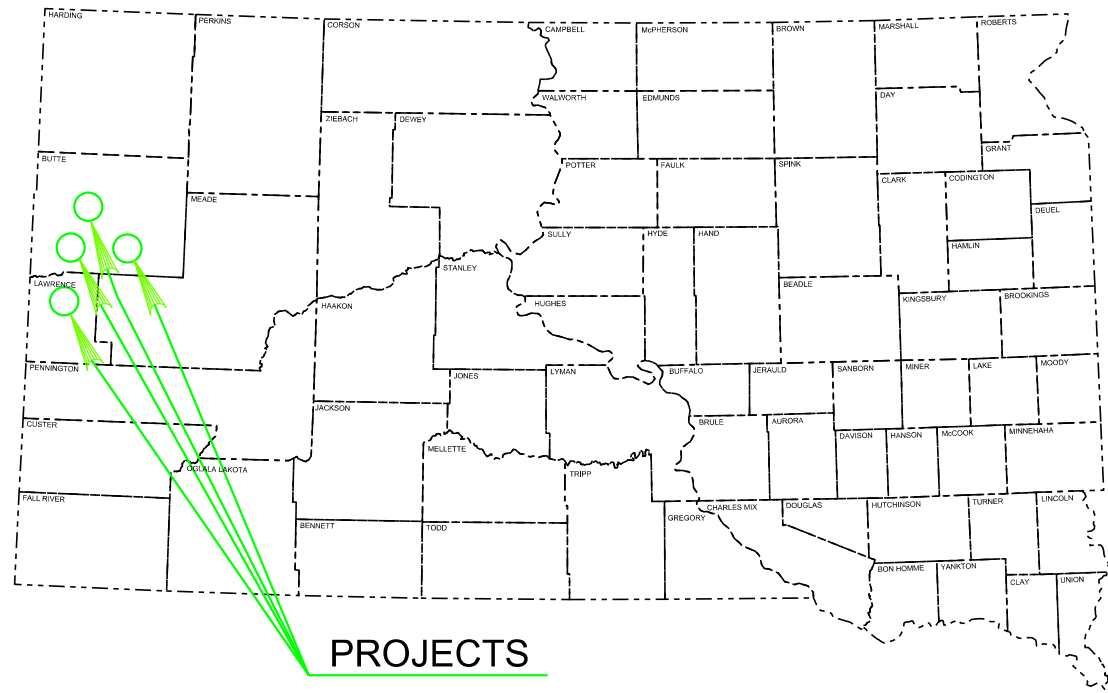


Plot Scale - 1:200

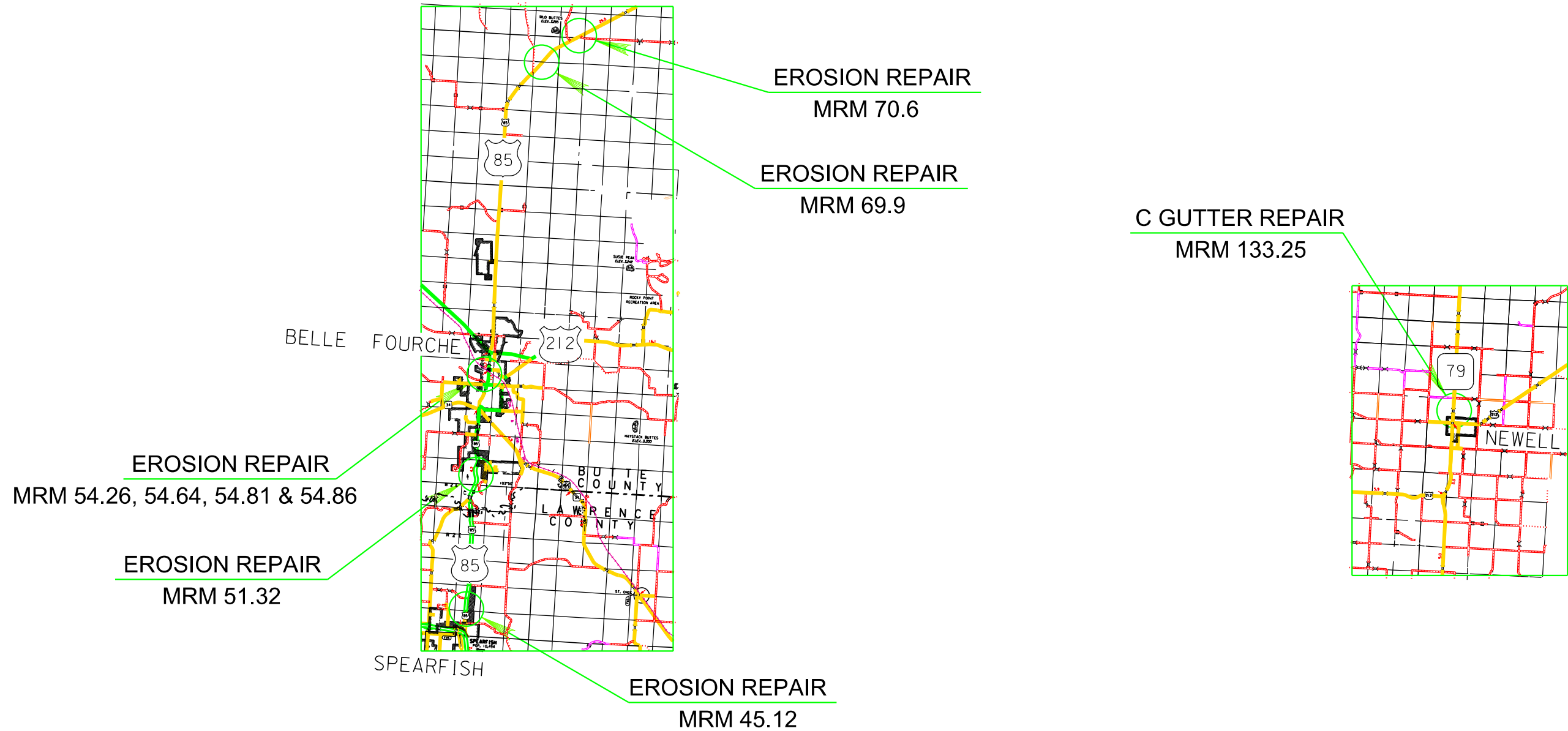
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Plotted From -



STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION  
PLANS FOR PROPOSED  
  
PROJECT 085N-471, PCN i70v  
PROJECT 085S-471, PCN i70w  
PROJECT 085-471, PCN i70x  
PROJECT 079-471, PCN i70y  
  
US HIGHWAY 85 AND SD HIGHWAY 79  
BUTTE AND LAWRENCE COUNTIES  
  
EROSION REPAIRS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	1	26
Plotting Date: 04/21/2023			
INDEX OF SHEETS			
1	General Layout with Index		
2 - 5	Estimate with General Notes & Tables		
6 - 17	Plan Views		
18 - 22	Standard Plates		



ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0300	Remove Concrete Curb and/or Gutter	100	Ft
110E1010	Remove Asphalt Concrete Pavement	5.3	SqYd
110E7150	Remove Sign for Reset	1	Each
120E0010	Unclassified Excavation	59	CuYd
120E0600	Contractor Furnished Borrow	598	CuYd
120E1000	Muck Excavation	484	CuYd
230E0020	Contractor Furnished Topsoil	374	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
260E2010	Gravel Cushion	5.9	Ton
380E1000	6" Miscellaneous PCC Pavement	18.7	SqYd
380E6110	Insert Steel Bar in PCC Pavement	12	Each
632E3500	Reset Sign	1	Each
634E0010	Flagging	50.0	Hour
634E0110	Traffic Control Signs	176.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each
650E1085	Type F68.5 Concrete Curb and Gutter	27	Ft
650E4689	Modified Type P9 Concrete Gutter	14	Ft
700E0110	Class A Riprap	20.7	Ton
720E1015	Bank and Channel Protection Gabion	9.0	CuYd
730E0210	Type F Permanent Seed Mixture	24	Lb
731E0200	Fertilizing	0.70	Ton
734E0103	Type 3 Erosion Control Blanket	4,125	SqYd
734E0131	Type 1 Turf Reinforcement Mat	311.1	SqYd
734E0510	Shaping for Erosion Control Blanket	1,055	Ft
831E0110	Type B Drainage Fabric	74	SqYd
900E5147	Articulated Concrete Mattress	89.0	SqYd

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf>

ENVIRONMENTAL COMMITMENTS (CONTINUED)

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment shall be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at: <http://sdleastwanted.com/maps/default.aspx>

[South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species:](#)  
<https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04>

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	2	26

COMMITMENT H: WASTE DISPOSAL SITE (CONTINUED)

Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) will 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 Environmental Office and the Project Engineer.

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with 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 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) will be incidental to the various contract items.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

State Historic Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

All earth disturbing activities require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES  
(CONTINUED)

The Contractor will provide ARC with the following: a topographical map or aerial view in 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 artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

The Contractor is responsible for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

UTILITIES

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

If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor will contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

CONCRETE CURB AND/OR GUTTER

New curb and gutter will be tied to existing PCC pavement with drilled in No. 5 x 30” epoxy coated deformed tie bars spaced 30” center to center. Refer to the Curb Opening Detail plan sheet for curb and gutter locations and layouts. Cost for this work will be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.

