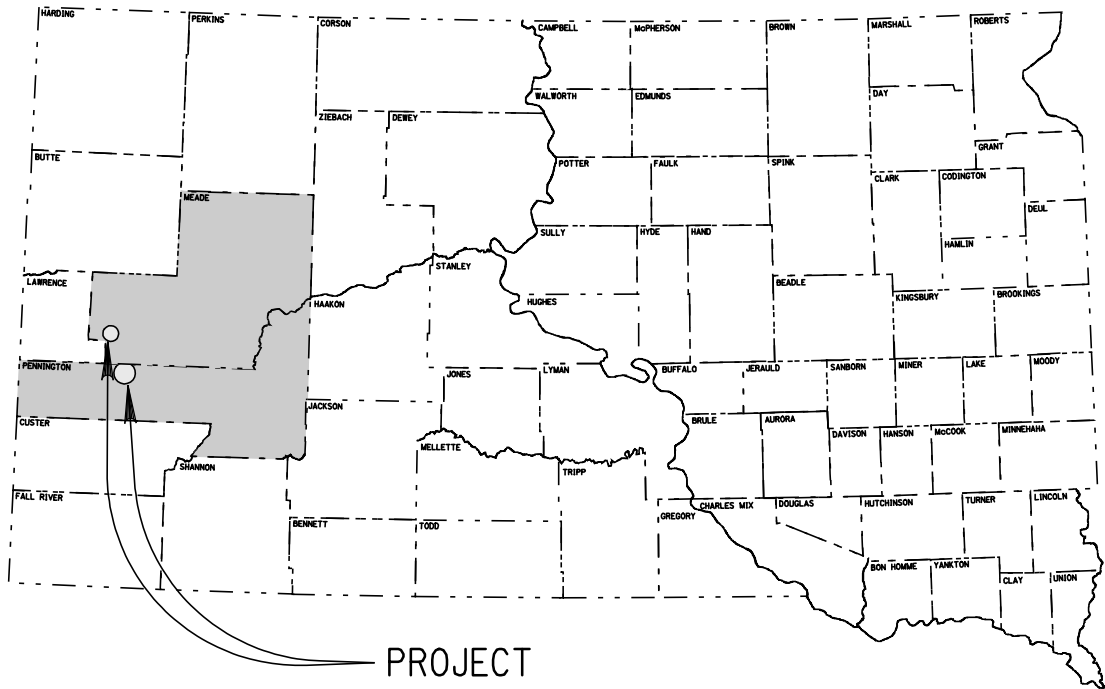


PLOT SCALE - 200,000,000:1,000,000

PLOTTED FROM - TRRC11610



STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT 016EB-452, 079 N-452,
044-452, 090W-452 & 090E-451
US HWY 16B, SD HWY 79,
SD HWY 44 & INTERSTATE 90
PENNINGTON & MEADE COUNTY

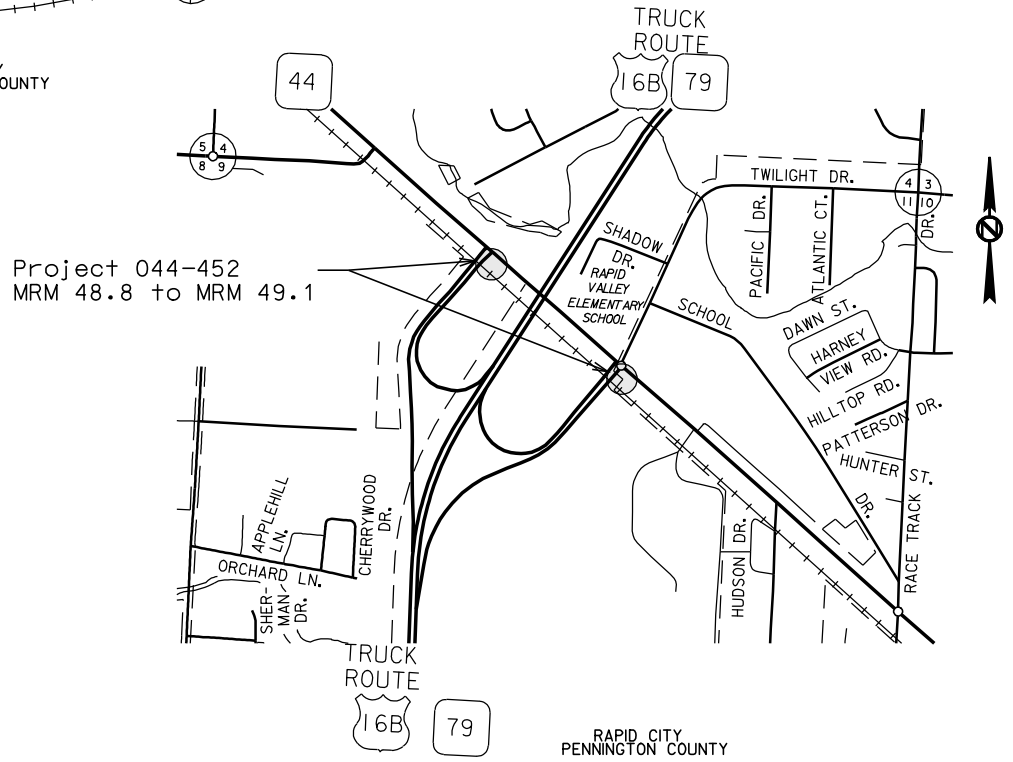
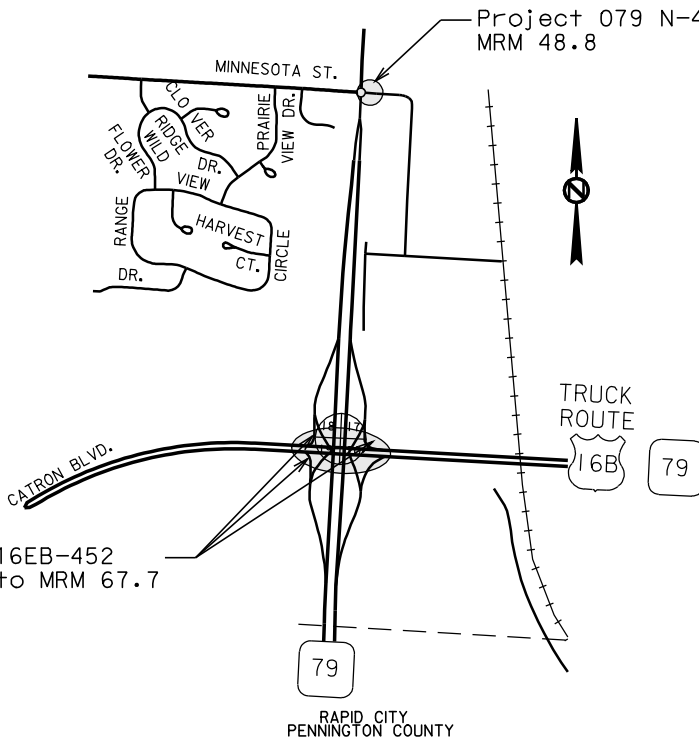
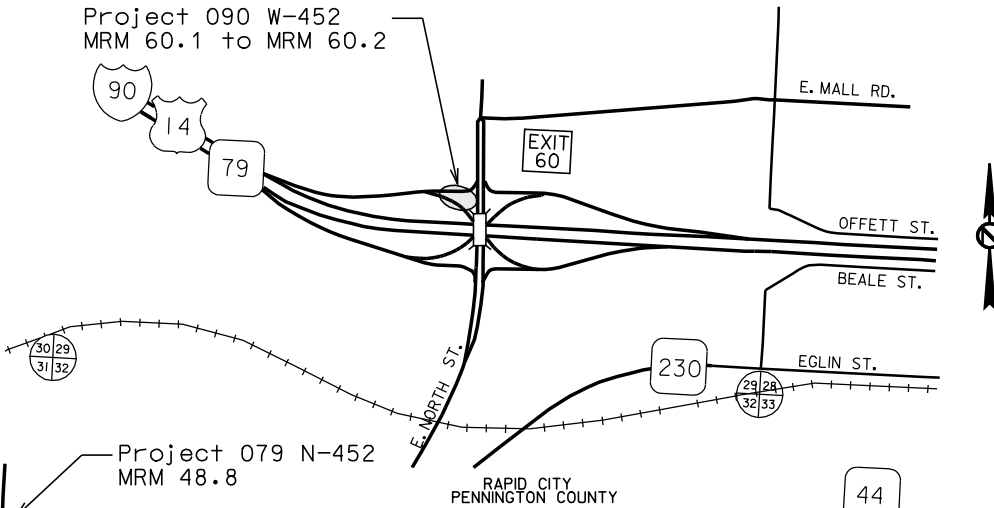
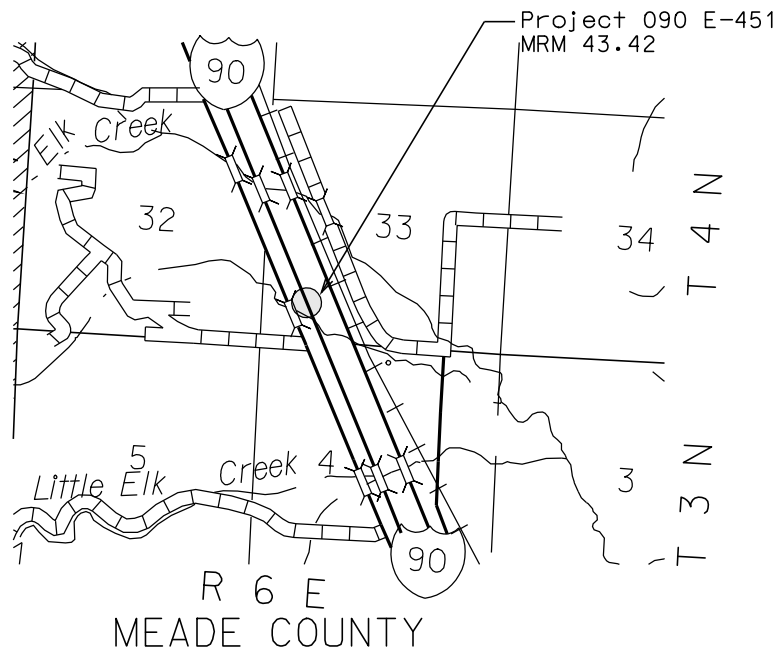
CURB & GUTTER & PCC PAVEMENT
PCN IIV4, IIV6, IIV5, IIV7 & IIVL

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	016EB-452 079N-452, 044-452 090W-452 & 090E-451		
		1	27

Plotting Date: 18-MAY-2010

INDEX OF SHEETS

- 1 General Layout W/Index
- 2-7 Estimate With General Notes & Tables
- 8-14 Traffic Control
- 15-18 Typical Sections
- 19-22 Curb & Gutter Sheets
- 23-27 Standard Plates



Project 016EB-452
MRM 67.6 to MRM 67.7

STORM WATER PERMIT
None Required

ESTIMATE OF QUANTITIES PROJECT 016EB-452 PCN I1V4

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
120E0600	Contractor Furnished Borrow	510	CuYd
230E0020	Placing Contractor Furnished Topsoil	87	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
380E6110	Insert Steel Bar in PCC Pavement	80	Each
634E0010	Flagging	40	Hour
634E0100	Traffic Control	572	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	2	Each
650E1095	Type F69.5 Concrete Curb and Gutter	333	Ft
734E0010	Erosion Control	Lump Sum	LS

ESTIMATE OF QUANTITIES PROJECT 044-452 PCN I1V5

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
120E0600	Contractor Furnished Borrow	300	CuYd
230E0020	Placing Contractor Furnished Topsoil	30	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
380E6110	Insert Steel Bar in PCC Pavement	48	Each
634E0010	Flagging	40	Hour
634E0100	Traffic Control	653	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	2	Each
650E1085	Type F68.5 Concrete Curb and Gutter	186	Ft
734E0010	Erosion Control	Lump Sum	LS

ESTIMATE OF QUANTITIES PROJECT 079 N-452 PCN I1V6

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	39.6	SqYd
110E1100	Remove Concrete Pavement	44.9	SqYd
120E0010	Unclassified Excavation	100	CuYd
120E0600	Contractor Furnished Borrow	140	CuYd
120E2000	Undercutting	50	CuYd
230E0020	Placing Contractor Furnished Topsoil	20	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
260E2010	Gravel Cushion	76.0	Ton
320E1200	Asphalt Concrete Composite	14.0	Ton
380E1060	9.5" Miscellaneous PCC Pavement	137.8	SqYd
380E6110	Insert Steel Bar in PCC Pavement	76	Each
634E0010	Flagging	40	Hour
634E0100	Traffic Control	238	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each
650E1095	Type F69.5 Concrete Curb and Gutter	71	Ft
734E0010	Erosion Control	Lump Sum	LS

ESTIMATE OF QUANTITIES PROJECT 090 W-452 PCN I1V7

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter	39	Ft
120E0600	Contractor Furnished Borrow	450	CuYd
230E0020	Placing Contractor Furnished Topsoil	50	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
380E6110	Insert Steel Bar in PCC Pavement	84	Each
634E0010	Flagging	40	Hour
634E0100	Traffic Control	319	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
650E0100	Type B610 Concrete Curb and Gutter	335	Ft
734E0010	Erosion Control	Lump Sum	LS

ESTIMATE OF QUANTITIES PROJECT 090 E-451 PCN I1VL

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
380E5030	Nonreinforced PCC Pavement Repair	50.7	SqYd
380E6110	Insert Steel Bar in PCC Pavement	40	Each
634E0010	Flagging	40	Hour
634E0100	Traffic Control	514	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each

SPECIFICATIONS

Standard Specifications for Roads & Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

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.

SCOPE OF WORK

Work on this project consists of:

- Installing curb & gutter on the ramps of US Hwy 16B & SD Hwy 79, the ramps of SD Hwy 44 & US Hwy 16B, I90 Exit 60 WB on ramp and the intersection of SD Hwy 79 & Minnesota St.
- PCC Pavement at Hwy 79 & Minnesota St.
- Non reinforced PCC Pavement Repair I90 EB MRM 43.42

EXISTING SIGNAL POLES

The Contractor shall not disturb the existing signal poles.

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. No separate payment will be made for the Water for Embankment and all costs associated shall be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	016EB-452, 044-452, 079N-452 090 W-452 & 090 E-451	2	27

WATER SOURCE

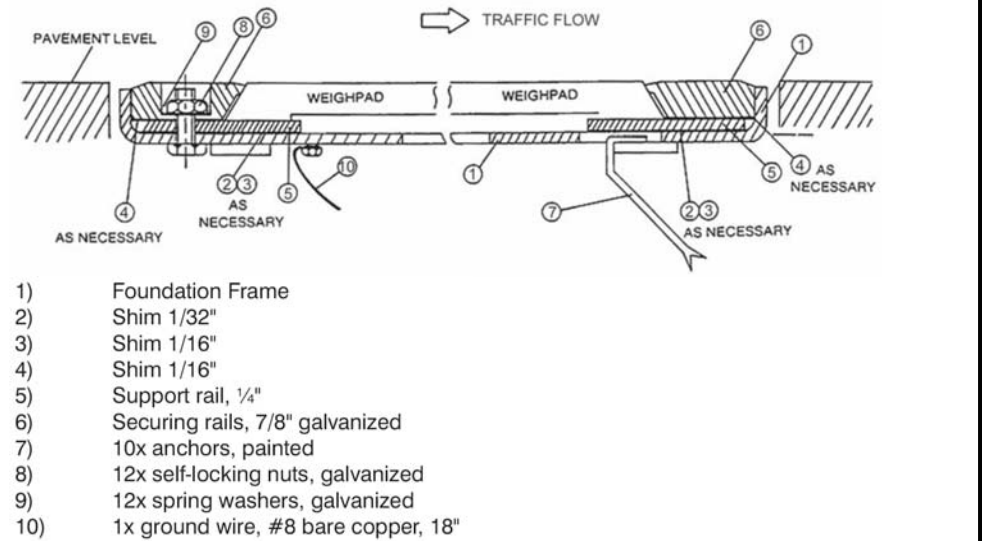
The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the DOT Environmental Office.

The DOT Environmental Office contact person is Ryan Huber, 605-773-3568. The WATER SOURCE plan note does not relieve the Contractor of his/her responsibility to obtain the necessary permits from other agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE).

INCIDENTAL WORK (Project 090 E-451)

Removal of the Weigh In Motion bending plates and load frames at MRM 43.42 I90 EB Nonreinforced PCC Pavement Repair location. The removal of the Weigh In Motion bending plates and load frames shall be removed 1/2 roadway at a time with the removal of the PCC Pavement. All costs involved in this removal shall be incidental to the contract lump sum price for "Incidental Work".

