STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(108)44	D1	D20

Plotting Date: 03/17/2014

SECTION D: EROSION AND SEDIMENT CONTROL PLAN

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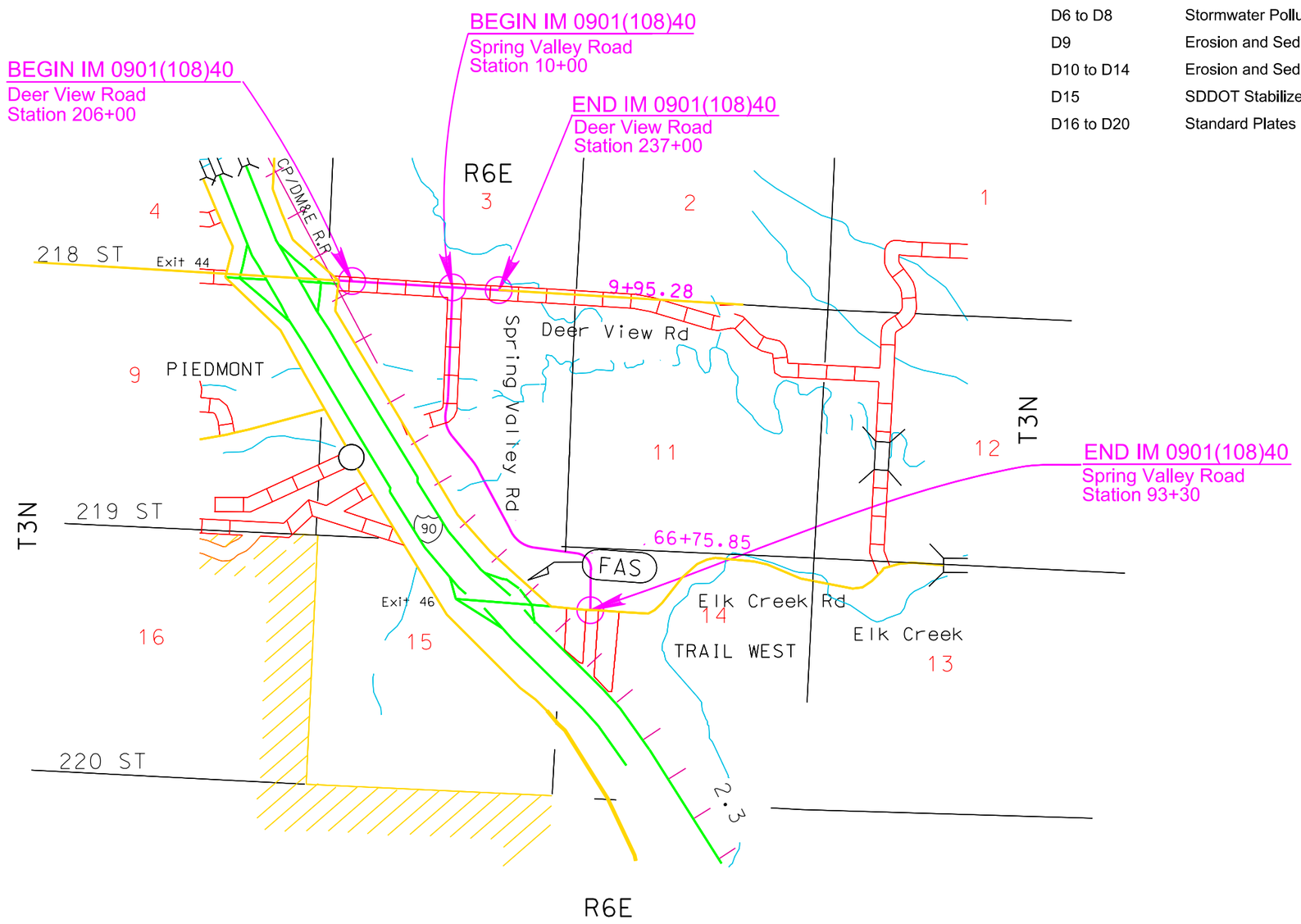

