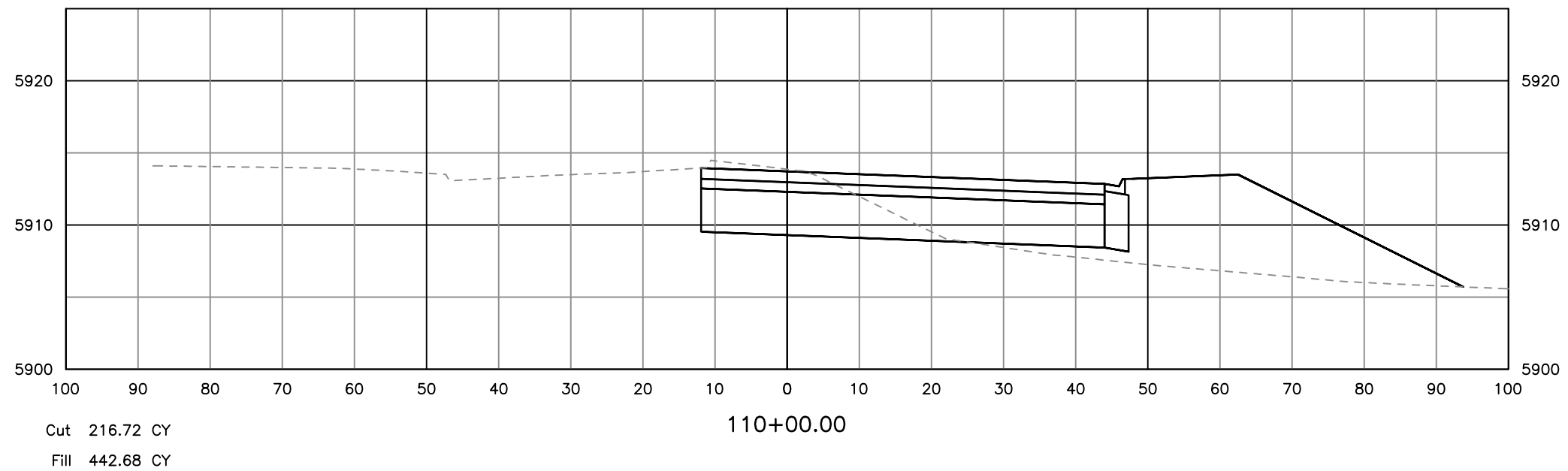
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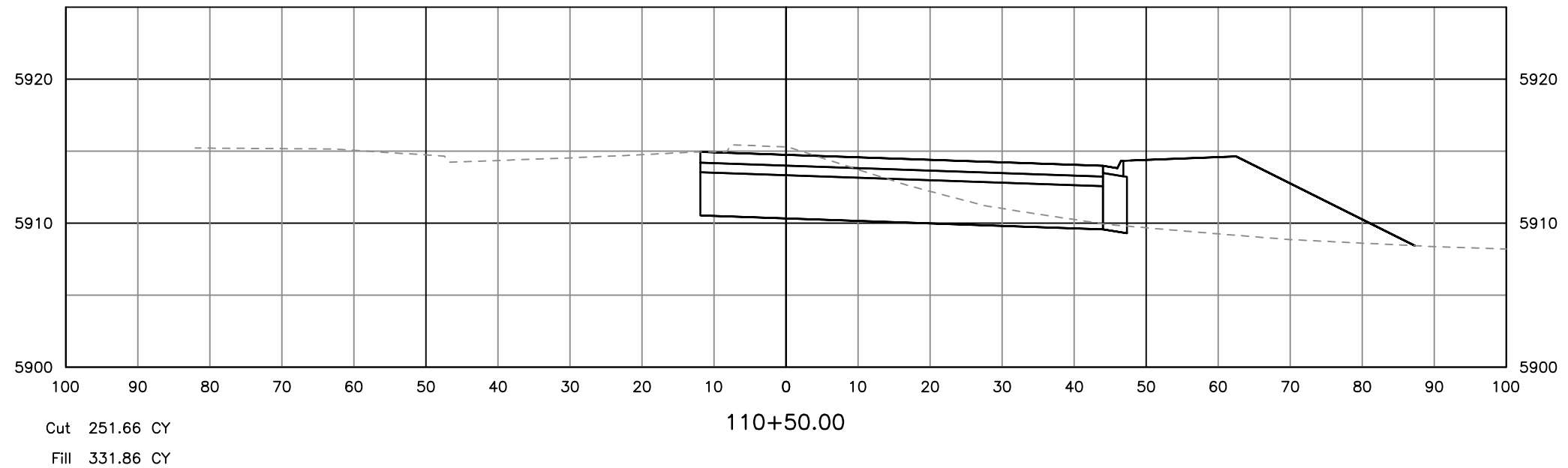
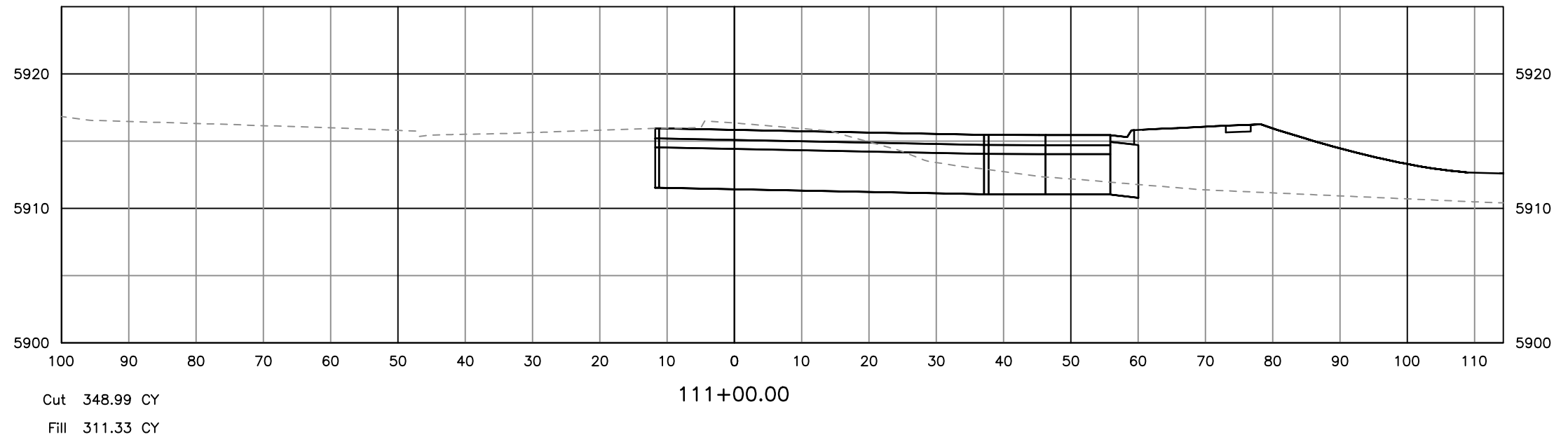
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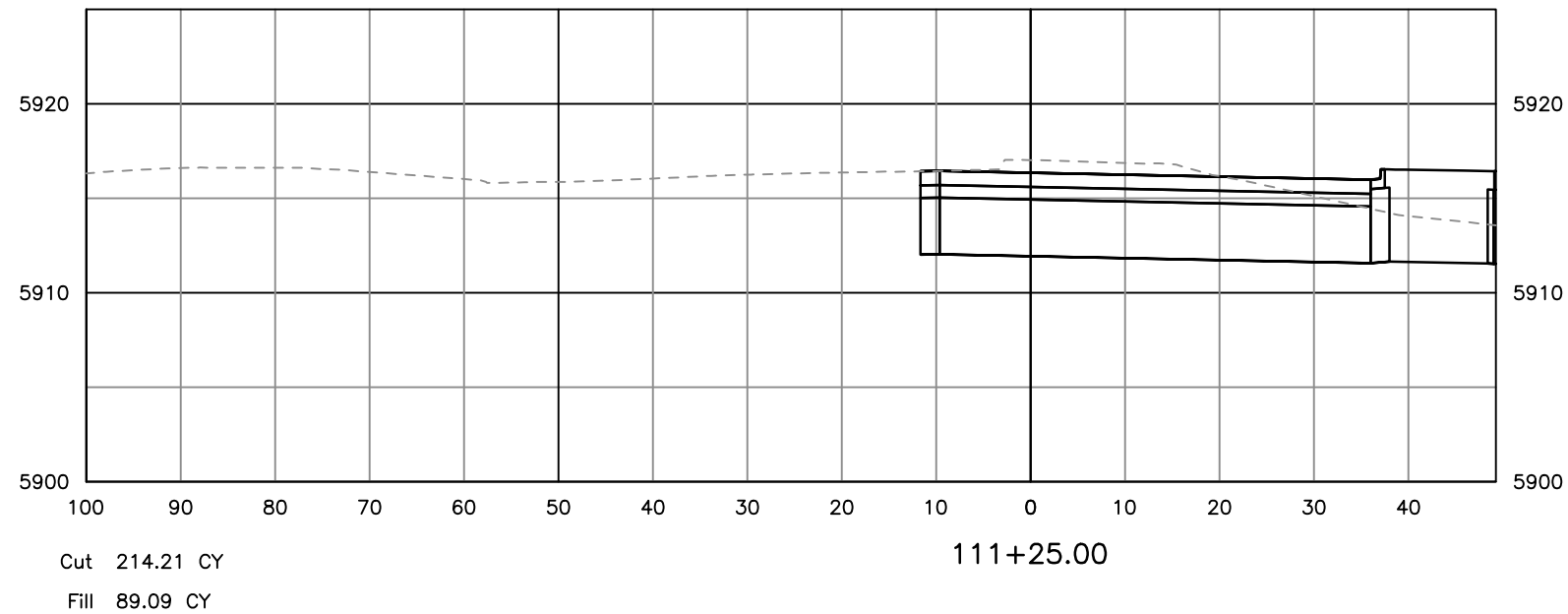
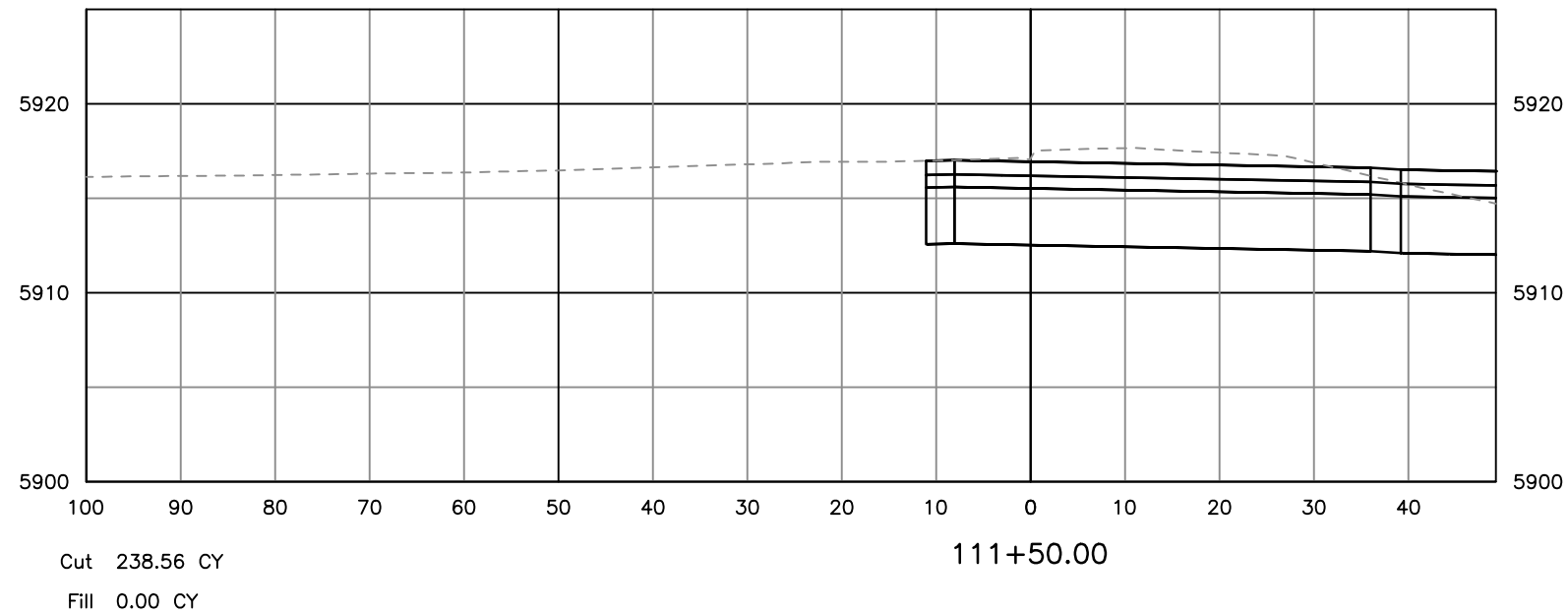
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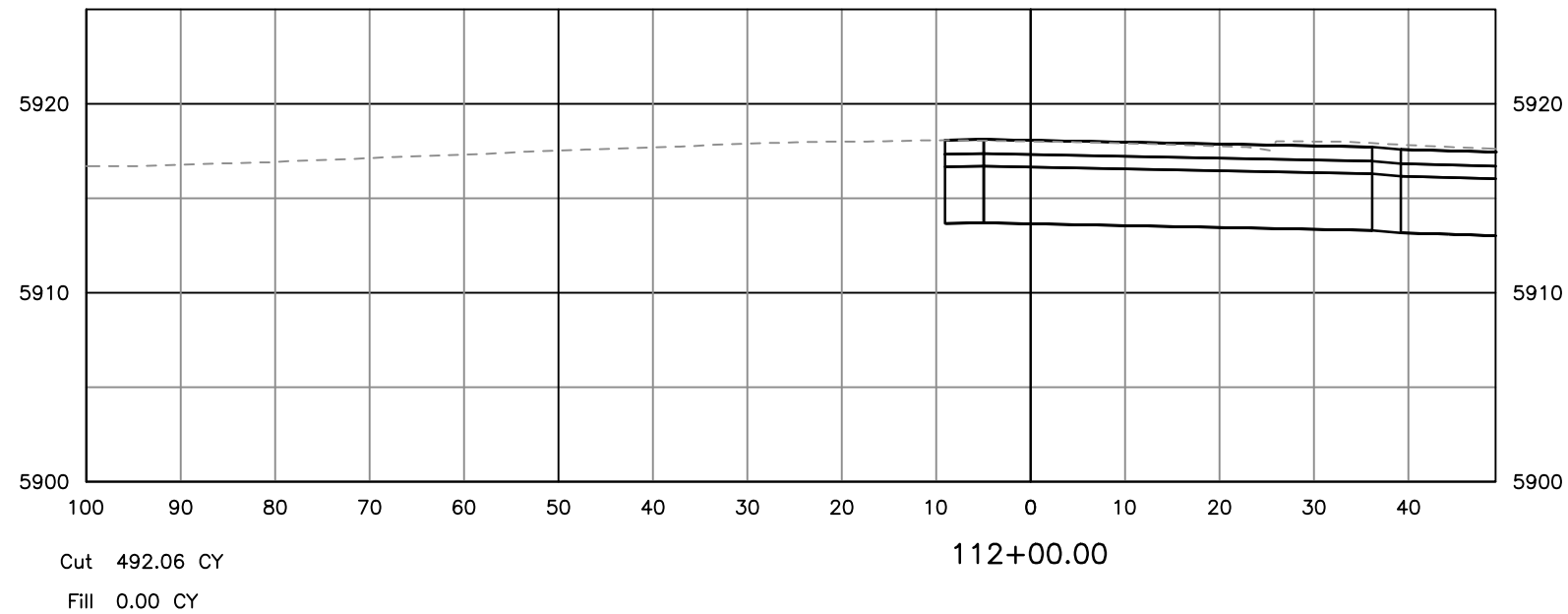
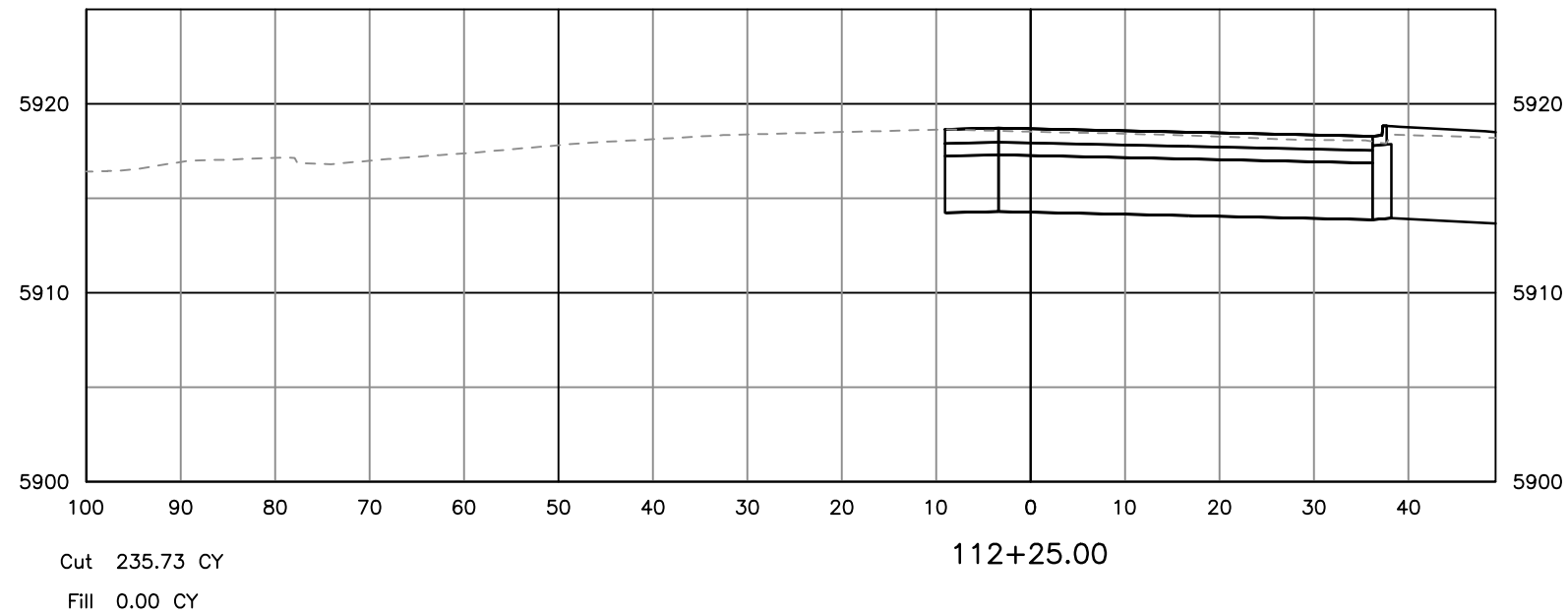
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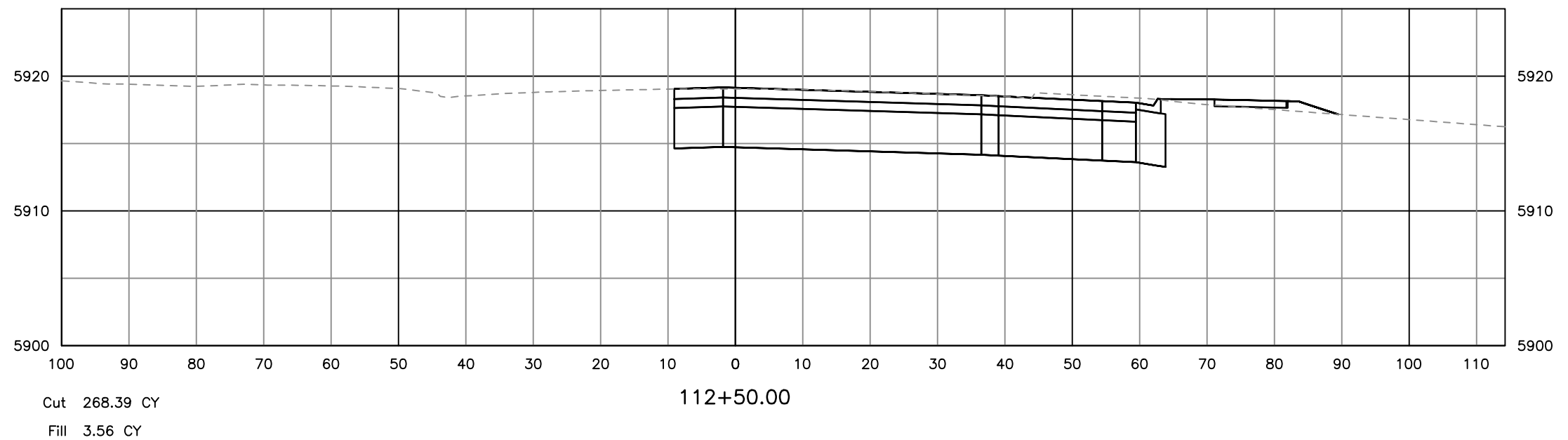
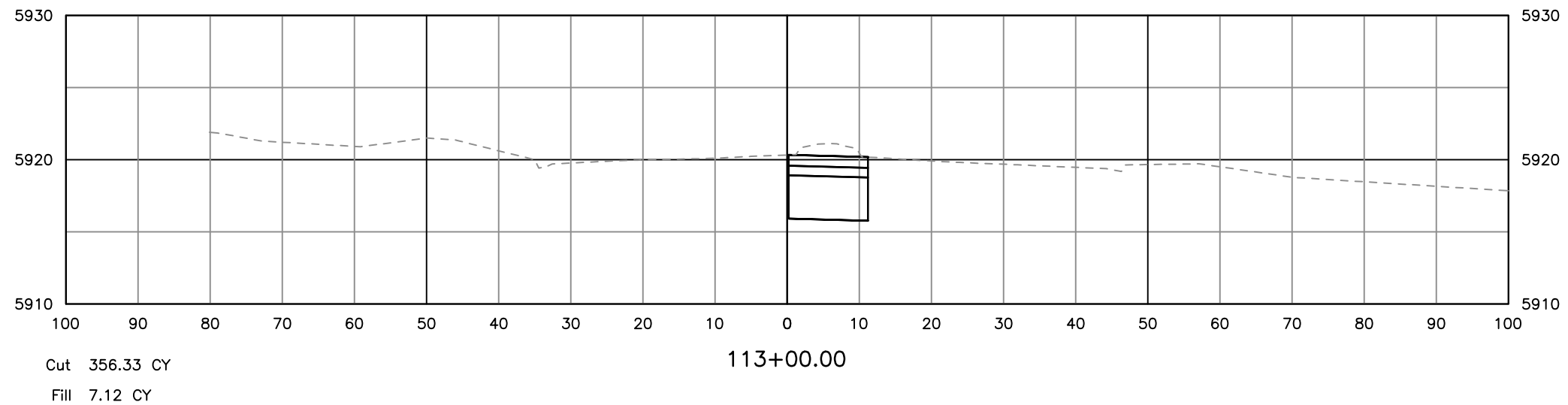
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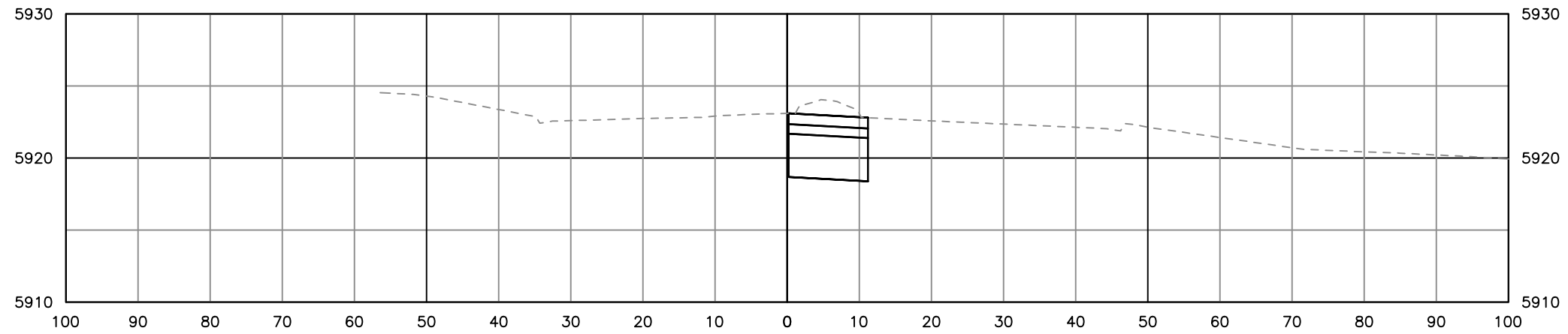
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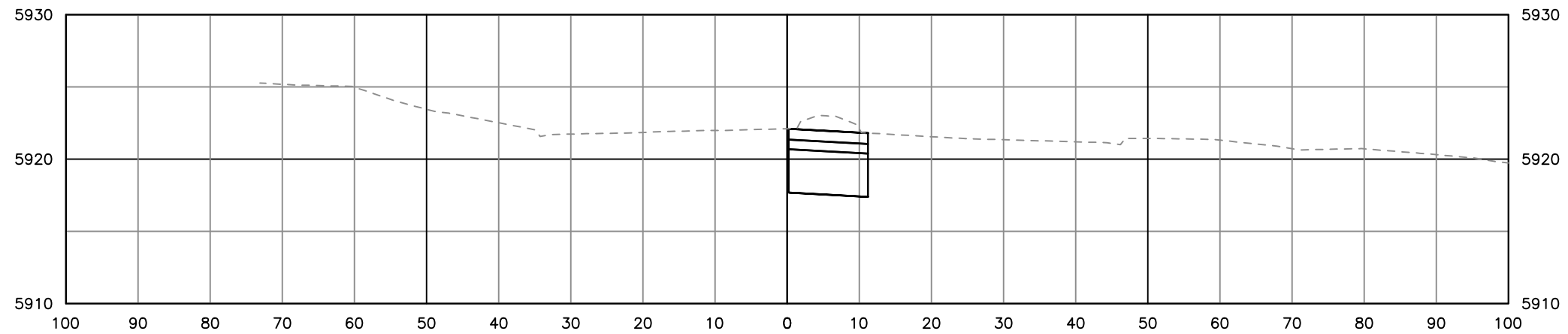
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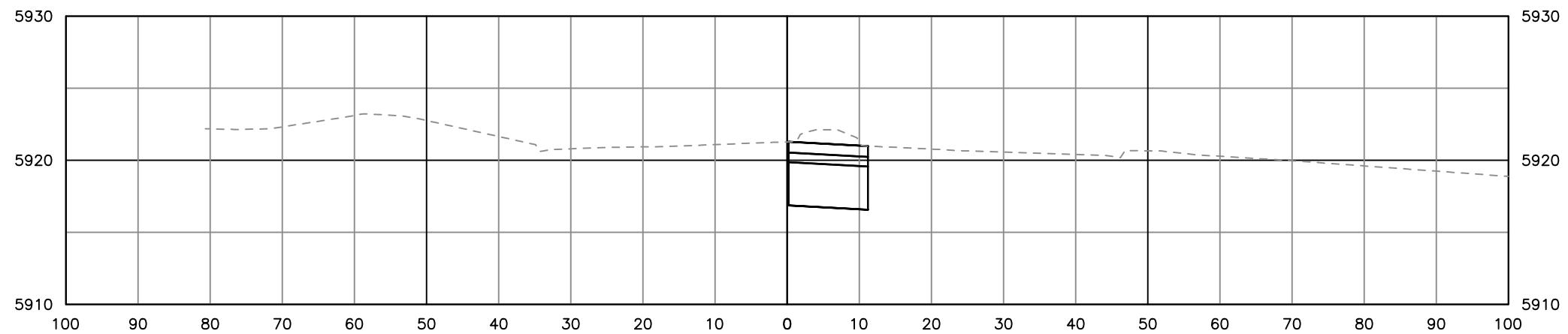
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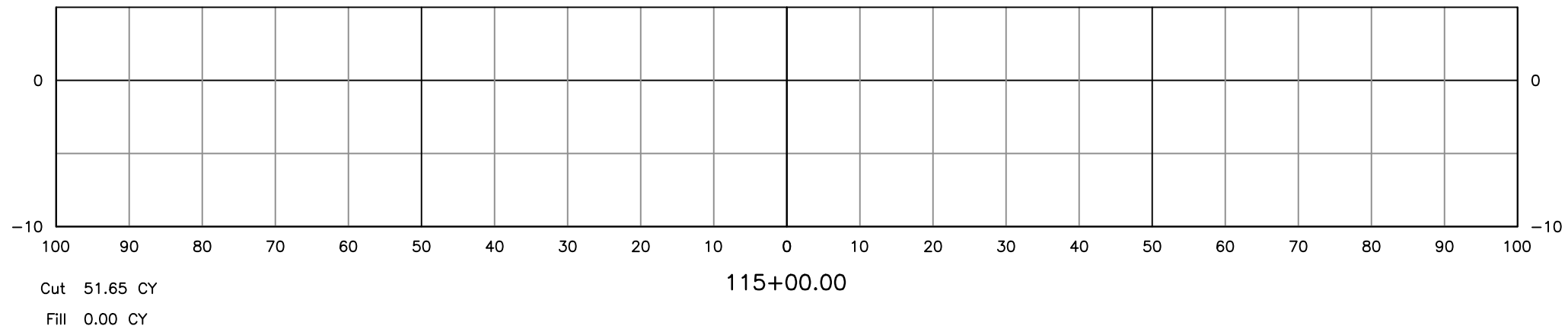
Sheet Revisions		
Date	Comments	Initials

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CONSULTING LTD

8008 E. Arapahoe Court, Suite 110, Centennial, CO 80112 ph 303.708.0300 fax 303.708.0400 manhard.com
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As Constructed	PEORIA & BELFORD INTERSECTION ROADWAY CROSS SECTIONS PEORIA		Project No./Code
No Revisions:	Designer: DCS	Structure	
Revised:	Detailer: DCS	Numbers	
Void:	Subset: ROADWAY	Sheets: CS-12 of 16	Sheet Number 70

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



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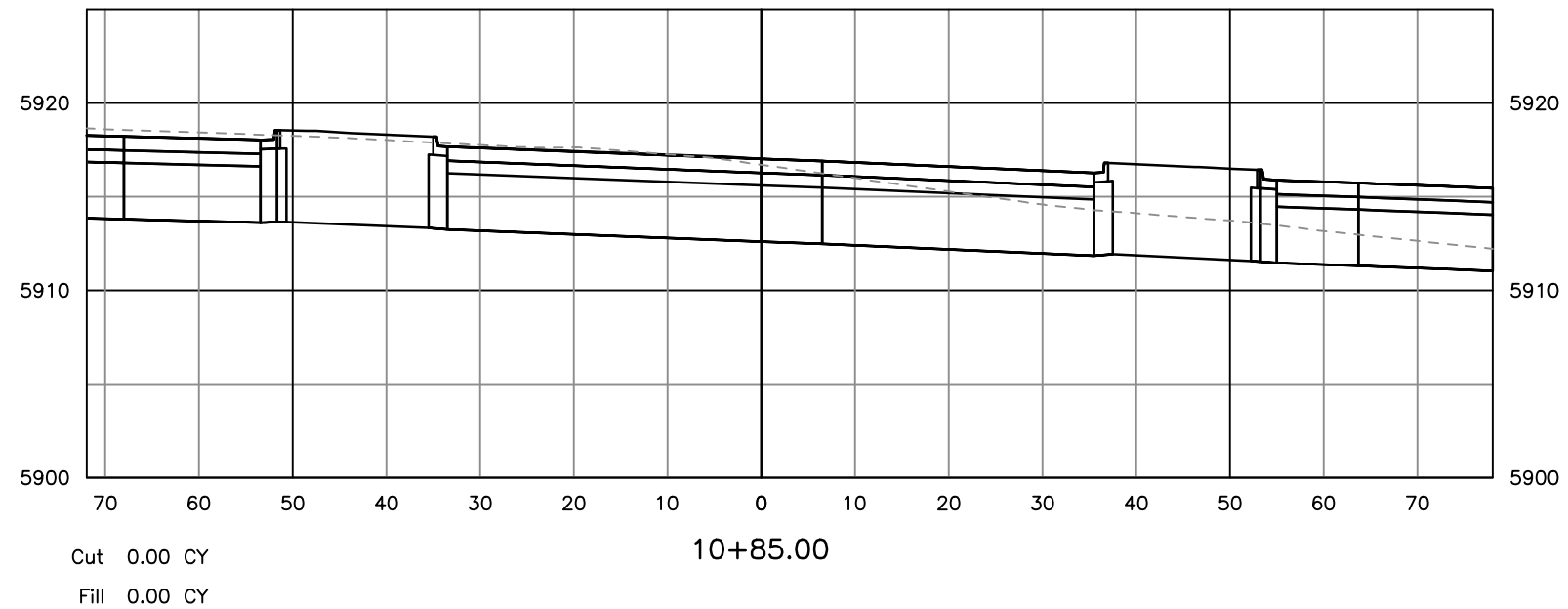
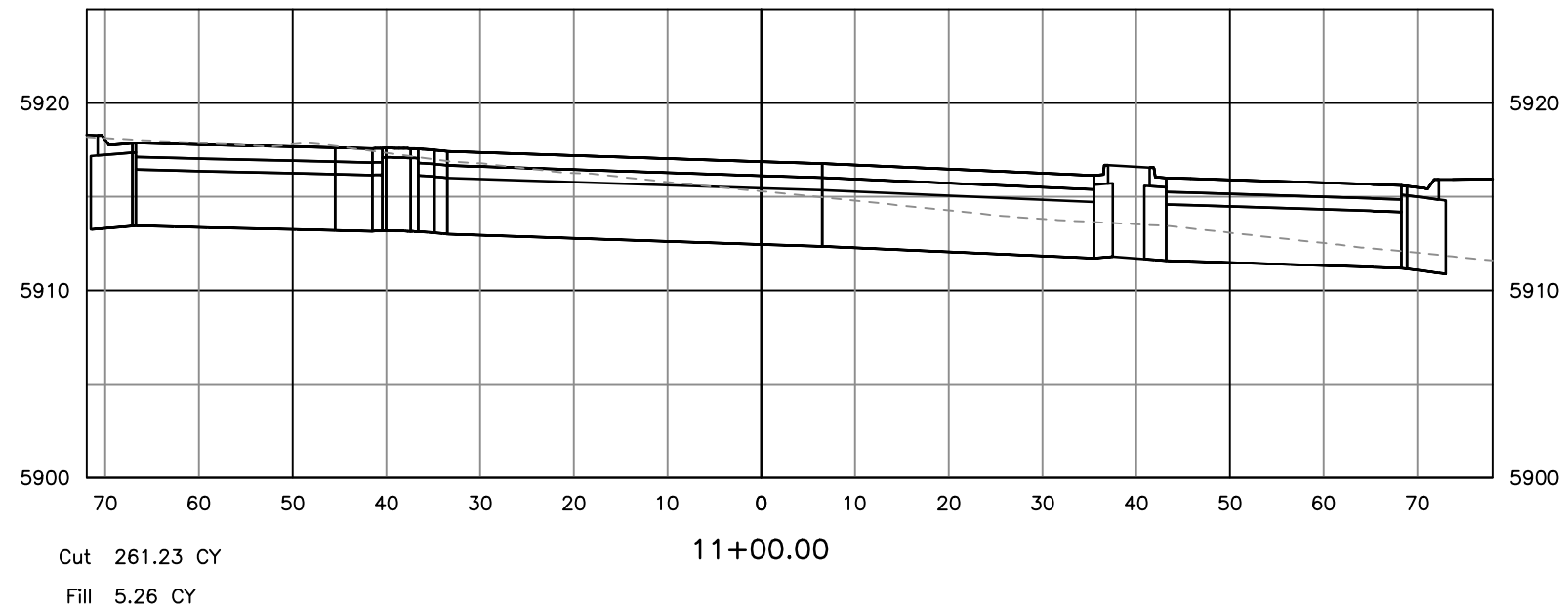
800 E. Arapaho Court, Suite 110, Centennial, CO 80112 ph 303.708.0900 fax 303.708.0400 manhard.com
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Revised:
Void:

PEORIA & BELFORD INTERSECTION ROADWAY CROSS SECTIONS PEORIA		
Designer:	DCS	Structure
Detailer:	DCS	Numbers
Subset:	ROADWAY	Sheets: CS-13 of 16

Project No./Code
Sheet Number 71

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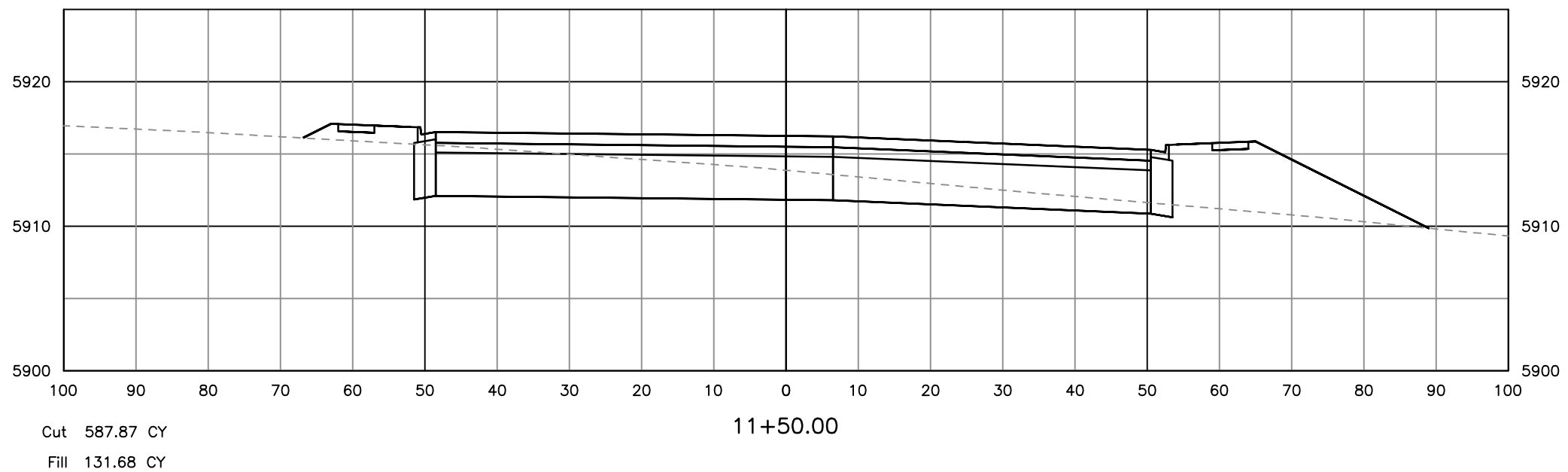
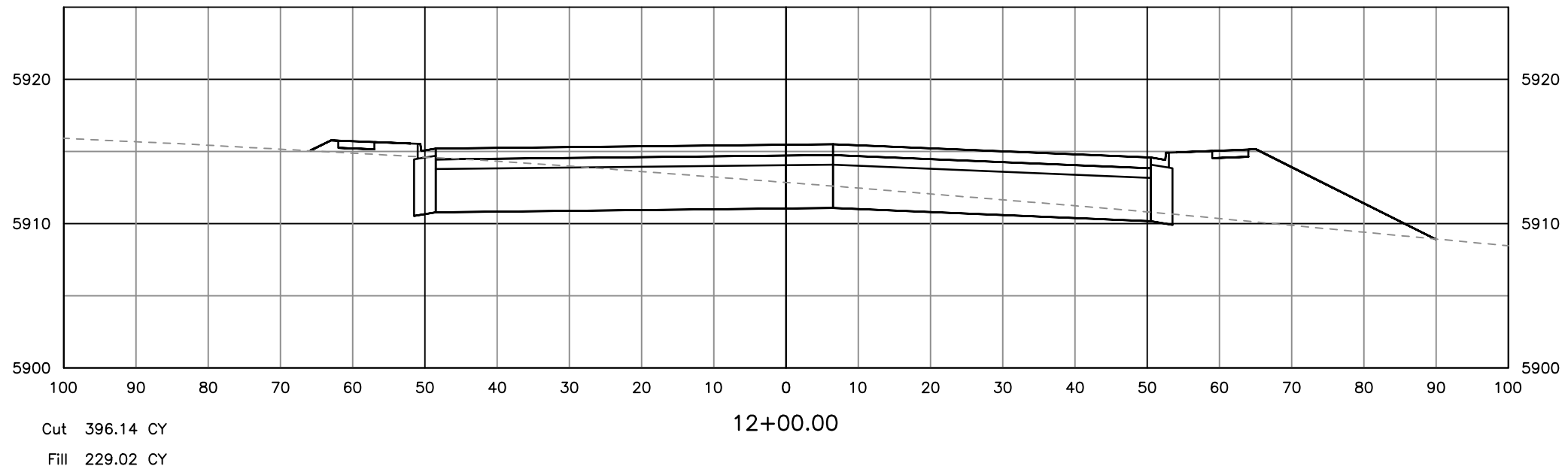
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Sheet Revisions		
Date	Comments	Initials



