

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	229N-271, 229S-271, 090W-271 & 029N-271	1	10

Plotting Date: 04/02/2014

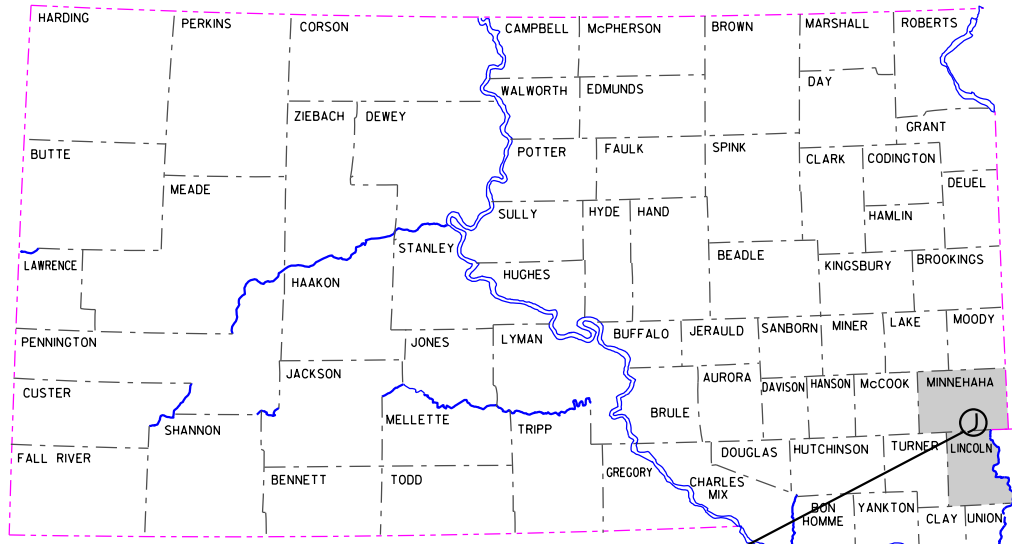
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
PROJECTS
229N-271, 229S-271, 090W-271
& 029N-271
INTERSTATE 29, 90 & 229
MINNEHAHA & LINCOLN
COUNTIES

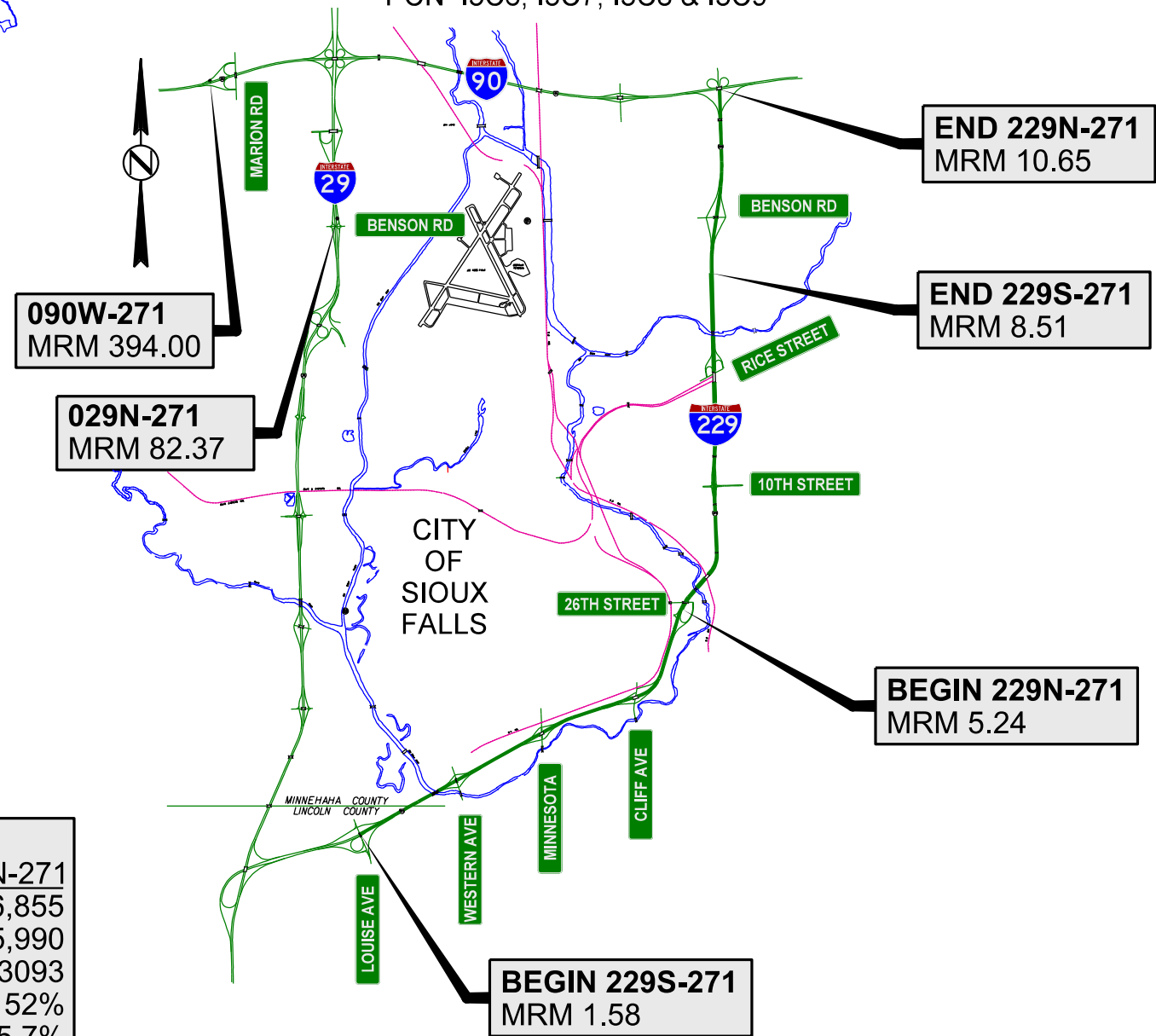
EROSION CONTROL
PCN I3C6, I3C7, I3C8 & I3C9

