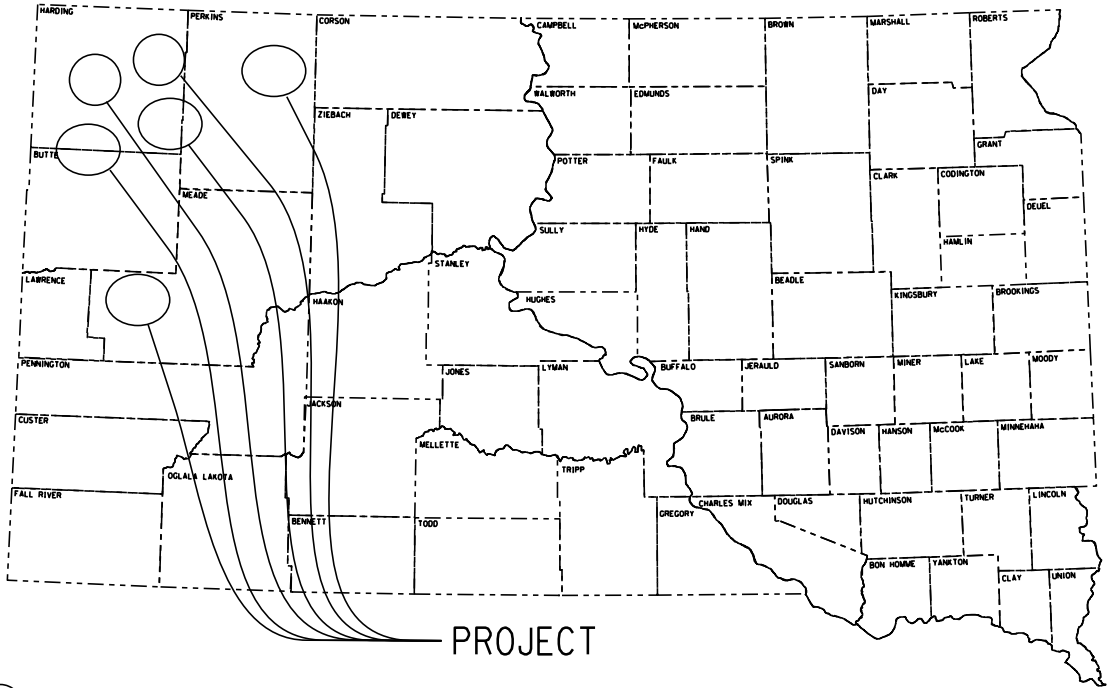


PLOT SCALE - 1:200

PLOTTED FROM - TRRC11951



STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECTS 079-472, 079-471, 073-472
020-472, 020-471 & 085-472
SD Highways 20, 73 & 79
US Highway 85
BUTTE, HARDING, PERKINS &
MEADE COUNTIES

CLEANOUT PIPE CULVERTS
PCNS i4nt, i4nr, i4nq, i4np, i4nn and i4nm

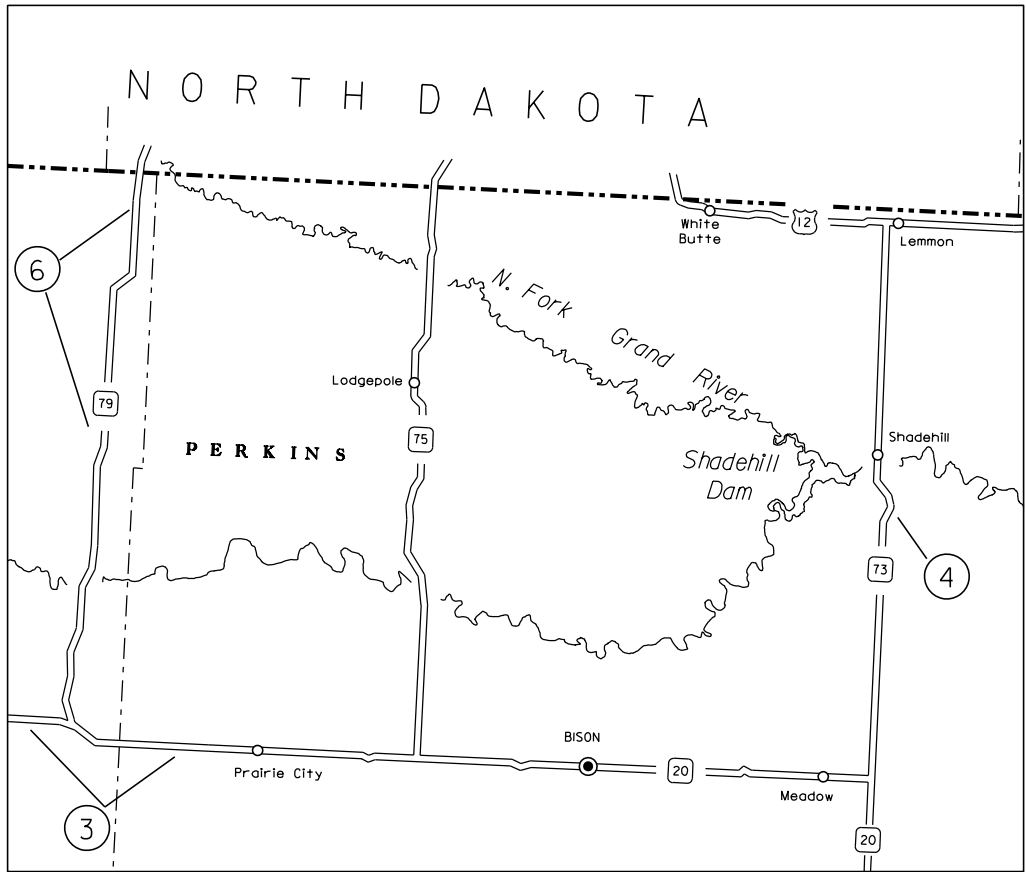
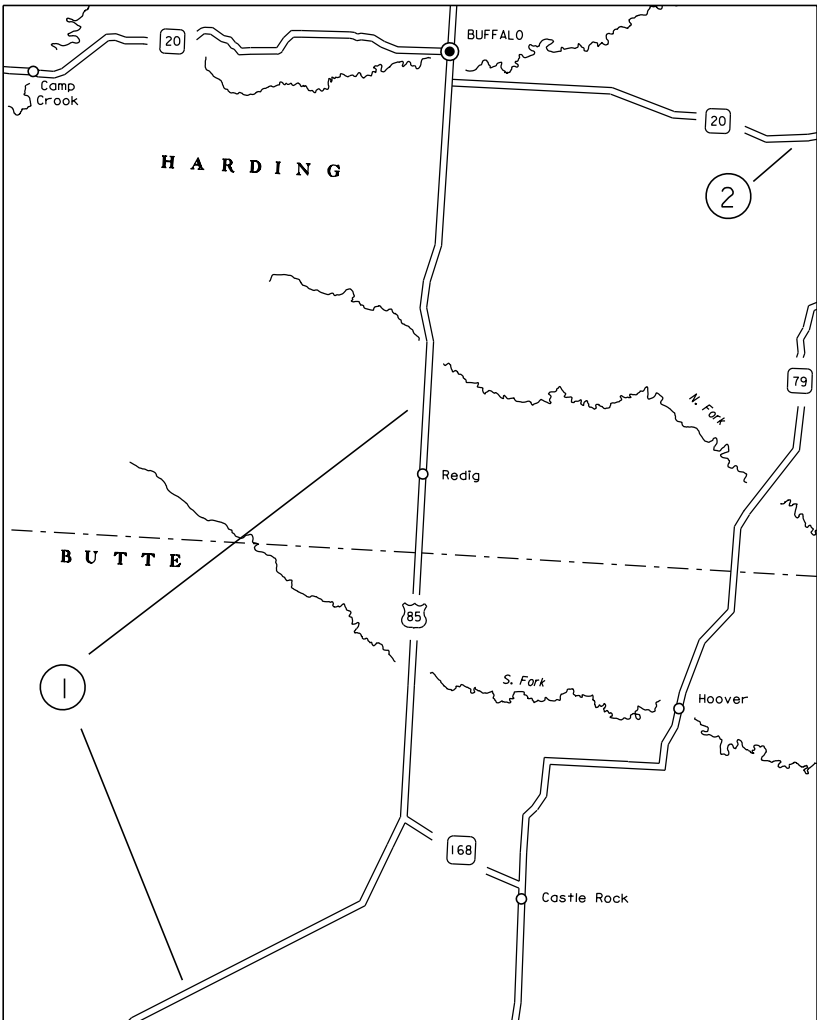
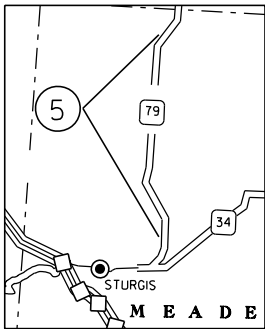
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Plotting Date: 03/24/2017