As Constructed	PEORIA & BELFORD INTERSECTION ROADWAY CROSS SECTIONS BELFORD		Project No./Code
No Revisions:	Designer: DCS	Structure	
Revised:	Detailer: DCS	Numbers	
Void:	Subset: ROADWAY	Sheets: CS-14 of 16	Sheet Number 72

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



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Horizontal Scale: 1"=20' Vertical Scale: 1"=10'

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Date	Comments	Initials

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No Revisions:
Revised:
Void:

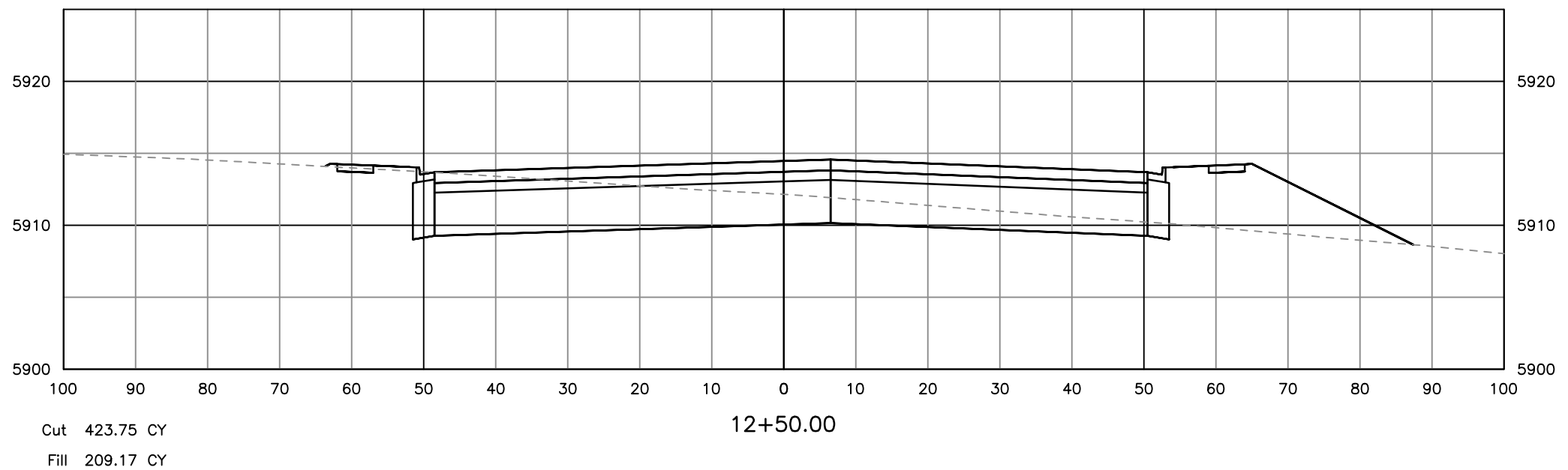
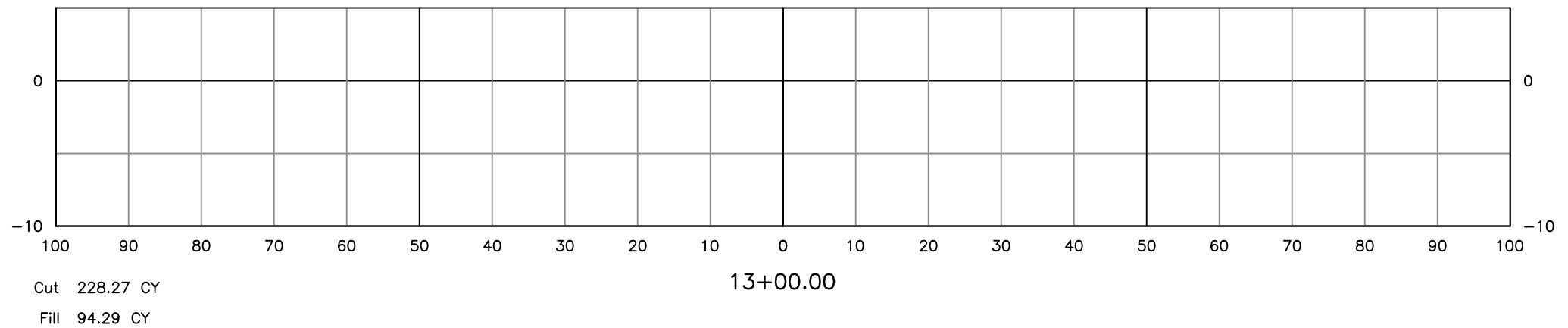
**PEORIA & BELFORD INTERSECTION
ROADWAY CROSS SECTIONS
BELFORD**

Designer: DCS
Detailer: DCS
Subset: ROADWAY

Structure Numbers
Sheets: CS-15 of 16

Project No./Code
Sheet Number **73**

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

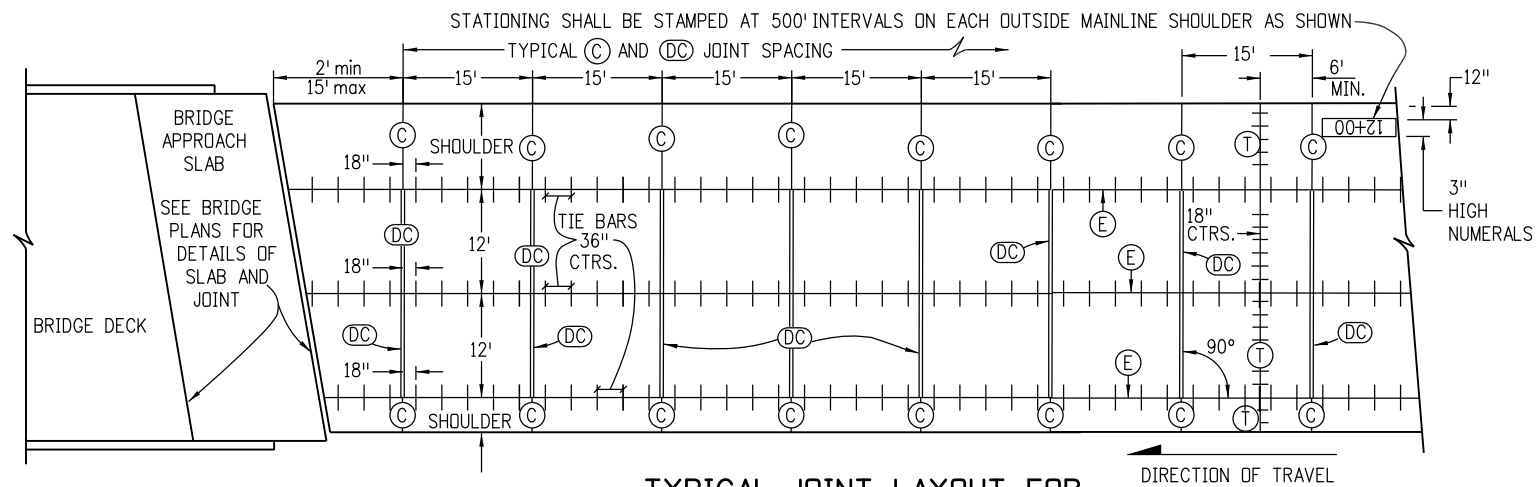


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6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832	

Sheet Revisions		
(R-X)	Date	Comments



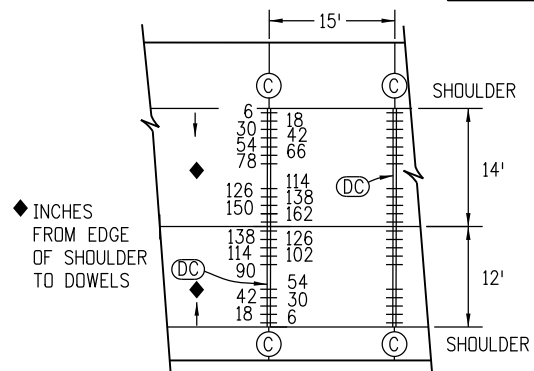
As Constructed	PEORIA & BELFORD INTERSECTION		Project No./Code
	ROADWAY CROSS SECTIONS		
	BELFORD		
No Revisions:	Designer: DCS	Structure	Sheet Number 74
Revised:	Detailer: DCS	Numbers	
Void:	Subset: ROADWAY	Sheets: CS-16 of 16	



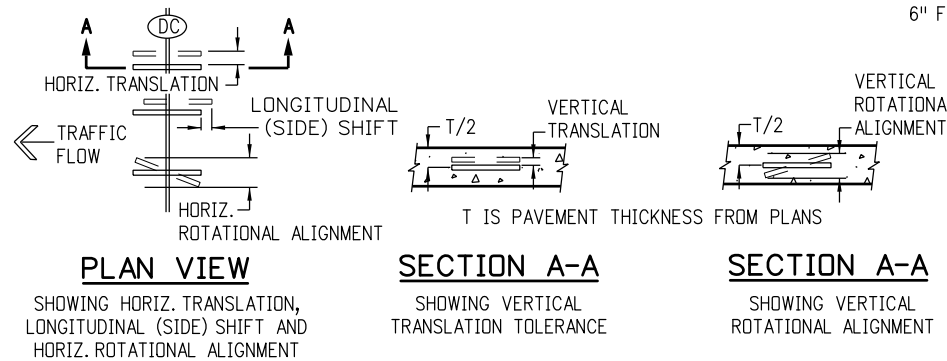
TYPICAL JOINT LAYOUT FOR CONCRETE ROADWAY WITH CONCRETE SHOULDERS

GENERAL NOTES

1. THIS STANDARD PLAN DOES NOT APPLY TO THIN CONCRETE OVERLAYS (WHITETOPPING).
2. LOCATE (T) JOINT AT A (C) JOINT OR A MINIMUM OF 6 FT. FROM A (C) JOINT.
3. THIS JOINT LAYOUT SHALL BE USED AS A STANDARD OF THE JOINT LAYOUT FOR THE PROJECT. IF THE CONTRACTOR PROPOSES VARIATIONS FROM THIS STANDARD OR THE PROJECT HAS UNUSUAL OR IRREGULAR CONDITIONS NOT COVERED HEREIN, THE CONTRACTOR SHALL PREPARE A PAVEMENT JOINT LAYOUT FOR APPROVAL BY THE ENGINEER. SLABS 14 FT. IN WIDTH SHALL BE CONSTRUCTED ONLY WHERE DESIGNATED ON THE PLANS.
4. ON MULTILANE DIVIDED HIGHWAYS, THE MULTILANE DIRECTIONAL PAVEMENT AND BOTH SHOULDERS SHALL BE PLACED WITH (E) LONGITUDINAL SAWED CONTRACTION JOINTS.
5. ON MULTILANE DIVIDED HIGHWAYS SEPARATED BY A CONCRETE BARRIER, A (D) JOINT SHALL BE CONSTRUCTED AT ONE OF THE BARRIER FACES.
6. (D) JOINTS SHALL BE CONSTRUCTED BETWEEN THE TWO OPPOSING DIRECTIONS OF TRAVEL ON A MULTILANE UNDIVIDED HIGHWAY WHEN ALL OF THE FOLLOWING APPLY:
 - A. PAVEMENT IS CONTINUOUS ACROSS BOTH DIRECTIONS OF TRAVEL.
 - B. THERE IS NO MEDIAN BARRIER.
 - C. THE WIDTH OF THE PAVEMENT IN ONE DIRECTION IS GREATER THAN 80 FEET.
7. ON VARIABLE WIDTH SLABS, THE 2 FT. OR 4 FT. END OF SLAB WIDTH DIMENSION MAY VARY ±6 INCHES.
8. (L) JOINTS ARE TO BE USED WHEN A TRAFFIC LANE IS ADDED SEPARATELY, OR FOR TAPERS, OR FOR SPEED CHANGE LANES. ALTERNATIVE LONGITUDINAL JOINT LOCATIONS AT SPEED CHANGE LANES MAY BE USED IF APPROVED.
9. WHERE (DC) JOINTS ARE SHOWN IN THE SHOULDER, THE DOWEL BARS WILL BE PLACED ON 12" CENTERS STARTING 6" FROM THE ROADWAY (E) JOINT.



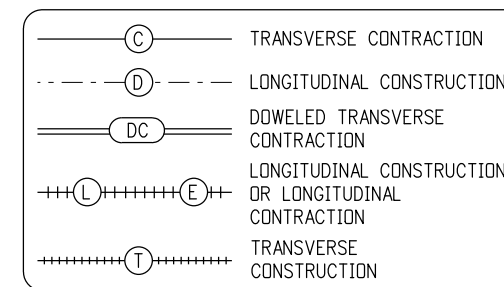
DOWEL BAR DETAIL FOR (DC) JOINT WITH 14 FT. AND 12 FT. LANES



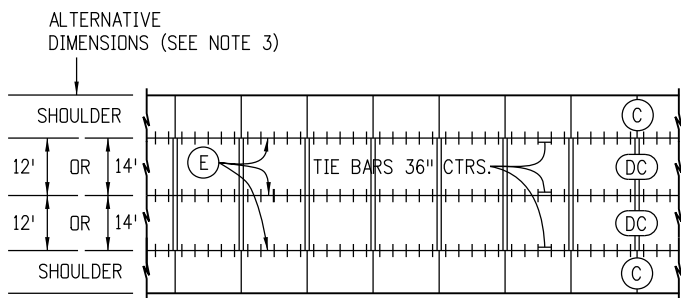
DETAILS ILLUSTRATING DOWEL PLACEMENT TOLERANCES
SEE SUBSECTION 412.13(b)2 FOR ALLOWED TOLERANCE VALUES.

JOINT LEGEND

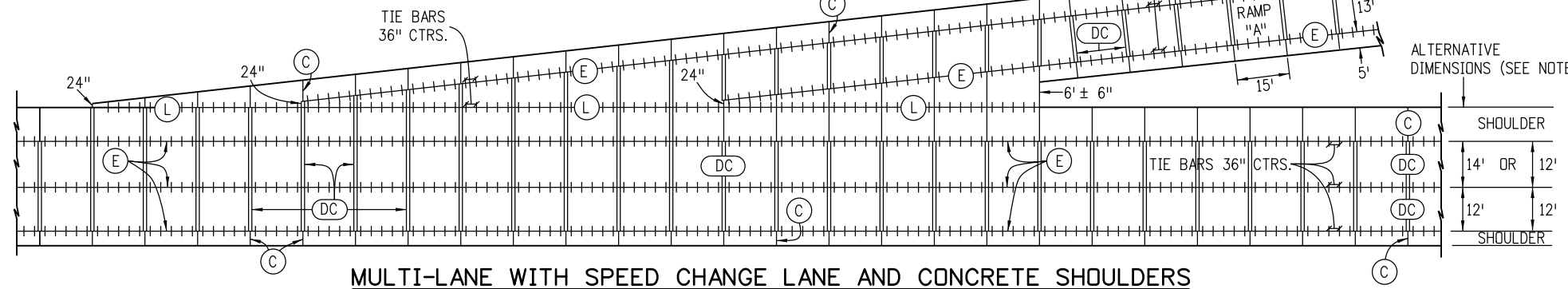
(SEE SHEET 5 FOR JOINT DETAILS)



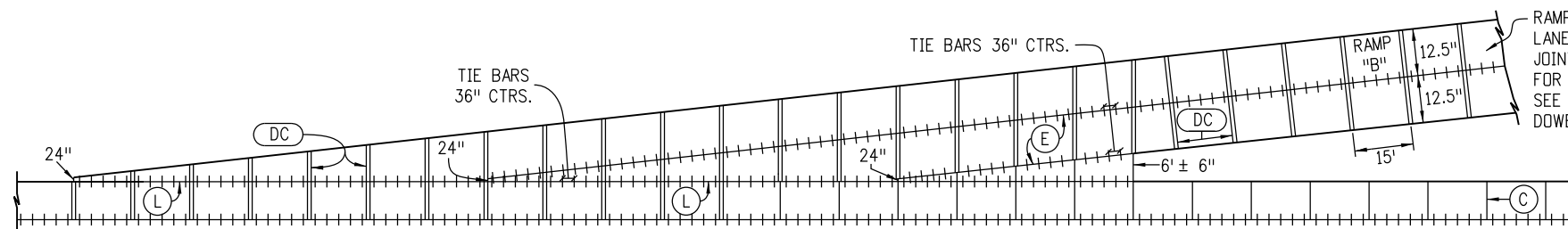
RAMP AND SPEED CHANGE LANE DIMENSIONING FOR JOINTS ONLY. SEE PLANS FOR STRIPING LOCATIONS. SEE SHEET 2 FOR RAMP DOWEL BAR DETAILS.



RURAL TWO-LANE



MULTI-LANE WITH SPEED CHANGE LANE AND CONCRETE SHOULDERS



OPTIONAL LONGITUDINAL JOINT IN CENTER FOR SINGLE LANE SPEED CHANGE LANE

Computer File Information

Creation Date: 07/04/12	Initials: DD
Last Modification Date: 07/24/12	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 412010105.dgn	
CAD Ver.: MicroStation V8	Scale: Not to Scale Units: English

Sheet Revisions

Date:	Comments
07/24/12	Changed Tie Bar spacing from 30" to 36".

Colorado Department of Transportation

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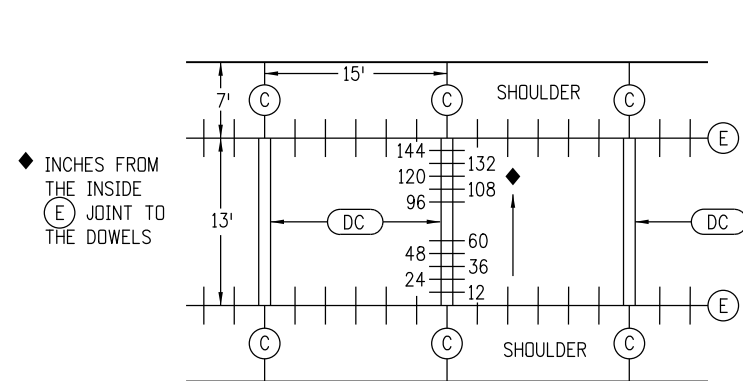
CONCRETE PAVEMENT JOINTS

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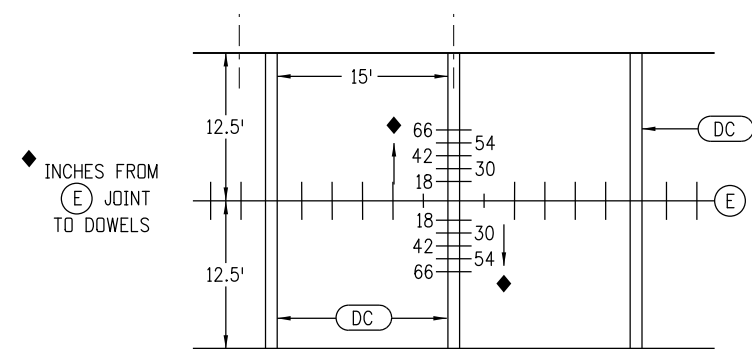
STANDARD PLAN NO.

M-412-1

Sheet No. 1 of 5



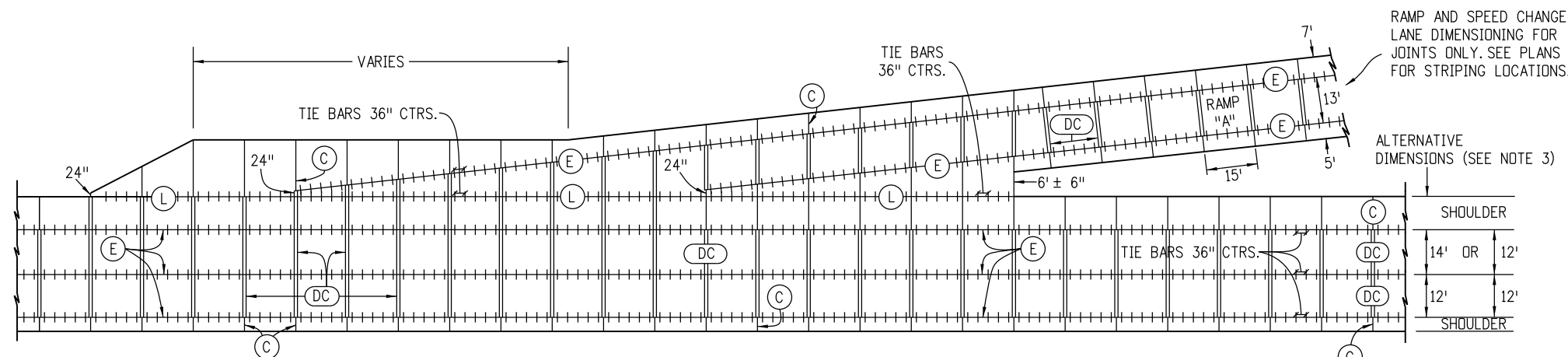
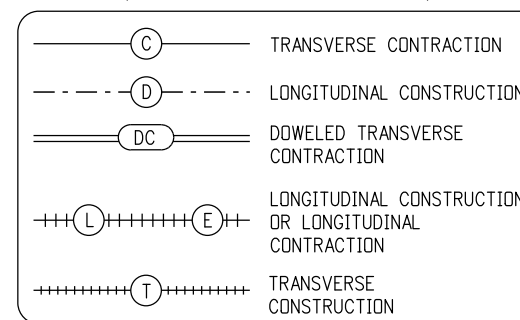
RAMP "A" DOWEL BAR DETAIL FOR DC JOINT WITH A 13 FT. LANE



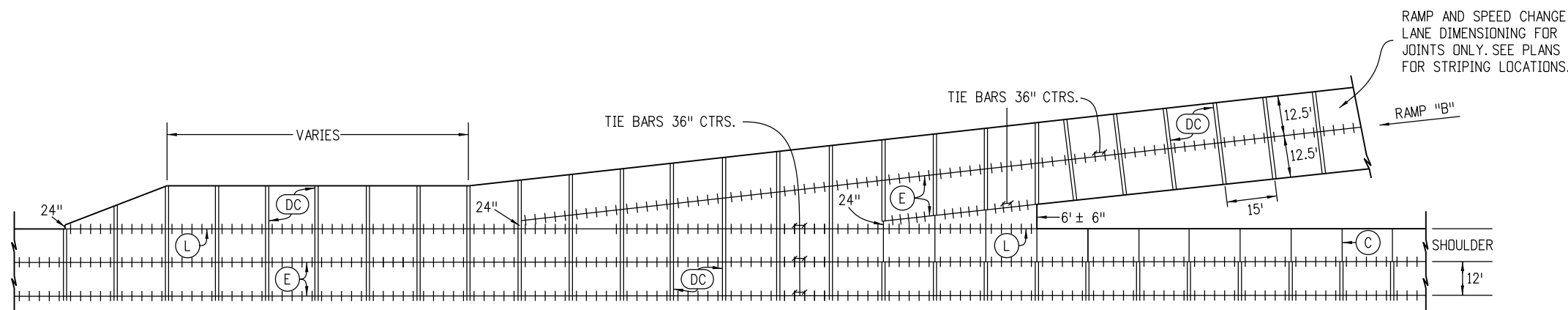
RAMP "B" DOWEL BAR DETAIL FOR DC JOINT WITH CENTER LONGITUDINAL SPLIT LANE

JOINT LEGEND

(SEE SHEET 5 FOR JOINT DETAILS)



MULTI-LANE WITH ACCELERATION AND DECELERATION LANES AND CONCRETE SHOULDERS



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

Computer File Information

Creation Date: 07/04/12	Initials: DD
Last Modification Date: 07/24/12	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 412010205.dgn	
CAD Ver.: MicroStation V8	Scale: Not to Scale Units: English

Sheet Revisions

Date:	Comments
07/24/12	Changed Tie Bar spacing from 30" to 36".

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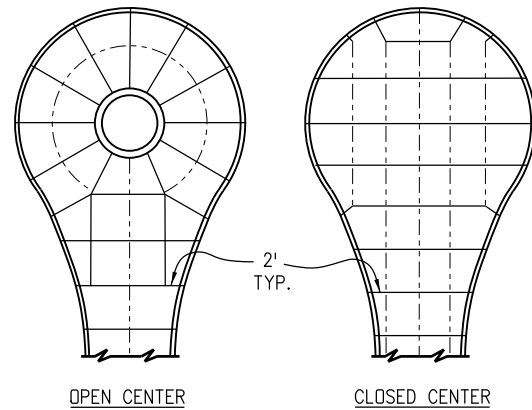
CONCRETE PAVEMENT JOINTS

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.

M-412-1

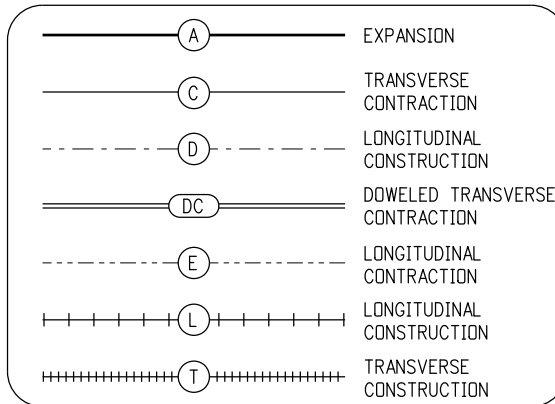
Sheet No. 2 of 5



CUL-DE-SAC

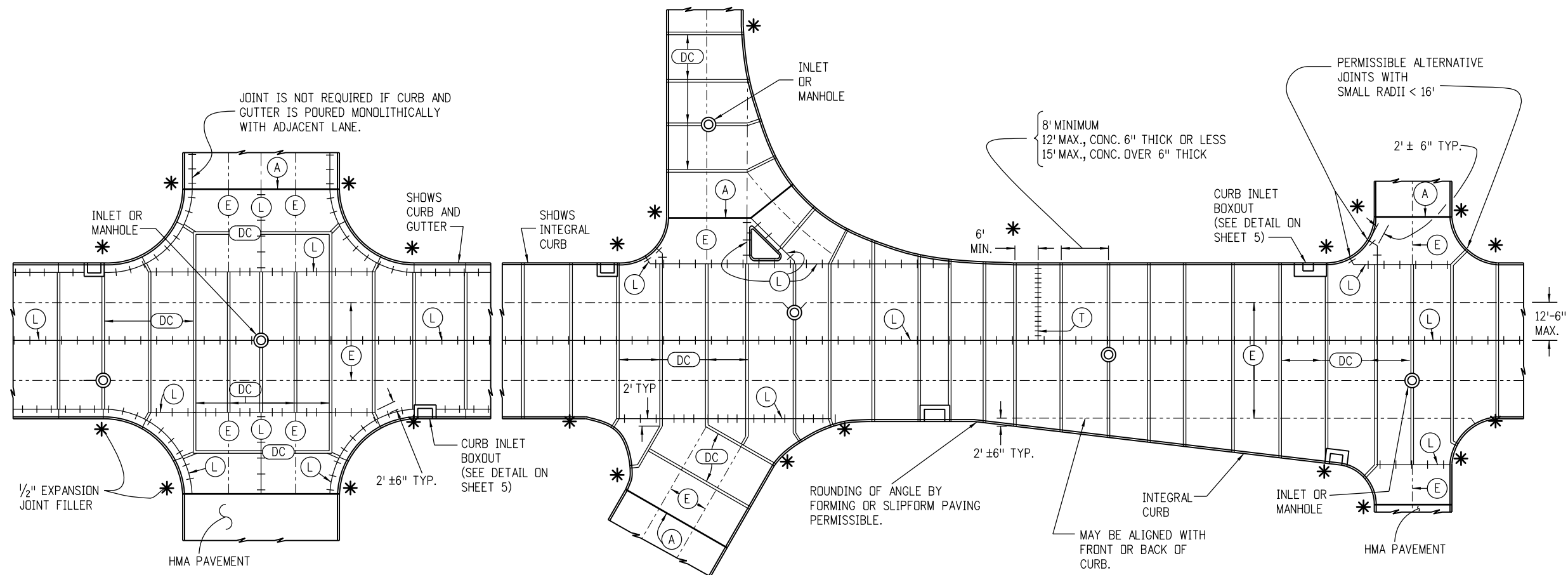
JOINT LEGEND

(SEE SHEET 5 FOR JOINT DETAILS)



NOTES

1. LONGITUDINAL JOINTS SHALL BE PLACED ADJACENT TO LANE MARKINGS WHEN POSSIBLE, AND HAVE A MAXIMUM SPACING OF 12 FT.-6 IN. (15 FT. IS PERMITTED WITH MONOLITHIC CURB AND GUTTER).
2. CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE CENTERLINE OF PAVEMENT AND EXTEND THROUGH THE CURB OR CURB AND GUTTER.
- * 3. PLACE 1/2 IN. MIN. EXPANSION JOINT FILLER IN TOP 6 IN. OF CURB JOINT AT INTERSECTION RETURN RADIUS POINTS.
4. THE CONTRACTOR SHALL, UNLESS OTHERWISE SHOWN ON THE PLANS, SELECT AND USE A BOND BREAKER AT INLETS, MANHOLES AND SIMILAR SIZE STRUCTURES. SMALLER STRUCTURES SUCH AS VALVE AND MONUMENT BOXES SHALL NOT REQUIRE A BOND BREAKER.
5. WHERE A LONGITUDINAL JOINT PASSES LESS THAN 1 FT. FROM A CAST-IN-PAVEMENT MANHOLE OR SIMILAR SIZE STRUCTURE, A TYPICAL 2 FT. RADIAL JOINT, AS SHOWN IN THE DETAILS, SHALL BE USED.
6. TRANSVERSE JOINTS SHALL EITHER INTERSECT THE CENTER OF CIRCULAR MANHOLES AND INLETS OR BE AT LEAST 4 FT. AWAY FROM THE EDGE OF CIRCULAR MANHOLES. SEE CURB INLET BOXOUT DETAIL ON SHEET 5.
7. LOCATE (T) JOINT AT A (DC) JOINT OR A MINIMUM OF 6 FT. FROM A (DC) JOINT.
6. THE ENGINEERS SHALL HAVE AN OPTION TO USE INDIVIDUAL DOWELS IN THE DC JOINT ON SHORT RUN (2' ± 6") TO CURB RADIUS RETURNS.



TYPICAL CURBED PAVEMENT JOINT LAYOUT

Computer File Information	
Creation Date: 07/04/12	Initials: DD
Last Modification Date: 07/04/12	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 412010305.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

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

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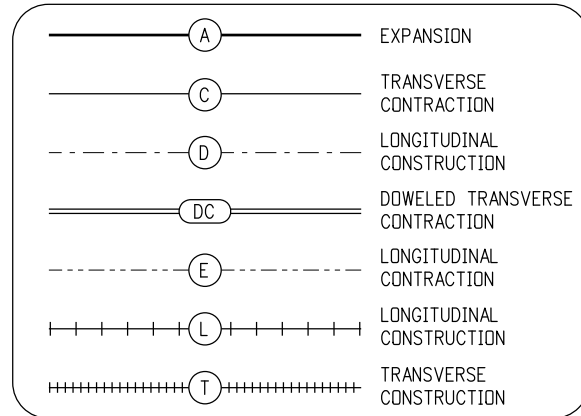
Division of Project Support **DLM/LTA**

**CONCRETE
PAVEMENT JOINTS**

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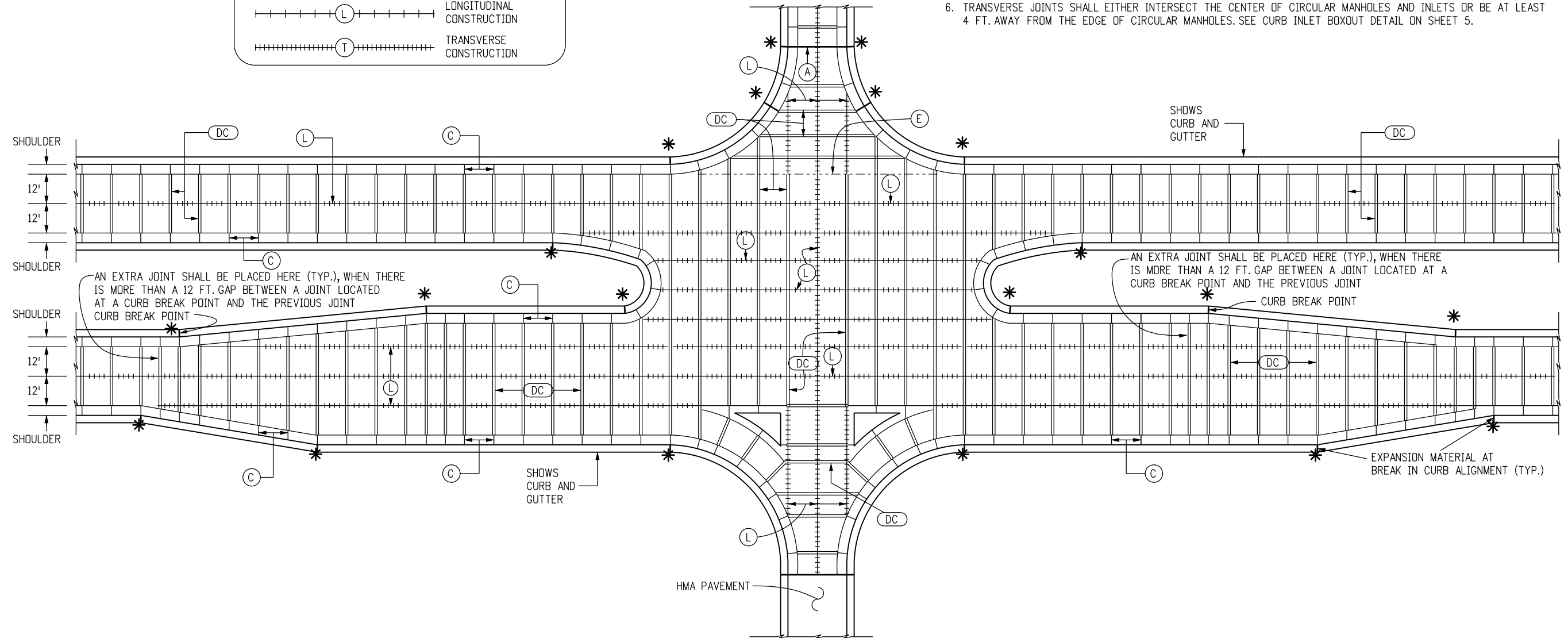
STANDARD PLAN NO.
M-412-1
Sheet No. 3 of 5

JOINT LEGEND
(SEE SHEET 5 FOR JOINT DETAILS)



NOTES

- LONGITUDINAL JOINTS SHALL BE PLACED ADJACENT TO LANE MARKINGS WHEN POSSIBLE, AND HAVE MAXIMUM SPACING OF 12 FT.-6 IN. (15 FT. IS PERMITTED WITH MONOLITHIC CURB AND GUTTER).
- CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE CENTERLINE OF PAVEMENT AND EXTEND THROUGH THE CURB OR CURB AND GUTTER.
- PLACE 1/2 IN. MIN. EXPANSION JOINT FILLER IN TOP 6 IN. OF CURB JOINT AT INTERSECTION RETURN RADIUS POINTS.
- THE CONTRACTOR SHALL, UNLESS OTHERWISE SHOWN ON THE PLANS, SELECT AND USE A BOND BREAKER AT INLETS, MANHOLES AND SIMILAR SIZE STRUCTURES. SMALLER STRUCTURES SUCH AS VALVE AND MONUMENT BOXES DO NOT REQUIRE A BOND BREAKER.
- WHERE A LONGITUDINAL JOINT WOULD PASS LESS THAN 1 FT. FROM A CAST-IN-PAVEMENT MANHOLE OR SIMILAR SIZE STRUCTURE, A TYPICAL 2 FT. RADIAL JOINT, AS SHOWN IN THE DETAILS, SHALL BE USED.
- TRANSVERSE JOINTS SHALL EITHER INTERSECT THE CENTER OF CIRCULAR MANHOLES AND INLETS OR BE AT LEAST 4 FT. AWAY FROM THE EDGE OF CIRCULAR MANHOLES. SEE CURB INLET BOXOUT DETAIL ON SHEET 5.



MULTI-LANE INTERSECTION WITH SPEED CHANGE LANE AND CONCRETE SHOULDERS

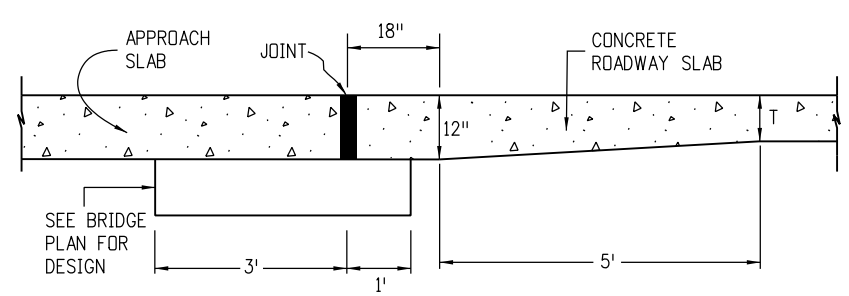
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Date:	Comments
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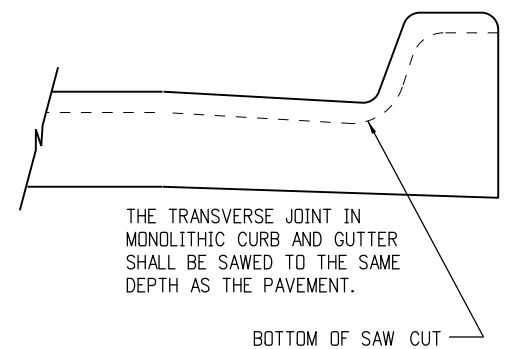

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**CONCRETE
PAVEMENT JOINTS**
 Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-412-1
Sheet No. 4 of 5



BRIDGE APPROACH



NOTE

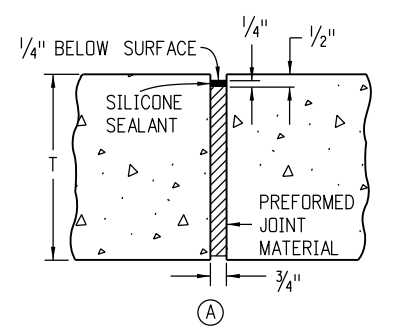
PAVEMENT THICKNESS (T), SHALL BE AS SHOWN ON THE PLANS.

PAVEMENT THICKNESS (T)	DOWEL BAR DIAMETER
T < 8 IN.	1 IN.
8 IN. ≥ T ≤ 10 IN.	1.25 IN.
10 IN. > T ≤ 15 IN.	1.50 IN.

