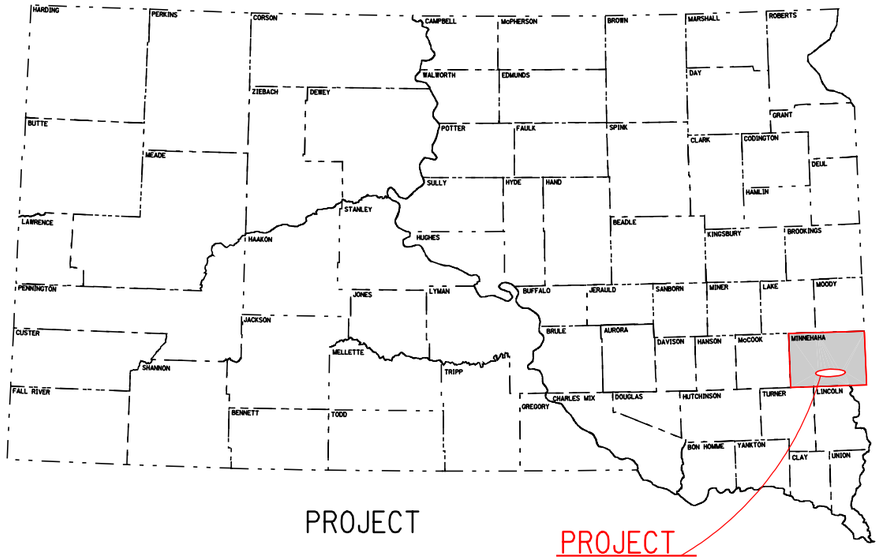
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 90-9(00)390	1	19

Plotting Date: 27-JUL-2006

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT IM 90–9(00)390
INTERSTATE 90
MINNEHAHA COUNTY

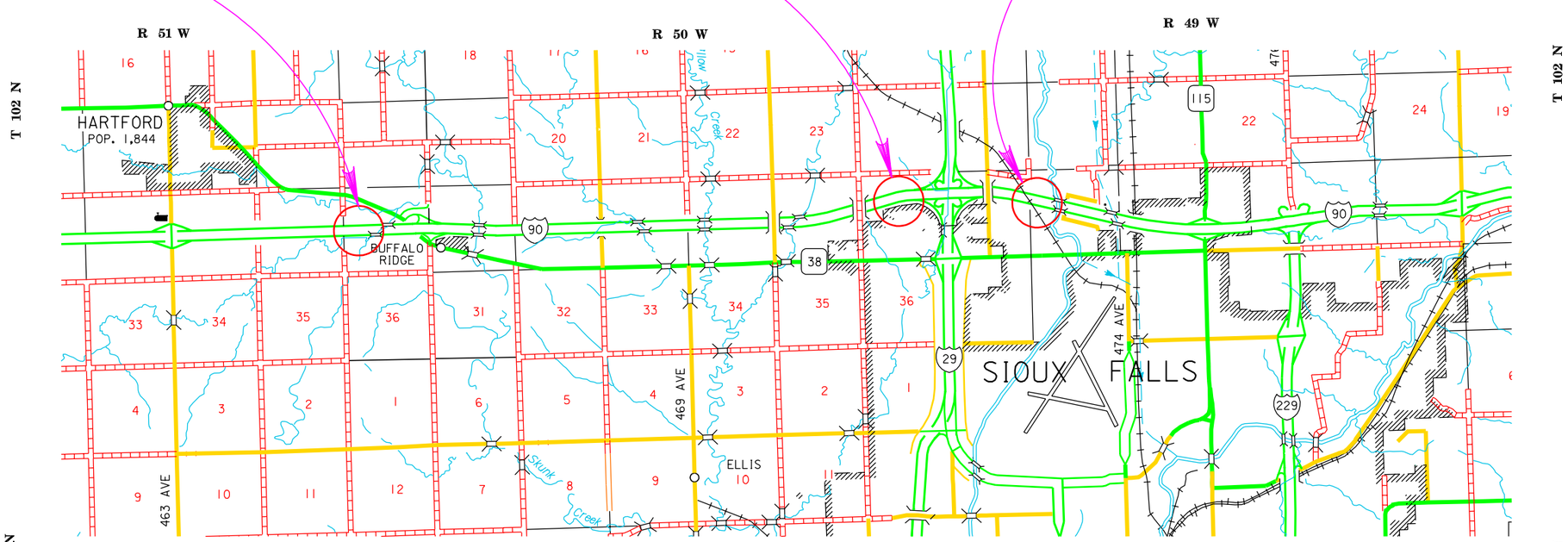
PCCP and Asphalt Concrete Median Crossovers
PCN 011J



BEGIN IM 90-9(74)390
Crossover #1
16+00.00

Crossover #2
349+00.00

End IM 90-9(74)390
Crossover #3
435+000.00



INDEX OF SHEETS

DESIGN DESIGNATION

ADT (2005)	19040
ADT (2025)	34075
DHV	3715
D	50%
T DHV	7.4%
T ADT	16.3%
V	55 mph

STORM WATER PERMIT
Major Stream: Big Sioux River
Area Disturbed: 1.3 Acres
Project Area: 1.5 Acres

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
120E0010	Unclassified Excavation	6,852	CuYd
120E9000	Pit Run Material	11,492.0	Ton
260E1010	Base Course	4,221.0	Ton
260E2010	Gravel Cushion	1,083.0	Ton
320E0006	PG 64 – 22 Asphalt Binder	106.1	Ton
320E1060	Asphalt Concrete Class G	1,830.0	Ton
320E3000	Compaction Sample	6	Each
330E0100	SS-1h or CSS -1h Asphalt for Tack	1.8	Ton
380E0050	8” Nonreinforced PCC Pavement	2,545.0	SqYd
380E6110	Insert Steel Bar in PCC Pavement	516	Each
450E4749	15” CMP 16 Gauge, Furnish	370	Ft
450E4750	15” CMP, Install	370	Ft
450E5402	15” CMP Safety End, Furnish	5	Each
450E5403	15” CMP Safety End, Install	5	Each
450E6119	15” Slotted CMP 16 Gauge, Furnish	360	Ft
450E6120	15” Slotted CMP, Install	360	Ft
462E0100	Class M6 Concrete	25.6	CuYd
462E0200	Controlled Density Fill	50.1	CuYd
634E0010	Flagging	40	Hour
634E0100	Traffic Control	2,678	Units
634E0120	Traffic Control Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	3	Each
634E1215	Contractor Furnished Portable Changeable Message Sign	3	Each
730E0100	Cover Crop Seeding	2	Bu
734E0602	Low Flow Silt Fence	100	Ft
734E0610	Mucking Silt Fence	12	CuYd
734E0620	Repair Silt Fence	25	Ft
831E0210	Non-woven Geotextile Separator	7,533	SqYd

SEQUENCE OF OPERATIONS

Work activities shall be performed during daylight hours only.

Lane closures shall only be used during working hours and shall be removed during non-working hours. Whenever practical, shoulder closures are strongly encouraged to minimize the disruption to traffic. The daily installation and removal of Traffic Control items shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

Lane closures will be allowed to remain overnight for three days while the Contractor is excavating for undercut.

COMPLETION DATE

The project shall be completed on or before October 27, 2006.

GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of permanent traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. Contractor’s employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work.

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies

Any parking of vehicles (construction or personal) on private property WILL NOT BE ALLOWED, unless written approval from the landowner has been given to the Contractor. The Contractor shall give a copy of the approval to the Engineer for his/her records.

The Traffic Control quantity was calculated utilizing three full lane closures (Plate No. 634.63) on the east and westbound lanes of I-90. Barriers as shown on Plate No. 634.61 will not be required if only day time closures are used. Additional channeling devices or vertical panels will be necessary to close the shoulder only. Engineer will determine if additional distance shall be added to Plate No. 634.61 to provide necessary safety for shoulder closure.

Shoulder Drop Off (W8-9a) signs shall be installed when lane closures are removed if the vertical drop is greater than 3 inches. Low Shoulder (W8-9) signs shall be installed when the lane closures are removed to warn of a shoulder condition where the vertical distance is 3 inches or less. A quantity of 6 each is included on the Itemized List for Traffic Control. Channelizing devices or vertical panels shall be used to clearly mark Shoulder Drop Off areas. A drop off greater than 1 foot will not be allowed adjacent to traffic. Slopes steeper than 3 to 1 will not be allowed adjacent to traffic.

Quantities for three “Truck Crossing” signs and three “Do Not Enter” signs have been provided for construction traffic entering and exiting the project. The “Truck Crossing” signs shall be installed 500 feet prior to entrance and/or exit of the project.

When entering/exiting through road closure barricades, the barricades shall be staggered longitudinally on the roadway so that all barricades can be seen by oncoming traffic. Barricades shall be replaced when construction traffic is not using the entrance/exit.

When entering/exiting into a closed lane through barrels or cones, a “Do Not Enter” sign shall be installed in the closed lane at the entrance/exit to keep out non-construction traffic.

Construction traffic will be allowed to enter from or exit onto the interstate provided that the construction traffic will be at highway speed when on the interstate and provided the entrance/exit is not within a head to head lane.

If needed, the Contractor shall provide Flaggers with “Flagger” signs to be used as ordered by the Engineer. A quantity of three each is included on the Itemized List for Traffic Control.

INCIDENTS

An incident is an emergency road user occurrence or unplanned event that impedes the flow of traffic such as an accident, hazardous materials spill, or similar event.

The Contractor shall set up a meeting prior to start of work to plan and coordinate the response to an incident. The Contractor will invite Department of Transportation, South Dakota Highway Patrol, City of Sioux Falls Police Department and local emergency response entities to the meeting.

The Contractor will be required to flag traffic, relocate signs, adjust traffic control devices, modify messages on portable changeable message signs or relocate portable changeable message signs as required to warn approaching motorists of the incident and resulting queued traffic.

In the event of an incident of expected extended duration, the Contractor may detour traffic as approved by the Engineer at the pre-construction meeting. Engineer approval must be obtained prior to the detour of the I-29 traffic for each incident.

The Contractor shall provide adequate personnel to accomplish the necessary traffic control work in the event of an incident.

No additional payment will be made for this work. Costs for this work shall be included in the contract unit price per unit for Traffic Control.

PORTABLE CHANGEABLE MESSAGE SIGNS

The Contractor shall program the portable changeable message signs near the project work limits with the following alternating messages for use during normal traffic flow:

LANE CLOSED AHEAD
MERGING RAMP TRAFFIC

OR

LANE CLOSED AHEAD
REDUCE SPEED

During peak times when traffic queues exist or during incident management:

TRAFFIC CONG AHEAD
BE PREPARED TO STOP

The Engineer shall approve alternate messages to fit project plans.