SECTION D ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
110E1690	Remove Sediment	200.0	CuYd
110E1693	Remove Erosion Control Wattle	1,520	Ft
110E1700	Remove Silt Fence	370	Ft
230E0010	Placing Topsoil	25,650	CuYd
730E0100	Cover Crop Seeding	14.0	Bu
730E0210	Type F Permanent Seed Mixture	1,144	Lb
730E0251	Special Permanent Seed Mixture 1	40	Lb
731E0200	Fertilizing	52.00	Ton
732E0100	Mulching	104.0	Ton
734E0044	Soil Stabilizer	9.0	Acre
734E0102	Type 2 Erosion Control Blanket	3,290	SqYd
734E0132	Type 2 Turf Reinforcement Mat	900.0	SqYd
734E0154	12" Diameter Erosion Control Wattle	1,520	Ft
734E0165	Remove and Reset Erosion Control Wattle	310	Ft
734E0170	Temporary Sediment Barrier	2,500	Ft
734E0325	Surface Roughening	22.0	Acre
734E0510	Shaping for Erosion Control Blanket	4,670	Ft
734E0602	Low Flow Silt Fence	1,000	Ft
734E0604	High Flow Silt Fence	475	Ft
734E0610	Mucking Silt Fence	100	CuYd
734E0620	Repair Silt Fence	370	Ft
900E1320	Construction Entrance	1	Each
900E5147	Articulated Concrete Mattress	2,135.0	SqYd

PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements. The topsoil thickness for the option borrow pits shall be as stated on the option borrow pit sheets. The estimated amount of topsoil to be placed is as follows:

Station to Station	Topsoil (CuYd)
Deer View Road 206+00 to 230+00	2,685
Deer View Road 230+00 to 237+00	757
10+00 to 30+00	1,597
30+00 to 60+00	3,230
60+00 to 93+30	2,208
Wetland (Borrow Pit 4) and Berm	6,228
Railroad crossing removal at 23+90-2420' R	582
Railroad crossing removal at 40+43-1376' R	415
Railroad crossing removal at 44+96-1181' R	332
Railroad crossing removal at 62+92-8999'R	166
Subtotal:	18,200
Option Borrow Pit No. 1	2,200
Option Borrow Pit No. 2	2,500
Option Borrow Pit No. 3	2,750
Subtotal:	7,450
Total:	25,650

OPTION BORROW PITS

This project includes approximately 16 acres of option borrow pits. Quantities of Type F Permanent Seed Mixture, Fertilizing, and Mulching have been included in the Estimate of Quantities for the option borrow pits.

MYCORRHIZAL INOCULUM

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

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 25% of each of the following fungal species: *Glomus intraradices, Glomus aggregatu, Glomus mosseae, and Glomus etunicatum.*

The mycorrhizal inoculum shall be from the list below or an approved equal:

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 http://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 all-natural slow release fertilizer shall be applied according to the manufacturer's application recommendations.

The application rate is 2,000 pounds per acre.

The all-natural slow release fertilizer shall be from the list below or an approved equal:

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

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".

PERMANENT SEEDING

The areas to be seeded consist 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. The varieties listed for the seed mixture are preferred varieties. Native harvest seed will be allowed.

Type F Permanent Seed Mixture shall be placed on option borrow pits and all other areas except for the wetland consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	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

Special Permanent Seed Mixture 1 shall be placed on the wetland site including the roadway inslope along the wetland and shall consist of the following:

