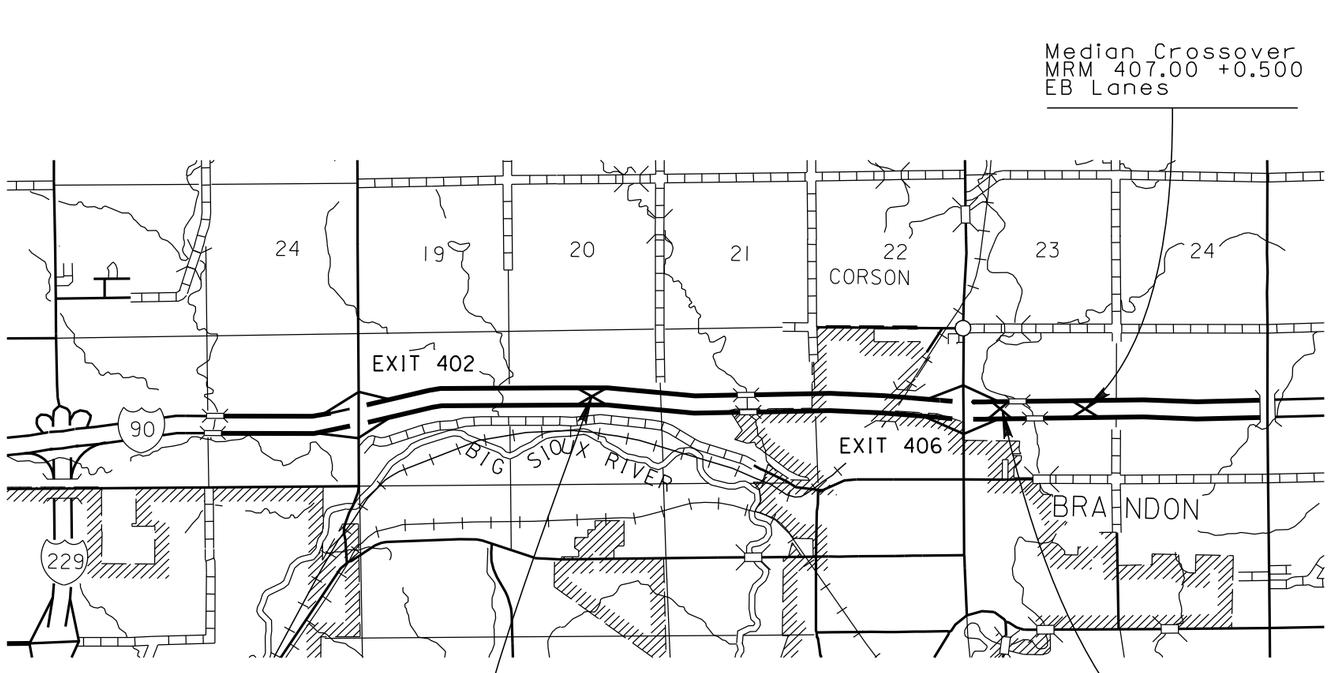
SECTION F: SURFACING PLANS

INDEX OF SHEETS



SECTION F ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3250	Miscellaneous Staking	0.585	Mile
009E3300	Three Man Survey Crew	40.0	Hour
110E0510	Remove Pipe End Section	1	Each
120E0010	Unclassified Excavation	7,412	CuYd
120E6200	Water for Granular Material	255.2	MGal
120E9000	Pit Run	11,911.2	Ton
260E1010	Base Course	3,094.9	Ton
260E1030	Base Course, Salvaged	6,256.3	Ton
270E0040	Salvage and Stockpile Asphalt Mix and Granular Base Material	6,256.3	Ton
320E0007	PG 64-28 Asphalt Binder	313.9	Ton
320E1050	Class E Asphalt Concrete	5,507.1	Ton
320E3000	Compaction Sample	3	Each
330E0100	SS-1h or CSS-1h Asphalt for Tack	6.4	Ton
450E4759	18" CMP 16 Gauge, Furnish	1,270	Ft
450E4760	18" CMP, Install	1,270	Ft
450E4769	24" CMP 16 Gauge, Furnish	20	Ft
450E4770	24" CMP, Install	20	Ft
450E5005	15" CMP Elbow, Furnish	3	Each
450E5006	15" CMP Elbow, Install	3	Each
450E5010	18" CMP Elbow, Furnish	6	Each
450E5011	18" CMP Elbow, Install	6	Each
450E5015	24" CMP Elbow, Furnish	1	Each
450E5016	24" CMP Elbow, Install	1	Each
450E5100	CMP Tee, Furnish	3	Each
450E5101	CMP Tee, Install	3	Each
450E5406	18" CMP Safety End, Furnish	6	Each
450E5407	18" CMP Safety End, Install	6	Each
450E5410	24" CMP Safety End, Furnish	1	Each
450E5411	24" CMP Safety End, Install	1	Each
450E6119	15" Slotted CMP 16 Gauge, Furnish	540	Ft
450E6120	15" Slotted CMP, Install	540	Ft
450E8213	24" Smooth Tapered Sleeve, Furnish	1	Each
450E8214	24" Smooth Tapered Sleeve, Install	1	Each
462E0100	Class M6 Concrete	52.9	CuYd
464E0100	Controlled Density Fill	21.3	CuYd
629E9010	Interim Crossover Closure	896	Ft
831E0210	Non-woven Separator Fabric	14,731	SqYd

SURFACING THICKNESS DIMENSIONS

Plans quantity will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans quantity may be varied to achieve the required elevation.

UTILITIES

The Contractor shall contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It shall be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor shall contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

EXISTING PIPES AND DROP INLETS AT MRM 404.00 +0.00

There are 2 – 36” RC pipes, 2 – 18” CM pipes and 2 Drop Inlets with concrete lids located, in the median, at the west end of the median crossover that will be encountered during construction. The Contractor shall locate them and protect them during construction.

The Contractor shall use care during the removal of the existing surfacing and placement of the new surfacing, so as to not damage the pipes or drop inlets. Any pipe or drop inlet that is damaged during construction shall be repaired/replaced at the Contractor’s expense and to the satisfaction of the Engineer.

See Layout and Typical Sections for Median Crossover at MRM 404.00 +0.0000 for additional details, as located elsewhere in these plans.

EXISTING EDGE DRAIN OUTLETS FOR TERMINAL ANCHORS AT MRM 406.55 +0.187

There are 2 locations in the EB and WB median and outside shoulders, at approximate Sta. 664+00+/-,where edge drain outlets for the terminal anchors will be encountered during construction. The Contractor shall locate them and protect them during construction.

The existing edge drain outlet located in the area of the westbound lane median shoulder will need to be extended out to the new inslope with 4” Corrugated Polyethylene Tubing and removing and resetting the concrete headwall, as directed by the Engineer. All costs associated with furnishing and extending the pipe, tubing, and removing and resetting the concrete headwall shall be incidental to the various contract items.

Any edge drain outlet pipes and headwalls damaged during construction shall be repaired at the Contractor’s expense and to the satisfaction of the Engineer.

See Layout and Typical Sections for Median Crossover at MRM 406.55 +0.187 for additional details, as located elsewhere in these plans.

EXISTING GUARDRAIL AT MRM 406.55 +0.187

There is guardrail in place in the EB median and outside shoulders, at the approach end of the structure, on the east end of the median crossover that will be encountered during construction. The Contractor shall protect them during construction.

Any guardrail, including the concrete anchors, that is damaged during construction shall be repaired at the Contractor’s expense and to the satisfaction of the Engineer.

See Layout and Typical Sections for Median Crossover at MRM 406.55 +0.187 for additional details, as located elsewhere in these plans.

UNCLASSIFIED EXCAVATION

An estimated 7,888 CuYds of Unclassified Excavation shall be plans quantity and will not be adjusted according to field measurements. See Typical Sections located elsewhere in these plans. Unclassified Excavation is salvaged asphalt mix and granular base material and removal of waste material. The Unclassified Excavation waste material shall be disposed of as directed by the Engineer.

The salvaged material will be used as Base Course, Salvaged on this project

TABLE OF UNCLASSIFIED EXCAVATION

Location of Removal Areas	Asphalt Concrete and Granular Material Salvaged	Waste Material
	CuYds	CuYds
Median Crossovers		
MRM 404.00 +0.000 (EB Lanes)	945.8	1,034.1
MRM 406.55 +0.187 (EB Lanes)	1,439.6	1,837.5
MRM 407.00 +0.500 (EB Lanes)	924.9	1,230.1
Subtotals	3,310.3	4,101.7
Total	7,412	

See Layout and Typical Sections for the Median Crossovers for details showing the limits of removal, as located elsewhere in these plans.

SALVAGE AND STOCKPILE ASPHALT MIX AND GRANULAR BASE MATERIAL

An estimated 6,256.3 tons (3,310.3 cubic yards) shall be salvaged from the mainline median shoulders of the interstate. The salvaged material shall be stockpiled at a site furnished by the Contractor and satisfactory to the Engineer.

The quantity of salvaged asphalt mix and granular base material may vary from the plans. The Contractor will be required to use all salvaged material on this project by decreasing or increasing the quantity of Base Course as necessary, or as directed by the Engineer. Plans quantity will be the basis of measurement and payment for the above mentioned work.

No adjustment in the contract unit price per ton for salvaged material will be made because of a variation in salvaged material quantities.

TABLE OF SALVAGE AND STOCKPILE ASPHALT MIX AND GRANULAR BASE MATERIAL

Location of Removal Areas	Salvage and Stockpile Asphalt Mix and Granular Base Material
	Tons
Median Crossovers	
MRM 404.00 +0.000 (EB Lanes)	1,787.6
MRM 406.55 +0.187 (EB Lanes)	2,720.6
MRM 407.00 +0.500 (EB Lanes)	1,748.1
Total	6,256.3

NON-WOVEN SEPARATOR FABRIC

Non-woven Separator Fabric has been included in the Estimate of Quantities for the median crossovers. This fabric is to be used as a separator between the Pit Run material and the Base Course to prevent migration of fines from the Base Course into the Pit Run material. If the Pit Run material contains enough fines as placed to prevent the loss of material from the Base Course, the separator fabric may be eliminated by CCO. Non-woven Separator Fabric shall conform to Section 831 of the Specifications.

TABLE OF NON-WOVEN SEPARATOR FABRIC

Location	Non-woven Separator Fabric
	SqYds
Median Crossovers	
MRM 404.00 +0.000 (EB Lanes)	4,178.8
MRM 406.55 +0.187 (EB Lanes)	6,364.8
MRM 407.00 +0.500 (EB Lanes)	4,187.4
Total	14,731.0

BASE COURSE, SALVAGED

The Base Course, Salvaged shall be obtained from the stockpile site(s) provided by the Contractor and may be used without testing.

All other requirements for Base Course, Salvaged shall apply.

SALVAGED MATERIAL

The quantity of salvaged asphalt mix and granular base material may vary from the plans. The Contractor will be required to use all of the salvaged material on this project, by decreasing for increasing the quantity of Base Course as necessary, or as directed by the Engineer.

No adjustment in the contract unit prices will be allowed as a result of a variation in quantities of Base Course, Salvaged or Base Course.

CLASS E ASPHALT CONCRETE

Mineral Aggregate for the Class E shall conform to the requirements for Class E, Type 1.

CONTROLLED DENSITY FILL

Controlled density fill shall be placed at the locations shown in the Table of Controlled Density Fill in accordance with Section 464.

TABLE OF CONTROLLED DENSITY FILL

Location	Controlled Density Fill
	CuYd
Median Crossovers	
MRM 404.00 +0.000 (EB Lanes)	5.5
MRM 406.55 +0.187 (EB Lanes)	10.3
MRM 407.00 +0.500 (EB Lanes)	5.5
Total	21.3

TABLE OF CLASS M6 CONCRETE

Location	Class M6 Concrete
	CuYd
Median Crossovers	
MRM 404.00 +0.000 (EB Lanes)	13.7
MRM 406.55 +0.187 (EB Lanes)	25.5
MRM 407.00 +0.500 (EB Lanes)	13.7
Total	52.9

TABLE OF CROSSOVER CLOSURES

Location	Interim Crossover Closure
	Ft
Median Crossovers	
MRM 404.00 +0.000 (EB Lanes)	256
MRM 406.55 +0.187 (EB Lanes)	384
MRM 407.00 +0.500 (EB Lanes)	256
Total	896

See Details for Interim Crossover Closure for Median Crossovers, as located elsewhere in these plans.

TABLE OF QUANTITIES

Location-Description	Water for Granular Material	Pit Run	Base Course, Salvaged and Base Course	PG 64-28 Asphalt Binder 1^{st} / 2^{nd} / 3^{rd} Lift	Class E Asphalt Concrete 1^{st} / 2^{nd} / 3^{rd} Lift	SS-1h or CSS-1h Asphalt For Tack 1^{st} / 2^{nd} Lift
	MGal	Ton	Ton	Ton	Ton	Ton
Median Crossovers						
MRM 404.00 +0.000 (EB Lanes)	70.7	3,281.5	2,612.1	35.1 / 33.0 / 20.8	616.2 / 579.6 / 365.7	0.9 / 0.9
MRM 406.55 +0.187 (EB Lanes)	102.0	4,473.8	4,020.7	53.5 / 50.6 / 32.0	937.5 / 885.8 / 562.1	1.4 / 1.4
MRM 407.00 +0.500 (EB Lanes)	82.5	4,155.9	2,718.4	35.1 / 33.0 / 20.8	615.0 / 579.5 / 365.7	0.9 / 0.9
Totals	255.2	11,911.2	9,351.2	313.9	5,507.1	6.4

TABLE OF PIPE AND RELATED ITEMS

Location-Description	Remove Pipe End Section	15” CMP Elbow 90º	15” Slotted CMP (16 ga.)	18” CMP (16 ga.),	18” CMP Elbow 15º	18” CMP Safety End	24” CMP (16 ga.),	24” CMP Elbow 77.5º	24” CMP Safety End	24” Smooth Tapered Sleeve	18” x 18” x 15” CMP Tee
	Ton	Each	Ft	Ft	Each	Each	Ft	Each	Each	Each	Each
Median Crossovers											
MRM 404.00 +0.000 (EB Lanes)	---	1	140	390	2	2	---	---	---	---	1
MRM 406.55 +0.187 (EB Lanes)	1	1	260	460	2	2	20	1	1	1	1
MRM 407.00 +0.500 (EB Lanes)	---	1	140	420	2	2	---	---	---	---	1
Totals	1	3	540	1,270	6	6	20	1	1	1	3

TABLE OF CONSTRUCTION STAKING

(See Special Provision for Contractor Staking)

Location and Description	Length (Ft)	Miscellaneous Staking Quantity (Mile)
Median Crossovers		
MRM 404.00 +0.000 (EB Lanes)	860.0	0.163
MRM 406.55 +0.187 (EB Lanes)	1,368.0	0.259
MRM 407.00 +0.500 (EB Lanes)	860.0	0.163
		0.585