ITEMIZED LIST FOR TRAFFIC CONTROL

SIGN CODE	SIGN SIZE			DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-1	60"	x	24"	ROAD WORK NEXT ## MILES		27	
G20-2A	48"	x	24"	END ROAD WORK	3	24	72
R1-1	48"	x	48"	STOP		34	
R1-2	48"	x	48"	YIELD		34	
	36"	x	30"	TO ON COMING TRAFFIC		23	
R2-1	48"	x	60"	SPEED LIMIT ##	12	38	456
R2-5A	48"	x	60"	REDUCED SPEED AHEAD		38	
R2-5C	30"	x	36"	SPEED ZONE AHEAD		23	
R4-1	48"	x	60"	DO NOT PASS		38	
R4-2	30"	x	24"	PASS WITH CARE		18	
R4-7	24"	x	30"	KEEP RIGHT (SYMBOL)		18	
R4-8	24"	x	30"	KEEP LEFT (SYMBOL)		18	
R5-1	48"	x	48"	DO NOT ENTER	3	34	102
R5-1A	48"	x	36"	WRONG WAY		29	
R5-5C	60"	x	48"	NO VEHICLES OVER ## FT.		38	
R12-5D	84"	x	48"	WIDTH RESTRICTION ## MILES AHEAD		48	
W1-1	48"	x	48"	LEFT OR RIGHT TURN ARROW		34	
W1-2	48"	x	48"	LEFT OR RIGHT CURVE ARROW		34	
W1-3	48"	x	48"	REVERSE TURN SIGN (LEFT OR RIGHT)		34	
W1-4a	48"	x	48"	REVERSE CURVE SIGN (LEFT OR RIGHT)		34	
W1-6	48"	x	24"	LARGE ARROW		24	
W1-7	48"	x	24"	LARGE ARROW - HORZ. DOUBLE HEAD		24	
W3-1A	48"	x	48"	STOP AHEAD (SYMBOL)		34	
W3-5	48"	x	48"	SPEED LIMIT XX AHEAD (SYMBOL)	6	34	204
	30"	x	24"	FINES DOUBLED	6	18	108
W4-2	48"	x	48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	6	34	204
W6-3	48"	x	48"	TWO WAY TRAFFIC (SYMBOL)		34	
W7-3a	30"	x	24"	NEXT XX MILES		18	
W8-1	48"	x	48"	BUMP		34	
W8-6	48"	x	48"	TRUCK CROSSING	3	34	102
W8-7	48"	x	48"	LOOSE GRAVEL		34	
W8-9	48"	x	48"	LOW SHOULDER	3	34	102
W8-9a	48"	x	48"	SHOULDER DROP OFF	3	34	102
W12-1	36"	x	36"	DOUBLE ARROW		27	
W13-1	24"	x	24"	ADVISORY SPEED PLATE		16	
W13-2	30"	x	36"	EXIT SPEED LIMIT		23	
W20-1	48"	x	48"	ROAD WORK #### FT. OR AHEAD	8	34	272
W20-2	48"	x	48"	DETOUR #### FT. OR AHEAD		34	
W20-3	48"	x	48"	ROAD CLOSED #### FT. OR AHEAD		34	
W20-4	48"	x	48"	ONE LANE ROAD #### FT. OR AHEAD		34	
W20-5	48"	x	48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	6	34	204
W20-7a	48"	x	48"	FLAGGER	3	34	102
W20-7b	48"	x	48"	BE PREPARED TO STOP		34	
W21-1a	48"	x	48"	WORKERS (SYMBOL)		34	
W21-2	48"	x	48"	FRESH OIL		34	
W21-5	48"	x	48"	SHOULDER WORK		34	
W21-5a	48"	x	48"	LEFT SHOULDER CLOSED	6	34	204
W21-5b	48"	x	48"	LEFT SHOULDER CLOSED AHEAD	6	34	204
*****	*****			TYPE III BARRICADE - 8 FT. SINGLE SIDED	6	40	240
						GRAND TOTAL	**2678**

SURFACING THICKNESS DIMENSIONS

Plans tonnage 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 tonnage may be varied to achieve the required elevation.

SAWING IN EXISTING SURFACING

Where new Portland Cement Concrete Pavement (PCCP) or new asphalt concrete is placed adjacent to existing asphalt concrete or PCCP, the existing pavement shall be sawed full depth to a true line with a vertical face. No separate payment shall be made for sawing.

STEEL BAR INSERTION

For the PCC Crossover located at station 434+00, the Contractor shall insert the Steel Bars (No. 5 x 24 inch epoxy coated deformed tie bars) into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole.

The steel bars shall be cut to the specified length by sawing or shearing and shall be free from burring or other deformations.

Epoxy coated deformed steel bars shall be inserted on 30 inch centers in the longitudinal joint and shall be placed a minimum of 15 inches from the existing transverse contraction joint.

Epoxy resin adhesive shall be of the type intended for horizontal applications, and shall conform to the requirements of ASTM C 881, Type IV, Grade 3 (equivalent to AASHTO M235, Type IV, Grade 3).

The diameter of the drilled holes in the existing concrete pavement for the steel bars shall not be less than 1/8 inch nor more than 3/8 inch greater than the overall diameter of the steel bar. Holes drilled into the existing concrete pavement shall be located at mid-depth of the slab and true and normal. The drilled holes shall be blown out with compressed air using a device that will reach to the back of the hole to ensure that all debris or loose material has been removed prior to epoxy injection.

Mix the epoxy resin as recommended by the manufacturer and apply by an injection method approved by the Engineer. If an epoxy pump is utilized, it shall be capable of metering the components at the manufacturer's designated rate and be equipped with an automatic shut-off. The pump shall shut off when any of the components are not being metered at the designated rate. Fill the drilled holes 1/3 to 1/2 full of epoxy, or as recommended by the manufacturer, prior to insertion of the steel bar. Care shall be taken to prevent epoxy from running out of the horizontal holes prior to steel bar insertion. Rotate the steel bar during insertion to eliminate voids and ensure complete bonding of the bar. Insertion of the bars by the dipping method will not be allowed.

Cost for the epoxy resin adhesive, steel bars, drilling of holes, applying the adhesive, inserting the steel bars into the drilled holes and all other items incidental to the insertion of the steel bars shall be incidental to the contract unit price per each for INSERT STEEL BAR IN PCC PAVEMENT.

TABLE OF STEEL BAR INSERTION

LOCATION	Quantity of No. 5 Bars
Sta. 430+79-24'L to 437+21-24' L	258
Sta. 430+79-24'L to 437+21-24' R	258
Totals:	516

REMOVAL OF EXISTING ASPHALT SHOULDERS

All cost associated with removal of the existing asphalt concrete shoulders shall be included in the contract unit price per yard for Unclassified Excavation.

WATER FOR COMPACTION

Cost of water for compaction of the granular material shall be incidental to the contract unit prices for the various contract items. The moisture required at the time of compaction will be 6%± unless otherwise directed by the Engineer.

The Contractor shall not withdraw water directly from streams in watersheds of the James, Vermillion, and Big Sioux Rivers without prior approval from the SDDOT Environmental Office, contact Dave Graves at (605) 773-5727. Water may be obtained from other sources not directly connected to these streams such as stock dams, wetlands, or wells. This note does not relieve the Contractor of his/her responsibility to obtain the necessary permits from other agencies such as DENR (South Dakota Department of Environment and Natural Resources) and COE (Corps of Engineers).

PIT RUN MATERIAL

Pit Run will be material obtained from a granular source and will conform to the following gradation:

Sieve	% Passing
6"	100
#4	0-60
#200	0-20

Acceptance of Pit Run will be by visual inspection. The Engineer may require a sieve analysis to be performed to verify that the material meets the specified gradation. Independent Assurance will not be required.

The excavated undercut material will be disposed of by the Contractor. It is the Contractor's responsibility to located a disposal site and obtain the necessary agreements and permits.

Pit Run Material will be placed as shown in the typical sections. Lift thickness will be a maximum of 8". Compaction will be in accordance with the Specified Density Method.

Nonwoven Geotextile Separator Fabric has been included in the bid items. This fabric is to be used as a separator between the Pit Run Material and the Gravel Cushion to prevent the migration of fines from the Gravel Cushion into the Pit Run. If the Pit Run Material contains enough fines as placed to prevent loss of material from the Gravel Cushion, the separator fabric can be eliminated by CCO. Non-woven Geotextile Separator Fabric will conform to Section 831, Standard Specifications.

15" CORRUGATED METAL PIPE TEES AND ELBOWS

All costs associated with furnishing and installing the 15" Corrugated metal elbows, tees, and other appurtenances shall be incidental to the contract unit price per foot for 15" Corrugated Metal Pipe. Separate payment shall not be made for these items.

SALVAGING, STOCKPILING, AND PLACING TOPSOIL

Prior to starting construction operations, a sufficient volume of topsoil shall be removed from the construction limits to cover the disturbed areas to the required thickness as indicated in these plans.

Following completion of grading operations, topsoil shall be spread evenly over the disturbed areas. The thickness will be approximately 4 inches within the right-of-way.

The salvaged topsoil can be stored on site in a method that does not cause a safety concern to the traveling public.

CLASS G ASPHALT CONCRETE

Mineral Aggregate for Asphalt Concrete shall conform to the requirements for Class G, Type 1.

The Moisture Sensitivity requirement shall be waived. All other requirements for a Class G shall apply.

CLASS M6 CONCRETE

All costs for furnishing and installing the Class M6 Concrete, including #5 Epoxy Coated Reinforcing Bars, labor, materials, equipment and incidentals necessary to complete the work shall be incidental to the contract unit price per cubic yard for Class M6 Concrete. Plans quantity will be the basis of payment unless otherwise ordered by the Engineer.

CONTROLLED DENSITY FILL FOR PIPE

Controlled density fill shall be a flowable mortar material. Materials shall be in accordance with the Standard Specifications, except as modified below. The mix shall be as follows:

Material	Rate per Cubic Yard
Portland Cement, Type II	100 Lb
Fine Aggregate	2600 Lb
Coarse Aggregate	None
Water	60 Gal
Fly Ash, Type C	300 Lb

The fine aggregate shall be natural sand consisting of mineral aggregate particles conforming to the following gradation requirements:

Passing 3/8 Inch Sieve	100%
Passing No. 200 Sieve	0-10%

The Engineer may adjust the proportion of water at the site to provide the necessary consistency of the mix.

Controlled density fill shall be contained within the required limits with sandbags or other methods approved by the Engineer. The Contractor shall prevent the flotation or movement of the culvert due to the buoyant force from the controlled density fill until the controlled density fill hardens.

All costs for furnishing and installing the controlled density fill, including sandbags, labor, materials, equipment and incidentals necessary to complete the work shall be incidental to the contract unit price per cubic yard for “Controlled Density Fill.”

Plans quantity will be the basis for payment unless otherwise ordered by the Engineer.

COVER CROP SEEDING

The areas to be cover crop seeded shall be all non-paved areas disturbed by cross over construction and as directed by the Field Engineer. The quantity of cover crop seeding represents 2.0 acres.

Total seeding rate for cover crop shall be one bushel (56 pounds) per acre.

The contract unit price per bushel for “Cover Crop Seeding” will not be adjusted due to variations in quantity of cover crop seeding.

LOW FLOW SILT FENCE

The low flow silt fence fabric provided shall be from the approved product list. The approved product list for low flow silt fence may be viewed at the following internet site:

http://www.state.sd.us/Applications/HC54ApprovedProducts/main.asp

Low flow silt fence shall be placed at the locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.04 for details.