Existing foundation material will be shaped and compacted to a firm, uniform bearing surface, conforming to the existing section or established grades as set by the Engineer. Unsuitable foundation material will be removed and replaced as directed.

Cost for labor, equipment, material and incidentals required for excavation and providing cushion material will be incidental to the contract unit prices for the various items.

STEEL BAR INSERTION

Steel bars will be used to tie new pavement and curb and gutter to the existing pavement.

The Contractor will insert the Steel Bars (No. 5 x 30 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.

Epoxy coated deformed steel bars will be inserted on 30-inch centers and will be placed a minimum of 15 inches from the existing transverse construction joint.

GRAVEL CUSHION

Gravel Cushion will be placed to a depth of 5” and compacted to the satisfaction of the Engineer prior to placement of the 6” Miscellaneous PCC Pavement.

Gravel Cushion will also be used for Curb and Gutter installation.

Water for compaction will be to the satisfaction of the Engineer.

All cost for water for compaction will be incidental to the unit price per ton for Gravel Cushion.

UNCLASSIFIED EXCAVATION

All excavation that must be performed to repair the erosion areas will be included in the contract unit price per cubic yard for “Unclassified Excavation”.

The plans quantity for “Unclassified Excavation” as shown in the Estimate of Quantities will be the basis of payment for this item without further field measurement. If changes are necessary on construction, the altered quantities will be measured for payment.

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor will provide a suitable site for Contractor furnished borrow excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material will be approved by the Engineer. The plans quantity for “Contractor Furnished Borrow Excavation” as shown in the Estimate of Quantities will be the basis of payment for this item. Borrow material will be used to fill the eroded areas prior to placement of topsoil and permanent erosion control.

Restoration of the Contractor furnished borrow excavation site will be the responsibility of the Contractor.

REMOVE AND REPLACE TOPSOIL – MRM 51.32 (Redwater)

Prior to excavating behind the curb and gutter, a 4” depth of topsoil will be salvaged within the work limits where available. The Contractor will minimize the damage to existing vegetation. Following completion of grading operations, topsoil will be replaced over all disturbed areas. The exact limit will be determined by the Engineer during construction.

All costs associated with removing and replacing the topsoil on the project will be incidental to the lump sum price for “Remove and Replace Topsoil”.

CONTRACTOR FURNISHED TOPSOIL

The Contractor will be required to furnish and place 4 inches of topsoil on the erosion areas indicated on the plan sheets and in the table of quantities as determined by the Engineer during construction.

Contractor furnished topsoil will be free from stones, coarse gravel, or similar objects larger than 3/4 inch in diameter. Brush, stumps, roots, wood, objectionable weeds, litter, or any other material which may be harmful to plant growth will not be allowed. Organic material will be decomposed.

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

The plans quantity for “Contractor Furnished Topsoil” as shown in the Estimate of Quantities will be the basis of payment for this item without further field measurement. If changes are necessary on construction, the altered quantities will be measured for payment.

MUCK EXCAVATION

The areas of muck excavation are indicated on the plan sheets and the table of quantities. The estimated quantity of 484 cubic yards of muck excavation will be paid for at the contract unit price per cubic yard for “Muck Excavation”.

Muck excavation consists of the removal of highly organic and/or highly saturated material from the designated areas shown on the cross sections. Highly organic muck material will not be used in the embankment but may be used as topsoil. Non-organic muck material may be used as embankment outside of the fill subgrade shoulder if it is properly handled and dried prior to placement in the embankment.

Field measurement of muck excavation will not be made unless the Engineer orders additional excavation, or when the Engineer determines, in accordance with Section 120.3 A.1 of the Specifications, that the classification of excavation be changed.

Clearing will be incidental to the “Muck Excavation” bid item.

TABLE OF BANK AND CHANNEL  
PROTECTION GABIONS AND DRAINAGE FABRIC

		Bank and Channel Protection Gabion (CuYd)	Type B Drainage Fabric (SqYd)
US 85 MRM	L/R		
45.12	R	4.5	15
54.81	L	4.5	15
Totals:		9.0	30



REMOVE CONCRETE CURB AND/OR GUTTER

Existing Concrete C Gutter is included in the table of quantities. The Contractor will dispose of the existing Concrete C Gutter concrete at a site approved by the Engineer.

The plans quantity for “Remove Concrete Curb and/or Gutter” as shown in the Estimate of Quantities will be the basis of payment for this item without further field measurement.

TABLE OF REMOVE CONCRETE GUTTER

MRM	L/R	Remove Concrete Gutter (Ft)
133.25 (SD79)	LT/ RT	50
54.26 (US 85)	RT	50
Total:		100

Mycorrhizal Inoculum

Mycorrhizal inoculum will consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier will provide certification of the fungal species claimed and the live propagule count. The inoculum will include the following fungal species:

- 25% *Glomus intraradices*
- 25% *Glomus aggregatum or deserticola*
- 25% *Glomus mosseae*
- 25% *Glomus etunicatum*

All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed will be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

The mycorrhizal inoculum will be as shown below or an approved equal:

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 <a href="http://www.mycorrhizae.com">www.mycorrhizae.com</a>
AM 120 Multi Species Blend	Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 <a href="http://www.reforest.com">www.reforest.com</a>

Fertilizing

The Contractor will apply an all-natural slow-release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer will be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer will have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer will also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The fertilizer will be applied at a rate of 1,500 pounds per acre in accordance with the manufacturer’s recommended method of application.

The all-natural slow-release fertilizer will be as shown below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 <a href="http://www.sustane.com">www.sustane.com</a>
Perfect Blend	Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 <a href="http://www.perfect-blend.com">www.perfect-blend.com</a>

Permanent Seeding

The areas to be seeded consist of below the articulated concrete mattress and newly disturbed areas within the project limits.

Type F Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Green Needlegrass	Lodorm, AC Mallard Ecovar	4
Sideoats Grama	Butte, Pierre	3
Blue Grama	Bad River	2
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
Total:		26

EROSION CONTROL BLANKET

Erosion control blanket will be installed at the locations noted in the table and at locations determined by the Engineer during construction.

The erosion control blanket provided will be from the approved product list. The approved product list for erosion control blanket may be viewed at the following internet site:

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

TABLE OF EROSION CONTROL BLANKET

US 85 MRM	Location	Type	Quantity (SqYd)
45.14 RT	Inslope	3	366.7
45.16 LT	Inslope	3	1333.3
45.18 RT	Inslope	3	277.8
45.25 LT	Ditch Bottom	3	1263.9
51.32 RT	Behind C&G	3	122.2
54.64 RT	Ditch Bottom	3	35.6
54.81 LT	Ditch Bottom	3	138.9
54.86 LT	Ditch Bottom	3	586.7
Total Type 3 Erosion Control Blanket:			4125.1

SHAPING FOR EROSION CONTROL BLANKET

The ditches will be shaped for the erosion control blanket as specified on Standard Plate 734.01 and as directed by the Engineer.

TURF REINFORCEMENT MAT

Turf Reinforcement Mat will be installed at locations shown in the table at the widths specified, and at locations determined by the Engineer during construction. The Contractor will use a turf reinforcement mat from the approved products list. The approved product list for turf reinforcement mat may be viewed at the following internet site:

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

Turf Reinforcement Mat will be installed in accordance with the manufacturer’s installation instructions.

TABLE OF TURF REINFORCEMENT MAT

Station	Location	Width (Ft)	Type	Quantity (SqYd)
45.12 RT	Pipe End	8	1	44.4
69.9 LT	Ditch Bottom	8	1	88.9
70.6 LT	Ditch Bottom	8	1	177.8
Total Type 1 Turf Reinforcement Mat:				311.1

ARTICULATED CONCRETE MATTRESS

Articulated concrete mattress will be installed after the existing C Gutter is removed and as determined by the Engineer during construction. The mattress will have to be cut to butt up against the existing pavement and approach.

Installation of the articulated concrete mattress will be in accordance with the manufacturer’s installation instructions.

All costs for furnishing and installing the articulated concrete mattress including hauling, materials, equipment, labor, excavation, shaping, cutting and incidentals necessary will be paid for at the contract unit price per square yard for “Articulated Concrete Mattress”.

The articulated concrete mattress will be as shown below or an approved equal:

Product	Manufacturer
Standard Flexamat	Flexamat Permanent Site Solutions Cincinnati, Ohio Phone: (513) 772-6690 <a href="http://www.flexamat.com">www.flexamat.com</a>

Product	Manufacturer
ShoreFlex	ShoreFlex Denham Springs, Louisiana Phone: (800) 575-7293 <a href="http://www.shoreflex.com">www.shoreflex.com</a>

TABLE OF ARTICULATED CONCRETE MATTRESS

MRM	Width (Ft)	Location	Quantity (SqYd)
54.26, RT	16	50 ft Channel	89
Total:			89

TRAFFIC CONTROL – GENERAL NOTES

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation and object markers, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Traffic Control Signs, as shown in the Estimate of Quantities, are estimates. Contractor’s operation may require adjustments in quantities, either more or less. Payment will be for those signs used on the project, in accordance with the Specifications.

Traffic Control Signs left up for more than 3 days shall be fixed.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All materials and equipment will be stored a minimum distance of 30’ from the traveled way during nonworking hours.

All haul trucks will be equipped with a second flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract bid items.