INDEX OF SHEETS

- Sheets 1: Title Sheet
Sheet 2-6: Estimate of Quantities & Plan Notes
Sheet 7: Pipe Cleanout Detail
Sheets 8-9: Standard Plates

- ① 085-471, MRM 69+ 0.862 to MRM 106+ 0.894, PCN i4nt
② 020-471, MRM 47+ 0.444, PCN i4nr
③ 020-472, MRM 54+ 0.085 to MRM 65+ 0.209, PCN i4nq
④ 073-472, MRM 227+ 0.218, PCN i4np
⑤ 079-471, MRM 111+ 0.415 to MRM 123+ 0.946, PCN i4nn
⑥ 079-472, MRM 220+ 0.799 to MRM 230+ 0.566, PCN i4nm



Storm Water Permit
No Permit Required

PLOT NAME - 1

FILE - ...\\14NT_TITLE.DGN

ESTIMATE OF QUANTITIES (US85, i4nt)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
450E8900	Cleanout Pipe Culvert	13	Each
634E0010	Flagging	60.0	Hour
634E0110	Traffic Control Signs	274.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS

ESTIMATE OF QUANTITIES (SD20, i4nr)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
450E8900	Cleanout Pipe Culvert	1	Each
634E0010	Flagging	5.0	Hour
634E0110	Traffic Control Signs	274.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS

ESTIMATE OF QUANTITIES (SD20, i4nq)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
450E8900	Cleanout Pipe Culvert	15	Each
634E0010	Flagging	75.0	Hour
634E0110	Traffic Control Signs	274.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS

ESTIMATE OF QUANTITIES (SD73, i4np)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
450E8900	Cleanout Pipe Culvert	1	Each
634E0010	Flagging	5.0	Hour
634E0110	Traffic Control Signs	274.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS

ESTIMATE OF QUANTITIES (SD79, i4nn)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
450E8900	Cleanout Pipe Culvert	3	Each
634E0010	Flagging	15.0	Hour
634E0110	Traffic Control Signs	274.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS

ESTIMATE OF QUANTITIES (SD79, i4nm)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
450E8900	Cleanout Pipe Culvert	6	Each
634E0010	Flagging	30.0	Hour
634E0110	Traffic Control Signs	274.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS

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SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived 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. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

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 shall 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 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 Project 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 and/or 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 and/or 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.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. 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 shall arrange and pay for a cultural resource survey and/or records search. 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; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC 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 artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). 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.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility 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 shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

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CLEANOUT PIPE CULVERT

This work shall consist of cleaning out, removing and disposing of sediment and debris within the existing culvert and shaping the outlet ditch to allow water to drain out of the pipe.

The Contractor shall inspect the locations and determine the necessary method for cleaning out the culverts.

Silt Fence or other approved method shall be used at the outlet end to prevent any pipe cleanout sediment from leaving the project limits. Placement of the silt fence shall be as directed by the Engineer. The silt fence shall be removed upon completion of the pipe cleanout.

The cleaning method shall be approved by the Engineer. The culvert shall be cleaned so that water can flow out of the culvert. Some outlet ditch grading might be needed to accomplish this. The cleaning method shall not damage the pipe. A vacuum truck might be needed at locations to prevent sedimentation from entering nearby waterways.

All excess sediment and debris removed from the culvert shall be disposed of by the Contractor. The Contractor shall shape the ditches in the area of the culvert ends to restore the ditch flow. All costs associated with cleaning out the existing culvert, the removal of debris and shaping of the ditches shall be incidental to the contract unit price per each for “Cleanout Pipe Culvert”.