HORIZONTAL ALIGNMENT DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 90-9(00)390	6	19

I90 ALIGNMENT

TYPE	Station				Northing (Y)	Easting (X)
POB	10+00.00				483667.1128	2875479.8017
		TL= 4236.0870		N 87°29'55" E		
PC	52+36.09				483851.9894	2879711.8524
PI	62+15.66	Dc= 0°10'00"R	Delta=	3°15'52"	483894.7413	2880690.4954
PT	71+94.71				483881.6967	2881669.9848
		TL= 1738.2380		S 89°14'13" E		
PC	89+32.95				483858.5494	2883408.0687
PI	99+43.69	Dc= 0°10'00"L	Delta=	3°22'05"	483845.0898	2884418.7252
PT	109+53.86				483891.0316	2885428.4267
		TL=15837.8513		N 87°23'41" E		
PI	267+91.71				484610.9143	2901249.9090
		TL= 917.4536		N 87°23'41" E		
PC	277+09.16				484652.6156	2902166.4145
PI	292+40.15	Dc= 0°30'00"L	Delta=	15°13'07"	484722.2042	2903695.8213
PT	307+53.12				485190.8267	2905153.3262
		TL= 2350.2656		N 72°10'34" E		
PC	331+03.38				485910.2226	2907390.7841
PI	347+25.08	Dc= 0°28'00"R	Delta=	15°02'51"	486406.6097	2908934.6422
PT	363+28.11				486485.1566	2910554.4349
		TL= 3662.0150		N 87°13'26" E		
PC	399+90.13				486662.5265	2914212.1520
PI	407+37.69	Dc= 1°00'00"R	Delta=	14°52'03"	486698.7336	2914958.8420
PT	414+76.86				486542.1387	2915689.8243
		TL= 1111.3733		S 77°52'11" E		
PI	425+88.24				486308.5991	2916776.3830
		TL= 1660.6549		S 77°58'27" E		
PI	442+48.89				485962.5996	2918400.5933
		TL= 3489.1879		S 77°58'41" E		
POE	477+38.08				485235.8450	2921813.2550

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 90-9(00)390	7	19

Plotting Date: 27-JUL-2006

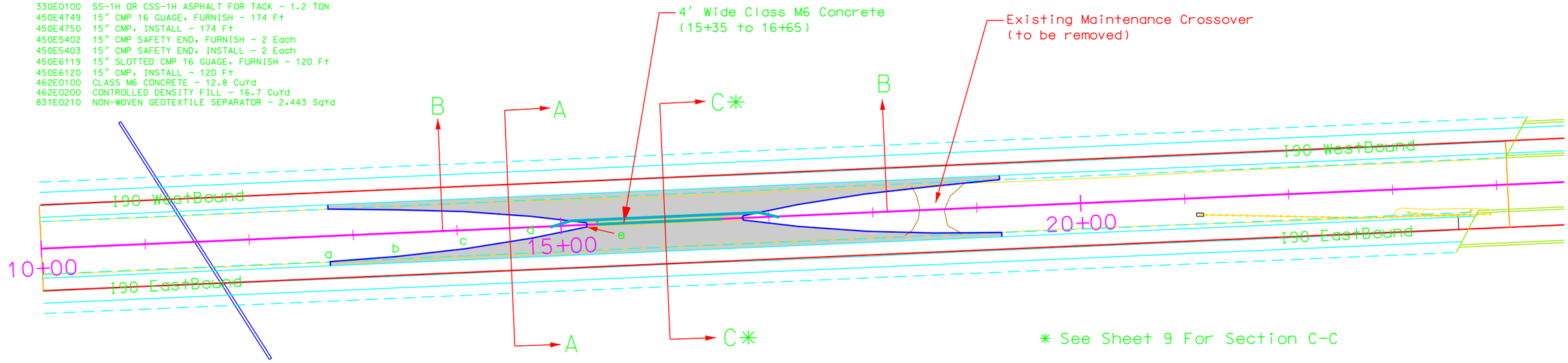
Asphalt Concrete Median Crossover
Interstate 90
Sta. 16+00 (West of Exit 390)

	60' MEDIAN-4' AC Shoulder	
•Point	Sta	offset
a	12+77	26.0' R
b	13+42	22.5' R
c	14+07	18.0' R
d	14+72	10.5' R
e	15+25	2.0' R

• Points are symetrical in all quadrants

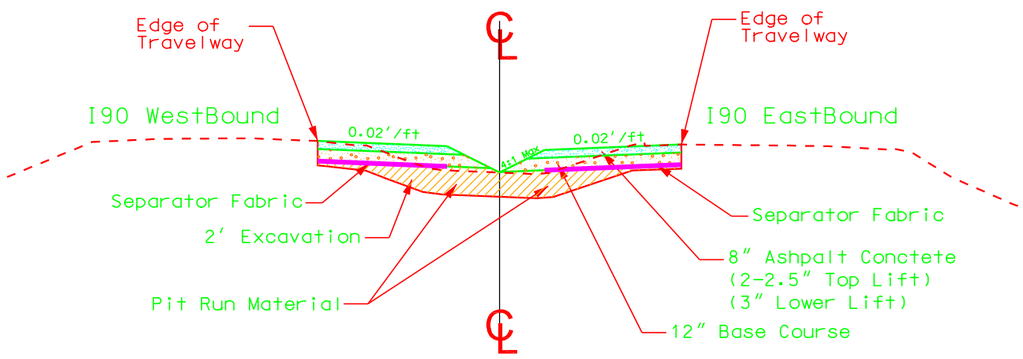
BID ITEM NO. — CROSSOVER QUANTITIES

120E0010 UNCLASSIFIED EXCAVATION - 2453 CuYd
120E9000 PIT RUN MATERIAL - 3794 Ton
260E1010 BASE COURSE - 2077 Ton
320E0006 PG 64 - 22 ASPHALT BINDER - 65.6 Ton
320E1060 CLASS G ASPHALT CONCRETE - 1131 Ton
320E3000 COMPACTION SAMPLE - 3 Each
330E0100 SS-1H OR CSS-1H ASPHALT FOR TACK - 1.2 TON
450E4749 15" CMP 16 GUAGE, FURNISH - 174 Ft
450E4750 15" CMP, INSTALL - 174 Ft
450E5402 15" CMP SAFETY END, FURNISH - 2 Each
450E5403 15" CMP SAFETY END, INSTALL - 2 Each
450E6119 15" SLOTTED CMP 16 GUAGE, FURNISH - 120 Ft
450E6120 15" CMP, INSTALL - 120 Ft
462E0100 CLASS M6 CONCRETE - 12.8 CuYd
462E0200 CONTROLLED DENSITY FILL - 16.7 CuYd
831E0210 NON-WOVEN GEOTEXTILE SEPARATOR - 2,443 SqYd



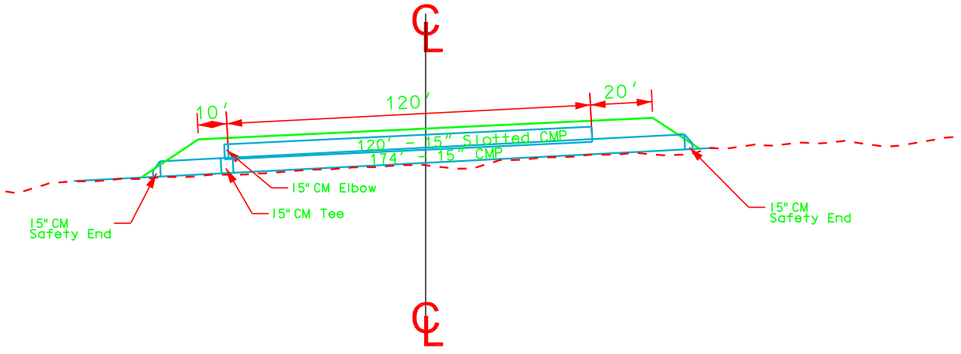
* See Sheet 9 For Section C-C

Median



CROSS OVER TYPICAL SECTION A-A

Crossover



CROSS OVER TYPICAL SECTION B-B

PLOT SCALE - 100.000000:1.000000
PLOT NAME - 07
FILE - U:\RAD\PRJ\MINN011JX010.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 90-9(00)390	8	19

Plotting Date: 27-JUL-2006

Asphalt Concrete Median Crossover
Interstate 90
Sta. 349+00 (West of Exit I90 Interchange)

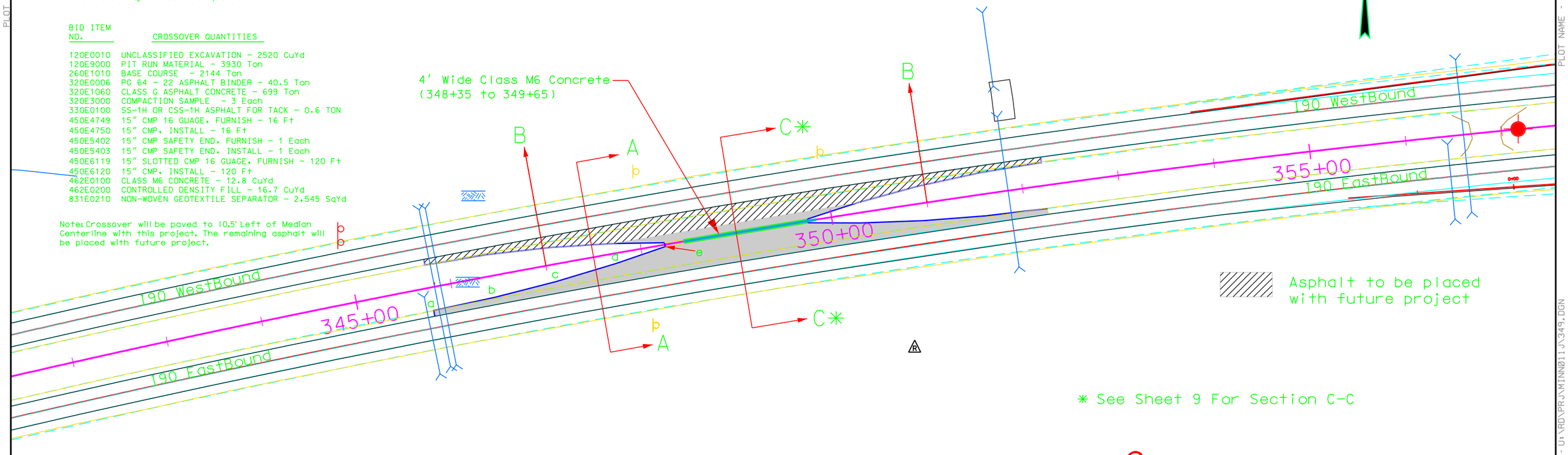
	60' MEDIAN-6' AC Shoulder	
•Point	Sta	offset
a	345+77	24.0' R
b	346+42	22.5' R
c	347+07	18.0' R
d	347+72	10.5' R
e	348+25	2.0' R