PLOT SCALE - 1:13.1908

PLOTTED FROM - TRPR18388

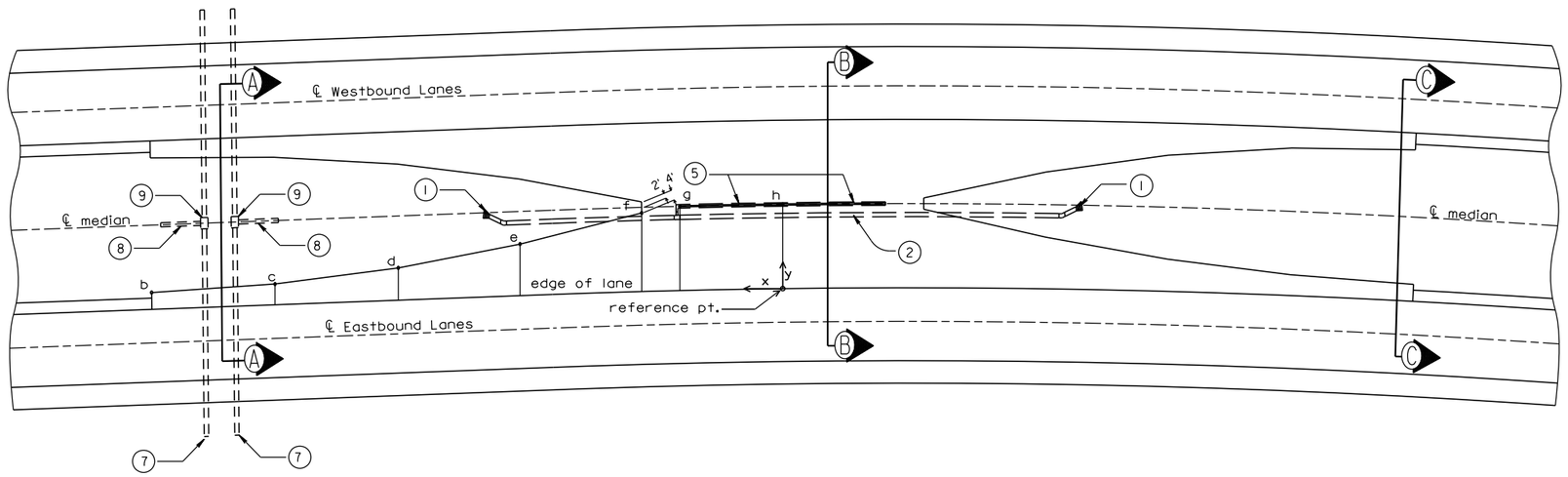
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(76)403	F5	F26

Plotting Date: 12/04/2015

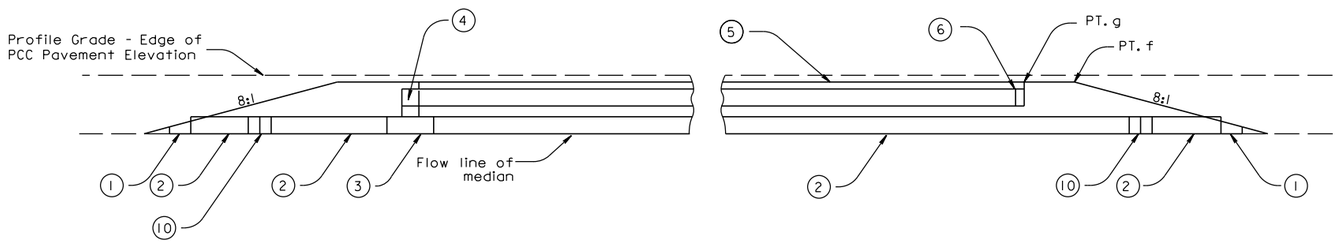
MEDIAN CROSSOVER

MRM 404.00 +0.000 (EB Lanes)

Sheet 1 of 4



	60' MEDIAN	
Point	(x)	(y)
b	430'	6.0'
c	346'	7.4'
d	262'	11.5'
e	179'	18.4'
f	96'	28.0'
g	70'	30.0
h	0'	30.0'



Drainage Components

1. 18" CMP Safety End
2. 18" CMP (Pipe Lengths - 8', 116, 258, & 8')
3. 18" x 18" x 15" CMP Tee
4. 15" CMP 90° Elbow
5. 15" Slotted CMP
6. 15" CMP Cap
7. 36" RCP In Place
8. 18" CMP In Place
9. Drop Inlet with Lid In Place
10. 18" CMP 15° Elbow

GENERAL NOTES:

The intent of this plan is to show the construction requirements for The median crossover.

Construction of median crossover shall conform to the requirement of the Specifications.

Typical Sections show Median Crossover located on grade requiring through drainage and a slotted drain.

Sections A-A , B-B & C-C depict the surfacing requirements.

The 15" CMP Cap shall be incidental to the contract unit price per foot for 15" Slotted CMP (16 ga.) Furnish and 15" Slotted CMP Install.

Price bid for contract items shall be considered full compensation for furnishing all necessary materials and labor to construct the median crossover as detailed hereon.

PLOT NAME - 2

FILE -...\MEDIAN XOVER MRM 404.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(76)403	F6	F26

Plotting Date: 12/04/2015

Unclassified Excavation - Salvage and Stockpile Asphalt Concrete Mix and Granular Base Material

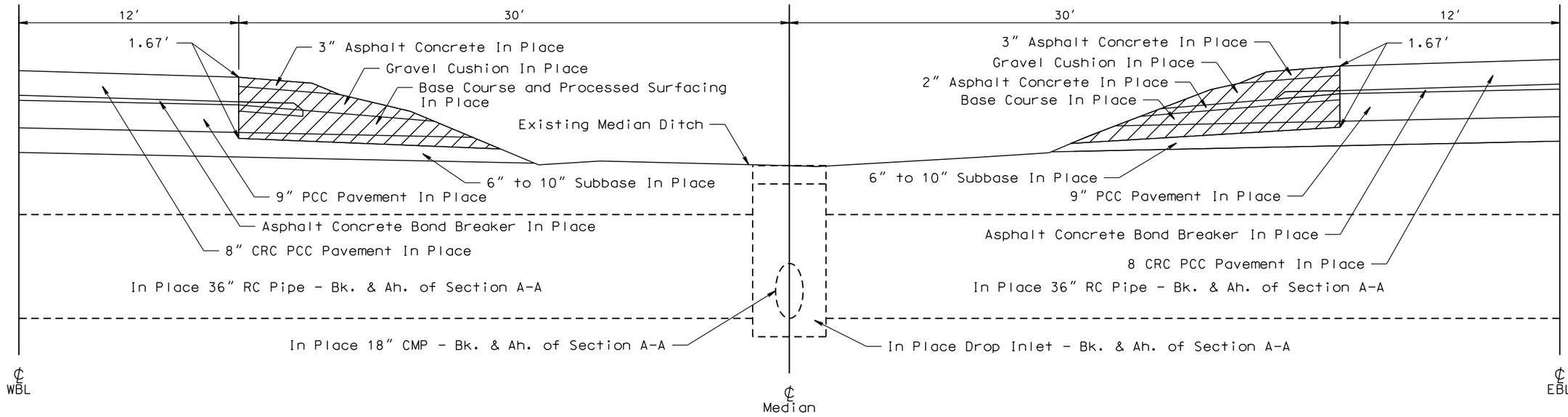
Unclassified Excavation - Waste Material

MEDIAN CROSSOVER

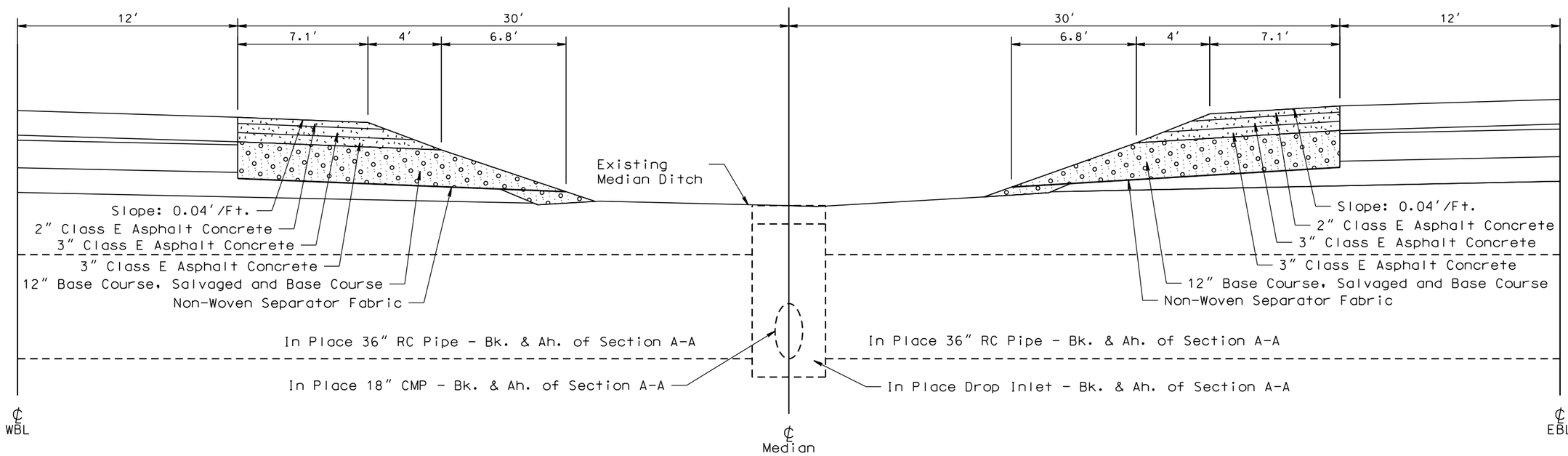
MRM 404.00 +0.000 (EB Lanes)

SECTION A-A

In Place Section Showing Material to be Removed



Surfacing Section



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388

PLOT NAME - 3

FILE - ...\MEDIAN XOVER MRM 404.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(76)403	F7	F26

Plotting Date: 12/04/2015

Unclassified Excavation - Salvage and Stockpile Asphalt Concrete Mix and Granular Base Material

Unclassified Excavation Waste Material

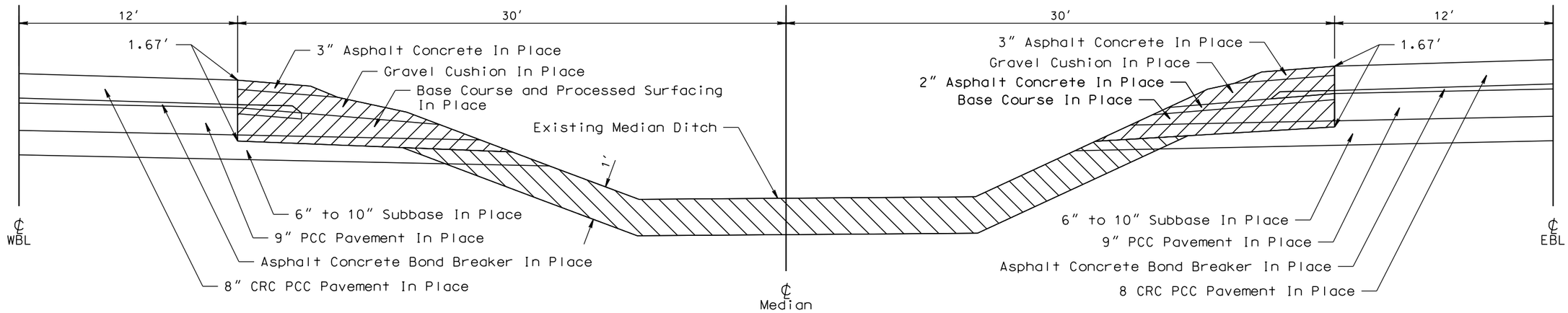
MEDIAN CROSSOVER

MRM 404.00 +0.000 (EB Lanes)

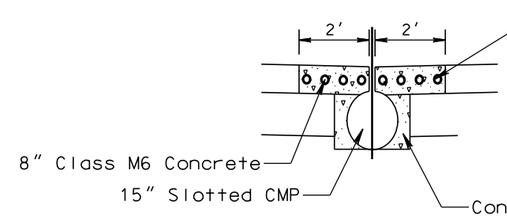
Sheet 3 of 4

SECTION B-B

In Place Section Showing Material to be Removed

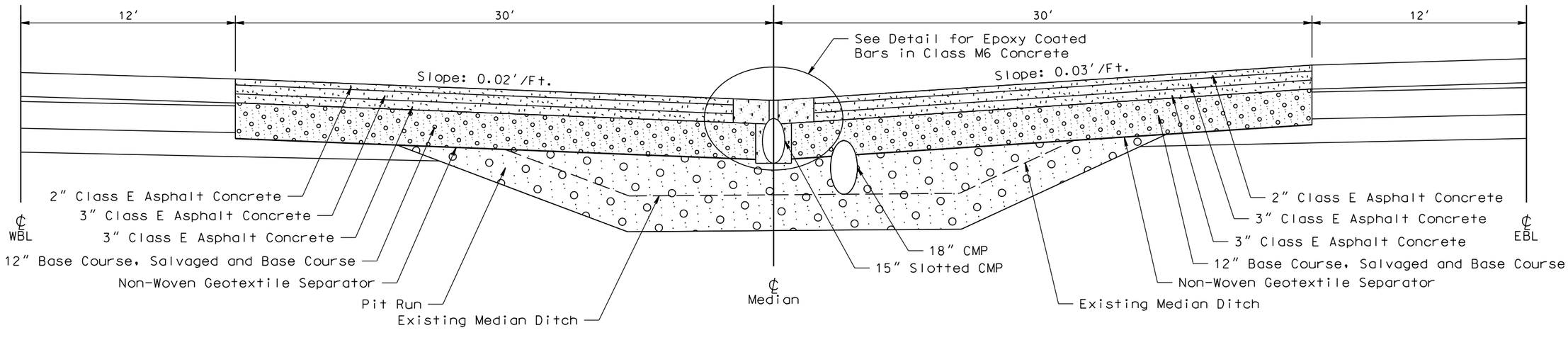


Detail for Epoxy Coated Bars in Class M6 Concrete



8 - 140' #5 Epoxy Coated Reinforcing Steel Bars, spaced $5\frac{5}{8}$" center to center and centered in the slab vertically. Minimum lap length is 25". The cost of the #5 Epoxy Coated Reinforcing Steel Bars shall be incidental to the contract unit price per cubic yard for Class M6 Concrete.