TABLE OF CLEANOUT PIPE CULVERT (US85, PCN i4nt)

HWY	MRM	Size		% Plugged	% Plugged	Description	Cleanout Pipe Culvert
		(in)		Lt	Rt		Each
US85	69.862	42	CMP	30%	50%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
US85	70.121	24	CMP	5-10%	50%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
US85	70.168	24	CMP	5-10%	30%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
US85	70.327	24	CMP	5-10%	30%-50%	Clean pipe and grade inlet & outlet ditch to provide positive drainage. (Outside ROW Fence)	1
US85	70.492	36	CMP	30%	30%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
US85	70.897	24	CMP	5-10%	50%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
US85	72.754	30	CMP	60%	5-10%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
US85	73.447	48	CMP	10%	30%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
US85	90.479	48	CMP	5-10%	50% to 75%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
US85	94.585	24	CMP	80%	50% to 75%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
US85	103.698	60	CMP		5-10%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe , Gabions present	1
US85	106.845	30	CMP		5-10%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe (Outside ROW)	1
US85	106.894	54	CMP		5-10%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
						Total:	13

TABLE OF CLEANOUT PIPE CULVERT (SD20, PCN i4nr)

							Cleanout Pipe Culvert
HWY	MRM	Size			% Plugged	Description	
		(in)		Lt	Rt		Each
SD20	47.444	42	CMP	20%	95%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1

TABLE OF CLEANOUT PIPE CULVERT (SD20, PCN i4nq)

HWY	MRM	Size			% Plugged	Description	Cleanout Pipe Culvert
SD20	54.085	48 Arch	CMP	10%	20%	Clean pipe and grade outlet ditch to provide positive drainage. Repair scour inlet, Completely plugged Rt,	1
SD20	54.492	18	CMP	10%	20%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe, Pipe plugged thro	1
SD20	55.635	24	CMP	10%	Clear	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD20	56.331	24	CMP	10%	50%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD20	57.400	24	CMP	20%	30%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD20	57.977	36	CMP	30% to 50%	20%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD20	58.376	24	CMP	5-10%	25% to 50%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD20	59.923	24	CMP	5-10%	30% to 50%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD20	60.234	18	CMP	30%	30%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe, Pipe plugged thro	1
SD20	60.663	24	CMP	10% to 20%	25% to 50%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe, Pipe plugged thro	1
SD20	62.100	24	CMP	5-10%	10% to 20%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD20	63.234	18	CMP	30%	30%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD20	63.554	18	CMP	30%	30%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD20	64.823	24	CMP	5-10%	10% to 20%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD20	65.209	18	CMP	5-10%	10% to 20%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
						Total:	15

TABLE OF CLEANOUT PIPE CULVERT (SD73, PCN i4np)

HWY	MRM	Size		% Plugged	% Plugged	Description	Cleanout Pipe Culvert
		(in)		Lt	Rt		Each
SD73	227.218	84	CMP	10% to 20%	10% to 20%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
						Total:	1

TABLE OF CLEANOUT PIPE CULVERT (SD79, PCN i4nn)

HWY	MRM	Size		% Plugged	% Plugged	Description	Cleanout Pipe Culvert
		(in)					Each
SD79	111.415	18	CMP	5-10%	10% to 20%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD79	113.269	18	CMP	70%	70%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD79	123.946	18	CMP	80%	80%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
							3

TABLE OF CLEANOUT PIPE CULVERT (SD79, PCN i4nm)

HWY	MRM	Size		% Plugged	% Plugged	Description	Cleanout Pipe Culvert
SD79	220.799	18	CMP	5-10%	5-10%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD79	221.192	18	CMP	80%	30% to 50%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD79	223.201	18	CMP	5-10%	5-10%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD79	226.290	18	CMP	10% to 20%	10% to 20%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD79	227.281	18	CMP	30% to 50%	10% to 20%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
SD79	230.566	18	CMP	30% to 50%	10% to 20%	Clean pipe and grade outlet ditch to provide positive drainage to prevent water sitting in the pipe	1
						Total:	6

EROSION CONTROL

All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, fertilizing, and mulching shall be incidental to the contract lump sum price for “Erosion Control”.

The limits of erosion control work will be determined by the Engineer during construction.

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum shall 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 shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

<i>Glomus intraradices</i>	25%
<i>Glomus aggregatu</i>	25%
<i>Glomus mosseae</i>	25%
<i>Glomus etunicatum</i>	25%

All seed shall 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 shall be incidental to the contract unit price per lump sum for Erosion Control.

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

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com

FERTILIZING

The Contractor shall apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer shall have a minimum guaranteed analysis of 4-6-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 3.2%, a minimum of 6% (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 shall 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 shall 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 shall 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 shall 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 shall be as shown below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 www.sustane.com

PERMANENT SEEDING

The areas to be seeded consist of disturbed areas within the project limits.

Type F Permanent Seed Mixture shall consist of the following:

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

FIBER MULCHING

Fiber mulch shall be applied in a separate operation following permanent seeding.

The Contractor shall allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

The fiber mulch provided shall be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

TRAFFIC CONTROL

Unless otherwise stated in these plans, no work will be allowed during hours of darkness.

Non-applicable traffic control devices shall be completely covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 48 hours.

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

The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

All haul trucks shall 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 shall be incidental to the various related contract bid items.

All construction operations shall be conducted in the general direction of traffic movement.

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

Traffic approaching the project from intersecting roadways, streets, and approaches must be adequately accommodated. Major intersections or large commercial entrances may require additional signing, flaggers, and channelizing devices on a temporary basis until work activities pass these areas.

Traffic shall be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment shall be repaired at no additional cost to the State.

Traffic shall not be delayed for a period longer than 15 minutes.

INVENTORY OF TRAFFIC CONTROL DEVICES (PCN i4nt)

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	4	48" x 48"	16.0	64.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
G20-2	END ROAD WORK	4	36" x 18"	4.5	18.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 274.0			

INVENTORY OF TRAFFIC CONTROL DEVICES (PCN i4nr)

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	4	48" x 48"	16.0	64.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
G20-2	END ROAD WORK	4	36" x 18"	4.5	18.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 274.0			

INVENTORY OF TRAFFIC CONTROL DEVICES (PCN i4nq)

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	4	48" x 48"	16.0	64.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
G20-2	END ROAD WORK	4	36" x 18"	4.5	18.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 274.0			

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INVENTORY OF TRAFFIC CONTROL DEVICES (PCN i4np)

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	4	48" x 48"	16.0	64.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
G20-2	END ROAD WORK	4	36" x 18"	4.5	18.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 274.0			

INVENTORY OF TRAFFIC CONTROL DEVICES (PCN i4nn)

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	4	48" x 48"	16.0	64.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
G20-2	END ROAD WORK	4	36" x 18"	4.5	18.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 274.0			