The bending plate is approximately 0.9" thick. The following is for information only. The in place bending plates and load frame may vary. The power to the Weigh In Motion has been disconnected.



HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain State Historical Preservation Office (SHPO) clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. In lieu of a cultural resources survey, the Contractor could request a records search from Jim Donohue, State Archaeological Research Center (SARC). Provide SARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that no artifacts have been found on the site. The Contractor shall arrange and pay for the cultural resource survey and/or records search.

If any earth disturbing activities occur within the current geographical or historic boundaries of any South Dakota reservation, the Contractor shall obtain Tribal Historical Preservation Office (THPO) clearance. If no THPO exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.

To facilitate SHPO or THPO responses, the Contractor should submit a records search or cultural resources survey report to Tom Lehmkuhl, DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO/THPO approval. The Contractor is responsible for obtaining all required permits and clearances for staging areas, borrow sites, waste disposal sites, and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

WASTE DISPOSAL SITE

The Contractor will be required to furnish a site(s) for the disposal of construction/demolition debris generated by this project.

Construction/demolition debris may not be disposed of within the State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1.

Construction/demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction/demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating “No Dumping Allowed”.
2.

Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	016EB-452, 044-452, 079N-452 090 W-452 & 090 E-451	3	27

TABLE OF EXCAVATION QUANTITIES

Location	Excavation	* Undercut	* Contractor Furnished Borrow
	(CuYd)	(CuYd)	(CuYd)
Minnesota & SD 79	50	50	140
US 16B & SD 79			
Ramp L			170
Ramp M			170
Ramp N			170
US 16B & SD 44			
Ramp P			150
Ramp R			150
190 Exit 60			
Ramp D			150
Ramp Dr			300
Totals:	50	50	1415

* The quantities for these items are in the Estimate of Quantities under their respective bid items.

TABLE OF UNCLASSIFIED EXCAVATION (Project 079 N-452)

Excavation	50
Undercut	50
Total	100

UNDERCUTTING (Project 079 N-452)

In all cut sections the earthen subgrade shall be undercut 1 feet below the earthen subgrade surface. The undercut material or other suitable material, as directed by the Engineer, shall then be replaced and compacted to the density specified for the section being constructed.

The upper 4 inches of undercut material that consists of topsoil with a high humus content shall be used as topsoil. The remaining undercut soil and soil obtained from adjacent excavation (excluding the upper 4 inches) shall then be replaced and compacted to the density specified for the section being constructed.

The plan shown quantity will be the basis of payment. However, if there are additional areas of undercut other than what is shown in the plans, the Engineer shall direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNDERCUTTING (Project 079 N-452)

Location	Quantity (CuYd)
Minnesota & SD 79	50
Total:	50

CONTRACTOR FURNISHED BORROW

The Contractor shall provide a suitable site for Contractor furnished borrow material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material shall be approved by the Engineer.

Restoration of the Contractor furnished borrow site shall be the responsibility of the Contractor.

TABLE OF CONCRETE PAVEMENT REMOVAL (Project 079 N-452)

Station	to	Station	Description	Quantity (SqYd)
24+64.77		24+24.65	14' L to 38.16' L	44.9
Total:				44.9

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL (Project 079 N-452)

Station	to	Station	L/R	Quantity (SqYd)
24+64.61		24+72.71	L	39.6
Total:				39.6

TABLE OF CONCRETE CURB AND GUTTER REMOVAL (Project 090 W-452)

Station	to	Station	L/R	Quantity (Ft)
Ramp D 26+14.9		26+34.84	R	19.2
Ramp Dr 6+33.5		6+43.5	L	20.0
Total:				39.2

GUTTER SLOPE FOR TYPE B AND F CONCRETE CURB AND GUTTER

The Contractor shall be aware of the new standard gutter slope required for this project. The new standard gutter slope shall be 5% as detailed on standard plates 650.01 (Type B Concrete Curb and Gutter) and 650.20 (Type F Concrete Curb and Gutter).

TABLE OF TYPE F69.5 CONCRETE CURB AND GUTTER (Project 016 EB-452)

Station	to	Station	L/R	Quantity (Ft)
Ramp L 1+16.81		0+49.87	R	87.4
		0+49.87	R	23.5
Ramp M 0+50.20		0+63.22	L	54.7
		1+06.52	L	56.4
Ramp N 17+65.65		17+65.63	L	23.5
		16+99.14	L	87.0
Totals:				332.5

TABLE OF TYPE F68.5 CONCRETE CURB AND GUTTER (Project 044-452)

Station	to	Station	L/R	Quantity (Ft)
Ramp P 0+92.69		0+32.68	L	94.1
Ramp R 26+82.51		27+11.65	R	30.5
		27+42.23	R	61.3
Totals:				185.9

TABLE OF TYPE F69.5 CONCRETE CURB AND GUTTER (Project 079 N-452)

Station	to	Station	L/R	Quantity (Ft)
24.64.61		24+24.85	R	71.2
Totals:				71.2

TABLE OF TYPE B610 CONCRETE CURB AND GUTTER (Project 090 W-452)

Station	to	Station	L/R	Quantity (Ft)
Ramp Dr 4+37.81		6+33.50	L	199.7
		6+53.50	L	16.0
Ramp D 25+09.85		26+34.84	R	119.0
Totals:				334.7

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	016EB-452, 044-452, 079N-452 090 W-452 & 090 E-451	4	27

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.

GRAVEL CUSHION

Gravel Cushion shall be furnished by the Contractor.

All other requirements of the Standard Specifications for Gravel Cushion shall apply.

ASPHALT CONCRETE COMPOSITE

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Standard Specifications for Class E, Type 1

All other requirements in the Standard Specifications for Asphalt Concrete Composite shall apply.

The asphalt binder used in the mixture shall be PG 64-22, PG 64-28 or PG 64-34 Asphalt Binder.

TABLE OF ASPHALT CONCRETE COMPOSITE (Project 079 N-452)

LOCATION	ASPHALT CONCRETE COMPOSITE
	TON
Minnesota St.	13.3
TOTAL	13.3

9.5" MISCELLANEOUS PCC PAVEMENT (Project 079 N-452)

The fine aggregate may require screening as determined by the Engineer.

Fine aggregate shall conform to Section 800.2.D Alkali Silica Reactivity (ASR) Requirements of the Standard Specifications.

The concrete mix shall be Class M6. Coarse aggregate shall be crushed ledge rock, Class F Modified Fly Ash shall be substituted for 20 percent of the cement in accordance with Section 605 of the Standard Specifications.

In lieu of an automatic subgrader operating from a preset line, a motor grader or other suitable equipment may be used to bring the gravel cushion to final grade prior to placement of concrete.

There will be no direct payment for trimming of the gravel cushion for PCC pavement. The trimming will be considered incidental to the related items required for PCC Pavement. Trimming shall be performed as required by Section 380.3 C. of the Standard Specifications.

A construction joint will be sawed whenever new concrete pavement is placed adjacent to existing concrete pavement.

All rebar shall conform to A,S,T,M, A615 Grade 60 and Standard Specifications Section 480 and 1010. All rebar shall have a minimum of 3" clear cover.

In addition to traditional field inspection of reinforcement, a Ground Penetrating Radar (GPR) unit may be used to verify reinforcement locations in the hardened concrete. The GPR may be used anytime prior to the Acceptance of Field Work being issued. All costs related to corrective measures, including but not limited to concrete removal or cutting of reinforcement, price deducts, and delays to the project schedule shall be the responsibility of the Contractor.

All costs for materials, labor, and incidentals necessary to construct PCC Pavement shall be incidental to the contract unit price per square yard for "9.5" Miscellaneous PCC Pavement".

TABLE OF 9.5" MISCELLANEOUS NONREINFORCED PCC PAVEMENT (Project 079 N-452)

LOCATION	9.5" MISCELLANEOUS PCC PAVEMENT
	SQ.YDS.
Hwy 79 & Minnesota St	137.8
TOTAL	137.8

EXISTING PCC PAVEMENT (Project 090 E-451)

The existing pavement MRM 43.42 EB is 8" Nonreinforced PCC Pavement.

Existing contraction joints are spaced at approximately 80'. Longitudinal joints are reinforced with No. 4 x 30" deformed tie bars spaced 27" center to center. Transverse joints are reinforced with No. 6 x 24" plain round dowel bars spaced 12" center to center.

RESTORATION OF GRAVEL CUSHION (Project 090-451)

An inspection of the gravel cushion subgrade shall be made after removing concrete from each pavement replacement area. Areas of excess moisture shall be dried to the satisfaction of the Engineer. Loose and excess material shall be removed. Each replacement area shall be leveled and compacted to the satisfaction of the Engineer.

If additional gravel cushion material is required, the Contractor shall furnish, place and compact gravel cushion to the satisfaction of the Engineer.

Cost for this work shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

NONREINFORCED PCC PAVEMENT REPAIR (Project 090 E-451)

Locations and size (length or width) of concrete repair areas are subject to change in the field, at the discretion of the Engineer, at no additional cost to the state. Payment will be based on actual area replaced.

Existing concrete pavement shall be sawed full depth at the beginning and end of the PCCP repair areas. When either the beginning or end of a PCCP repair area falls close to an existing joint or crack, the PCCP repair area shall be extended to eliminate the existing joint or crack. Where possible, new working joints shall be adjacent to existing working joints.

Existing concrete pavement in the replacement areas shall be removed by the lift out method or by means that minimize damage to the base and sides of remaining in place concrete. All removed material shall be removed from within the right-of-way by the end of the workday. Damage to adjacent concrete caused by the Contractor's operations shall be removed and replaced at the Contractor's expense.

If the pavement replacement area is entirely on either side of the existing contraction joint, the location of one of the working joints will be at the original location.

Upon removal of the concrete, the Engineer shall inspect for existing tie bars along longitudinal joint to determine if tie bar installation will be required.

Concrete placed adjacent to asphalt shoulders shall be formed full depth to match the width of existing concrete pavement. Asphalt shoulders adjacent to concrete pavement replacements shall be repaired with Asphalt Concrete Composite.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	016EB-452, 044-452, 079N-452 090 W-452 & 090 E-451	5	27

NONREINFORCED PCC PAVEMENT REPAIR (CONTINUED)

At repair locations where the new working joint is not opposite the existing working joint, the Contractor shall place a ¼ inch preformed asphalt expansion joint material along the longitudinal joint from the existing working joint to the new working joint. The expansion joint material shall meet the requirements of AASHTO M33. Cost for this material shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

All joints (longitudinal and transverse) through and around the repair areas shall be sawed and sealed with Hot Poured Elastic Joint Sealer.

New pavement thickness shall be 9".

The slump requirement will be limited to 4" maximum after water reducer is added and the concrete shall contain 4.5% to 7.0% entrained air. Coarse aggregate shall be crushed ledge rock, Size No. 1, unless an alternative gradation is approved by the concrete engineer as part of the mix design submittal. The concrete mixture shall contain a minimum of 50% coarse aggregate by weight. The concrete mix shall contain at least 600 lbs. of type I, II or III cement per cubic yard. The minimum 28 day compressive strength shall be 4,000 psi. The Contractor is responsible for the mix design used. The Contractor shall submit a mix design and supporting documentation for approval at least 2 weeks prior to use.

The use of a high range water reducer at manufacturer's recommended dosage will be required.

Concrete shall be cured with white pigmented curing compound (AASHTO M148, Type 2) applied as soon as practical at a rate of 125 square feet per gallon. Concrete shall be cured for a minimum of 48 hours before opening to traffic. The 48 hours is based upon a concrete surface temperature of 60 degrees Fahrenheit or higher throughout the cure period. If the concrete temperature falls below 60 degrees Fahrenheit, the cure time shall be extended or other measures shall be taken, at no additional cost to the State. In addition to the curing requirements, a strength of 3,800 psi must be obtained prior to opening to traffic.

Concrete shall be covered with suitable insulation blanket consisting of a layer of closed cell polystyrene foam protected by at least one layer of plastic. Insulation blanket shall have an R-value of at least 0.5, as rated by the manufacturer. Insulation blanket shall be left in place, except for joint sawing operations. Insulation blanket shall be overlapped on to the existing concrete.

All costs for performing this work including sawing and removing concrete, furnishing and placing concrete, curing, sawing and sealing joints, repairing asphalt shoulders, labor, tools and equipment shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

STEEL BAR INSERTION

The Contractor shall insert the steel bars (1¼” x 18” epoxy coated plain round dowel bars and No. 9 x 18” epoxy coated deformed tie bars for transverse joints and No. 5 x 24” epoxy coated deformed tie bars for longitudinal joints) 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 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.

Epoxy coated deformed steel bars shall be inserted in the transverse joint on 18" centers and shall be placed a minimum of 3 inches from the pavement edge. Epoxy coated deformed steel bars shall be inserted on 30 inch centers in the longitudinal joint and on 48 inch centers in the curb & gutter and shall be placed a minimum of 15 inches from the existing transverse contraction joint.

TABLE OF STEEL BAR INSERTION

LOCATION	QUANTITY	QUANTITY	QUANTITY
	OF BARS	OF BARS	OF BARS
	No. 5	No. 9	1 ¼”
Hwy 79 & Minnesota St	44	32	
Hwy 16B & Hwy 79			
Ramp L	28		
Ramp M.	28		
Ramp N	28		
Hwy 16B & Hwy 44			
Ramp P	24		
Ramp R	24		
I90 Exit 60			
Ramp D	30		
Ramp Dr	54		
I90 EB MRM 43.42	8		32
Totals:	268	32	32

LOCATION OF CONCRETE PAVEMENT JOINTS

The location of joints are only approximate locations to be used as a guide in the final location of joints. The joints shall match the existing joint locations. The final location of the joints are to be designated by the Engineer during construction.

SAW AND SEAL JOINTS

All longitudinal, transverse and shoulder joints at shall be sawed and sealed.

Joints shall not be sealed unless they are thoroughly clean and dry. Cleaning shall be accomplished by sand blasting and other tools as necessary. Just prior to sealing, each joint shall be blown out using a jet of compressed air to remove all traces of dust.

Transverse joints shall be sealed with Hot Poured Elastic Joint Sealer. Longitudinal joints may be sealed with Hot Poured Elastic Joint Sealer. Acceptance of the Hot Poured Elastic Joint Sealer will be based on visual inspection by the Engineer.

Cost for sawing and sealing of the longitudinal construction joint and both transverse joints shall be incidental to the contract unit price per square yard for “9.5” Miscellaneous Nonreinforced PCC Pavement” & “Nonreinforced PCC Pavement Repair”.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	016EB-452, 044-452, 079N-452 090 W-452 & 090 E-451	6	27

REMOVE AND REPLACE TOPSOIL

Topsoil shall be salvaged and stockpiled prior to constructing the following: Curb & Gutter and embankment on ramps. Limits of this work, depth of salvage, and stockpile location will be directed by the Engineer. Following completion of construction, topsoil shall be spread evenly over the disturbed areas.

The estimated amount of topsoil to be removed and replaced is 292 CuYd.

All cost associated with removing and replacing the topsoil along areas of the new curb & gutter shall be incidental to the lump sum price for “Remove and Replace Topsoil”.

PLACING CONTRACTOR FURNISHED TOPSOIL

It is anticipated that a larger volume of topsoil will be needed for the area behind the new curb & gutter areas than can be salvaged from the existing grade. The Contractor will be required to furnish and place 4 inches of topsoil on roadway inslopes and areas as determined by the Engineer during construction.

All costs to furnish and place the topsoil shall be incidental to the contract unit price per cubic yard for “Placing Contractor Furnished Topsoil”.

EROSION CONTROL

The contract lump sum price for Erosion Control shall include all material, equipment, and labor necessary to seed and mulch all areas disturbed by construction of this project. The Engineer, at the time of construction, shall determine limits of the Erosion Control work. The estimated total area to be seeded is approximately 0.55 acres.

PERMANENT SEEDING

The areas to be seeded comprise of all newly graded areas within the project limits except for the top of roadways.

Hand seeding devices approved by the Engineer will be allowed.

All permanent seed shall be planted in the topsoil at a depth of ¼” to ½”.

All seed broadcast must be raked or dragged in (incorporated) within the top ¼” to ½” of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

Type C Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/ ½ Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	16
Canada Wildrye	Mandan	2
Total:		18

FERTILIZING

Application of fertilizer will not be required on this project.