INVENTORY OF TRAFFIC CONTROL DEVICES

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	1	48" x 48"	16.0	16.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			
		176.0			

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	5	26

REMOVE SIGN FOR RESET AND RESET SIGN, US 85 MRM 54.26

Signs that are scheduled for reset will be dismantled and reassembled to the extent needed by the Contractor to properly reset the sign. Signs will be handled with care so that the existing signs, posts, and bases are not damaged during the relocation process. The Contractor will replace and pay for any reset signs damaged in their care.

All costs for removing and dismantling of any existing posts will be incidental to the contract unit price per each for “Remove Sign for Reset”. All costs for resetting the existing signs will be incidental to the contract unit price per each for “Reset Sign”. All quantities for Remove Sign for Reset and Reset Sign will be per assembly at the contract unit price per each.

TABLE OF QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	6	26

Route	MRM		Length (ft)	Width (ft)	Area (SqFt)	Unclassified Excavation (CuYd)	Muck Excavation (CuYd)	Contractor Furnished Borrow (CuYd)	Contractor Furnished Topsoil (CuYd)	Type    3 ECB (SqYd)	Type    1 TRM (SqYd)	Type    F Permanent Seed (lb)	Fertilizer (ton)
US 85	45.12	RT	50	8	400			5.6	3.7		44.4	0.24	0.007
US 85	45.14	RT	110	30	3300				30.6	366.7		1.97	0.057
US 85	45.16	LT	400	30	12000				111.1	1333.3		7.16	0.207
US 85	45.18	RT	50	50	2500				23.1	277.8		1.49	0.043
US 85	45.25	LT	325	35	11375			36.1	105.3	1263.9		6.79	0.196
US 85	51.32	RT	275	4	1100	40.7			10.2	122.2		0.66	0.019
US 85	54.26	RT	50	10	500	18.5			4.6	55.6		0.30	0.009
US 85	54.64	RT	40	8	320				3.0	35.6		0.19	0.006
US 85	54.81	LT	125	10	1250		92.6	81.0	11.6	138.9		0.75	0.022
US 85	54.86	LT	330	16	5280		391.1	342.2	48.9	586.7		3.15	0.091
US 85	69.9	LT	100	8	800			44.4	7.4		88.9	0.48	0.014
US 85	70.6	LT	200	8	1600			88.9	14.8		177.8	0.96	0.028
SD 79	133.25	LT & RT											
						59	484	598	374	4181	311.1	24	0.70

US 85 MRM 45  
BROOKVIEW RD & KERWIN LANE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	7	26

Plotting Date: 04/21/2023



Repair inslope erosion  
MRM 45.16  
400' x 30'

Install Gabion  
at pipe end &  
repair erosion  
MRM 45.12  
50' x 3'

Repair erosion  
MRM 45.25  
325' x 35'

Repair inslope erosion  
MRM 45.14  
110' x 30'

Repair inslope erosion  
MRM 45.18  
50' x 50'



US 85 MRM 45  
BROOKVIEW RD & KERWIN LANE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	8	26

Plotting Date: 04/21/2023



US 85 MRM 45.12



US 85 MRM 45.25



US 85 MRM 51.32 - Redwater

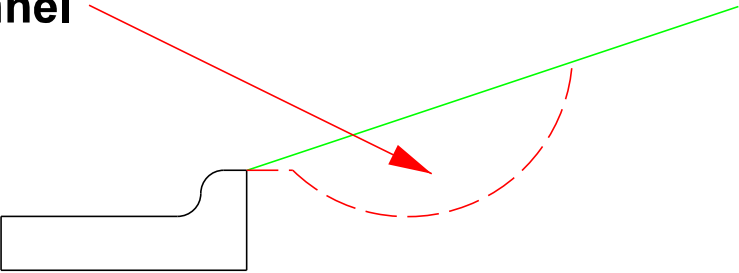
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	9	26

Plotting Date: 04/21/2023



Excavate & shape 275'  
of channel behind C&G  
275' x 3' x 0.75'

Excavate Channel  
behind C&G



US 85 MRM 54.26 - Runnings Entrance

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	10	26

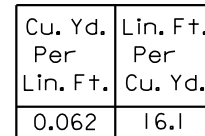
Plotting Date: 04/21/2023



**Remove C Gutter  
Install Articulated  
Concrete Mattress,  
C&G, PCC Pavement**



## ***CURB OPENING DETAILS***

Plotting Date: 04/26/2023

US 85 Belle Fourche  
MRM 54.64  
ET Tire

Repair Erosion Areas  
2 areas at 20' x 8'



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	12	26

Plotting Date: 04/21/2023





Plotted From: TRBE\INT\18 Plot Scale: 1:200

US 85 Belle Fourche  
MRM 54.81 & 54.86  
Vision Center & Family Dollar

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	13	26

Plotting Date: 04/21/2023



Remove Muck Areas  
105' x 10' & 20' x 10'

Remove Muck Areas  
295' x 20' & 35' x 12'



Install Gabion Basket



Plot Scale - 1:200

Plotted From - TRBE\INT\18

US 85 Belle Fourche  
MRM 54.81 & 54.86

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	14	26

Plotting Date: 04/21/2023



MRM 54.81  
Vision Care



MRM 54.86  
Family Dollar



US 85 MRM 69.9

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	15	26

Plotting Date: 04/21/2023



Repair Erosion Area  
100' x 8' x 2'