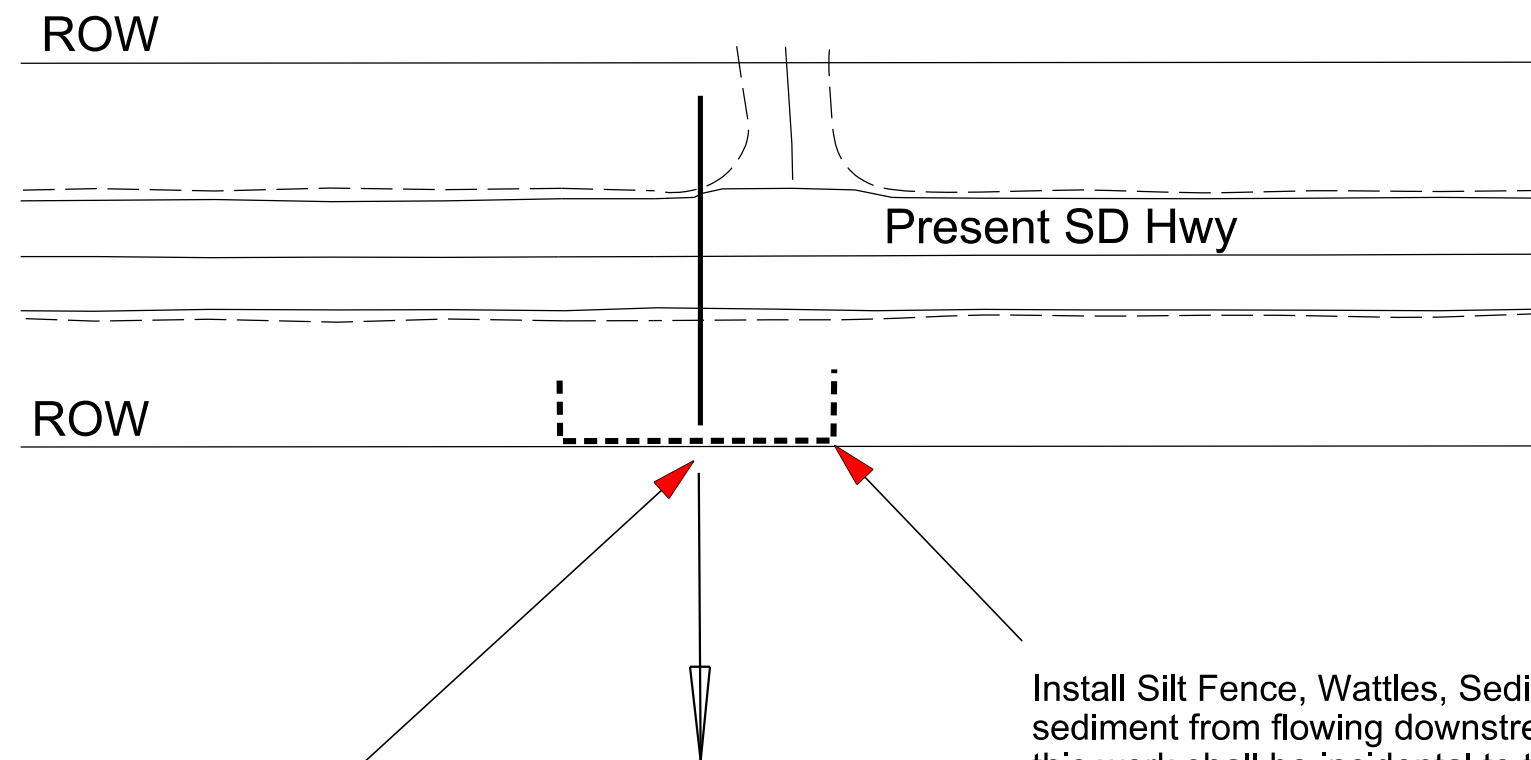
INVENTORY OF TRAFFIC CONTROL DEVICES (PCN i4nm)

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	4	48" x 48"	16.0	64.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
G20-2	END ROAD WORK	4	36" x 18"	4.5	18.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 274.0			

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085-471, etc.	7	11

Plotting Date: 03/24/2017

Pipe Cleanout



The Contractor shall cleanout the pipe and shape the downstream drainage as needed, so water can flow out of the pipe. It is acceptable for water to be held in the downstream drainage, but not in the pipe. If shaping is required outside the highway right of way, permission will be obtained by the Area office.

Install Silt Fence, Wattles, Sediment Trap, etc. to prevent sediment from flowing downstream. The cost to perform this work shall be incidental to the contract unit price per each for Pipe Cleanout.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45	500	25
50	500	50
55	750	50
60 - 65	1000	50

- Flagger
- Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices shall be drums or 42" cones.

Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

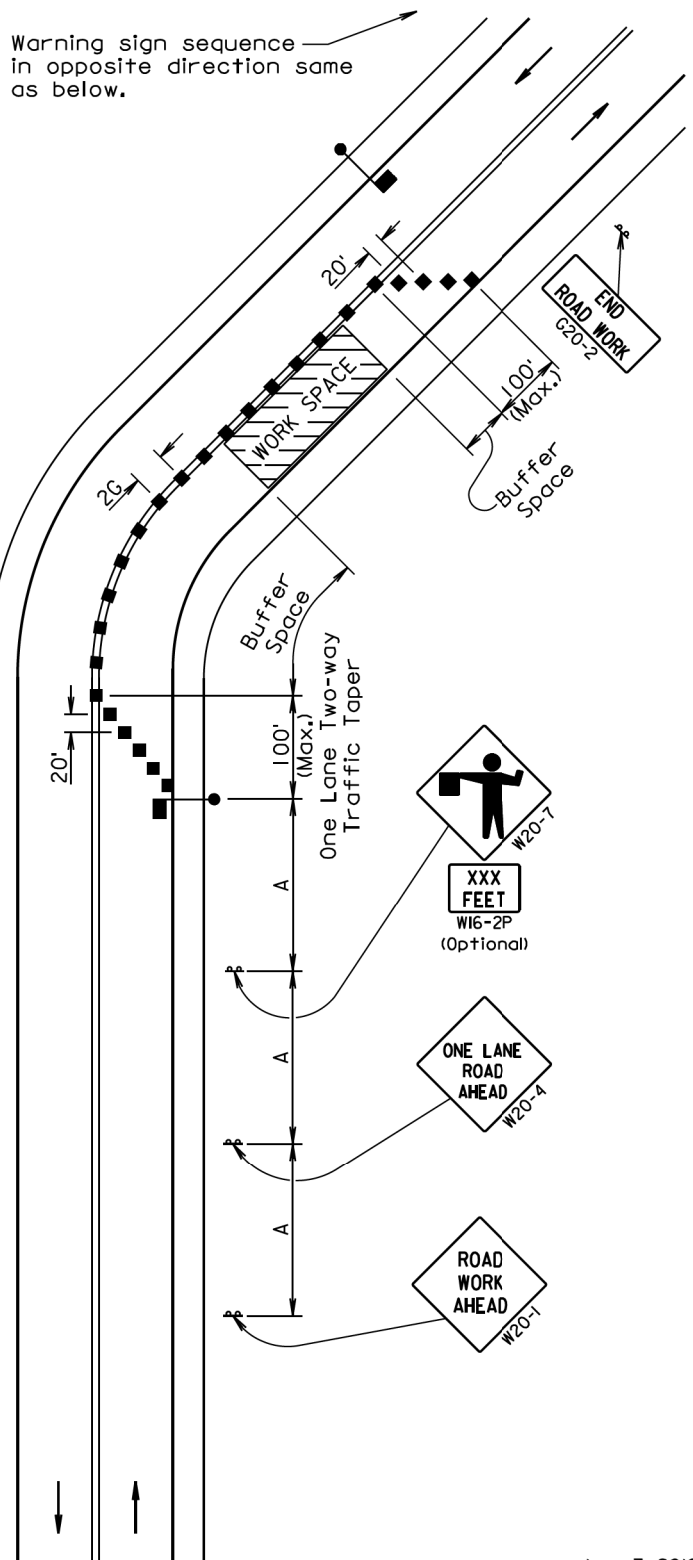
END ROAD WORK
G20-2

Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

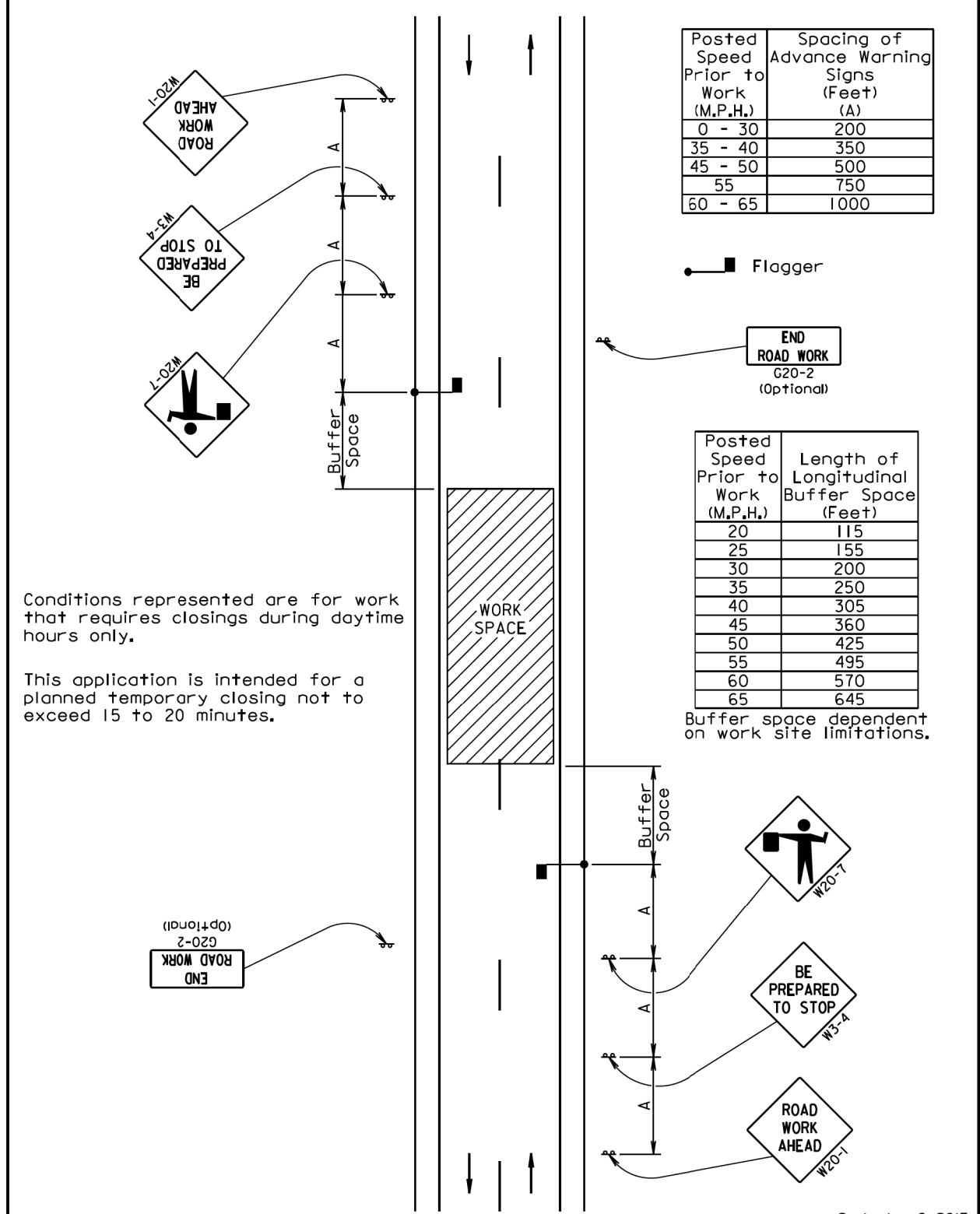
The length of A may be adjusted to fit field conditions.

Warning sign sequence in opposite direction same as below.



June 3, 2016

Published Date: 1st Qtr. 2017	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES	PLATE NUMBER
		LANE CLOSURE WITH FLAGGER PROVIDED	634.23
			Sheet 1 of 1



Conditions represented are for work that requires closings during daytime hours only.