MULCHING (GRASS HAY OR STRAW)

Bales with noxious weed contamination will be rejected and the Contractor will be required to remove the contaminated bales from the project.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	016EB-452, 044-452, 079N-452 090 W-452 & 090 E-451	7	27

GENERAL MAINTENANCE OF TRAFFIC

- 1
- Removing, relocating, covering, salvaging and resetting of existing 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.
- 2
- Traffic control shall at all times be maintained in accordance with applicable MUTCD Standards, Section 634 of the Standard Specifications and these plans.
- 3
- The Contractor shall at all times, keep the portion of the project being used by public traffic in a condition that will adequately and safely accommodate traffic.
- 4
- Storage of vehicles, materials, and equipment shall be not closer than 30’ from the edge of the driving lane. 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.
- 5
- The Contractor shall provide documentation that all breakaway sign supports comply with FHWA 350 crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.
- 6
- Non-applicable signing will be covered or removed and reset during periods of in-activity. All costs to do this work shall be incidental to Traffic Control, Miscellaneous.
- 7
- Construction signing that remains in the same location for more than 3 days shall be mounted on fixed supports, unless approved by the Engineer.
- 8
- The Contractor or designated traffic control subcontractor shall make night (after dark) inspections at the initial set up of traffic control and every week thereafter to ensure the adequacy, legibility and reflectivity of each sign and device. A written summary of each inspection shall be given to the Engineer within 24 hours after completion of the inspection. The cost for the nighttime inspection work shall be incidental to the related contract items.
- 9
- The Contractor shall be required to have a person available 24 hour/day, 7 days/week to maintain traffic control devices. The name and cellular telephone number of this individual shall be given to the Engineer at the preconstruction meeting.
- 10
- Work activities shall only be during daylight hours. Daylight hours are considered to be ½ hour before sunrise until ½ hour after sunset.

MAINTENANCE OF TRAFFIC – PCC PAVEMENT REPAIR

A Type III Barricade shall be installed at the end of a lane closure taper as detailed in these plans. Mainline concrete repair location from which the in place concrete has been removed shall be marked with a minimum of two reflectorized drums.

Holes adjacent to centerline in the lane open to traffic created during removal and replacement of PCC Pavement repair areas shall be filled with cold asphalt mix during the cure of concrete placed in a repair area, and until the lane open to traffic is closed. Cost for furnishing asphalt concrete, hauling and placing asphalt shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair

Holes in the asphalt shoulders created during removal and replacement of PCC Pavement repair areas shall be filled with hot-mix asphalt concrete (to match the shoulder surfacing) prior to opening the lane to traffic. Hot-mix asphalt concrete shall be furnished by the Contractor. Cost for furnishing asphalt concrete, hauling and placing asphalt shall be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair

Routing traffic onto the asphalt during any phase of the construction will not be allowed.

Extra care shall be taken to protect the in place asphalt shoulders. The same channelizing devices and spacing used on centerline, will also be required on the shoulders. These channelizing devices shall be placed in locations to adequately keep traffic completely off these shoulders. Continuous maintenance of the shoulder devices will be required to keep them in place. Cost for these extra channelizing devices shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

If the Contractor elects not to work in an area for more than 3 days, for reasons within the control of the Contractor, the Contractor shall remove applicable traffic control devices and replace them when work resumes. There will be no payment for this work.

The use of interstate maintenance crossovers will not be permitted.

INVENTORY OF TRAFFIC CONTROL DEVICES PROJECT 016EB-452

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	4	17	68
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W13-1	24" x 24"	ADVISORY SPEED PLATE	3	16	48
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	3	34	102
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	2	34	68
SPECIAL	24" x 24"	ON RAMP	3	16	48
SPECIAL	48" x 48"	ON RAMP	3	34	102
TOTAL UNITS					572

INVENTORY OF TRAFFIC CONTROL DEVICES PROJECT 044-452

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	3	17	51
W13-1	24" x 24"	ADVISORY SPEED PLATE	2	16	32
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	5	34	170
W20-7a	48" x 48"	FLAGGER	2	34	68
SPECIAL	24" x 24"	ON RAMP	2	16	32
SPECIAL	48" x 48"	ON RAMP	2	34	68
SPECIAL	30" x 30"	RIGHT LANE MUST TURN RIGHT	4	21	84
SPECIAL	48" x 48"	THRU TRAFFIC MERGE LEFT	2	34	68
*****	*****	TYPE III BARRICADE - 8 FT. SINGLE SIDED	2	40	80
TOTAL UNITS					653

INVENTORY OF TRAFFIC CONTROL DEVICES PROJECT 079 N-452

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	1	34	34
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	1	34	34
W20-7a	48" x 48"	FLAGGER	2	34	68
TOTAL UNITS					238

INVENTORY OF TRAFFIC CONTROL DEVICES PROJECT 090 W-452

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	3	17	51
W13-1	24" x 24"	ADVISORY SPEED PLATE	2	16	32
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	2	34	68
SPECIAL	24" x 24"	ON RAMP	2	16	32
SPECIAL	48" x 48"	ON RAMP	2	34	68
TOTAL UNITS					319

INVENTORY OF TRAFFIC CONTROL DEVICES PROJECT 090 E-451

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
R2-1	30" x 36"	SPEED LIMIT ##	4	23	92
W3-5	48" x 48"	SPEED REDUCTION	2	34	68
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	1	34	34
SPECIAL	30" x 24"	FINES DOUBLED	2	18	36
*****	*****	TYPE III BARRICADE - 8 FT. SINGLE SIDED	2	40	80
TOTAL UNITS					514

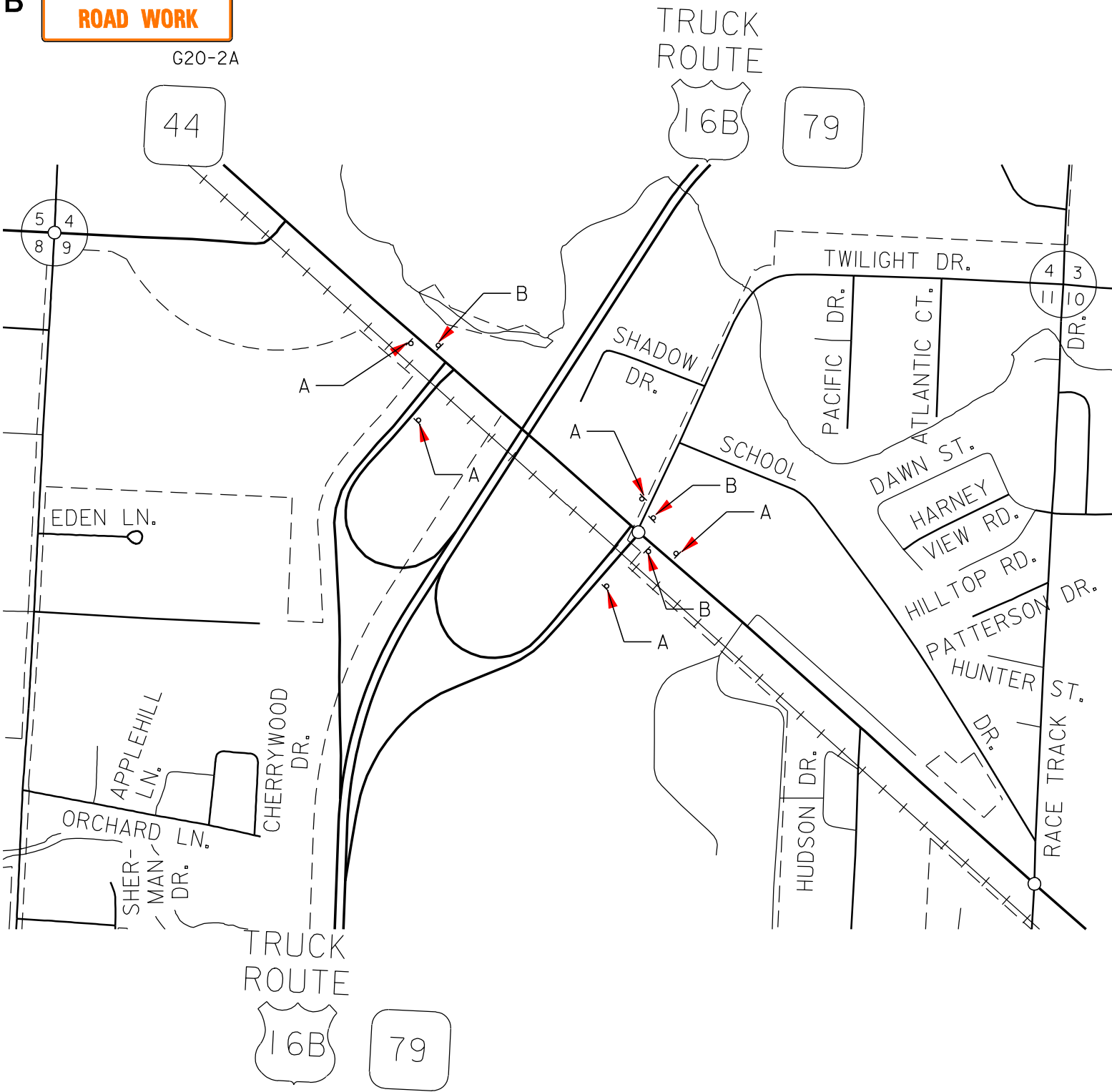
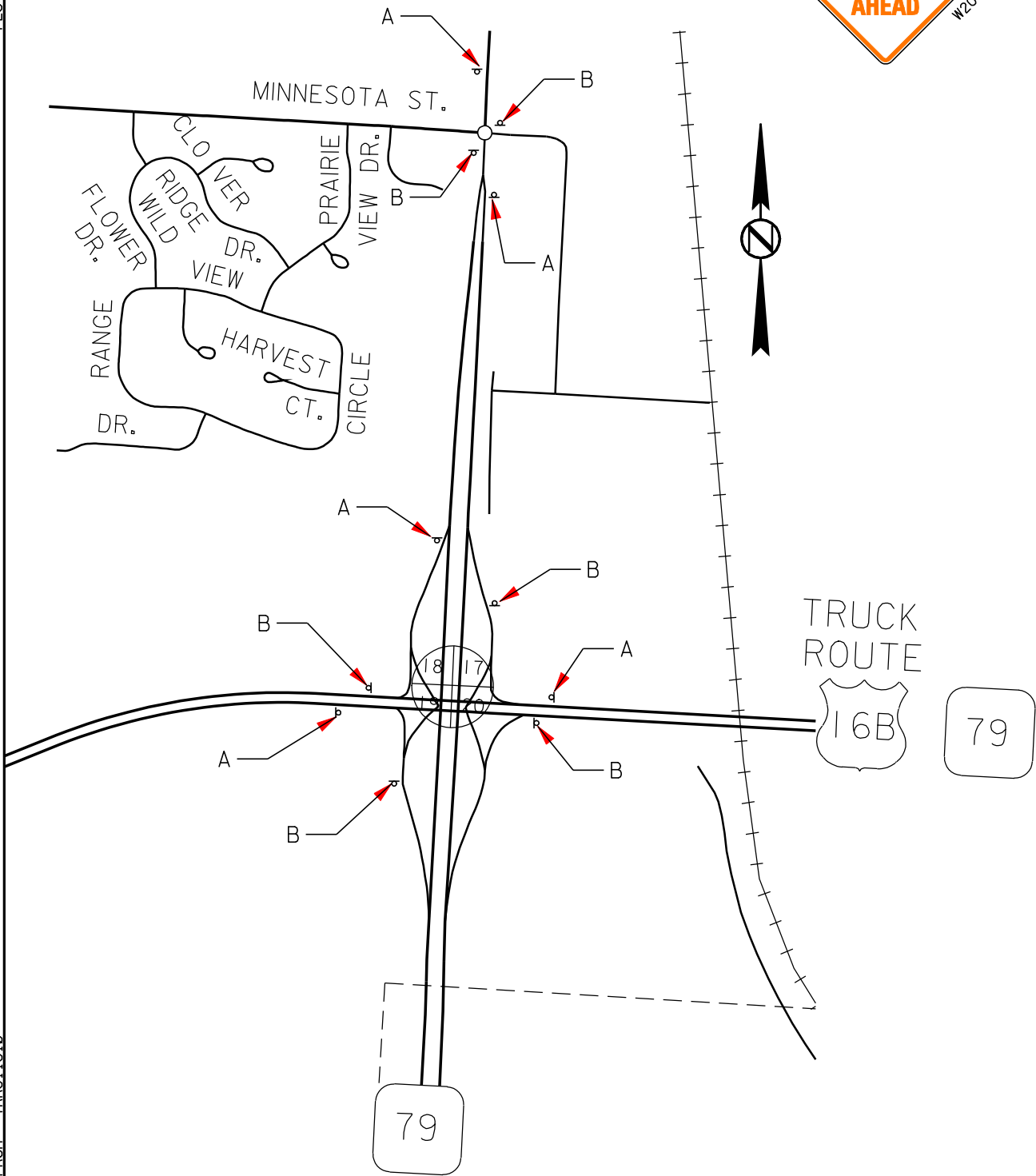
FIXED LOCATION SIGNS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	016EB-452 079N-452, 044-452 090W-452 & 090E-451	9	27

Plotting Date: 18-MAY-2010

Project 079 N-452 &
Project 016 EB-452

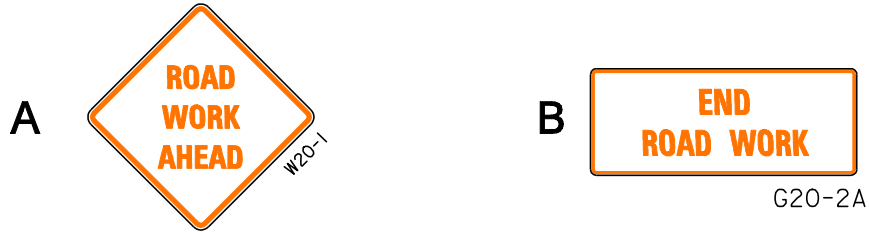
Project 044-452



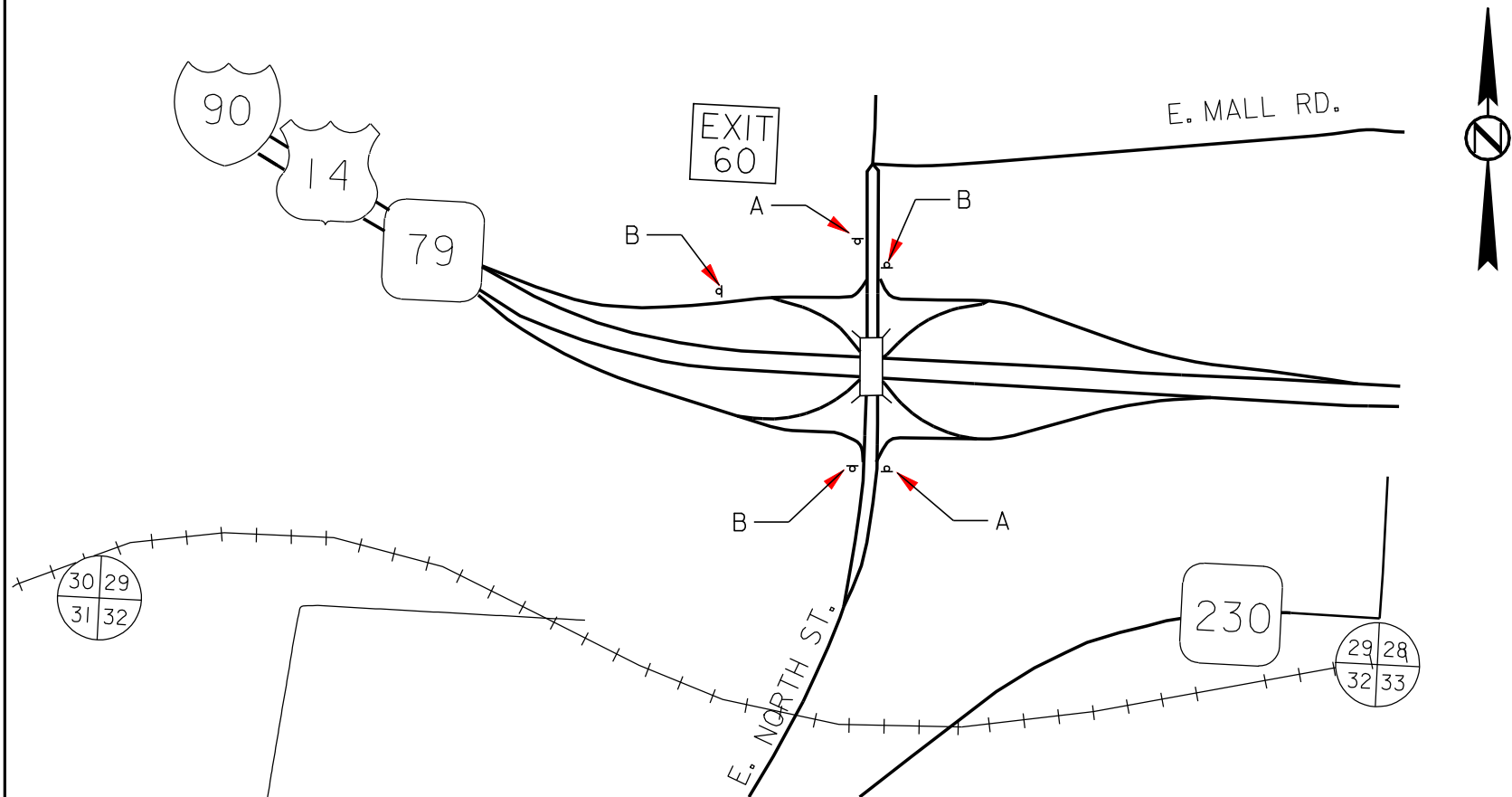
FIXED LOCATION SIGNS

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	016EB-452 079N-452, 044-452 090W-452 & 090E-451	10	27