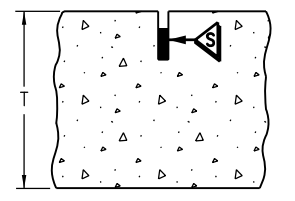
REINFORCING SIZE TABLE

TIE BAR SIZE IS NO. 5 WHEN PAVEMENT IS PLACED ON UNBOUND BASES.

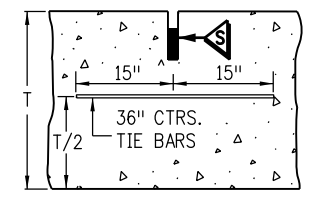
TIE BAR IS NO. 6 WHEN PAVEMENT IS PLACED ON LIME TREATED SOIL, ASPHALT OR CEMENT TREATED, MILLED ASPHALT, OR RECYCLED ASPHALT BASES.



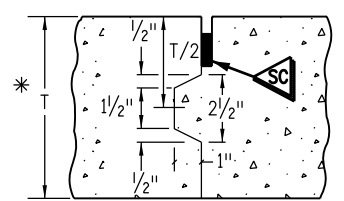
EXPANSION JOINT



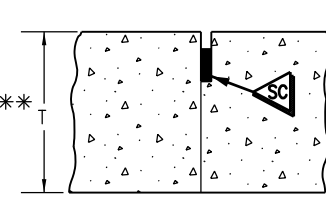
TRANSVERSE CONTRACTION JOINT
(TRANSVERSE WEAKENED PLANE JOINT)



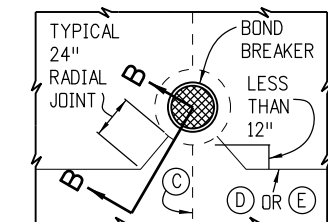
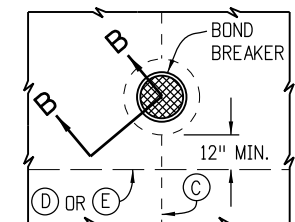
LONGITUDINAL CONTRACTION JOINT
(LONGITUDINAL WEAKENED PLANE JOINT)



LONGITUDINAL CONSTRUCTION JOINT
* USE ONLY IF T ≥ 8 IN.
FORM ONLY FEMALE KEYWAY

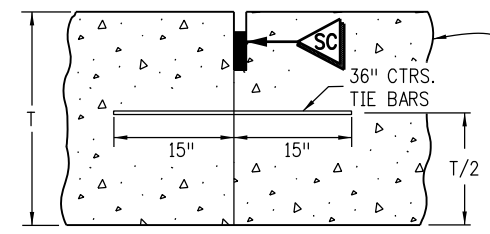


LONGITUDINAL CONSTRUCTION JOINT
** USE ONLY IF T < 8 IN.

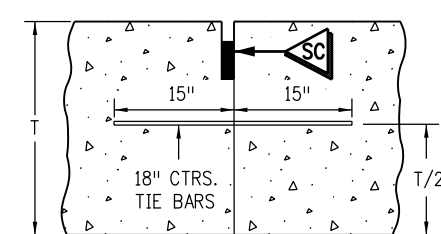


INLET OR MANHOLE CAST IN PAVEMENT

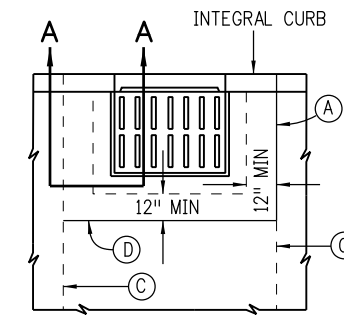
INSTALL TRANSVERSE JOINT AT BOTH BOXOUT CORNERS IF BOXOUT IS 8 FT. OR LONGER.



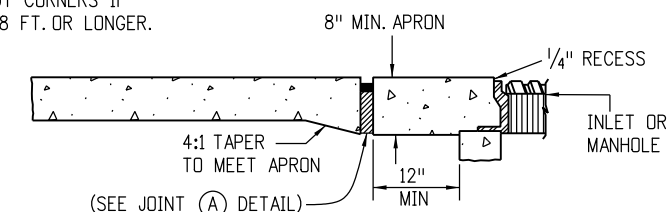
LONGITUDINAL CONSTRUCTION JOINT



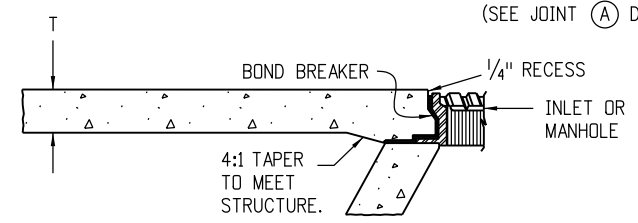
TRANSVERSE CONSTRUCTION JOINT



CURB INLET BOXOUT



SECTION A-A

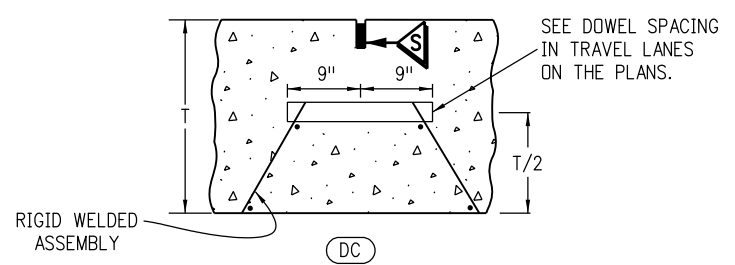


SECTION B-B

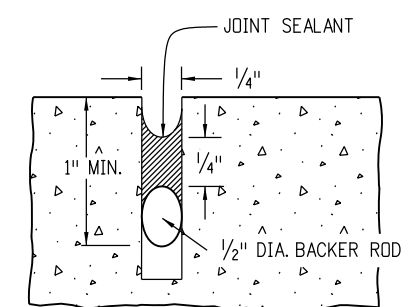
BOND BREAKER SHALL BE COMPOSED OF PLASTIC SHEET, BUILDING PAPER OR OTHER APPROVED MATERIAL THAT PREVENTS BONDING.

A KEYWAY IS ALLOWED TO FACILITATE USE OF BENT TIE BARS OR APPROVED TWO PIECE CONNECTORS

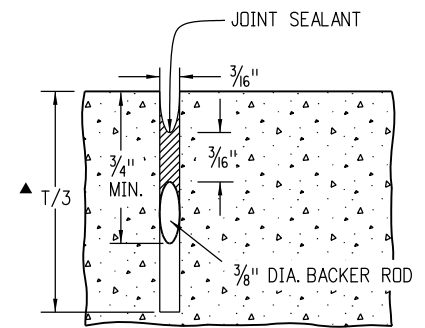
▲ SHALL BE 0.4T FOR LONGITUDINAL JOINTS ALONG SLABS 14 FT. IN WIDTH.



DOWELED TRANSVERSE CONTRACTION JOINT



SEAL AT CONSTRUCTION JOINT



SAWED JOINT

Computer File Information

Creation Date: 07/04/12	Initials: DD
Last Modification Date: 07/24/12	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 412010505.dgn	
CAD Ver.: MicroStation V8	Scale: Not to Scale Units: English

Sheet Revisions

Date:	Comments
07/24/12	Changed Tie Bar spacing from 30" to 36".
	Modified the Reinforcing Size Table.

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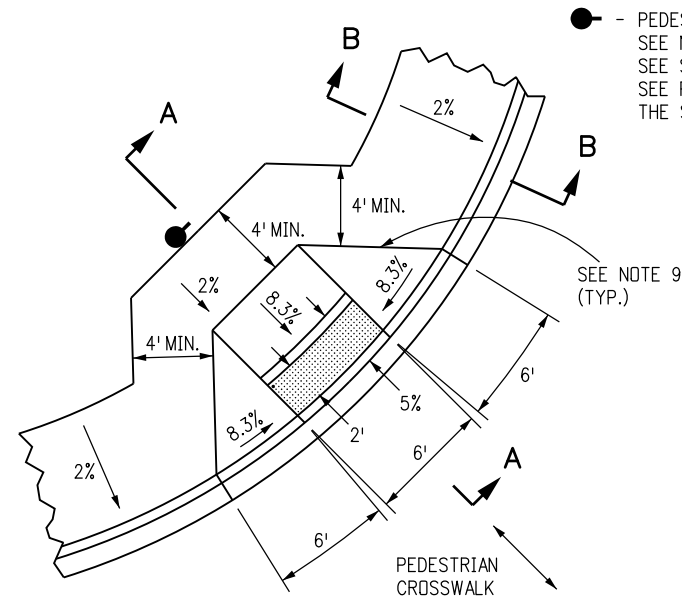
CONCRETE PAVEMENT JOINTS

Issued By: Project Development Branch on July 4, 2012

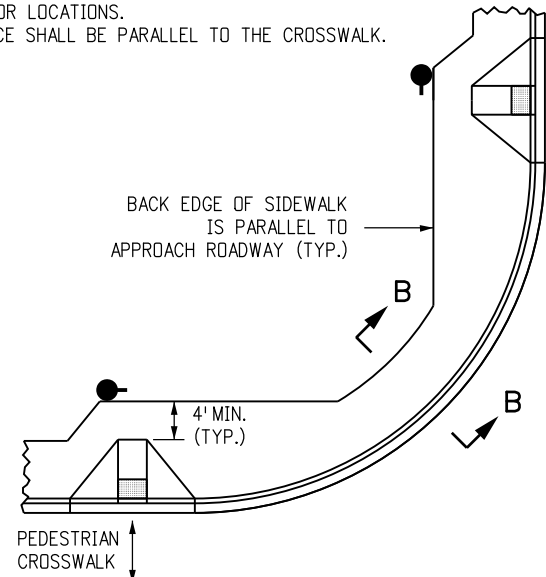
STANDARD PLAN NO.

M-412-1

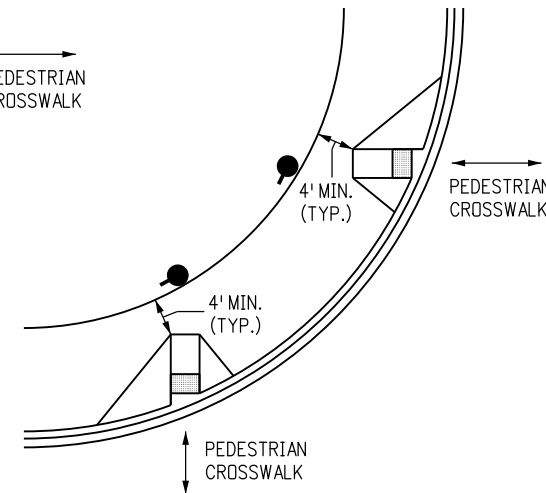
Sheet No. 5 of 5



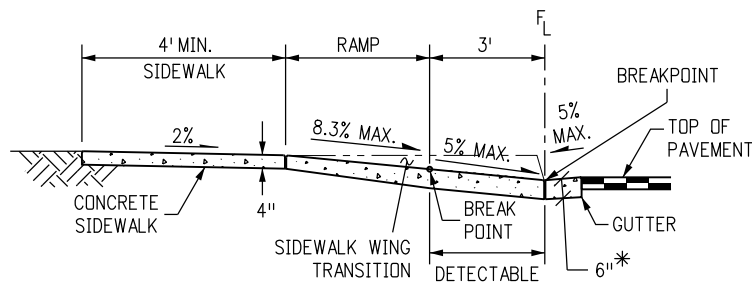
CURB RAMP TYPE 1A



CURB RAMP TYPE 1B

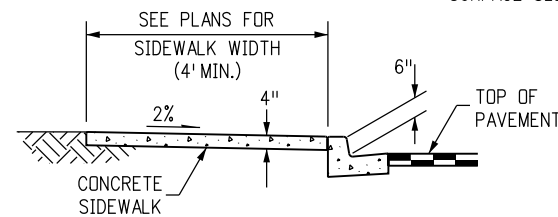


CURB RAMP TYPE 1B MODIFIED

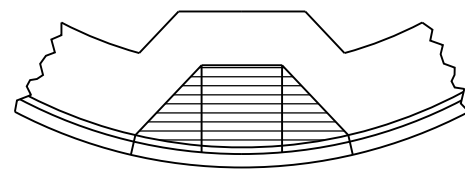


SECTION A-A

(PPBPA NOT SHOWN IN SECTION VIEWS AS IT MAY NOT BE REQUIRED.)

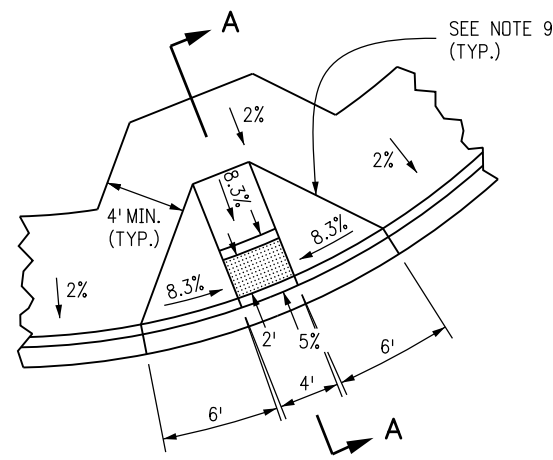


SECTION B-B



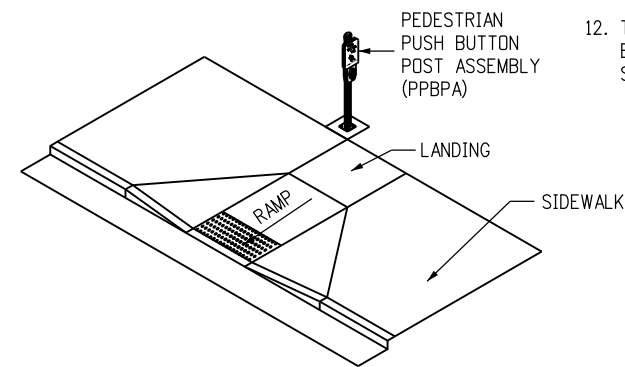
RAMP PAY AREA

FOR CURB RAMPS
TYPES 1A AND 1B

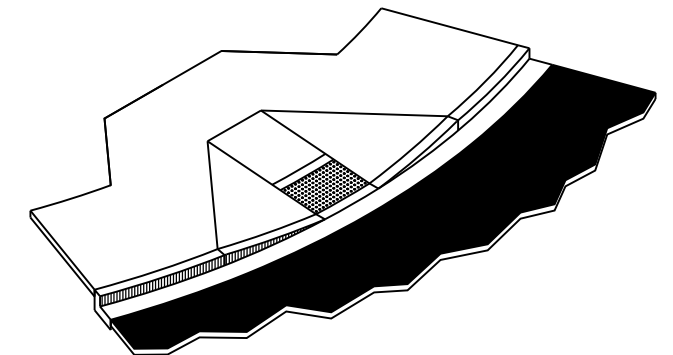


RAMP DETAIL

FOR CURB RAMP
TYPE 1B



**CURB RAMP WITH
PEDESTRIAN PUSH BUTTON POST**



ISOMETRIC VIEW

● - PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA).
SEE NOTE 8.
SEE STANDARD PLAN S-614-9 FOR PPBPA DETAILS.
SEE PLANS FOR LOCATIONS.
THE SIGN FACE SHALL BE PARALLEL TO THE CROSSWALK.

SEE NOTE 9
(TYP.)

BACK EDGE OF SIDEWALK
IS PARALLEL TO
APPROACH ROADWAY (TYP.)

SEE NOTE 11

USE ONLY IF EXISTING ROW DICTATES.
GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE
OF THE RAMP RUNS AND TURNING SPACES.
SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.
SEE NOTE 11.

* INCREASES TO 8"
FOR BRICK PAVERS.

GENERAL NOTES

1. THE DETECTABLE WARNINGS SHALL BE INSTALLED AT SIDEWALK TO STREET TRANSITIONS. THEY SHALL HAVE A TRUNCATED DOME SURFACE. THE DOMES SHALL BE IN A SQUARE GRID PATTERN.
2. ALL DETECTABLE WARNING AREAS SHALL START A MINIMUM OF 6 IN. FROM THE FLOW LINE OF THE CURB AND NOT BE MORE THAN A MAXIMUM OF 8 IN. (WITH EXCEPTION FOR THE TYPE 1B MODIFIED AND TYPE 3B MODIFIED AS THIS DIMENSION MAY BE GREATER THAN 8 INCHES ON ONE SIDE OF THE RADIUS) FROM ANY POINT ON THE FLOW LINE OF THE CURB. ALL DETECTABLE WARNING AREAS SHALL BE 2 FT. IN LENGTH AND COVER THE COMPLETE WIDTH OF THE RAMP AREA ONLY.
3. RAMP SLOPES SHALL BE 8.3% OR FLATTER. THE DETECTABLE WARNING SLOPES SHALL BE 5% OR FLATTER.
4. MINIMUM SIDEWALK WIDTH IS 4 FT.
5. DO NOT INSTALL DRAINAGE STRUCTURES, TRAFFIC SIGNAL EQUIPMENT, JUNCTION BOXES, AND OTHER OBSTRUCTIONS IN FRONT OF THE RAMP ACCESS AREAS.
6. CONSTRUCTION OF THE CONCRETE PEDESTRIAN CURB ADJACENT TO THE RAMP AREAS SHALL BE INCLUDED IN THE BID PRICE OF THE CONCRETE CURB RAMP.
7. DETECTABLE WARNINGS SHALL MEET SECTION 705 OF THE USDOT ADA STANDARDS FOR TRANSPORTATION FACILITIES.
8. IF THE PLACEMENT OF A PEDESTRIAN PUSH BUTTON ASSEMBLY ON A TRAFFIC SIGNAL MAST POLE WILL NOT BE WITHIN EASY REACH (10" OR LESS AND UNOBSTRUCTED) OF PEDESTRIANS (IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT), THEN A SEPARATE PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA) SHALL BE INSTALLED WITHIN EASY REACH. THE PPBPA SHALL MEET THE PROVISIONS FOUND IN "SECTION 4E.08 THROUGH 4E.13 - PEDESTRIAN DETECTORS" OF THE 2009 MUTCD MANUAL WITH REVISIONS 1 AND 2.
9. WHERE SPACE IS LIMITED OR GRADE IS AN ISSUE, A 10% SLOPE MAY BE USED ON FLARED SIDES.
10. THE SLOPES CAN BE LOWER THAN WHAT IS SHOWN BUT THEY SHALL NOT EXCEED THESE VALUES.
11. CURB RAMP TYPE 1A DIAGONAL (ON THE APEX) IS UNACCEPTABLE IN NEW CONSTRUCTION. TYPICALLY, TWO CURB RAMPS AS IN TYPE 1B, MUST BE PROVIDED AT EACH STREET CORNER. ADA TITLE II 28 C.F.R. SECTION 35.151(B) STATES:
ALTERATIONS HAVE TO BE MADE READILY ACCESSIBLE, WITHIN THE IMPACTING PROJECT, TO THE MAXIMUM EXTENT FEASIBLE (MEF).
THEREFORE, A SINGLE, DIAGONAL CURB RAMP TYPE 1A WILL ONLY BE PERMITTED ON ALTERATION PROJECTS WITH MEF JUSTIFICATION DOCUMENTATION IN ACCORDANCE TO CDOT PROCEDURAL DIRECTIVE 605.1 AND IN COORDINATION WITH THE ADA TITLE II COORDINATOR.
12. THE CURB RAMP (EXCLUDING ANY FLARED SIDES) OR BLENDED TRANSITION SHALL BE CONTAINED WHOLLY WITHIN THE WIDTH OF THE CROSSWALK AND/OR PEDESTRIAN STREET CROSSING THE RAMP SERVES.

Computer File Information

Creation Date: 07/04/12	Initials: DLM
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CAD Ver.: MicroStation V8	(R-X)
Scale: Not to Scale	Units: English

Sheet Revisions

Date:	Comments

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Division of Project Support **DLM/LTA**

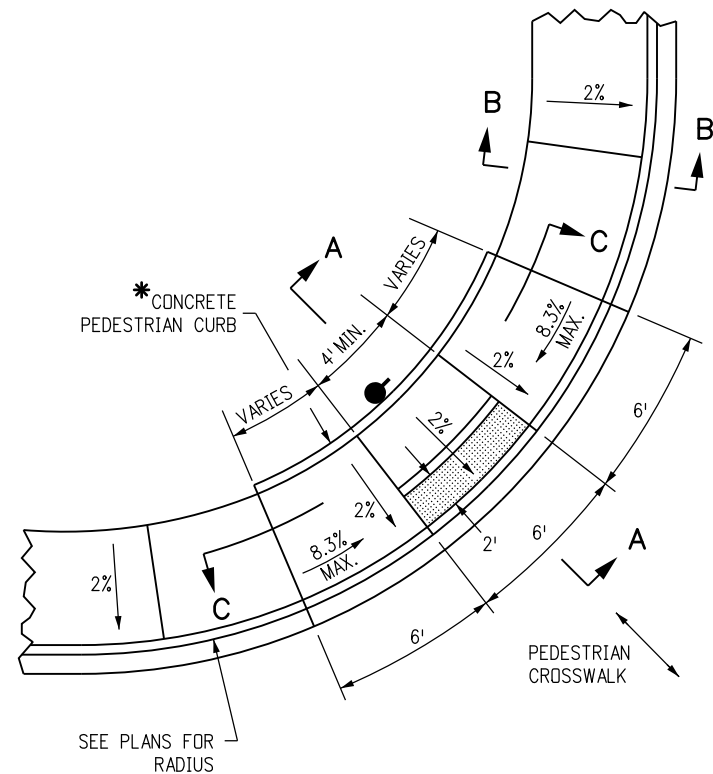
CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.

M-608-1

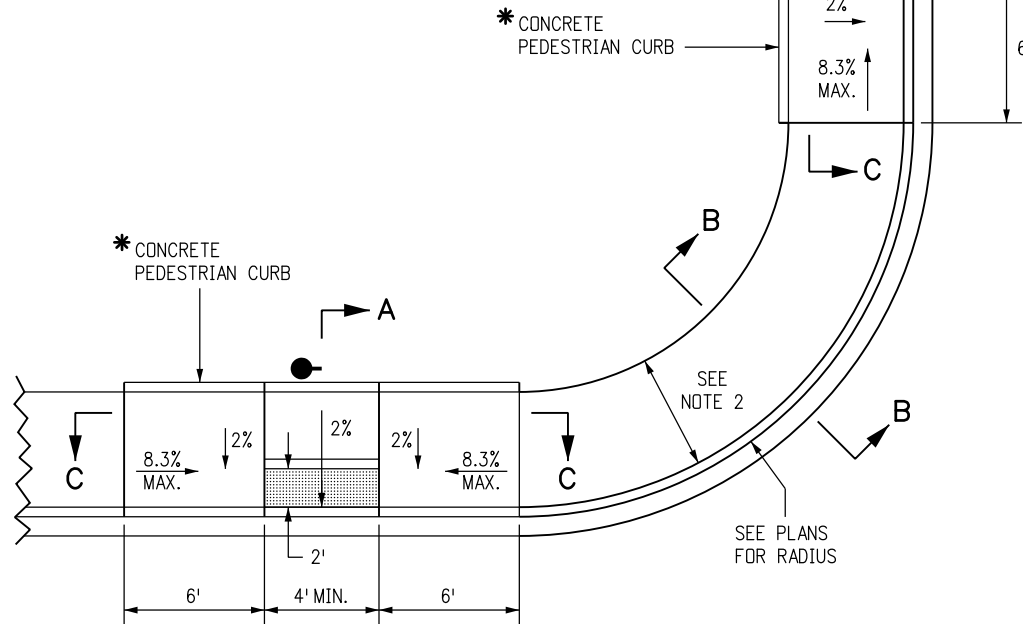
Sheet No. 1 of 7



CURB RAMP TYPE 2A

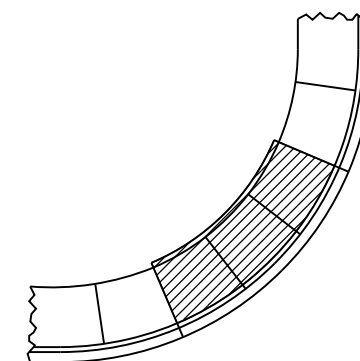
SEE NOTE 3.

● - PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA).
SEE NOTE 8 ON SHEET 1 OF 7.
SEE STANDARD PLAN S-614-9 FOR PPBPA DETAILS.
SEE PLANS FOR LOCATIONS.
THE SIGN FACE SHALL BE PARALLEL TO THE CROSSWALK.



CURB RAMP TYPE 2B

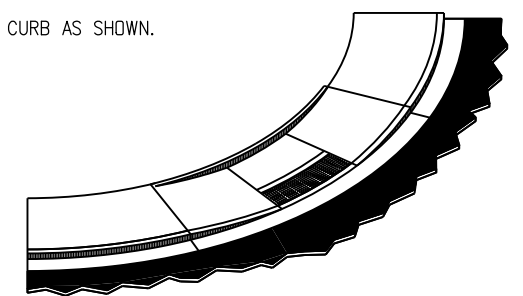
SEE NOTE 3.



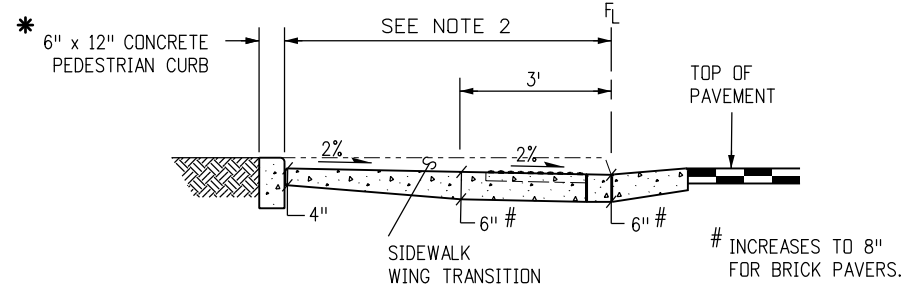
RAMP PAY AREA

FOR CURB RAMP TYPES 2A AND 2B.

* INCLUDES CONCRETE PEDESTRIAN CURB AS SHOWN.

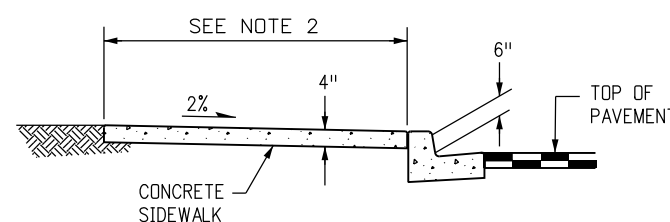


ISOMETRIC VIEW

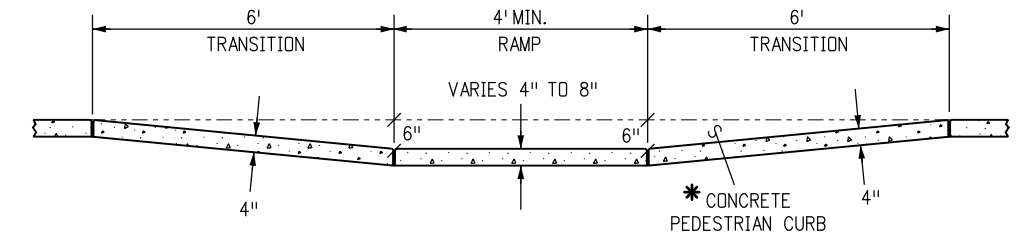


SECTION A-A

(PPBPA NOT SHOWN IN SECTION VIEWS AS IT MAY NOT BE REQUIRED.)



SECTION B-B



SECTION C-C

NOTES

1. CURB RAMP TYPE 2A MAY BE USED IN MID-BLOCK.
2. SEE PLANS FOR SIDEWALK WIDTH. THE MINIMUM SIDEWALK WIDTH IS 4 FT.
3. CURB RAMP TYPE 2A DIAGONAL (ON THE APEX) IS UNACCEPTABLE IN NEW CONSTRUCTION. TYPICALLY, TWO CURB RAMPS AS IN TYPE 2B, MUST BE PROVIDED AT EACH STREET CORNER.
ADA TITLE II 28 C.F.R. SECTION 35.151(B) STATES:
ALTERATIONS HAVE TO BE MADE READILY ACCESSIBLE, WITHIN THE IMPACTING PROJECT, TO THE MAXIMUM EXTENT FEASIBLE (MEF).
THEREFORE, A SINGLE, DIAGONAL CURB RAMP TYPE 2A WILL ONLY BE PERMITTED ON ALTERATION PROJECTS WITH MEF JUSTIFICATION DOCUMENTATION IN ACCORDANCE TO CDOT PROCEDURAL DIRECTIVE 605.1 AND IN COORDINATION WITH THE ADA TITLE II COORDINATOR.

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Drawing File Name: 608010207.dgn	
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Sheet Revisions

Date:	Comments
04/22/14	Made ramps perpendicular in 2B. Added note 3.

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DLM/LTA

CURB RAMPS

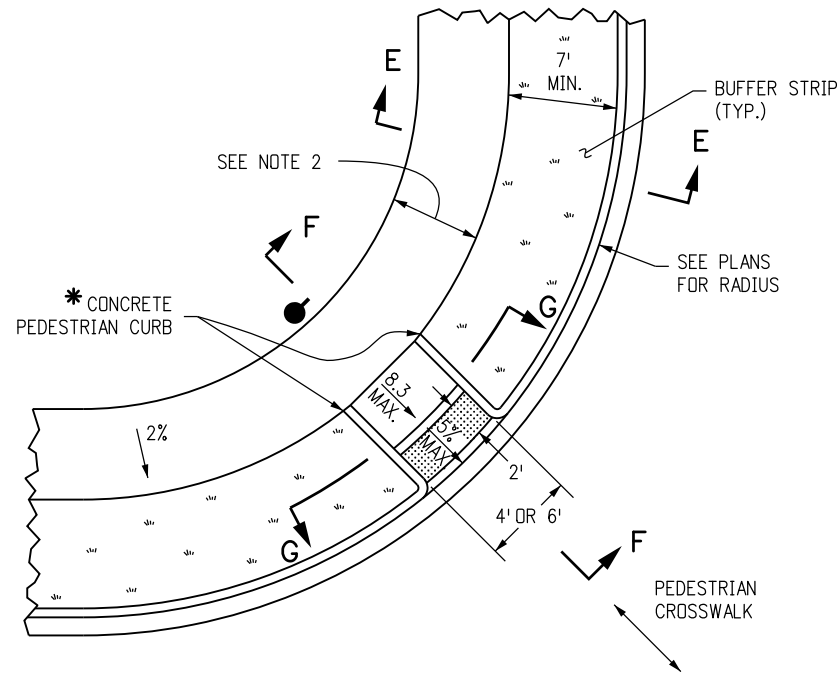
Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.

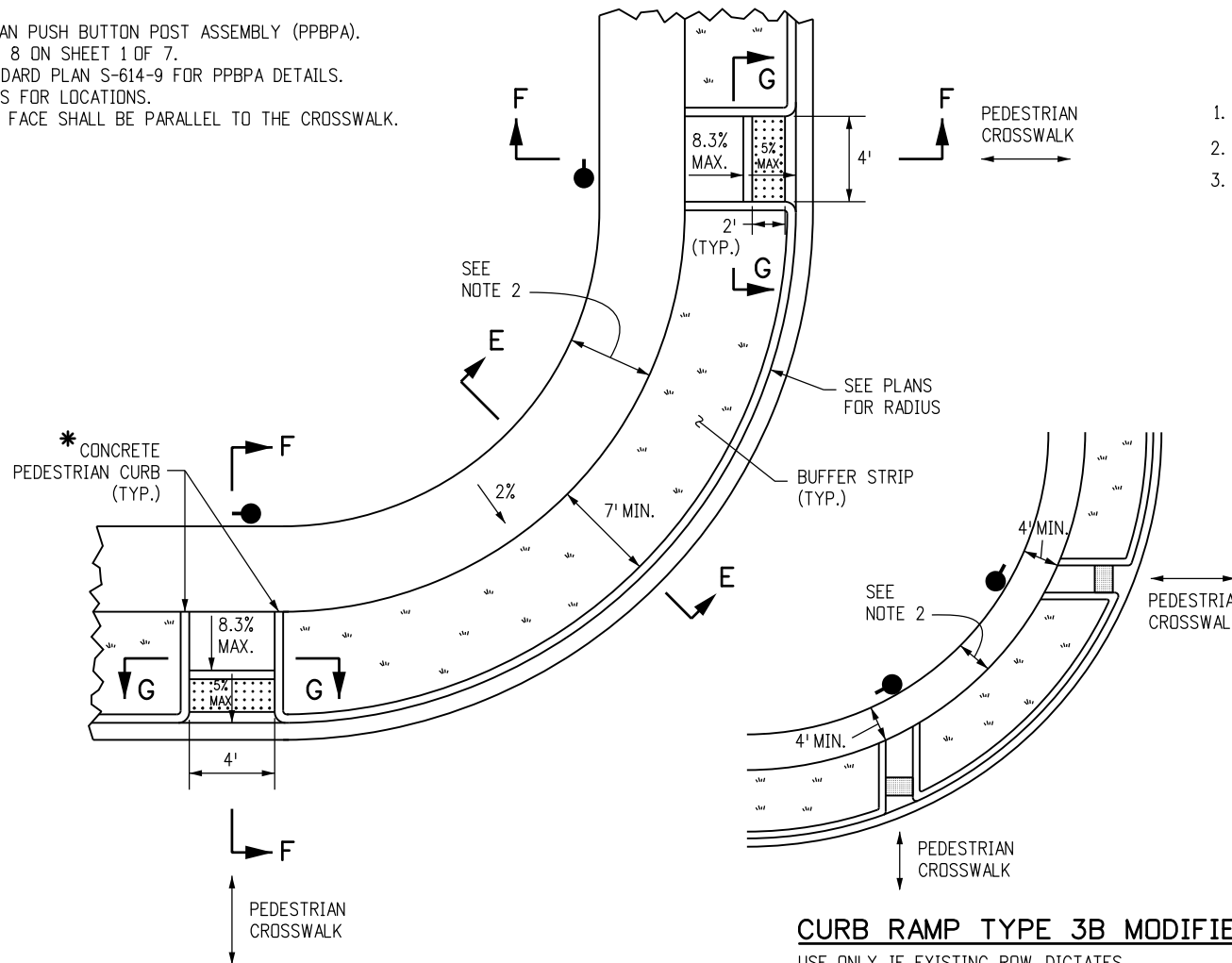
M-608-1

Sheet No. 2 of 7

● - PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA).
 SEE NOTE 8 ON SHEET 1 OF 7.
 SEE STANDARD PLAN S-614-9 FOR PPBPA DETAILS.
 SEE PLANS FOR LOCATIONS.
 THE SIGN FACE SHALL BE PARALLEL TO THE CROSSWALK.



CURB RAMP TYPE 3A
 SEE NOTE 3.

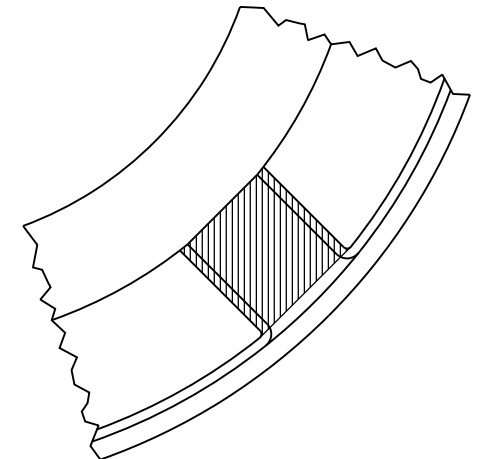


CURB RAMP TYPE 3B
 SEE NOTE 3.

CURB RAMP TYPE 3B MODIFIED

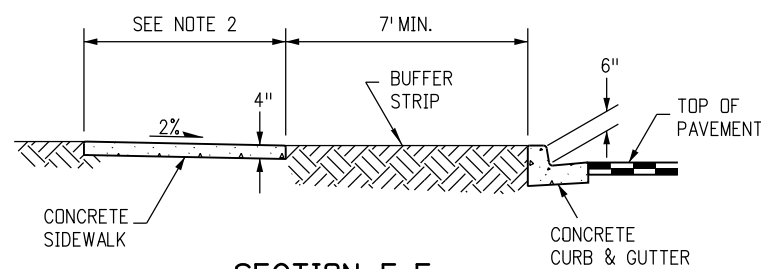
USE ONLY IF EXISTING ROW DICTATES.
 GRADE BREAKS SHALL NOT BE PERMITTED ON THE SURFACE OF THE RAMP RUNS AND TURNING SPACES.
 SURFACE SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH. SEE NOTE 3.

- NOTES**
- CURB RAMP TYPE 3A MAY BE USED IN MID-BLOCK.
 - SEE PLANS FOR SIDEWALK WIDTH. THE MINIMUM SIDEWALK WIDTH IS 4 FT.
 - CURB RAMP TYPE 3A DIAGONAL (ON THE APEX) IS UNACCEPTABLE IN NEW CONSTRUCTION. TYPICALLY, TWO CURB RAMPS AS IN TYPE 3B, MUST BE PROVIDED AT EACH STREET CORNER.
 ADA TITLE II 28 C.F.R. SECTION 35.151(B) STATES:
 ALTERATIONS HAVE TO BE MADE READILY ACCESSIBLE, WITHIN THE IMPACTING PROJECT, TO THE MAXIMUM EXTENT FEASIBLE (MEF).
 THEREFORE, A SINGLE, DIAGONAL CURB RAMP TYPE 3A WILL ONLY BE PERMITTED ON ALTERATION PROJECTS WITH MEF JUSTIFICATION DOCUMENTATION IN ACCORDANCE TO CDOT PROCEDURAL DIRECTIVE 605.1 AND IN COORDINATION WITH THE ADA TITLE II COORDINATOR.

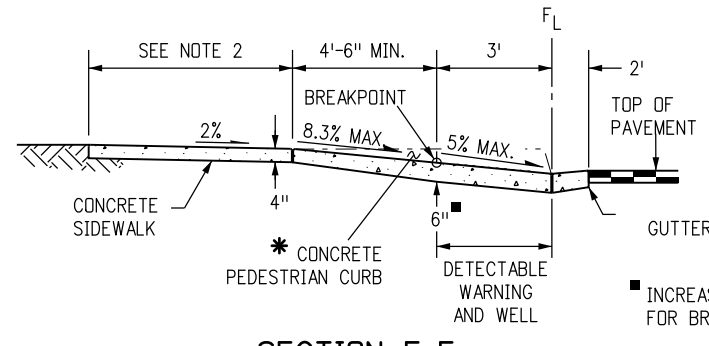


RAMP PAY AREA

FOR CURB RAMP TYPES 3A AND 3B.
 * INCLUDES CONCRETE PEDESTRIAN CURB AS SHOWN.

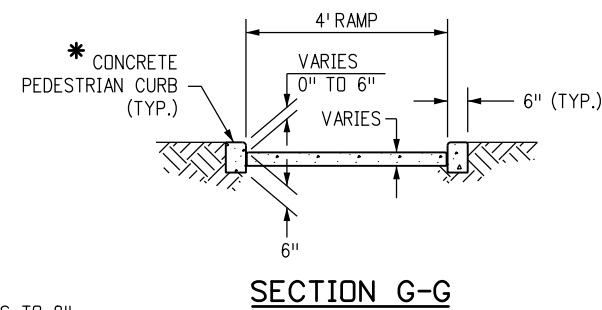


SECTION E-E

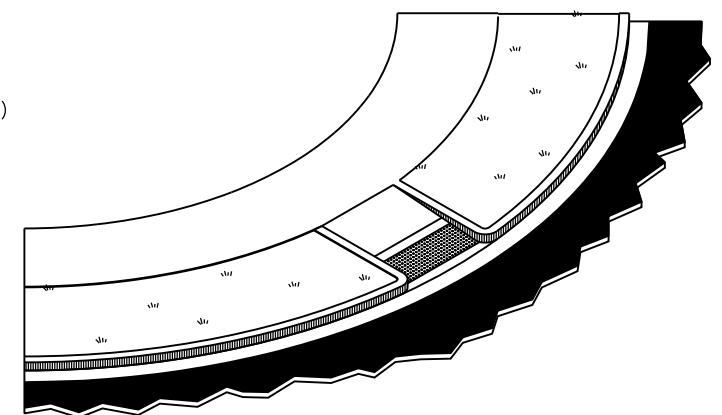


SECTION F-F

(PPBPA NOT SHOWN IN SECTION VIEWS AS IT MAY NOT BE REQUIRED.)