INDEX OF SHEETS

Sheet 1	Layout Map & Index of Sheets
Sheets 2 - 5	Estimate of Quantities & Plan Notes
Sheet 5	Itemized List of Traffic Control
Sheets 6 - 7	Erosion Control Table
Sheets 8 - 10	Standard Plates



PROJECTS



STORM WATER PERMIT
(None required)

	DESIGN DESIGNATION			
PROJECT	229N-271	229S-271	090W-271	029N-271
ADT(2013)	13,524	18,198	6,170	16,855
ADT(2033)	20,854	29,053	9,107	25,990
DHV	2,398	3,341	1,147	3093
D	53%	53%	51%	52%
T DHV	5.5%	3.5%	8.8%	5.7%
T ADT	12.0%	7.7%	19.3%	12.6%
V	65 MPH	65 MPH	65 MPH	65 MPH

PLOT SCALE - 1" = 9000'

PLOTTED FROM - TRM11INT15

FILE - ... \EROSION CONTROL \TITLE\I3C6.DGN

ESTIMATE OF QUANTITIES

229 N – 271 PCN I3C6

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
120E0600	Contractor Furnished Borrow	653	CuYd
120E6300	Water for Vegetation	25.6	MGal
230E0020	Placing Contractor Furnished Topsoil	279	CuYd
634E0100	Traffic Control	170	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
700E0210	Class B Riprap	75.0	Ton
730E0100	Cover Crop Seeding	0.5	Bu
730E0206	Type D Permanent Seed Mixture	80	Lb
732E0200	Fiber Mulching	1.3	Ton
734E0042	Soil Stabilizer	1,279.0	SqYd
734E0133	Type 3 Turf Reinforcement Mat	1,074.0	SqYd
734E0151	9" Diameter Erosion Control Wattle	125	Ft

229 S – 271 PCN I3C7

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
120E6300	Water for Vegetation	5.4	MGal
230E0020	Placing Contractor Furnished Topsoil	230	CuYd
634E0100	Traffic Control	170	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
730E0100	Cover Crop Seeding	0.1	Bu
730E0206	Type D Permanent Seed Mixture	19	Lb
732E0200	Fiber Mulching	0.6	Ton
734E0042	Soil Stabilizer	270.0	SqYd
734E0133	Type 3 Turf Reinforcement Mat	170.0	SqYd
734E0151	9" Diameter Erosion Control Wattle	63	Ft

090W – 271 PCN I3C8

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
120E6300	Water for Vegetation	2.6	MGal
230E0020	Placing Contractor Furnished Topsoil	45	CuYd
634E0100	Traffic Control	170	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
730E0100	Cover Crop Seeding	0.1	Bu
730E0206	Type D Permanent Seed Mixture	9	Lb
732E0200	Fiber Mulching	0.6	Ton
734E0042	Soil Stabilizer	130.0	SqYd
734E0133	Type 3 Turf Reinforcement Mat	969.0	SqYd
734E0151	9" Diameter Erosion Control Wattle	125	Ft

029 N – 271 PCN I3C9

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
120E6300	Water for Vegetation	22.8	MGal
230E0020	Placing Contractor Furnished Topsoil	203	CuYd
634E0100	Traffic Control	170	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
730E0100	Cover Crop Seeding	0.5	Bu
730E0206	Type D Permanent Seed Mixture	73	Lb
732E0200	Fiber Mulching	0.6	Ton
734E0042	Soil Stabilizer	1,140.0	SqYd
734E0133	Type 3 Turf Reinforcement Mat	1,458.0	SqYd
734E0151	9" Diameter Erosion Control Wattle	131	Ft

SPECIFICATIONS

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

SCOPE OF WORK

This project consists of erosion control.

SEQUENCE OF OPERATIONS

Lane closures and/or narrowing of lanes will **NOT** be allowed as follows:

I229 Northbound & I229 Southbound

- 6:30 a.m. to 8:30 a.m.
- 4:00 p.m. to 7:00 p.m.

Traffic shall be returned to the normal driving lanes during nonworking hours. Approval from the Engineer will be required to complete work at night.

UTILITIES

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

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

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 the DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3268). 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.

COORDINATION BETWEEN CONTRACTORS

A separate contract for Project 000I-271 - PCN I3A7, I3A8 & I3A9 has been awarded to another Contractor for Mowing of the Interstate ROW.

The Contractor shall schedule his work so as not to interfere with or hinder the progress of the work performed by other Contractors on the mowing project.

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.

Cost 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.

UNCLASSIFIED EXCAVATION

It is anticipated that a larger volume of topsoil will be needed for the disturbed areas than can be salvaged from the existing grade. In the process of shaping these areas back to the typical section some material will need be removed to make room for the 4" of topsoil.