Plot Scale - 1:200

Plotted From - TRBE\NT\18

# US 85 MRM 69.9 & 70.6

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	16	26

Plotting Date: 04/21/2023



**MRM 69.9**



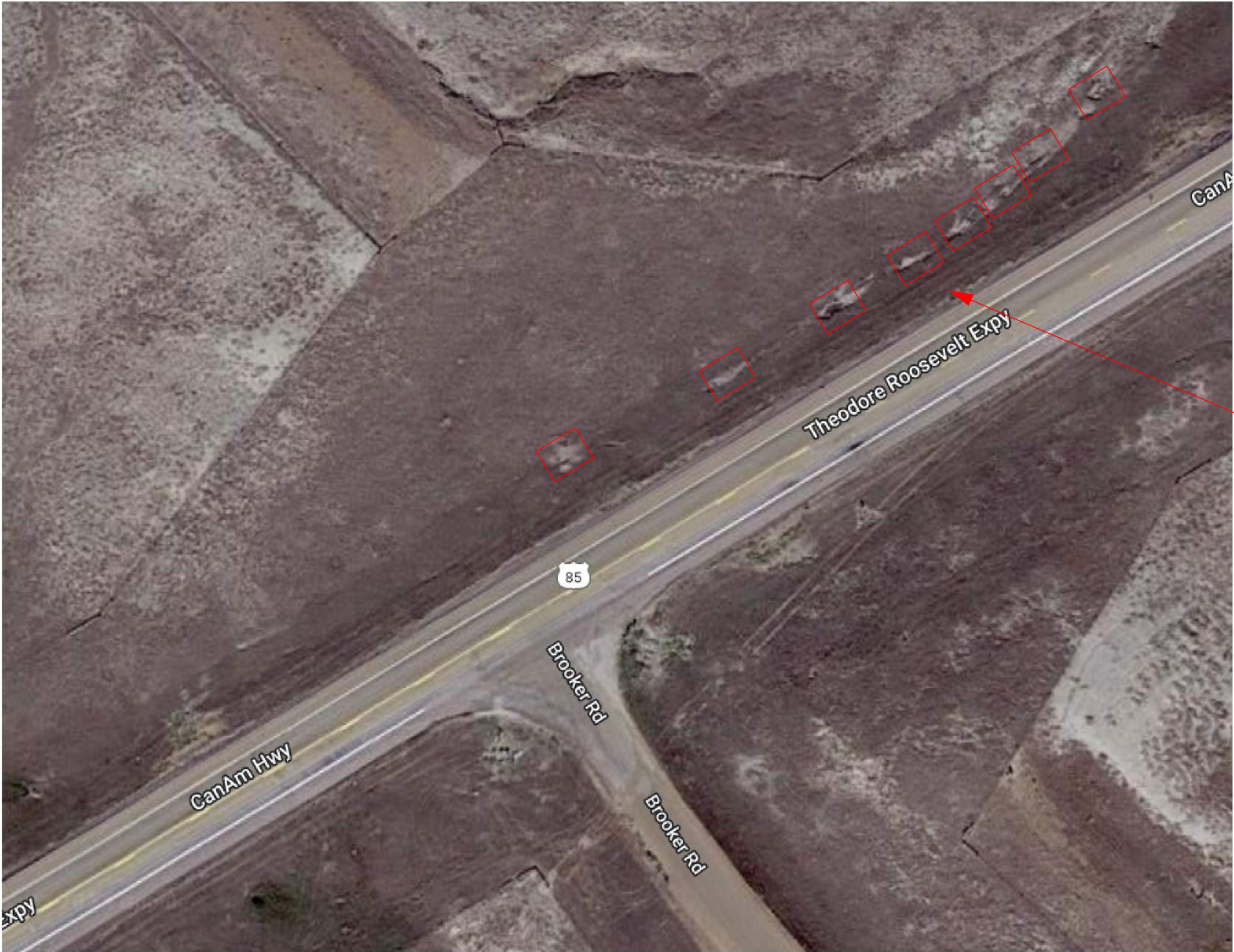
**MRM 70.6**



US 85 MRM 70.6  
BROOKER RD

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	17	26

Plotting Date: 04/21/2023



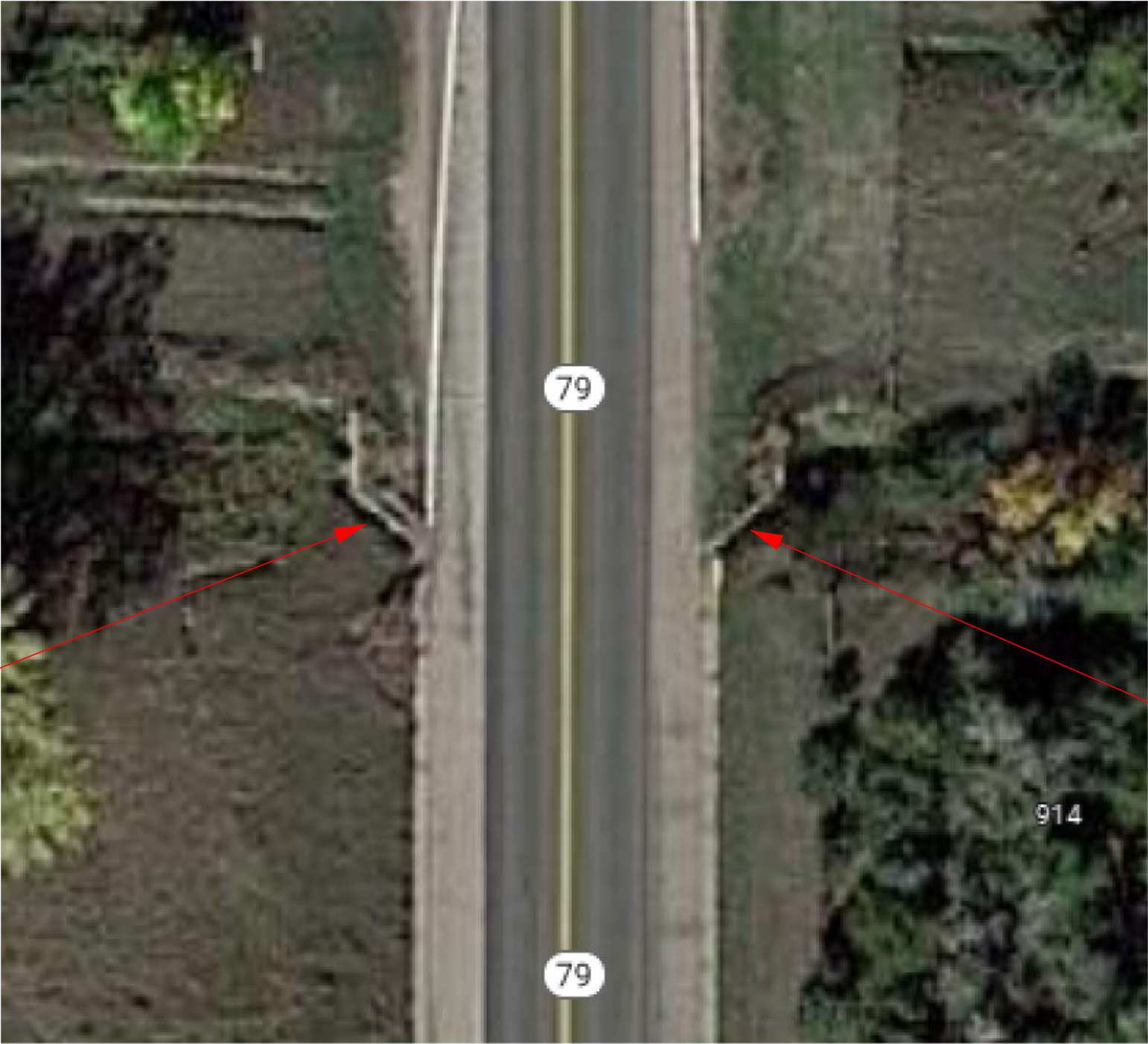
Repair Erosion Areas  
200' x 8' x 1.5'



SD 79 MRM 133.25  
NEWELL

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	18	26

Plotting Date: 04/21/2023



Remove C Gutter  
Install Fabric & Riprap

Remove C Gutter  
Install Fabric & Riprap



SD 79 MRM 133.25  
NEWELL

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085N - 471	19	26

Plotting Date: 04/21/2023



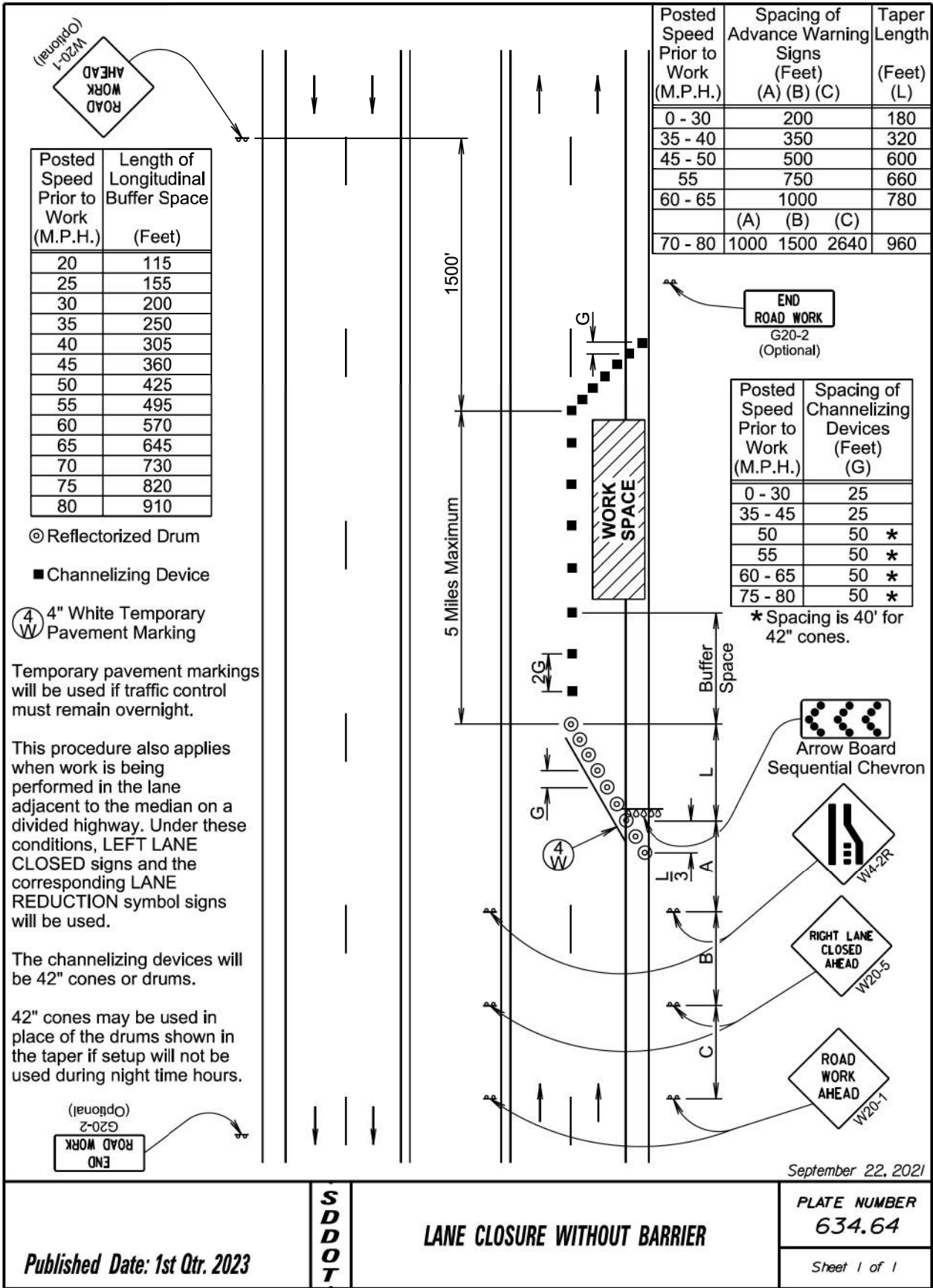
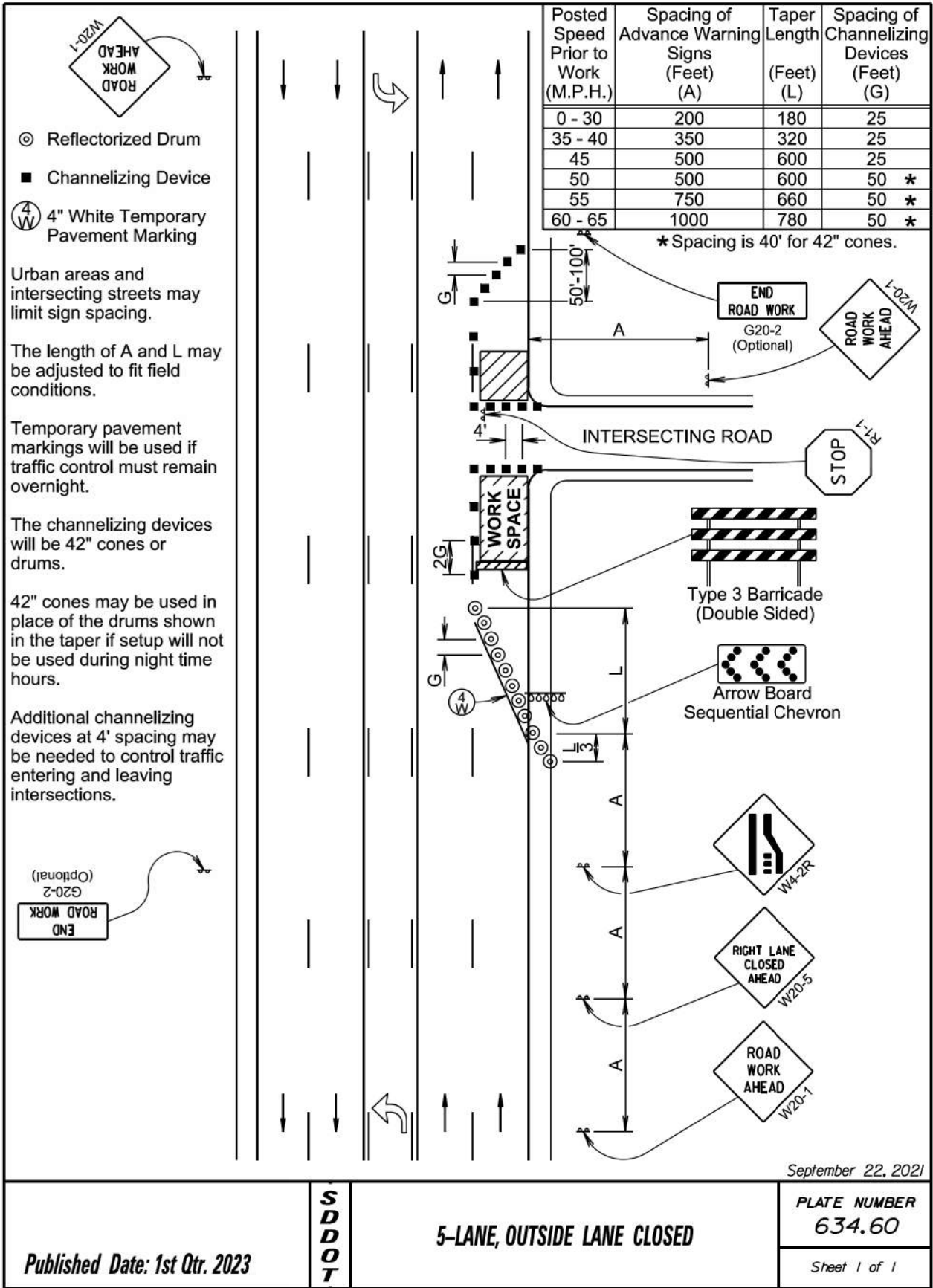
Plot Scale - 1:200