This application is intended for a planned temporary closing not to exceed 15 to 20 minutes.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000

- Flagger

END ROAD WORK
G20-2
(Optional)

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

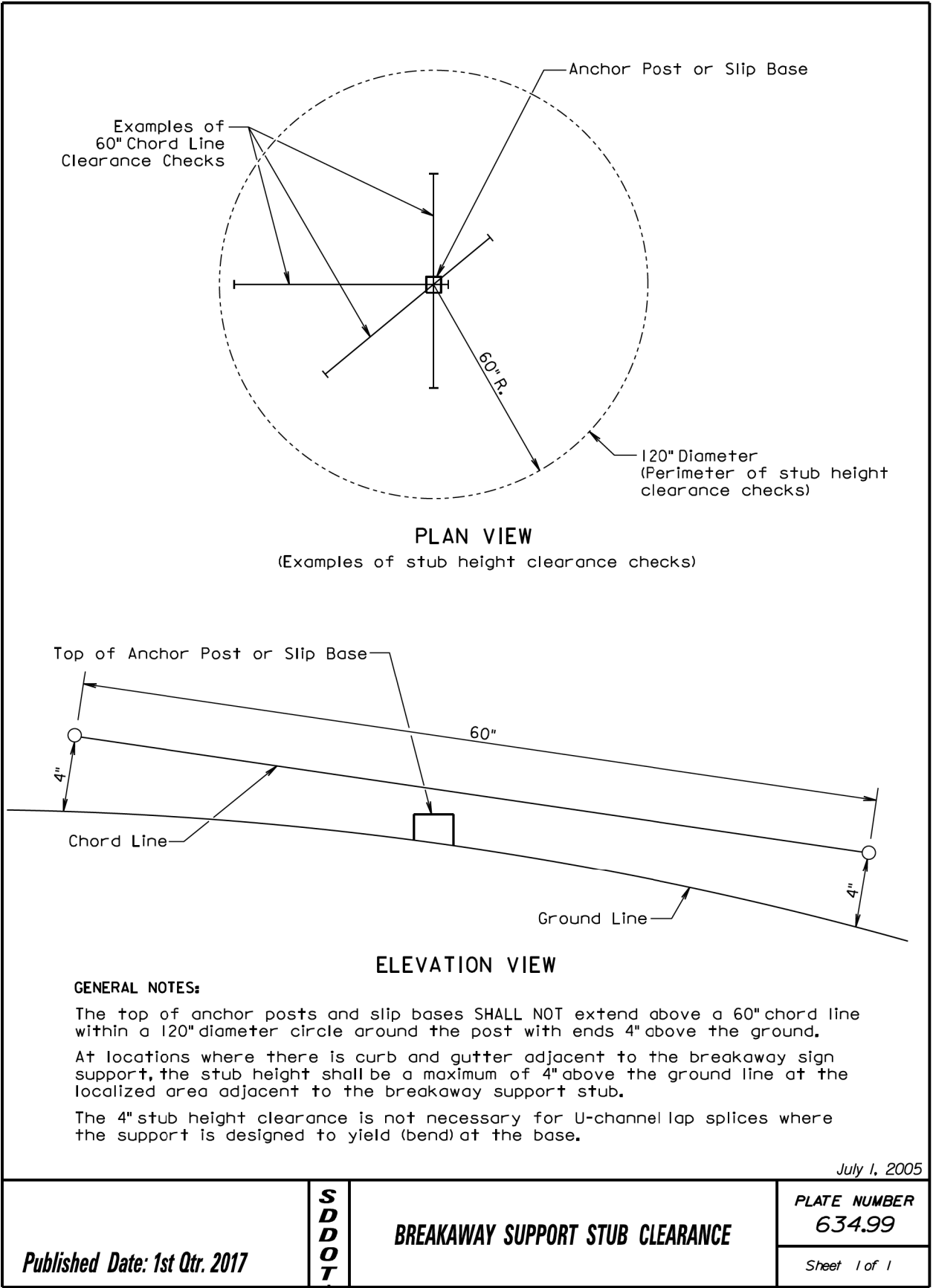
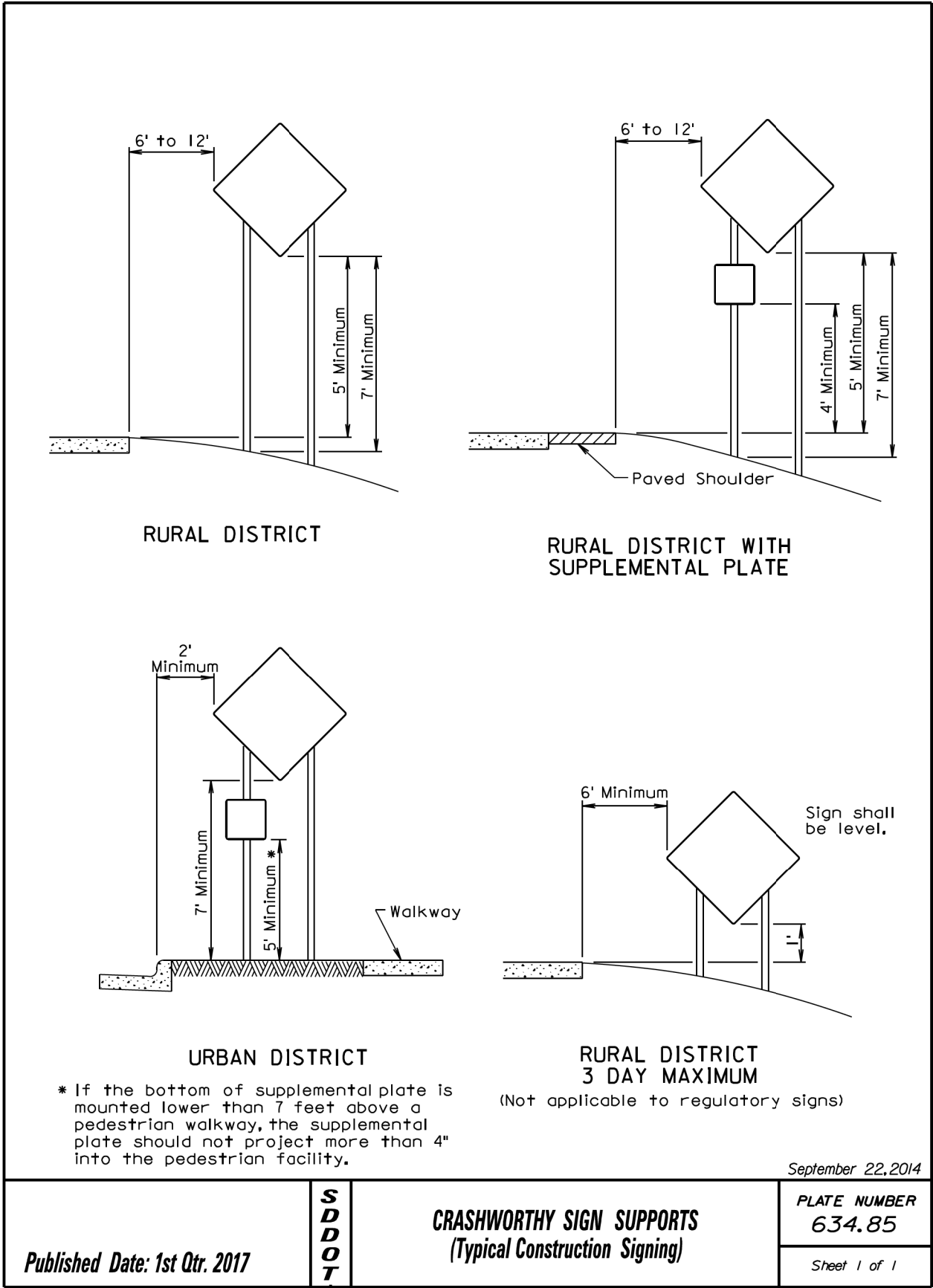
Buffer space dependent on work site limitations.