• Points are symetrical in all quadrants

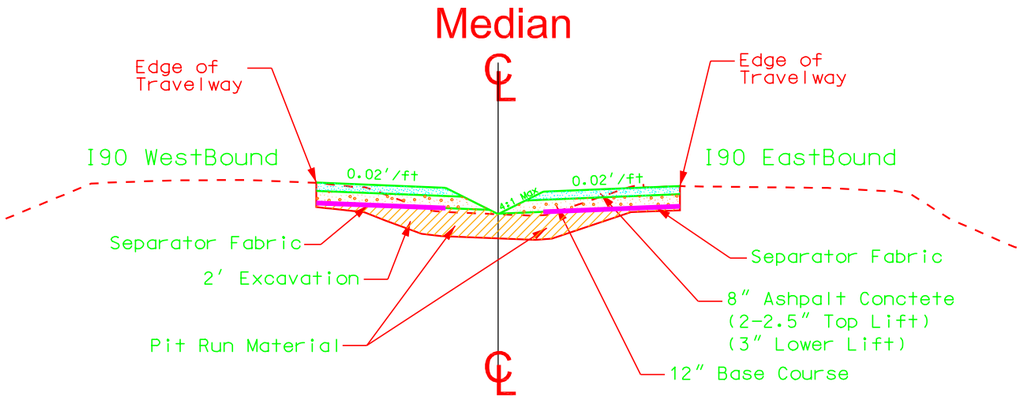
BID ITEM NO. — CROSSOVER QUANTITIES

120E0010	UNCLASSIFIED EXCAVATION - 2520 CuYd
120E9000	PIT RUN MATERIAL - 3930 Ton
260E1010	BASE COURSE - 2144 Ton
320E0006	PG 64 - 22 ASPHALT BINDER - 40.5 Ton
320E1060	CLASS G ASPHALT CONCRETE - 699 Ton
320E3000	COMPACTION SAMPLE - 3 Each
330E0100	SS-1H OR CSS-1H ASPHALT FOR TACK - 0.6 TON
450E4749	15" CMP 16 GUAGE, FURNISH - 16 Ft
450E4750	15" CMP, INSTALL - 16 Ft
450E5402	15" CMP SAFETY END, FURNISH - 1 Each
450E5403	15" CMP SAFETY END, INSTALL - 1 Each
450E6119	15" SLOTTED CMP 16 GUAGE, FURNISH - 120 Ft
450E6120	15" CMP, INSTALL - 120 Ft
462E0100	CLASS M6 CONCRETE - 12.8 CuYd
462E0200	CONTROLLED DENSITY FILL - 16.7 CuYd
831E0210	NON-WOVEN GEOTEXTILE SEPARATOR - 2.545 SqYd

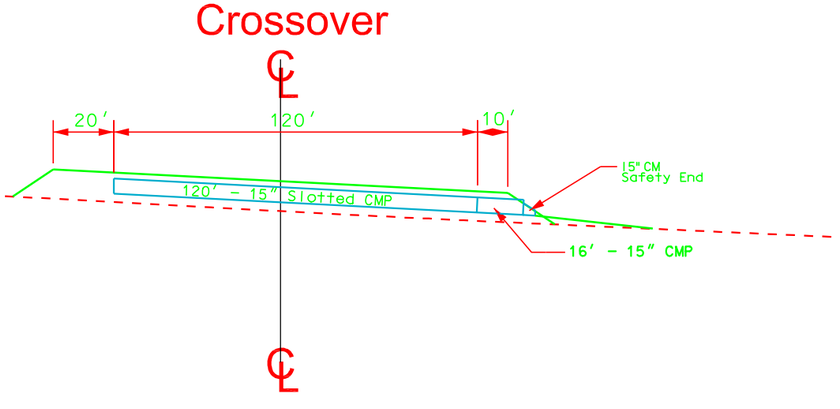
Note: Crossover will be paved to 10.5' Left of Median Centerline with this project. The remaining asphalt will be placed with future project.



* See Sheet 9 For Section C-C



CROSS OVER TYPICAL SECTION A-A



CROSS OVER TYPICAL SECTION B-B

PLOT SCALE - 100.000000:1.000000

PLOTTED FROM - TRSF12144

PLOT NAME - Ø8

FILE - U:\RD\PROJ\M1NN0111JV349.DGN

PLOT SCALE - 100.000000:1.000000

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 90-9(00)390	9	19

Plotting Date: 27-JUL-2006

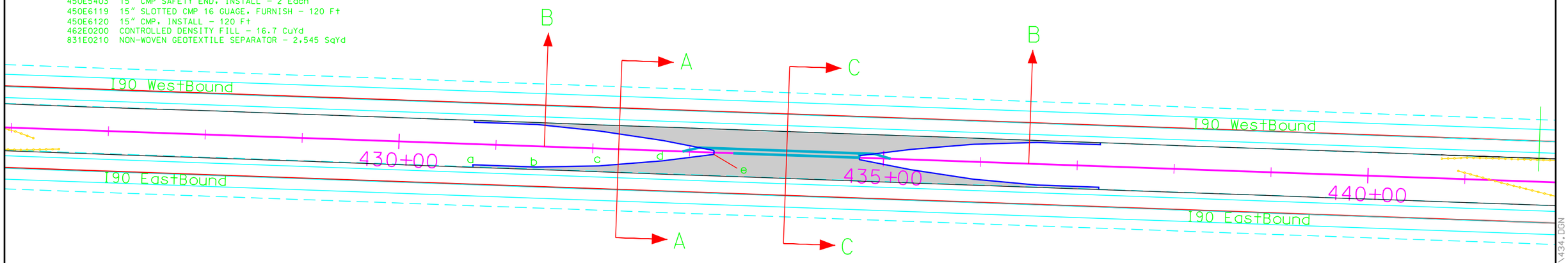
PCCP Median Crossover
Interstate 90
Sta. 434+00 (West of Big Sioux River)

	60' MEDIAN-6' PCCP Shoulder	
•Point	Sta	offset
a	430+77	22.5' R
b	431+42	22.5' R
c	432+07	18.0' R
d	432+72	10.5' R
e	433+25	2.0' R

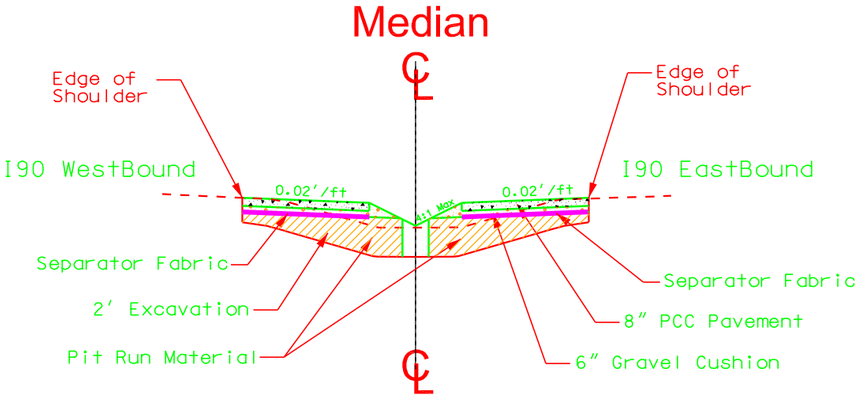
• Points are symetrical in all quadrants

BID ITEM NO. — CROSSOVER QUANTITIES

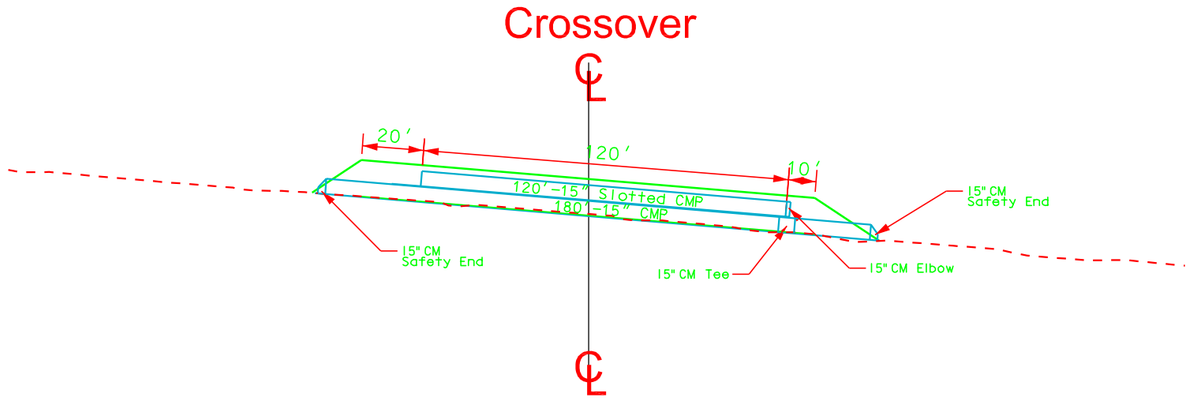
120E0010	UNCLASSIFED EXCAVATION - 1879 CuYd
120E9000	PIT RUN MATERIAL - 3768 Ton
260E2010	GRAVEL CUSHION - 1083 Ton
380E0050	8" NON REIN. PCC PAVEMENT - 2545 SqYd
380E6110	INSERT STEEL BAR IN PCC PAVEMENT - 516 Each
450E4749	15" CMP 16 GUAGE, FURNISH - 180 Ft
450E4750	15" CMP, INSTALL - 180 Ft
450E5402	15" CMP SAFETY END, FURNISH - 2 Each
450E5403	15" CMP SAFETY END, INSTALL - 2 Each
450E6119	15" SLOTTED CMP 16 GUAGE, FURNISH - 120 Ft
450E6120	15" CMP, INSTALL - 120 Ft
462E0200	CONTROLLED DENSITY FILL - 16.7 CuYd
831E0210	NON-WOVEN GEOTEXTILE SEPARATOR - 2,545 SqYd