Plant Species	Pounds/Acre)
Blue Joint Reed Grass	0.05
Virginia Wildrye	1.50
Reed Manna Grass	0.20
Rice Cut Grass	0.40
White Top	0.03
Prairie Cord Grass	0.40
Prairie Wedgegrass	0.45
Common Plantain	0.20
Swamp Milkweed	0.05
Joe Pye Weed	0.02
Boneset	0.01
Sneezeweed	0.05
Monkey Flower	0.10
Blue Vervain	0.10
American Slough Grass	0.50
Wheat Sedge	0.01
Plains Oval Sedge	0.02
Porcupine Sedge	0.01
Smoothcone Sedge	0.03
Woolly Sedge	0.01
Clustered Field Sedge	0.01
Brown Fox Sedge	0.20
Baltic Rush	0.01
Dudley's Rush	0.01
Torrey's Rush	0.01
Hardstem Rush	0.01
Dark Green Rush	0.20
River Bulrush	0.01
Chairmaker's Rush	0.05
Softstem Rush	0.10
Giant Bur Reed	0.25
Total:	5.0

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SOIL STABILIZER

An estimated quantity of 9 acres of soil stabilizer has been included in the Estimate of Quantities. The soil stabilizer shall be applied on disturbed areas as needed during construction to control erosion on 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 Acre for "Soil Stabilizer".

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

Product	Manufacturer
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/
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
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
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

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 25% of the disturbed earthen areas. The actual limits and use of cover crop seeding shall be determined by the Engineer during construction.

SURFACE ROUGHENING

Surface Roughening shall be utilized in all ditches and on steep inslopes and backslopes when final stabilization (seeding and mulching) cannot be completed due to seasonal restrictions. Areas likely needing surface roughening are cross-hatched blue. Refer to Standard Plate 734.25 for details.

MULCHING (GRASS HAY OR STRAW)

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

An additional 8 tons of Grass Hay or Straw Mulch has been added to the Estimate of Quantities for temporary erosion control on areas determined by the Engineer during construction.

The Contractor shall mulch all disturbed areas prior to the ground freezing whether or not seeding has been completed.

TABLE OF TEMPORARY SEDIMENT BARRIER

Stationing	Quantity (Ft)
208+85 to 213+35 R	340
210+10 to 214+10 L	320
214+21 to 218+94 L	420
232+43 to 233+14 L	165
16+18 to 20+18 L	65
27+80 to 28+39 L	60
33+07 to 33+64 L	135
53+22 to 53+72 L	25
54+43 to 56+01 L	240
59+08 to 59+57 L	35
74+47 to 75+80 L	120
85+75 to 86+13 L	40
86+39 to 86+49 L	40
87+65 to 89+41 L	110
Subtotal	2,115
Additional Quantity	385
Total	2,500

TEMPORARY SEDIMENT BARRIER

Temporary sediment barriers shall be installed at locations noted in the table and at locations determined by the Engineer during construction. Temporary Sediment Barriers are being used as perimeter control on this project.

All costs for furnishing, installing, and maintaining the temporary sediment barrier including hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per foot for "Temporary Sediment Barrier".

An additional quantity of Temporary Sediment Barrier has been added to the Estimate of Quantities for erosion and sediment control on areas that require an increased level of filtration and sediment control.

The temporary sediment barriers shall be from the list below or an approved equal:

Product	Manufacturer
ProWattle Perimeter Guard	ERTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com
Compost Filter Sock 9" and 12"	Dioten Engineering, Inc. Rapid City, SD Phone: 1-605-430-7213
SedimentSTOP Or SediMax-FR Filtration Rolls	North American Green Poseyville, IN Phone: 1-800-772-2040 www.tensarnagreen.com
Typar Geocells	Fiberweb Inc. Old Hickory, TN Phone: 1-615-847-7500 www.typargeocells.com
Silt Sock 8" and 12"	Aspen Ridge Lawn and Landscaping, LLC Rapid City, SD Phone: 1-605-415-0695 www.siltsocksd.com
Terra-Tubes	Profile Products LLC Buffalo Grove, IL Phone: 1-800-366-1180 www.profileproducts.com
12" Diameter Erosion Control Wattles	The excelsior (wood fiber) 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

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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 placed for final stabilization during the final phase 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