Cost to remove and shape the areas for topsoil shall be incidental to the contract unit price per cubic yard for Unclassified Excavation. Plans quantity will be basis of payment.

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. The plans quantity for Contractor Furnished Borrow as shown in the Estimate of Quantities will be the basis of payment for this item.

Prior to placement or removal of fill material, the Contractor will be required to remove four inches of topsoil and replace it following the placement of the new fill material. Removing and replacing topsoil will not be measured for payment but shall be incidental to the contract unit price per cubic yard for Contractor Furnished Borrow.

The Contractor will be allowed to place topsoil in lieu of fill material if the fill depth is one foot or less. By doing this the Contractor will not be required to remove and replace the four inches of in place topsoil.

Compaction of the fill material shall be to the satisfaction of the Engineer.

It is not anticipated that water for compaction will be required; however, if in the opinion of the Engineer the fill material is extremely dry, water may be ordered and placed to the satisfaction of the Engineer. Cost for water shall be incidental to the contract unit price per cubic yard for Contractor Furnished Borrow.

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

PERMANENT SEEDING

The areas to be seeded comprise of all newly graded areas within the project limits except for the top of roadways and temporary easements under cultivation.

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.

PERMANENT SEEDING (CONTINUED)

Type D Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/1000 SqFt)
Kentucky Bluegrass	Avalanche, Appalachian, Wildhorse, Blue Bonnet	1.4
Perennial Ryegrass	Turf Type	1.4
Creeping Red Fescue	Epic, Boreal	1.4
Chewings Fescue	Ambrose, K2, VNS, Zodiac	1.4
Alkali Grass	Fults, Fults II, Quill, Salty	1.4
Total:		7

DRILLS

In addition to the drills specified in Section 730 of the Standard Specifications, other types of drills including no-till drills will be allowed as long as they have baffles, partitions, agitators, or augers which keep the seed distributed throughout the seed box and the seed is planted at a depth of ¼" to ½" .

FIBER MULCHING

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

An additional 2% by weight of tackifier shall be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier shall be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier shall be synthetic.

Fiber mulch shall be applied at the rate of 2000 pounds per acre.

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.

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials shall be incidental to the contract unit price per pound or ton for "Fiber Mulching".

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>

TYPE 3 TURF REINFORCEMENT MAT

Turf Reinforcement Mat shall be installed at locations shown in the table at the widths specified, and at locations determined by the Engineer during construction. The Contractor shall 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/Applications/HC54ApprovedProducts/main.asp>

Installation of the Turf Reinforcement Mat shall be according to the manufacturer's installation instructions.

PLACING CONTRACTOR FURNISHED TOPSOIL

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

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

WATER FOR VEGETATION

Water for vegetation consists of applying water to seeded areas to enhance germination and/or root growth. When watering, use the following guidelines:

Immediately after seeding:

- Keep the topsoil moist but not excessively wet until the seed has germinated.
- Water a minimum of 3 days a week for 2 weeks preferably watering 2 or 3 times a day in small quantities.
- Use fine spray and low pressure to avoid topsoil wash and to prevent uncovering buried seeds.

After emergence:

- Topsoil shall be kept thoroughly moistened by sprinkling, as necessary, for 6 weeks. After the 6 week period, an inspection shall be made to determine if grass is established enough to suspend watering. Continue watering until grass has been thoroughly established.
- Never apply water at a rate faster than the topsoil can absorb.
- Water during early morning hours or early evening hours.
- Do not water when rain is forecasted for the area.
- If rainfall occurs, suspend watering according to rainfall amount.

An estimated 100 Gallons of water per square yard of seeding area was used to compute the quantity for the bid item "Water for Vegetation".

All costs for furnishing and applying the water including hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per Mgal for "Water for Vegetation".

COVER CROP SEEDING

Oats or spring wheat seed shall be used April through July and winter wheat seed shall be used August through November.

Cover crop seeding may be used on this project as a temporary erosion control measure. The quantity of cover crop seeding was estimated at one bushel per acre of the disturbed earthen areas. The actual limits and use of cover crop seeding shall be determined by the Engineer during construction.

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations noted in the table and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor shall provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles shall remain on the project to decompose.

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

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

SOIL STABILIZER

An estimated quantity of xx SqYds of soil stabilizer has been included in the Estimate of Quantities. The soil stabilizer shall be applied on permanently seeded areas and areas deemed necessary by the Engineer.

The Contractor shall apply soil stabilizer according to the manufacturer's application instructions and at the rate specified in the list of approved soil stabilizers.

Wood fiber mulch that contains a green dye shall be mixed with the soil stabilizer to be used as a tracer when the soil stabilizer is applied hydraulically. Wood fiber mulch shall be added at a rate of 300 pounds per acre to all of the approved soil stabilizers listed in the table except for the Pam-12 Plus product. The wood fiber mulch shall be a 100% wood fiber product and does not need to contain a tackifier.

All costs for furnishing and applying the soil stabilizer including wood fiber mulch, hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per SqYd for "Soil Stabilizer".