SECTION G-G



ISOMETRIC VIEW

Computer File Information

Creation Date: 07/04/12	Initials: DLM
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Full Path: www.coloradodot.info/business/designsupport	(R-X)
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CAD Ver.: MicroStation V8	(R-X)
Scale: Not to Scale	Units: English

Sheet Revisions

Date:	Comments

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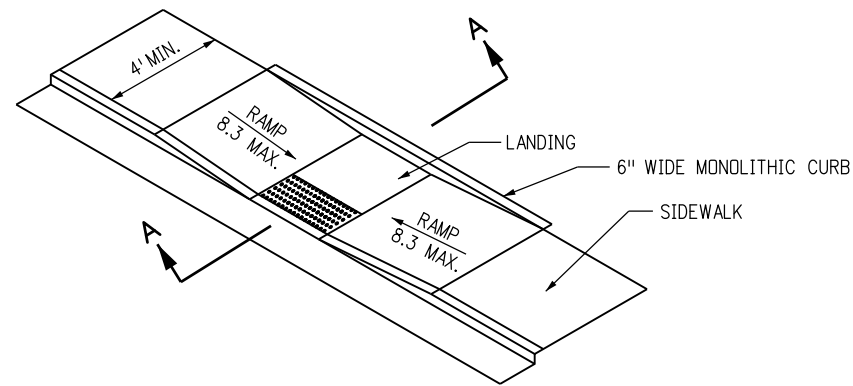
CURB RAMPS

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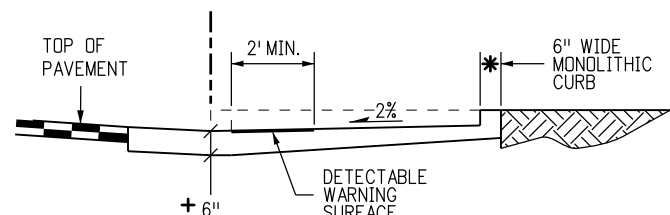
STANDARD PLAN NO.

M-608-1

Sheet No. 3 of 7



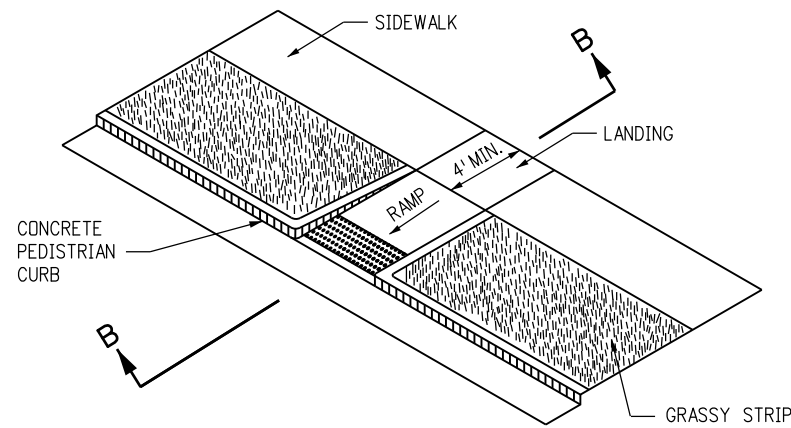
PARALLEL CURB RAMP WITHIN 4 FT. MIN. SIDEWALK



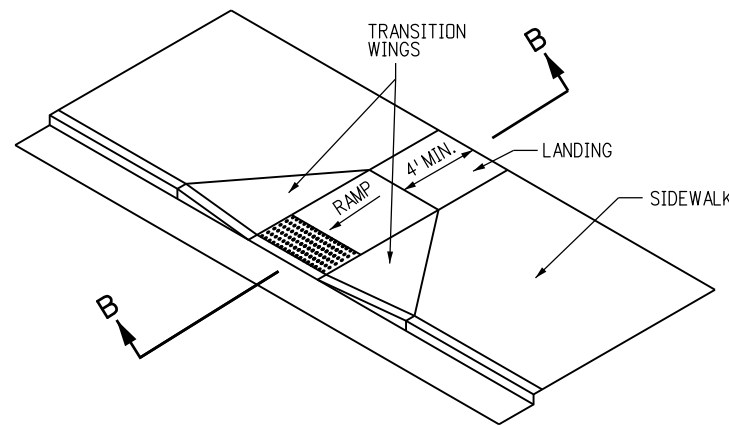
+ INCREASES TO 8" FOR BRICK PAVERS.

* INCLUDES CONCRETE PEDESTRIAN CURB AS SHOWN.

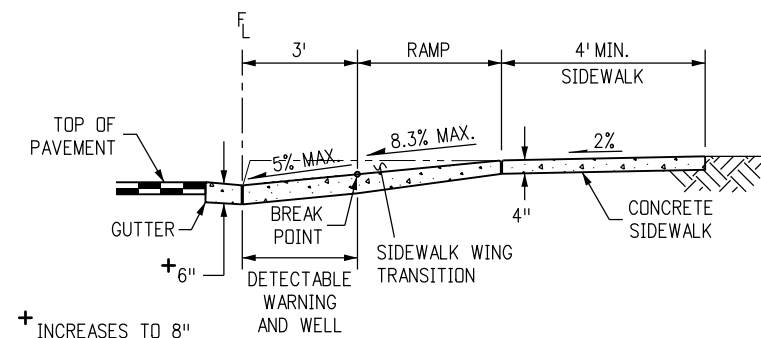
SECTION A-A



PERPENDICULAR CURB RAMP

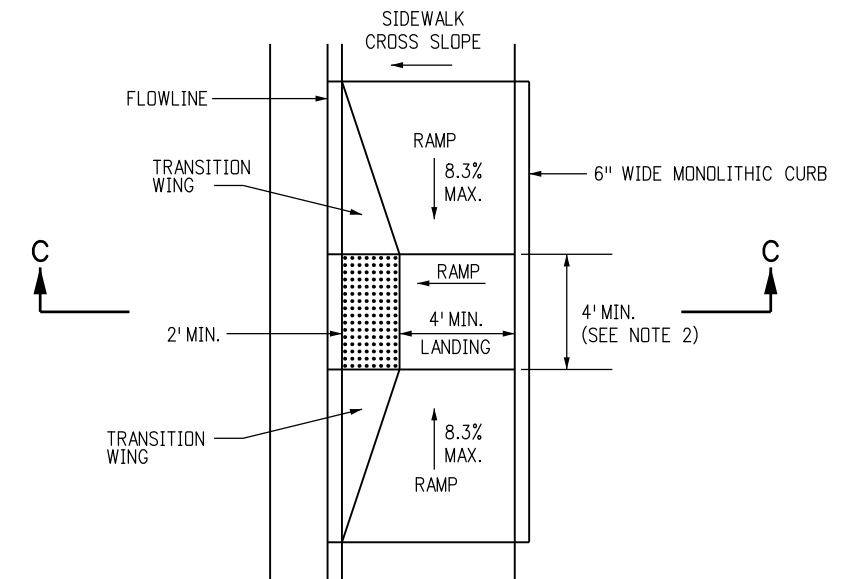


PERPENDICULAR CURB RAMP WITHIN SIDEWALK

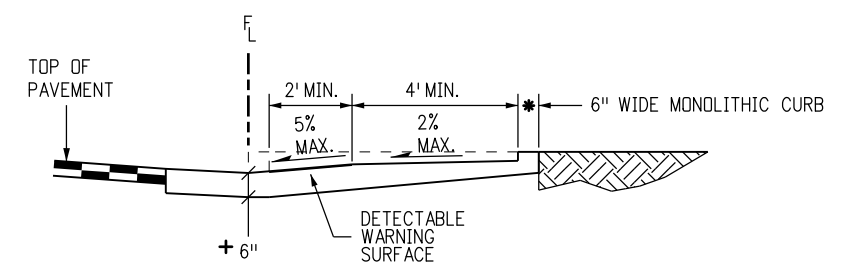


+ INCREASES TO 8" FOR BRICK PAVERS.

SECTION B-B



CURB RAMP WITHIN 6 FT. MIN. SIDEWALK



+ INCREASES TO 8" FOR BRICK PAVERS.

SECTION C-C

NOTES

1. PERPENDICULAR AND PARALLEL CURB RAMPS SHOWN ON THIS DRAWING ARE ACCEPTABLE FOR USE AT MID-BLOCK INSTALLATIONS.
2. SITE CONDITIONS WILL VARY. CONFIGURATION OF RAMPS, LANDINGS, AND TRANSITIONS MAY BE CHANGED BUT THEY MUST MEET THE DIMENSIONS AND SLOPES SHOWN HERE. THE USE OF FLARES, CURBWALLS, ETC. ARE AT THE DISCRETION OF THE ENGINEER.
3. PROVIDE DETECTABLE WARNING SURFACE FOR FULL WIDTH OF CURB CUT. SEE "PLAN VIEW OF DETECTABLE WARNING" DETAIL ON SHEET 5 FOR DETECTABLE WARNING SURFACE DIMENSIONS.
4. LOCATE CURB CUT WITHIN CROSSWALK.
5. RAMP GRADE BREAK MUST BE PERPENDICULAR TO THE RUNNING SLOPE.

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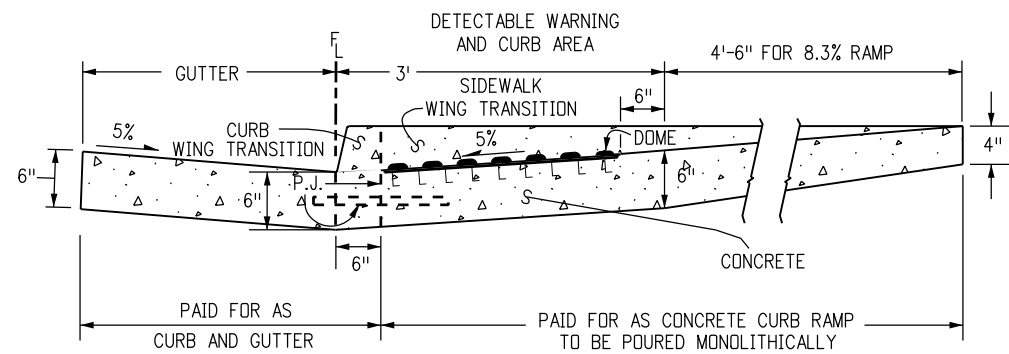
CURB RAMPS

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STANDARD PLAN NO.

M-608-1

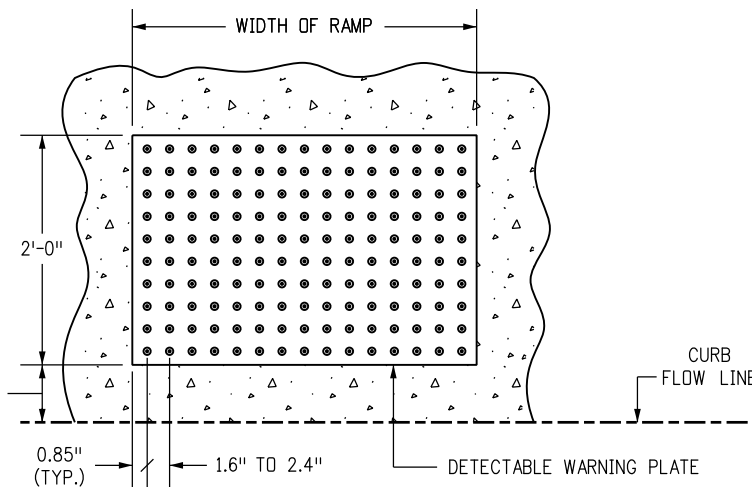
Sheet No. 4 of 7



DETAIL FOR TYPES 1 AND 3 CURB RAMPS

P.J. = PERMISSIBLE JOINT WITH EPOXY-COATED DEFORMED NO. 4 BY 18 IN. BARS CONFORMING TO AASHTO M 284 AT 18 IN. SPACING.

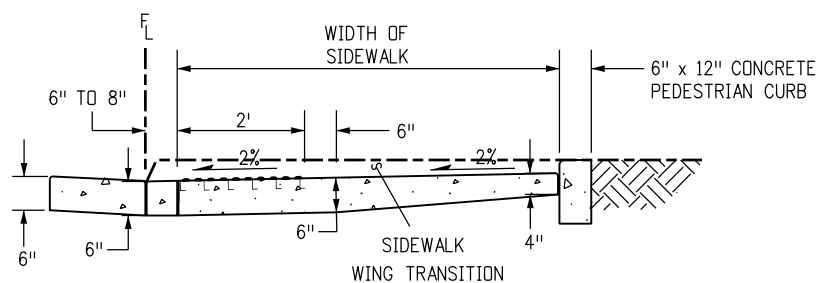
**SIDE CROSS SECTION VIEW OF
DETECTABLE WARNING, CURB, AND GUTTER**



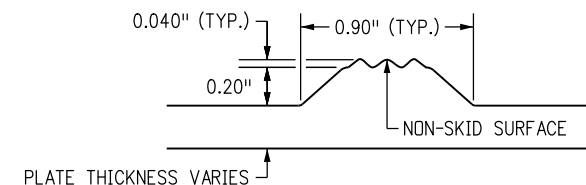
**PLAN VIEW OF
DETECTABLE WARNING**

NOTES

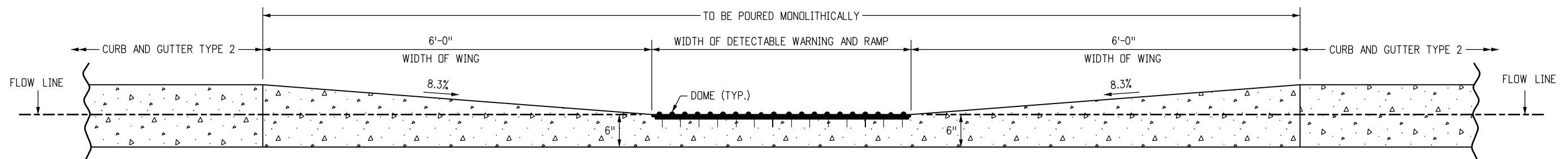
1. THE TRUNCATED DOME PLATE SHALL BE EMBEDDED IN THE CONCRETE CURB RAMP WHILE CONCRETE IS PLASTIC.
2. THE TRUNCATED DOME PLATE TO BE USED SHALL BE ON THE CDOT APPROVED PRODUCT LIST.
3. WHEN THE DETECTABLE WARNING SURFACE IS CUT, GRIND OFF REMAINING PORTION OF ANY CUT DOMES. SEAL ALL CUT PANEL EDGES TO PREVENT WATER DAMAGE.
4. THE DETECTABLE WARNING SURFACE SHALL SPAN THE ENTIRE WIDTH OF THE RAMP. IF CONDITIONS DO NOT ALLOW THE ENTIRE SPAN, THE DETECTABLE WARNING SURFACE SPAN SHALL NOT BE MORE THAN 2 INCHES AWAY FROM EACH SIDE OF RAMP.



DETAIL FOR TYPE 2 CURB RAMP



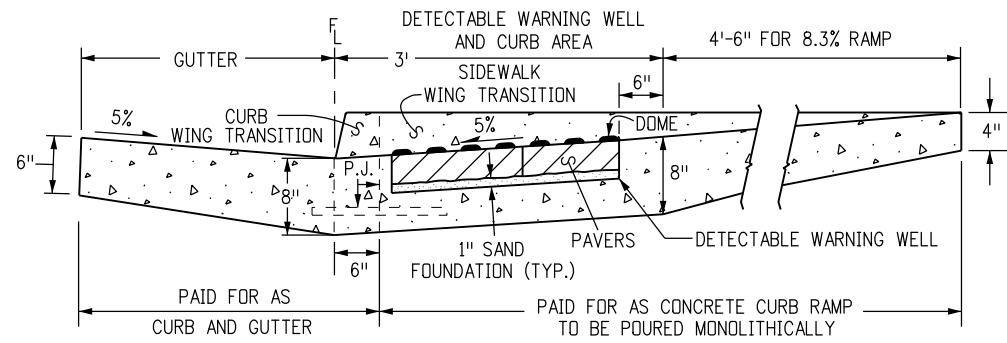
ELEVATION VIEW OF DETECTABLE WARNING PLATE



**FRONT SECTION VIEW OF
DETECTABLE WARNING, CURB, AND GUTTER**

CURB RAMP WITH A TRUNCATED DOME SURFACE PLATE

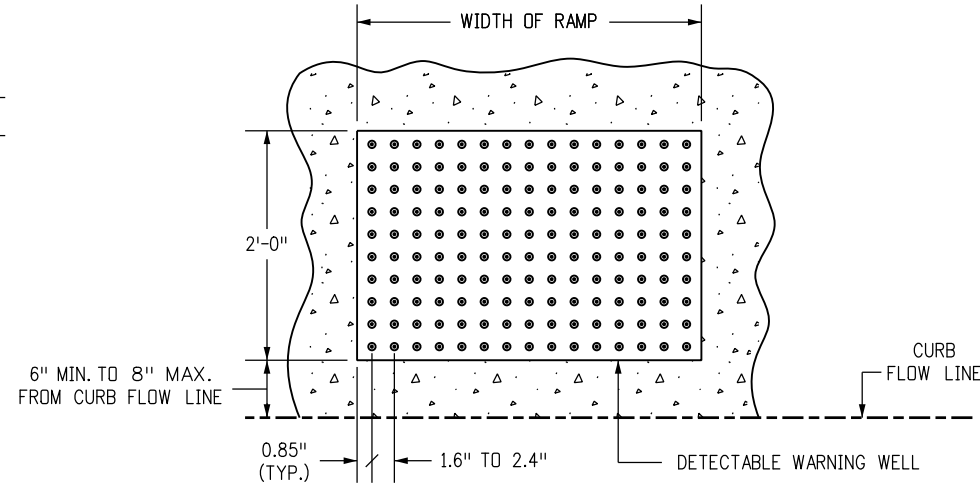
Computer File Information		Sheet Revisions		Colorado Department of Transportation  4201 East Arkansas Avenue CDOT HQ, 4th Floor Denver, CO 80222 Phone: 303-757-9021 FAX: 303-757-9868 Division of Project Support DLM/LTA	<h1>CURB RAMPS</h1>	STANDARD PLAN NO.
Creation Date: 07/04/12	Initials: DLM	Date:	Comments:			M-608-1
Last Modification Date: 4/28/14	Initials: LTA					
Full Path: www.coloradodot.info/business/designsupport	(R-X)					
Drawing File Name: 608010507.dgn	(R-X)					
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English			Issued By: Project Development Branch on July 4, 2012	Sheet No. 5 of 7



DETAIL FOR TYPES 1 AND 3 CURB RAMPS

P.J. = PERMISSIBLE JOINT WITH EPOXY-COATED DEFORMED NO. 4 BY 18 IN. BARS CONFORMING TO AASHTO M 284 AT 18 IN. SPACING.

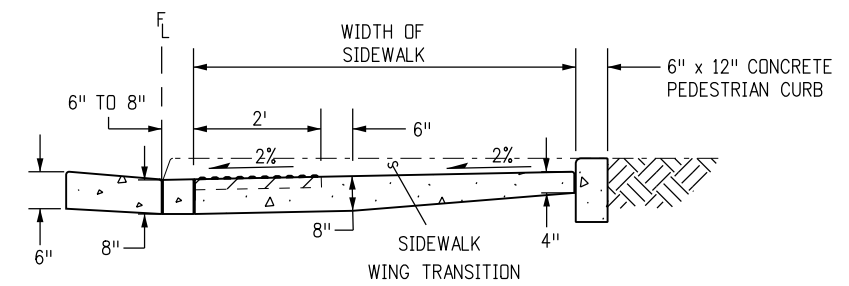
**SIDE CROSS SECTION VIEW OF
DETECTABLE WARNING, WELL, CURB, AND GUTTER**



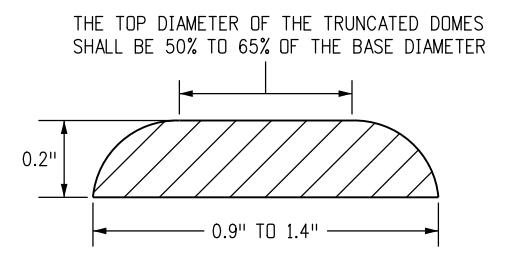
**PLAN VIEW OF
DETECTABLE WARNING AND WELL**
(PAVERS NOT DRAWN TO SCALE)

NOTES

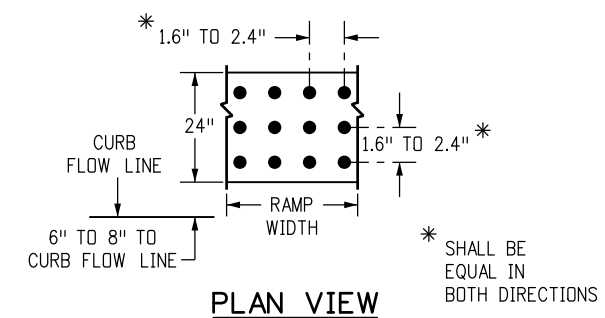
1. THE DETECTABLE WARNINGS SHALL BE MADE OF PAVERS WITH A TRUNCATED DOME SURFACE.
2. THE TOP OF THE DRAINAGE WEEP HOLE SHALL BE LOCATED AT THE LOWEST POINT OF THE DETECTABLE WARNING WELL.
3. RAMP SLOPES SHALL BE 12:1 OR FLATTER. THE DETECTABLE WARNING AND WELL AREA SLOPES SHALL BE 20:1 OR FLATTER.
4. THE DETECTABLE WARNING SURFACE SHALL SPAN THE ENTIRE WIDTH OF THE RAMP. IF CONDITIONS DO NOT ALLOW THE ENTIRE SPAN, THE DETECTABLE WARNING SURFACE SPAN SHALL NOT BE MORE THAN 2 INCHES AWAY FROM EACH SIDE OF RAMP.



DETAIL FOR TYPE 2 CURB RAMP

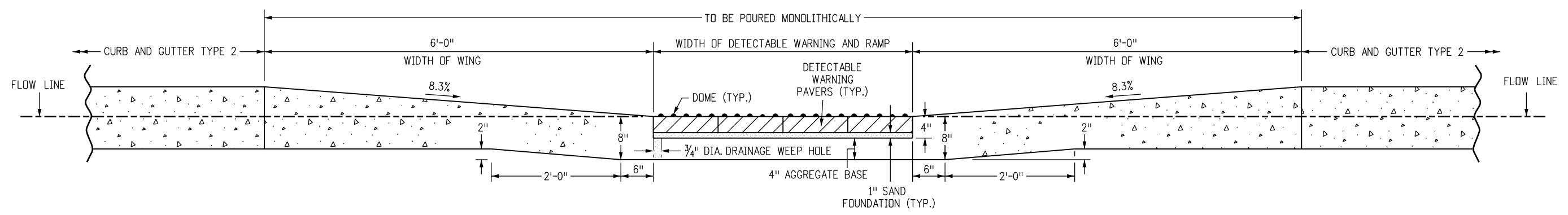


ELEVATION VIEW OF SINGLE DOME



PLAN VIEW

DOME AND DETECTABLE WARNING DETAILS



**FRONT SECTION VIEW OF
DETECTABLE WARNING, WELL, CURB, AND GUTTER
CURB RAMP WITH DOME PAVER OPTION**

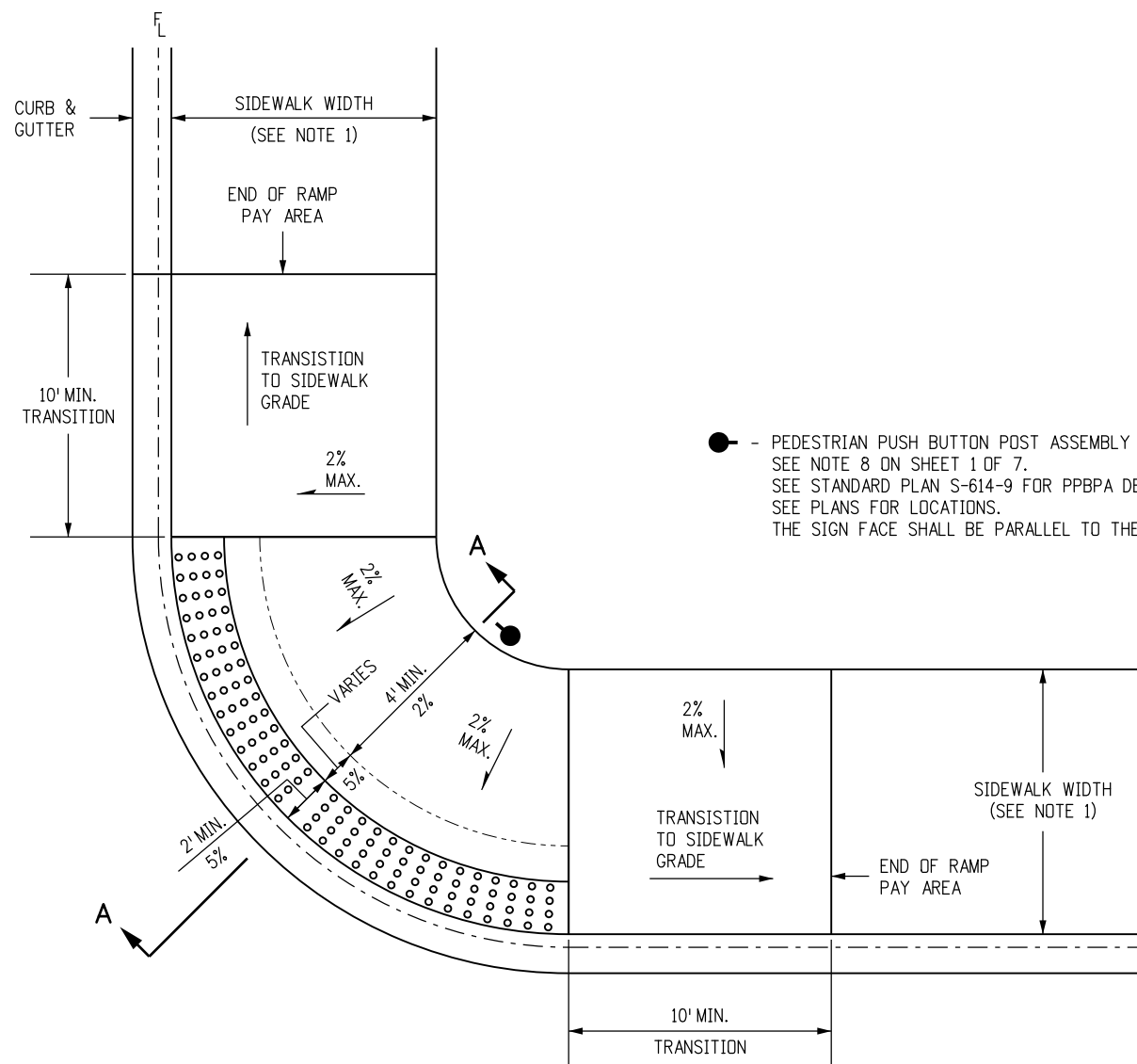
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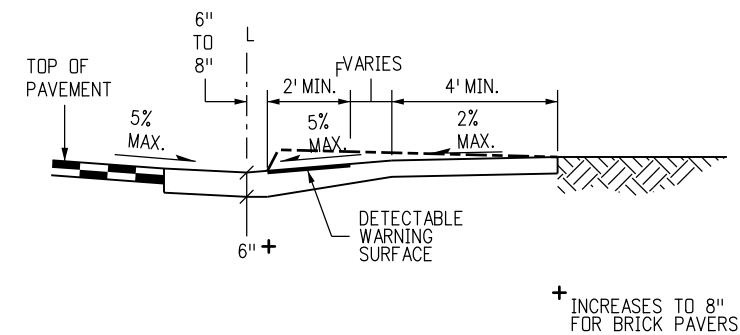
CURB RAMPS
 Issued By: Project Development Branch on July 4, 2012

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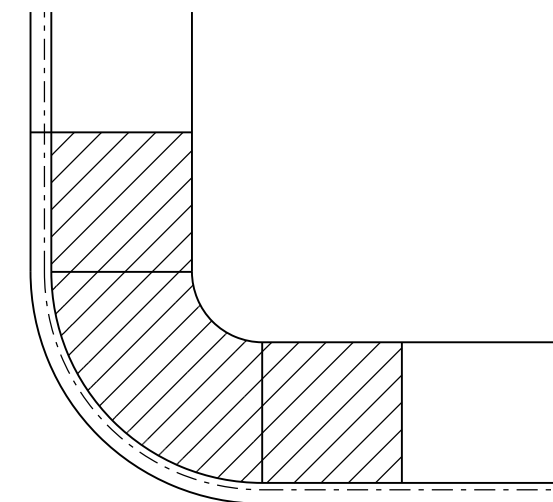
● - PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA).
 SEE NOTE 8 ON SHEET 1 OF 7.
 SEE STANDARD PLAN S-614-9 FOR PPBPA DETAILS.
 SEE PLANS FOR LOCATIONS.
 THE SIGN FACE SHALL BE PARALLEL TO THE CROSSWALK.

CORNER BLENDED TRANSITION CURB RAMP



SECTION A-A

(PPBPA NOT SHOWN IN SECTION VIEWS AS IT MAY NOT BE REQUIRED.)



RAMP PAY AREA

FOR CORNER BLENDED TRANSITION CURB RAMP

NOTES

1. IF THE EXISTING SIDEWALK WIDTHS ARE DIFFERENT, MATCH THE SMALLEST WIDTH TO 4 FT. MIN.
2. SLOPES SHOWN AS TYPICAL IN SECTION A-A MAY BE ADJUSTED IF NECESSARY TO FIT EXISTING CONDITIONS, BUT MAY NOT EXCEED 5% SLOPE UNDER ANY CONDITIONS.
3. ALL TRUNCATED DOME PANELS OR PAVERS PLACED AT THE SAME CORNER SHALL BE MADE UP OF THE SAME UNIFORM MATERIAL TYPE.

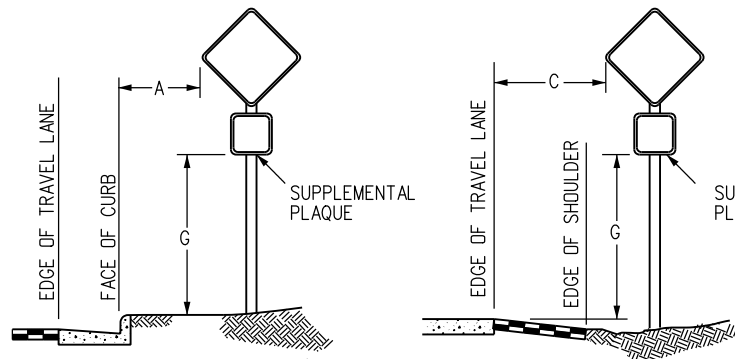
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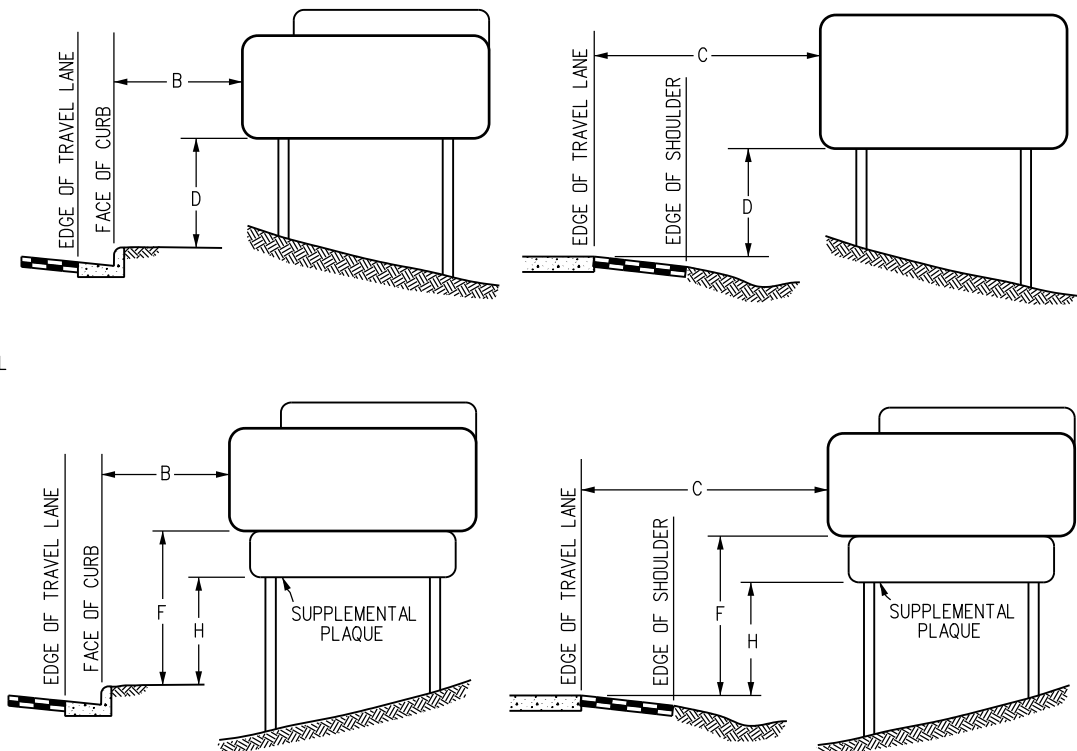
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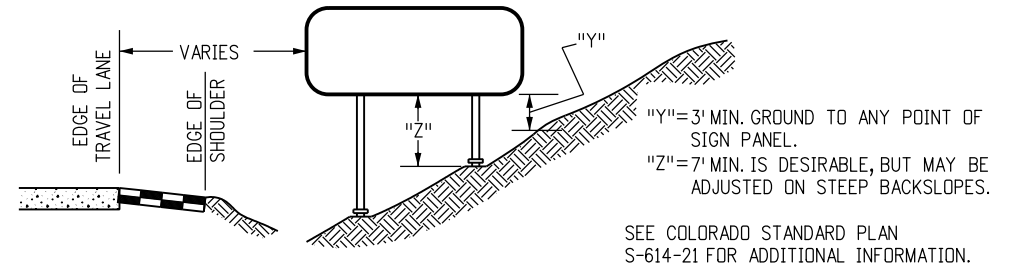
STANDARD PLAN NO.
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WARNING SIGN PLACEMENT



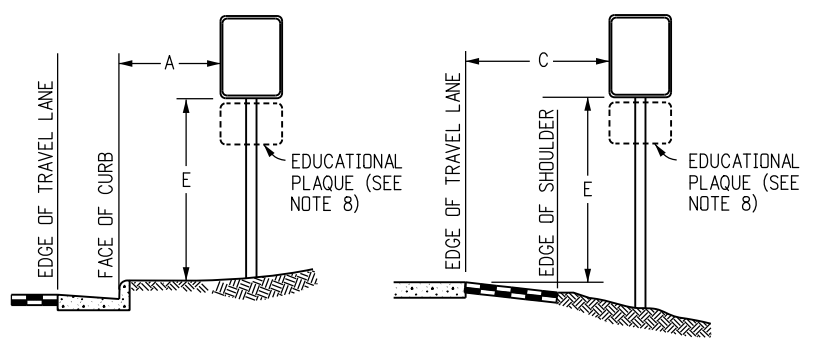
CLASS III SIGN PLACEMENT



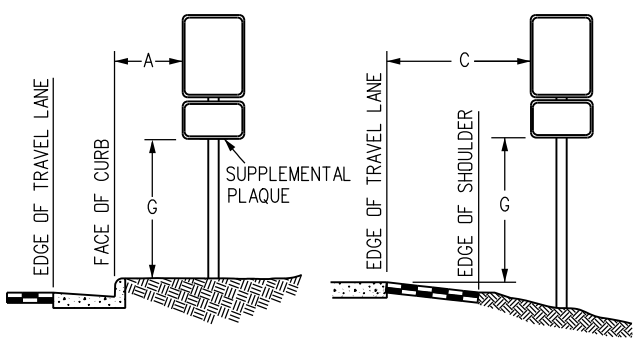
CLASS III SIGNS, PANEL GROUND CLEARANCE

GENERAL NOTES

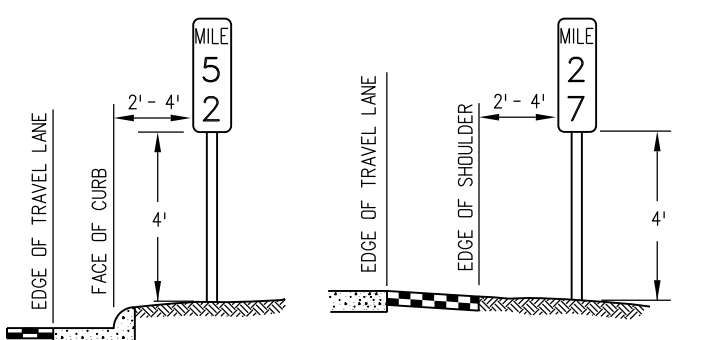
1. THE ENGINEER WILL ESTABLISH GRADES AND LOCATIONS FOR ALL SIGN POSTS IN ACCORDANCE WITH DETAILS SHOWN ON THE PLANS.
2. SPECIAL CARE SHALL BE TAKEN IN SIGN LOCATION TO ENSURE AN UNOBSTRUCTED VIEW OF EACH SIGN.
3. MINIMUM POST EMBEDMENT SHALL BE 3 FT. FOR U-2 POSTS AND 4 IN. X 4 IN. TIMBER POSTS, AND 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



MILE MARKER PLACEMENT

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

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"
			F	8'-0" OR NOTE NO. 9	12'-0"	8'-0"	9'-0"	5'-0"	9'-0"
C	2'-0"	6'-0" PLUS EDGE OF 6'+ WIDE SHOULDER. IF NONE, 15'-0" FROM EDGE OF TRAVEL LANE.	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"

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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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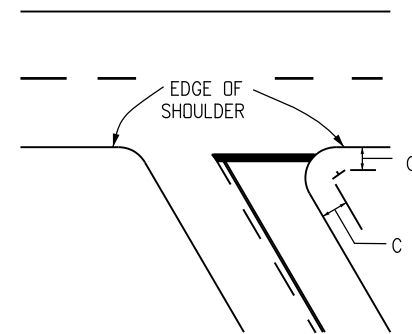
GROUND SIGN PLACEMENT

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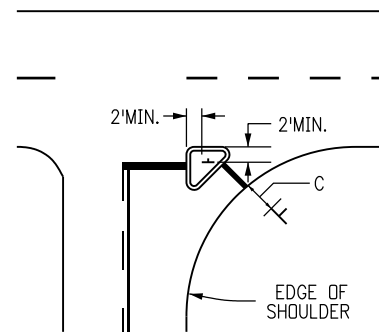
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S-614-1

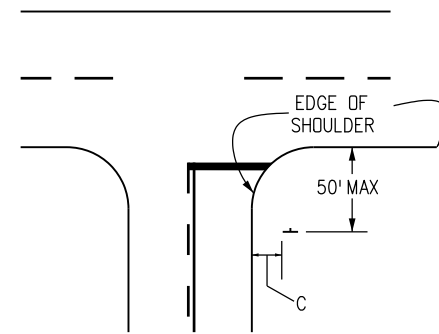
Sheet No. 1 of 2



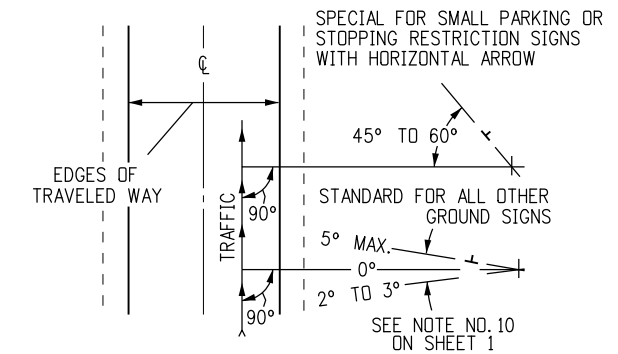
ACUTE ANGLE INTERSECTION



CHANNELIZED INTERSECTION

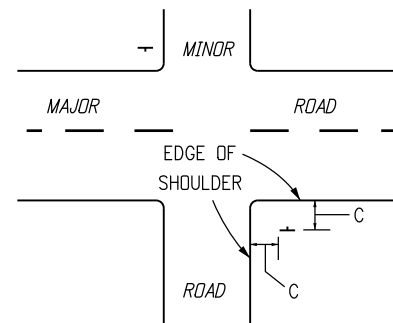


WIDE THROAT INTERSECTION

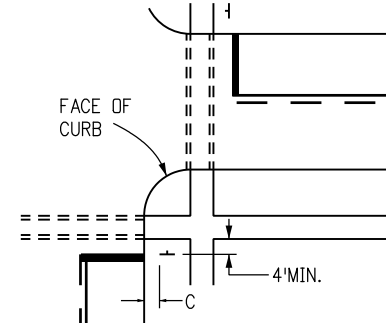


NORMAL ANGULAR PLACEMENT IS 0°. SIGNS CLOSER THAN 30 FT. SHOULD BE TURNED SLIGHTLY AWAY TO MINIMIZE SPECULAR REFLECTION. SIGNS PLACED 30' OR MORE SHOULD GENERALLY BE TURNED TOWARD THE ROAD.