TABLE OF 12" DIAMETER EROSION CONTROL WATTLE

Phase	Stationing	Spacing	Each	Total
Interim	214+50 to 216+00 R	50'	10'	40 Ft
Interim	216+50 to 219+00 R	25'	10'	110 Ft
Interim	221+25 to 221+75 R	50'	10'	20 Ft
Interim	225+25 to 232+00 R	25'	10'	400 Ft
Final	220+28 to 223+05 R	40'		250 Ft
Interim	233+50 to 235+00 R	50'	10'	40 Ft
Interim	11+00 to 19+50 R	50'	10'	180 Ft
Interim	21+50 to 24+00 R	50'	10'	60 Ft
Interim	24+00 to 26+00 L	50'	10'	50 Ft
Interim	25+50 to 26+00 R	50'	10'	20 Ft
Interim	26+75 to 28+00 L	25'	10'	60 Ft
Interim	27+00 to 28+25 R	25'	10'	60 Ft
Interim	28+50 L			10 Ft
Interim	34+25 to 35+00 L	75'	10'	20 Ft
Interim	35+00 to 36+00 R	100'	10'	20 Ft
Interim	xr 47 1+00 to 4+50 L	50'	10'	80 Ft
Interim	xr 47 1+00 to 4+50 R	50'	10'	80 Ft
Interim	xr 47 5+25 to 7+00 R	50'	10'	50 Ft
Interim	xr 47 5+50 to 7+00 L	50'	10'	40 Ft
Interim	59+00 to 60+25 L	25'	10'	60 Ft
Interim	59+25 to 59+75 R	50'	10'	20 Ft
Interim	60+25 to 62+00 R	25'	10'	80 Ft
Interim	xr 80 1+50 to 3+00 R	150'	10'	20 Ft
Final	84+75 R			10 Ft
Final	85+75 R			10 Ft
Final	86+50 R			10 Ft
Final	87+50 R			10 Ft
Final	89+00 R			10 Ft
Final	89+75 L			10 Ft
	(Total Interim Phase) Maximum Quantity to be Placed			1,520 Ft
	(Total Final Phase) Minimum Quantity to be a Reset			310 Ft
	Maximum Quantity to be Removed (and not Reset)			1,520 Ft

REMOVE AND RESET EROSION CONTROL WATTLE

Erosion control wattles may be removed and reset as necessary as work progresses. The quantity shown to be reset in the table is the minimum quantity estimated to be removed and reset. The erosion control wattles removed and reset shall be in useable condition. All costs for removing and resetting the erosion control wattles shall be incidental to the contract unit price per foot for "Remove and Reset Erosion Control Wattle".

LOW FLOW SILT FENCE

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

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

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

An additional quantity of Low Flow Silt Fence has been added to the Estimate of Quantities for temporary sediment control.

TABLE OF LOW FLOW SILT FENCE

Stationing	Ft	Location
33+10	400	Box Culvert
40+88	400	Box Culvert
Subtotal	800	
Additional	200	
Total	1,000	

MUCKING SILT FENCE

Mucking silt fence shall consist of removing muck trapped by the silt fence and spreading the material evenly over the adjacent area to conform to the existing grade.

REMOVE SILT FENCE

Silt fence shall be removed when vegetation is established. Some or all of the silt fence may be left on the project until vegetation is established.

HIGH FLOW SILT FENCE

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

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

High flow silt fence shall be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

An additional quantity of high flow silt fence has been added to the Estimate of Quantities for temporary sediment control.

TABLE OF HIGH FLOW SILT FENCE

Stationing	Ft	Location
231+67 L	18	Pipe Inlet
235+00 L	18	Pipe Inlet
10+50 R	18	Pipe Inlet
23+10 L	18	Pipe Inlet
24+74 R	18	Pipe Inlet
26+58 L	18	Pipe Inlet
26+58 R	18	Pipe Inlet
28+25 R	18	Pipe Inlet
28+50 R	18	Pipe Inlet
29+60 L	18	Pipe Inlet
33+91 R	18	Pipe Inlet
35+75 L	18	Pipe Inlet
36+70 R	18	Pipe Inlet
47+00 R	18	Pipe Inlet
53+00 R	18	Pipe Inlet
56+00 R	18	Pipe Inlet
59+64 R	18	Pipe Inlet
66+76 L	18	Pipe Inlet
66+76 R	18	Pipe Inlet
75+10 R	18	Pipe Inlet
85+50 R	18	Pipe Inlet
88+50 R	18	Pipe Inlet
Subtotal	396	
Additional	79	
Total	475	

EROSION CONTROL BLANKET

Erosion control blanket shall be installed 8 feet wide at the locations noted in the table and at locations determined by the Engineer during construction.