The soil stabilizer shall be from the list below or an approved equal:

SOIL STABILIZER (CONTINUED)

Product
StarTak 600
Applied at a rate of 150 Lb/Acre

Manufacturer
Chemstar Products Company
Minneapolis, MN
Phone: 1-800-328-5037
www.chemstar.com

Pam-12 Plus
Applied at a rate of:
Slope
None to 4:1 1000 Lb/Acre
4:1 to 3:1 1000 to 2000 Lb/Acre
3:1 to 2:1 2000 to 3000 Lb/Acre

ENCAP, LLC
Green Bay, WI
Phone: 1-877-405-5050
<http://professional.encap.net/>

M-Binder
Applied at a rate of 150 Lb/Acre

Ecology Controls
Carpinteria, CA
Phone: 1-805-684-0436
www.ssseeds.com

FiberRX
Applied at a rate of:
Slope
None to 4:1 50 Lb/Acre
3:1 60 Lb/Acre
2:1 70 Lb/Acre
1:1 or steeper 80 Lb/Acre

Hydrostraw, LLC
Manteno, IL
Phone: 1-800-545-1755
<http://hydrostraw.com/>

Enviropam
Applied at a rate of 9 Lb/Acre

Innovative Turf Solutions, LLC
Cincinnati, OH
Phone: 1-513-317-8311
www.innovativeturfsolutions.com

HydraTack, Tack Plus,
Tack-P, or Tack-P Plus
Applied at a rate of 30 Lb/Acre

Innovative Turf Solutions, LLC
Cincinnati, OH
Phone: 1-513-317-8311
www.innovativeturfsolutions.com

FI-1045 Hydrobond or
FI-1046 Hydrobond
Applied at a rate of 15 Lb/Acre

JRM Chemical, Inc.
Cleveland, OH
Phone: 1-216-475-8488
www.soilmoist.com

HF5000 Tack
Applied at a rate of 60 Lb/Acre

Rantec Corporation
Ranchester, WY
Phone: 1-307-655-9565
www.ranteccorp.com

R-Tack
Applied at a rate of 150 Lb/Acre

Rantec Corporation
Ranchester, WY
Phone: 1-307-655-9565
www.ranteccorp.com

SOIL STABILIZER (CONTINUED)

SpecTac
Applied at a rate of:
Slope
None 30 to 80 Lb/Acre
4:1 50 to 100 Lb/Acre
3:1 80 to 120 Lb/Acre
2:1 100 to 170 Lb/Acre

Rantec Corporation
Ranchester, WY
Phone: 1-307-655-9565
www.ranteccorp.com

Super Tack
Applied at a rate of 60 Lb/Acre

Rantec Corporation
Ranchester, WY
Phone: 1-307-655-9565
www.ranteccorp.com

EarthGuard SFM
Applied at a rate of 60 LB/Acre
(approx. 6 Gallons/Acre)

Terra Novo Inc.
Bakersfield, CA
Phone: 1-661-747-5956
www.terranovo.com

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.

GENERAL MAINTENANCE OF TRAFFIC

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

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

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

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

Sufficient traffic control devices have been included in these plans to sign one workspace per project. If the Contractor elects to work on additional sites simultaneously, the cost for additional traffic control devices shall be incidental to the contract unit price per unit for Traffic Control.

ITEMIZED LIST OF TRAFFIC CONTROL

229 N-271, 229 S-271, 090 W-271, & 029 N-271 (PCN I3C6, I3C7, I3C8, IC39)

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W20-1	48" x 48"	ROAD WORK AHEAD	2	34	68
W21-5	48" x 48"	SHOULDER WORK	2	34	68
TOTAL UNITS					170

EROSION CONTROL TABLES

Table for Erosion Control for 229 N-271 PCN I3C6

MRM	Lt. or Rt.	Work Area Square Footage	Contractor Furnished Borrow (CY)	Water for Vegetation (Mgal)	Placing Contractor Furnished Topsoil (CY)	Class B Riprap (Tons)	Cover Crop Seeding (Bu)	Type D Permanent Seed Mixture (LBS)	Soil Stabilizer (Sq Yd)	Fiber Mulch (TON)	Type 3 Turf Reinforcement Mat (SY)	9" Diameter Erosion Control Wattle (FT)
5.24	Rt.	150	12	1.7	3		As Needed	1	17	As Needed	17	As Needed
5.24	Rt.	200		2.2	12			1	22			
5.29	Rt.	900		10.0	15	15		6	100			
5.30	Rt.	300		3.3	12			2	33			
5.78	Rt.	1,660	216	18.4	31	15		12	184			
7.09	Rt.	2,000	260	22.2	38			14	222			
7.09	Rt.	28		1.0	1			1	3			
7.59	Rt.	350		3.9	7			2	39			
8.11	Rt.	1,600		17.8	30			11	178			
8.46	Rt.	900	34	10.0	17			6	100		100	
8.46	Rt.	300		3.3	12			2	33			
9.70	Rt.	600		6.7	34			4	67			
9.84	Rt.	100		1.1	6	15		1	11			
10.65	Rt.	128		1.4	5	15		1	14			
TOTAL		9,216	522	103.0	223	60	0.4	64	1,023	1.0	859	100
25% ADDITIONAL QUANTITY		2,304	131	26.0	56	15	0.1	16	256	0.3	215	25
PROJECT TOTAL		11,520	653	129.0	279	75	0.5	80	1,279	1.3	1,074	125