* See Sheet 9 For Section C-C



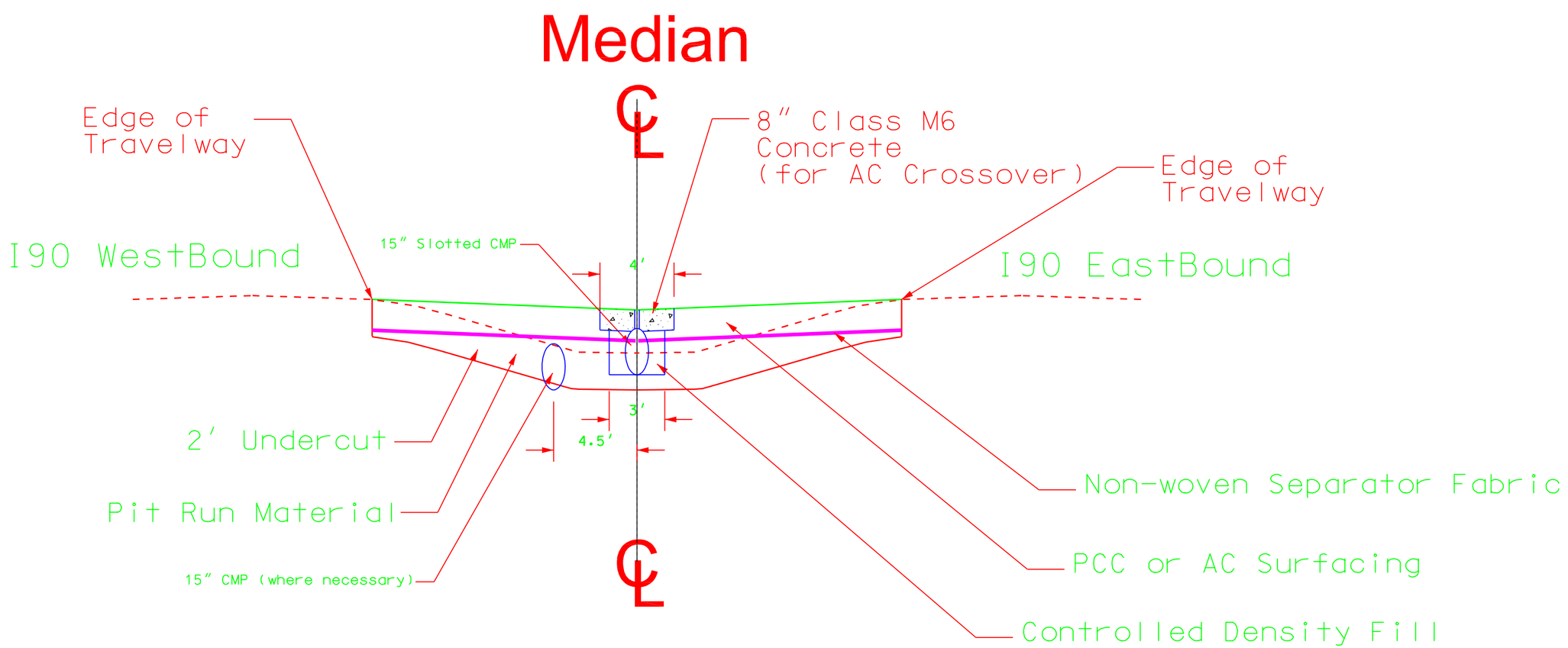
CROSS OVER TYPICAL SECTION A-A



CROSS OVER TYPICAL SECTION B-B

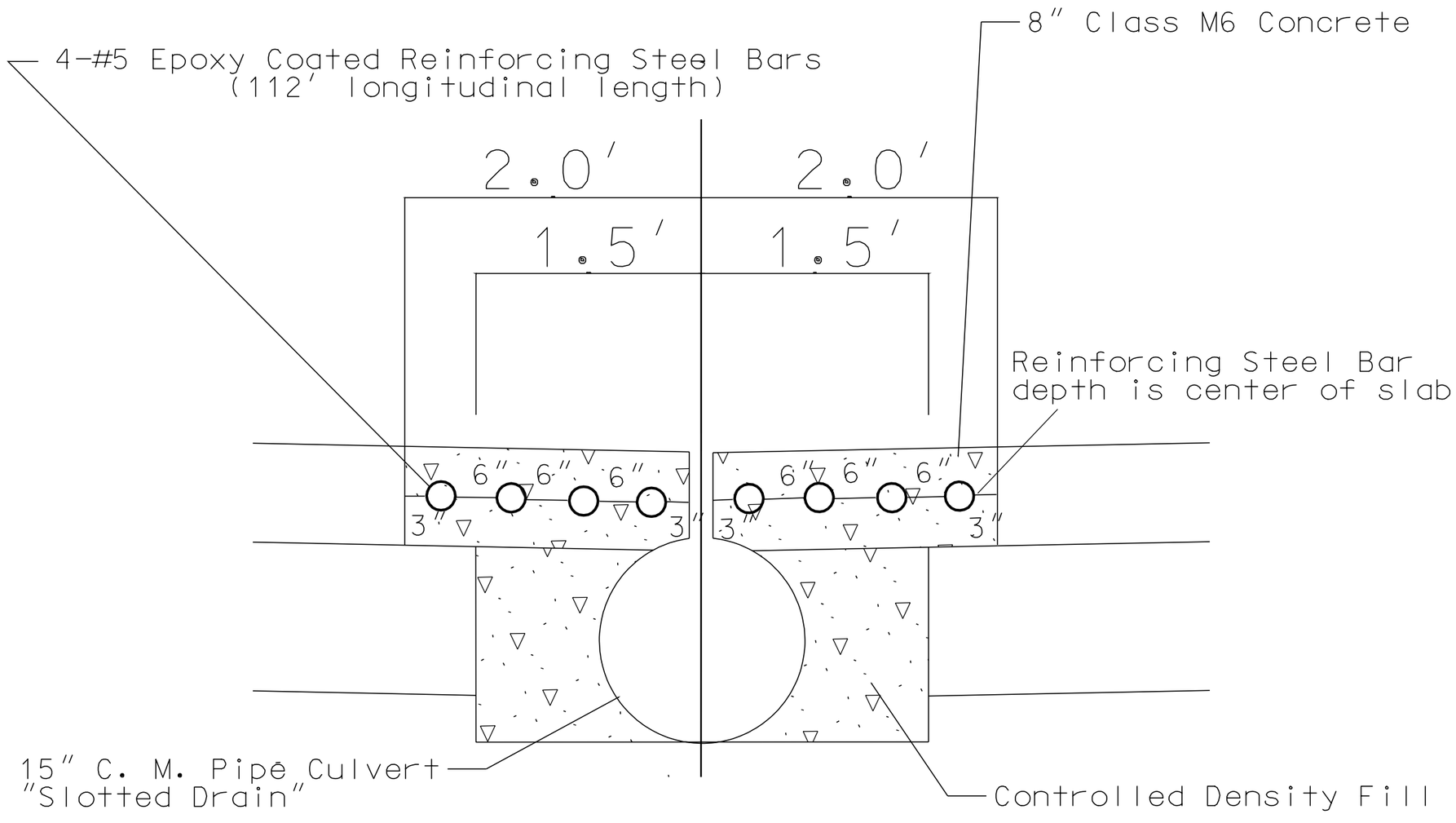
PLOTTED FROM - TRSF12144
PLOT NAME - 09
FILE - U:\RD\PROJ\M1NN0111J\434.DGN

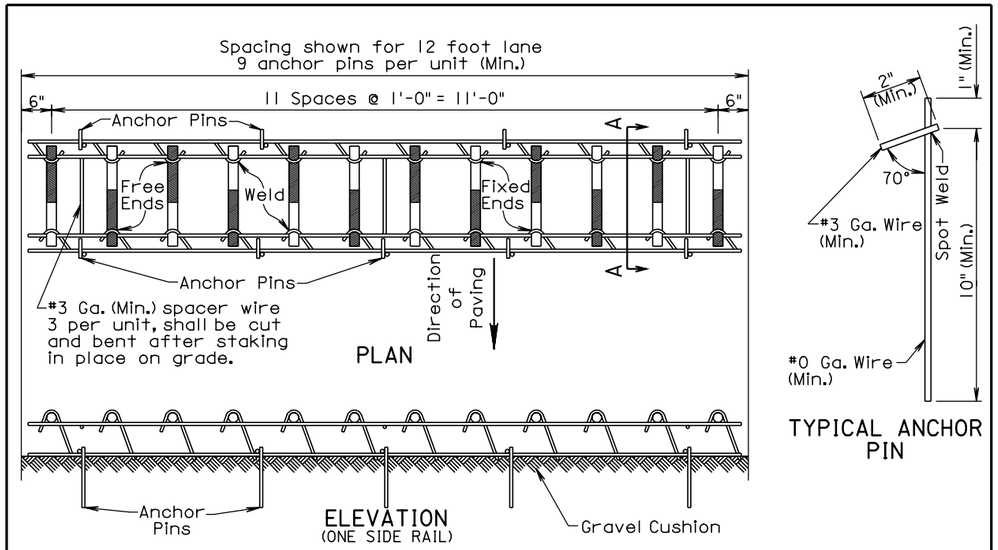
Slotted Median Drain
Typical Section



CROSS OVER TYPICAL SECTION C-C

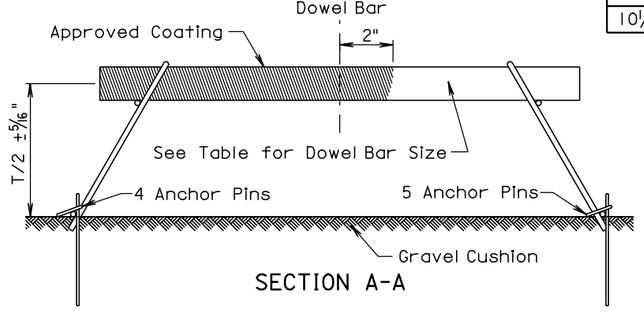
Detail for Epoxy Coated Bars in Class M6 Concrete



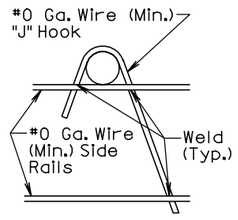


TYPICAL ANCHOR PIN

Pavement Thickness	Epoxy Coated Dowel Bar Size
8" to 10"	1¼" x 18"
10½" to 12"	1½" x 18"



SECTION A-A



SIDE RAIL DETAIL

GENERAL NOTES:

Longitudinal construction joint tie bars shall be placed a minimum of 15 inches from the transverse contraction joint.

Centerline of individual dowel bars shall be parallel to top of subgrade ±1/8 inch in 18 inches and to all other dowel bars in the assembly ±1/16 inch in 18 inches.

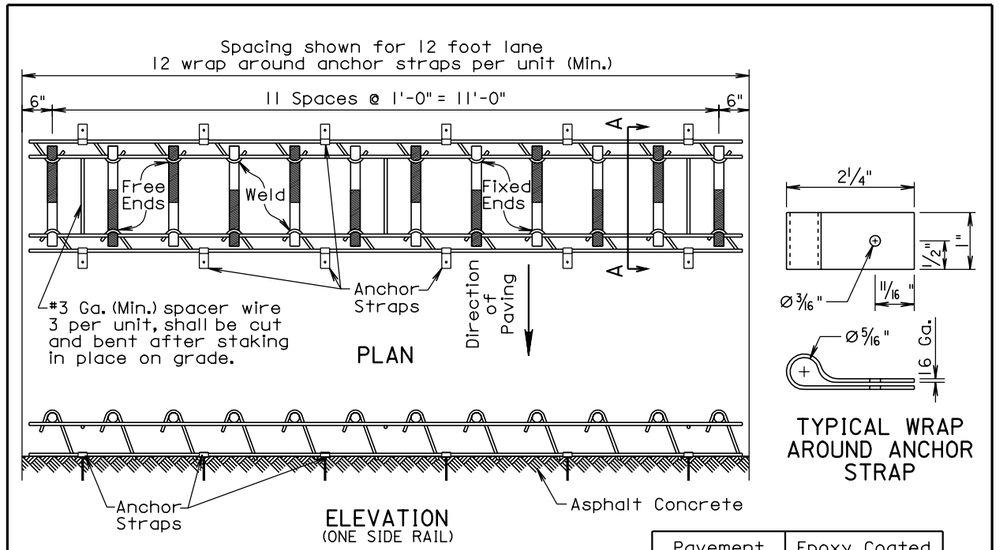
Centerline of individual dowel bars shall be parallel to the centerline of the roadway ±1/2 inch in 18 inches.

The transverse contraction joints shall be sawed perpendicular to the centerline of the roadway and the dowel bars shall be centered on the sawed joint ± 1 inch.

Supporting devices of the type shown on this sheet, or equivalent as approved by the Engineer, shall be used to maintain proper horizontal and vertical alignment of the dowel bars.