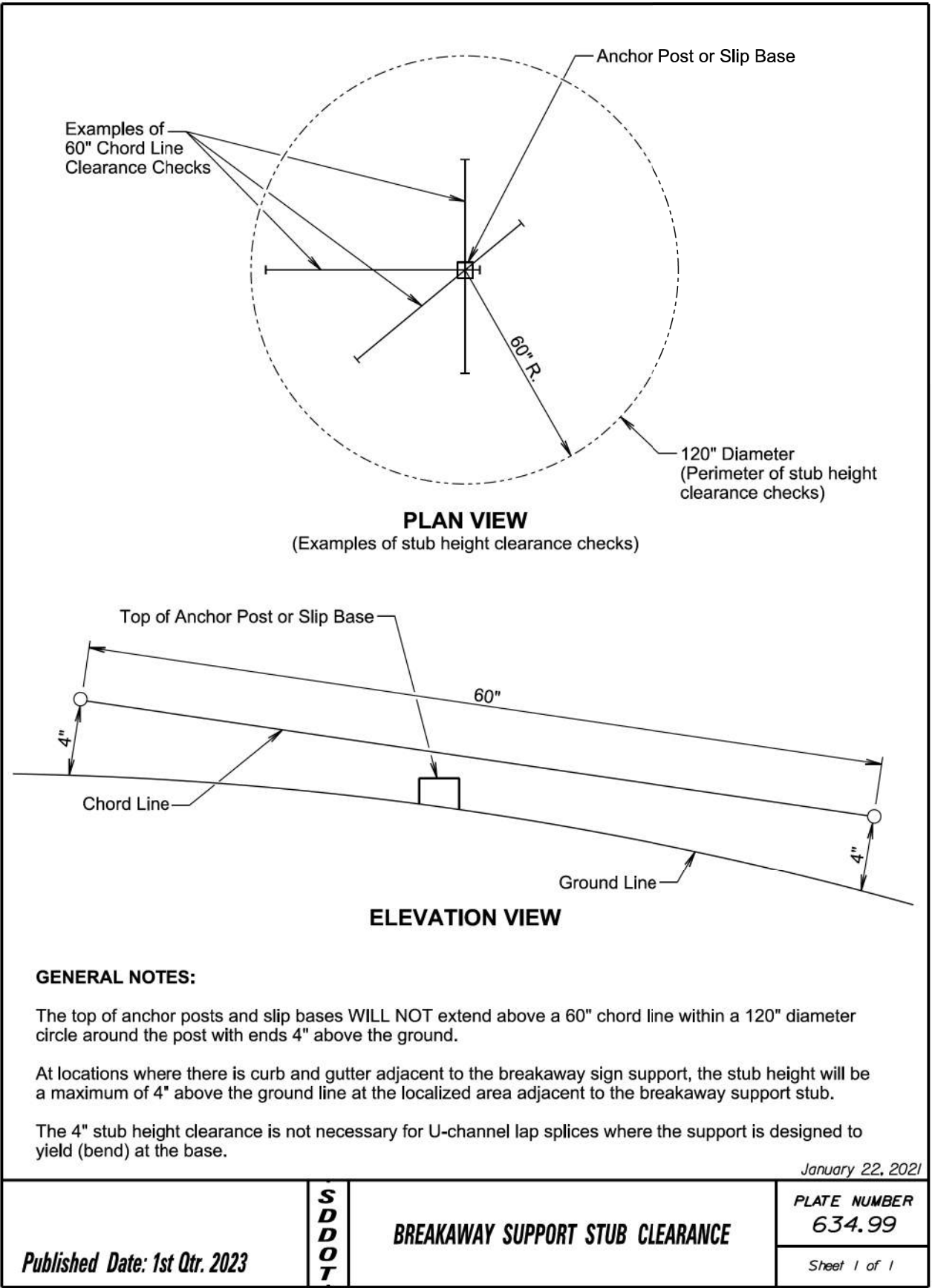
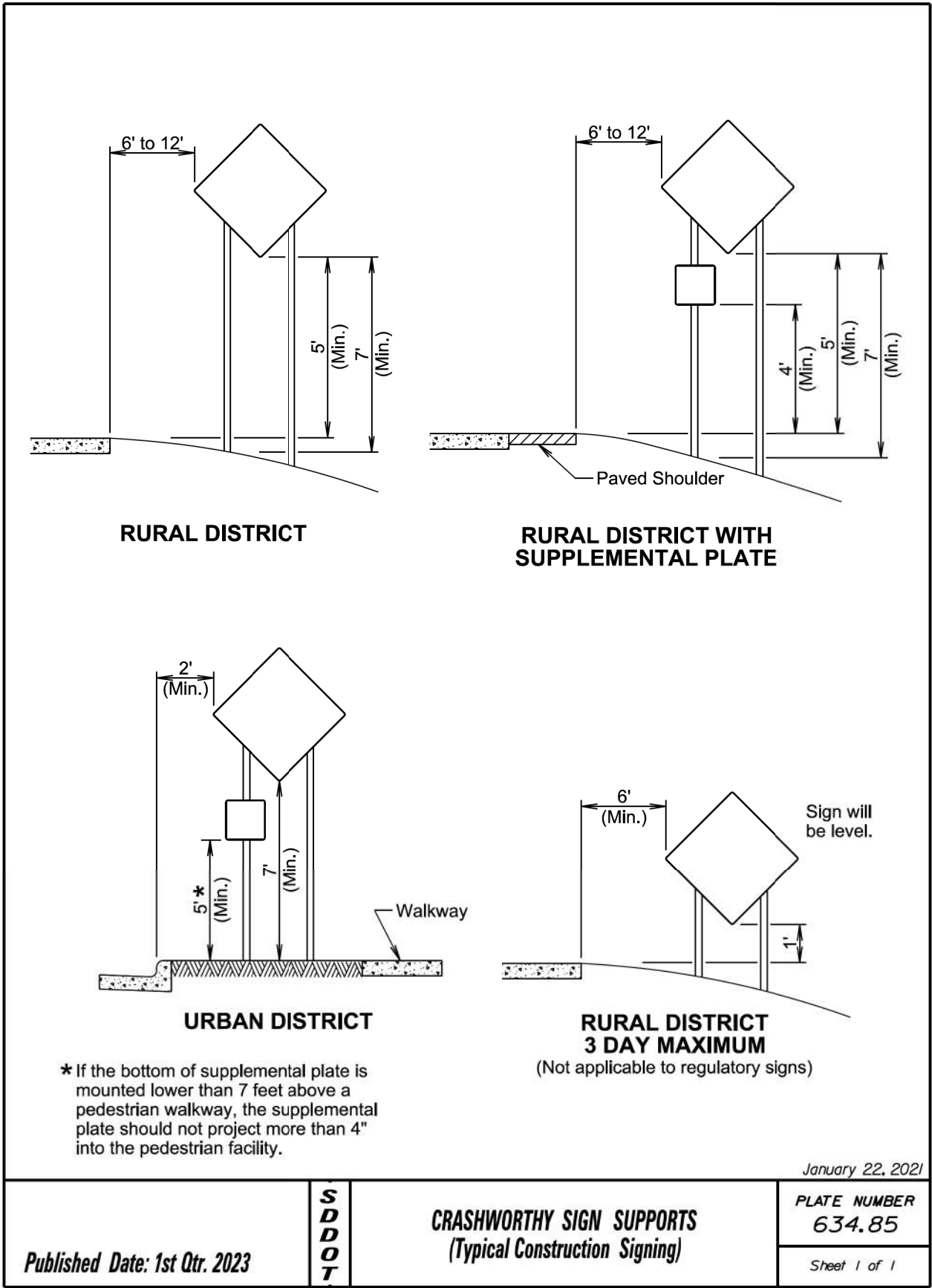
Plotted From - TRBE\INT18