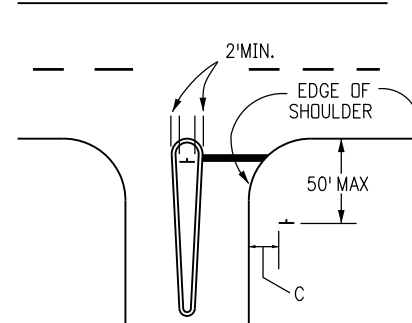
ANGULAR PLACEMENT



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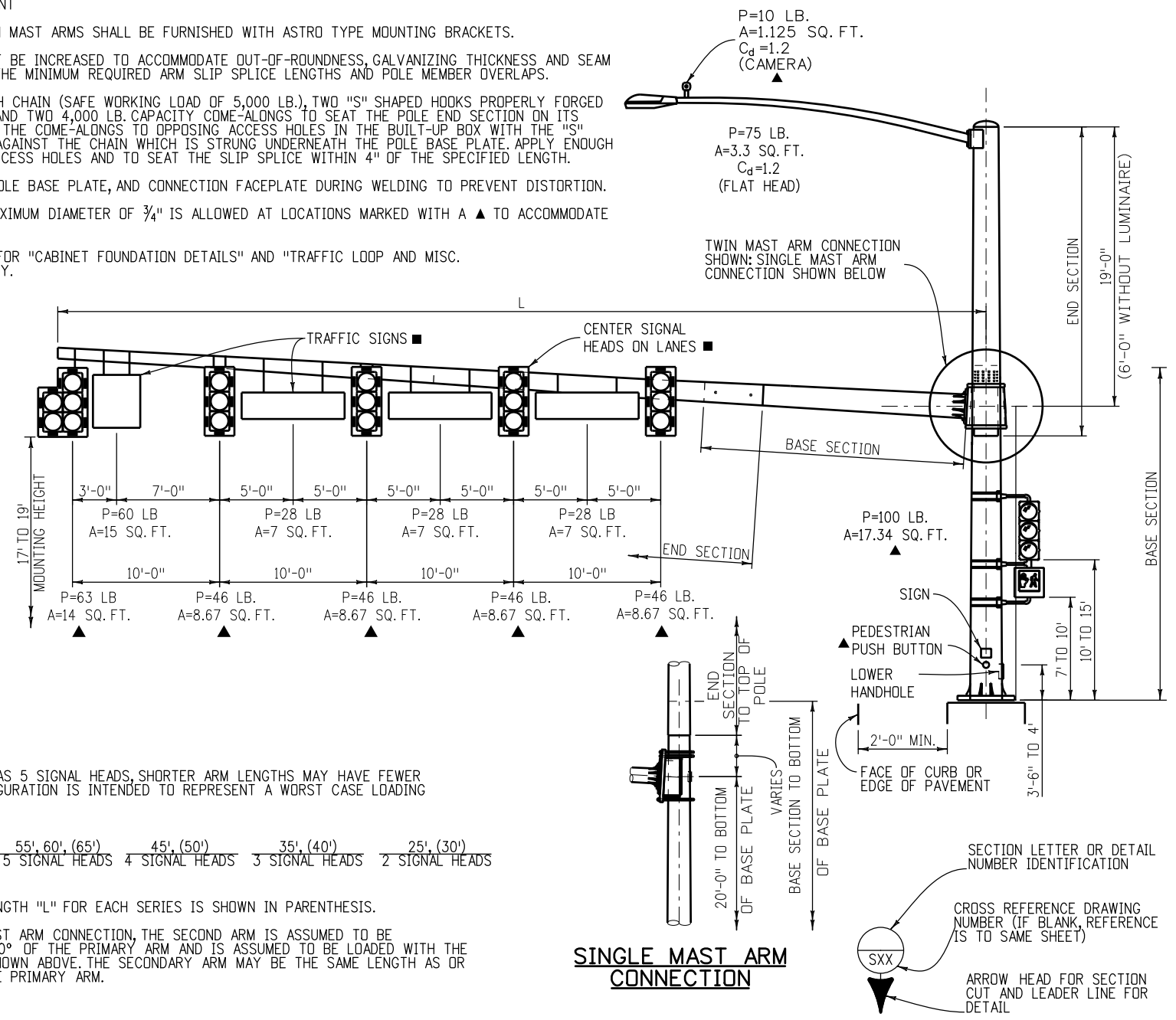
GROUND SIGN PLACEMENT
 Issued By: Safety & Traffic Engineering Branch July 4, 2012

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

GENERAL NOTES

- REFER TO ROADWAY PLANS FOR THE ACTUAL CONFIGURATION AND LOCATION OF TRAFFIC SIGNAL HEADS AND SIGNS MARKED WITH A ■.
- ALL POLES AND ARMS SHALL BE FABRICATED WITH ASTM A572 GRADE 65 STEEL. LUMINAIRE ARMS MAY BE FABRICATED WITH ASTM A595 GRADE A STEEL WITH A MINIMUM YIELD POINT OF 55 KSI.
- ALL POLES AND ARMS SHALL COMPLY WITH THE DIMENSIONAL TOLERANCES SPECIFIED IN ASTM A500, A501, OR A595.
- ALL POLES AND ARMS SHALL BE ROUND OR DODECAGONAL (12 SIDED) TUBES WITH A 0.14 IN/FT TAPER.
- HARDENED WASHERS SHALL CONFORM TO ASTM F436.
- ALL POLES AND ARMS SHALL BE GALVANIZED INSIDE AND OUTSIDE AFTER FABRICATION IN ACCORDANCE WITH ASTM A123, UNLESS PAINTING IS CALLED FOR ON THE PLANS. PAINTING SHALL CONFORM TO SECTION 522, DUPLEX COATING SYSTEM.
- POLE AND MAST ARM SPLICES SHALL BE MECHANICALLY FORCED TOGETHER FOR A SNUG FIT.
- BLIND BOLTS SHALL BE A307 GRADE A STEEL AND ARE NOT REQUIRED FOR MULTISIDED POLES. MECHANICAL ALTERNATIVES TO BLIND BOLTS UTILIZING FRICTION, KEYS, INTERLOCKING TEETH OR A COMBINATION THEREOF TO PREVENT THE BUILT-UP BOX FROM TWISTING ON THE POLE MAY BE USED AS APPROVED BY CDDT STAFF BRIDGE.
- ALL MAST ARMS MORE THAN 40 FT IN LENGTH SHALL BE TWO PIECE CONSTRUCTION TO LIMIT ARM WEIGHTS.
- GALVANIZED ASTM A325 H.S. BOLTS SHALL BE USED FOR ATTACHING LUMINAIRE AND MAST ARMS. A LUBRICATED TIGHTENING TORQUE OF 178 FT-LBS FOR 3/4" DIAMETER BOLTS, 395 FT-LBS FOR 1" DIAMETER BOLTS AND 1300 FT-LBS FOR 1 1/2" DIAMETER BOLTS SHALL BE USED TO TIGHTEN ALL H.S. BOLTS. MAST ARMS SHALL BE TEMPORARILY SUPPORTED TO TAKE LOAD OFF OF FIELD CONNECTIONS WHILE BOLTS ARE TIGHTENED IN ORDER TO FIRMLY SEAT THE FLANGE PLATE. BOLTS SHALL BE SEQUENTIALLY TIGHTENED. ASSUMING 12 BOLTS AND A CLOCK FACE, THE TIGHTENING SEQUENCE WOULD BE 12, 6, 1, 7, ETC. THIS PROCESS SHALL BE CONTINUED UNTIL NO LOOSE BOLTS ARE FOUND AFTER ALL BOLTS HAVE BEEN INITIALLY TIGHTENED.
- CAST POLE END CAP TO BE SECURED IN PLACE WITH 3 SET SCREWS.
- ALL SIGNAL HEADS, SIGNS, AND HARDWARE SHALL BE FIELD POSITIONED.
- ACCESSORIES TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A153.
- ALL PLATES AND STIFFENERS SHALL BE FABRICATED WITH AASHTO M270 (ASTM A709) GRADE 36 STEEL AND SHALL COMPLY WITH THE DIMENSIONAL TOLERANCES SPECIFIED IN ASTM A6. ALL HANDHOLES SHALL BE FABRICATED WITH ASTM A572 GRADE 42 STEEL.
- LEVELING CONCRETE SHALL BE 3000 PSI AIR ENTRAINED CONCRETE VIBRATED IN PLACE BELOW THE POLE BASE PLATE.
- THE DESIGNS HEREIN ASSUME THAT SIGNALS ARE INSTALLED WITHIN THE ROADWAY EARTHWORK PRISM WITH THE FOLLOWING SOIL PARAMETERS:
SOIL DENSITY $\gamma = 110$ LB./CU.FT.
SOIL COHESION $c = 750$ LB./SQ.FT. FOR MEDIUM STIFF COHESIVE SOIL
SOIL ϕ ANGLE $= 30^\circ$ FOR MEDIUM DENSE COHESIONLESS SOIL
SF = 1.5 FOR TORSIONAL RESISTANCE AND 3.0 FOR FLEXURAL RESISTANCE
- CONTACT THE ENGINEER IF ANY OF THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED DURING DRILLING:
(A) SIGNALS WILL NOT BE INSTALLED WITHIN THE ROADWAY EARTHWORK PRISM.
(B) THE SOIL HAS A HIGH ORGANIC CONTENT OR CONSISTS OF SATURATED SILT AND CLAY.
(C) THE SITE WON'T SUPPORT THE WEIGHT OF THE DRILLING RIG.
(D) THE FOUNDATION SOILS ARE NOT HOMOGENOUS.
(E) FIRM BEDROCK IS ENCOUNTERED.
- CAISSONS SHALL BE PLACED AGAINST UNDISTURBED EARTH. WET OR CAVING HOLES SHALL BE BACKFILLED WITH FLOW-FILL AND REDRILLED AFTER A THREE DAY CURING PERIOD WITHOUT THE USE OF A CASING.
- CAISSONS SHALL BE CONSTRUCTED WITH AIR ENTRAINED CLASS BZ CONCRETE IN ACCORDANCE WITH SECTION 503 OF THE STANDARD SPECIFICATIONS. REINFORCING STEEL SHALL BE GRADE 60.
- CAISSON CONCRETE SHALL REACH THE SEVEN DAY PREDICTED STRENGTH PRIOR TO INSTALLING THE SIGNAL STRUCTURE.
- U-BOLTS AND ANCHOR BOLTS SHALL BE FABRICATED WITH AASHTO M314-90 GRADE 55 STEEL.
- ANCHOR BOLTS SHALL BE FABRICATED WITH HEAVY HEX NUTS AND FLAT WASHERS, AND EXTENDED A MINIMUM OF 3/4" ABOVE THE NUT AFTER COMPLETING THE TIGHTENING PROCESS. THREAD UPPER 12 INCHES AND GALVANIZE UPPER 13 INCHES OF THE ANCHOR BOLTS. FIELD WELDING OF ANCHOR BOLTS TO REBAR DURING ERECTION WILL NOT BE ALLOWED. ANCHOR BOLTS SHALL BE SET WITH A STEEL TEMPLATE UNTIL THE CONCRETE HAS CURED AT LEAST TWO DAYS. THE ANCHOR BOLTS SHALL BE TIGHTENED USING THE TURN-OF-NUT METHOD. THE BOLTS SHALL FIRST BE TIGHTENED TO SNUG TIGHT, WHICH IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE UPPER AND LOWER NUTS ARE IN FIRM CONTACT WITH THE BASE PLATE. WITH MAST ARMS FREE TO DEFLECT, THE UPPER AND LOWER NUTS SHALL THEN EACH BE ROTATED AN ADDITIONAL 1/2 TURN ($30^\circ \pm 5^\circ$) WITH A SLUGGING, HYDRAULIC OR AIR IMPACT WRENCH.
- WELDING OF STEEL SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWS D1.1. ALL AREAS TO BE WELDED SHALL BE GRIND TO BRIGHT METAL. ALL WELDING AND REQUIRED TESTING SHALL BE COMPLETE BEFORE ANY MATERIAL IS GALVANIZED. ALL CIRCUMFERENTIAL AND STIFFENER WELDS SHALL BE NON-DESTRUCTIVELY TESTED USING THE ENHANCED MAGNETIC PARTICLE METHOD IN ACCORDANCE WITH SUBSECTION 509.18 (d) OF THE STANDARD SPECIFICATIONS. THE ACCEPTANCE CRITERIA IS STATED IN TABLE 6.1 OF ANSI/AWS D1.1. ALL LONGITUDINAL WELDS WITHIN 6 INCHES OF FULL PENETRATION CIRCUMFERENTIAL GROOVE WELDS AND FULL PENETRATION GROOVE WELDS SHALL BE INSPECTED AS SPECIFIED ABOVE. MAXIMUM WELD UNDERCUT SHALL BE 0.01 INCHES.

- ALL ELECTRICAL CONNECTIONS TO THE SIGNALS SHALL BE GROUNDED IN ACORDANCE WITH APPLICABLE ELECTRICAL CODES.
- TRAFFIC SIGNAL STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, FOURTH EDITION, 2001.
- A DESIGN WIND VELOCITY OF 100 MPH AND ONE 12' LANE WITH A 65 MPH TRUCK INDUCED GUST LOADING HAVE BEEN USED FOR THE DESIGNS HEREIN.
- CERTIFIED MILL TEST REPORTS INCLUDING CHARPY V-NOTCH TEST RESULTS, WELD INSPECTION REPORTS AND ENHANCED MAGNETIC PARTICLE TEST REPORTS SHALL BE SUBMITTED TO CDDT STAFF BRIDGE, 4201 E. ARKANSAS AVE. DENVER, COLORADO 80222 AS SOON AS THEY BECOME AVAILABLE. CVN TEST RESULTS FOR ASTM A572 GRADES 42 AND 65 STEEL SHALL HAVE A MINIMUM VALUE OF 15 FT-LBS AT 40°F AS PER THE H FREQUENCY TEST REQUIREMENTS IN AASHTO T243 (ASTM A673).
- SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW IN ACCORDANCE WITH SUBSECTION 105.02 OF THE STANDARD SPECIFICATIONS.
- DEFINITIONS: U.O.N. = UNLESS OTHERWISE NOTED
W.P. = WORK POINT
- TRAFFIC SIGNALS MOUNTED ON MAST ARMS SHALL BE FURNISHED WITH ASTRO TYPE MOUNTING BRACKETS.
- END SECTION DIAMETERS MUST BE INCREASED TO ACCOMMODATE OUT-OF-ROUNDNESS, GALVANIZING THICKNESS AND SEAM WELD PROFILES TO PROVIDE THE MINIMUM REQUIRED ARM SLIP SPLICE LENGTHS AND POLE MEMBER OVERLAPS.
- USE 35' OF 3/8" HIGH STRENGTH CHAIN (SAFE WORKING LOAD OF 5,000 LB.), TWO "S" SHAPED HOOKS PROPERLY FORGED FROM 1" SQUARE BAR STOCK AND TWO 4,000 LB. CAPACITY COME-ALONGS TO SEAT THE POLE END SECTION ON ITS BASE SECTION BY ATTACHING THE COME-ALONGS TO OPPOSING ACCESS HOLES IN THE BUILT-UP BOX WITH THE "S" SHAPED HOOKS AND PULLING AGAINST THE CHAIN WHICH IS STRUNG UNDERNEATH THE POLE BASE PLATE. APPLY ENOUGH FORCE TO ALIGN THE WIRE ACCESS HOLES AND TO SEAT THE SLIP SPLICE WITHIN 4" OF THE SPECIFIED LENGTH.
- SECURE ARM FLANGE PLATE, POLE BASE PLATE, AND CONNECTION FLANGE PLATE DURING WELDING TO PREVENT DISTORTION.
- ONE DRILLED HOLE WITH A MAXIMUM DIAMETER OF 3/4" IS ALLOWED AT LOCATIONS MARKED WITH A ▲ TO ACCOMMODATE ELECTRICAL WIRING.
- SEE S-614-42 AND S-614-43 FOR "CABINET FOUNDATION DETAILS" AND "TRAFFIC LOOP AND MISC. SIGNAL DETAILS" RESPECTIVELY.



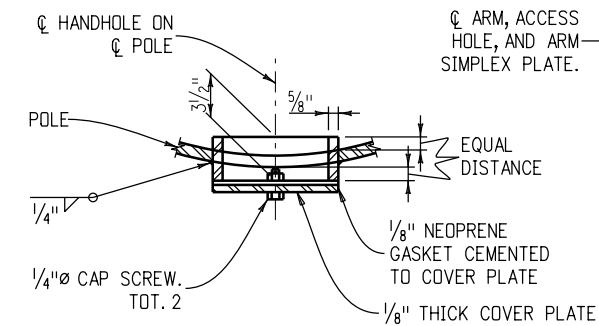
DESIGN DATA

- DRAWING SHOWN HAS 5 SIGNAL HEADS, SHORTER ARM LENGTHS MAY HAVE FEWER HEADS. THIS CONFIGURATION IS INTENDED TO REPRESENT A WORST CASE LOADING CONDITION.
- | | | | | |
|----------------|----------------|----------------|----------------|----------------|
| 70' (75') | 55' (65') | 45' (50') | 35' (40') | 25' (30') |
| 5 SIGNAL HEADS | 5 SIGNAL HEADS | 4 SIGNAL HEADS | 3 SIGNAL HEADS | 2 SIGNAL HEADS |
- THE DESIGN LENGTH "L" FOR EACH SERIES IS SHOWN IN PARENTHESIS.
- FOR THE TWIN MAST ARM CONNECTION, THE SECOND ARM IS ASSUMED TO BE WITHIN 60° TO 120° OF THE PRIMARY ARM AND IS ASSUMED TO BE LOADED WITH THE SAME LOADS AS SHOWN ABOVE. THE SECONDARY ARM MAY BE THE SAME LENGTH AS OR SHORTER THAN THE PRIMARY ARM.

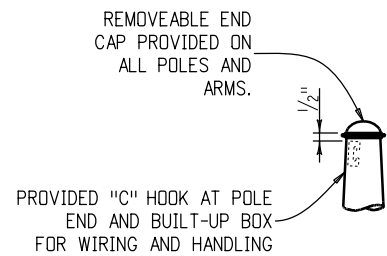
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Creation Date: 07-04-12	Initials: LAW	Date:	Comments:			
Last Modification Date: 07-04-12	Initials: LAW	(R-1) 03/20/15	ADD POLE SET BACK NOTES	Safety & Traffic Engineering Branch KCM/RLD	Issued By: Safety & Traffic Engineering Branch July 4, 2012	Sheet No. 1 of 5
Full Path: www.coloradodot.info/business/designsupport		(R-2) 07/01/15	REVISE NOTES 4 & 22			
Drawing File Name: Sheet_S-614-40_1of5 Rev2.dgn		(R-X)				
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English	(R-X)			

MAST ARM LENGTH (L) (FT.)	MAST ARM DATA								MAST ARM CONNECTION DATA															
	BASE SECTION *				END SECTION ♦				STIFFENER						FLANGE			BOLT						
	LENGTH (FT.)	TIP Ø (IN.)	TRUNK Ø (IN.)	THK. (IN.)	LENGTH (FT.)	TIP Ø (IN.)	TRUNK Ø (IN.)	THK. (IN.)	NO. OF	THK. (IN.)	WIDTH (IN.)	HEIGHT (IN.)	RADIUS (IN.)	ANGLE	WALL WELD (IN.)	PLATE WELD (IN.)	DIA. (IN.)	THK. (IN.)	SOCKET WELD (IN.)	NO. OF	DIA. (IN.)	CIRCLE DIA. (IN.)	HOLE DIA. (IN.)	ANGLE
30	29.25	6.50	10.59	0.1793	N.A.	N.A.	N.A.	N.A.	6	0.50	3.5	7	6.89	30.0°	0.179	0.375	20	1.00	0.179	6	1.0	16	1.125	60.0°
40	39.11	6.50	11.98	0.2391	N.A.	N.A.	N.A.	N.A.	8	0.50	4.0	8	8.12	22.5°	0.239	0.375	23	1.25	0.239	8	1.5	17	1.625	45.0°
50	25.15	9.47	12.99	0.3125	25	6.50	10.00	0.1793	8	0.75	4.0	8	8.12	22.5°	0.250	0.625	24	1.50	0.250	8	1.5	18	1.625	45.0°
65	25.35	12.52	16.07	0.3125	40	7.50	13.10	0.1793	8	0.75	5.0	10	10.60	22.5°	0.250	0.625	29	1.75	0.250	8	1.5	23	1.625	45.0°
75	35.23	12.52	17.45	0.3125	40	7.50	13.10	0.1793	10	0.75	5.5	11	11.84	18.0°	0.250	0.625	31	1.75	0.250	10	1.5	25	1.625	36.0°

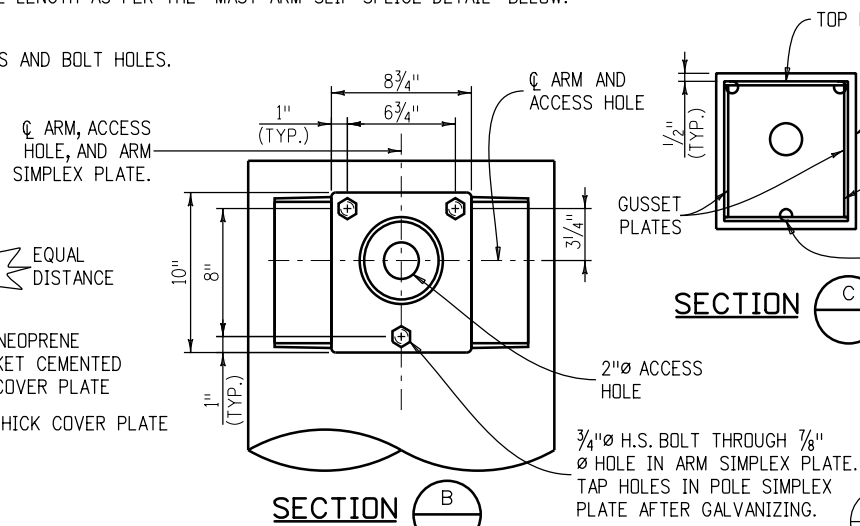
- * BASE SECTION LENGTH INCLUDES THE SPLICE LENGTH AS PER THE "MAST ARM SLIP SPLICE DETAIL" BELOW.
- ♦ SEE GENERAL NOTE 31 ON SHEET 1 OF 5.
- STOP ALL WELDS 1/2" SHORT OF PLATE EDGES AND BOLT HOLES.
- 3/4" FOR 30' ARM UPPER HANDHOLE.



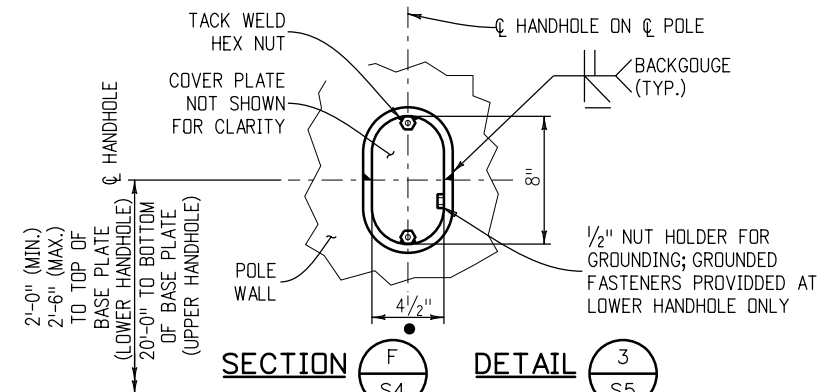
SECTION E (S4, S5)



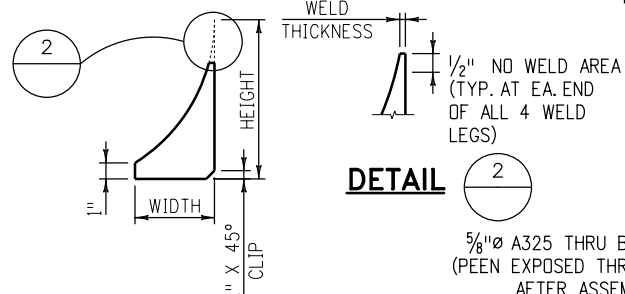
END CAP DETAIL



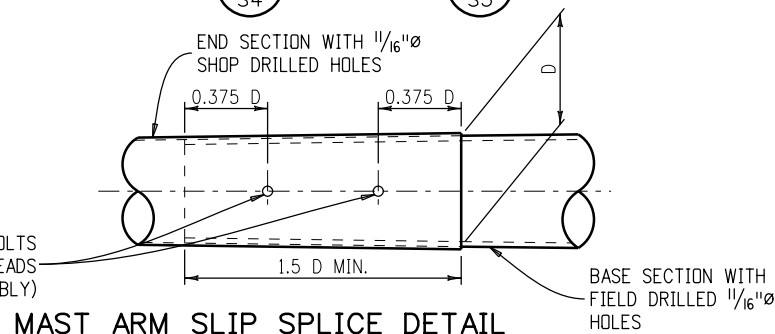
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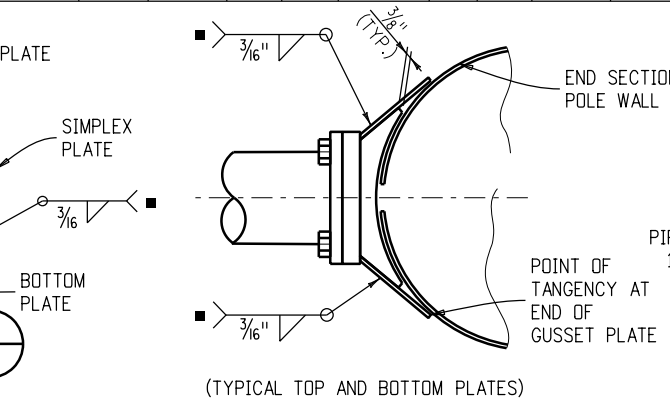
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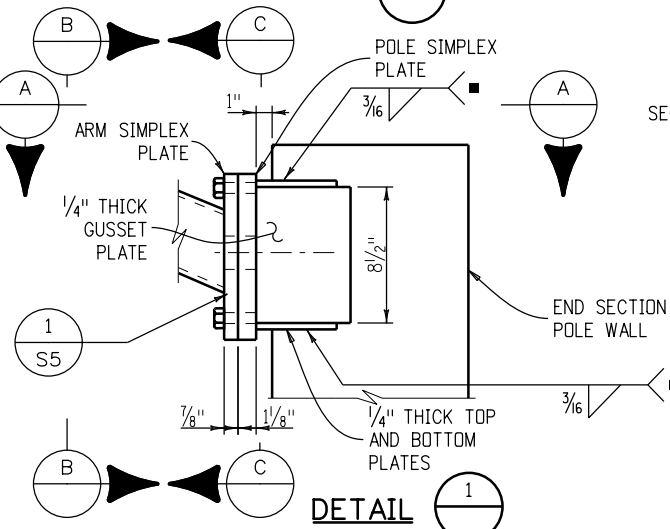
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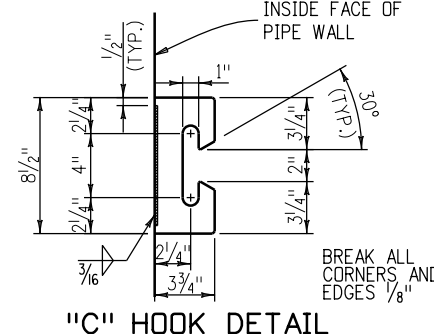
MAST ARM SLIP SPLICE DETAIL



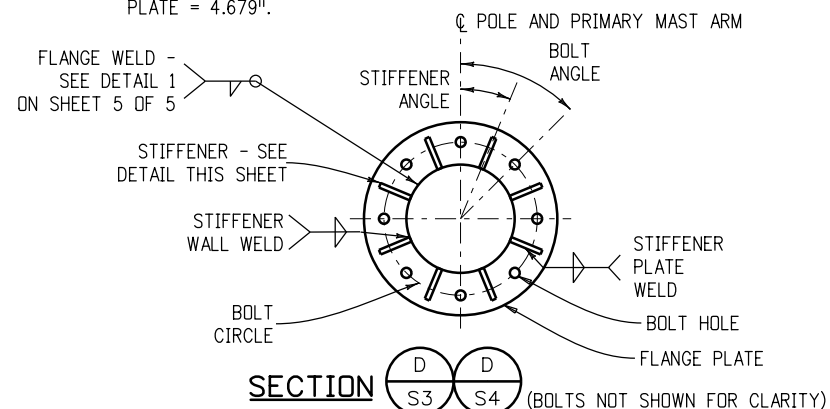
SECTION A



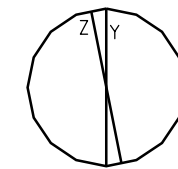
DETAIL 1



"C" HOOK DETAIL

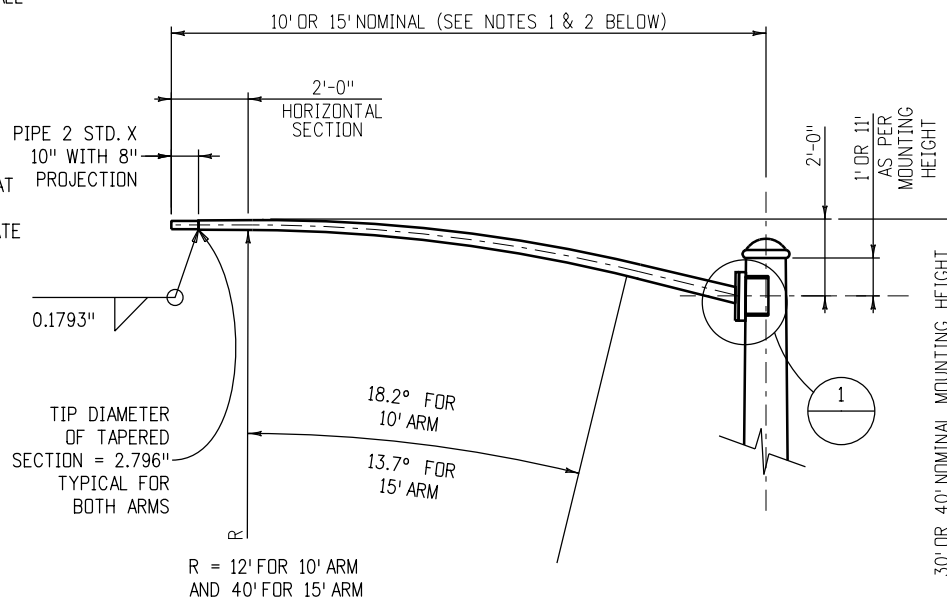


SECTION D (S3, S4) (BOLTS NOT SHOWN FOR CLARITY)



Y = DIAMETER OF A ROUND TUBE.
Z = PERPENDICULAR DISTANCE BETWEEN FLATS.
Y AND Z ARE OUTSIDE DIAMETER DIMENSIONS.
Z/Y RATIO MUST BE .98 MINIMUM.

OPTIONAL MULTI-SIDED POLE OR MAST ARM



R = 12' FOR 10' ARM AND 40' FOR 15' ARM

LUMINAIRE ARM NOTES

- 10' LUMINAIRE ARM SHAFT: WALL THICKNESS = 0.1793"; LINEAR TAPER = 0.14 IN./FT.; DIAMETER AT ARM SIMPLEX PLATE = 4.066"
- 15' LUMINAIRE ARM SHAFT: WALL THICKNESS = 0.1793"; LINEAR TAPER = 0.14 IN./FT.; DIAMETER AT ARM SIMPLEX PLATE = 4.679"

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(R-X)	

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TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS

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

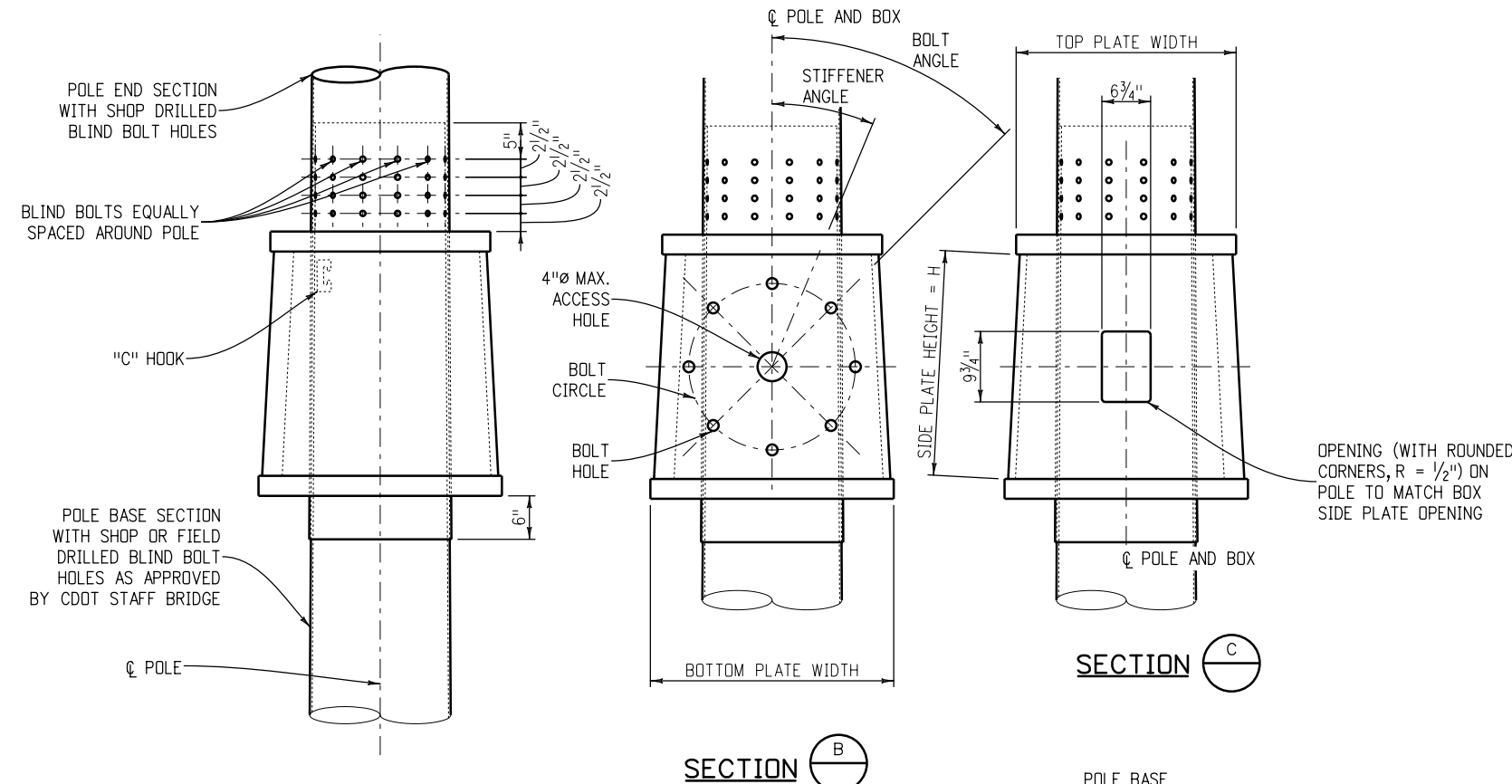
STANDARD PLAN NO.