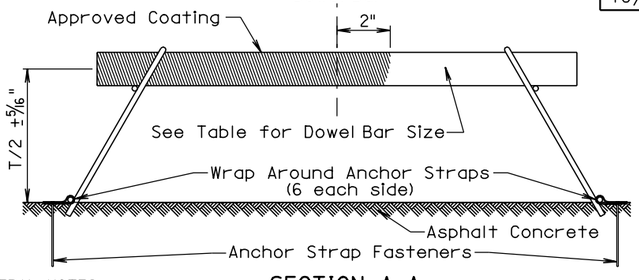
December 23, 2004

Published Date: 3rd Qtr. 2006	SDDOT	PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS	PLATE NUMBER 380.01
			Sheet 1 of 1

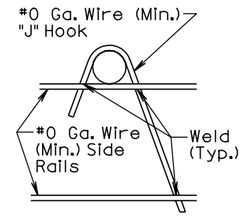


TYPICAL WRAP AROUND ANCHOR STRAP

Pavement Thickness	Epoxy Coated Dowel Bar Size
8" to 10"	1¼" x 18"
10½" to 12"	1½" x 18"



SECTION A-A



SIDE RAIL DETAIL

GENERAL NOTES:

Longitudinal construction joint tie bars shall be placed a minimum of 15 inches from the transverse contraction joint.

Centerline of individual dowel bars shall be parallel to top of subgrade ±1/8 inch in 18 inches and to all other dowel bars in the assembly ±1/16 inch in 18 inches.

Centerline of individual dowel bars shall be parallel to the centerline of the roadway ±1/2 inch in 18 inches.

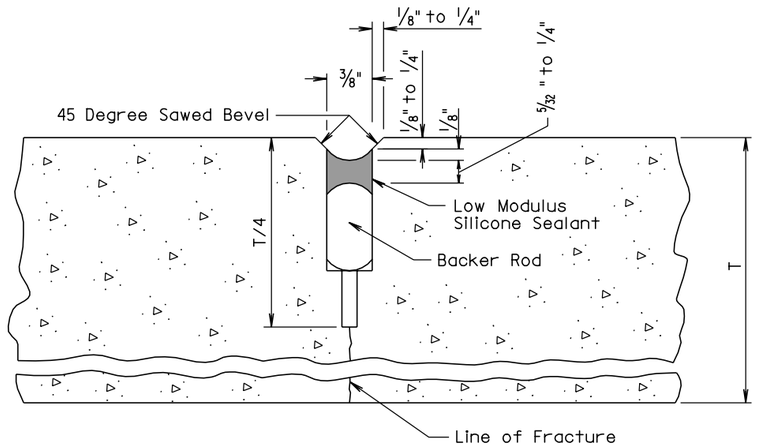
The transverse contraction joints shall be sawed perpendicular to the centerline of the roadway and the dowel bars shall be centered on the sawed joint ± 1 inch.

Supporting devices of the type shown on this sheet, or equivalent as approved by the Engineer, shall be used to maintain proper horizontal and vertical alignment of the dowel bars.

Appropriate strap fasteners shall be used to prevent movement of the dowel bar assemblies during the paving operation.

December 23, 2004

Published Date: 3rd Qtr. 2006	SDDOT	PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS	PLATE NUMBER 380.02
			Sheet 1 of 1



T = Pavement Thickness

GENERAL NOTES:

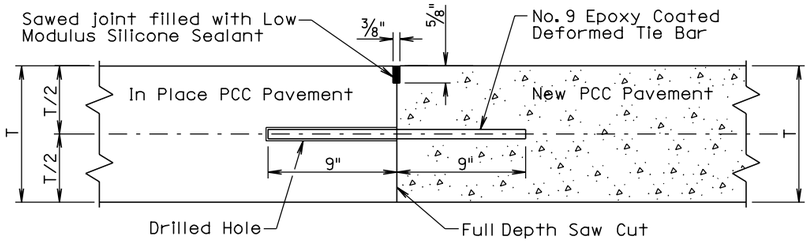
The first saw cut to control cracking shall be a minimum of 1/4 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the low modulus silicone joint sealant will be necessary.

The backer rod shall be a nonmoisture absorbing resilient material approximately 25% larger in diameter than the width of the joint to be sealed.

September 14, 2001

Published Date: 3rd Qtr. 2006	SDDOT	**PCC PAVEMENT BEVELED TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY**	PLATE NUMBER 380.04 Sheet 1 of 1

TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

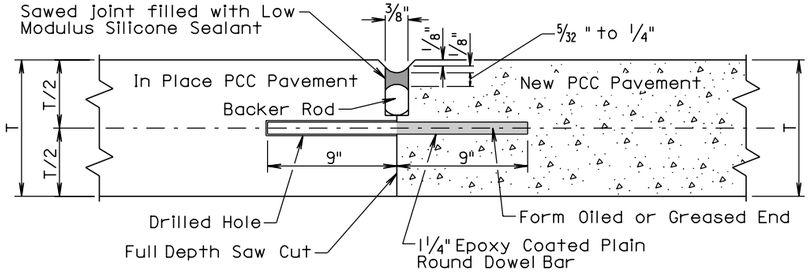
This detail shall be used when the transverse joint is less than 15 feet from the existing transverse contraction joint.

The tie bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

No. 9 epoxy coated deformed tie bars shall be spaced 18 inches center to center and shall be a minimum of 3 inches and a maximum of 9 inches from the pavement edges.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

This detail shall be used when the transverse joint is 15 feet or greater from the existing transverse contraction joint.

The plain round dowel bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

The 1 1/4" epoxy coated plain round dowel bars shall be spaced 12 inches center to center and shall be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

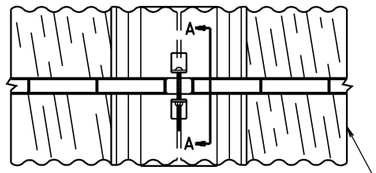
The backer rod shall be a nonmoisture absorbing resilient material approximately 25% larger in diameter than the width of the joint to be sealed.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

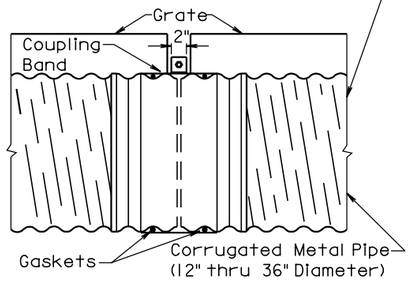
September 14, 2001

Published Date: 3rd Qtr. 2006	SDDOT	**PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS**	PLATE NUMBER 380.06 Sheet 1 of 1

TYPICAL COUPLING BAND

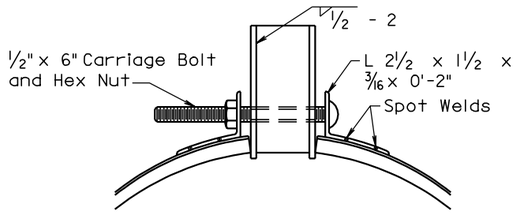


TOP VIEW

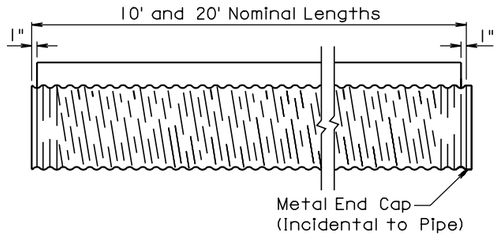


FRONT VIEW

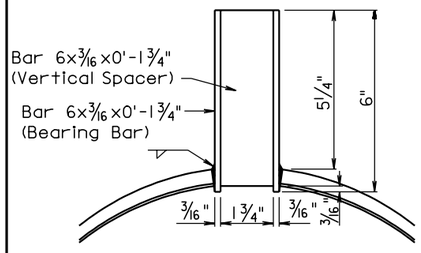
2⅔" x ½" Corrugations



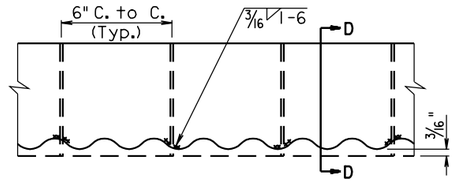
SECTION A-A



TYPICAL SECTION



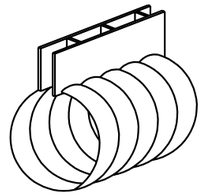
SECTION D-D



GRATE SLOT WELDING DETAIL

March 31, 2000

Published Date: 3rd Qtr. 2006	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.

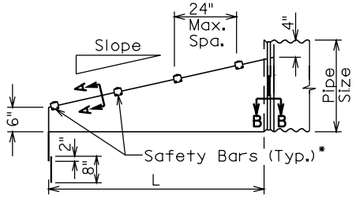
Slotted Drain will be paid for at the contract unit price per Foot of Slotted C.M.P. Payment will be full compensation for materials, labor, equipment, and incidentals required.

March 31, 2000

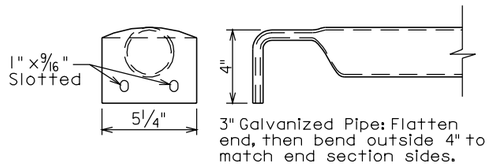
Published Date: 3rd Qtr. 2006	SDDOT	SLOTTED C.M.P. DRAIN	PLATE NUMBER 450.31 Sheet 2 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 90-9(00)390	15	19

Plotting Date: 27-JUL-2006

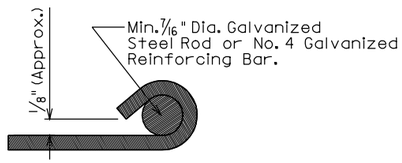


SIDE ELEVATION

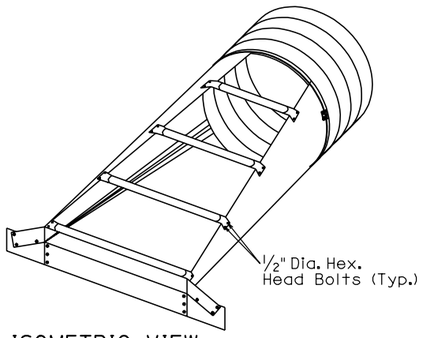


DETAIL OF SAFETY BARS

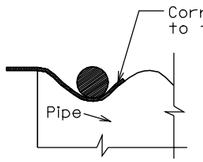
* Number of bars required will vary depending on the length of the End Section.



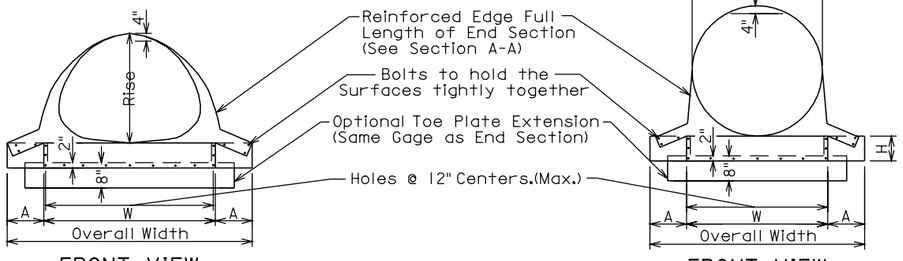
SECTION A-A



ISOMETRIC VIEW

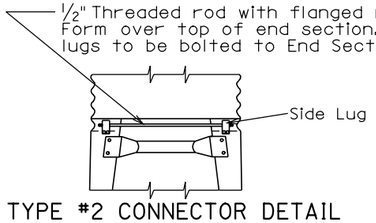


SECTION B-B

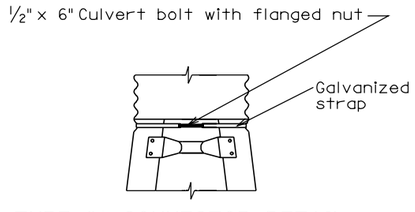


FRONT VIEW

FRONT VIEW



TYPE #2 CONNECTOR DETAIL
For 30" and Larger
21" x 15" and Larger



TYPE #1 CONNECTOR DETAIL
15" Through 24"

March 31, 2000

Published Date: 3rd Qtr. 2006	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 1 of 2

ARCH C.M.P. SAFETY ENDS

Equv. Dia. (In.)	(Inches)		Min. Thick.		Dimensions (Inches)			L Dimensions		
	Span	Rise	In.	Gage	A	H	W	Overall Width	Slope	Length (In.)
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. (In.)	Min. Thick.		Dimensions (Inches)				L Dimensions	
	In.	Gage	A	H	W	Overall Width	Slope	Length (In.)
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 bars shall be attached to safety ends over 24" in diameter only.