Table for Erosion Control for 229 S-271 PCN I3C7

MRM	Lt. or Rt.	Work Area Square Footage	Contractor Furnished Borrow (CY)	Water for Vegetation (Mgal)	Placing Contractor Furnished Topsoil (CY)	Class B Riprap (Tons)	Cover Crop Seeding (Bu)	Type D Permanent Seed Mixture (LBS)	Soil Stabilizer (Sq Yd)	Fiber Mulch (TON)	Type 3 Turf Reinforcement Mat (SY)	9" Diameter Erosion Control Wattle (FT)
Louise Ave Off Ramp	Rt.	275		3.1	21		As Needed	2	31	As Needed	30	As Needed
Louise Ave Off Ramp	Rt.	500		5.6	38			4	56			
Louise Ave Off Ramp	Rt.	112		1.2	9			1	12			
Minn. Ave On Ramp	Rt.	252		2.8	33			2	28			
5.82	Rt.	400		4.4	60			3	44			
8.51	Rt.	406		4.5	23			3	45			
TOTAL		1,945	0	21.6	184	0	0.1	15	216	0.5	136	50
25% ADDITIONAL QUANTITY		486	0	5.0	46	0	0.0	4	54	0.1	34	13
PROJECT TOTAL		2,431	0	26.6	230	0	0.1	19	270	0.6	170	63

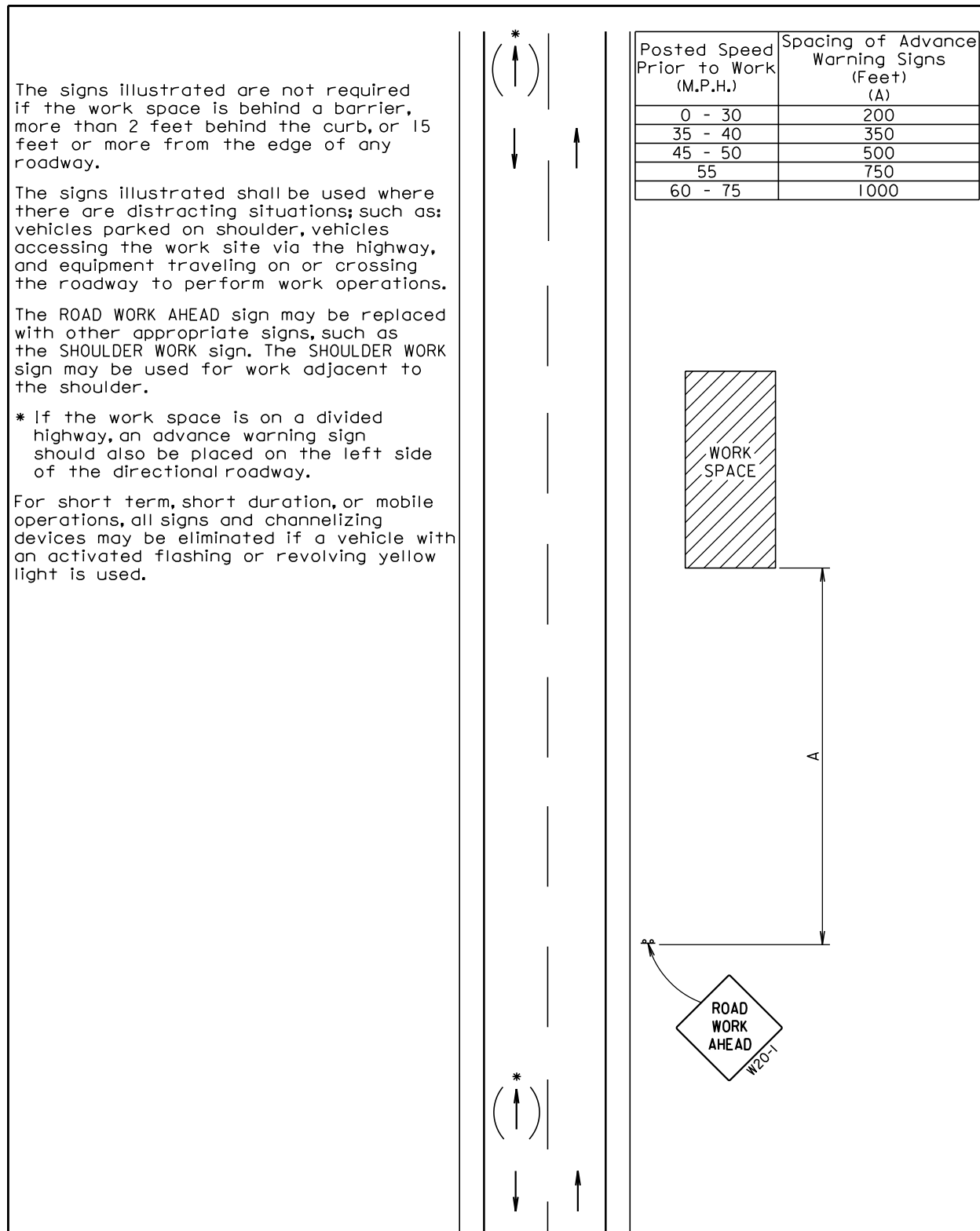
EROSION CONTROL TABLES (CONTINUED)