September 6, 2015

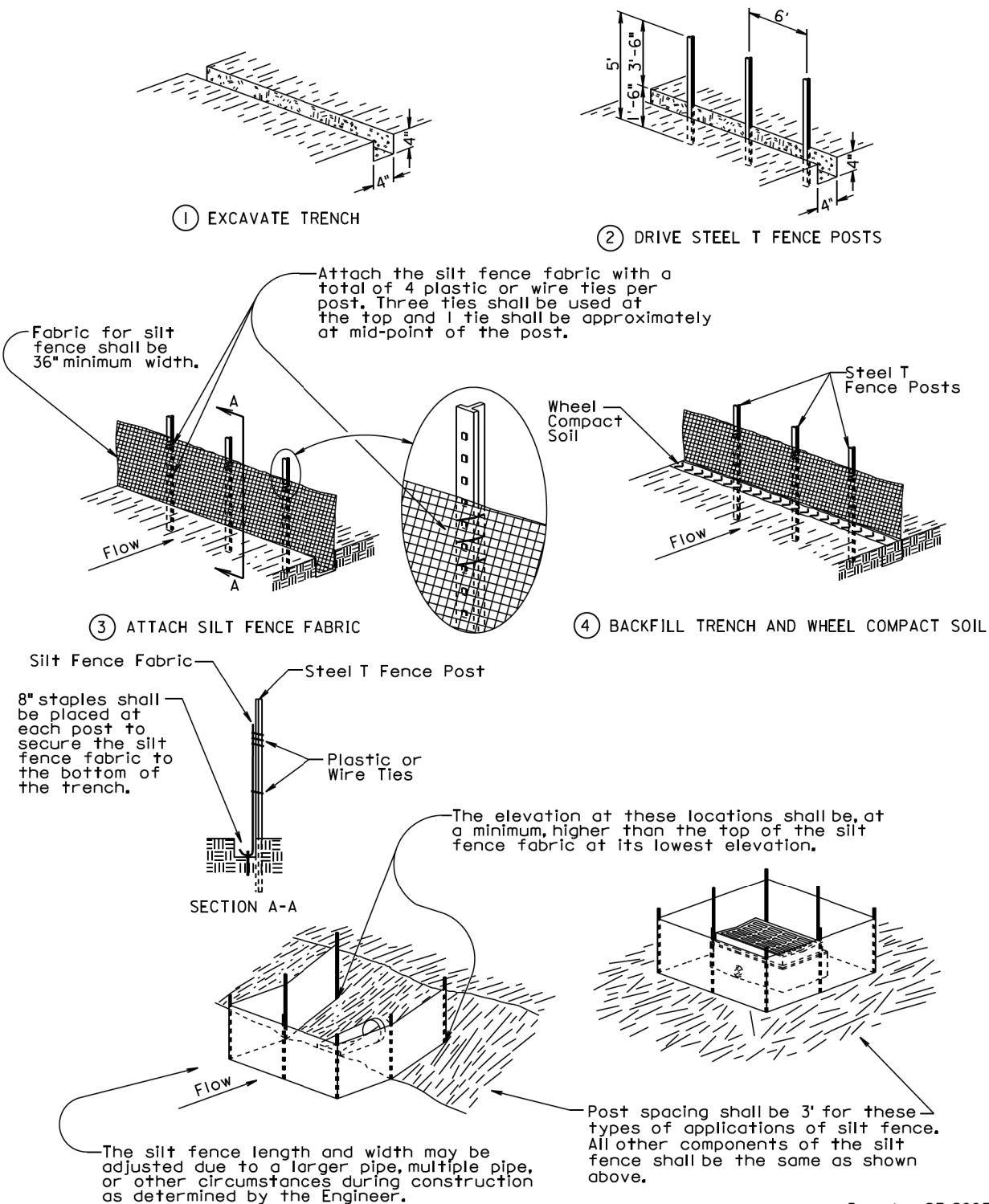
Published Date: 1st Qtr. 2017	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES	PLATE NUMBER
		TEMPORARY ROAD WORK	634.30
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085-471, etc.	9	11