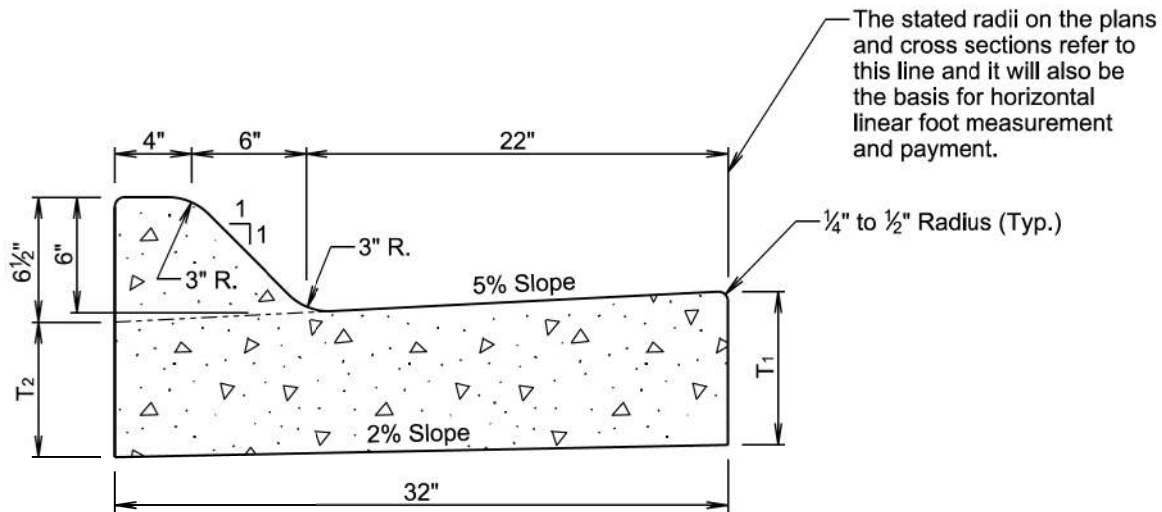












TYPE F CONCRETE CURB AND GUTTER				
Type	T <sub>1</sub> (Inches)	T <sub>2</sub> (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
F66	6	5 1/16	0.057	17.6
F67	7	6 1/16	0.065	15.4
F68	8	7 1/16	0.073	13.6
F68.5	8.5	7 9/16	0.077	12.9
F69	9	8 1/16	0.082	12.3
F69.5	9.5	8 5/16	0.086	11.7
F610	10	9 1/16	0.090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

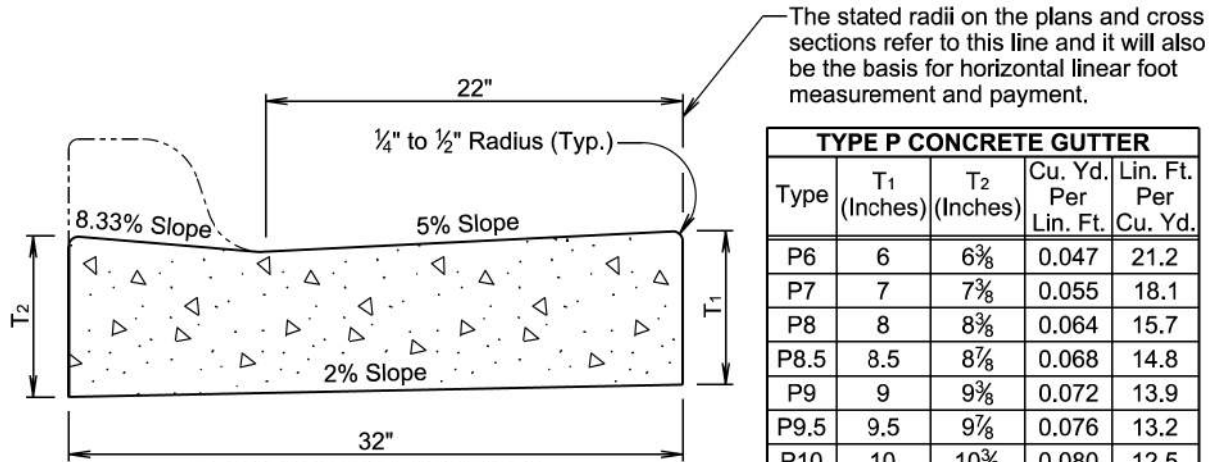
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment will be by one of the methods shown on standard plate 380.11.

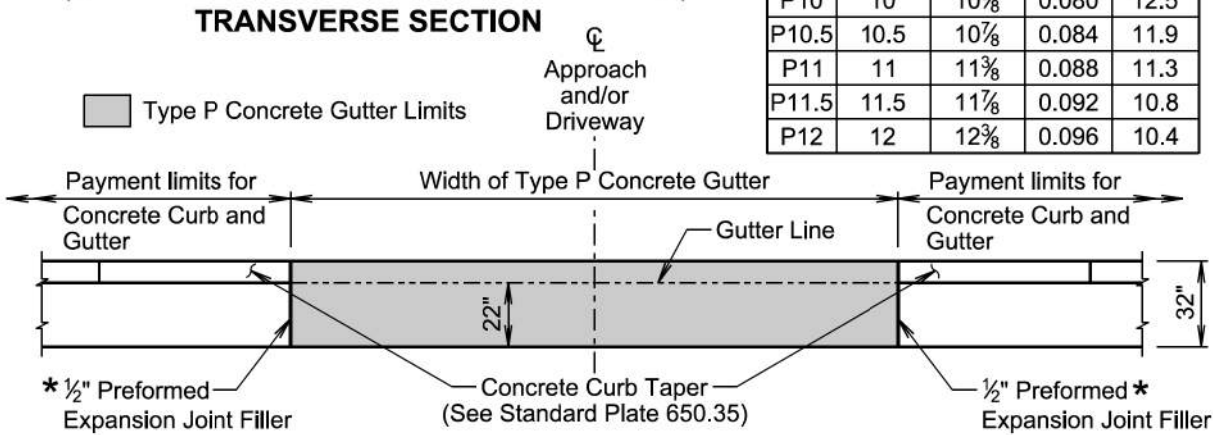
See standard plate 650.90 for expansion and contraction joints in the curb and gutter.

December 23, 2019

Published Date: 1st Qtr. 2023	S D D O T	TYPE F CONCRETE CURB AND GUTTER	PLATE NUMBER 650.20
			Sheet 1 of 1



TYPE P CONCRETE GUTTER				
Type	T <sub>1</sub> (Inches)	T <sub>2</sub> (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
P6	6	6 3/8	0.047	21.2
P7	7	7 3/8	0.055	18.1
P8	8	8 3/8	0.064	15.7
P8.5	8.5	8 7/8	0.068	14.8
P9	9	9 3/8	0.072	13.9
P9.5	9.5	9 7/8	0.076	13.2
P10	10	10 3/8	0.080	12.5
P10.5	10.5	10 7/8	0.084	11.9
P11	11	11 3/8	0.088	11.3
P11.5	11.5	11 7/8	0.092	10.8
P12	12	12 3/8	0.096	10.4



\* Joint will not be needed if concrete curb and gutter and type P concrete gutter is placed at the same time. If the 1/2" preformed expansion joint filler is provided, then the joint will be sealed in accordance with standard plate 650.90.

GENERAL NOTES:

The concrete for the type P concrete gutter will comply with the requirements of the specifications for class M6 concrete.

When concrete gutter longitudinally adjoins new concrete pavement, the method of attachment will be by one of the methods shown on standard plate 380.11.