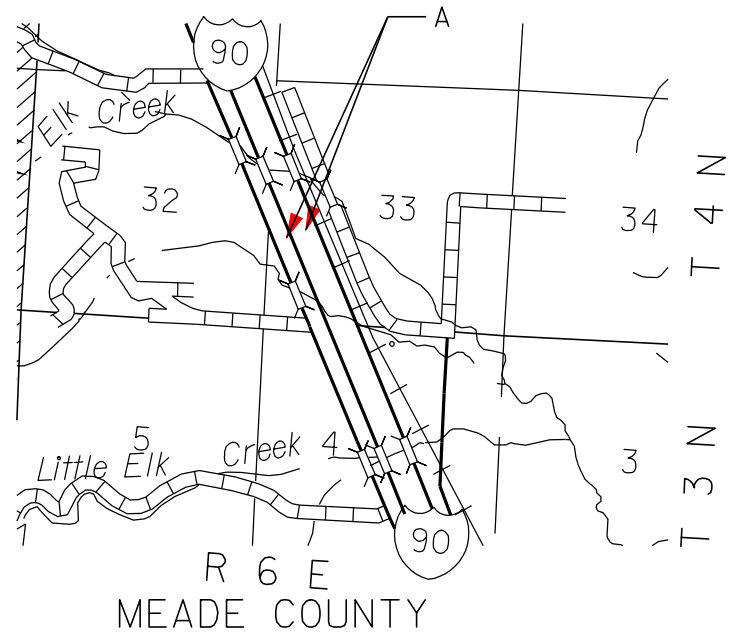
Plotting Date: 18-MAY-2010



Project 090 W-452



Project 090 E-451

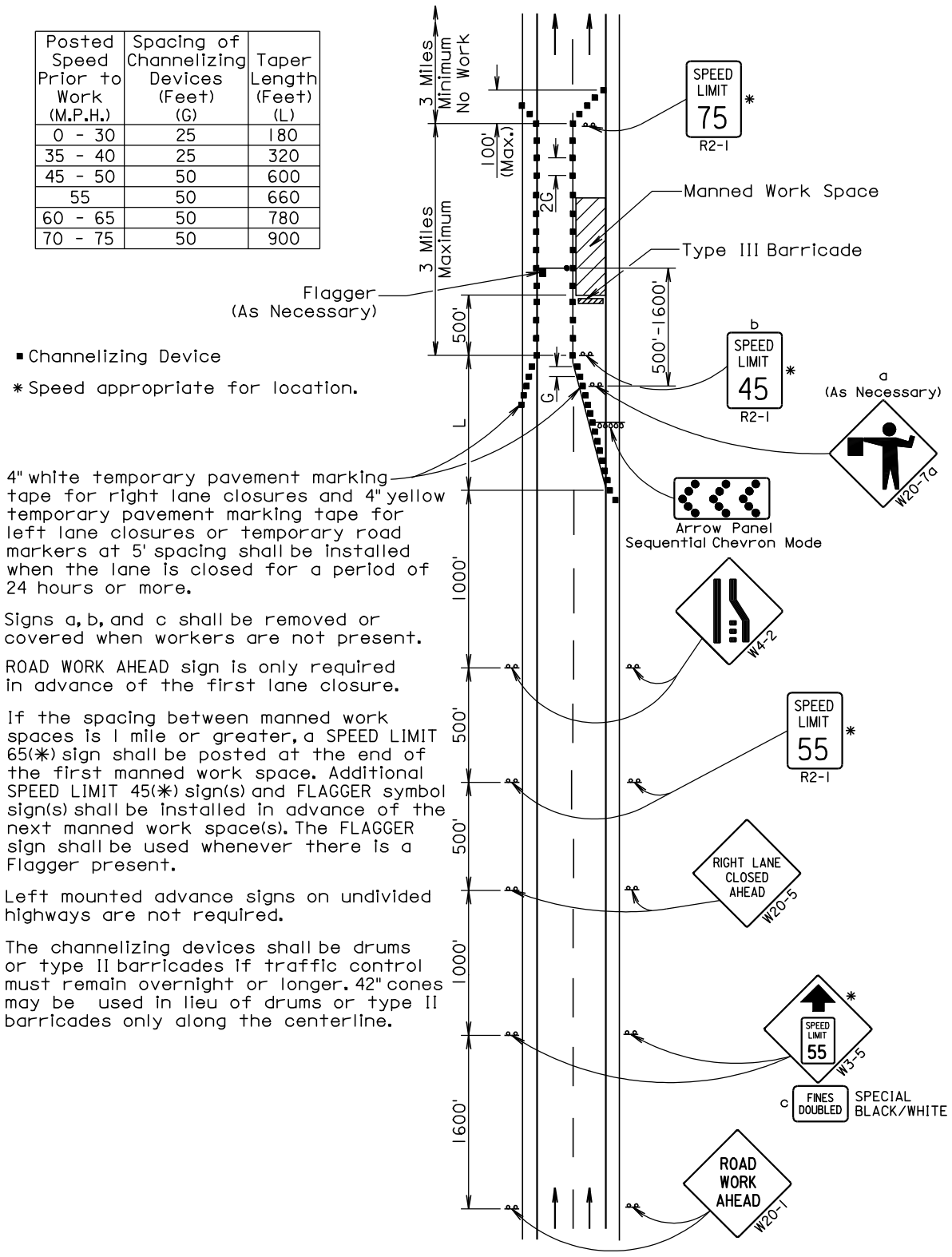


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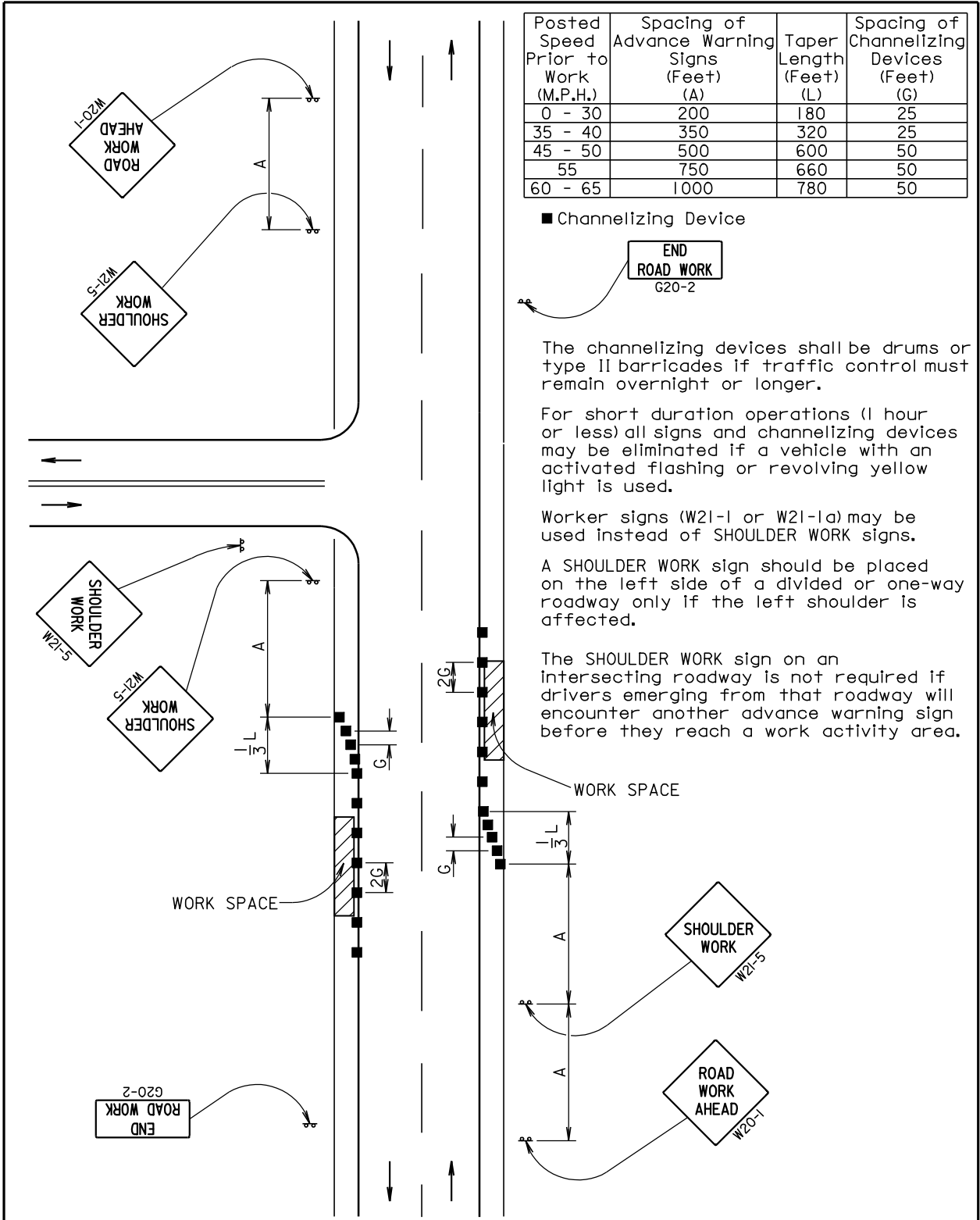
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	016EB-452 079N-452, 044-452 090W-452 & 090E-451	11	27

Plotting Date: 18-MAY-2010

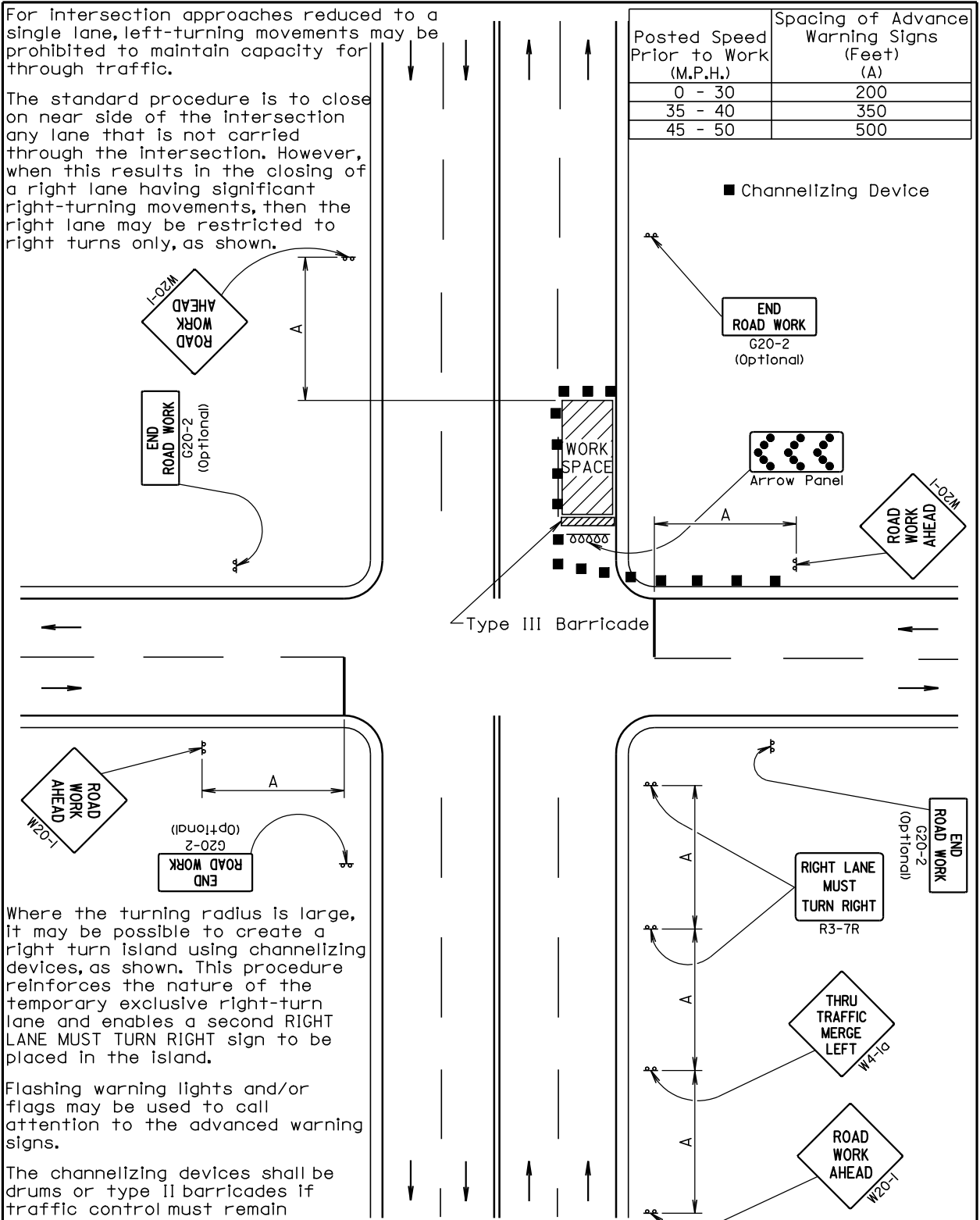


**MANNED WORK SPACE SIGNING
FOR DIVIDED AND UNDIVIDED HIGHWAYS**

Plotting Date: 18-MAY-2010



July 1, 2005



December 23, 2008

Plotting Date: 18-MAY-2010

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

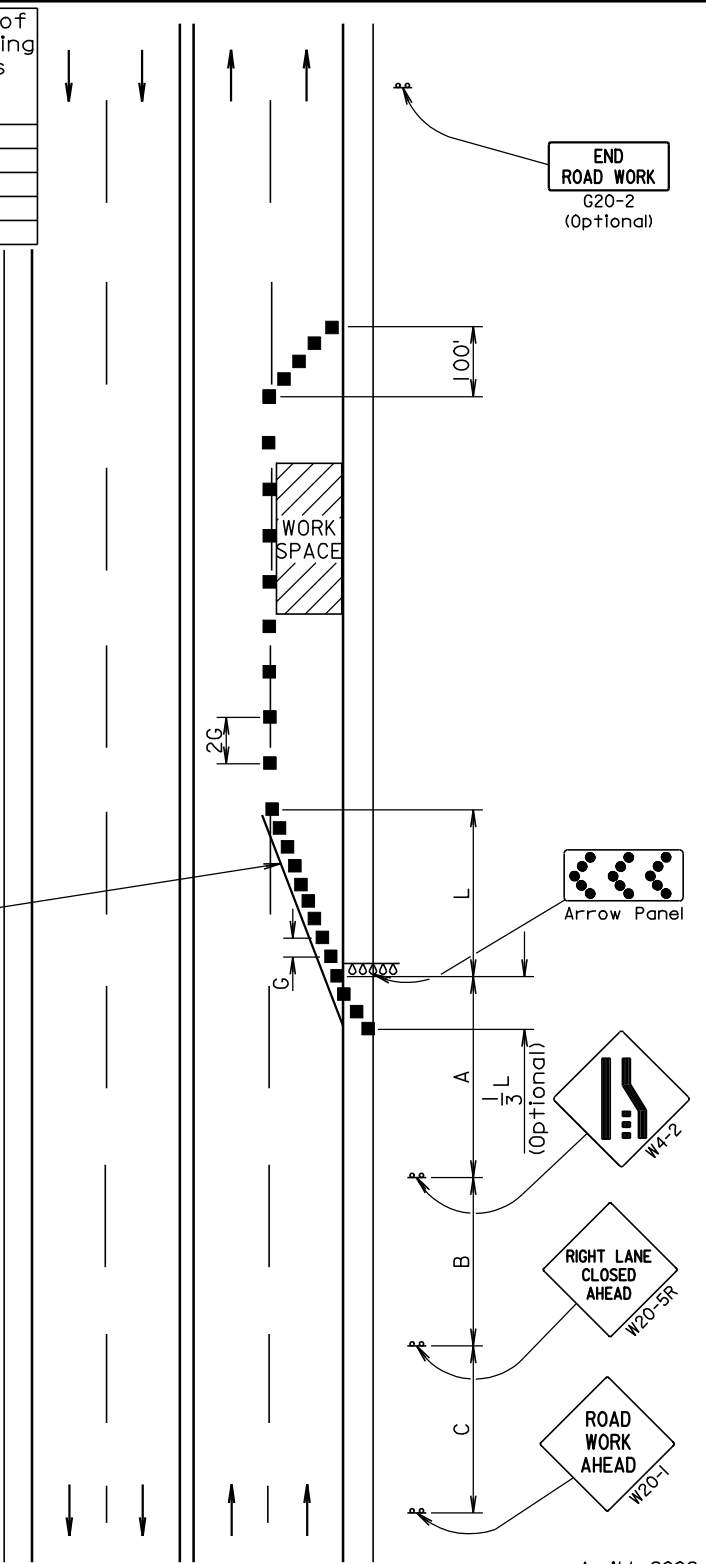
■ Channelizing Device

Drums or Type II Barricades shall be used if required overnight.