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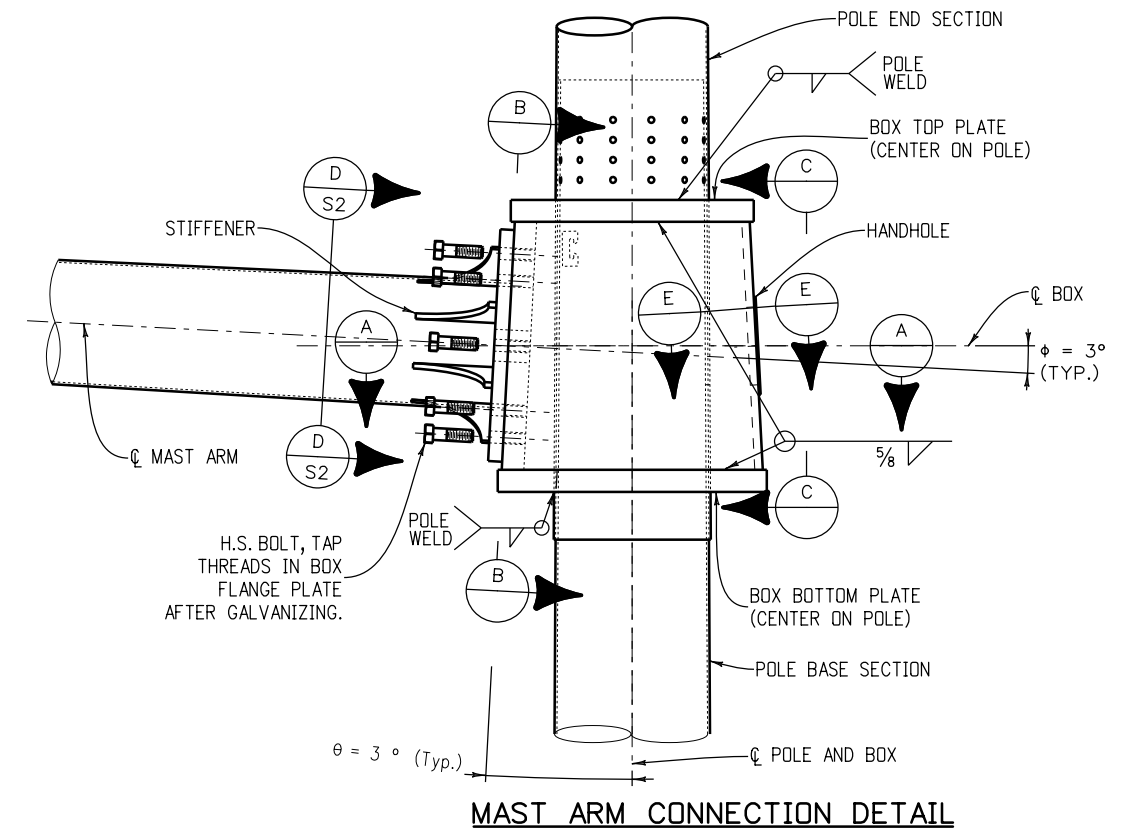
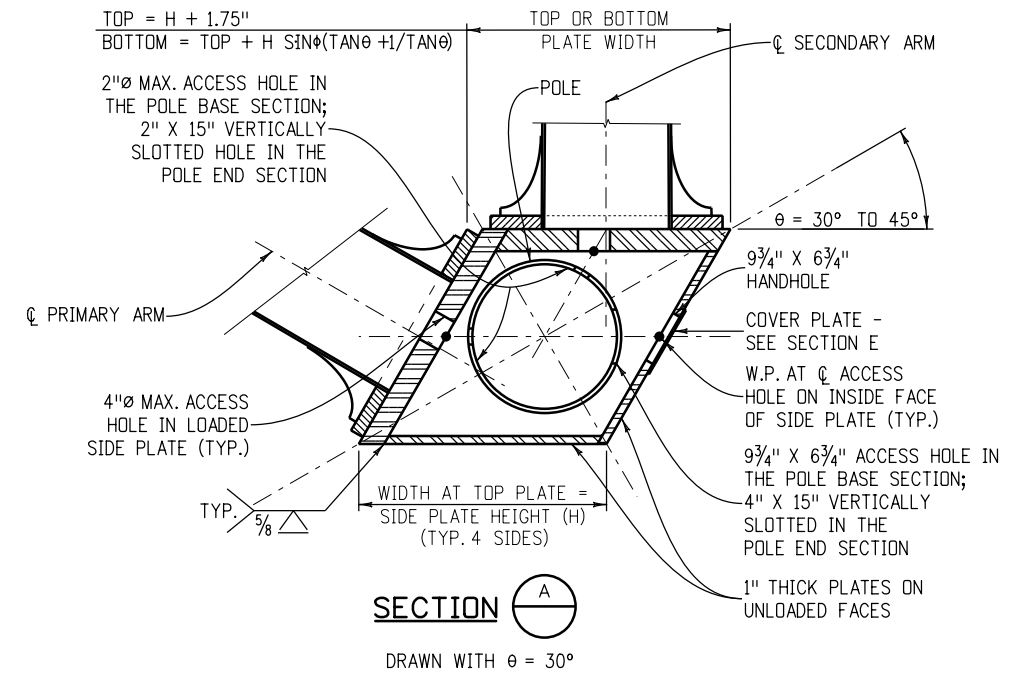
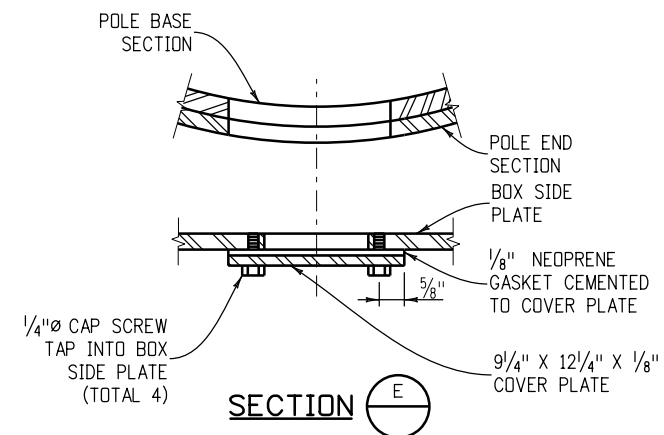
MAST ARM LENGTH (FT.)	BUND BOLD DATA				BUILT-UP BOX DATA *						POLE DATA						
	NO. OF	DIA. (IN.)	BOLTS PER ROW	NO. OF ROWS	THICKNESS OF BOX PLATES U.O.N. (IN.)	POLE WELD (IN.)	SIDE PLATE	TOP PLATE	BOTTOM PLATE	BASE SECTION				END SECTION ♦ WITH LUMINAIRE			
							H (IN.)	WIDTH FOR $\theta = 45^\circ$ (IN.)	WIDTH FOR $\theta = 45^\circ$ (IN.)	LENGTH (FT.)	TOP ϕ (IN.)	BOTTOM ϕ (IN.)	THK. (IN.)	LENGTH (FT.)	TOP ϕ (IN.)	BOTTOM ϕ (IN.)	THK. (IN.)
30	24	0.75	6	4	1.50	0.1875	22	23.75	26.053	22.29	9.11	12.23	0.3125	20.54	7.25	10.13	0.2391
40	30	0.75	6	5	2.00	0.1875	25	26.75	29.367	22.67	11.81	14.98	0.3125	20.71	10.00	12.90	0.2391
50	36	0.75	12	3	2.50	0.1875	26	27.75	30.471	22.33	14.86	17.98	0.3125	20.79	13.00	15.91	0.2391
65	48	0.75	12	4	2.75	0.1875	31	32.75	35.995	22.77	18.54	21.73	0.3125	21.02	16.75	19.69	0.2391
75	60	0.75	12	5	3.00	0.1875	33	34.75	38.204	23.08	20.75	23.98	0.3125	21.12	19.00	21.96	0.2391

* USE LARGER ARM IN A DOUBLE ARM SIGNAL TO DETERMINE PLATE THICKNESS AND DIMENSIONS.
 ♦ SEE GENERAL NOTE 31 ON SHEET 1 OF 5



POLE END SECTION SLIP CONNECTION DETAIL
 (SEE GENERAL NOTE 8 ON SHEET 1 OF 5 REGARDING THE NEED FOR BLIND BOLTS)

FOR 8 BOLTS AND $\theta < 45^\circ$, ROTATE FLANGE FOR SECONDARY ARM 22.5° TO AVOID BOLT INTERFERENCE PROBLEMS.



MAST ARM CONNECTION DETAIL

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(R-X)	
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TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS

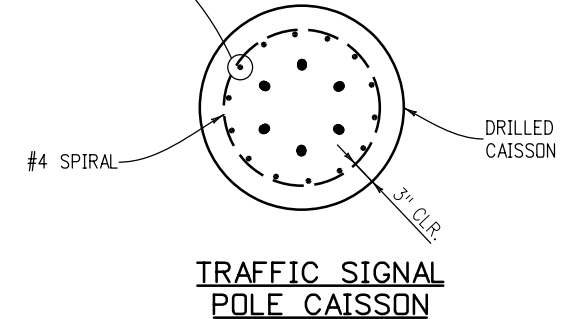
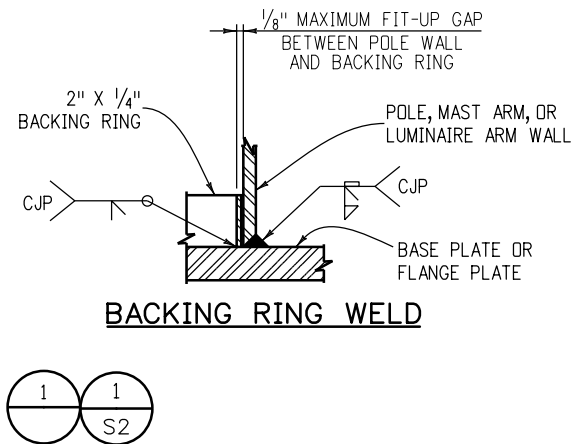
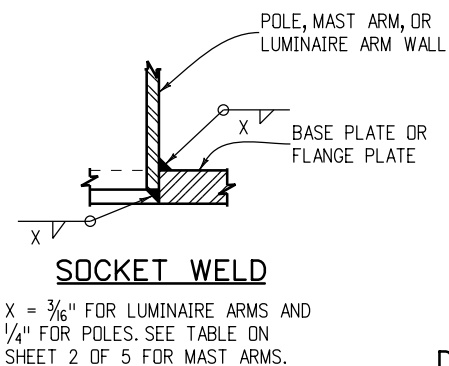
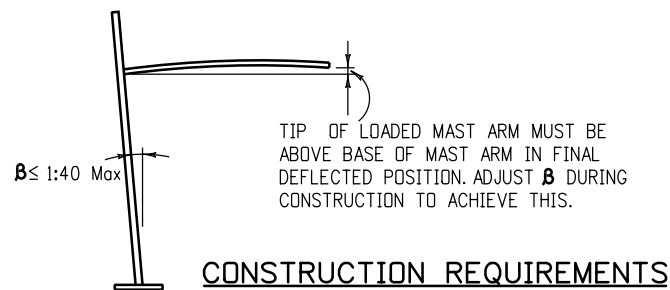
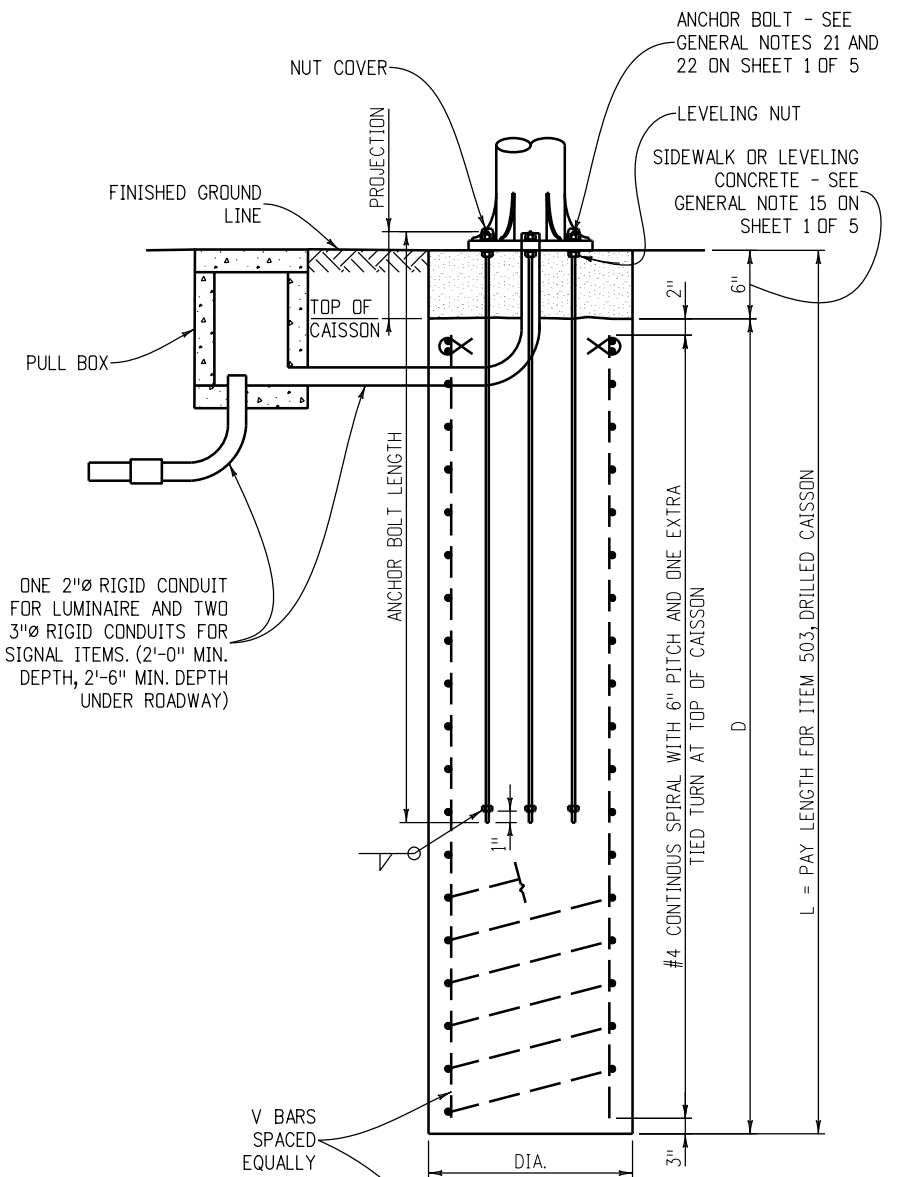
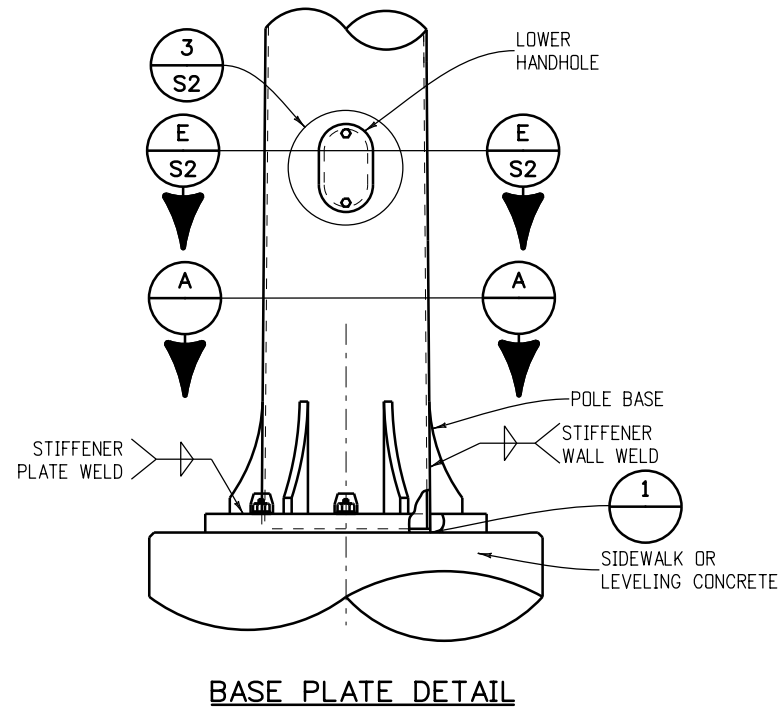
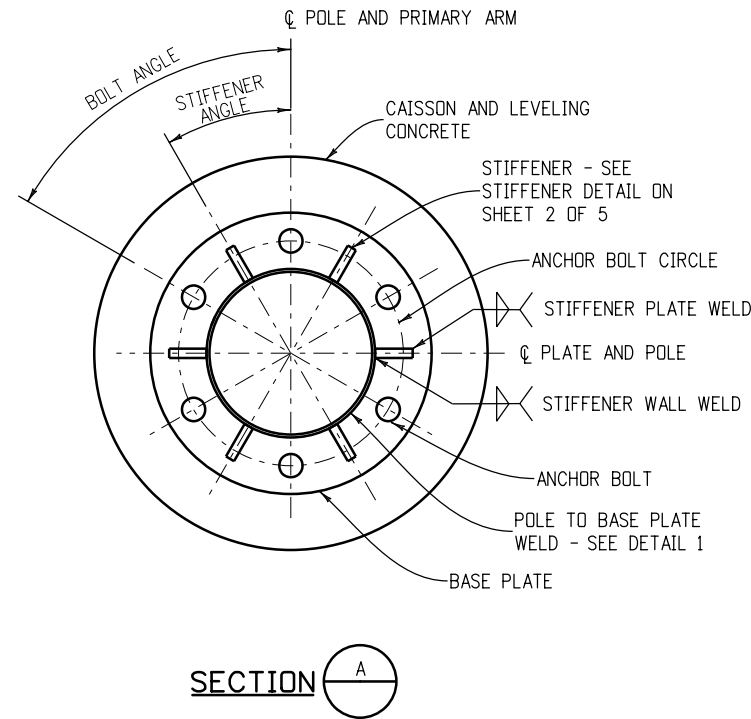
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STANDARD PLAN NO.

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Sheet No. 3 of 5

MAST ARM LENGTH (FT.)	POLE BASE CONNECTION DATA																CAISSON DATA (FOR SINGLE AND DOUBLE ARM INSTALLATIONS)					
	STIFFENER						BASE PLATE		ANCHOR BOLT								DIA. (IN.)	DEPTH (D) (FT.)	PAY LENGTH (L) (FT.)	V BARS		
	NO. OF	THK. (IN.)	WIDTH (IN.)	HEIGHT (IN.)	RADIUS (IN.)	ANGLE	WALL WELD (IN.)	PLATE WELD (IN.)	DIA. (IN.)	THK. (IN.)	NO. OF	DIA. (IN.)	LENGTH (IN.)	CIRCLE DIA. (IN.)	HOLE DIA. (IN.)	ANGLE				PROJECTION (IN.)	SIZE	TOTAL
30	6	0.75	5.0	10	10.600	30.0°	0.25	0.625	24	2.25	6	2.0	63	17.75	2.25	60.0°	11.25	36	12.5	13	#9	11
40	6	0.75	5.5	11	11.841	30.0°	0.25	0.625	27	2.50	6	2.0	63	21.00	2.25	60.0°	11.50	36	14.5	15	#9	11
50	6	0.75	6.5	13	14.327	30.0°	0.25	0.625	32	2.75	6	2.0	63	25.00	2.25	60.0°	11.75	42	16.5	17	#9	14
65	6	0.75	8.0	16	18.063	30.0°	0.25	0.625	39	3.00	6	2.5	63	30.25	2.75	60.0°	12.50	48	20.5	21	#9	18
75	6	0.75	8.5	17	19.309	30.0°	0.25	0.625	42	3.25	6	2.5	63	33.00	2.75	60.0°	12.75	54	20.5	21	#9	23



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TYPICAL TRAFFIC SIGNAL
 INSTALLATION DETAILS
 Issued By: Safety & Traffic Engineering Branch July 4, 2012

STANDARD PLAN NO.
 S-614-40
 Sheet No. 5 of 5

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

Computer File Information	
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Last Modification Date: 12/8/14	Initials: KEN
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CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Colorado Department of Transportation

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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

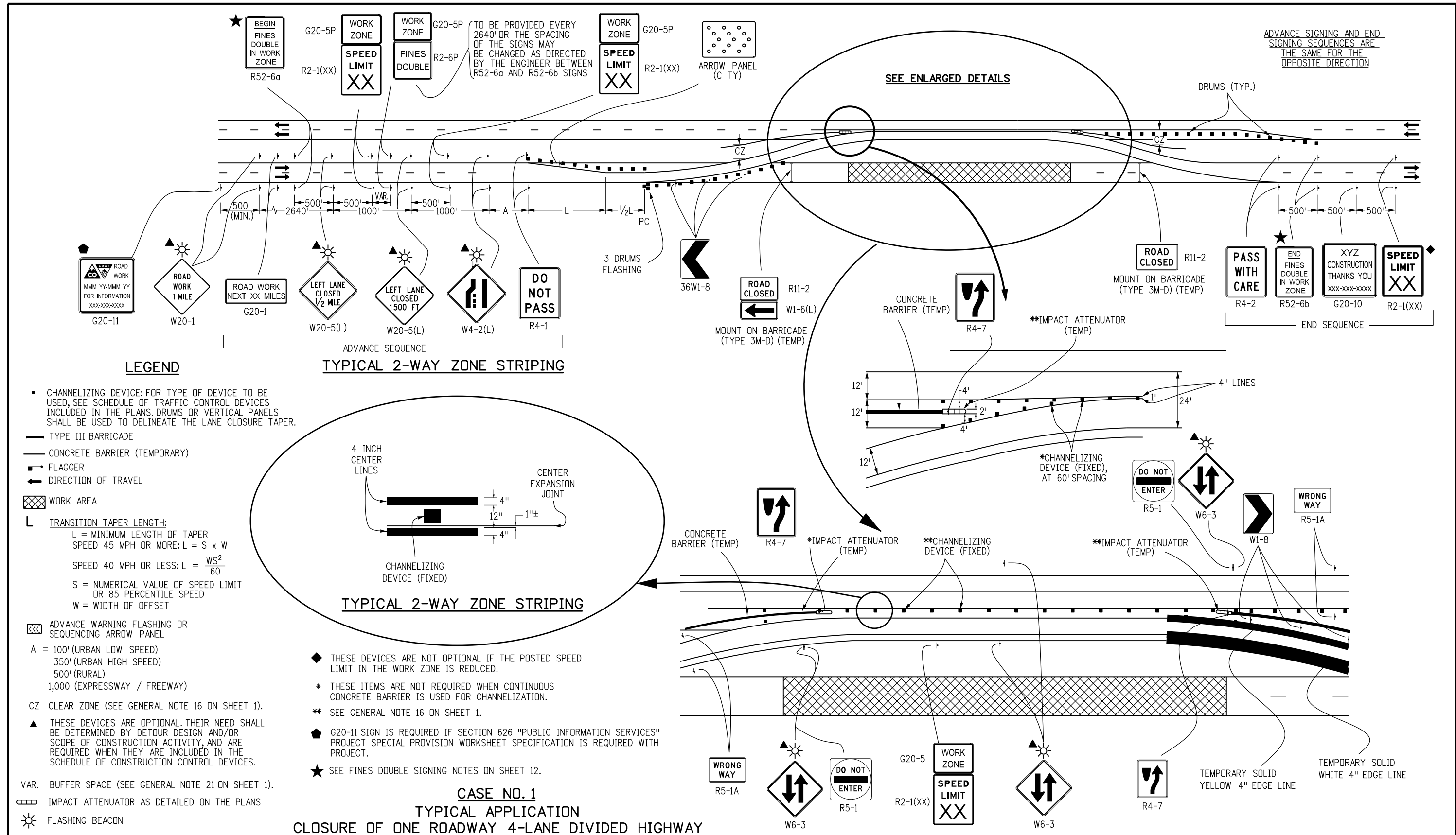
Sheet No. 1 of 24

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CLOSURE OF HALF OF 4-LANE UNDIVIDED HIGHWAY	2	4
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Creation Date: 07/04/12	Initials: KEN	Date:	Comments:			S-630-1
Last Modification Date:	Initials:					
Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans						
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(R-X)	
(R-X)	

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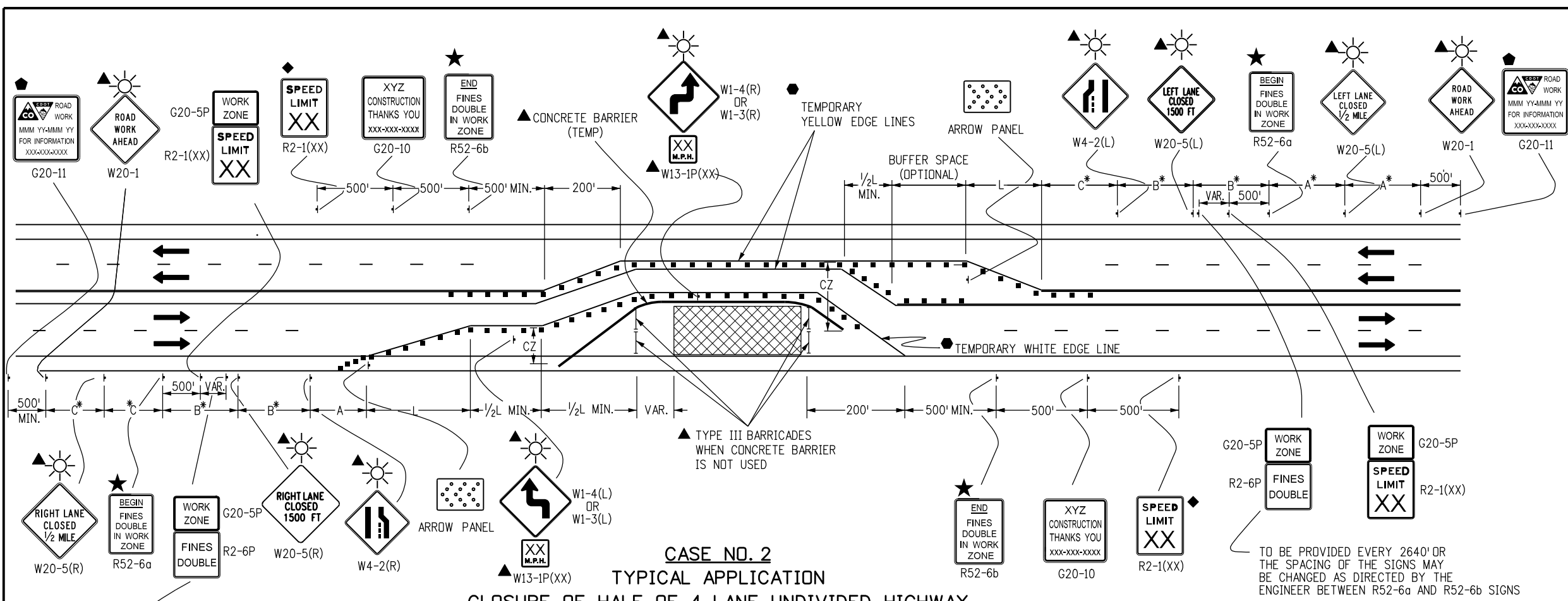
TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

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STANDARD PLAN NO.
 S-630-1
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LEGEND

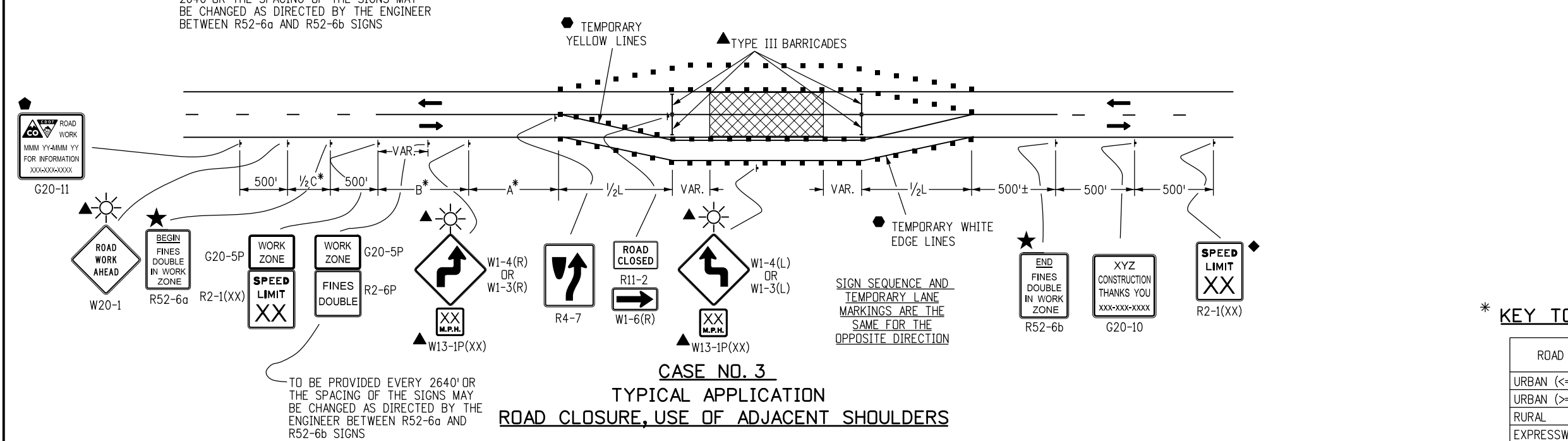
- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- FLAGGER
- ← DIRECTION OF TRAVEL
- ▨ WORK AREA
- L TRANSITION TAPER LENGTH:
 $L = \text{MINIMUM LENGTH OF TAPER}$
 SPEED 45 MPH OR MORE: $L = S \times W$
 SPEED 40 MPH OR LESS: $L = \frac{WS^2}{60}$
 $S = \text{NUMERICAL VALUE OF SPEED LIMIT OR 85 PERCENTILE SPEED}$
 $W = \text{WIDTH OF OFFSET SHOULDER TAPER} = 1/3 L$
- ▨ 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.
- ◆ 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.



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

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

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



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

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

SIGN SEQUENCE AND TEMPORARY LANE MARKINGS ARE THE SAME FOR THE OPPOSITE DIRECTION

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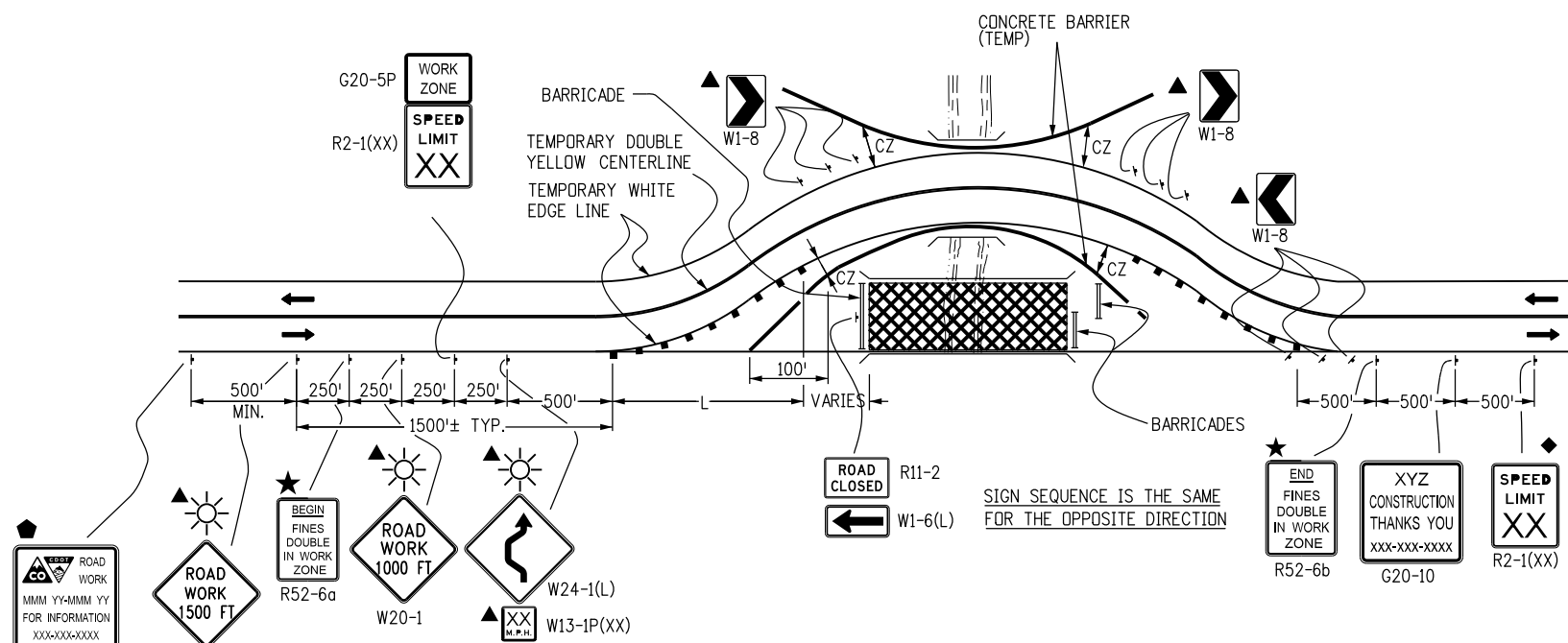
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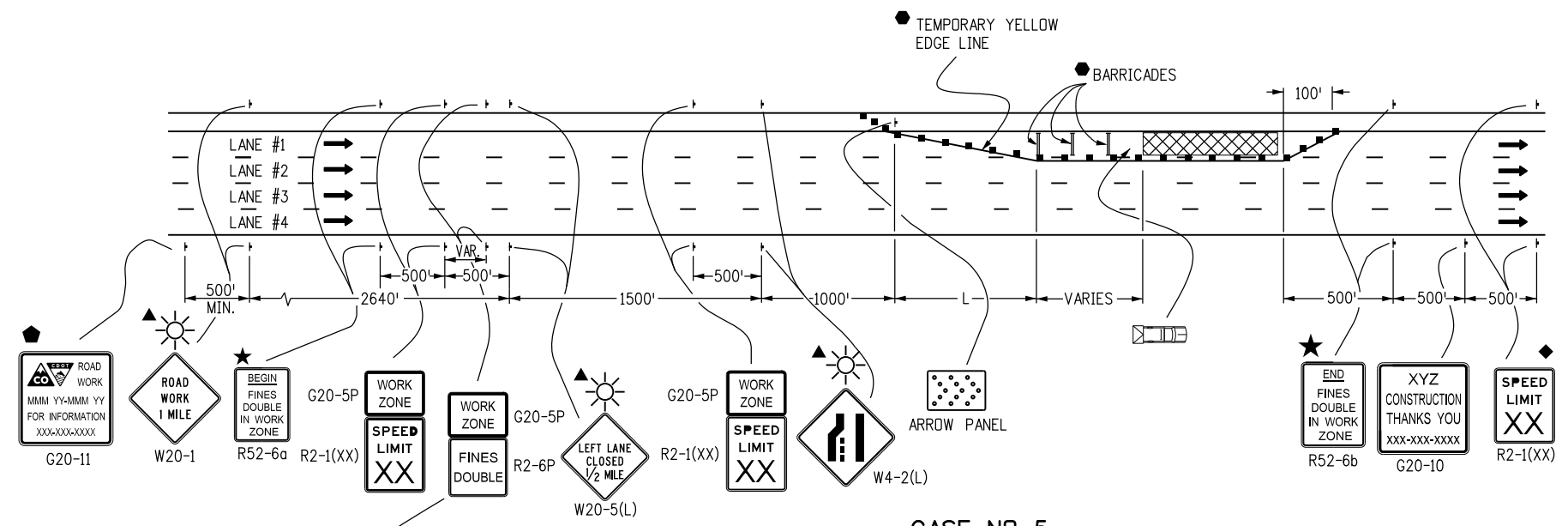
STANDARD PLAN NO.
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CASE NO. 4
TYPICAL APPLICATION
ROAD CLOSURE, BYPASS DETOUR PROVIDED

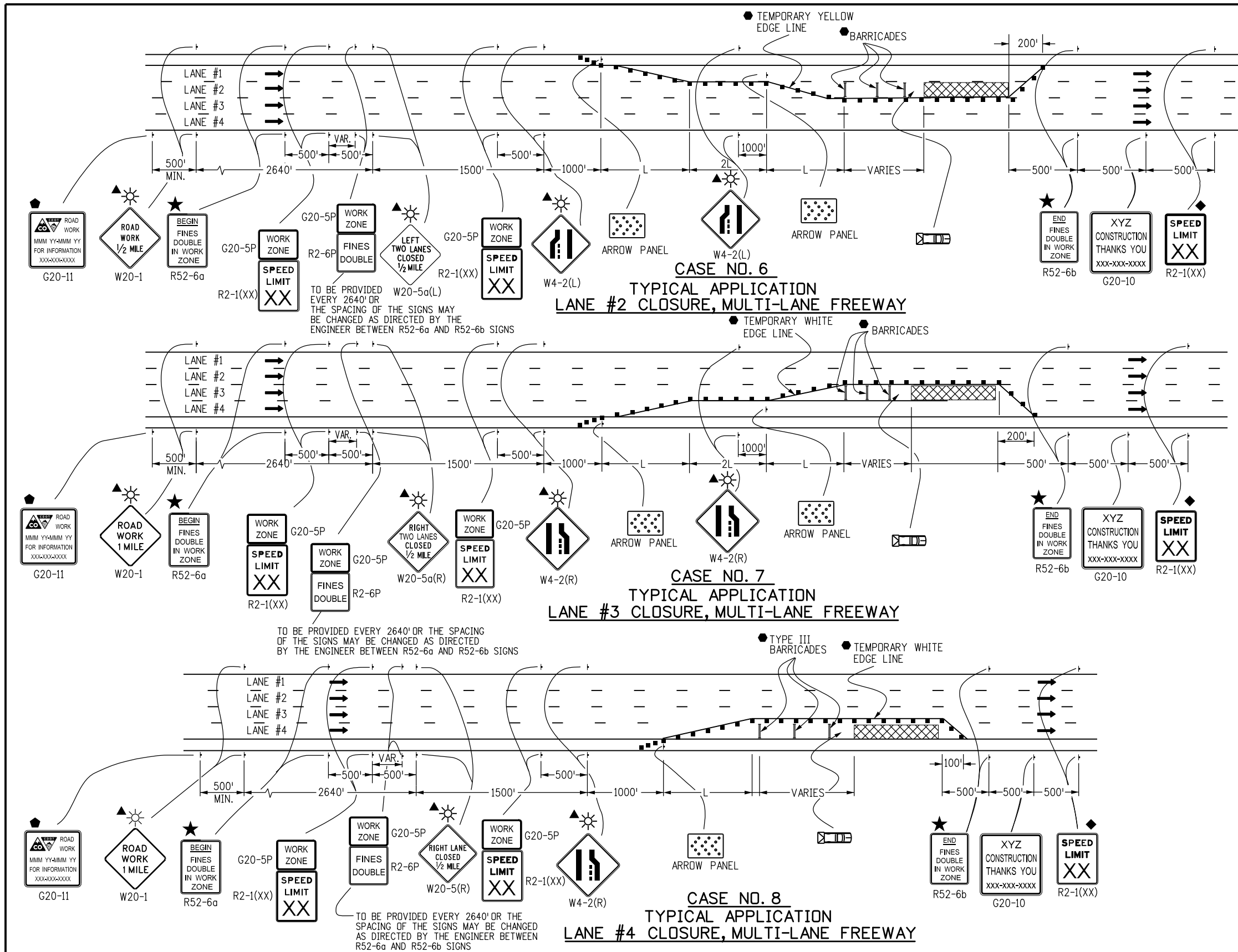
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- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER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



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

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/KEN	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	STANDARD PLAN NO.
Creation Date: 07/04/12	Initials: RRR	Date:	Comments:			S-630-1
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LEGEND

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- ▨ TRUCK MOUNTED ATTENUATOR (TMA)
- ☀ FLASHING BEACON
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Sheet Revisions	
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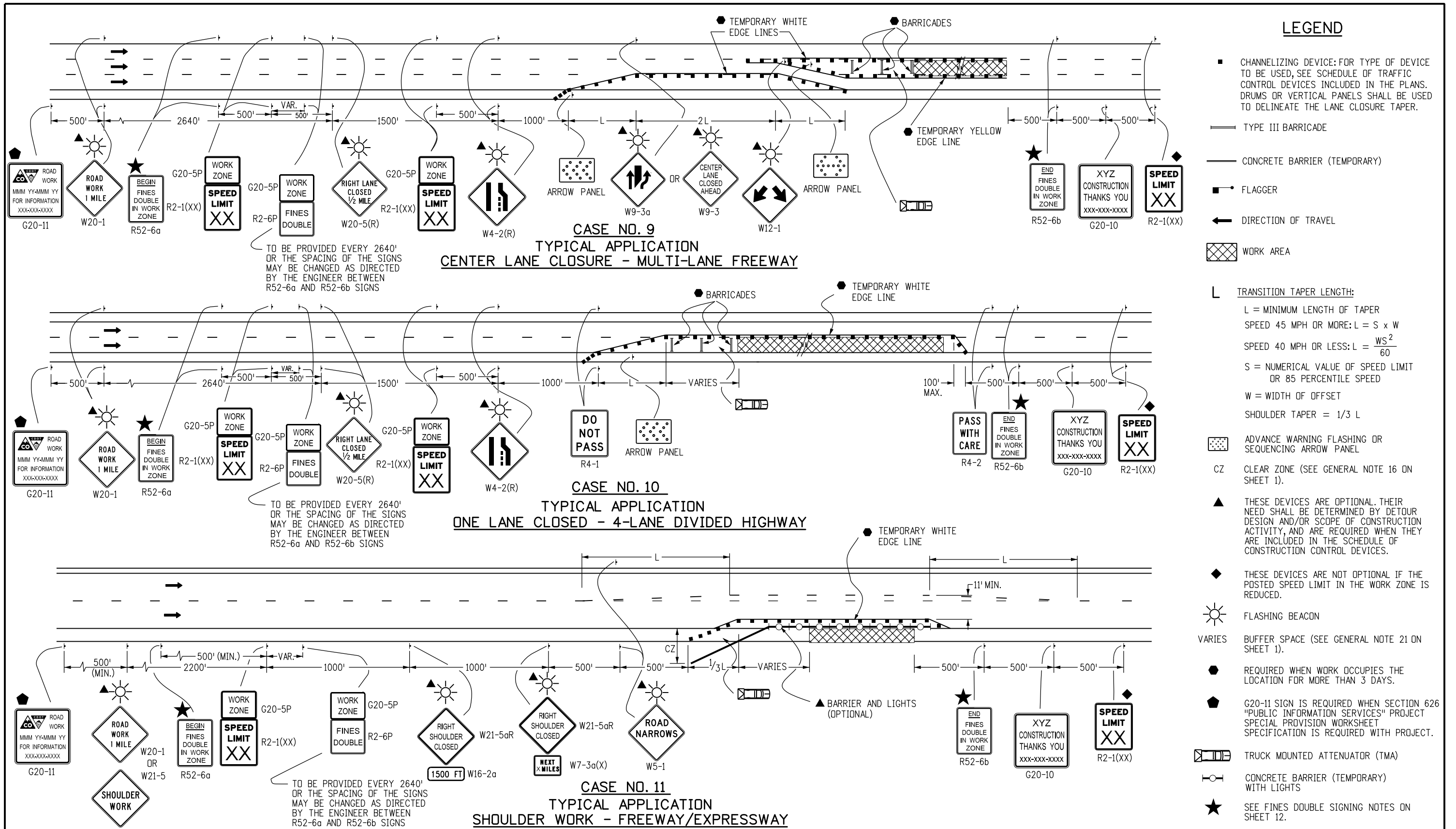
TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