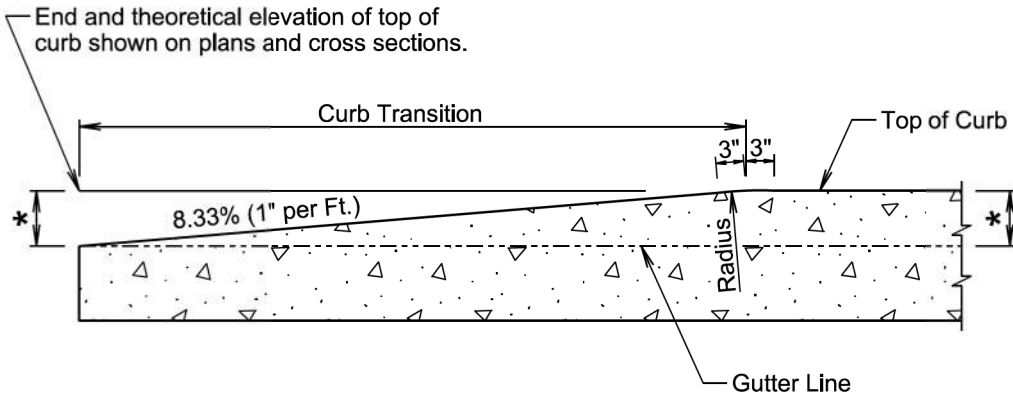
Transverse contraction joints will be constructed at 10-foot intervals in the concrete gutter except when concrete gutter is constructed adjacent to mainline PCC pavement. When concrete gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint will be constructed in the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

When concrete gutter is placed monolithically with mainline PCC pavement, the transverse contraction joints in the concrete gutter will be sawed and sealed the same as the transverse contraction joints in the mainline PCC pavement.

When concrete gutter is not placed monolithically with the mainline PCC pavement and when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete gutter will 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 will be at least 1/4 the thickness of the concrete.

December 23, 2019

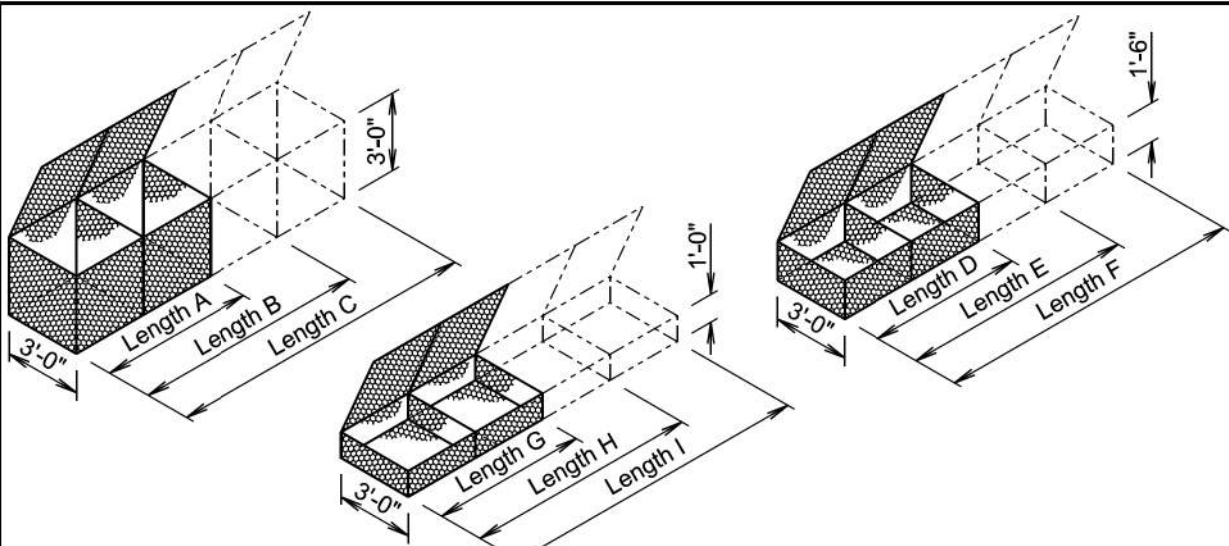
Published Date: 1st Qtr. 2023	S D D O T	TYPE P CONCRETE GUTTER	PLATE NUMBER 650.30
			Sheet 1 of 1



LONGITUDINAL SECTION  
(Concrete Curb Taper)

December 23, 2019

Published Date: 1st Qtr. 2023	S D D O T	CONCRETE CURB TAPER	PLATE NUMBER
			650.35
			Sheet 1 of 1



GABION DETAILS

STANDARD SIZES					
SIZE	LENGTH	WIDTH	HEIGHT	NUMBER OF CELLS	CAPACITY (Cu. Yd.)
A	6'-0"	3'-0"	3'-0"	2	2.0
B	9'-0"	3'-0"	3'-0"	3	3.0
C	12'-0"	3'-0"	3'-0"	4	4.0
D	6'-0"	3'-0"	1'-6"	2	1.0
E	9'-0"	3'-0"	1'-6"	3	1.5
F	12'-0"	3'-0"	1'-6"	4	2.0
G	6'-0"	3'-0"	1'-0"	2	0.7
H	9'-0"	3'-0"	1'-0"	3	1.0
I	12'-0"	3'-0"	1'-0"	4	1.3

GENERAL NOTES:

Above dimensions subject to mill tolerances.

Lacing and internal connecting wire will be 0.0866 inch diameter steel wire ASTM A641, Class 3 soft temper measured after galvanizing and for PVC coated gabions will be 0.0866 inch diameter steel wire measured after galvanizing but before PVC coating.

The lacing procedure is as follows:

1. Cut a length of lacing wire approximately 1½ times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

Wire lacing or interlocking type fasteners will be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions will be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing will conform to ASTM A641-92, Class 3 coating. Fasteners will also be in accordance with ASTM A764, Class II, Type III.

Interlocking fasteners for PVC coated gabions will be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class 1. The spacing of the interlocking fasteners during all phases of assembly and construction will not exceed 6 inches.

All fasteners will be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

February 14, 2020

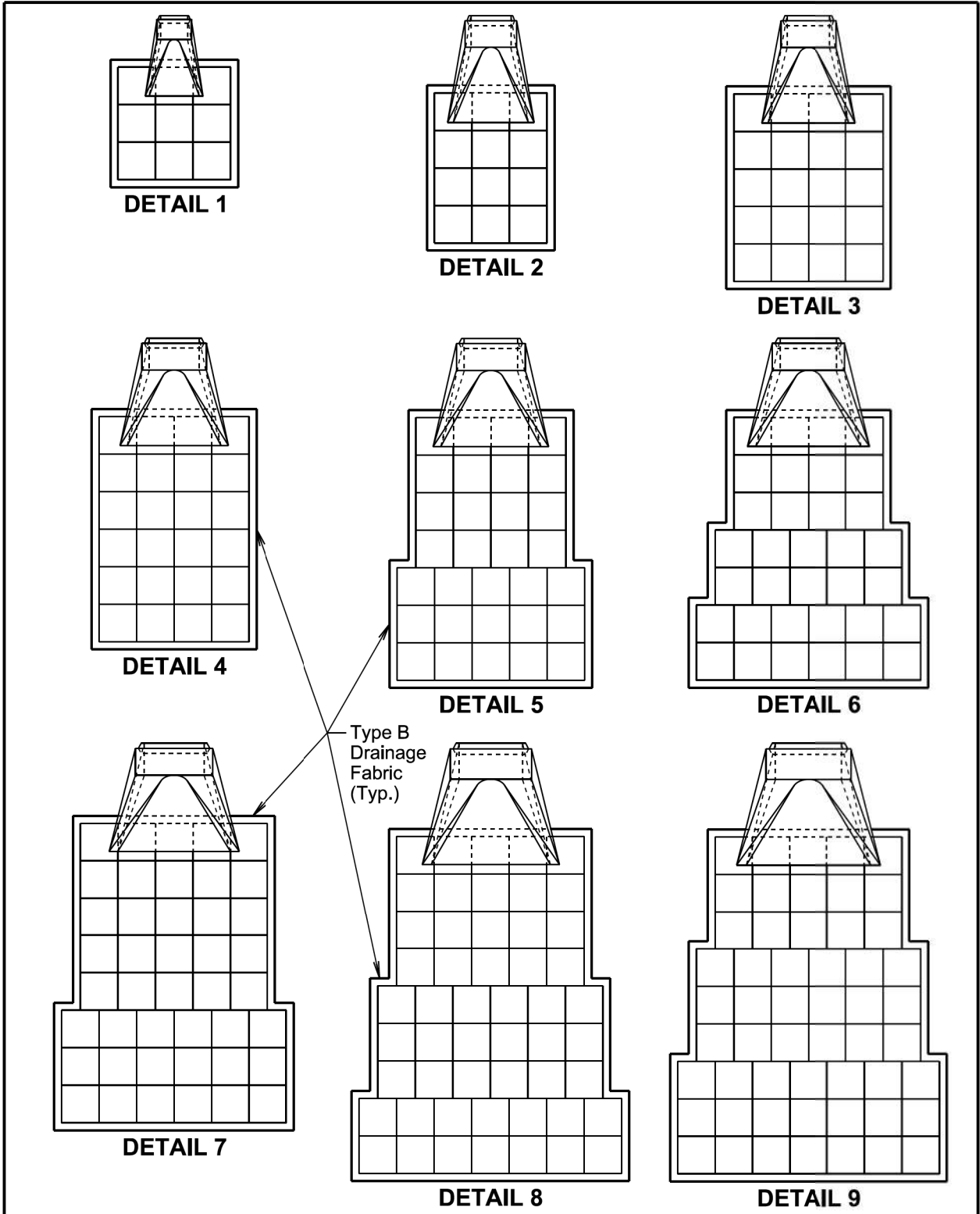
Published Date: 1st Qtr. 2023	S D D O T	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER
			720.01
			Sheet 1 of 1



PLOT SCALE - 1:200

PLOTTED FROM - TRBEINT18

Plotting Date: 04/21/2023



Type B  
Drainage  
Fabric  
(Typ.)