42" cones may be used along centerline

Longitudinal dimensions may be adjusted to fit project conditions such as horizontal curves, vertical curves, and other site restrictions.

Four inch white temporary pavement marking shall be used if traffic control must remain overnight or longer.



April 11, 2008

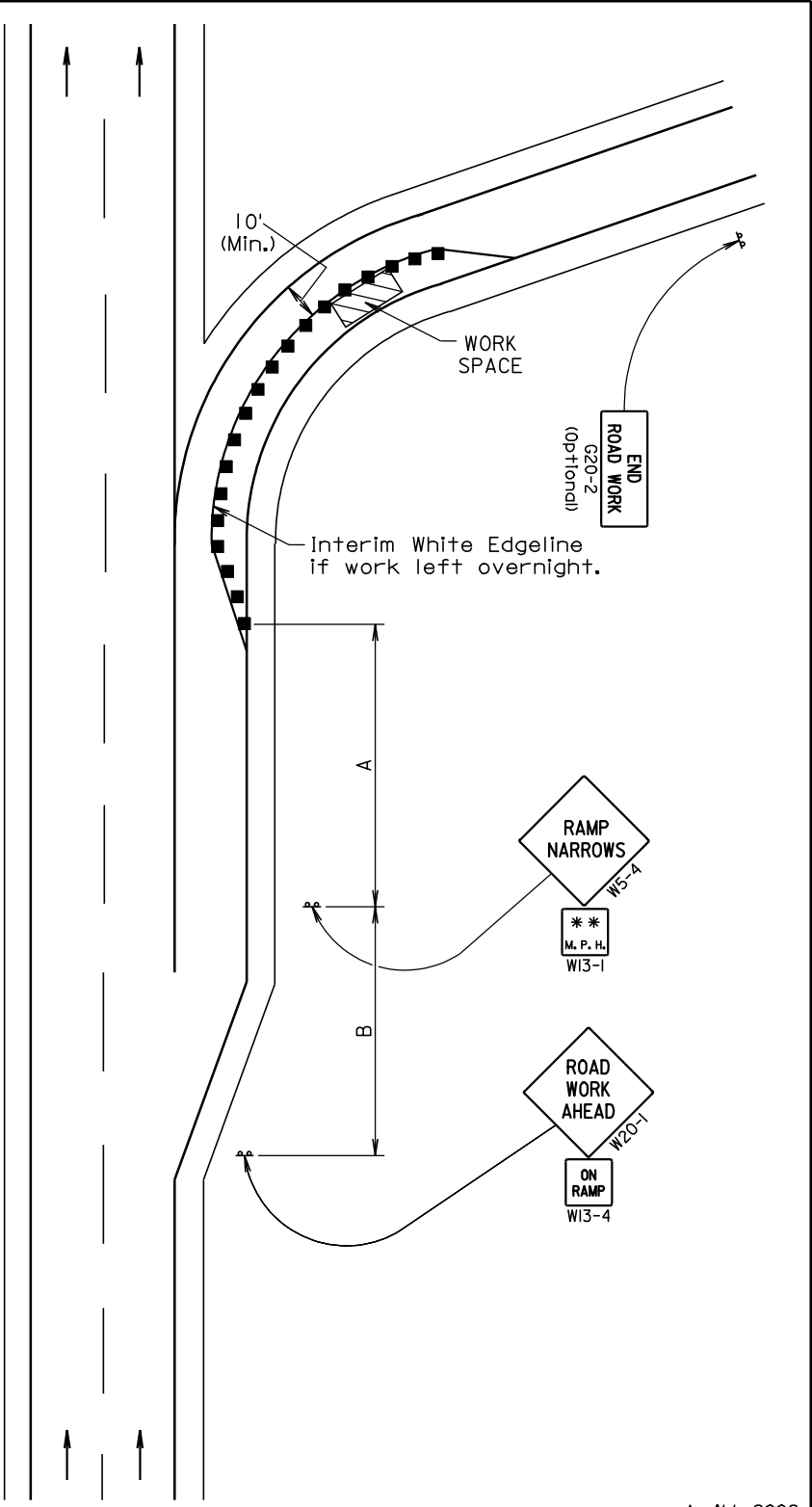
■ Channelizing Device

Drums or Type II Barricades shall be used if required overnight.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)	
	(A)	(B)
45 - 50	500	
55	750	
60 - 65	1000	
70 - 75	(A)	(B)
	1000	1600

Truck off-tracking should be considered when determining whether the 10 foot minimum lane width is adequate.

**Need and safe speed to be determined by Highway Authority.



April 11, 2008

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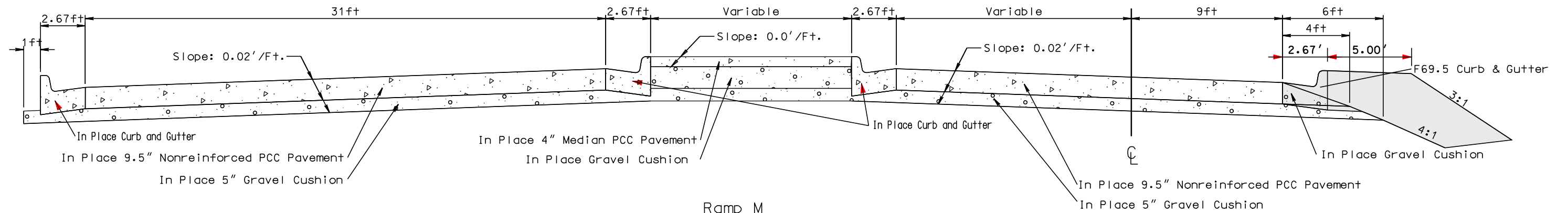
TYPICAL SECTIONS PROJECT 016 EB-452 SD HWY 79 & US HWY 16B

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	016EB-452 079N-452, 044-452 090W-452 & 090E-451		
		15	27

Plotting Date: 18-MAY-2010

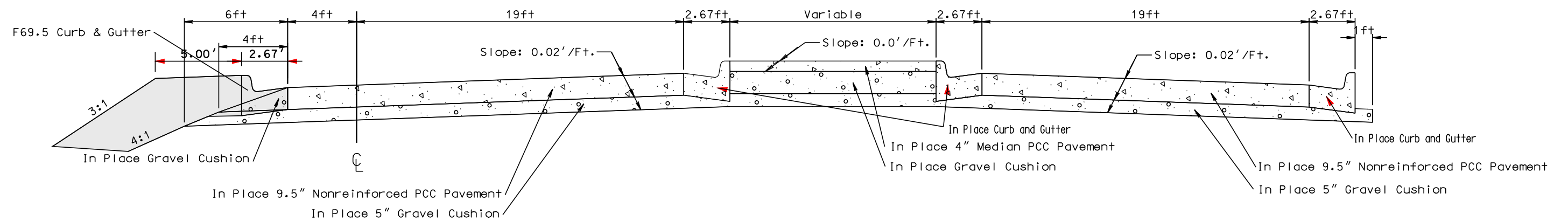
Ramp L

Sta. 0+49.81 to Sta. 1+16.81



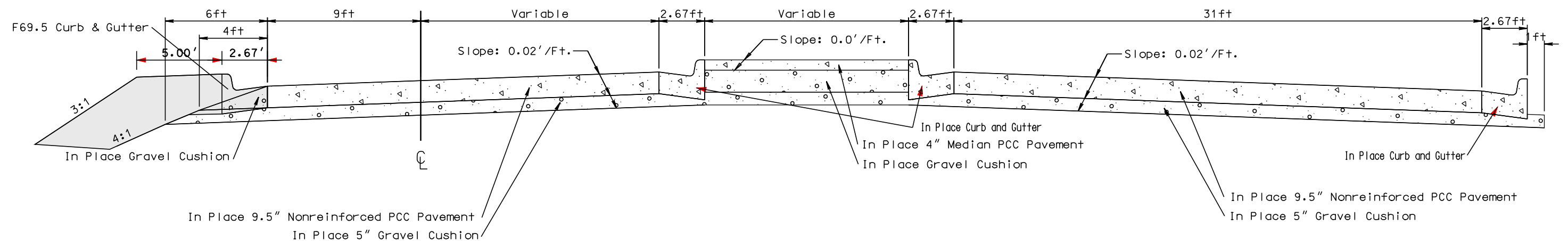
Ramp M

Sta. 0+50.20 to Sta. 1+06.52



Ramp N

Sta. 16+99.14 to Sta. 17+65.65



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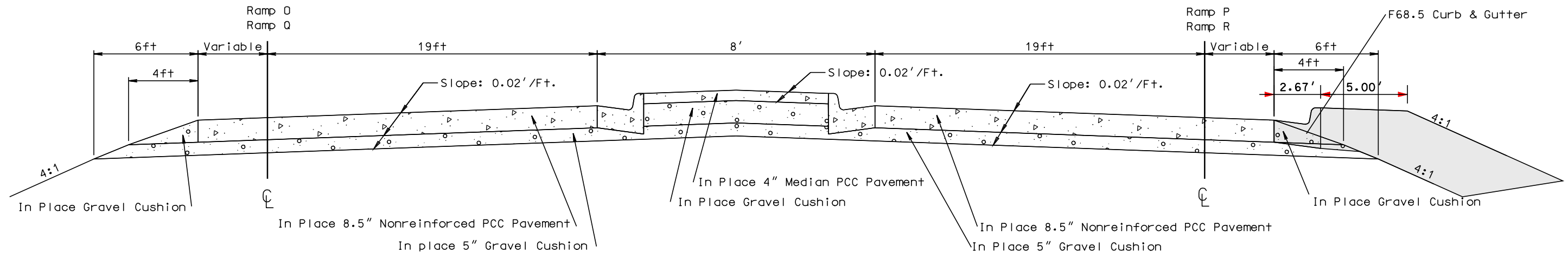
TYPICAL SECTIONS
PROJECT 044-452
US HWY 16B & SD HWY 44

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	016EB-452 079N-452, 044-452 090W-452 & 090E-451	16	27

Plotting Date: 18-MAY-2010

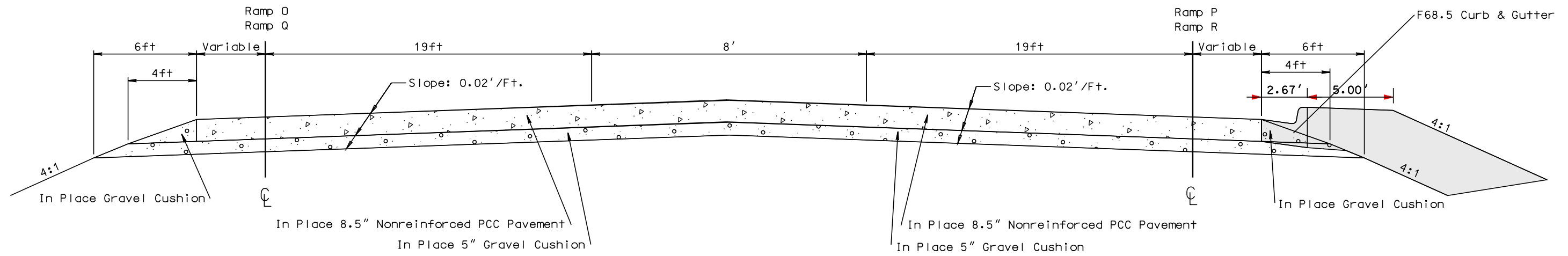
Ramps P & R

Ramp P Sta. 0+70.95 to Sta. 0+92.68
Ramp R Sta. 26+82.51 to Sta. 27+04.02



Ramps P & R

Ramp P Sta. 0+32.68 to Sta. 0+70.95
Ramp R Sta. 27+04.02 to Sta. 27+42.23



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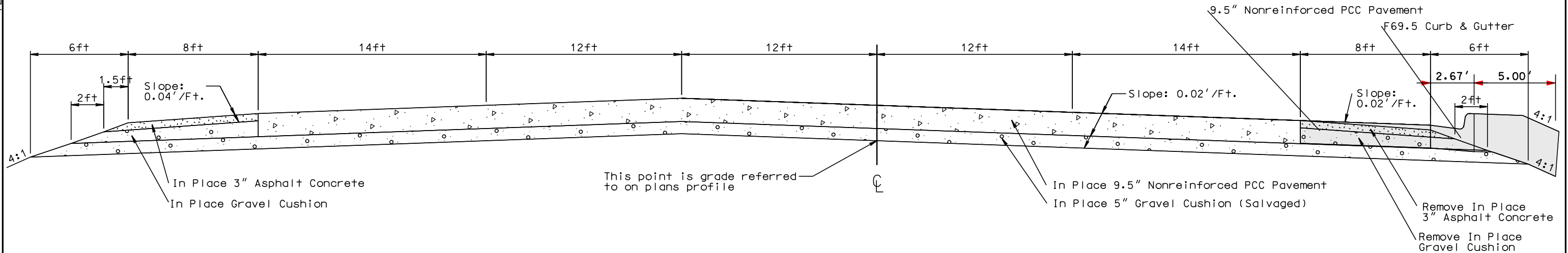
TYPICAL SECTIONS
PROJECT 079 N-452
SD HWY 79 & MINNESOTA ST

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	016EB-452 079N-452, 044-452 090W-452 & 090E-451		
		17	27

Plotting Date: 18-MAY-2010

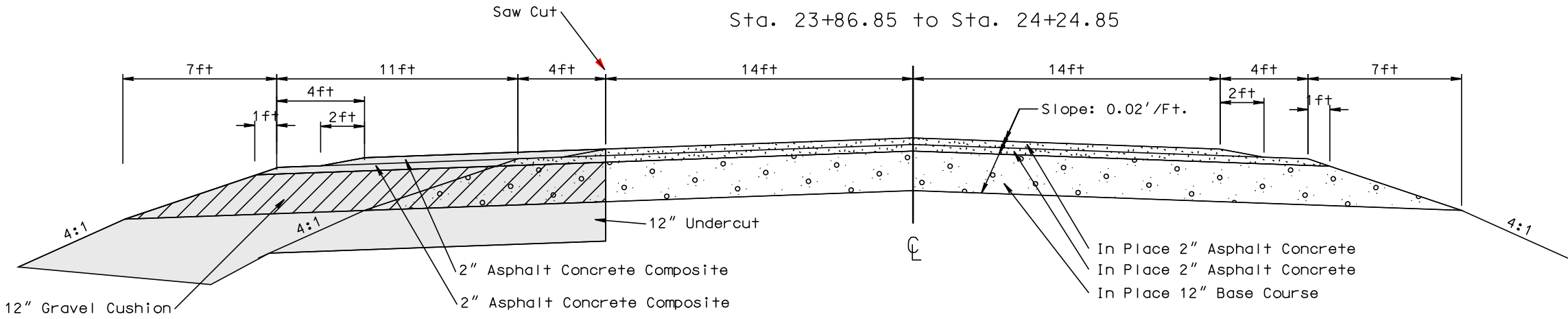
SD 79 Mainline

Sta. 133+67.65 to Sta. 133+92.62



Minnesota Street

Sta. 23+86.85 to Sta. 24+24.85



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PLOT SCALE - 200.000000:1.000000