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

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Sheet Revisions

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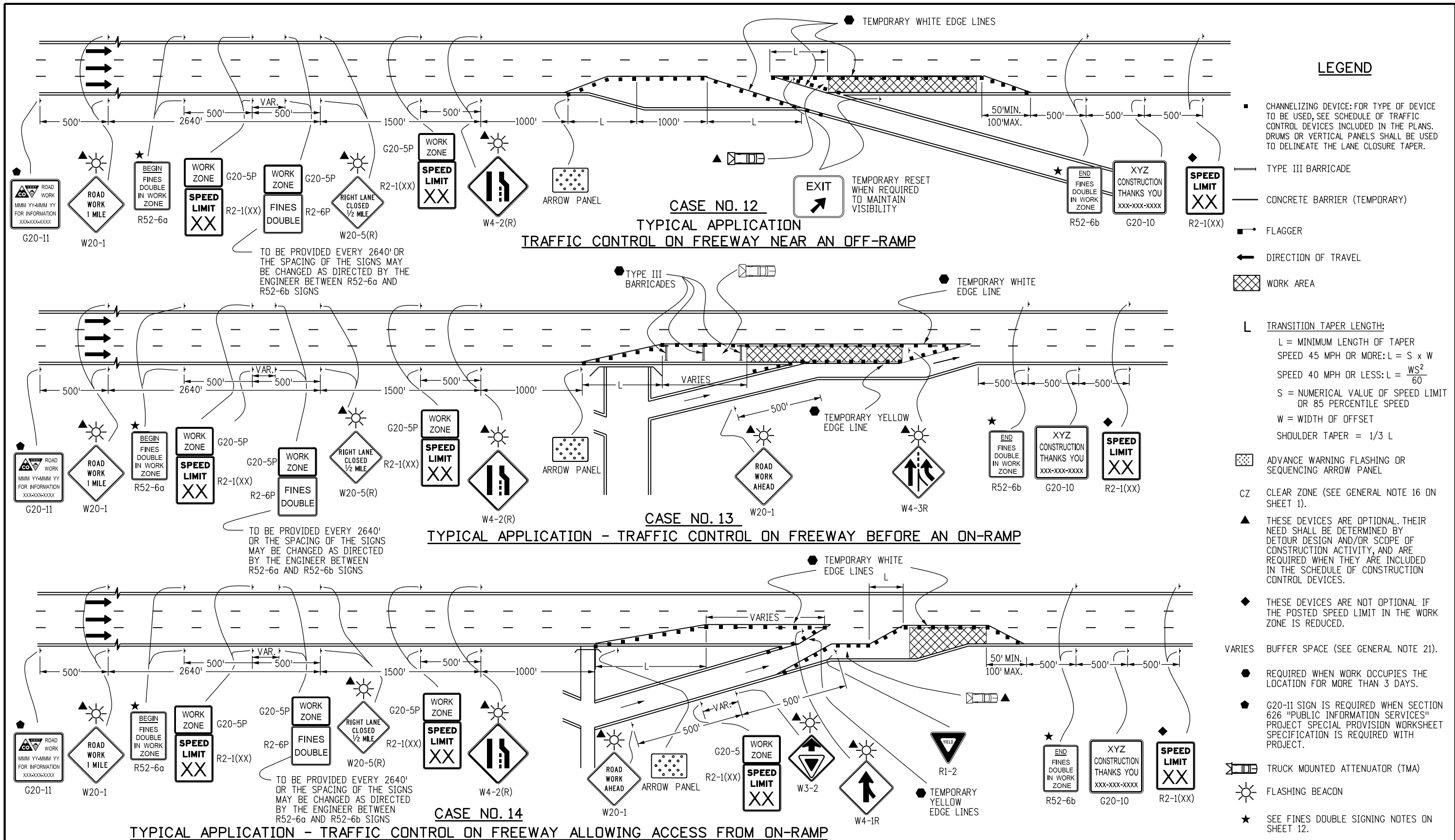
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TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

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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.
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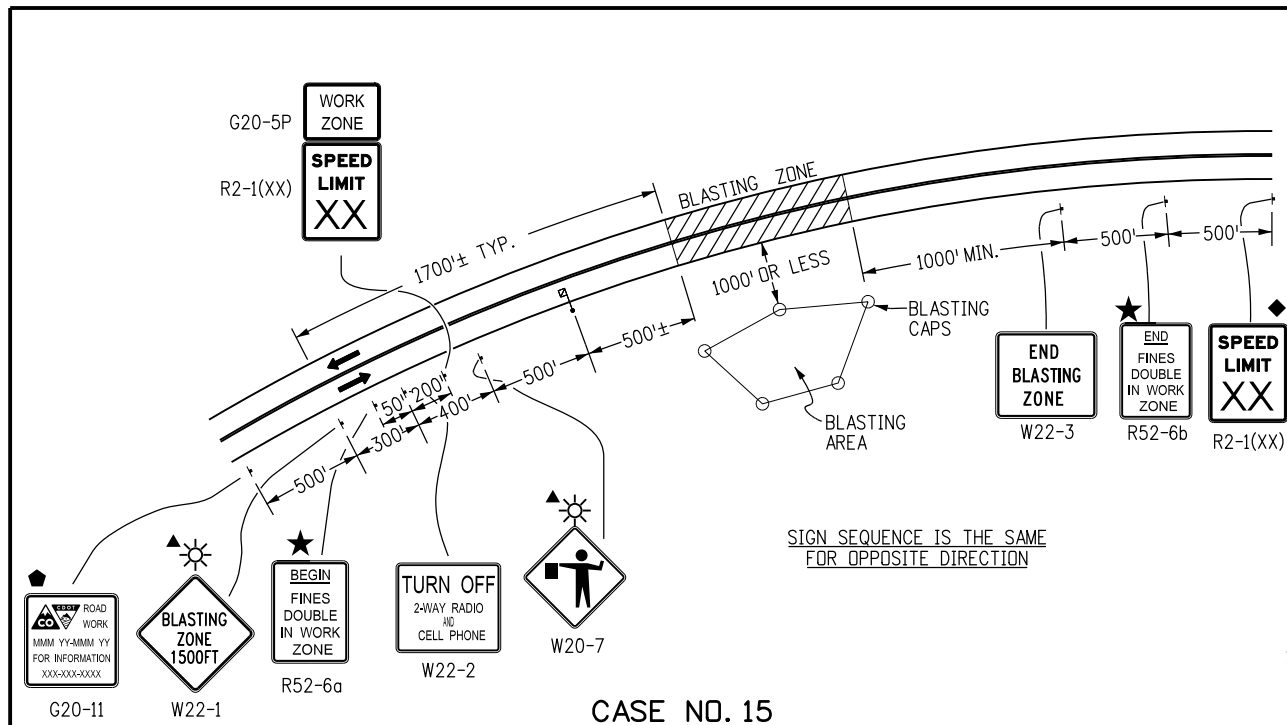
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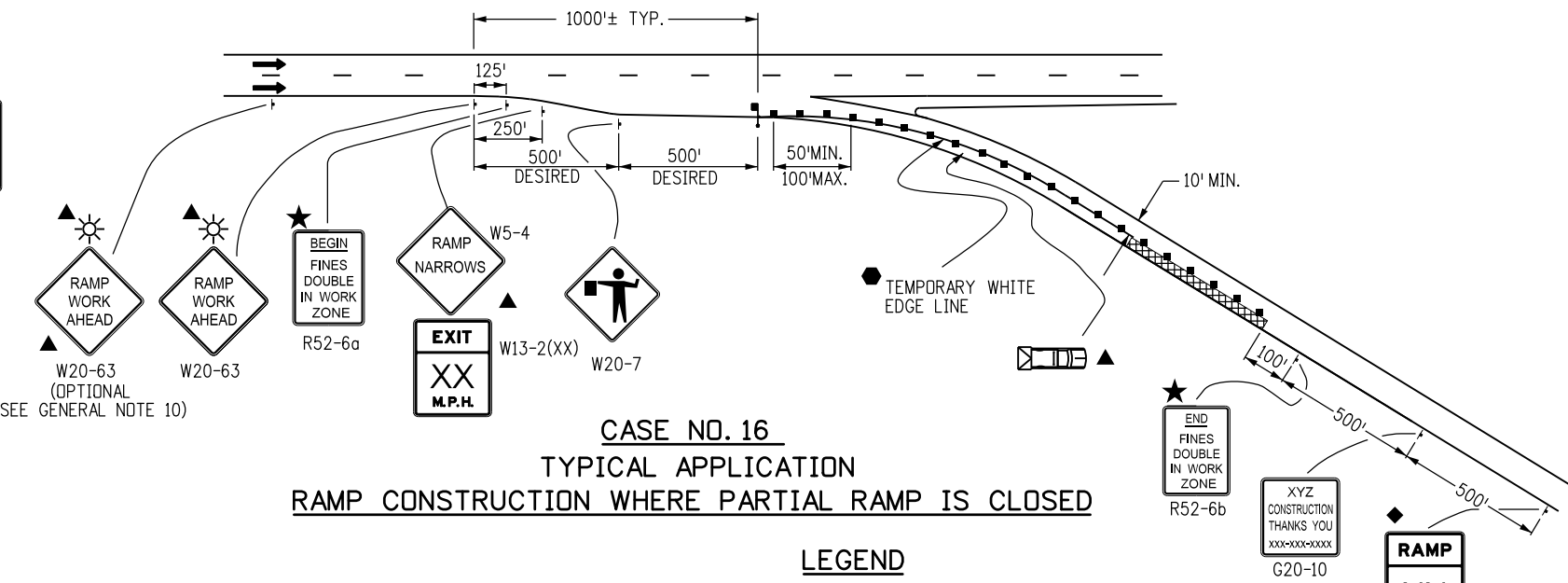
TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

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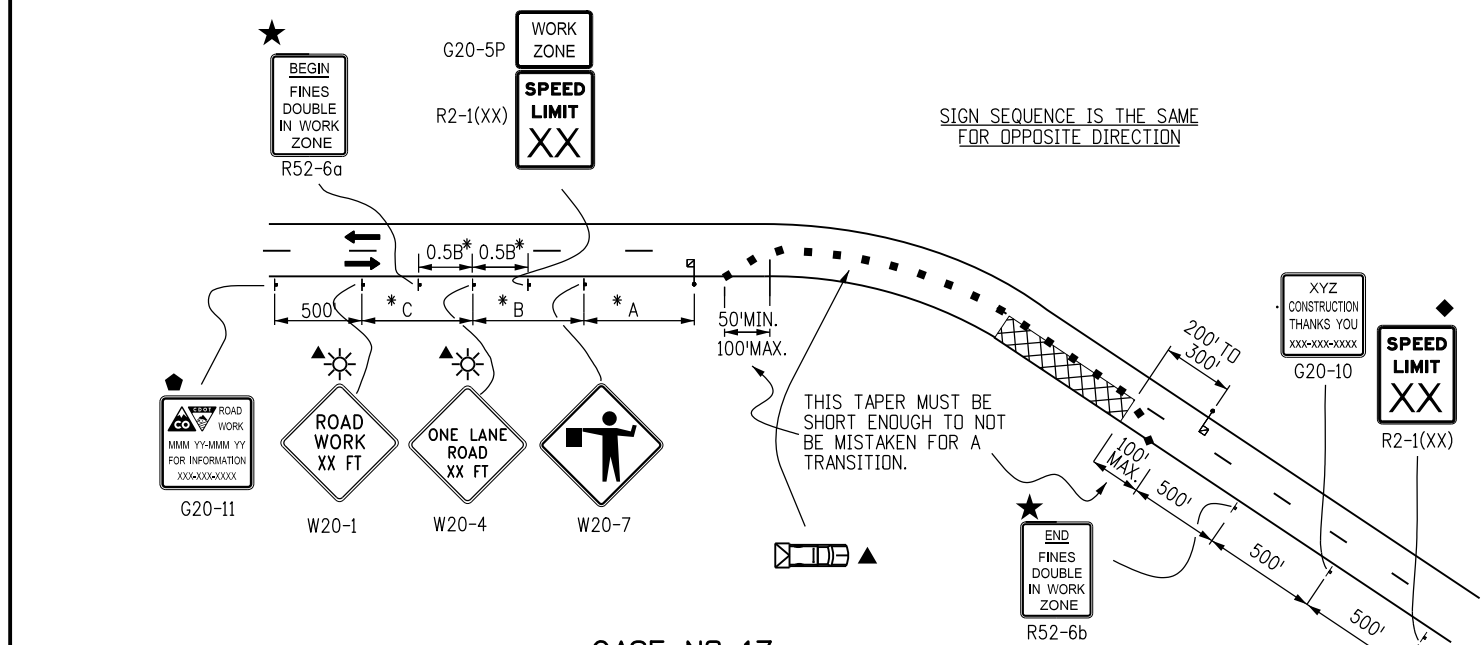
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CASE NO. 15
TYPICAL APPLICATION
BLASTING ZONE



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



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

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.
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- ★ SEE FINES DOUBLE SIGNING NOTES ON SHEET 12
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***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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Sheet Revisions

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

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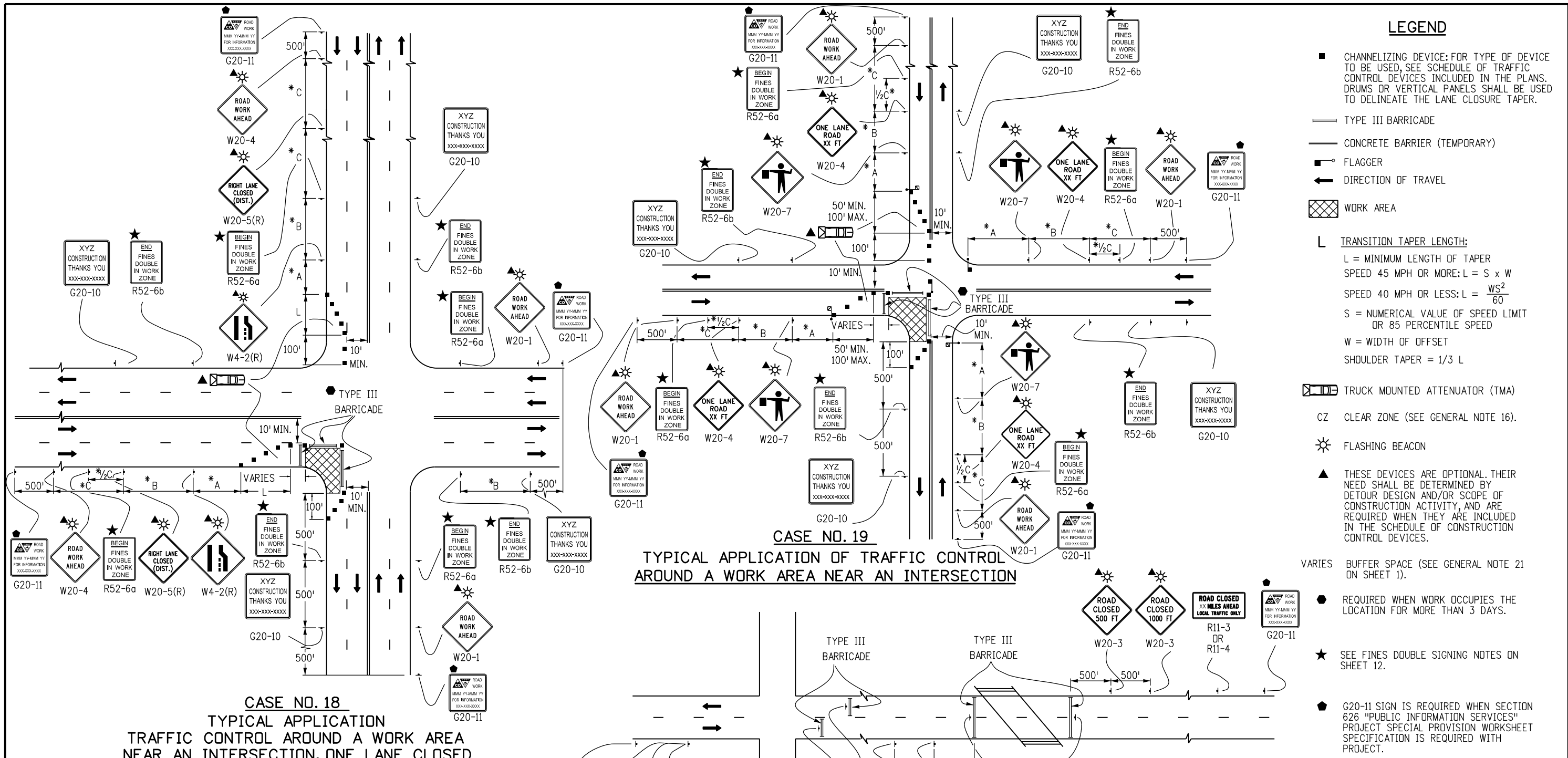
TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

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STANDARD PLAN NO.

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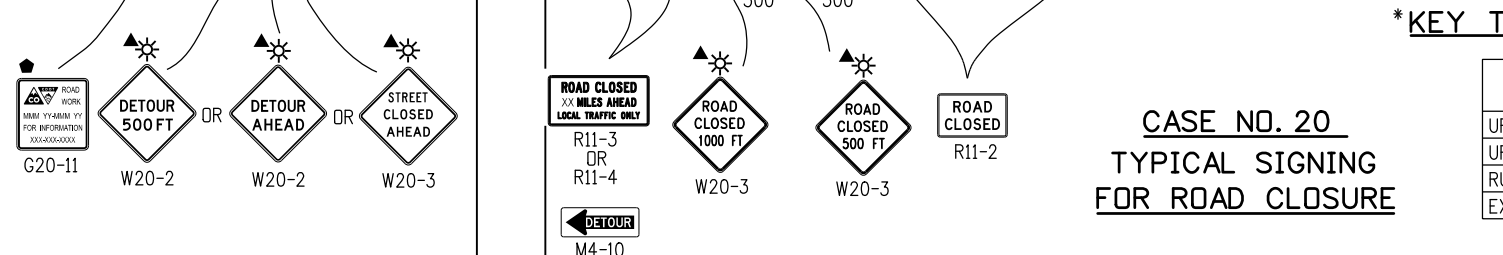
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- CHANNELIZING DEVICE: FOR TYPE OF DEVICE TO BE USED, SEE SCHEDULE OF TRAFFIC CONTROL DEVICES INCLUDED IN THE PLANS. DRUMS OR VERTICAL PANELS SHALL BE USED TO DELINEATE THE LANE CLOSURE TAPER.
- TYPE III BARRICADE
- CONCRETE BARRIER (TEMPORARY)
- FLAGGER
- ← 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
SHOULDER TAPER = 1/3 L
- ▭ TRUCK MOUNTED ATTENUATOR (TMA)
- 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:**
- 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.
 - TRUCK-MOUNTED ATTENUATORS (TMA) OPTIONAL FOR ALL CASES AS DETERMINED BY THE ENGINEER.



CASE NO. 20
TYPICAL SIGNING
FOR ROAD CLOSURE

***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

Computer File Information

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Sheet Revisions

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

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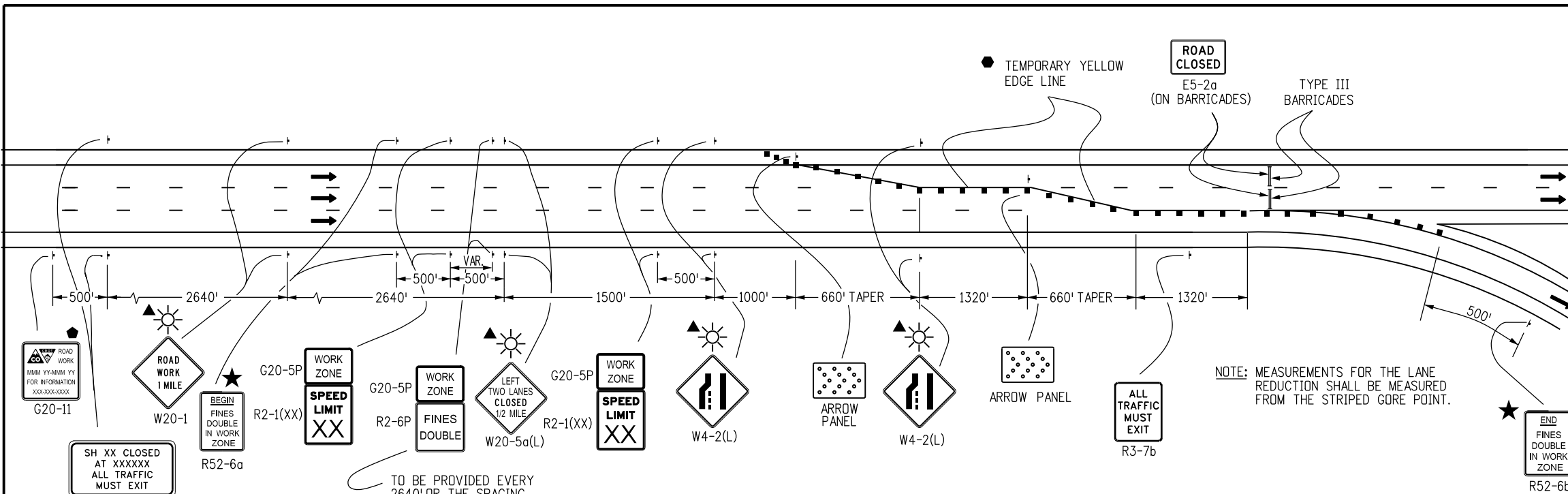
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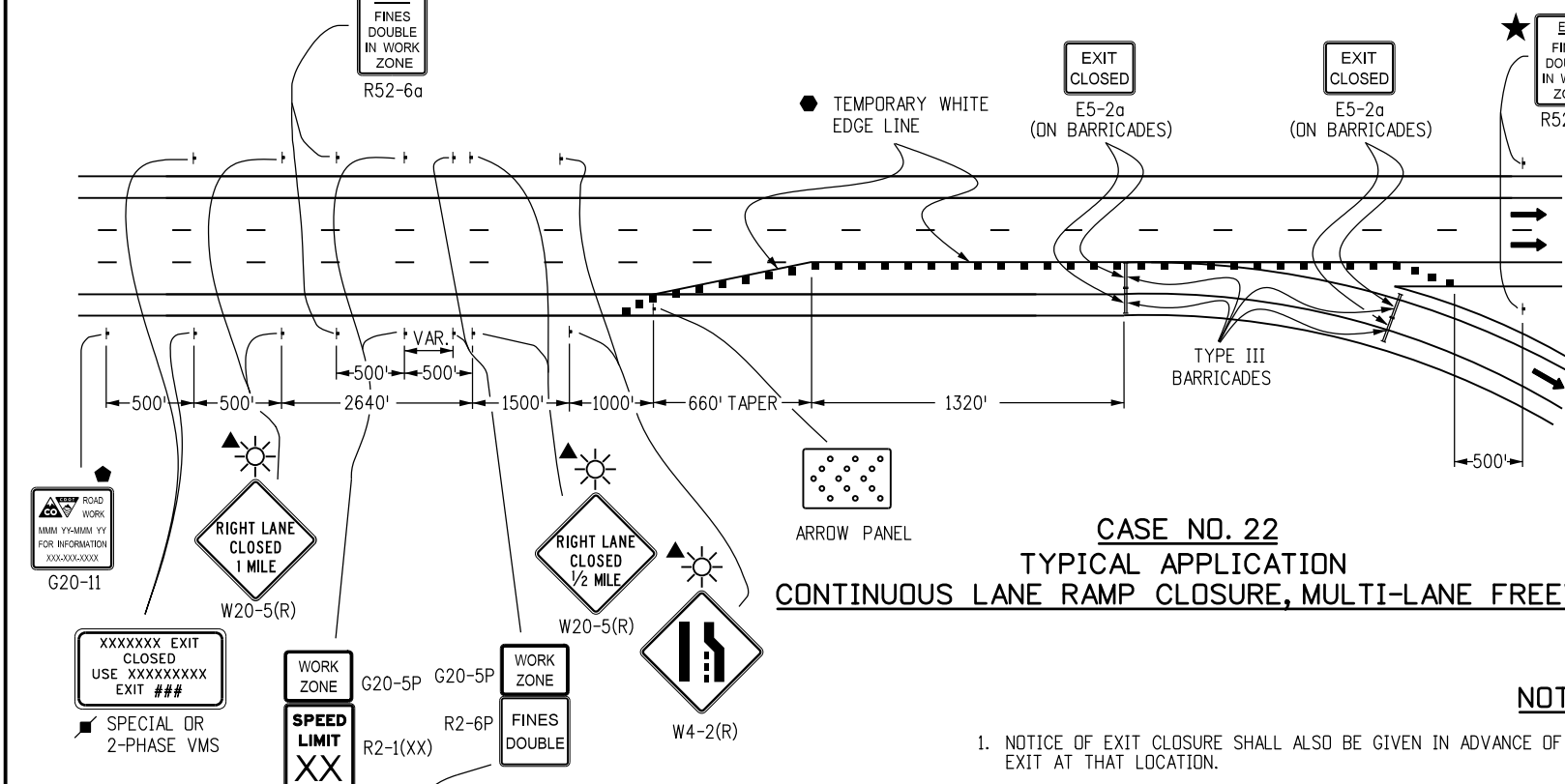
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LEGEND

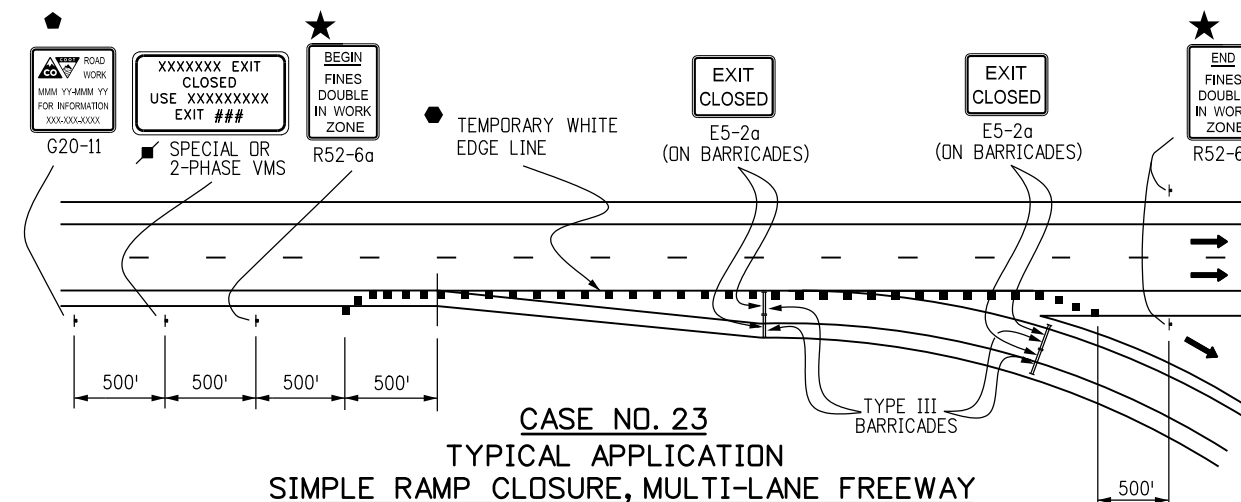
- ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL
- THESE DEVICES ARE OPTIONAL. THEIR NEED WILL BE DETERMINED BY THE DESIGNER BASED ON DETOUR DESIGN AND/OR SCOPE OF THE CONSTRUCTION ACTIVITY, AND ARE REQUIRED WHEN THEY ARE INCLUDED IN THE PLANS.
- REQUIRED WHEN WORK OCCUPIES THE LOCATION FOR MORE 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 = 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
- 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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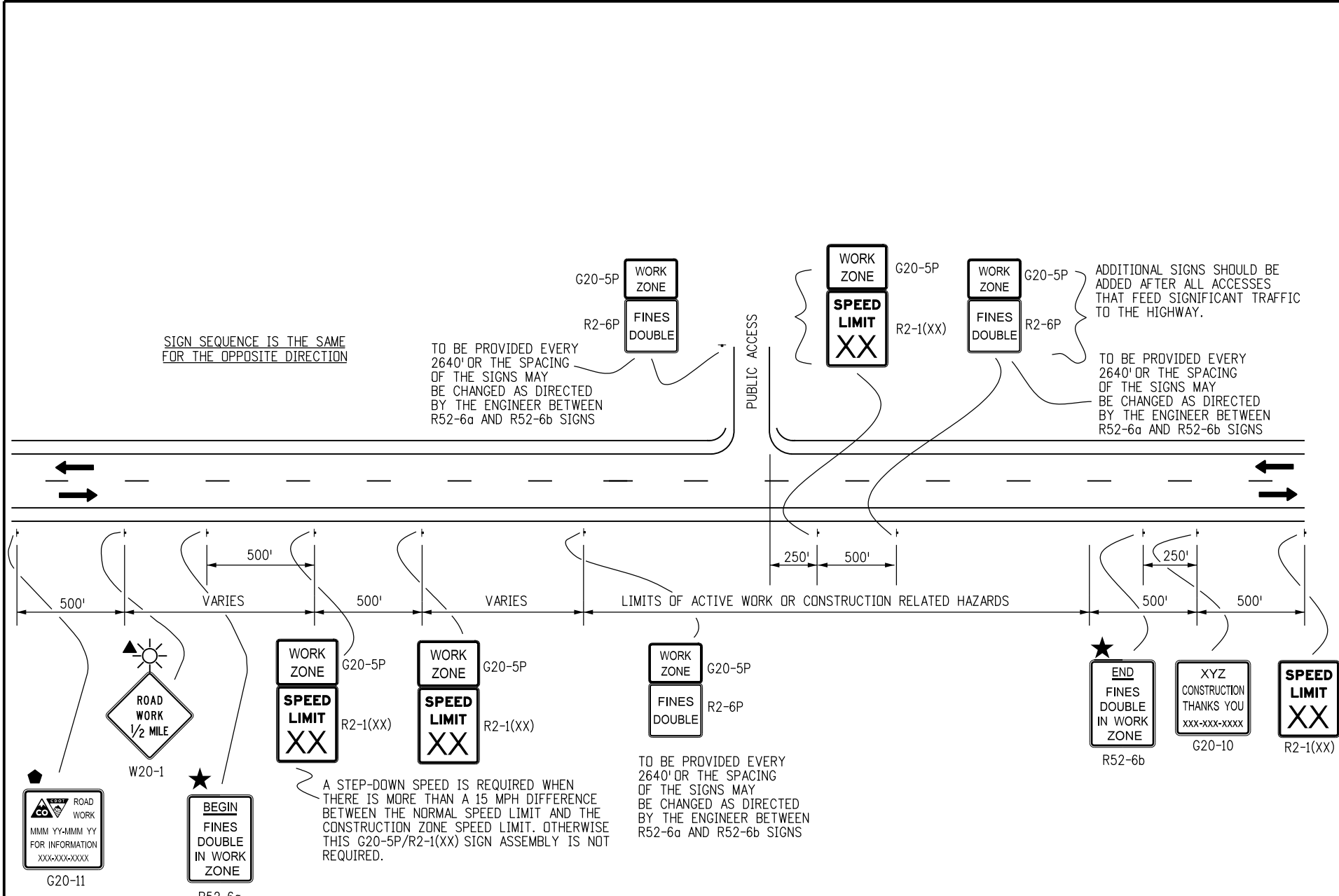
LEGEND

- ← 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)**

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Sheet Revisions	
Date:	Comments

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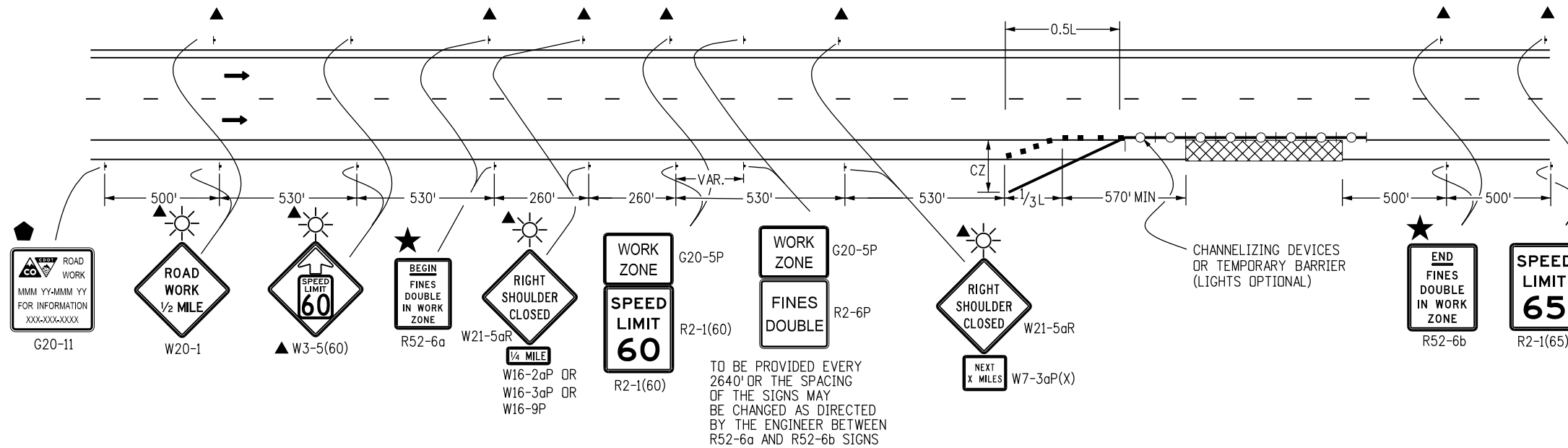
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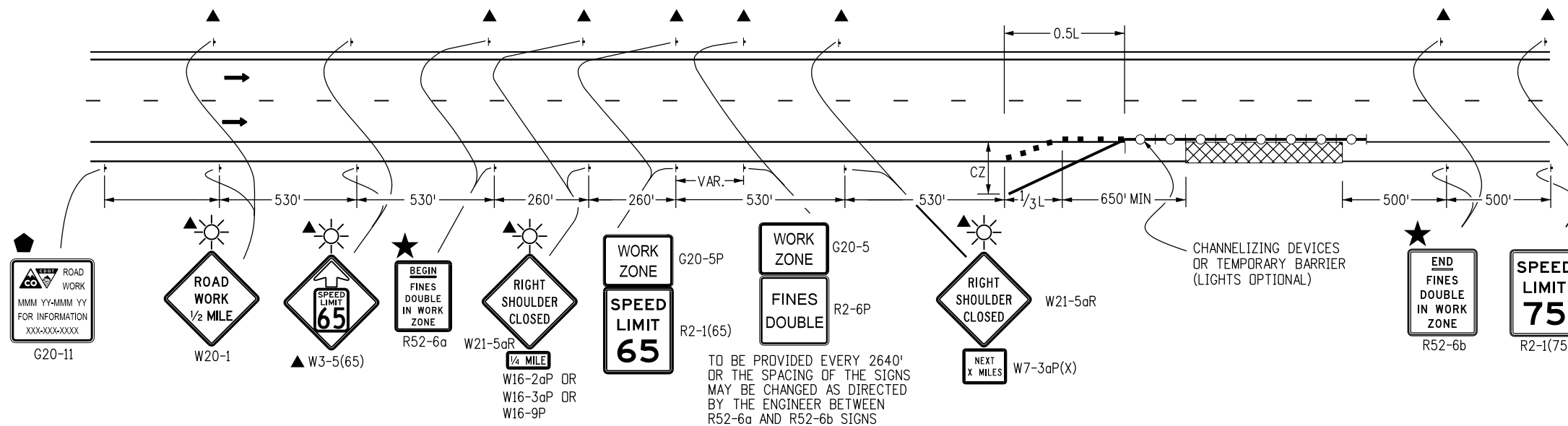
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LEGEND

- 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: $L = S \times W$
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.
- ▭ TRUCK MOUNTED 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

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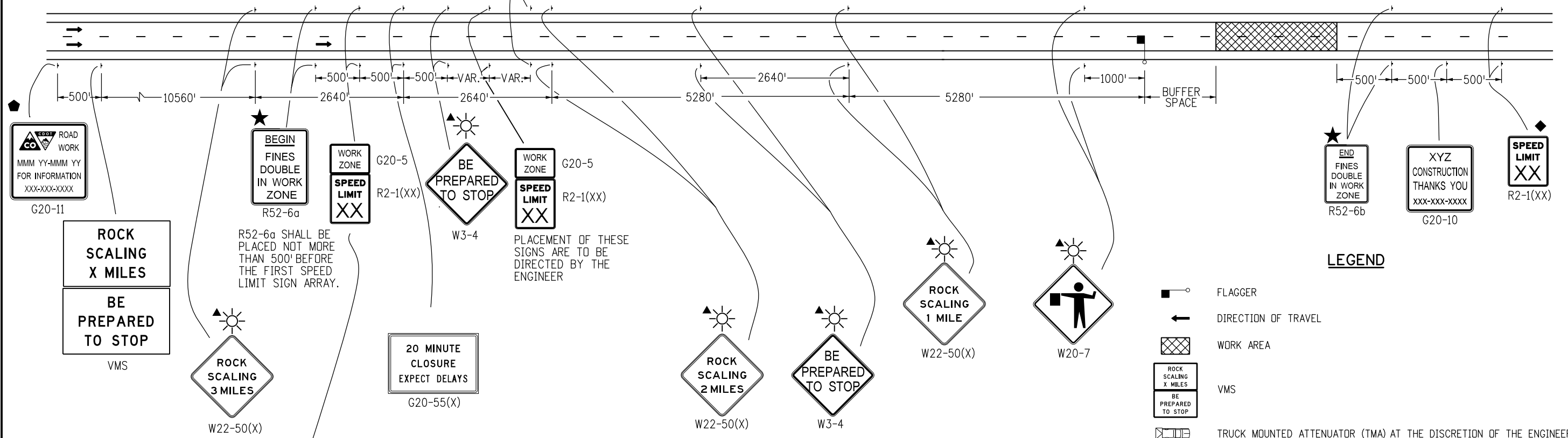
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SIGN SEQUENCE IS THE SAME FOR THE OPPOSITE DIRECTION

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

WORK ZONE G20-5
FINES DOUBLE R2-6



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
- BE PREPARED TO STOP
- VMS
- TRUCK MOUNTED ATTENUATOR (TMA) 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.