Plotting Date: 03/24/2017



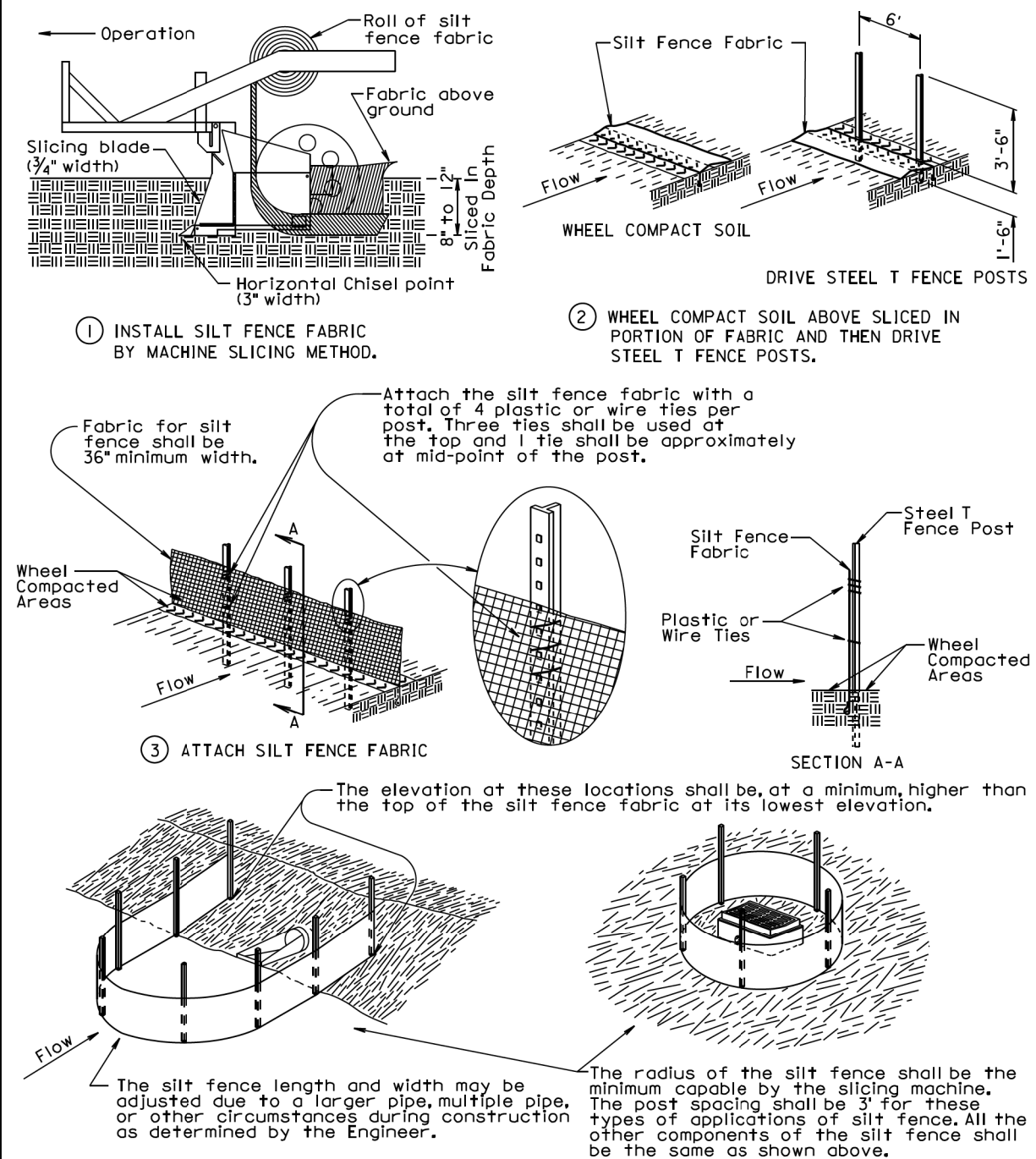
MANUAL HIGH FLOW SILT FENCE INSTALLATION



December 23, 2003

Published Date: 1st Qtr. 2017	S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 1 of 2

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



GENERAL NOTE:

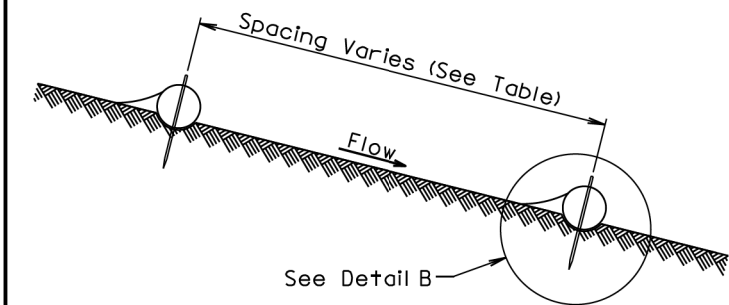
If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

December 23, 2003

Published Date: 1st Qtr. 2017	S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 2 of 2

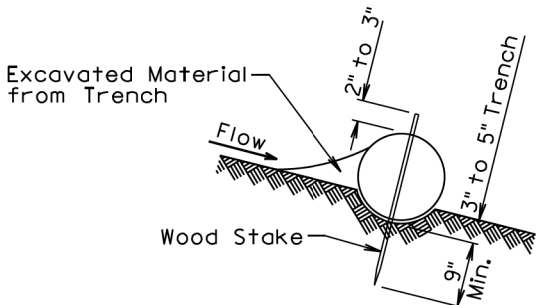
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	085-471, etc.	11	11

Plotting Date: 03/24/2017

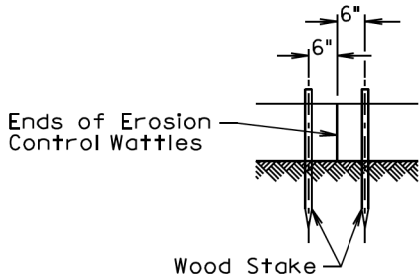


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

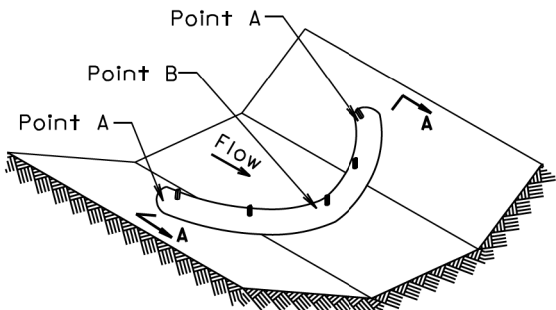
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



DETAIL B
(TYPICAL OF ALL INSTALLATIONS)

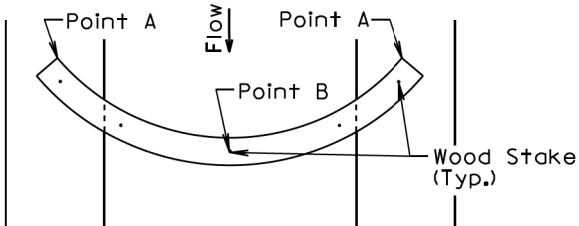


DETAIL C

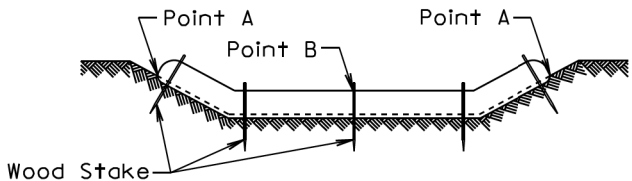


ISOMETRIC VIEW
DITCH INSTALLATION

DITCH INSTALLATION	
Grade	Spacing (Ft)
2%	150
3%	100
4%	75
5%	50



PLAN VIEW
DITCH INSTALLATION



SECTION A-A

December 23, 2004

Published Date: 1st Qtr. 2017	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

GENERAL NOTES:

At cut or fill slope installations, wattles shall be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor shall dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes shall be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

Where installing running lengths of wattles, the Contractor shall butt the second wattle tightly against the first and shall not overlap the ends. See Detail C.

The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than 1/2". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

December 23, 2004

Published Date: 1st Qtr. 2017	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2