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

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

The Contractor shall install erosion control blanket according to the manufacturer's installation instructions.

An additional quantity of Type 2 Erosion Control Blanket has been added to the Estimate of Quantities for temporary erosion control.

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TABLE OF TYPE 2 EROSION CONTROL BLANKET

Stationing	Shaping	Square Yards
221+00 to 225+00 L	425	380
230+40 to 231+70 L	225	200
21+50 to 22+85 L	135	120
28+38 to 29+33 L	105	95
30+90 to 35+72 L	165	150
34+14 to 36+31 R	220	200
xr47 0+50 to 4+75 L	430	385
xr47 0+50 to 4+75 R	430	385
xr47 5+25 to 7+00 L	165	150
xr47 5+25 to 7+00 R	225	200
58+94 to 59+73 L	50	45
59+32 to 60+30 L	105	95
59+12 to 59+64 R	85	80
60+83 to 62+32 R	235	210
xr80 0+54 to 3+50 R	360	320
Subtotal	3,360	3,015
Additional Quantity	310	275
Total	3,670	3,290

SHAPING FOR EROSION CONTROL BLANKET

The ditches shall be shaped for the erosion control blanket as specified on Standard Plate 734.01. Ditches shall also be shaped for Turf Reinforcement Mat.

All costs for shaping the ditches for erosion control blanket including labor and equipment shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

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://sddot.com/business/certification/products/Default.aspx

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

TABLE OF TYPE 2 TURF REINFORCEMENT MAT

Stationing	Shaping	Square Yards
21+50 to 24+39 R	290	260
23+50 to 26+37 L	300	270
25+25 to 26+34 R	110	100
26+74 to 28+06 L	145	130
26+90 to 28+38 R	155	140
	1,000	900

ARTICULATED CONCRETE MATTRESS

Articulated concrete mattress shall be installed 8' wide in ditches at the locations specified in the table.

Installation of the articulated concrete mattress shall be according to the manufacturer's installation instructions.

An excelsior erosion control blanket shall be installed under the concrete mattress. The blanket is incidental to the contract unit price per square yard for "Articulated Concrete Mattress". The Flexamat product may be manufactured with an excelsior erosion control blanket attached to the back of the mattress.

All costs for furnishing and installing the articulated concrete mattress including hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per square yard for "Articulated Concrete Mattress".

The articulated concrete mattress on this project shall be one from the list below or an approved equal:

Product	Manufacturer
Cable Concrete	Royal Erosion Control Systems, LLC Stacy, MN Phone: 1-800-817-3240 www.royalenterprises.net
Flexamat	Motz Enterprises, Inc. Cincinnati, OH Phone: 1-513-772-6689 http://www.flexamat.com/

TABLE OF ARTICULATED CONCRETE MATTRESS

Stationing	SqYd
214+00 to 220+00 R	587
221+00 to 232+13 R	1094
233+00 to 235+00 R	187
10+63 to 20+00 R	267
Total:	2,135

CONSTRUCTION ENTRANCE

The Contractor shall install a Construction Entrance at locations where there is a potential for mud tracking and sediment flow from the construction site and work area onto a paved public roadway.

It is the Contractor's option to use the SDDOT Construction Entrance (See SDDOT Construction Entrance notes and details), a product from the list provided in these notes, or other products or processes as approved by the Engineer during construction.