PLOTTED FROM - TRRC11610

TYPICAL SECTIONS INTERSTATE 90

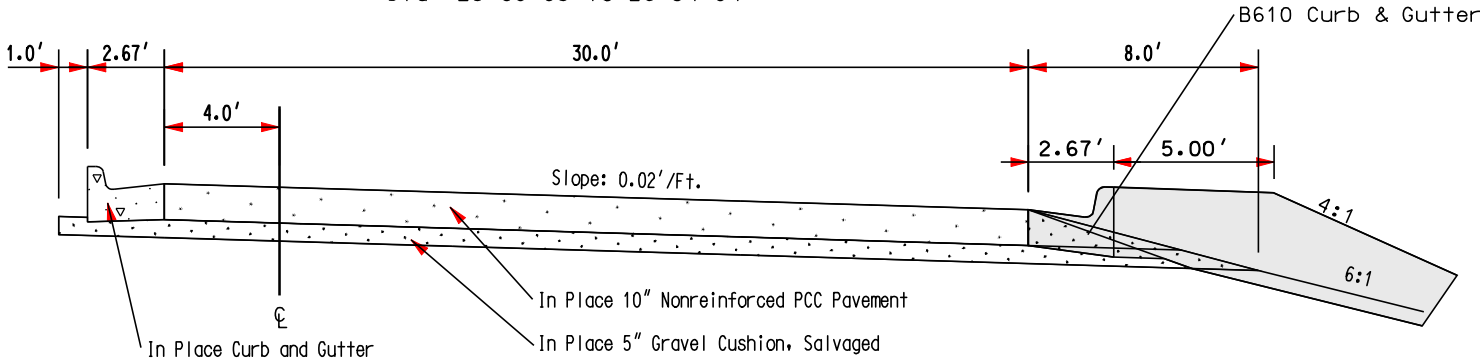
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	016EB-452 079N-452, 044-452 090W-452 & 090E-451		
		18	27

Plotting Date: 18-MAY-2010

PROJECT 09 0 W-45 2

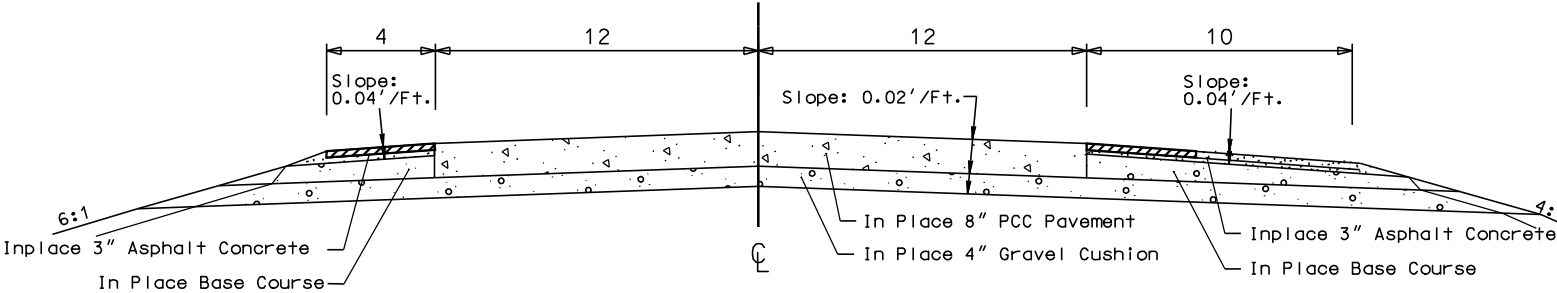
Exit 60

Ramp D
Sta. 25+09.85 to 26+34.84



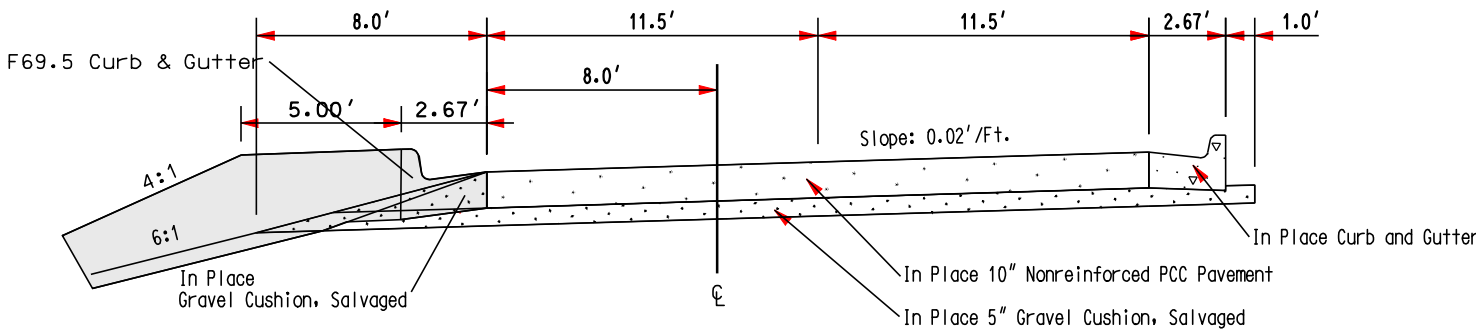
PROJECT 09 0 E-45 1

Existing Surfacing
MRM 43.42 Eastbound

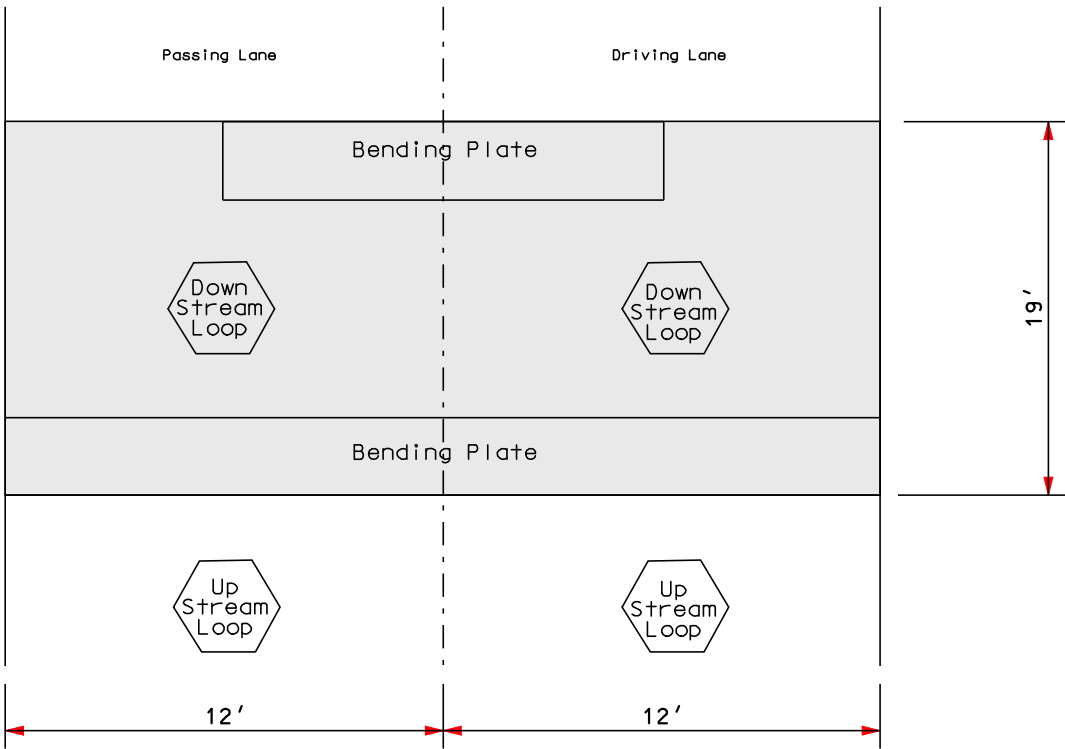


Exit 60

Ramp Dr
Sta. 4+37.83 to 6+33.50



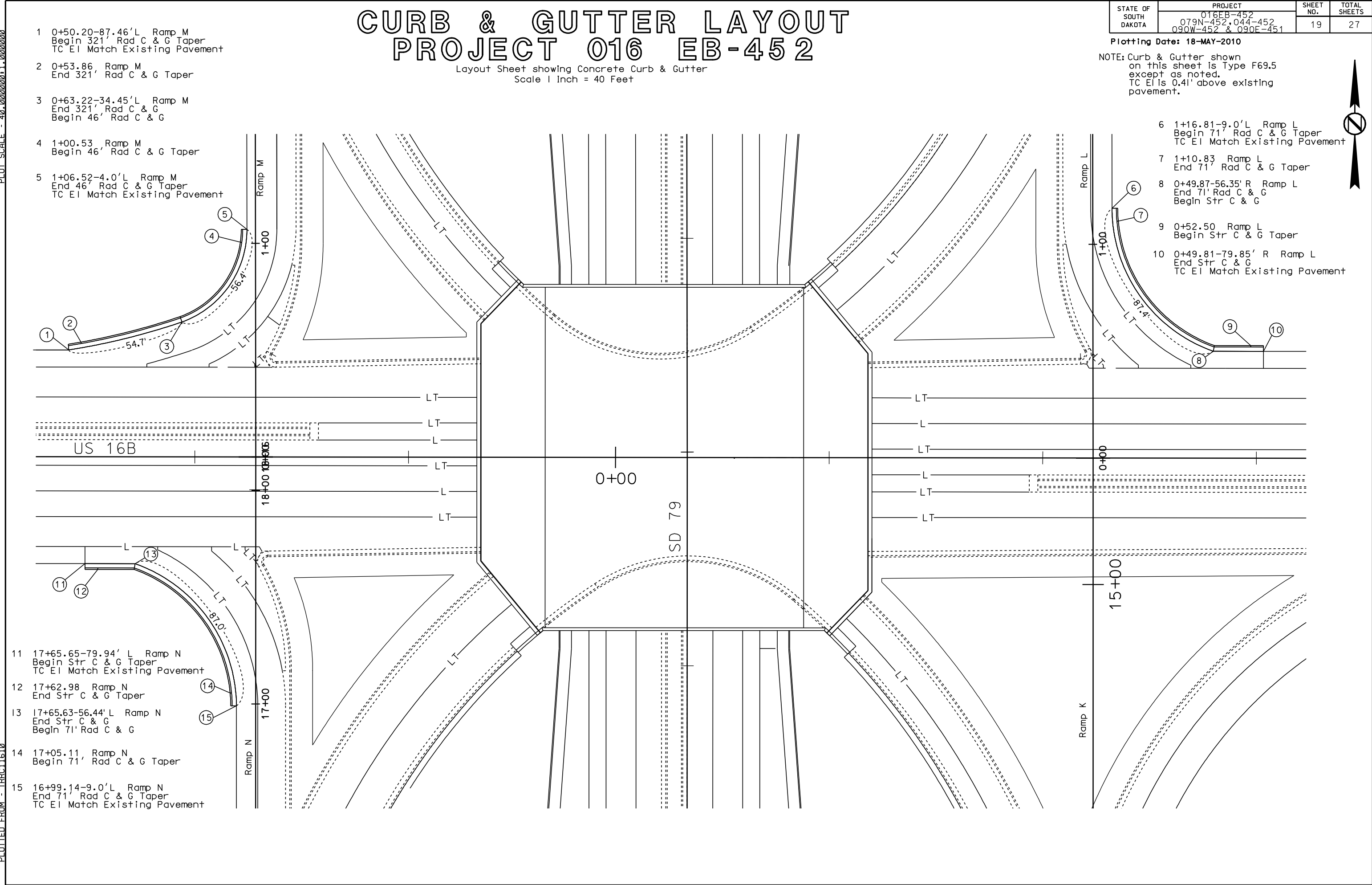
Nonreinforced PCC Pavement Repair Layout



FILE - U:\REGIONRC\PRJ\2018\REGMAINT\PLANS\SE CONNECTOR C&G.TYP.DGN PLOT NAME - 18

PLOT SCALE - 40.000000:1.000000

PLOTTED FROM - TRRC11610



- 1 0+50.20-87.46' L Ramp M
Begin 321' Rad C & G Taper
TC El Match Existing Pavement
- 2 0+53.86 Ramp M
End 321' Rad C & G Taper
- 3 0+63.22-34.45' L Ramp M
End 321' Rad C & G
Begin 46' Rad C & G
- 4 1+00.53 Ramp M
Begin 46' Rad C & G Taper
- 5 1+06.52-4.0' L Ramp M
End 46' Rad C & G Taper
TC El Match Existing Pavement

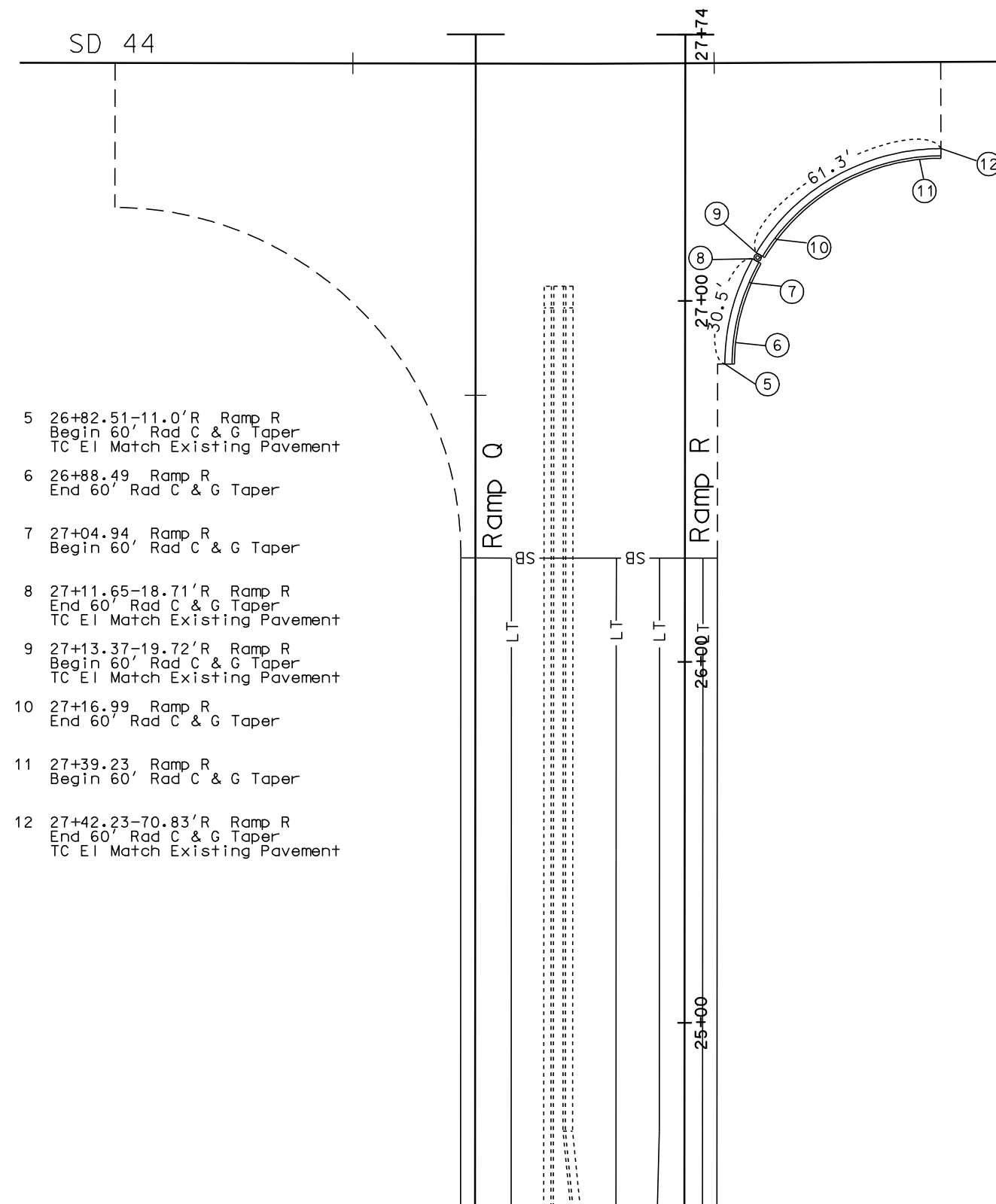
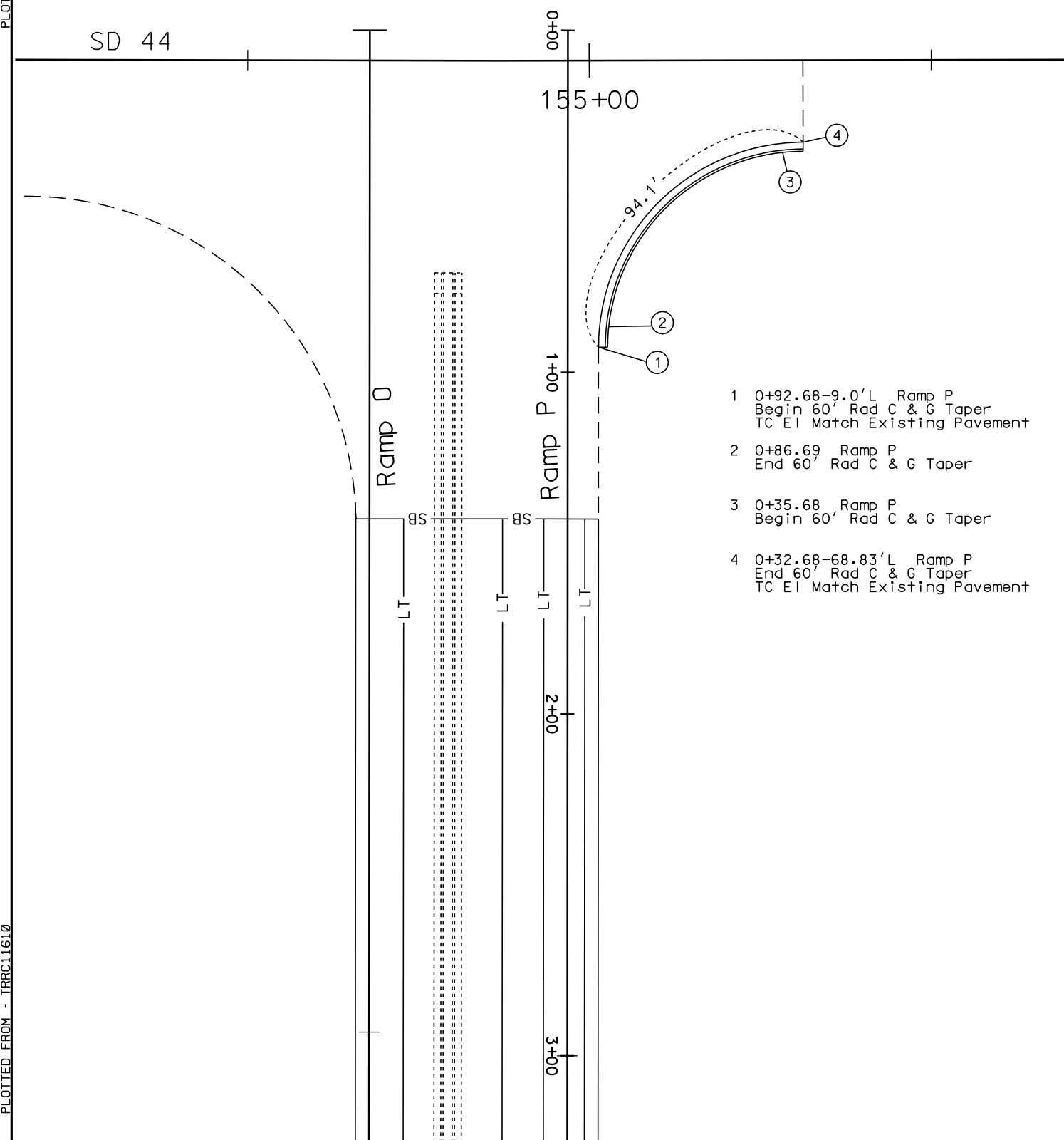
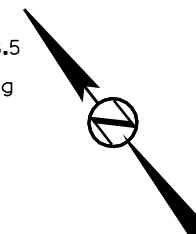
- 6 1+16.81-9.0' L Ramp L
Begin 71' Rad C & G Taper
TC El Match Existing Pavement
- 7 1+10.83 Ramp L
End 71' Rad C & G Taper
- 8 0+49.87-56.35' R Ramp L
End 71' Rad C & G
Begin Str C & G
- 9 0+52.50 Ramp L
Begin Str C & G Taper
- 10 0+49.81-79.85' R Ramp L
End Str C & G
TC El Match Existing Pavement