Table for Erosion Control for 090 W-271 PCN IC38

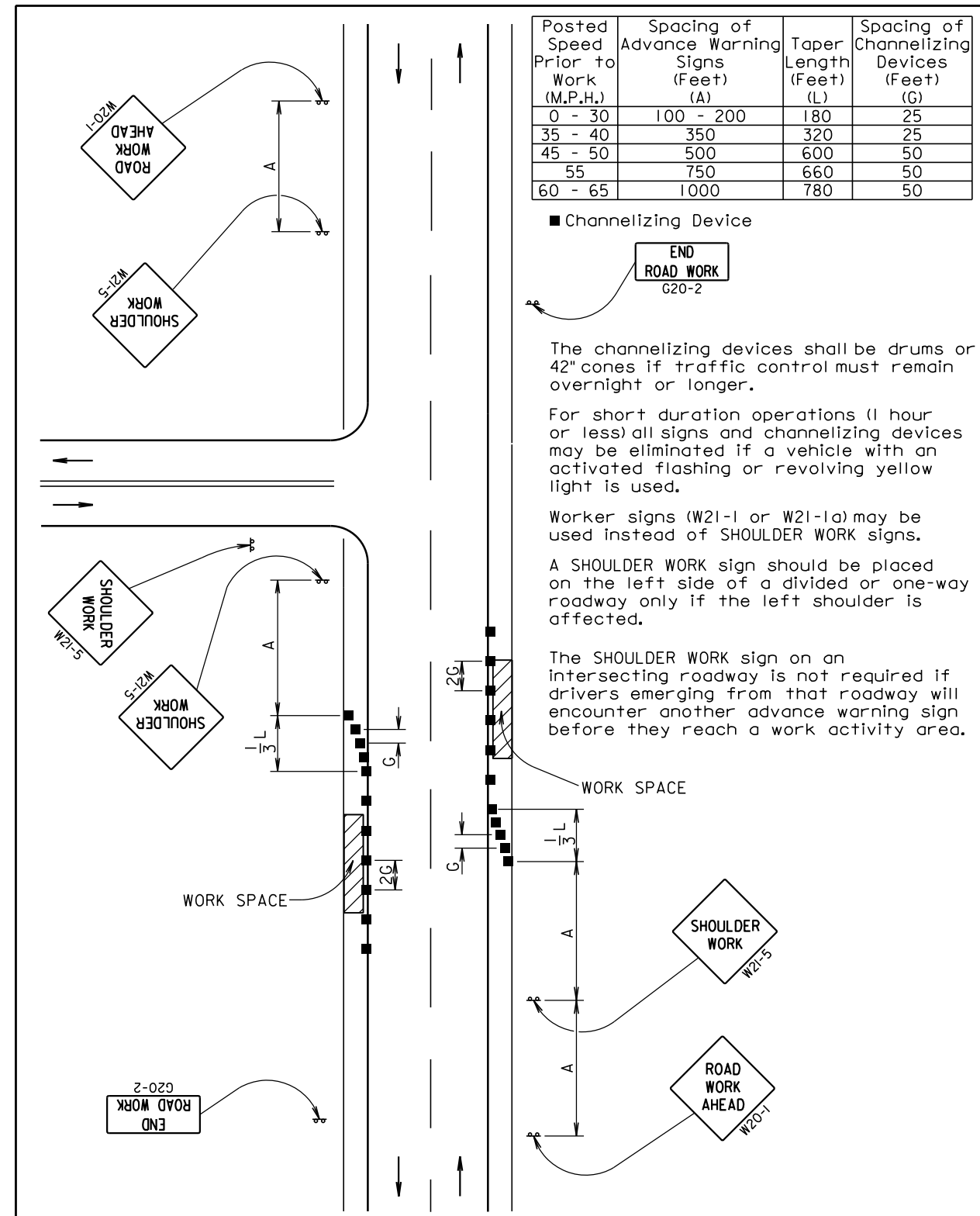
MRM	Lt. or Rt.	Work Area Square Footage	Contractor Furnished Borrow (CY)	Water for Vegetation (Mgal)	Placing Contractor Furnished Topsoil (CY)	Class B Riprap (Tons)	Cover Crop Seeding (Bu)	Type D Permanent Seed Mixture (LBS)	Soil Stabilizer (Sq Yd)	Fiber Mulch (TON)	Type 3 Turf Reinforcement Mat (SY)	9" Diameter Erosion Control Wattle (FT)
Marion WB Off Ramp	Rt.	138		1.5	6		<i>As Needed</i>	1	15	<i>As Needed</i>	140	
Marion WB On	Rt.	800		8.9	30			6	89		636	100
TOTAL		938	0	10.4	36	0	0.1	7	104	0.5	776	100
25% ADDITIONAL QUANTITY		234	0	3.0	9	0	0.0	2	26	0.1	194	25
PROJECT TOTAL		1,172	0	13.4	45	0	0.1	9	130	0.6	969	125

Table for Erosion Control for 029 N-271 PCN IC39

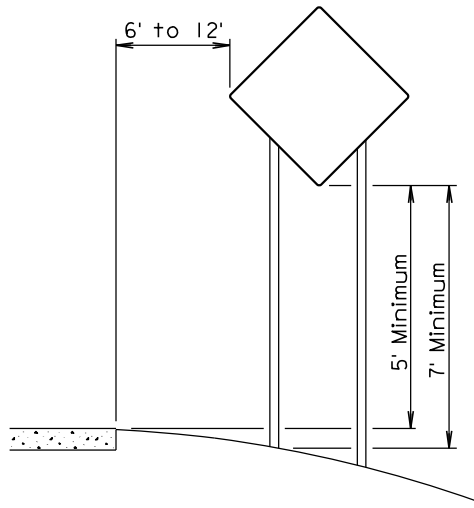
MRM	Lt. or Rt.	Work Area Square Footage	Contractor Furnished Borrow (CY)	Water for Vegetation (Mgal)	Placing Contractor Furnished Topsoil (CY)	Class B Riprap (Tons)	Cover Crop Seeding (Bu)	Type D Permanent Seed Mixture (LBS)	Soil Stabilizer (Sq Yd)	Fiber Mulch (TON)	Type 3 Turf Reinforcement Mat (SY)	9" Diameter Erosion Control Wattle (FT)
Benson NB On Ramp	Lt.	500		5.6	19		<i>As Needed</i>	4	56	<i>As Needed</i>	311	105
Benson NB On Ramp	Rt.	7,700		85.6	143			54	856		856	
TOTAL		8,200	0	91.2	162	0	0.4	58	912	0.5	1,167	105
25% ADDITIONAL QUANTITY		2,050	0	23.0	41	0	0.1	15	228	0.1	292	26
PROJECT TOTAL		10,250	0	114.2	203	0	0.5	73	1,140	0.6	1,458	131