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

Safety bars shall be fabricated from steel pipe conforming to the requirements of ASTM A-53 Schedule 40 Specifications.

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 Standard Specifications.

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.

March 31, 2000

Published Date: 3rd Qtr. 2006	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 2 Of 2

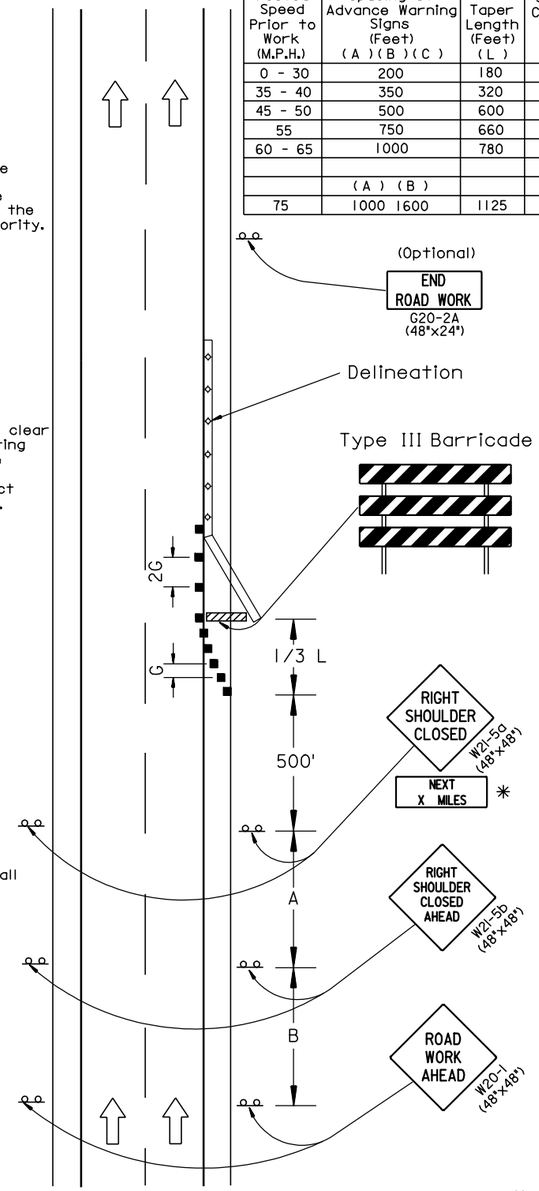
Username - trsf12144

Plotting Date: 27-JUL-2006

1. The barrier in this diagram shows one method that may be used to close a shoulder of a long term project. The use of a barrier should be based on the need determined by the Highway Authority.

2. Barriers should be flared beyond the clear zone to prevent vehicles from impacting their leading ends. Flare rate shall be 11:1. An alternative procedure is to place an impact attenuator to protect traffic from the end of the barrier.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)(B)(C)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45 - 50	500	600	50
55	750	660	50
60 - 65	1000	780	50
	(A) (B)		
75	1000 1600	1125	50



■ - Channelizing Devices
Drums or Type II Barricades shall be used.

▭ - Concrete Barrier

* - For distances ½ mile or greater.

March 31, 2000

Published Date: 3rd Qtr. 2006

SDDOT

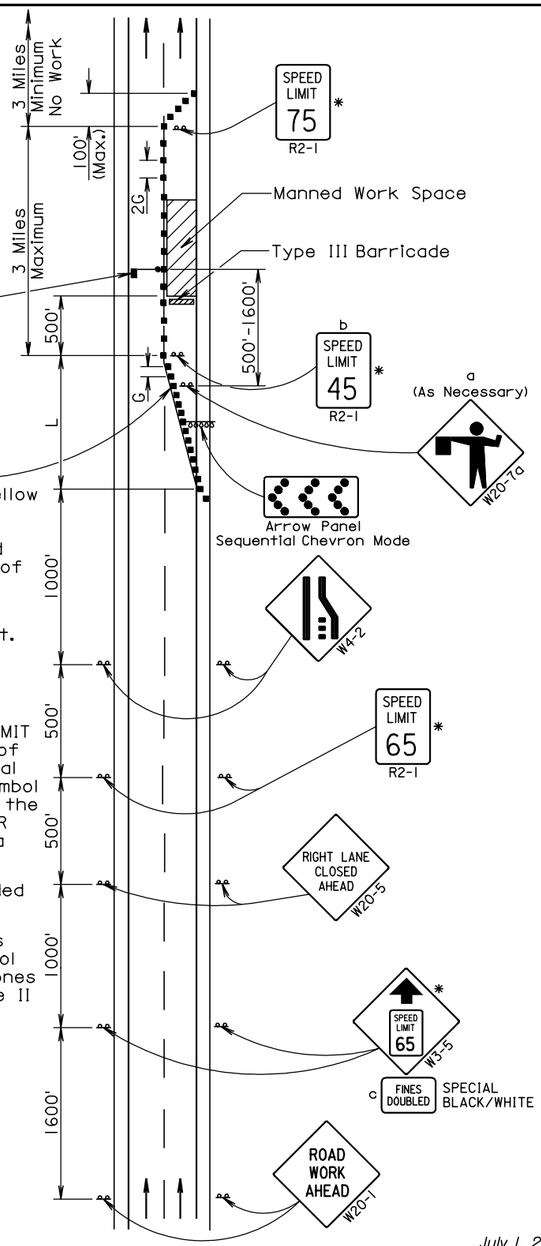
GUIDES FOR TRAFFIC CONTROL DEVICES
SHOULDER CLOSED

PLATE NUMBER
634.61

Sheet 1 of 1

Username - trsf12144

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)
0 - 30	25	180
35 - 40	25	320
45 - 50	50	600
55	50	660
60 - 65	50	780
70 - 75	50	900



▪ Channelizing Device

* Speed appropriate for location.

Signs a, b, and c shall be removed or covered when workers are not present.

ROAD WORK AHEAD sign is only required in advance of the first lane closure.

If the spacing between manned work spaces is 1 mile or greater, a SPEED LIMIT 65(*) sign shall be posted at the end of the first manned work space. Additional SPEED LIMIT 45(*) sign(s) and FLAGGER symbol sign(s) shall be installed in advance of the next manned work space(s). The FLAGGER sign shall be used whenever there is a Flagger present.

Left mounted advance signs on undivided highways are not required.

The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer. 42" cones may be used in lieu of drums or type II barricades only along the centerline.

July 1, 2005

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SDDOT

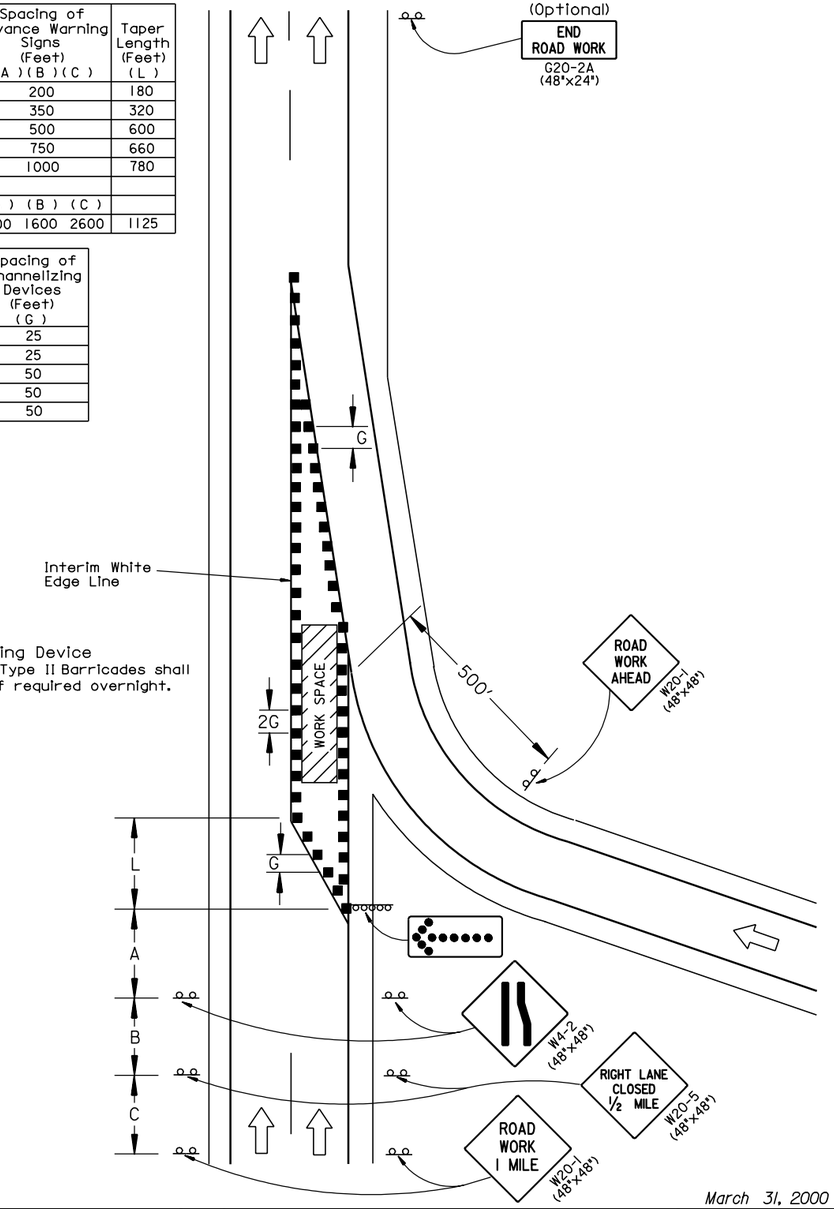
MANNED WORK SPACE SIGNING FOR DIVIDED AND UNDIVIDED HIGHWAYS

PLATE NUMBER 634.63

Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)(B)(C)	Taper Length (Feet) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600
55	750	660
60 - 65	1000	780
	(A) (B) (C)	
75	1000 1600 2600	1125

Spacing of Channelizing Devices (Feet) (G)
25
25
50
50
50



■ - Channelizing Device
Drums or Type II Barricades shall be used if required overnight.