- 11 17+65.65-79.94' L Ramp N
Begin Str C & G Taper
TC El Match Existing Pavement
- 12 17+62.98 Ramp N
End Str C & G Taper
- 13 17+65.63-56.44' L Ramp N
End Str C & G
Begin 71' Rad C & G
- 14 17+05.11 Ramp N
Begin 71' Rad C & G Taper
- 15 16+99.14-9.0' L Ramp N
End 71' Rad C & G Taper
TC El Match Existing Pavement

Layout Sheet showing Concrete Curb & Gutter
Scale 1 Inch = 40 Feet

Plotting Date: 18-MAY-2010

NOTE: Curb & Gutter shown
on this sheet is Type F68.5
except as noted.
TC El is 0.41' above existing
pavement.



PLOT SCALE - 40.000000:1.000000

PLOTTED FROM - TRRC11610

CURB & GUTTER LAYOUT PROJECT 079 N-452

Layout Sheet showing Concrete Curb & Gutter and Miscellaneous PCC Pavemnt
Scale 1 Inch = 40 Feet

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	016EB-452 079N-452, 044-452 090W-452 & 090E-451	21	27

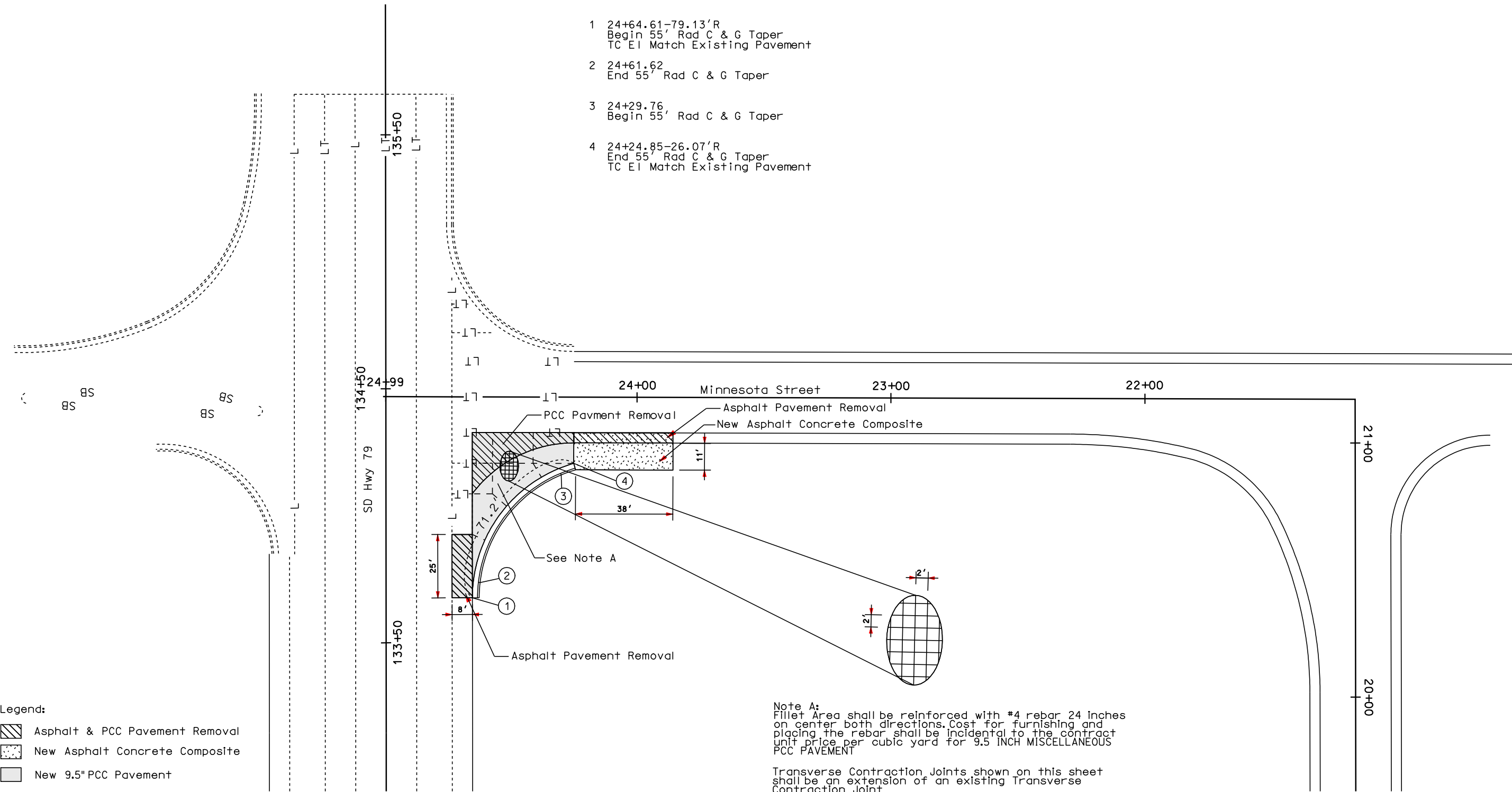
Plotting Date: 18-MAY-2010

NOTE: Curb & Gutter shown
on this sheet is Type F69.5
except as noted.
TC El is 0.41' above existing
pavement.



FILE - U:\REGIONRC\PR\2018\REGMAINT\PLANS\SE CONNECTOR C&G\CG 79&MINN.DGRIOT NAME - 21

- 1 24+64.61-79.13'R
Begin 55' Rad C & G Taper
TC El Match Existing Pavement
- 2 24+61.62
End 55' Rad C & G Taper
- 3 24+29.76
Begin 55' Rad C & G Taper
- 4 24+24.85-26.07'R
End 55' Rad C & G Taper
TC El Match Existing Pavement



PLOT SCALE - 40.000000:1.000000

PLOTTED FROM - TRRC11610

CURB & GUTTER LAYOUT PROJECT 09 0 W-45 2

Layout Sheet showing Concrete Curb & Gutter
Scale 1 Inch = 40 Feet

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	016EB-452 079N-452, 044-452 090W-452 & 090E-451	22	27

Plotting Date: 18-MAY-2010

NOTE: Curb & Gutter shown
on this sheet is Type B610
except as noted.
TC El is 0.41' above existing
pavement.

1 4+37.81-8.0'L Ramp Dr
Begin Str C & G Taper
TC El Match Existing Pavement

2 4+43.76 Ramp Dr
End C & G Taper

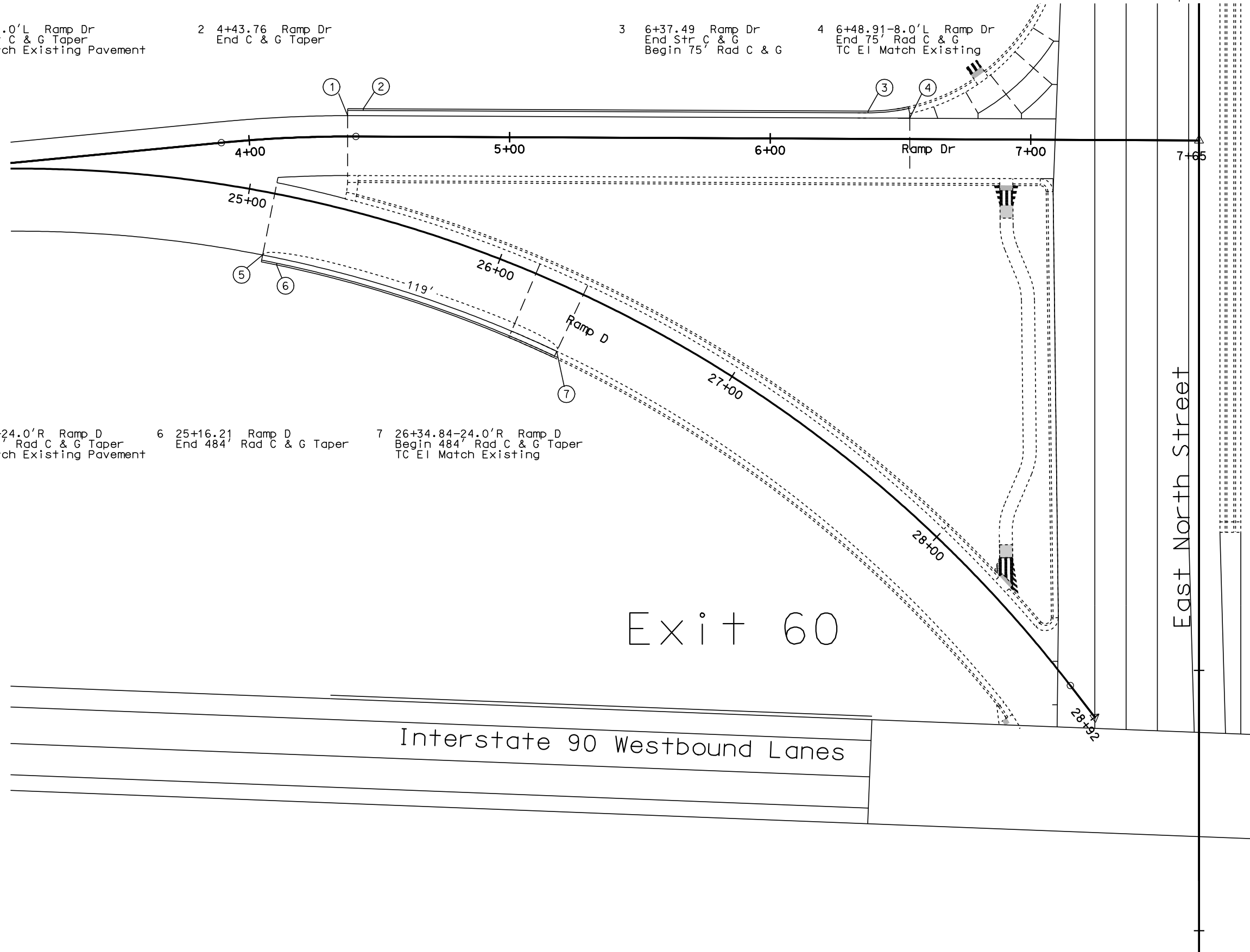
3 6+37.49 Ramp Dr
End Str C & G
Begin 75' Rad C & G

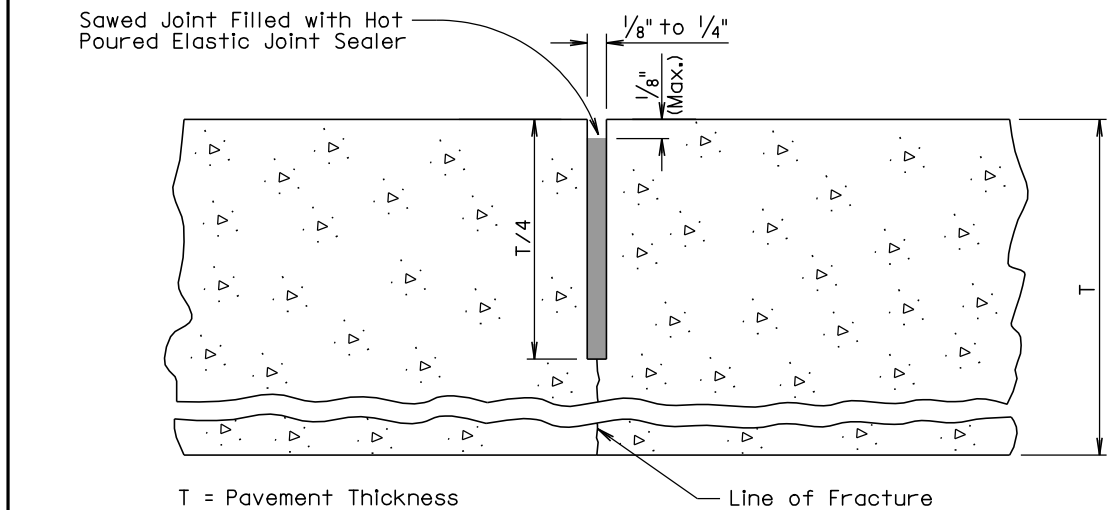
4 6+48.91-8.0'L Ramp Dr
End 75' Rad C & G
TC El Match Existing

5 25+09.85-24.0'R Ramp D
Begin 484' Rad C & G Taper
TC El Match Existing Pavement

6 25+16.21 Ramp D
End 484' Rad C & G Taper

7 26+34.84-24.0'R Ramp D
Begin 484' Rad C & G Taper
TC El Match Existing





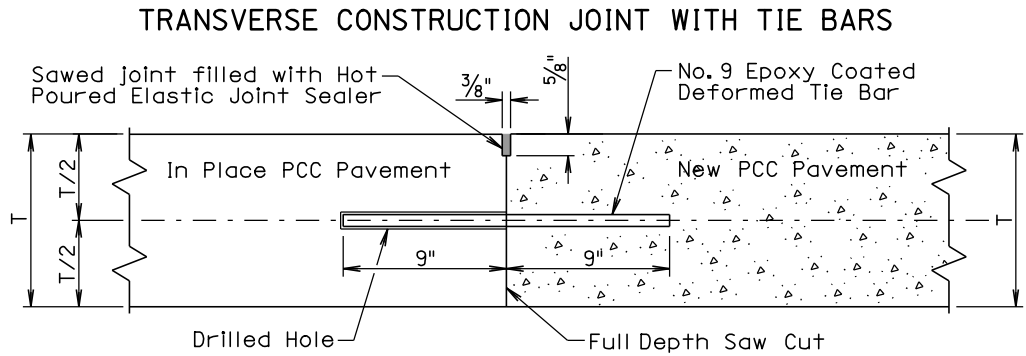
GENERAL NOTES:

The saw cut to control cracking shall be a minimum of 1/4 the thickness of the pavement.