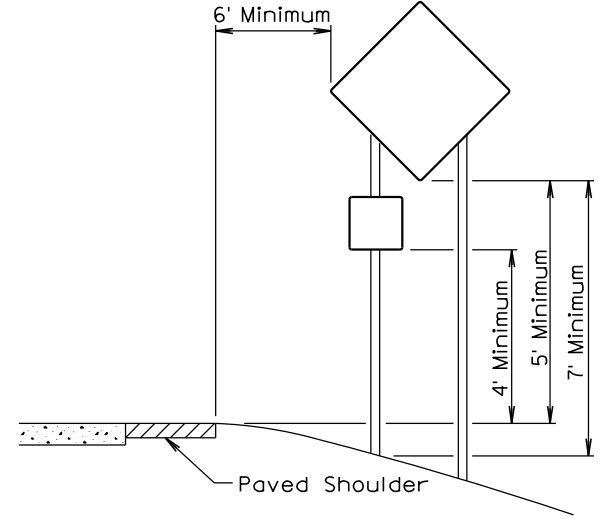
July 1, 2005



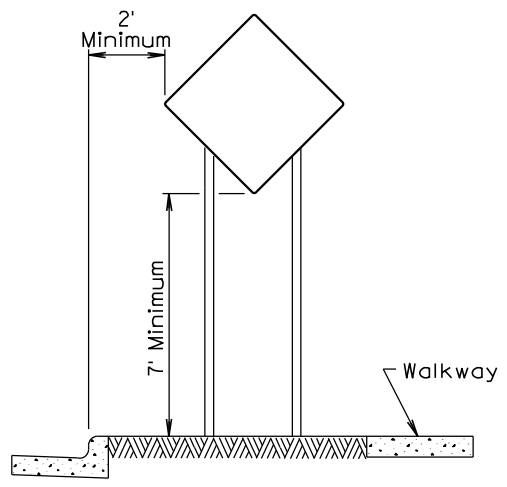
February 14, 2011



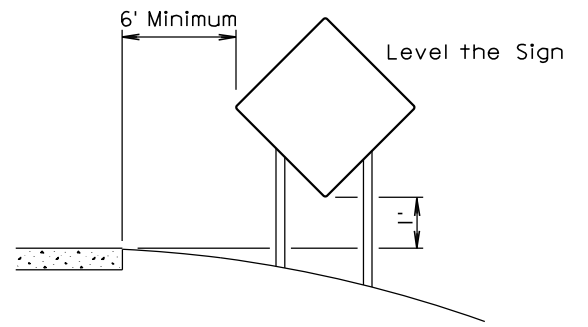
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