Surfacing Section



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388

PLOT NAME - 4

FILE ...\MEDIAN XOVER MRM 404.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(76)403	F8	F26

Plotting Date: 12/04/2015

Unclassified Excavation - Salvage and Stockpile Asphalt Concrete Mix and Granular Base Material

Unclassified Excavation Waste Material

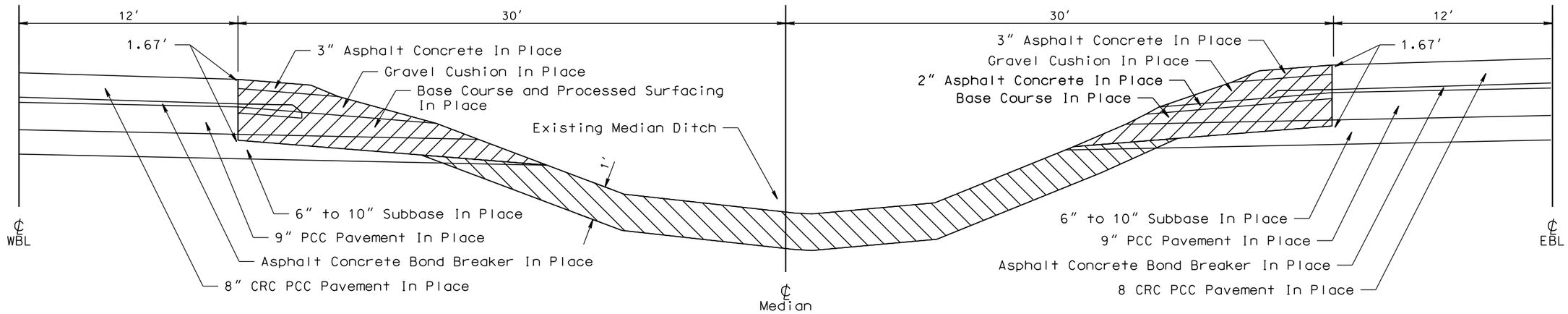
MEDIAN CROSSOVER

MRM 404.00 +0.000 (EB Lanes)

Sheet 4 of 4

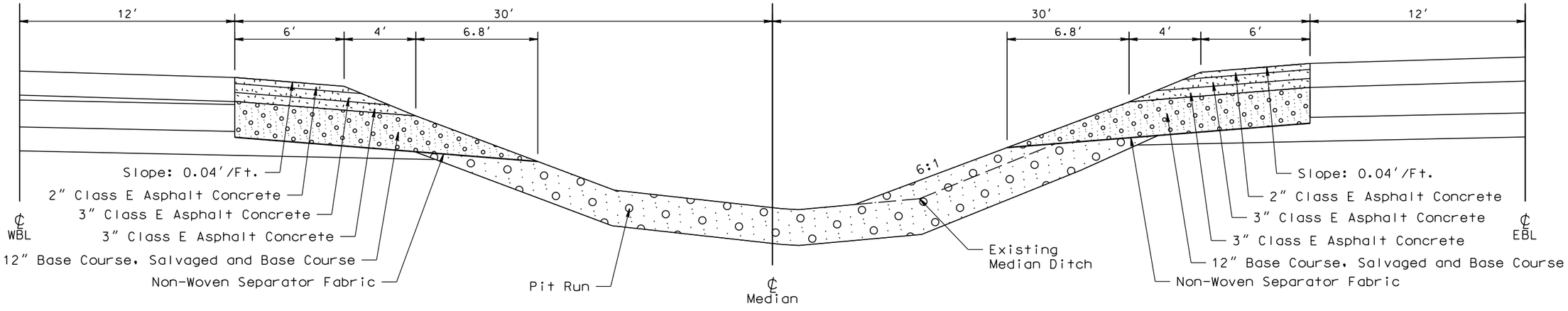
SECTION C-C

In Place Section Showing Material to be Removed



SECTION C-C

Surfacing Section



PLOT SCALE - 1:6.00001

PLOT NAME - 5

FILE ...\MEDIAN XOVER MRM 404.DGN

PLOTTED FROM - TRPR18388

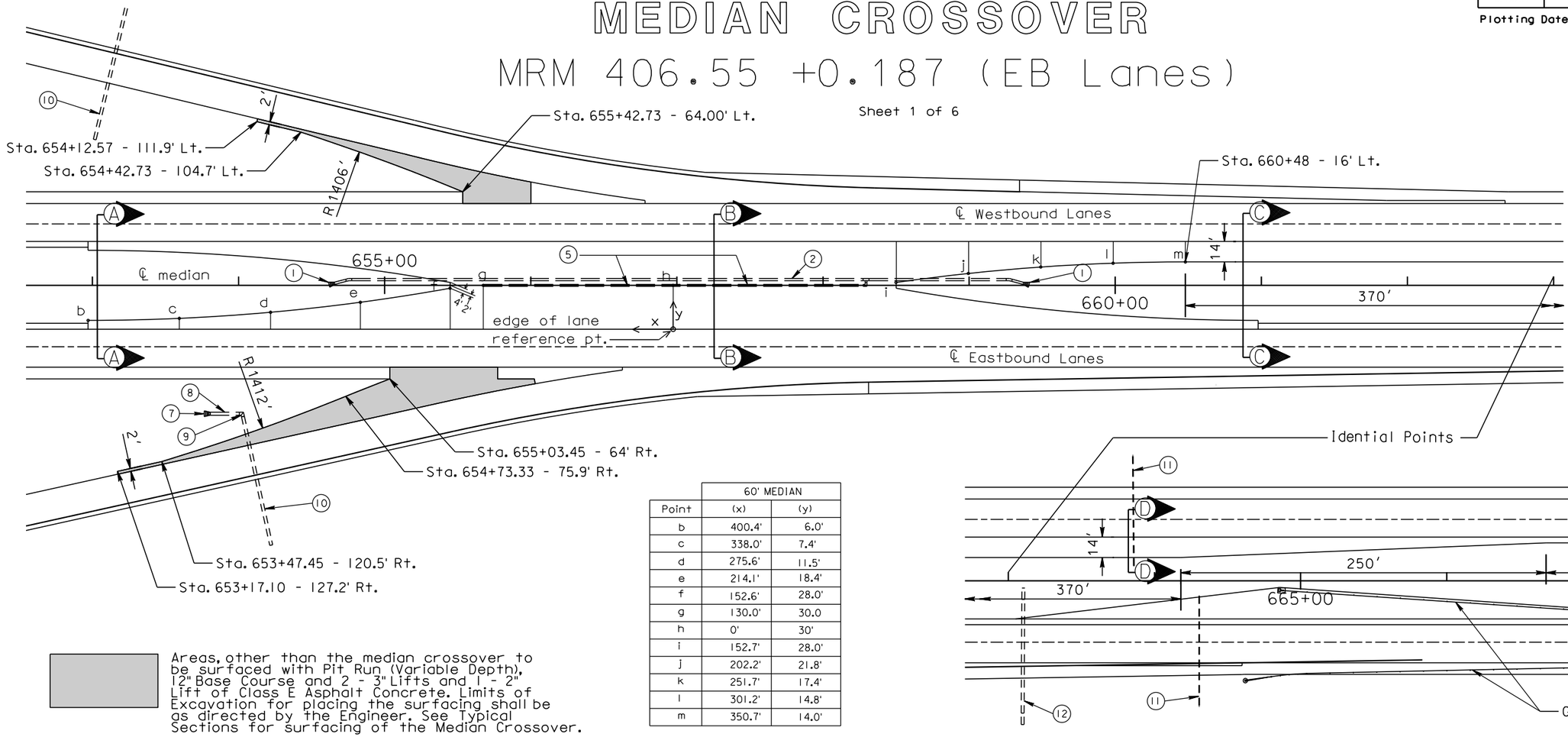
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(76)403	F9	F26

Plotting Date: 12/04/2015

MEDIAN CROSSOVER

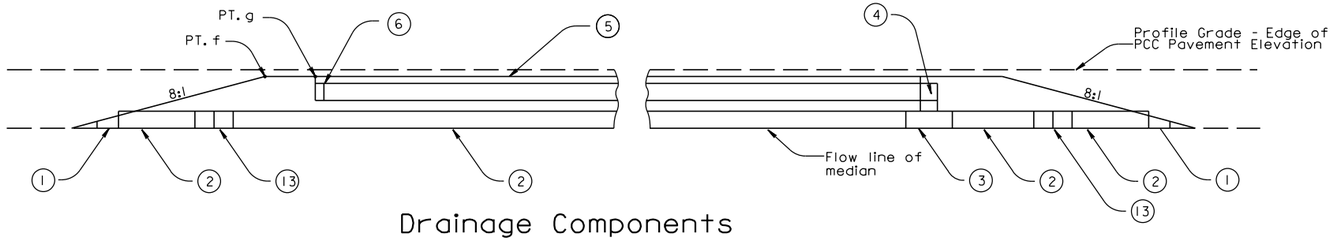
MRM 406.55 +0.187 (EB Lanes)

Sheet 1 of 6



Point	60' MEDIAN (x)	(y)
b	400.4'	6.0'
c	338.0'	7.4'
d	275.6'	11.5'
e	214.1'	18.4'
f	152.6'	28.0'
g	130.0'	30.0
h	0'	30'
i	152.7'	28.0'
j	202.2'	21.8'
k	251.7'	17.4'
l	301.2'	14.8'
m	350.7'	14.0'

Areas, other than the median crossover to be surfaced with Pit Run (Variable Depth), 12" Base Course and 2 - 3" Lifts and 1 - 2" Lift of Class E Asphalt Concrete. Limits of Excavation for placing the surfacing shall be as directed by the Engineer. See Typical Sections for surfacing of the Median Crossover.



Drainage Components

1. 18" CMP Safety End
2. 18" CMP (Pipe Lengths - 8', 350', 94' & 8')
3. 18" x 18" x 15" CMP Tee
4. 15" CMP 90° Elbow
5. 15" Slotted CMP
6. 15" CMP Cap
7. 24" CMP Safety End
8. 24" CMP
9. 24" CMP 77.5° Elbow & 24" Smooth Tapered Sleeve after removal of in place end section
10. 24" RCP with Flared Ends In Place
11. Edge Drain Outlet with Headwall for Terminal Anchor In Place
12. 18" RCP with CMP Safety End (Median Shoulder) and Flared End (Outside Shoulder) In Place
13. 18" CMP 15° Elbow

GENERAL NOTES:

The intent of this plan is to show the construction requirements for The median crossover.

Construction of median crossover shall conform to the requirement of the Specifications.

Typical Sections show Median Crossover located on grade requiring through drainage and a slotted drain.

Sections A-A , B-B, C-C, D-D, & E-E depict the surfacing requirements.

The 15" CMP Cap shall be incidental to the contract unit price per foot for 15" Slotted CMP (16 ga.) Furnish and 15" Slotted CMP Install.

Price bid for contract items shall be considered full compensation for furnishing all necessary materials and labor to construct the median crossover as detailed hereon.

PLOT SCALE - 1:79.1447

PLOT NAME - 6

FILE - ...\MEDIAN XOVER MRM 406.DGN

PLOTTED FROM - TRPR19388

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(76)403	F10	F26

Plotting Date: 12/04/2015

Unclassified Excavation - Salvage and Stockpile Asphalt Concrete Mix and Granular Base Material

Unclassified Excavation Waste Material

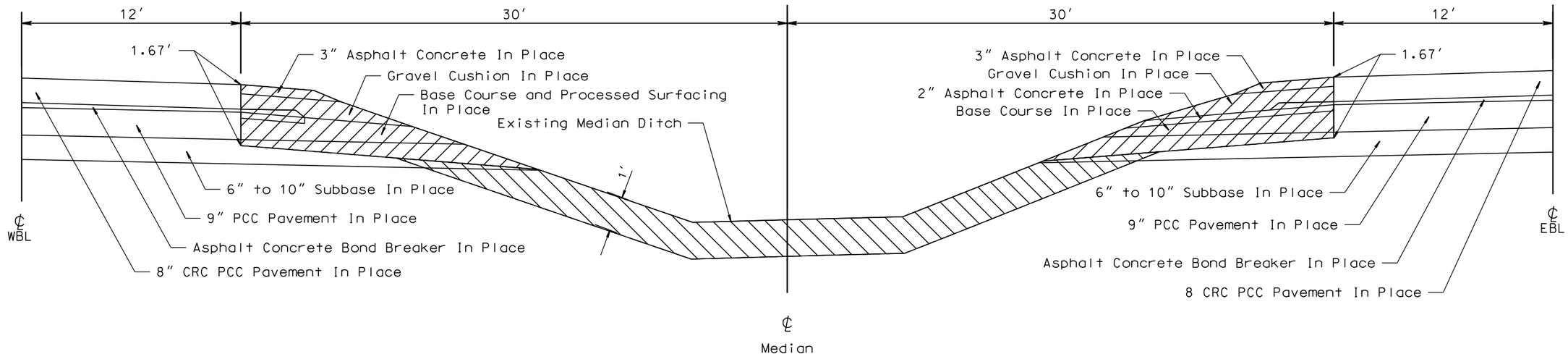
MEDIAN CROSSOVER

MRM 406.55 +0.187 (EB Lanes)

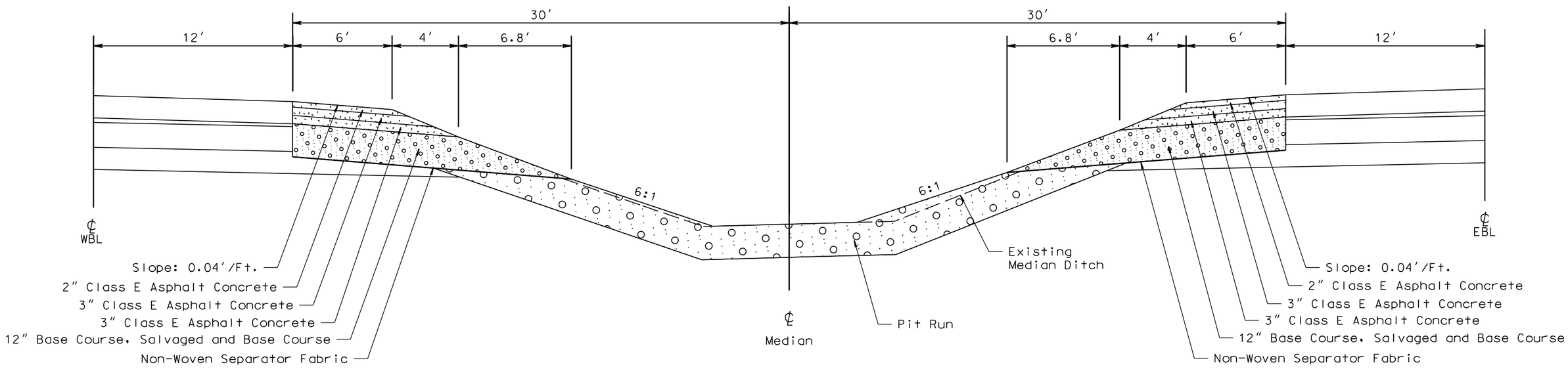
Sheet 2 of 6

SECTION A-A

In Place Section Showing Material to be Removed



Surfacing Section



PLOT SCALE - 1:6

PLOTTED FROM - TRPR18388

PLOT NAME - 7

FILE - ...\MEDIAN XOVER MRM 406 TYP.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(76)403	F11	F26

Plotting Date: 12/04/2015

Unclassified Excavation - Salvage and Stockpile Asphalt Concrete Mix and Granular Base Material

Unclassified Excavation Waste Material

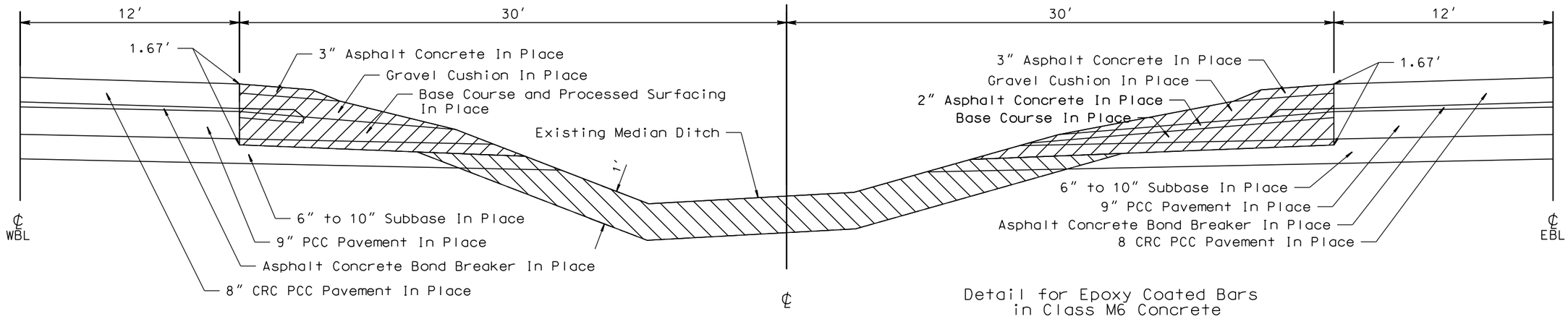
MEDIAN CROSSOVER

MRM 406.55 +0.187 (EB Lanes)