All hot poured elastic joint sealer material spilled on the surface of the concrete pavement shall be removed as soon as the material has cooled. The extent of removal of material shall be to the satisfaction of the Engineer. All costs for removal of the spilled joint sealer material shall be borne by the Contractor.

December 23, 2007

Published Date: 2nd Qtr. 2010	S D D O T	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER
			380.03
			Sheet 1 of 1



T = In Place PCC Pavement and New PCC Pavement Thickness

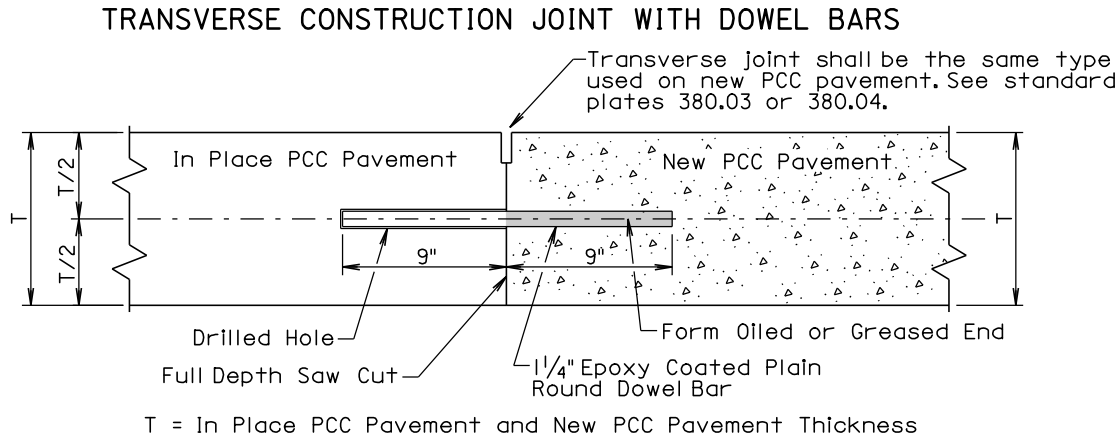
GENERAL NOTES:

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.



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.

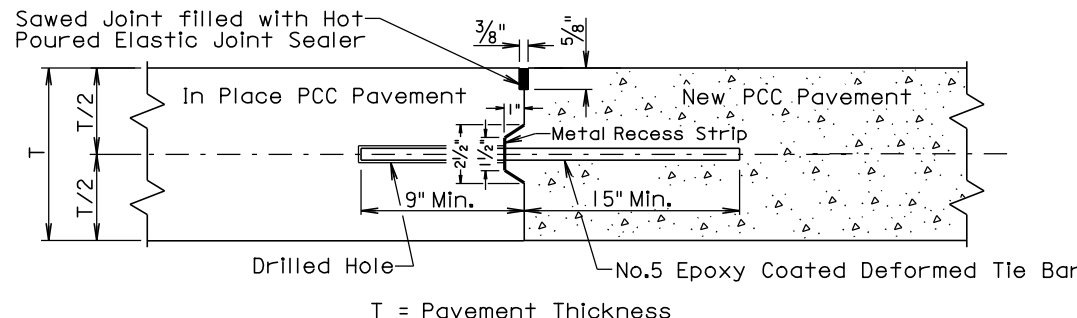
The 1 1/4" epoxy coated plain round dowel bars shall be spaced 12 inches center to center and shall be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

The 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 6, 2006

Published Date: 2nd Qtr. 2010	S D D O T	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER
			380.06
			Sheet 1 of 1

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(DRILLED IN BARS)



GENERAL NOTES:

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.

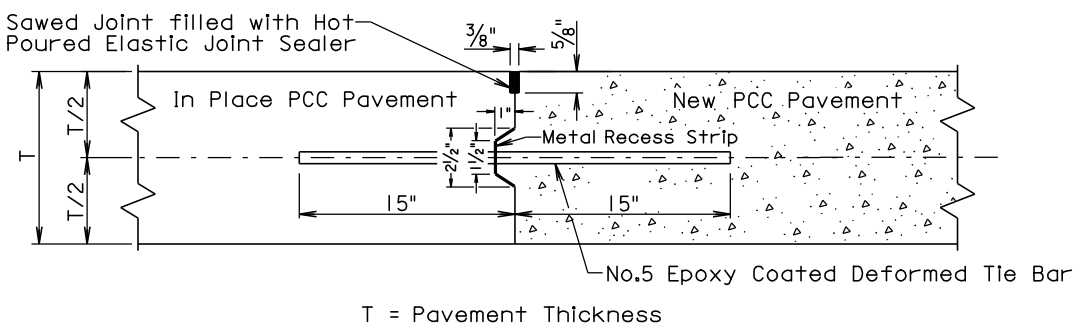
No.5 epoxy coated deformed tie bars shall be spaced 48" center to center for a female keyway or 30" center to center for a vertical face and male keyway. The keyway shown above is a female keyway.

The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

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.

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(INSERTED OR FORMED IN BARS)



GENERAL NOTES:

No.5 epoxy coated deformed tie bars shall be spaced 48" center to center for a female keyway or 30" center to center for a vertical face and male keyway. The keyway shown above is a female keyway.

The tie bars shall be placed a minimum of 15 inches from existing transverse contraction joints.

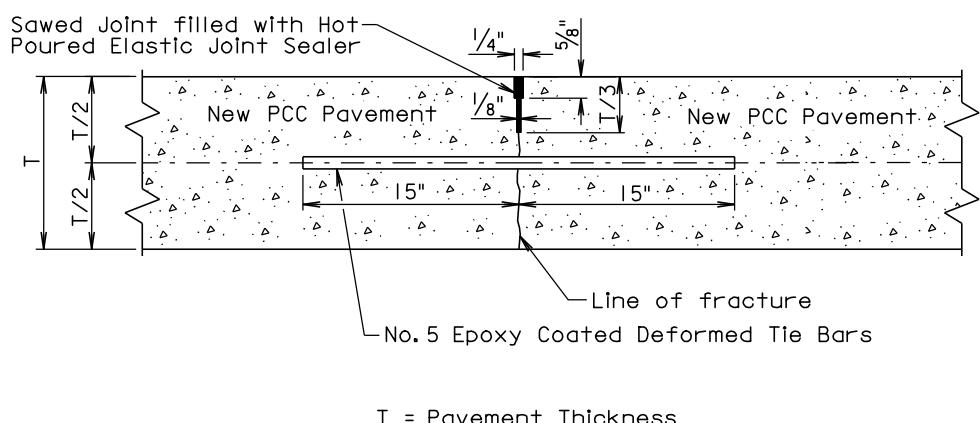
The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

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

September 14, 2001

<i>Published Date: 2nd Qtr. 2010</i>	S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10
			Sheet 1 of 2

SAWED LONGITUDINAL JOINT WITH TIE BARS
(POURED MONOLITHICALLY)



GENERAL NOTES:

No.5 epoxy coated deformed tie bars shall be spaced 48 inches center to center.

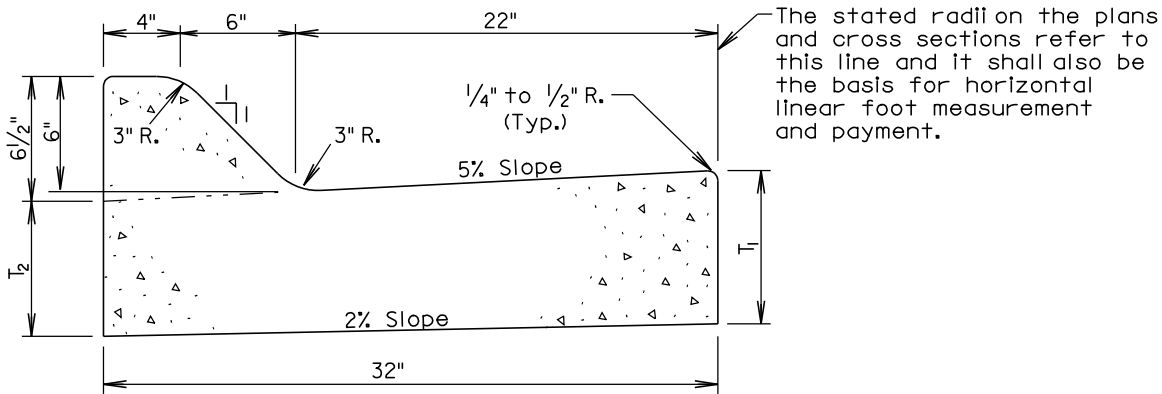
The tie bars shall be placed a minimum of 15 inches from the existing transverse contraction joints.

The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer will be necessary.

September 14, 2001

<i>Published Date: 2nd Qtr. 2010</i>	S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.10
			Sheet 2 of 2

Plotting Date: 18-MAY-2010



Type	T ₁ (Inches)	T ₂ (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
F66	6	5 ¹ / ₁₆	0.057	17.6
F67	7	6 ¹ / ₁₆	0.065	15.4
F68	8	7 ¹ / ₁₆	0.073	13.6
F68.5	8.5	7 ⁹ / ₁₆	0.077	12.9
F69	9	8 ¹ / ₁₆	0.082	12.3
F69.5	9.5	8 ⁹ / ₁₆	0.086	11.7
F610	10	9 ¹ / ₁₆	0.090	11.1
F610.5	10.5	9 ⁹ / ₁₆	0.094	10.7
F611	11	10 ¹ / ₁₆	0.098	10.2
F611.5	11.5	10 ⁹ / ₁₆	0.102	9.8
F612	12	11 ¹ / ₁₆	0.106	9.4

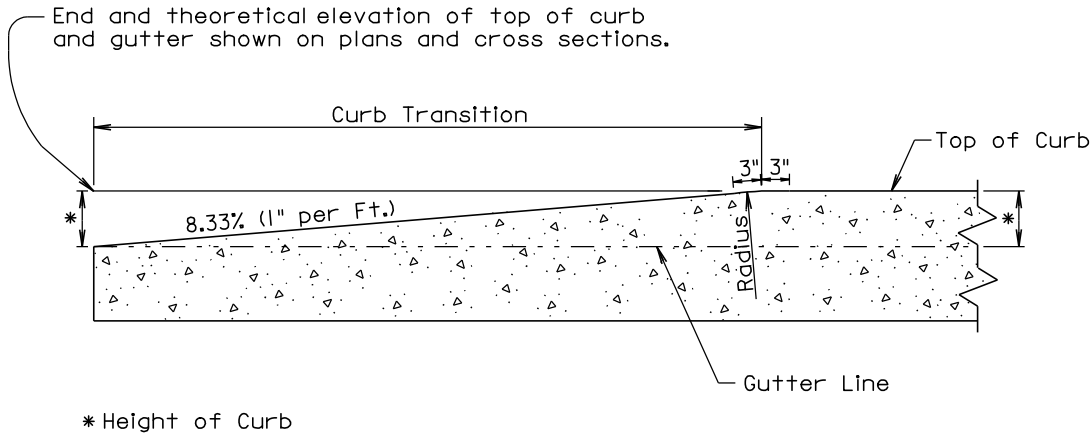
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

See Standard Plate 650.90 for expansion and contraction joints in the curb and gutter.

September 6, 2008

<i>Published Date: 2nd Qtr. 2010</i>	S D D O T	TYPE F CONCRETE CURB AND GUTTER	PLATE NUMBER 650.20
			Sheet 1 of 1



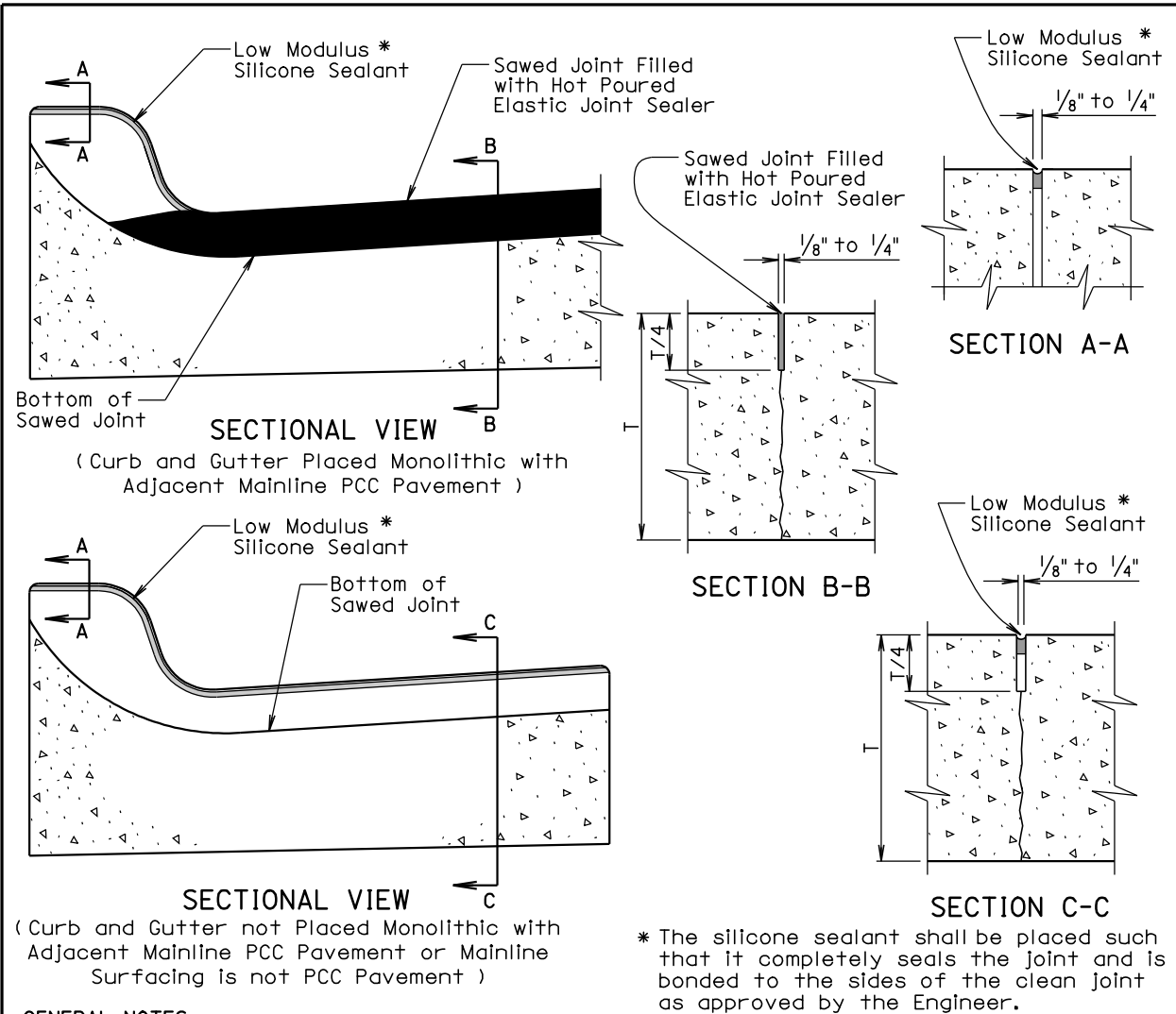
LONGITUDINAL SECTION OF CONCRETE CURB TAPER

September 14, 2005

<i>Published Date: 2nd Qtr. 2010</i>	S D D O T	CONCRETE CURB TAPER	PLATE NUMBER 650.35
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	016EB-452 079N-452, 044-452 090W-452 & 090E-451		
		27	27

Plotting Date: 18-MAY-2010



GENERAL NOTES:

For illustrative reason, only the type B curb and gutter is shown.

A 1/2" preformed expansion joint filler shall be placed transversely in the curb and gutter at the following locations:

1. At each junction between the radius return of curb and gutter and curb and gutter which is parallel to the project centerline.
2. At each junction between new curb and gutter and existing curb and gutter.

Transverse contraction joints shall be constructed at 10' intervals in the concrete curb and gutter except when the concrete curb and gutter is constructed adjacent to mainline PCC pavement. When concrete curb and gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint shall be constructed in the concrete curb and gutter at each mainline PCC pavement transverse contraction joint location.

When concrete curb and gutter is not placed monolithically with the mainline PCC pavement or when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete curb and gutter shall be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the concrete and the joint shall be sealed in accordance with the details shown above.

September 6, 2006

Published Date: 2nd Qtr. 2010	S D D O T	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 1 of 1