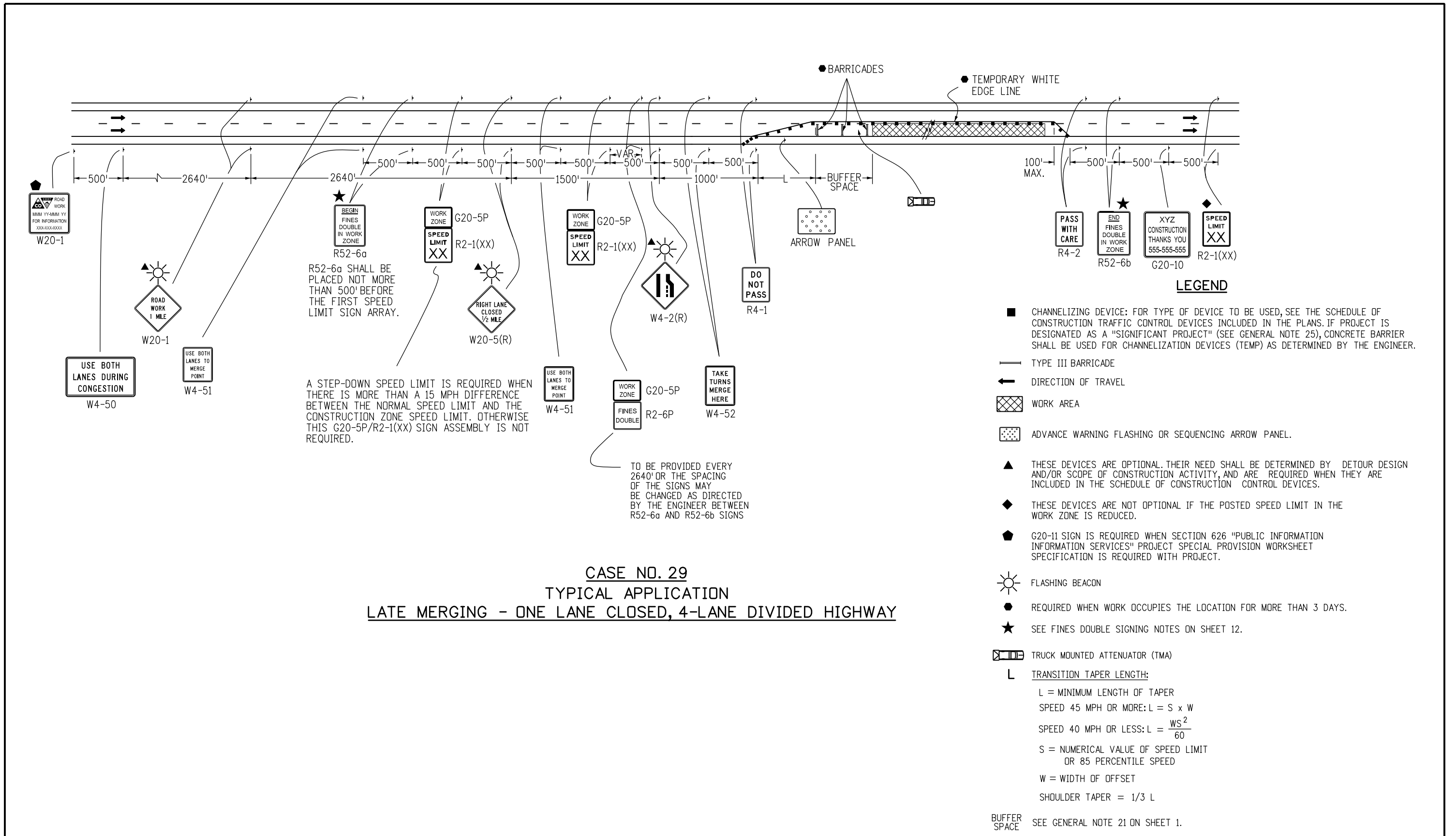
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**CASE NO. 29
TYPICAL APPLICATION
LATE MERGING - ONE LANE CLOSED, 4-LANE DIVIDED HIGHWAY**

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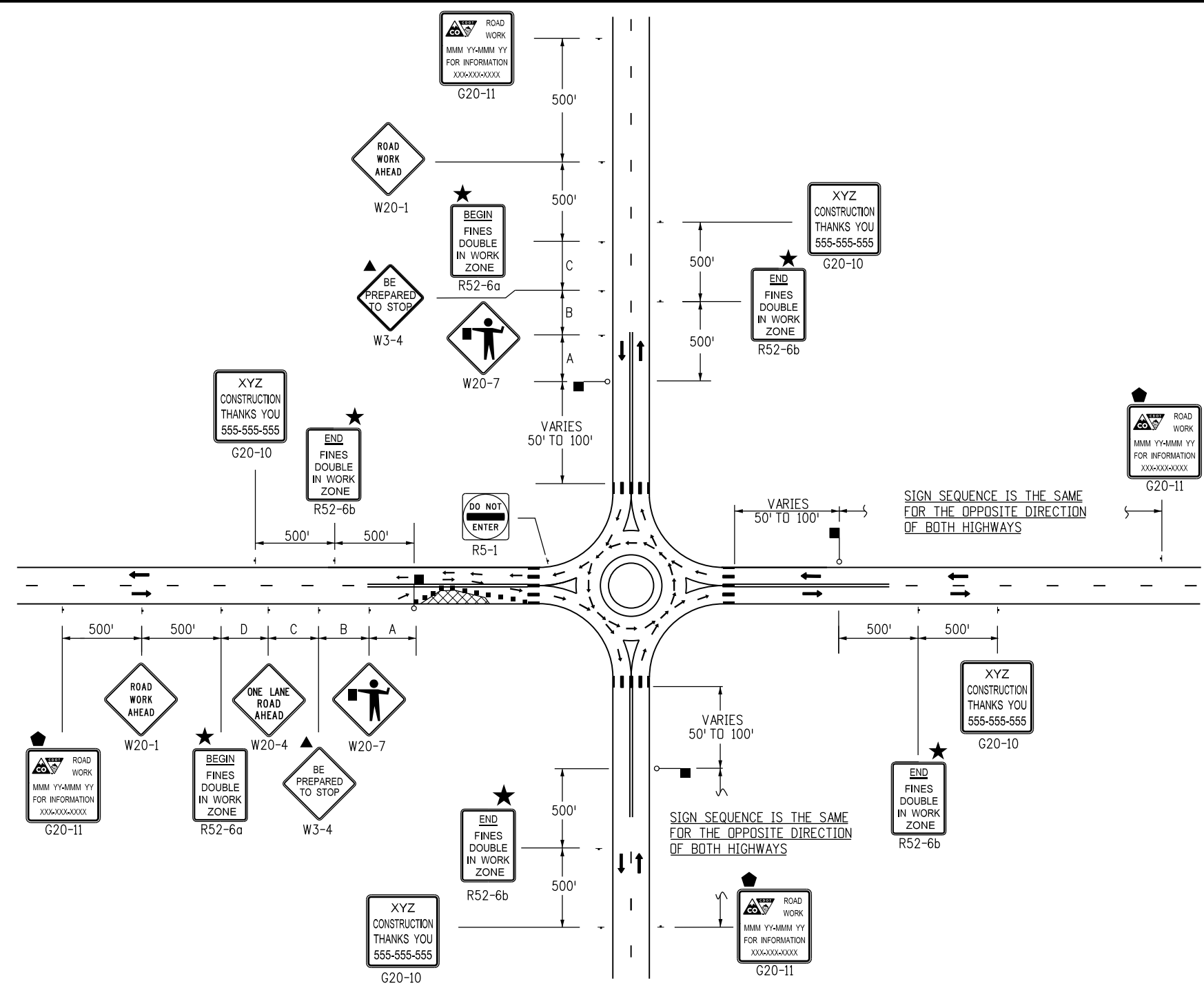
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LEGEND

- 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 25), 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.
- ▤ TRUCK MOUNTED ATTENUATOR (TMA)
- 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
 SHOULDER TAPER = 1/3 L
- ▭ BUFFER SPACE SEE GENERAL NOTE 21 ON SHEET 1.
- FLAGGER



CASE NO. 30
TYPICAL APPLICATION
ROUNDBOUT - PARTIAL CLOSURE NEAR ONE-LANE ROUNDBOUT

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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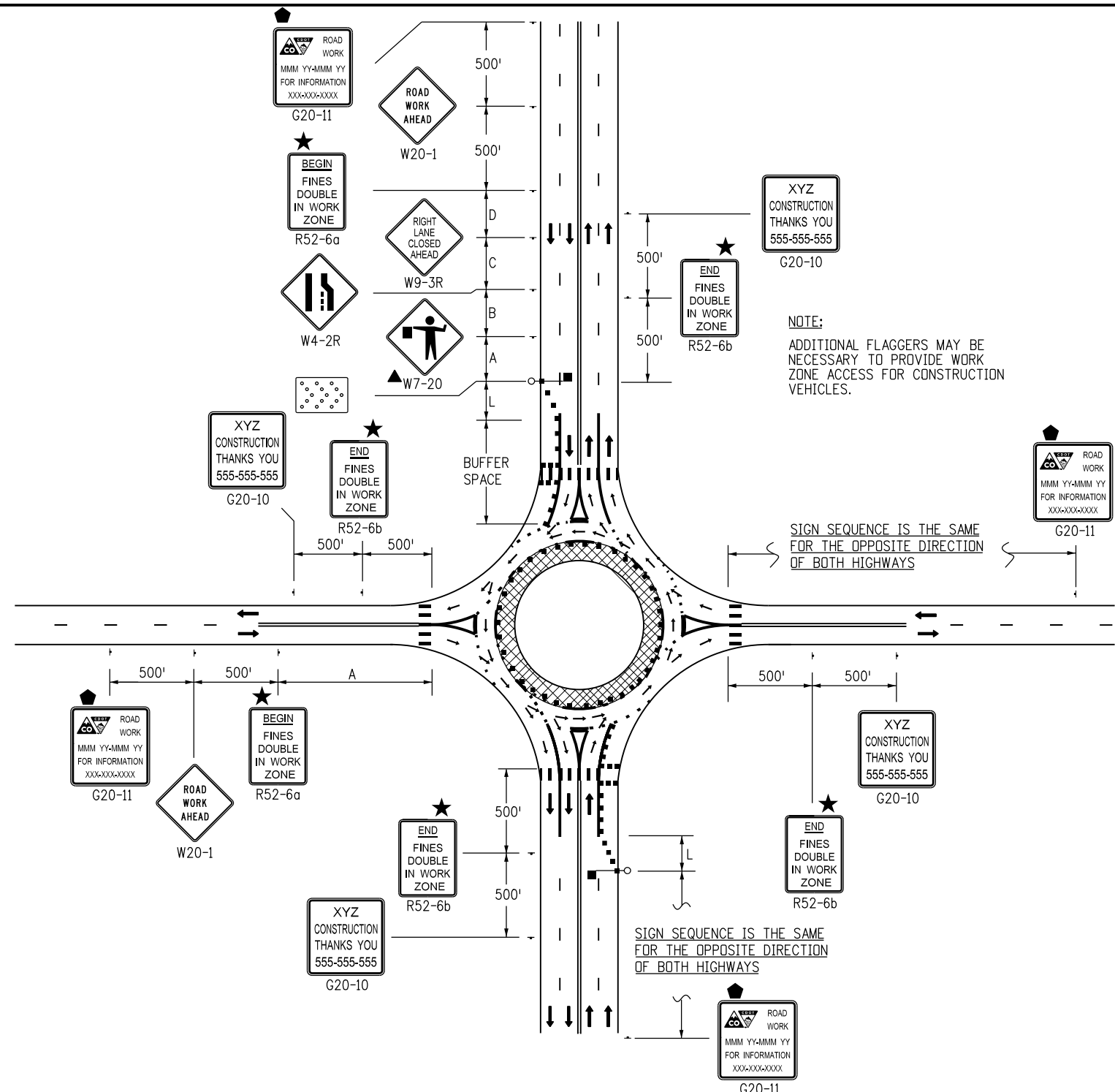
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LEGEND

- * 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 25), 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.
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- ◆ 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.
- ▤ TRUCK MOUNTED ATTENUATOR (TMA)
- L TRANSITION TAPER LENGTH:
 $L = \text{MINIMUM LENGTH OF TAPER} \times \frac{W}{S}$
 SPEED 45 MPH OR MORE: $L = S \times W$
 SPEED 40 MPH OR LESS: $L = \text{---}$
 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. 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

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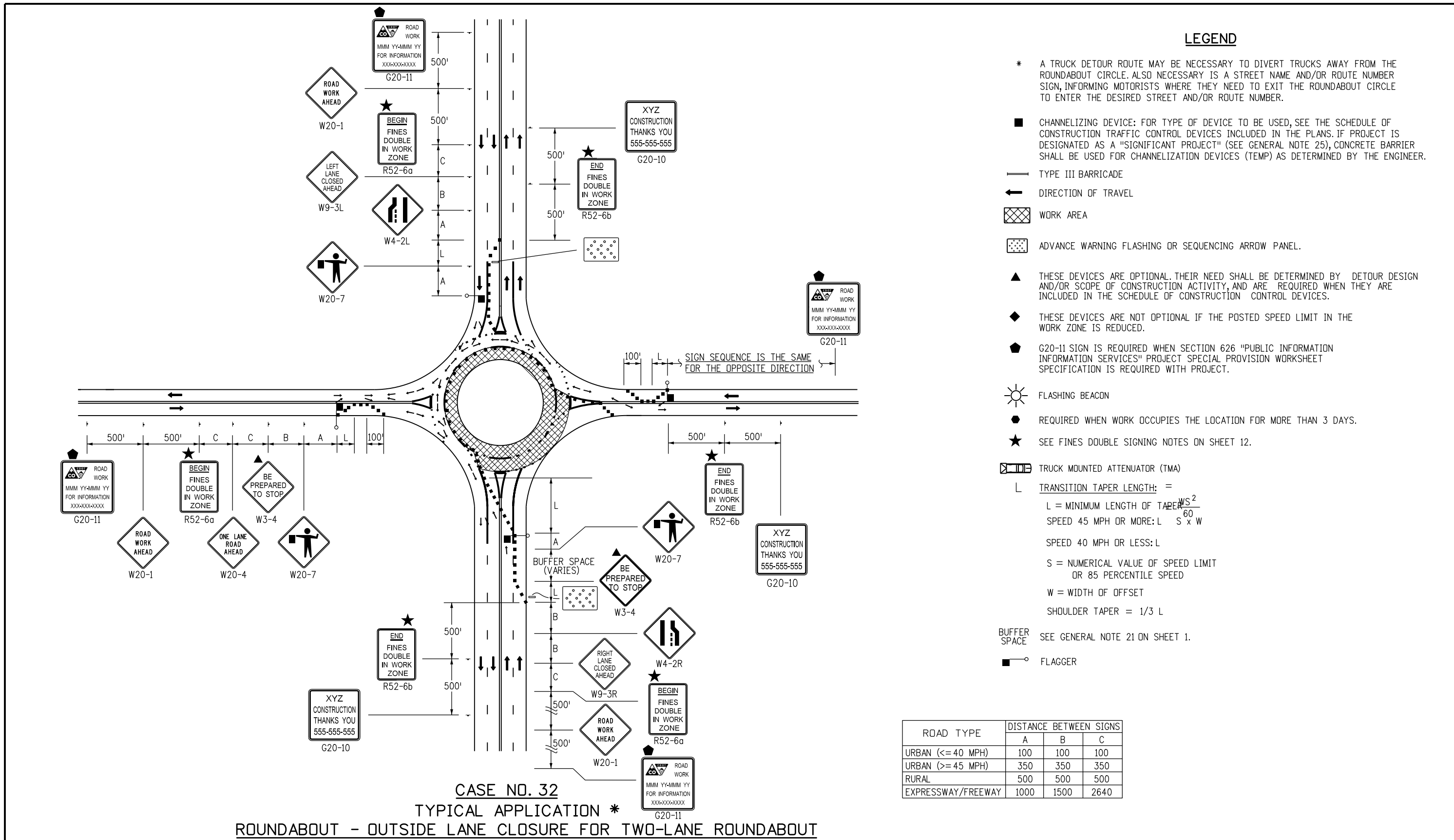
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LEGEND

- * 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.
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- 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.
- ▤ TRUCK MOUNTED ATTENUATOR (TMA)
- L TRANSITION TAPER LENGTH: = $L = \text{MINIMUM LENGTH OF TAPER} \frac{WS^2}{60}$
SPEED 45 MPH OR MORE: $L = \frac{WS^2}{60 \times S \times W}$
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	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

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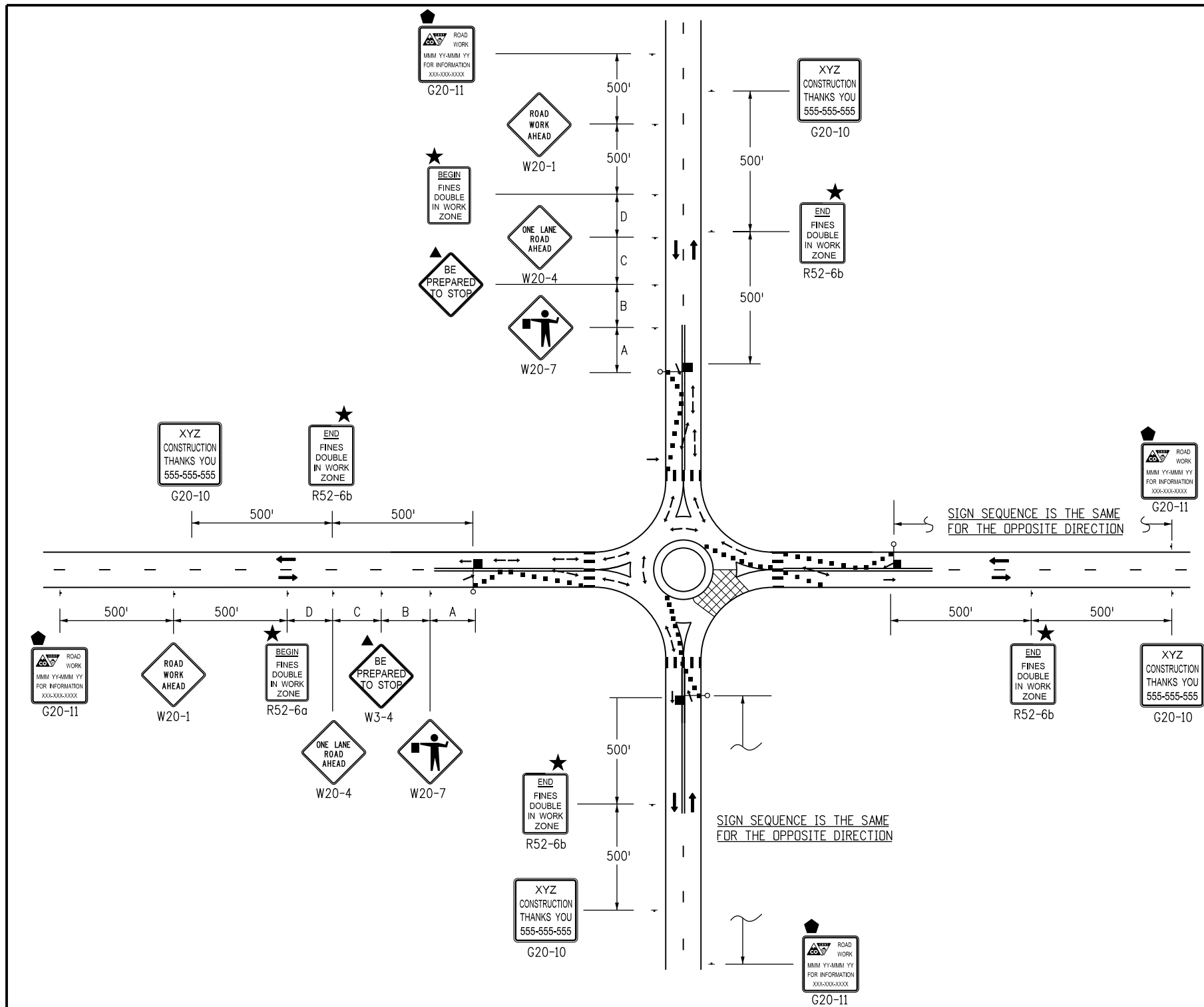
Sheet Revisions

Date:	Comments
12/08/14	NEW SHEET 19. OLD SHEET 19 NOW SHEET 23

Colorado Department of Transportation
 4201 East Arkansas Avenue
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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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- ### 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 25), 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.
 - ▧ TRUCK MOUNTED ATTENUATOR (TMA)
 - L TRANSITION TAPER LENGTH: =
 - L = 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
 - 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	
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Date:	Comments
12/08/14	NEW SHEET 20. OLD SHEET 20 NOW SHEET 24

Colorado Department of Transportation

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

TRAFFIC CONTROLS
FOR HIGHWAY
CONSTRUCTION

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

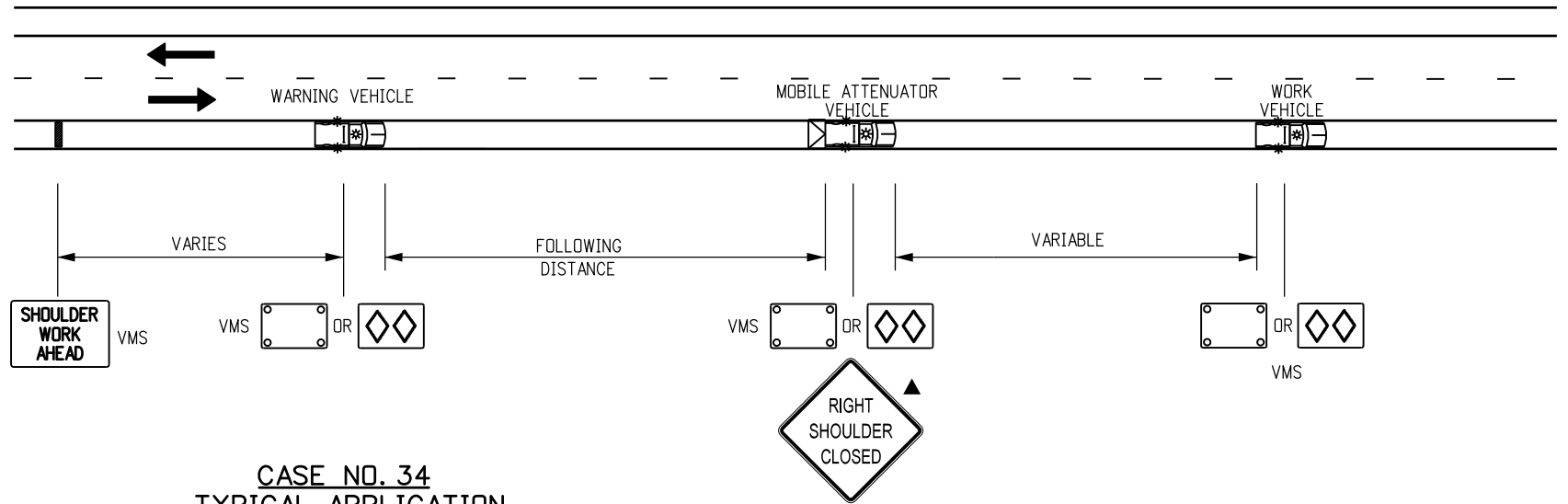
STANDARD PLAN NO.
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LEGEND

-  VEHICLE WITH TRUCK-MOUNTED ATTENUATORS (TMA), 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

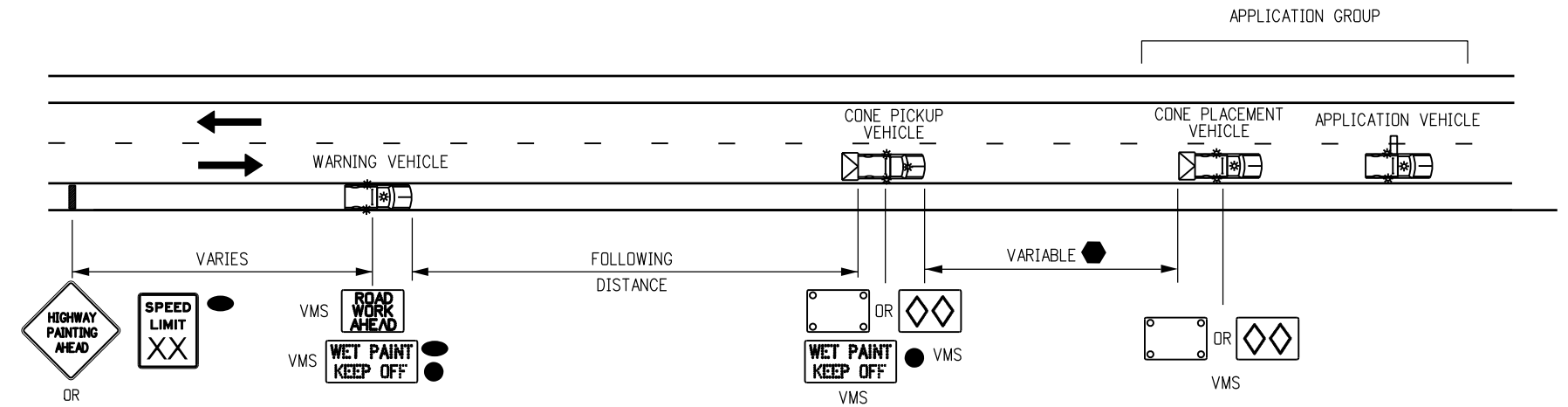
POSTED WZ SPEED LIMIT (MPH)	FOLLOWING DISTANCE (FEET)
0 - 30	250 - 550
35 - 40	325 - 700
45 - 50	600 - 900
55	750 - 1200
60 - 65	1000 - 1400
70 - 75	1200 - 1600



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

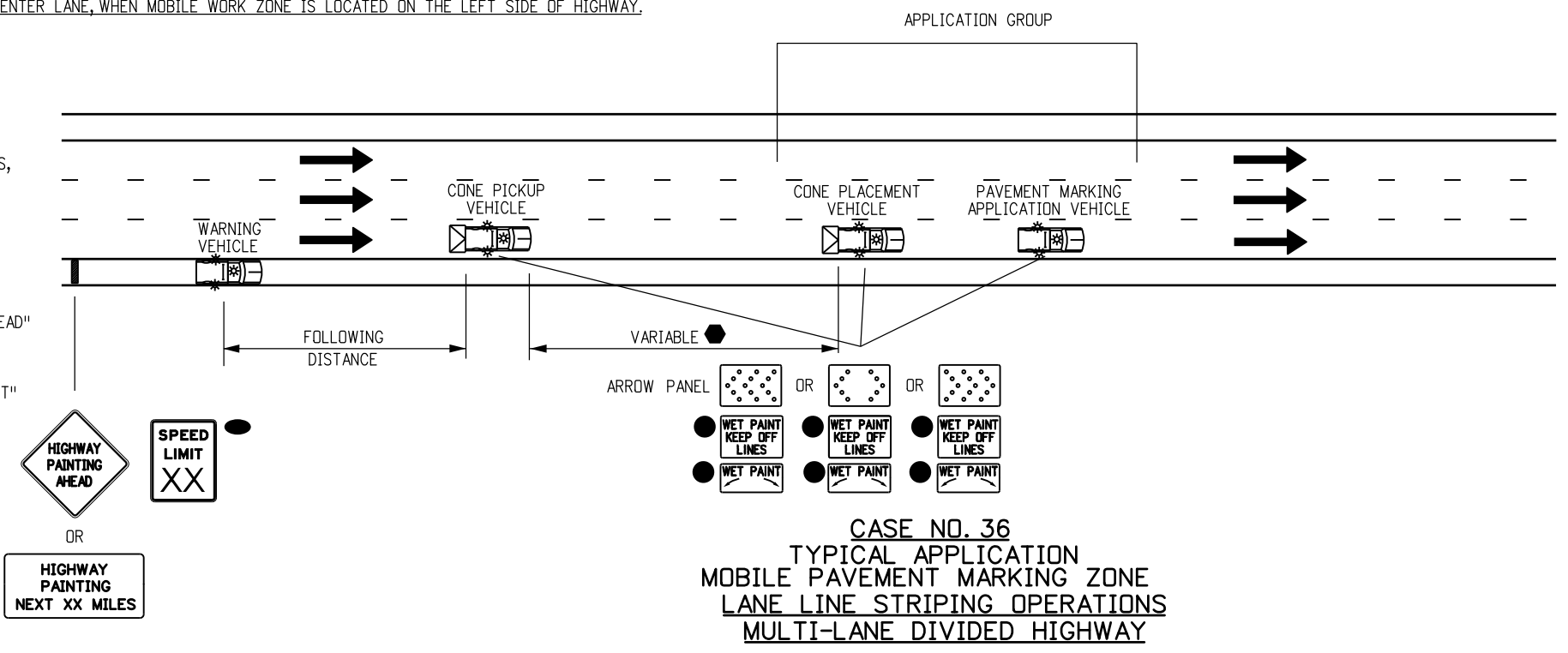
* USE CASE 31 IF SHOULDER IN CASE 30 IS TOO NARROW FOR GROUP VEHICLE USE.

Computer File Information		Sheet Revisions		Colorado Department of Transportation 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9543 Fax: (303) 757-9219	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	STANDARD PLAN NO. S-630-1
Creation Date: 07/04/12	Initials: KEN	Date:	Comments			
Last Modification Date: 12/8/14	Initials: KEN	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						
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English				

FOR CASE #32, 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.

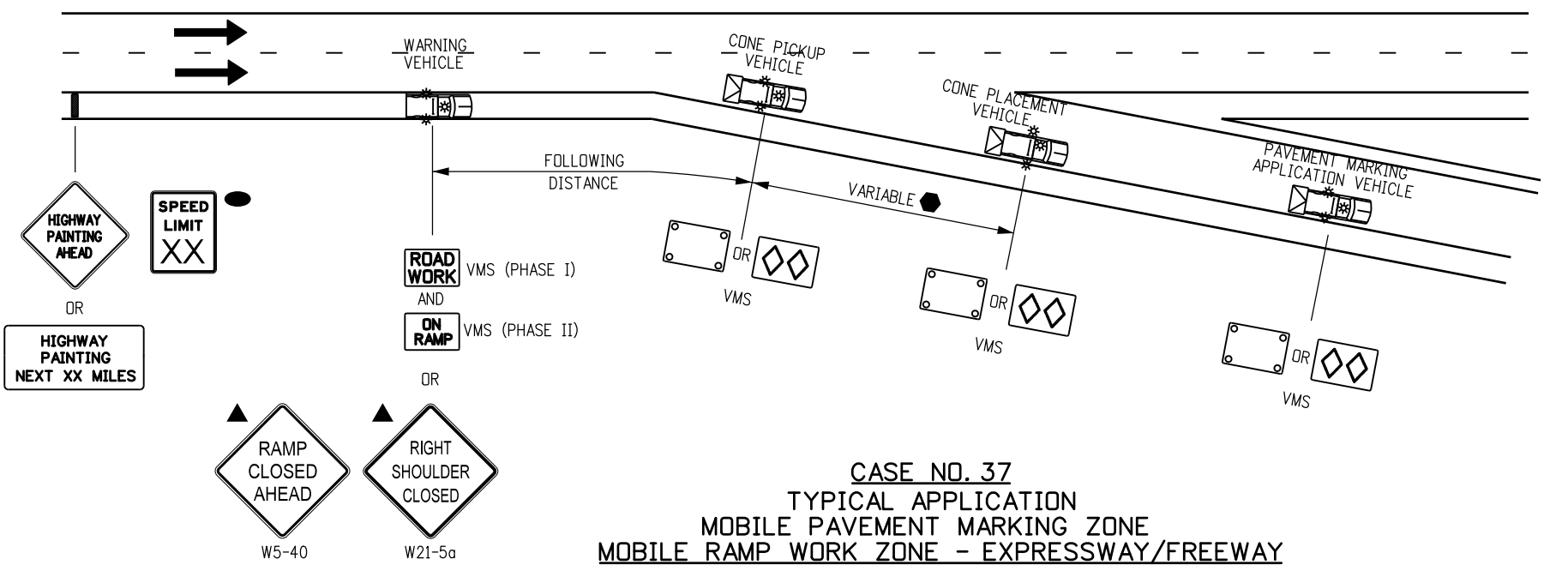
LEGEND

- VEHICLE WITH TRUCK-MOUNTED ATTENUATORS (TMA), 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.

Computer File Information		Sheet Revisions	Colorado Department of Transportation	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	STANDARD PLAN NO.
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Full Path: www.coloradodot.info/library/traffic/traffic-s-standard-plans					
Drawing File Name: S-630-1_22of24.dgn			Safety & Traffic Engineering Branch KCM/KEN		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English					

LEGEND

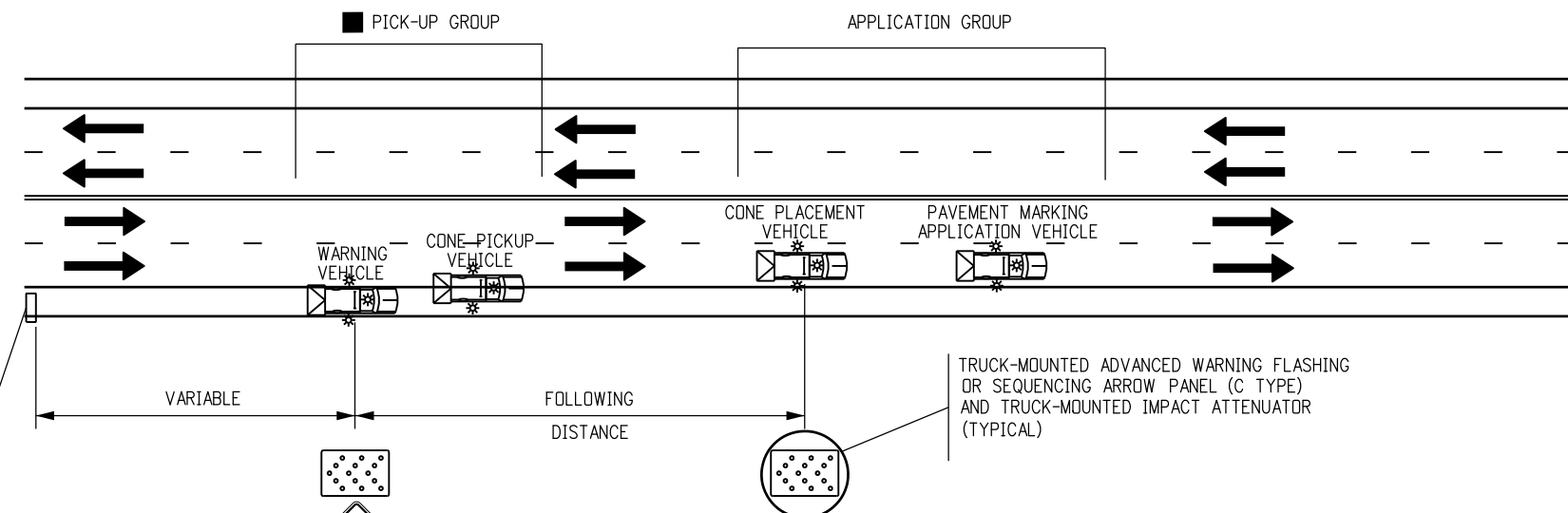
-  VEHICLE WITH TRUCK-MOUNTED ATTENUATORS (TMA), TWO 360-DEGREE YELLOW FLASHING BEACONS, AND YELLOW FLASHING VEHICLE LIGHTS OR STROBES.
-  ADVANCE WARNING FLASHING OR SEQUENCING ARROW PANEL.
-  PORTABLE VARIABLE MESSAGE SIGN (VMS).
-  WHEN THE VMS IS USED, THE "RIGHT LANE CLOSED AHEAD" (W9-3X) SIGN BECOMES 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

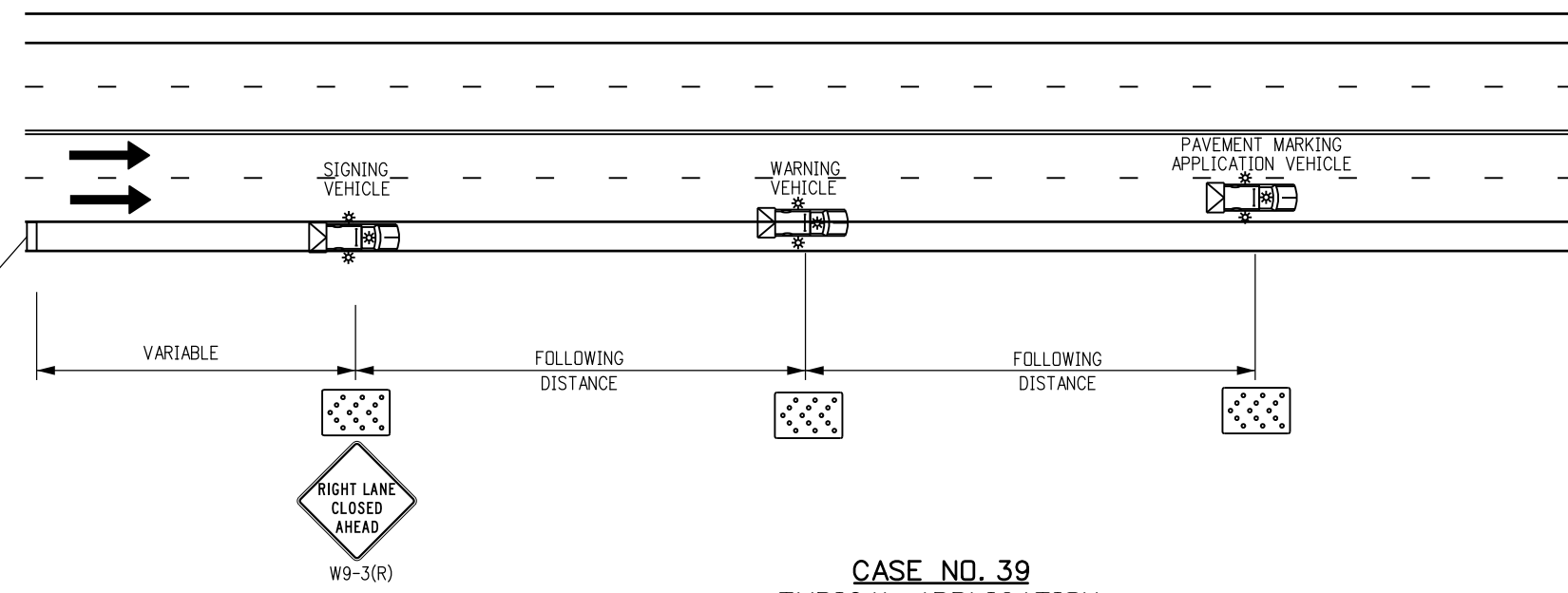
1. IN ROADWAY WHERE THE AADT IS 2,000 OR LESS, A SINGLE WORK VEHICLE WITH APPROPRIATE WARNING DEVICES ON THE VEHICLE MAY BE USED.
2. RADIO COMMUNICATIONS BETWEEN THE WORKCREW AND THE MOVING BLOCKADE ARE REQUIRED TO ADJUST THE BLOCKADE TO INCREASE OR DECREASE THE CLOSURE TIME. RELEASE TRAFFIC ONLY AFTER 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 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		Sheet Revisions	Colorado Department of Transportation	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	STANDARD PLAN NO.
Creation Date: 07/04/12	Initials: KEN	Date: 12/8/14	 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: 12/8/14	Initials: KEN	Comments: FORMERLY SHEET 19.			Sheet No. 23 of 24
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	Safety & Traffic Engineering Branch	KCM/KEN	

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/⟨⟨⟨" - 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>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.

Computer File Information		Sheet Revisions		Colorado Department of Transportation  4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9543 Fax: (303) 757-9219	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	STANDARD PLAN NO. S-630-1 Sheet No. 24 of 24
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