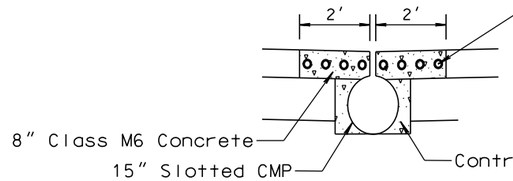
Sheet 3 of 6

SECTION B-B

In Place Section Showing Material to be Removed

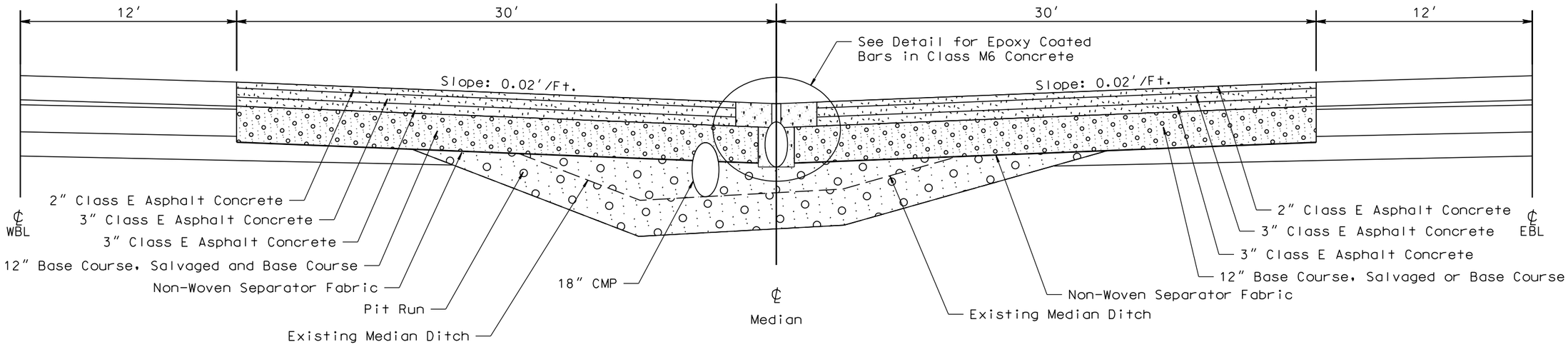


Detail for Epoxy Coated Bars in Class M6 Concrete



8 - 260′ #5 Epoxy Coated Reinforcing Steel Bars, spaced 5 5/8" center to center and centered in the slab vertically. Minimum lap length is 25". The cost of the #5 Epoxy Coated Reinforcing Steel Bars shall be incidental to the contract unit price per cubic yard for Class M6 Concrete.

Surfacing Section



PLOT SCALE - 1:6

PLOT NAME - 8

FILE - ...\MEDIAN XOVER MRM 406 TYP.DGN

PLOTTED FROM - TRPR19388

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(76)403	F12	F26

Plotting Date: 12/04/2015

Unclassified Excavation - Salvage and Stockpile Asphalt Concrete Mix and Granular Base Material

Unclassified Excavation Waste Material

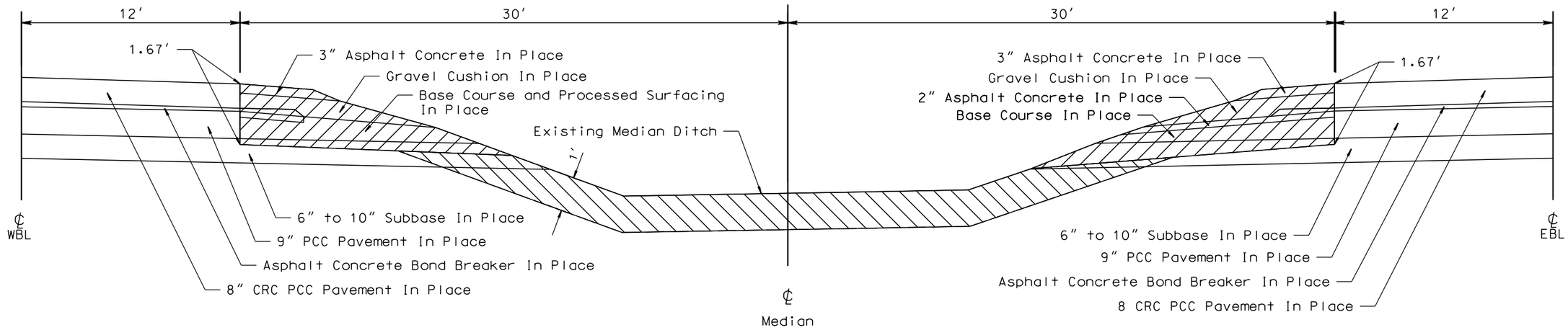
MEDIAN CROSSOVER

MRM 406.55 +0.187 (EB Lanes)

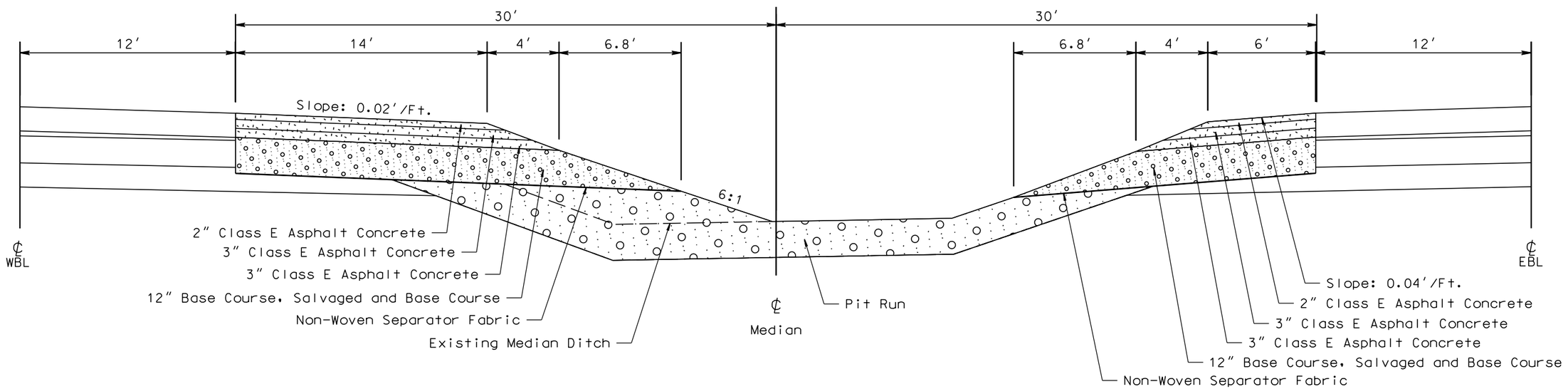
Sheet 4 of 6

SECTION C-C

In Place Section Showing Material to be Removed



Surfacing Section



PLOT SCALE - 1:6

PLOT NAME - 9

FILE -...\MEDIAN XOVER MRM 406 TYP.DGN

PLOTTED FROM - TRPR18388

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(76)403	F13	F26

Plotting Date: 12/04/2015

Unclassified Excavation - Salvage and Stockpile Asphalt Concrete Mix and Granular Base Material

Unclassified Excavation Waste Material

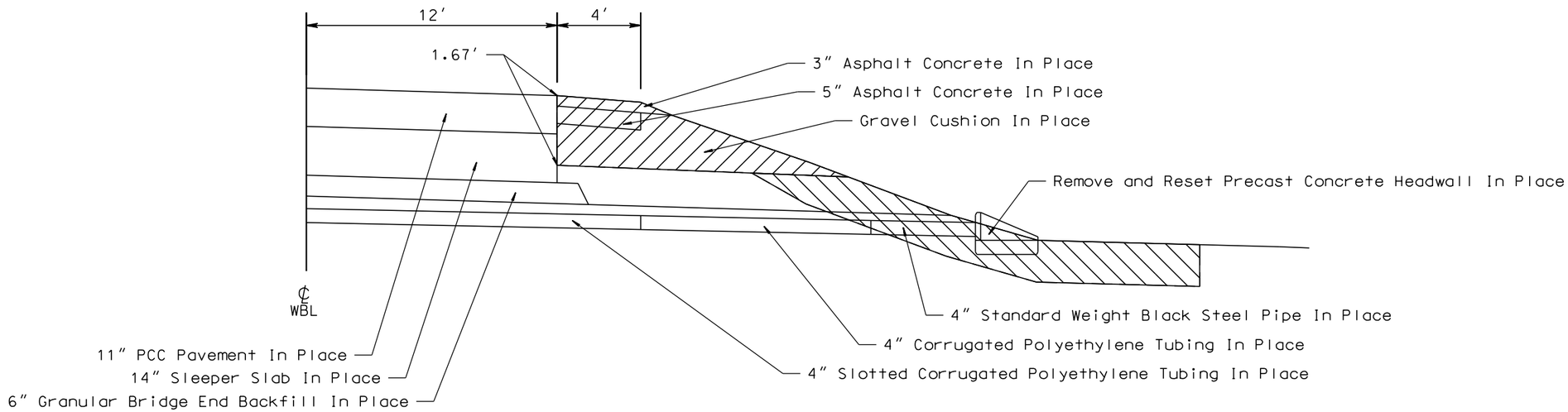
MEDIAN CROSSOVER

MRM 406.55 +0.187 (EB Lanes)

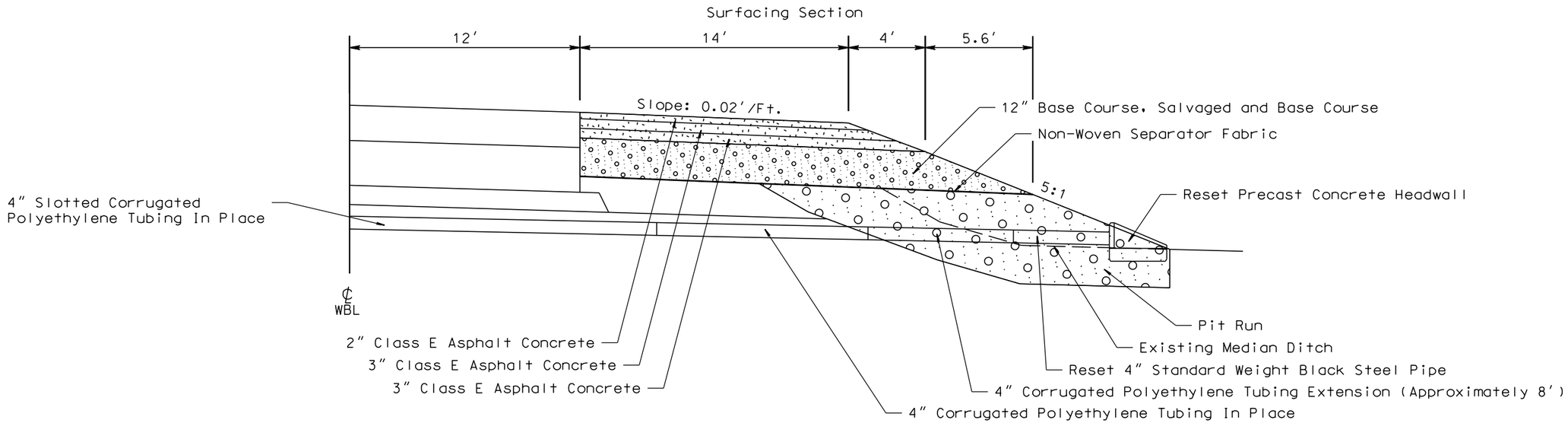
Sheet 5 of 6

SECTION D-D

In Place Section Showing Material to be Removed



Surfacing Section



PLOT SCALE - 1:6

PLOT NAME - 10

FILE -...\MEDIAN XOVER MRM 406 TYP.DGN

PLOTTED FROM - TRPR18388

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(76)403	F14	F26

Plotting Date: 12/04/2015

Unclassified Excavation - Salvage and Stockpile Asphalt Concrete Mix and Granular Base Material

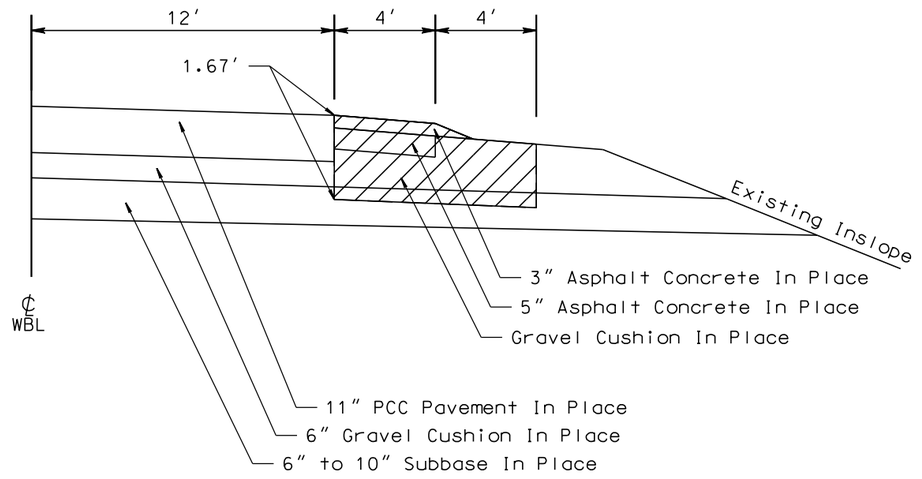
MEDIAN CROSSOVER

MRM 406.55 +0.187 (EB Lanes)