March 31, 2000

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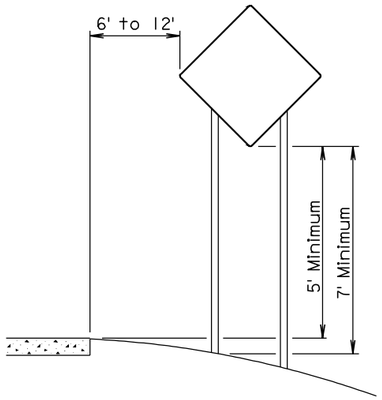
SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES WORK IN VICINITY OF ENTRANCE RAMP

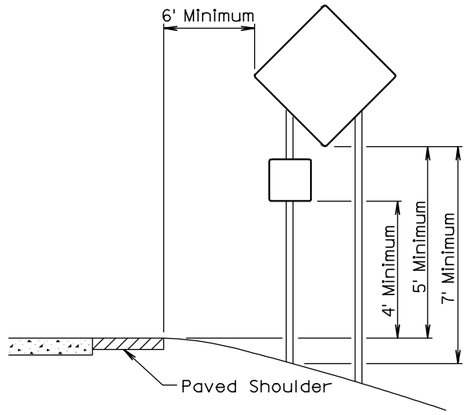
PLATE NUMBER 634.70

Sheet 1 of 1

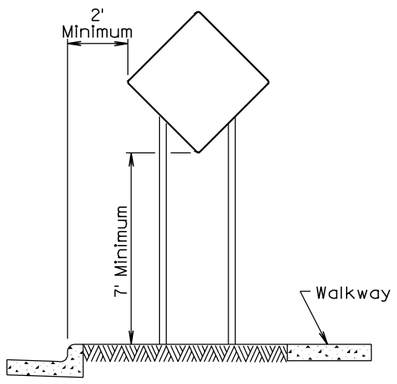
Username - trsf12144



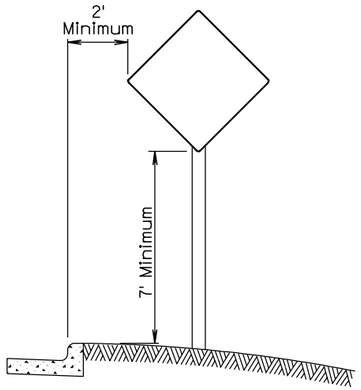
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



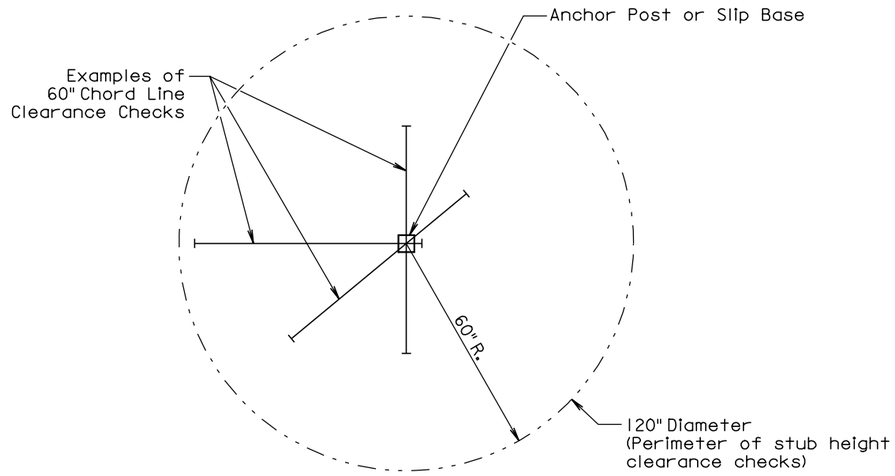
URBAN DISTRICT



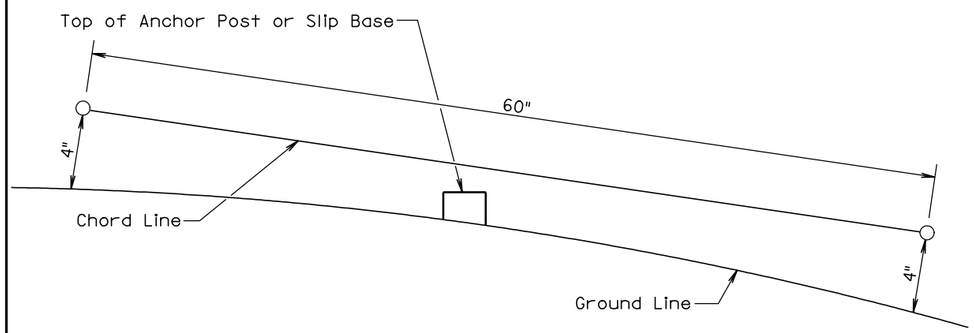
URBAN DISTRICT

December 23, 2003

Published Date: 3rd Qtr. 2006	SDDOT	BREAKAWAY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

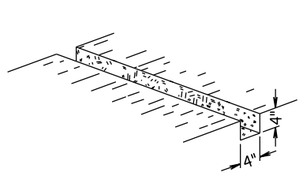
July 1, 2005

Published Date: 3rd Qtr. 2006	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

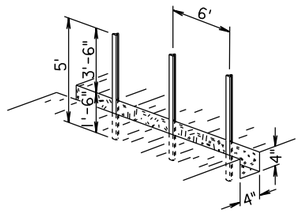
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 90-9(00)390	19	19

Plotting Date: 27-JUL-2006

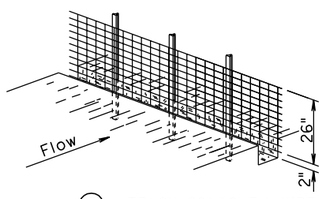
MANUAL LOW FLOW SILT FENCE INSTALLATION



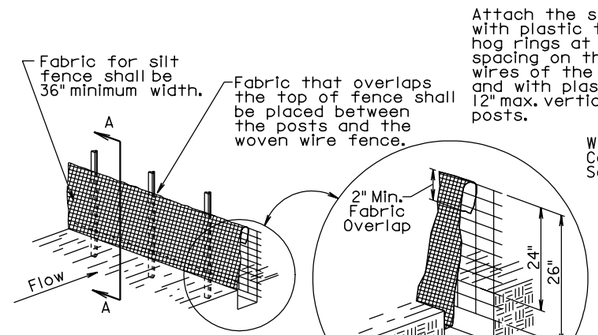
(1) EXCAVATE TRENCH



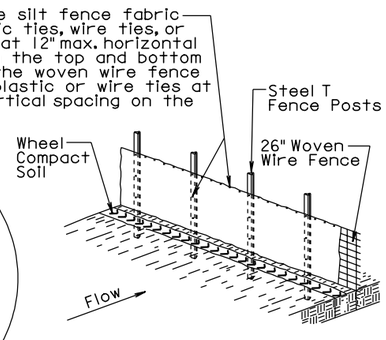
(2) DRIVE STEEL T FENCE POSTS



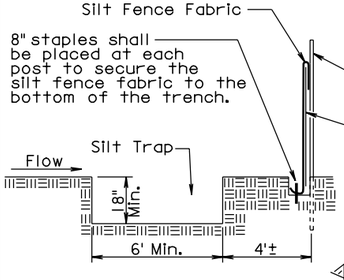
(3) ATTACH 26" WOVEN WIRE FENCE TO POSTS



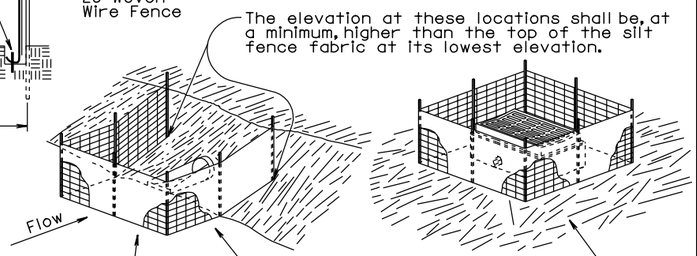
(4) ATTACH SILT FENCE FABRIC



(5) BACKFILL TRENCH AND WHEEL COMPACT SOIL



SECTION A-A



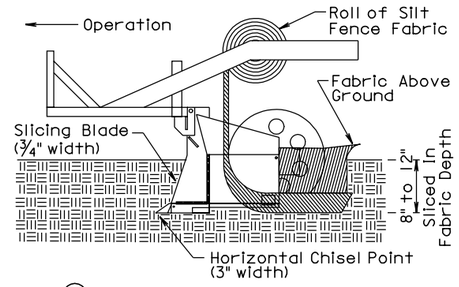
The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

Post spacing shall be 3' for these types of applications of silt fence. All other components of the silt fence shall be the same as shown above.

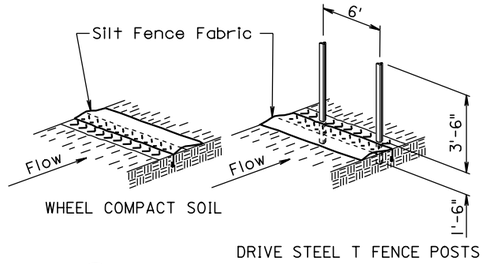
December 23, 2003

Published Date: 3rd Qtr. 2006	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 1 of 2

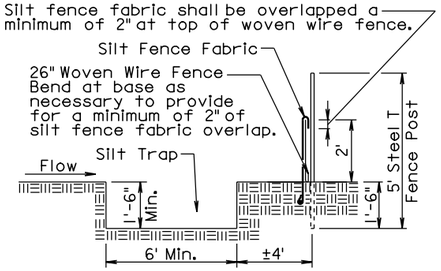
MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION

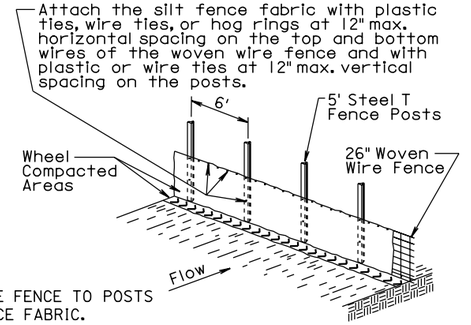


(1) INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

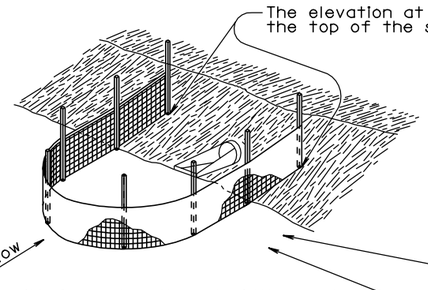


(2) WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.

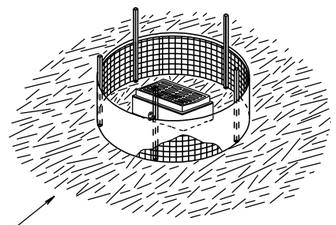




(3) ATTACH 26" WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC.



The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.



The radius of the silt fence shall be the minimum capable by the slicing machine. The post spacing shall be 3' for these types of applications of silt fence. All the other components of the silt fence shall be the same as shown above.

GENERAL NOTES:

A silt trap shall be provided when specified by a plan note. All costs for constructing the silt trap shall be incidental to the contract unit price per cubic yard for "Silt Trap".

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

December 23, 2003

Published Date: 3rd Qtr. 2006	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 2 of 2

Username - trsf12144