★ ESTIMATED QUANTITIES			
Detail	Pipe Diameter (Inches)	Gabion (Cu. Yd.)	Type B Drainage Fabric (Sq. Yd.)
1	12, 18, and 24	4.5	15
2	30 and 36	6.0	19
3	42	10.0	29
4	48 and 54	12.0	34
5	60	15.5	43
6	66	17.0	47
7	72	21.5	57
8	78	26.0	68
9	84	27.0	70

GENERAL NOTES:

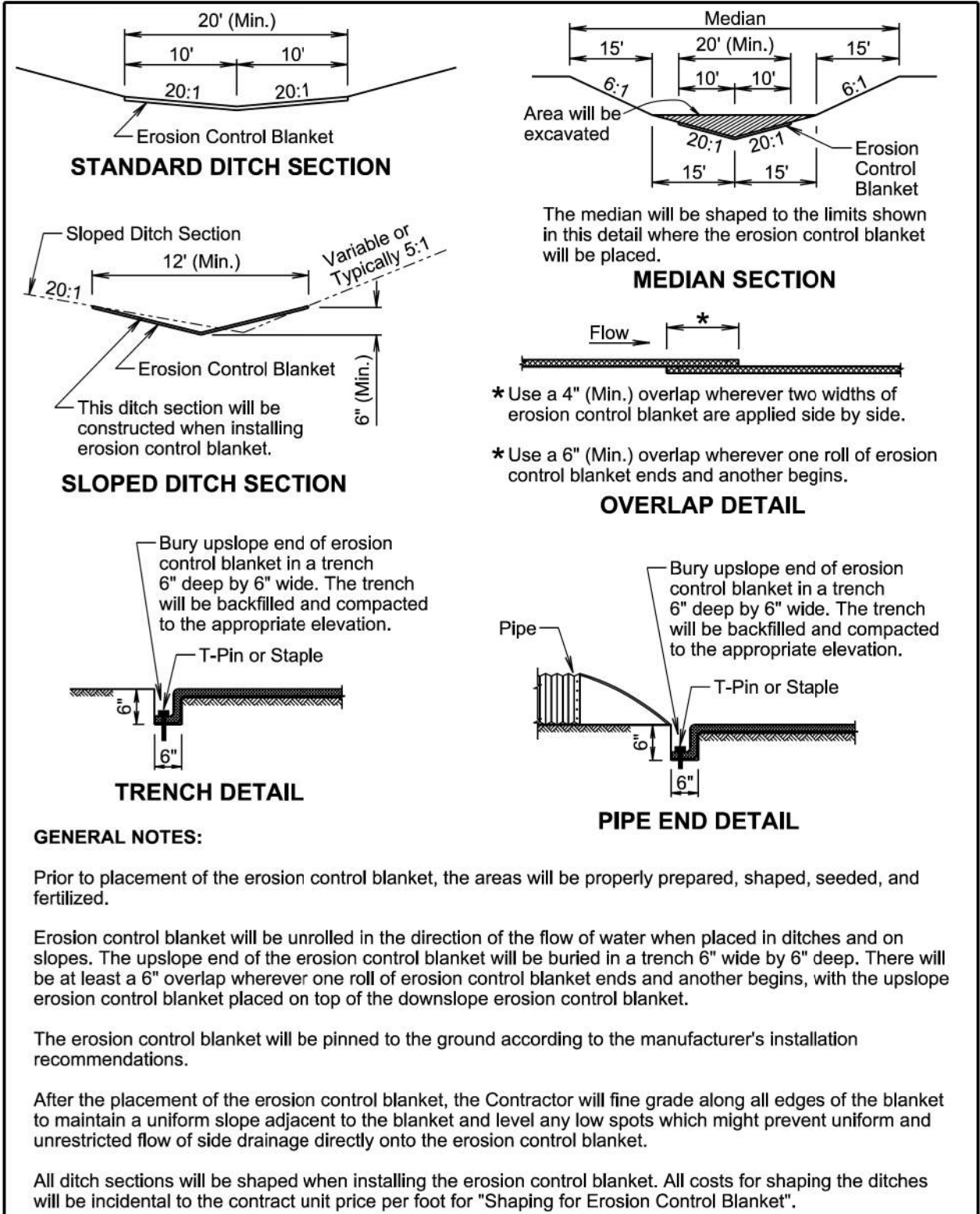
Gabions at outlets of CMP and RCP will be placed under the end section a distance of 2 feet from the outlet end. For CMP end section installations, the upper fabric of the gabions will be modified to accommodate the metal end section as approved by the Engineer.

★ Gabion and type B drainage fabric quantities on this standard plate are based on standard gabion sizes D, E, and F as depicted on standard plate 720.01.

Type B drainage fabric will be placed under the gabions and around the exterior sides (perimeter) of the gabions as approved by the Engineer. The type B drainage fabric will be in conformance with Section 831 of the Specifications. Measurement and payment of the type B drainage fabric will be in conformance with Section 720 of the Specifications.

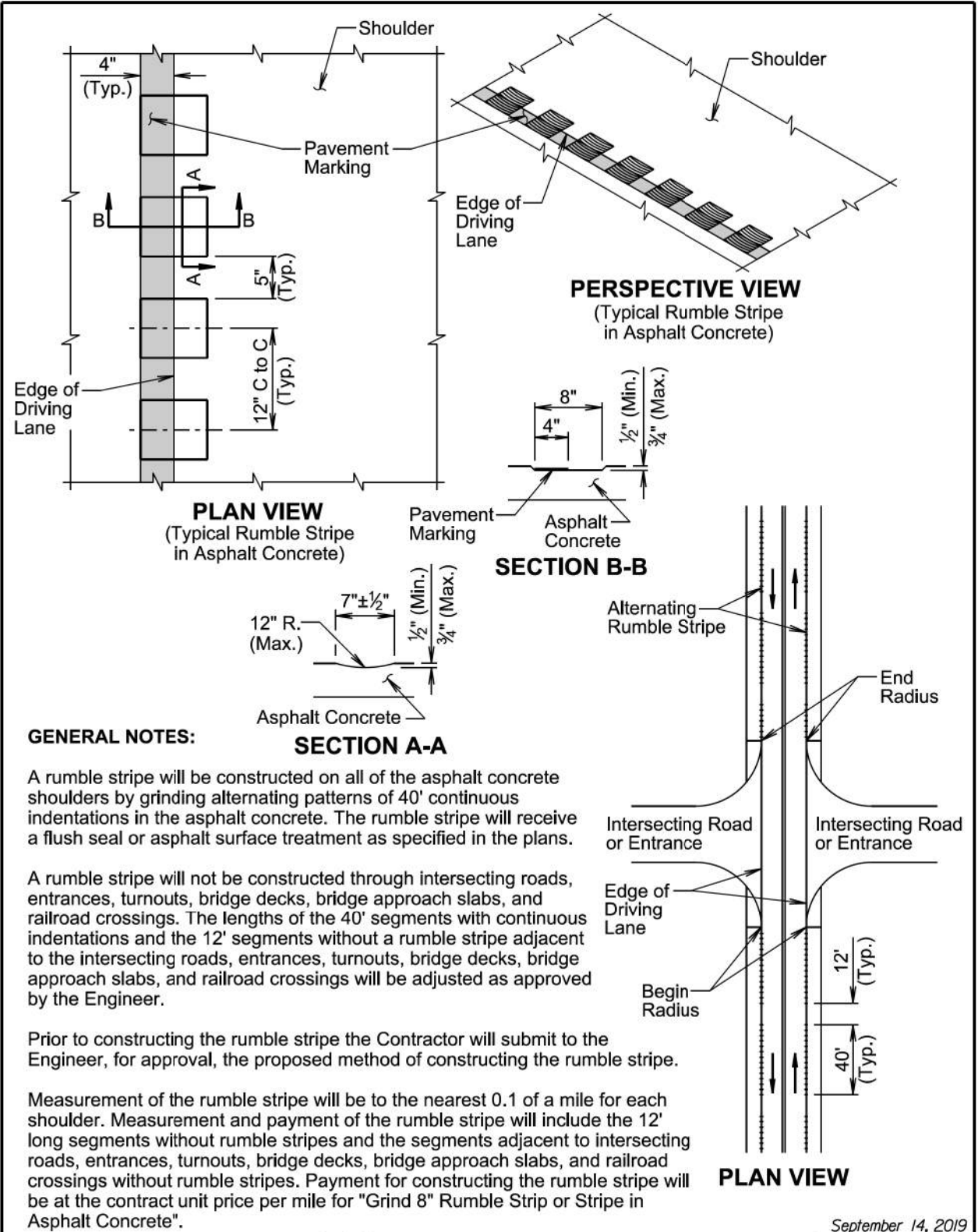
PLOT NAME - 23

FILE - ... \STD PLT 06.DGN



February 14, 2020

S D D O T	EROSION CONTROL BLANKET	PLATE NUMBER
		734.01
		Sheet 1 of 1
Published Date: 1st Qtr. 2023		



September 14, 2019

S D D O T	8" RUMBLE STRIPE IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER
		320.20
		Sheet 1 of 1
Published Date: 1st Qtr. 2023		