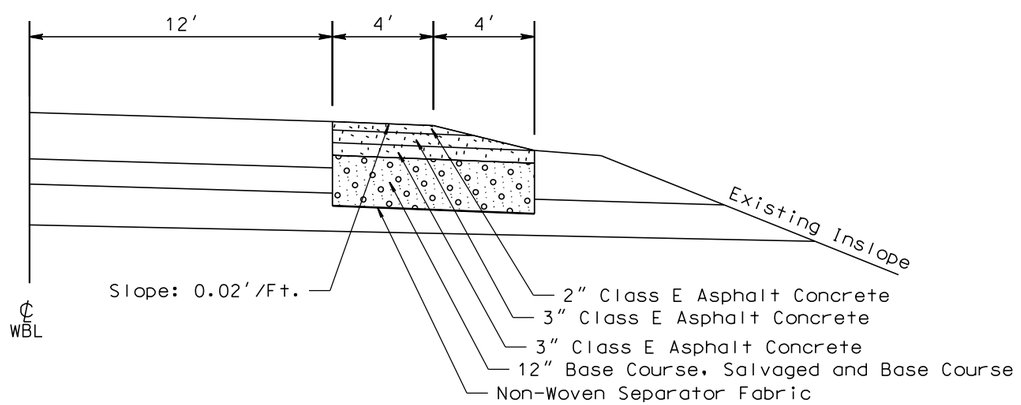
Sheet 6 of 6

SECTION E-E

In Place Section Showing Material to be Removed



Surfacing Section



PLOT SCALE - 1:6

PLOTTED FROM - TRPR18398

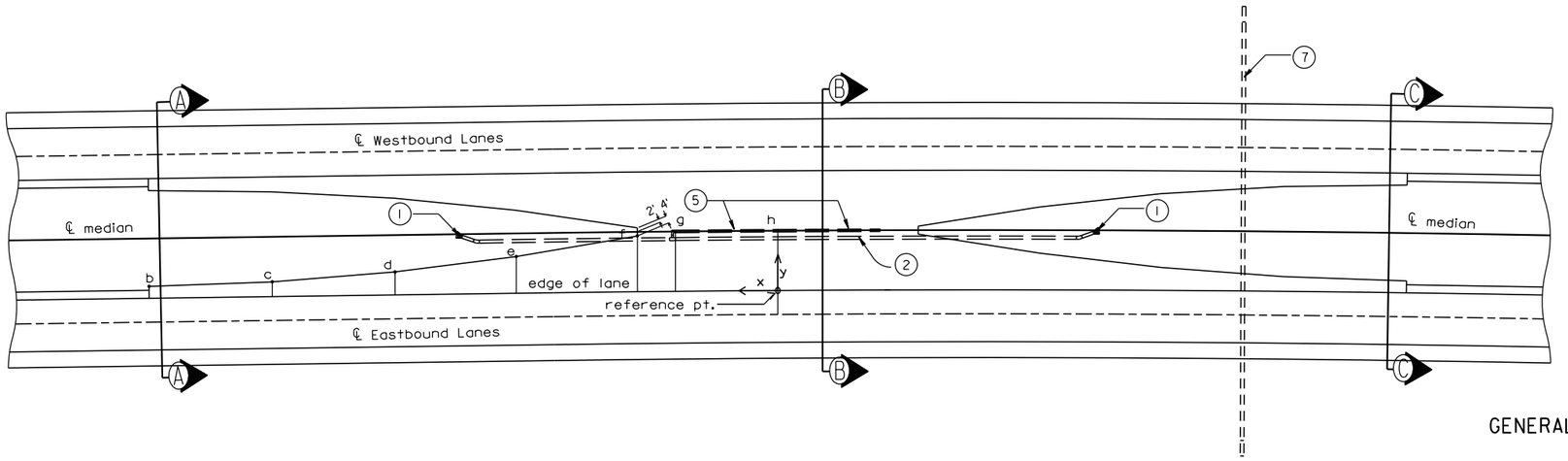
PLOT NAME - 11

FILE -...\MEDIAN XOVER MRM 406 TYP.DGN

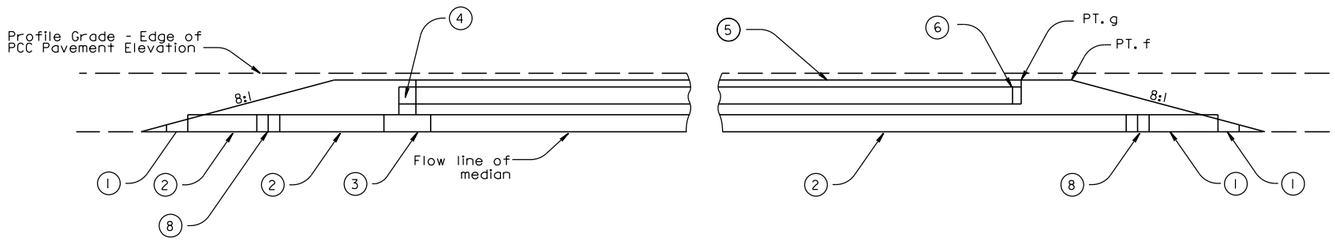
MEDIAN CROSSOVER

MRM 407.00 +0.500 (EB Lanes)

Sheet 1 of 4



	60' MEDIAN	
Point	(x)	(y)
b	430'	6.0'
c	346'	7.4'
d	262'	11.5'
e	179'	18.4'
f	96'	28.0'
g	70'	30.0
h	0'	30.0'



Drainage Components

1. 18" CMP Safety End
2. 18" CMP (Pipe Lengths - 8', 130', 274' & 8')
3. 18" x 18" x 15" CMP Tee
4. 15" CMP 90° Elbow
5. 15" Slotted CMP
6. 15" CMP Cap
7. 30" RCP with Flared Ends In Place
8. 18" CMP 15° Elbow

GENERAL NOTES:

The intent of this plan is to show the construction requirements for The median crossover.

Construction of median crossover shall conform to the requirement of the Specifications.

Typical Sections show Median Crossover located on grade requiring through drainage and a slotted drain.

Sections A-A , B-B & C-C depict the surfacing requirements.

The 15" CMP Cap shall be incidental to the contract unit price per foot for 15" Slotted CMP (16 ga.) Furnish and 15" Slotted CMP Install.

Price bid for contract items shall be considered full compensation for furnishing all necessary materials and labor to construct the median crossover as detailed hereon.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(76)403	F16	F26

Plotting Date: 12/04/2015

Unclassified Excavation - Salvage and Stockpile Asphalt Concrete Mix and Granular Base Material

Unclassified Excavation Waste Material

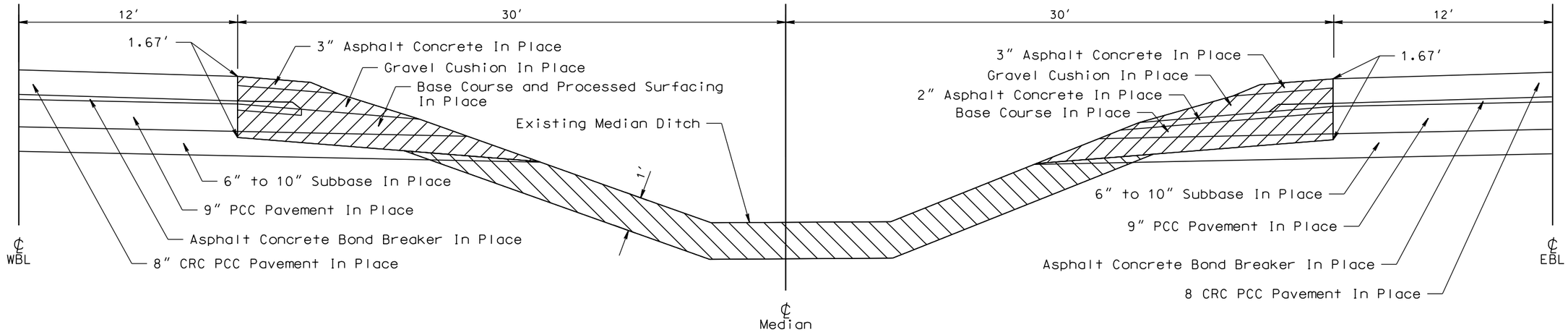
MEDIAN CROSSOVER

MRM 407.00 +0.500 (EB Lanes)

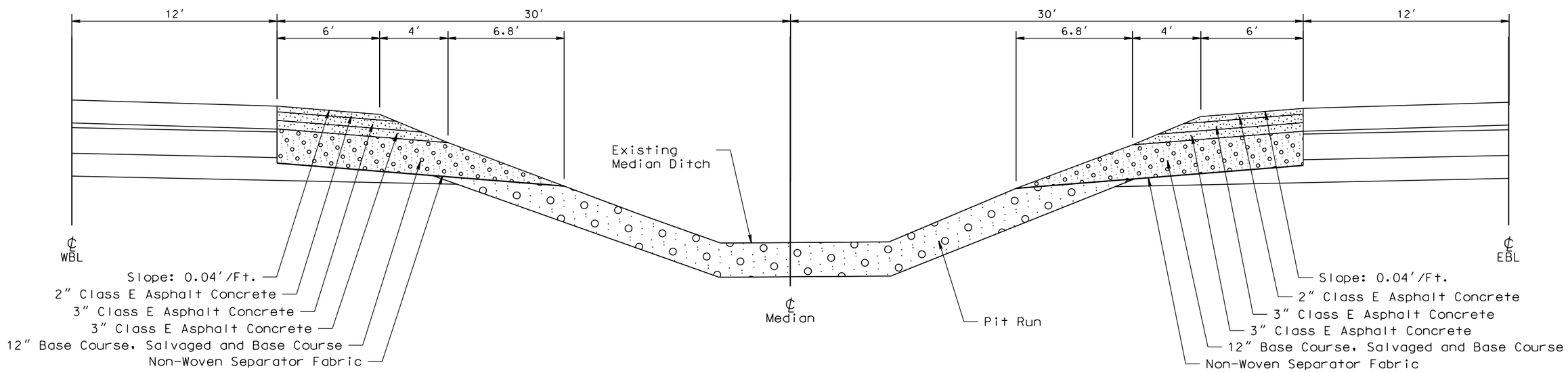
Sheet 2 of 4

SECTION A-A

In Place Section Showing Material to be Removed



Surfacing Section



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388

PLOT NAME - 13

FILE - ...\MEDIAN XOVER MRM 407.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(76)403	F17	F26

Plotting Date: 12/04/2015

Unclassified Excavation - Salvage and Stockpile Asphalt Concrete Mix and Granular Base Material

Unclassified Excavation Waste Material

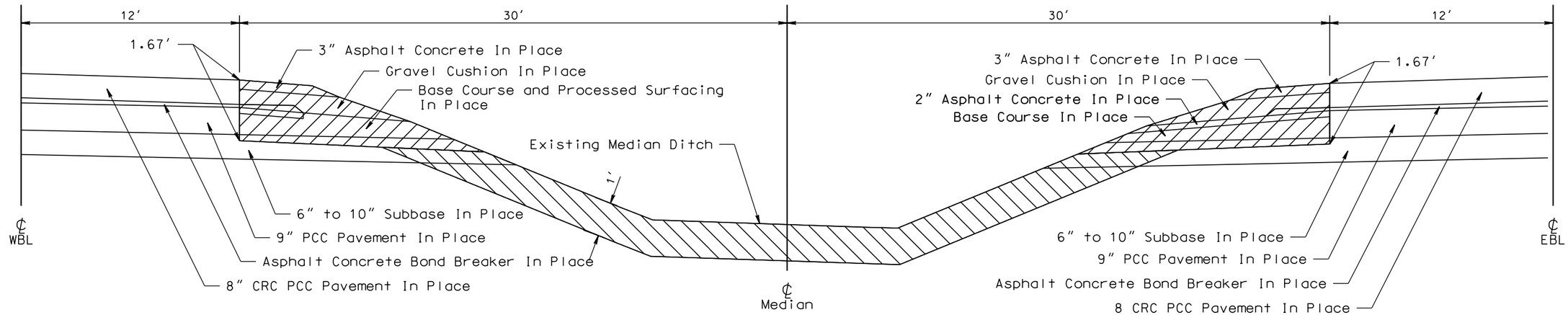
MEDIAN CROSSOVER

MRM 407.00 +0.500 (EB Lanes)

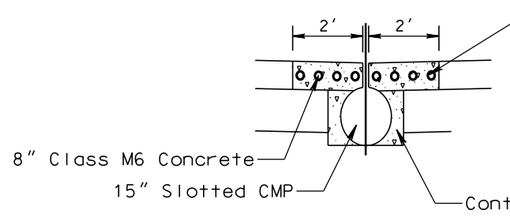
Sheet 3 of 4

SECTION B-B

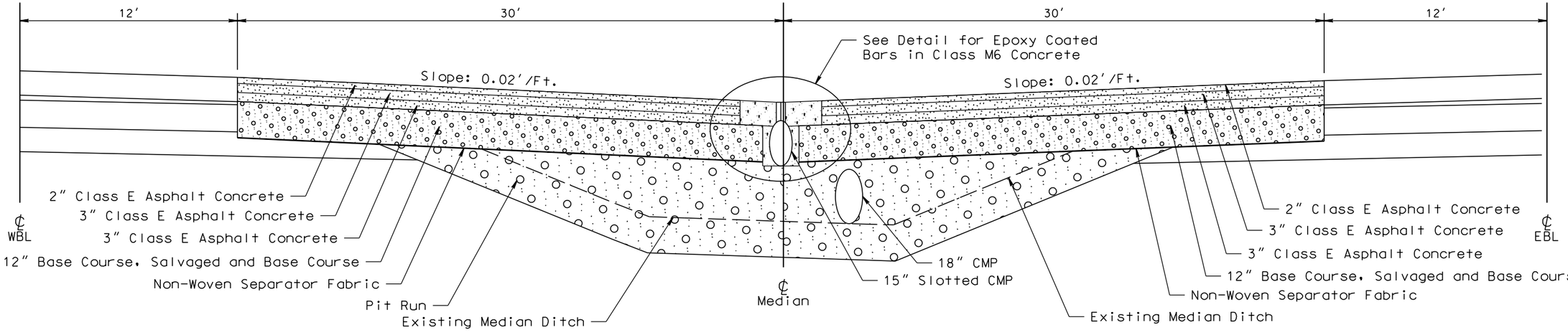
In Place Section Showing Material to be Removed



Detail for Epoxy Coated Bars in Class M6 Concrete



Surfacing Section



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388

PLOT NAME - 14

FILE -...\MEDIAN XOVER MRM 407.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(76)403	F18	F26

Plotting Date: 12/04/2015

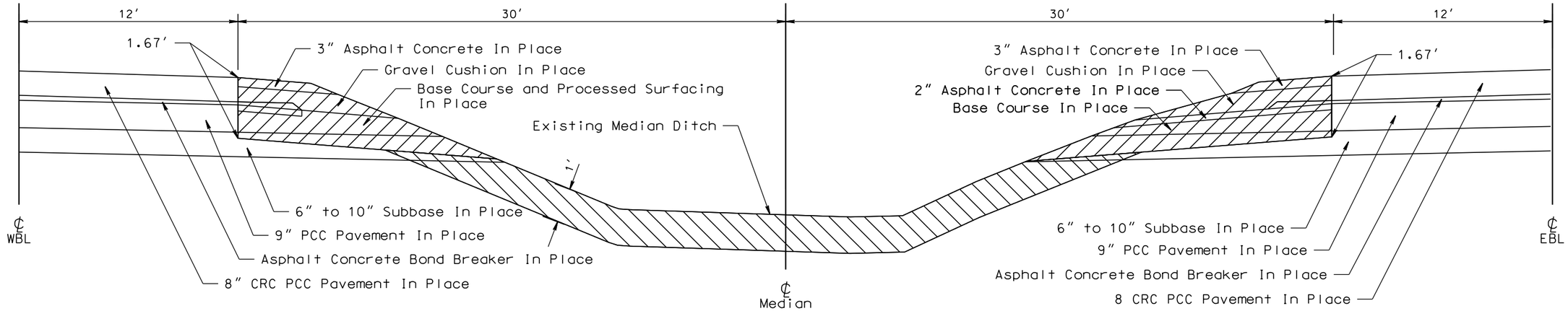
MEDIAN CROSSOVER

MRM 407.00 +0.500 (EB Lanes)