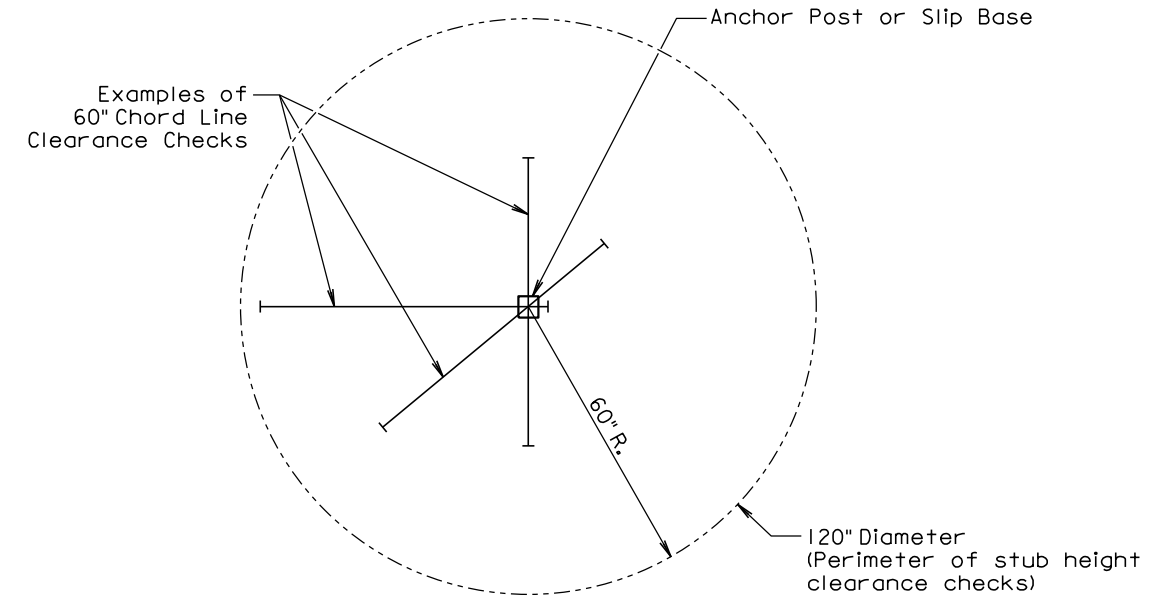
URBAN DISTRICT



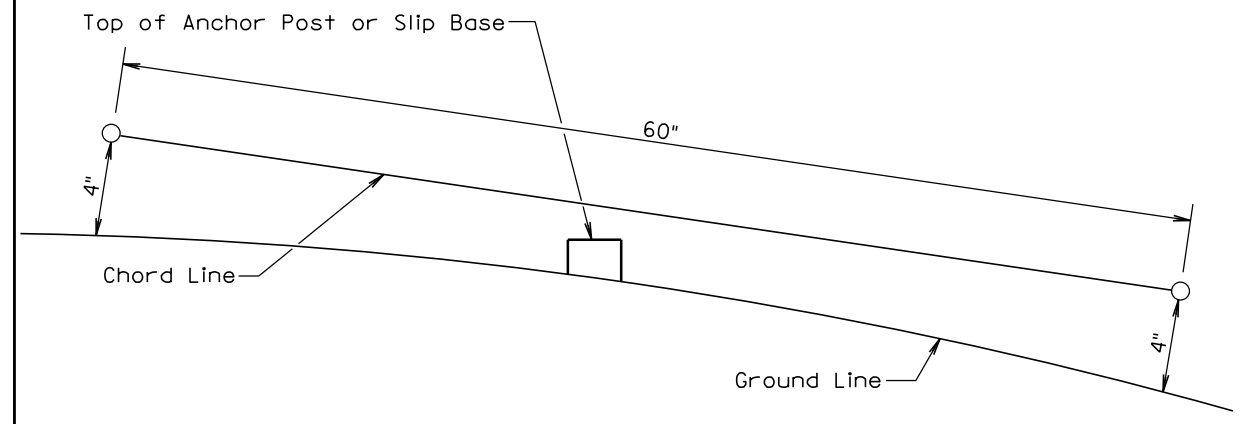
RURAL DISTRICT
3 DAY MAXIMUM

February 14, 2011

Published Date: 1st Qtr. 2014	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

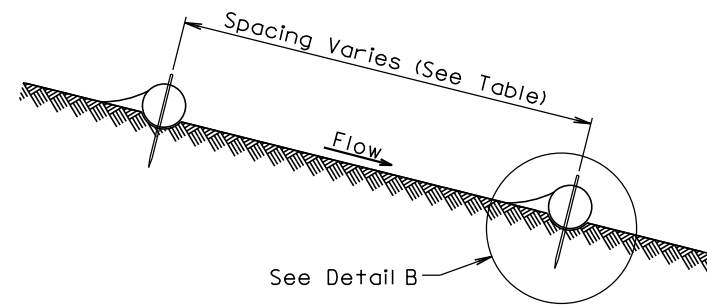
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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

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

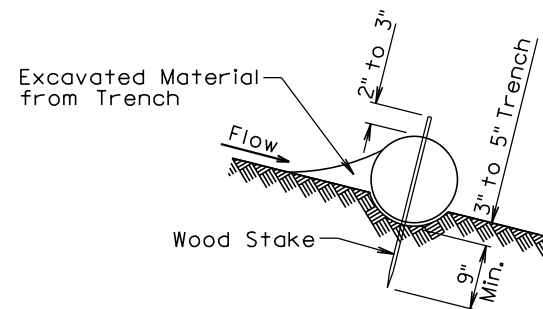
July 1, 2005

Published Date: 1st Qtr. 2014	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

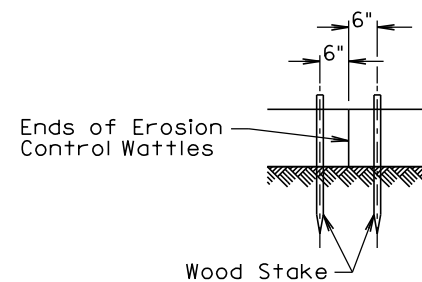


CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40

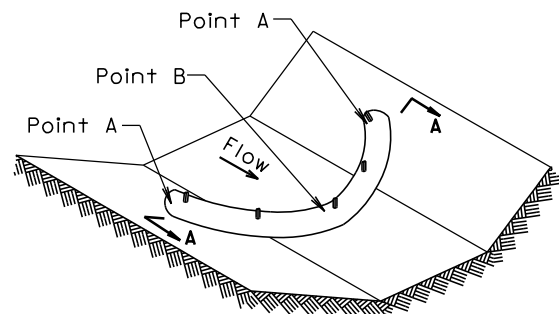
ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION



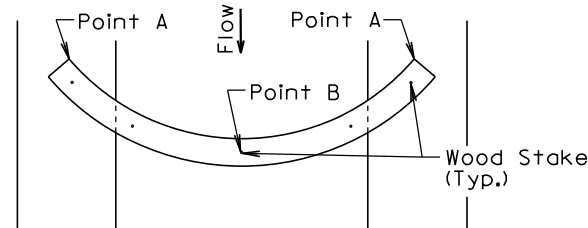
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



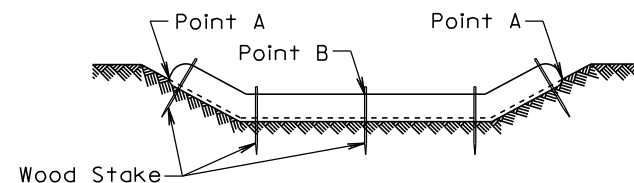
DETAIL C



ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION



SECTION A-A

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

December 23, 2004

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