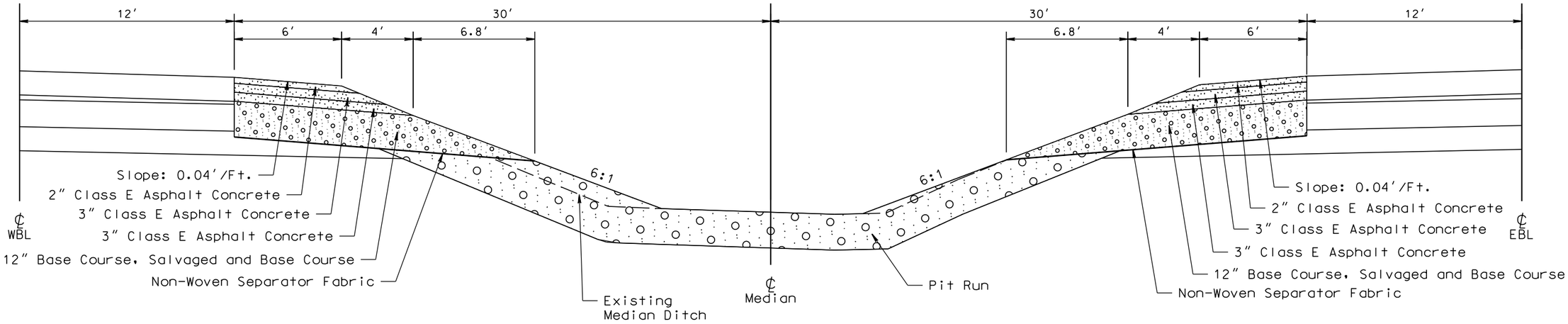
Sheet 4 of 4

SECTION C-C

In Place Section Showing Material to be Removed



Surfacing Section

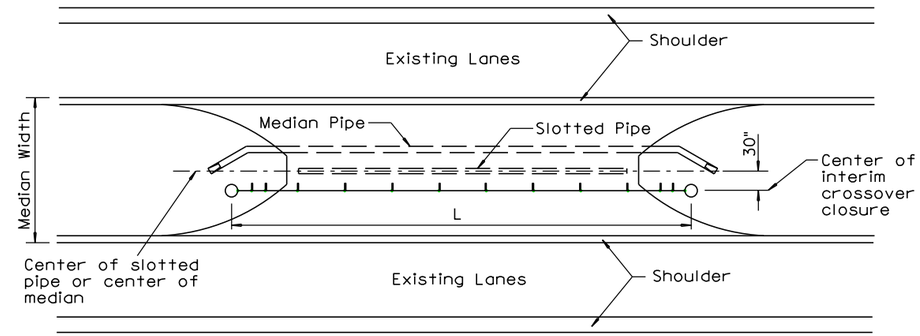


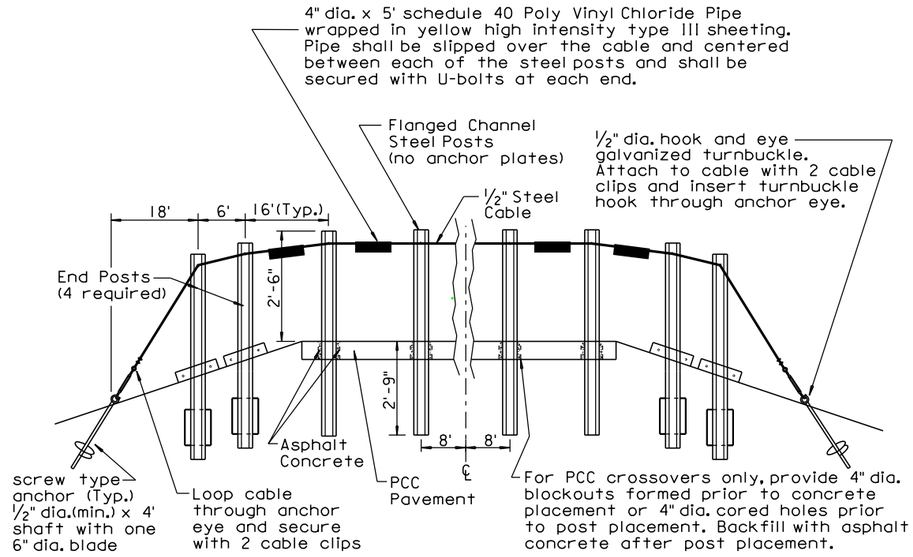
PLOT SCALE - 1:6.00001

PLOT NAME - 15

FILE -...\MEDIAN XOVER MRM 407.DGN

PLOTTED FROM - TRPR18388





MEDIAN CROSSOVER	NO. OF PVC PIPES	NO. OF U-BOLTS	NO. OF FLANGED CHANNEL STEEL POSTS	NO. OF BLOCKOUTS OR CORED HOLES (PCC CROSSOVERS)	PAY LENGTH L
MRM 404.00 +0.000 MRM 407.00 +0.500	13	16	12	12	256'
MRM 406.55 +0.187	21	24	20	20	384'

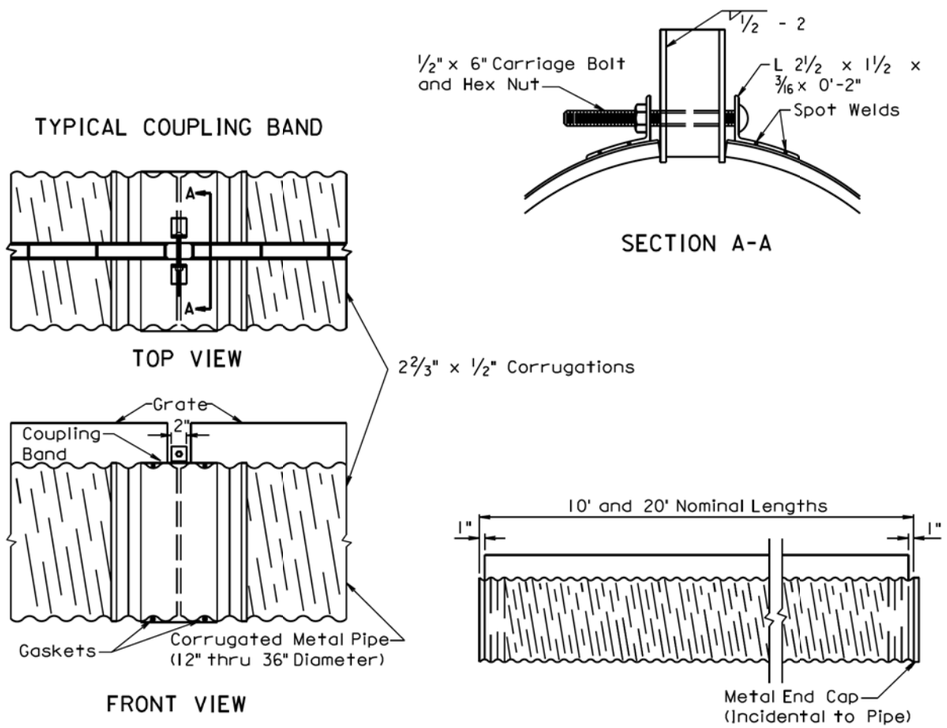
GENERAL NOTES:

All costs for materials, backfilling holes with asphalt concrete, labor, equipment, and incidentals necessary to construct the interim crossover closure shall be incidental to the contract unit price per Ft for "Interim Crossover Closure". The costs of coring holes or providing blockouts in the surfacing shall be incidental to the surfacing bid item(s).

The Interim Crossover Closure shall be installed on the opposite side of where the new median pipe is to be placed to avoid piercing the new median pipe.

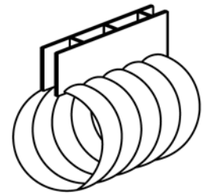
The Interim Crossover Closure shall be constructed using 3 cable guardrail posts with hook bolts. For specific details of the 3 cable guardrail hardware and installation, see Standard Plate 629.01 sheets 1 through 6.

INTERIM CROSSOVER CLOSURE FOR MEDIAN CROSSOVERS



March 31, 2000

Published Date: 4th Qtr. 2015	SDDOT	SLOTTED C.M.P. DRAIN	PLATE NUMBER 450.31
			Sheet 1 of 2



SLOTTED C.M.P. DRAIN

GENERAL NOTES:

A typical length of Slotted Drain is twenty (20) feet. Installation should be in multiples of ten (10) feet unless situations dictate otherwise.

All Slotted Drain materials and hardware shall be galvanized.

Metal end caps shall be provided for the closed end of each installation. The end caps shall be the same gage as the pipe.

All joints and end caps shall be watertight.

Close riveted soldered annular or continuously welded helical pipe shall be used and shall be watertight.

Units on which the spelter coating has been burned by welding or otherwise damaged in fabrication or during installation shall be regalvanized or painted with one full brush coat of zinc-rich paint conforming to Military Specification Mil-P-21035 or with at zinc-dust, zinc-oxide paint conforming to Federal Specification TT-P-641-B, Type III. Prior to painting, the surface shall be properly cleaned and approved.

Two gaskets will be required for each coupling band or joint and shall be rendered watertight by methods approved by the Engineer.

The slot shall be covered with an acceptable material during paving operations and/or installation of curb and gutter.

Anchors shall be ½" Dia. x 3" galvanized bolts and nuts. The nuts shall be welded to the slot at two (2) foot spacing. Bolts shall be added just prior to installation to avoid damage.

A trapezoidal design for spacer bars, either vertical or slanted, may be an alternate for the vertical bars shown on the details. The Slotted Drain with slanted spacer bars shall be installed with the slanted spacer bars oriented toward the flow.

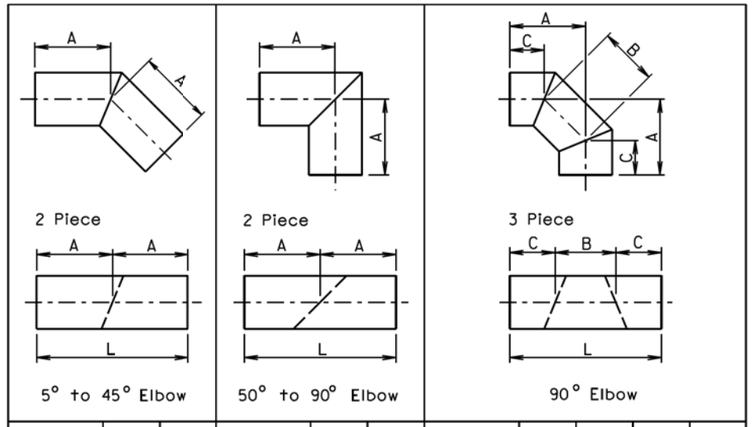
A Heel Guard (1/2 inch #13 expanded metal mesh) shall be furnished when called for in the plans and shall be welded to the grating before delivery to the project.

Slotted Drain will be measured along the centerline of the pipe. The length shall be the overall installed length from end to end including any coupling bands that may be between sections. The outlet pipe will be paid for as CMP and End Sections.

Slotted Drain will be paid for at the contract unit price per Foot of Slotted C.M.P. Payment will be full compensation for materials, labor, equipment, and incidentals required.

March 31, 2000

Published Date: 4th Qtr. 2015	SDDOT	SLOTTED C.M.P. DRAIN	PLATE NUMBER 450.31
			Sheet 2 of 2



5° to 45° Elbow | 50° to 90° Elbow | 90° Elbow

Diameter	A	L	Diameter	A	L	Diameter	A	B	C	L
Inches	Feet	Feet	Inches	Feet	Feet	Inches	Inches			Feet
12	1	2	12	2	4	12	25½	11	18½	4
15	1	2	15	2	4	15	26½	12	18	4
18	1	2	18	2	4	18	27	14	17	4
21	2	4	21	2	4	21	27	15	16½	4
24	2	4	24	2	4	24	27½	16	16	4
27	2	4	27	2	4	27	27½	17	15½	4
30	2	4	30	3	6	30	40	19	26½	6
33	2	4	33	3	6	33	40	20	26	6
36	2	4	36	3	6	36	40½	21	25½	6
42	2	4	42	3	6	42	41	23	24½	6
48	2	4	48	4	8	48	53½	26	35	8
54	3	6	54	4	8	54	54	28	34	8
60	3	6	60	4	8	60	54½	31	32½	8
66	3	6	66	4	8	66	54	33	31½	8
72	3	6	72	5	10	72	67½	36	42	10
78	3	6	78	5	10	78	68	39	40½	10
84	3	6	84	5	10	84	68½	41	39½	10
90	3	6	90	6	12	90	70	46	37	10
96	3	6	96	6	12	96	82	46	49	12

FABRICATED ELBOW LENGTHS FOR ALL CORRUGATIONS

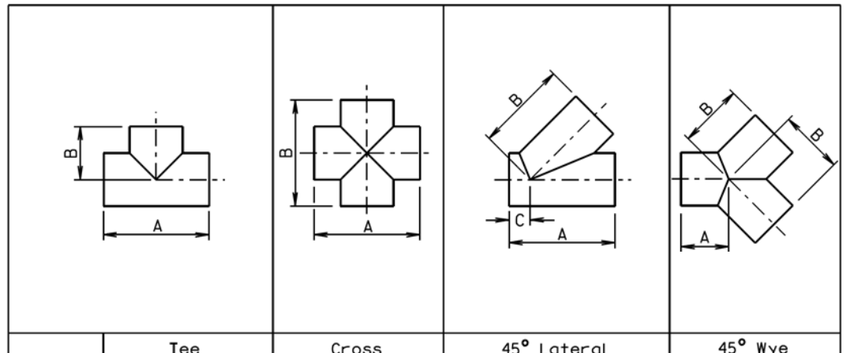
GENERAL NOTES:

All dimensions shown are nominal.

L = Linear Feet of C.M.P. required to fabricate fitting.

June 26, 2001

Published Date: 4th Qtr. 2015	SDDOT	***C.M.P. FABRICATED LENGTHS FOR ELBOWS***	*PLATE NUMBER* 450.32 *Sheet 1 of 1*



	Tee			Cross			45° Lateral				45° Wye		
Diameter	A	B	L	A	B	L	A	B	C	L	A	B	L
Inches	Feet			Feet			Feet		Inches	Feet	Feet		
12	4	2	6	4	4	8	4	2	17	6	2	2	6
15	4	2	6	4	4	8	4	4	18	8	2	2	6
18	4	2	6	4	4	8	4	4	13	8	2	2	6
21	4	2	6	4	4	8	6	4	22	10	2	2	6
24	4	2	6	4	4	8	6	4	23	10	2	2	6
27	4	2	6	4	4	8	6	4	20	10	2	2	6
30	4	2	6	4	4	8	6	4	21	10	2	2	6
33	6	4	10	6	6	12	6	6	19	12	2	3	8
36	6	4	10	6	6	12	8	6	19	14	2	3	8
42	6	4	10	6	6	12	8	6	21	14	2	3	8
48	6	4	10	6	6	12	10	8	28	18	2	3	8
54	6	4	10	6	6	12	10	8	23	18	4	4	12
60	8	4	12	8	8	16	12	10	30	22	4	4	12
66	8	4	12	8	8	16	12	10	32	22	4	4	12
72	8	4	12	8	8	16	14	10	45	24	4	5	14
78	10	6	16	10	10	20	14	10	46	24	4	5	14
84	10	6	16	10	10	20	16	12	47	28	4	5	14
90	10	6	16	10	10	20	16	12	49	28	4	5	14
96	10	6	16	10	10	20	16	12	50	28	4	6	16

FABRICATED LENGTHS FOR TEES, CROSSES, AND WYES FOR ALL CORRUGATIONS

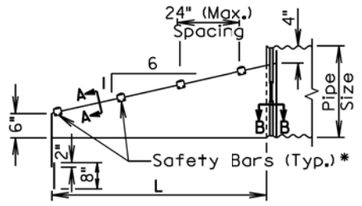
GENERAL NOTES:

All dimensions shown are nominal.

L = Linear Feet of C.M.P. required to fabricate fitting.

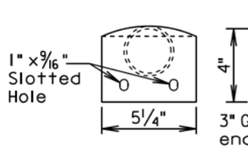
June 26, 2001

Published Date: 4th Qtr. 2015	SDDOT	***C.M.P. FABRICATED LENGTHS FOR TEES, CROSSES, AND WYES***	*PLATE NUMBER* 450.33 *Sheet 1 of 1*



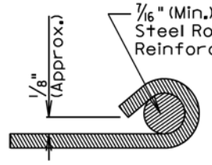
ELEVATION VIEW

*Number of bars required will vary depending on the length of the end section.

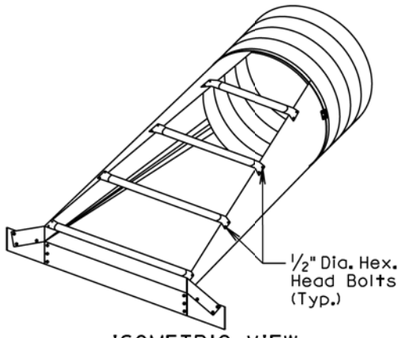


3" Galvanized Pipe: Flatten end, then bend outside 4" to match end section sides.

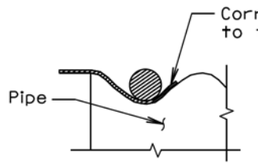
DETAIL OF SAFETY BARS



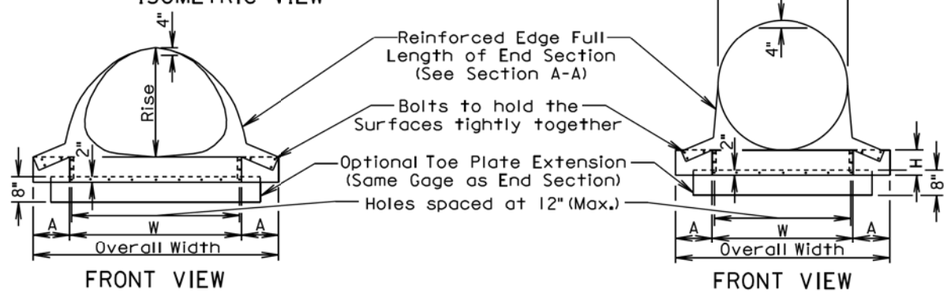
SECTION A-A



ISOMETRIC VIEW

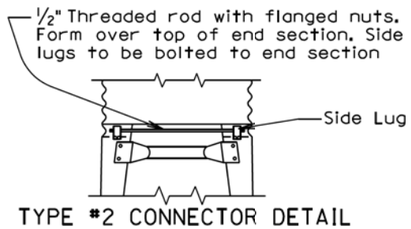


SECTION B-B

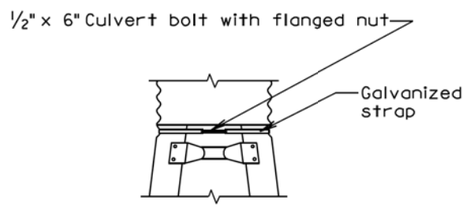


FRONT VIEW

FRONT VIEW



TYPE #2 CONNECTOR DETAIL
(For 30" and Larger)
(For 21" X 15" and Larger)



TYPE #1 CONNECTOR DETAIL
(For 15" Through 24")

June 26, 2015

Published Date: 4th Qtr. 2015	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 1 of 2

ARCH C.M.P. SAFETY ENDS

Equv. Dia. (Inch)	(Inches)		Min. Thick.		Dimensions (Inches)				L Dimensions	
	Span	Rise	Inch	Gage	A	H	W	Overall Width	Slope	Length (Inch)
18	21	15	.064	16	8	6	27	43	6:1	30
21	24	18	.064	16	8	6	30	46	6:1	48
24	28	20	.064	16	8	6	34	50	6:1	60
30	35	24	.079	14	12	9	41	65	6:1	84
36	42	29	.109	12	12	9	48	72	6:1	114
42	49	33	.109	12	16	12	55	87	6:1	138
48	57	38	.109	12	16	12	63	95	6:1	168
54	64	43	.109	12	16	12	70	102	6:1	198
60	71	47	.109	12	16	12	77	109	6:1	222
72	83	57	.109	12	16	12	89	121	6:1	282

CIRCULAR C.M.P. SAFETY ENDS

Pipe Dia. (Inch)	Min. Thick.		Dimensions (Inches)				L Dimensions	
	Inch	Gage	A	H	W	Overall Width	Slope	Length (Inch)
15	.064	16	8	6	21	37	6:1	30
18	.064	16	8	6	24	40	6:1	48
21	.064	16	8	6	27	43	6:1	66
24	.064	16	8	6	30	46	6:1	84
30	.109	12	12	9	36	60	6:1	120
36	.109	12	12	9	42	66	6:1	156
42	.109	12	16	12	48	80	6:1	192
48	.109	12	16	12	54	86	6:1	228
54	.109	12	16	12	60	92	6:1	264
60	.109	12	16	12	66	98	6:1	300

GENERAL NOTES:

Safety ends shall be fabricated from galvanized steel conforming to the requirements of the Specifications.

Safety bars shall be fabricated from steel schedule 40 pipe in conformance with ASTM A53, grade B or HSS 3.5X.216 in conformance with ASTM A500, grade B.

Slotted holes for safety bar attachment shall be provided for all end sections.

Attachment to circular pipes 15" through 24" diameter shall be made with Type #1 straps. All other sizes shall be attached with Type #2 rods and lugs.

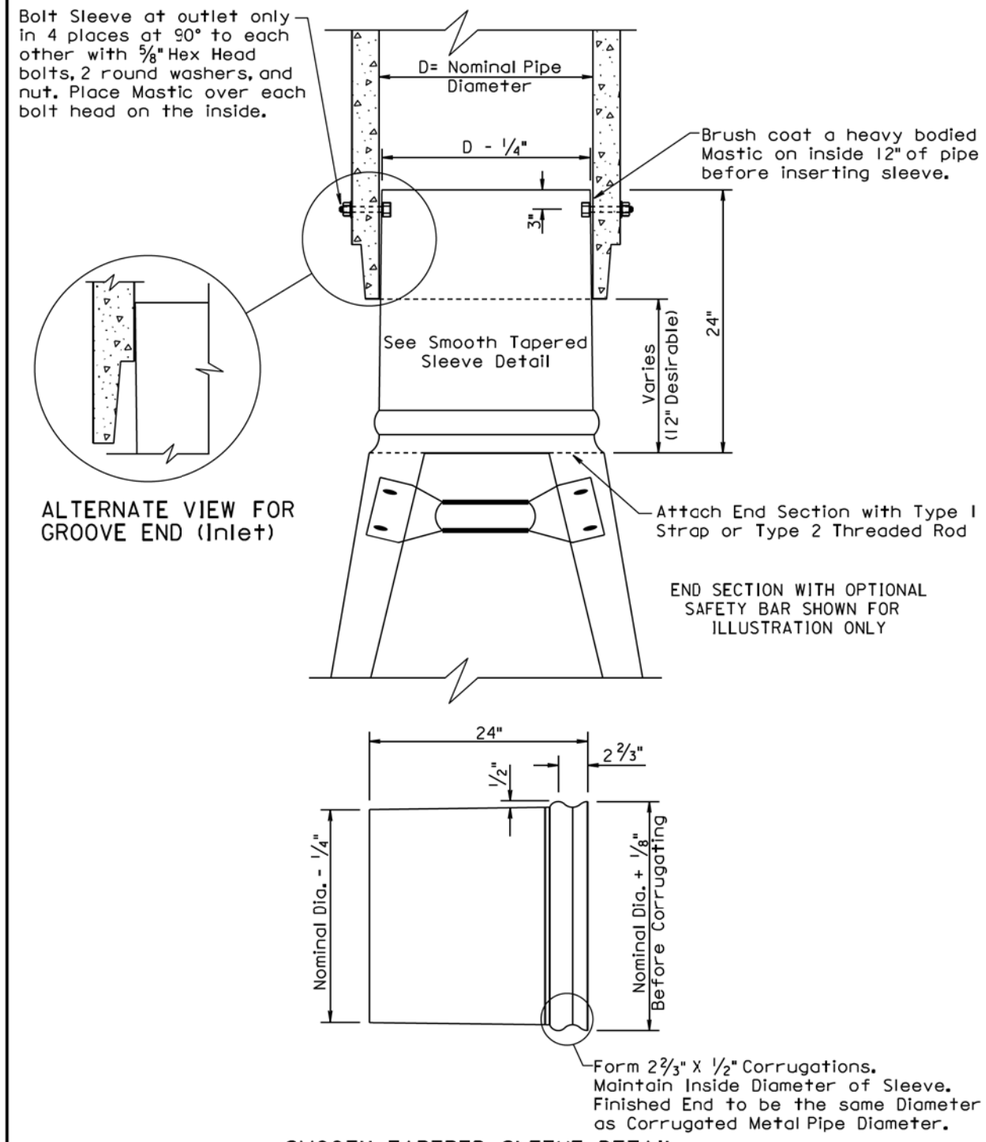
When stated in the plans, optional toe plate extension shall be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section. Dimensions shall be overall width less 6" by 8" high.

Installation shall be performed in accordance with the Specifications.

Cost of all work and materials required for fabrication and installation of safety ends shall be incidental to the bid items for the various sizes of safety ends.

June 26, 2015

Published Date: 4th Qtr. 2015	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 2 of 2



SMOOTH TAPERED SLEEVE DETAIL

GENERAL NOTE:

Metal shall be 12 gauge smooth Galvanized in accordance with AASHTO M218.

March 31, 2000

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GENERAL NOTES:

Either flanged channel steel posts or S3x5.7 steel I beam posts shall be used, but post type shall be consistent thoughout the project. The S3x5.7 Steel I Beam post shall be used for the end posts.

All costs associated with furnishing and constructing the 3 cable guardrail anchor assembly including the concrete anchor, cable anchor bracket, compensating device, steel turnbuckle cable assembly, and necessary hardware shall be incidental to the contract unit price per each for "3 Cable Guardrail Anchor Assembly".

All costs associated with furnishing and constructing the 3 cable guardrail including posts, cable, cable splices, and hardware shall be incidental to the contract unit price per foot for "3 Cable Guardrail".

The following table and criteria shall apply to the arrangement of the Spring Cable End Assemblies (Compensation Devices) and Turnbuckle Cable End Assemblies:

LENGTH OF CABLE RUN	CRITERIA FOR ARRANGEMENT OF THE SPRING CABLE END ASSEMBLIES (COMPENSATION DEVICES) AND TURNBUCKLE CABLE END ASSEMBLIES
Less than 500'	Use turnbuckle on the approaching traffic end and compensating device on the other end of each individual cable, except in the W Beam to 3 Cable Transition where all compensating devices shall be provided at the bridge ends.
Greater than 500' to 1000'	Use compensating device on each end of each individual cable.
Greater than 1000'	Start new run by interlacing at last parallel post as shown on sheet 2 of 6.

All Compensating Devices shall be attached to the cable anchor bracket when one end of the run is attached to a bridge.

Compensating Devices must have a spring rate of 450 ± 50 pounds per inch and shall have a total available travel of 6 inches minimum.

The cable shall be retensioned after the initial 2 week pretension period in accordance with the following table:

CABLE TENSIONING SPECIFICATIONS													
Temperature Range (Degree F)	-20 to -11	-10 to -1	0 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 to 99	100 to 109	110 to 120
Spring Compression (Inch)	4 1/4	4	3 3/4	3 1/2	3 1/4	3	2 3/4	2 1/2	2 1/4	2	1 3/4	1 1/2	1 1/4	1

POST SPACING FOR HORIZONTAL CURVES	
Roadway ℄ Curvature	Maximum Post Spacing (Ft)
1° and Less	16'
Greater than 1° to 8°	12'
Greater than 8° to 13°	8'
Greater than 13°	NOT ALLOWED

June 26, 2015

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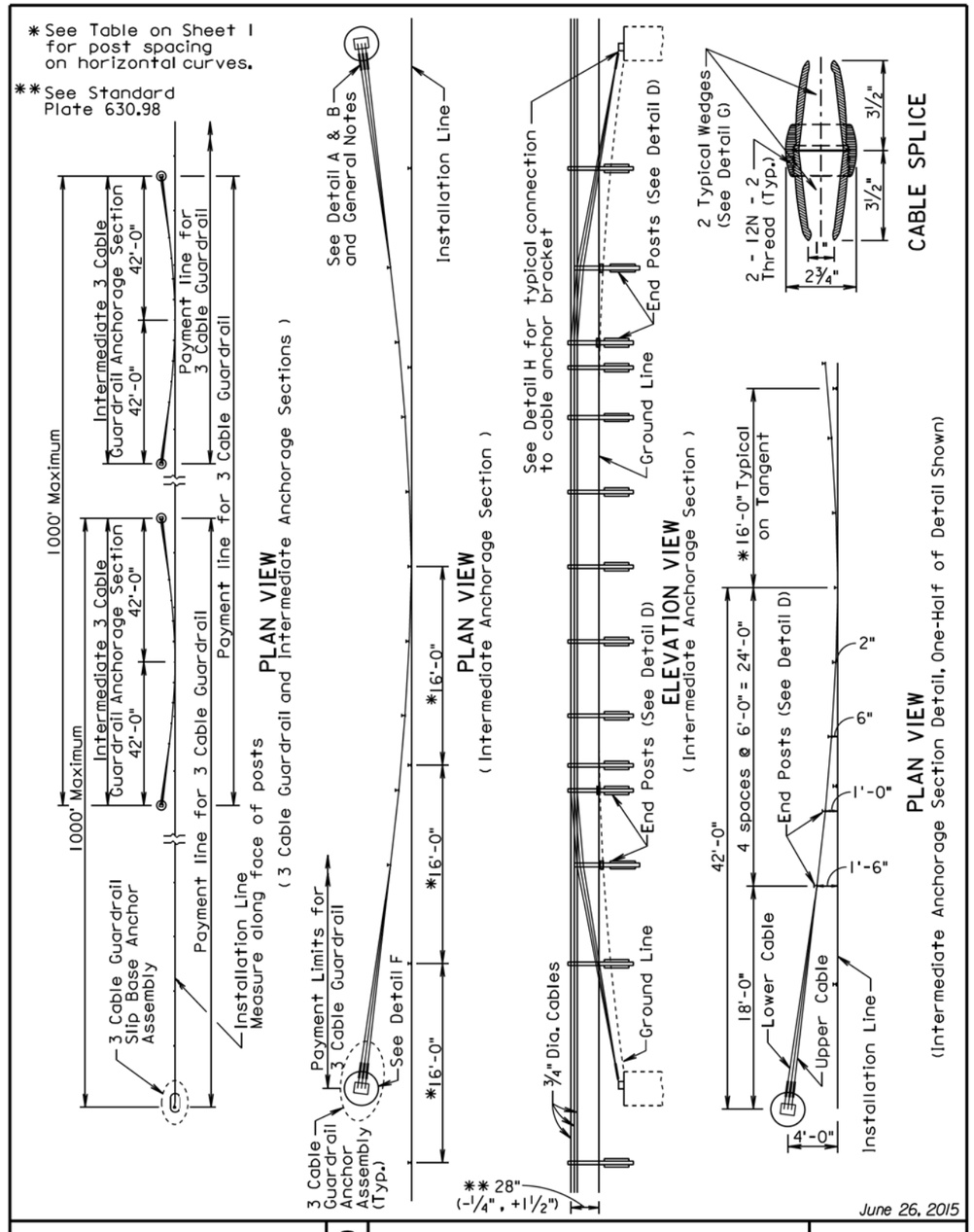
			Sheet 1 of 6



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Published Date: 4th Qtr. 2015	SDDOT	3 CABLE GUARDRAIL (LOW TENSION)	PLATE NUMBER 629.01
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PLOT SCALE - 1:200

PLOT NAME - 21

-PLOTTED FROM - TRPR18388

FILE - U:\MS\PR\JM1NN00WX\SP5.DGN

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SDDOT

3 CABLE GUARDRAIL
(LOW TENSION)

PLATE NUMBER
629.01

Sheet 3 of 6

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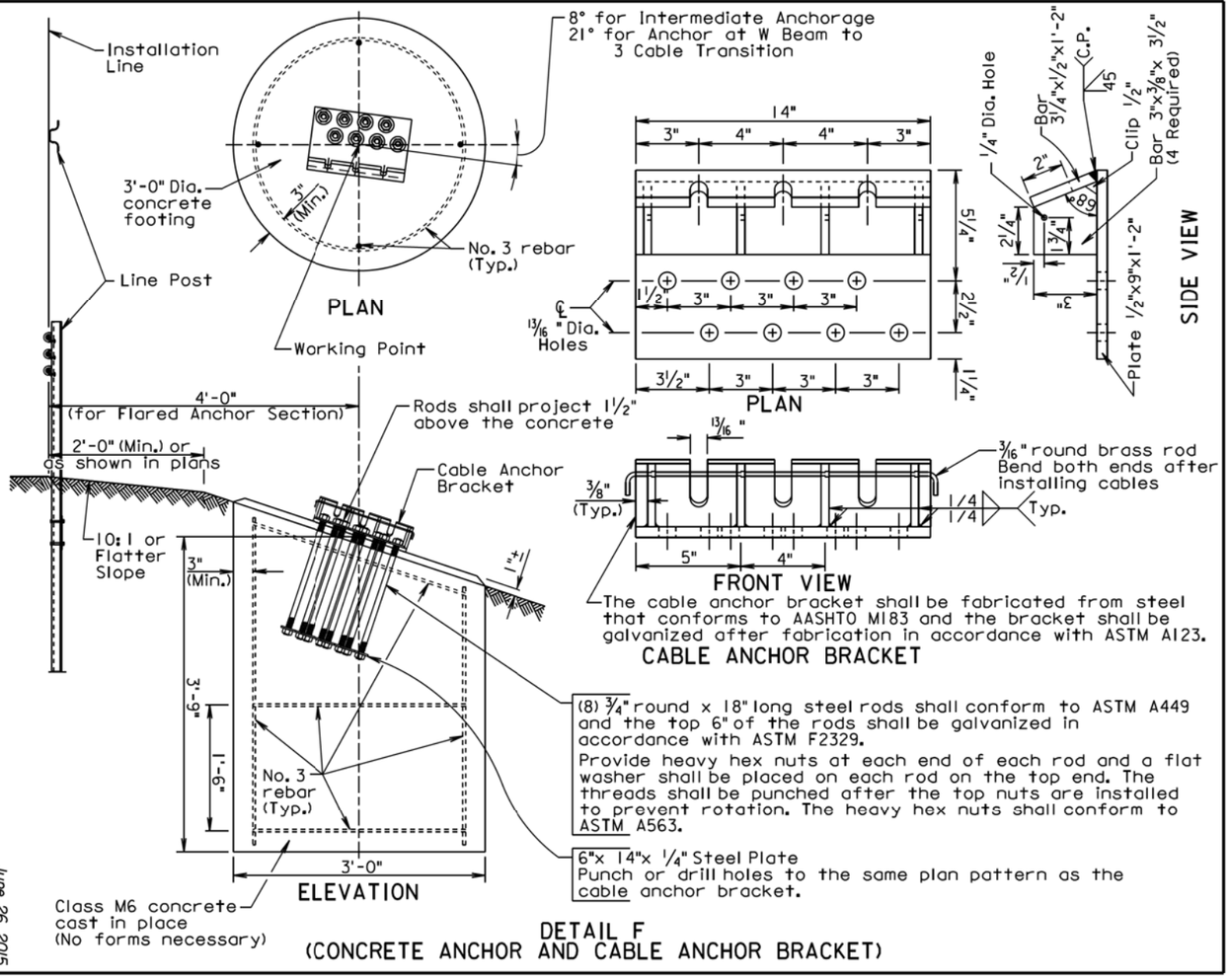
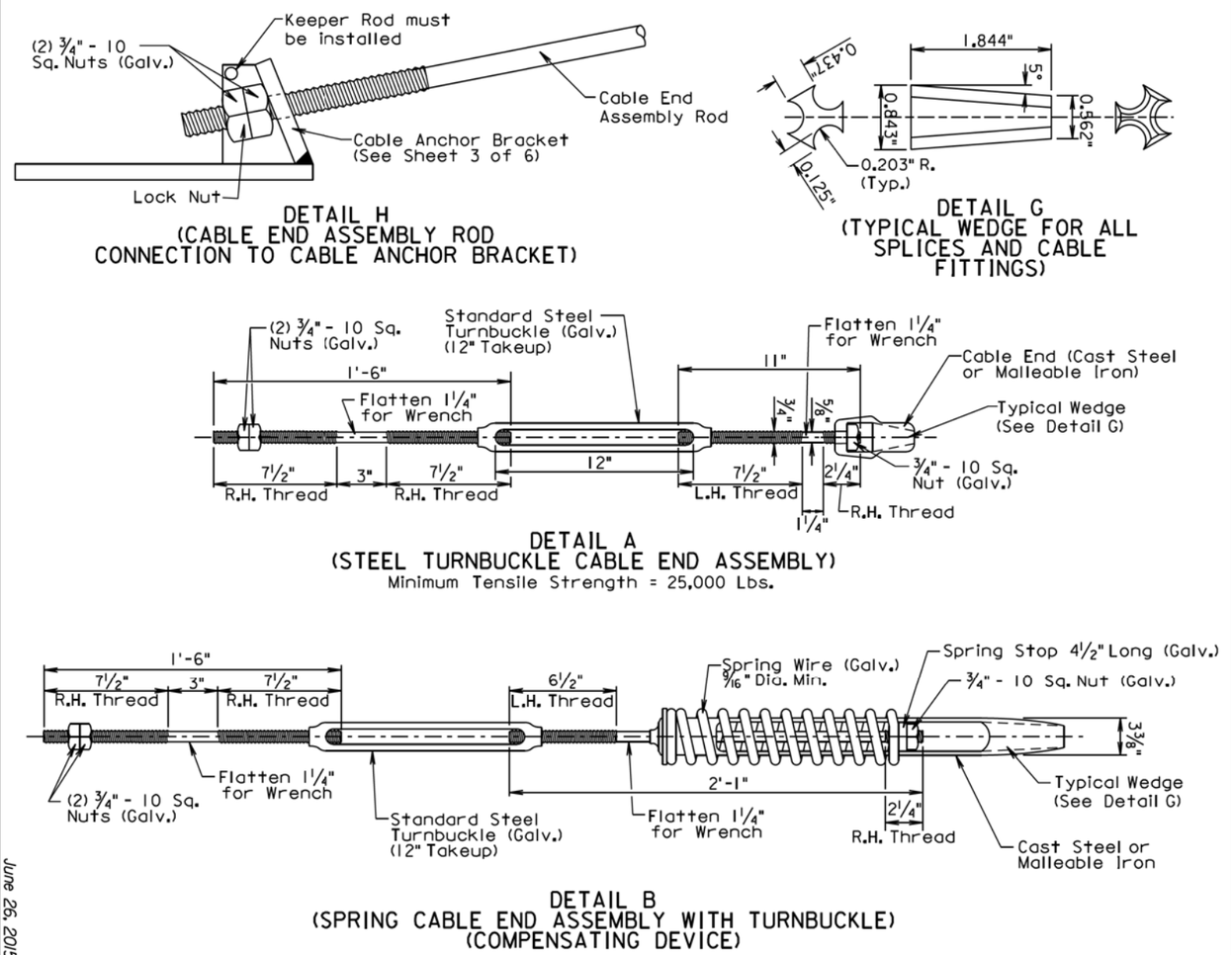


DETAIL F
(CONCRETE ANCHOR AND CABLE ANCHOR BRACKET)



DETAIL H
(CABLE END ASSEMBLY ROD
CONNECTION TO CABLE ANCHOR BRACKET)

DETAIL G
(TYPICAL WEDGE FOR ALL
SPLICES AND CABLE
FITTINGS)

DETAIL A
(STEEL TURNBUCKLE CABLE END ASSEMBLY)
Minimum Tensile Strength = 25,000 Lbs.

DETAIL B
(SPRING CABLE END ASSEMBLY WITH TURNBUCKLE)
(COMPENSATING DEVICE)

STATE OF SOUTH DAKOTA

PROJECT
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SHEET
F25

TOTAL SHEETS
F26

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SDDOT

3 CABLE GUARDRAIL (LOW TENSION)

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Sheet 5 of 6

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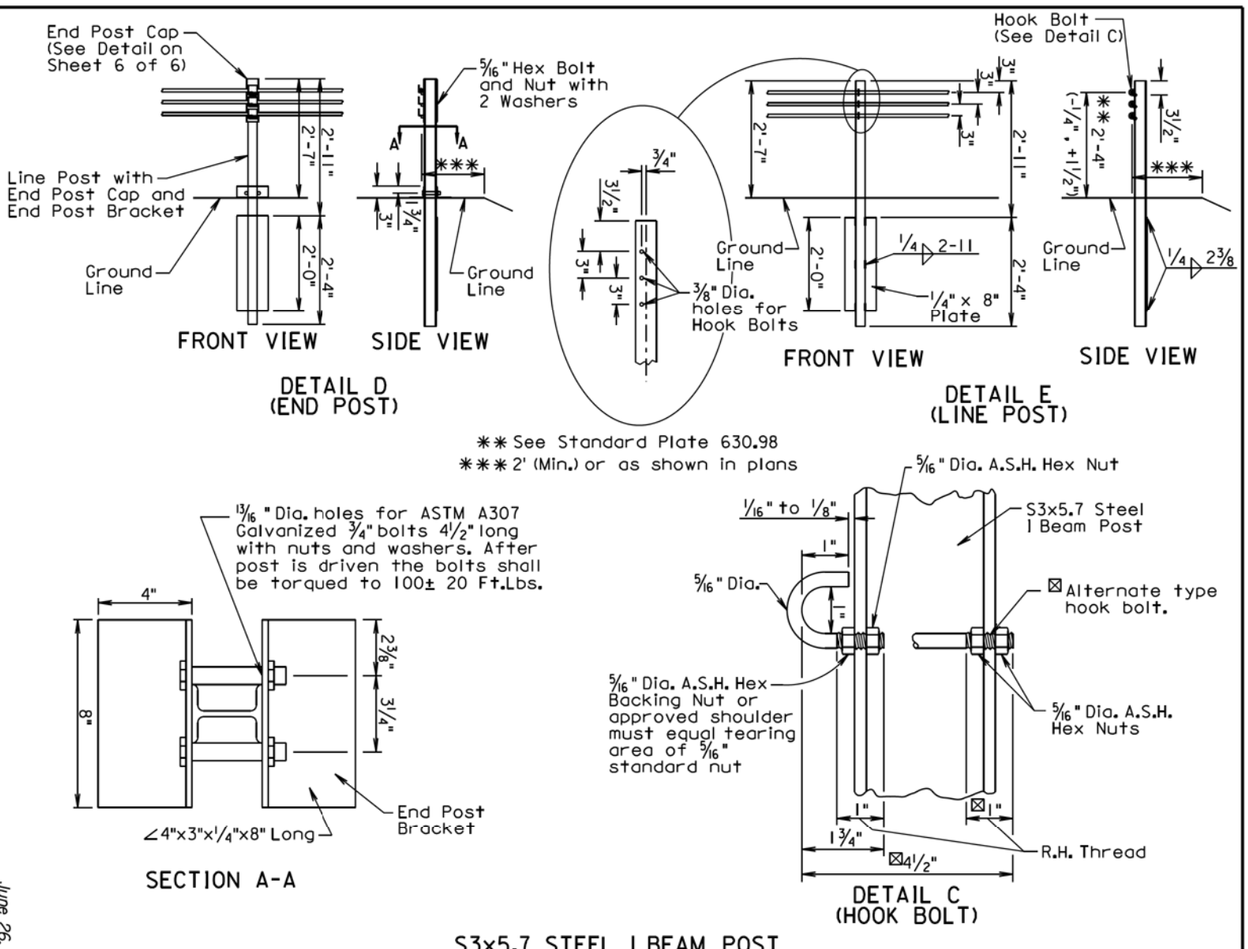

Published Date: 4th Qtr. 2015

SDDOT

3 CABLE GUARDRAIL (LOW TENSION)

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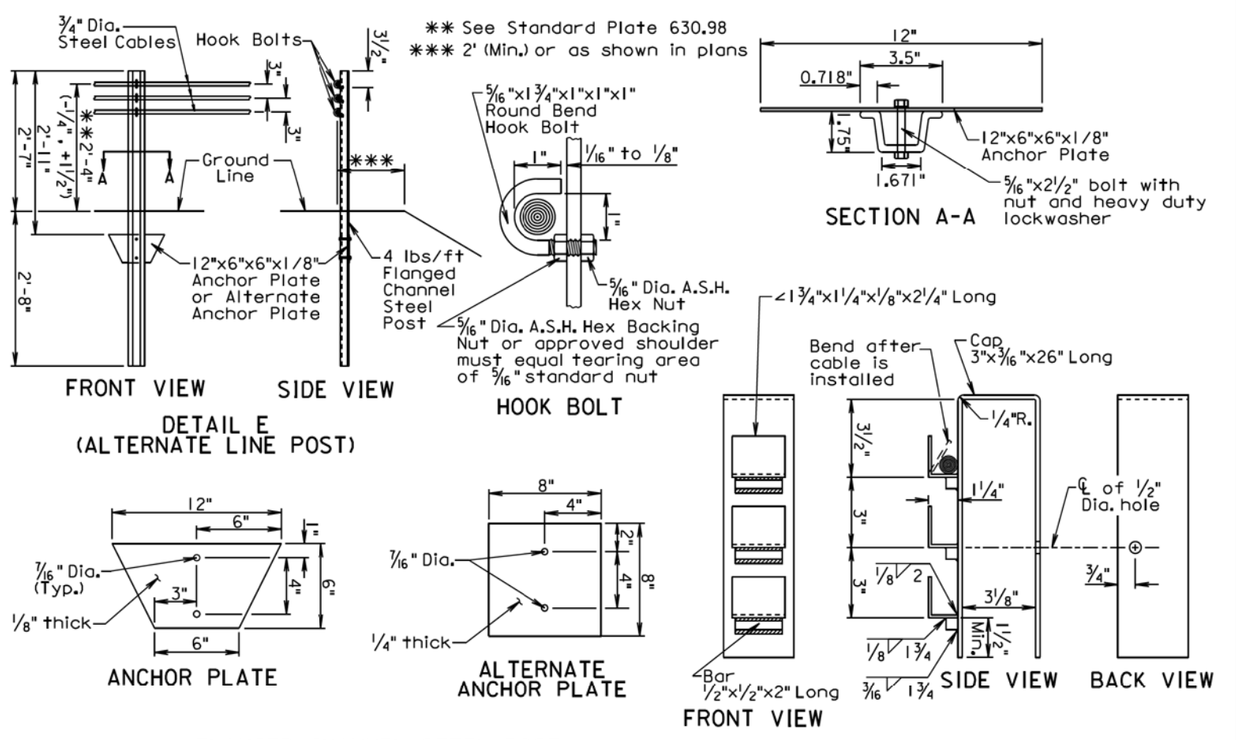
Sheet 6 of 6

June 26, 2015



FLANGED CHANNEL STEEL POST FOR 3 CABLE GUARDRAIL

GENERAL NOTES:

Flanged channel steel posts shall be produced from high strength steel in accordance with ASTM A499, Grade 60.

Anchor plates shall be in conformance with ASTM A709, Grade 36.

Bolt shall be in conformance with ASTM A354 Grade BD or BC. Nut shall be in conformance with ASTM A563 Grade DH.

Bolt shall be galvanized in accordance with ASTM F2329.

Finish for the post and anchor plate shall be a baked on high quality dark green enamel.

Alternate anchor plate may be unfinished.

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SHEET F26

TOTAL SHEETS F26

Plotting Date: 12/04/2015