If the Contractor elects to use one of the products listed in the table, then the Contractor shall install the construction entrance product in accordance with the manufacturer's installation instructions or as directed by the Engineer.
The Contractor shall maintain the construction entrance such that mud tracking and sediment flow will not enter the roadway or adjacent drainage areas. The construction entrance shall be routinely inspected and the Contractor shall repair or replace material as deemed necessary by the Engineer. All costs for furnishing, installing, maintaining, and removal of the construction entrance including equipment, labor, materials, and incidentals shall be included in the contract unit price per each for "Construction Entrance".

The following table is a list of known construction entrance products available for use:

Product	Manufacturer
Grizzly Rumble Grate (10' width and 24' length required)	Trackout Control, LLC Tempe, AZ Phone: 1-800-761-0056 www.trackoutcontrol.com
Rumble Grid (12' width and 24' length including combination of grids and ramps required)	Pro-Tec Equipment, Inc. Charlotte, MI Phone: 1-800-292-1225 www.pro-tecequipment.com

Maintenance includes clearing rock and/or rumble strips of sediment. This can be done by using a loader to scarify the sediment laden rock to cause the fines to settle to the bottom. It may also be necessary to occasionally add rock to the construction entrance device. Some devices may be cleaned using a sweeper. Geotextiles that separate underlying soil from rock can reduce maintenance by keeping soil from seeping up from under the rock and clogging the device. Some manufactured track-out control devices include freeboard for additional sediment capture and may reduce the amount of maintenance required. Manufactured devices can be installed in a variety of ways to reduce maintenance costs. No matter the device or method used, the Contractor will be required to repair or replace the construction entrance whenever sediment is tracked onto the traveled roadway. If sediment is tracked off-site the contractor will be required to clean it up without additional payment. If it is determined that the source of tracking was from an area or areas where a construction entrance was not available, the contractor will be paid per each additional construction entrance needed and maintained.

SDDOT CONSTRUCTION ENTRANCE

If the SDDOT Construction Entrance is utilized, then the Contractor shall install the SDDOT Construction Entrance in accordance with these notes and the detail drawings. Pit run material shall be obtained from a granular source and shall conform to the following gradation:

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

The pit run material shall be compacted to the satisfaction of the Engineer.
The aggregate for the granular material shall conform to the following gradation requirements:

Sieve Size	Percent Passing
3"	100%
2 ½"	90-100%
1 ½"	25-60%
¾"	0-10%
½"	0-5%

The granular material shall be placed in 6" maximum lifts. It is anticipated that the granular material will need to be periodically removed and replaced as it becomes inundated with mud and sediment.

The MSE geotextile shall conform to Section 831 of the Standard Specifications. The MSE geotextile shall be on the Approved Products List for this material or will be certified by the supplier to meet this specification prior to installation. The MSE geotextile should be kept as taut as possible prior to placing. Equipment shall not be allowed on the MSE geotextile until the first lift of granular material is in place. All seams in the MSE geotextile shall be overlapped at least 2' and shingled.

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STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

*(The numbers right of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES*

❖ **SITE DESCRIPTION (4.2 1)**

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
  - ☐ Clearing and grubbing
  - ☐ Excavation/borrow
  - ☒ Grading and shaping
  - ☐ Filling
  - ☒ Cutting and filling
  - ☐ Other (describe):
- **Total Project Area** 40.18 Acres **(4.2 1.b.)**
- **Total Area To Be Disturbed** 25.68 Acres **(4.2 1.b.)**
- **Existing Vegetative Cover (%)** 100%
- **Soil Properties:** Silty Clay **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Elk Creek **(4.2 1.e.)**

❖ **ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)**

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)

- **Special sequencing requirements** (see Section C).
- **Install stabilized construction entrance(s).**
- **Install perimeter protection (temporary sediment barriers) where runoff sheets from the site.**
- **Clearing and grubbing.**
- **Remove and store topsoil.**
- **Install utilities, culverts, and structures.**
- **Use soil stabilizer, surface roughening, temporary sediment barriers, erosion control wattles, silt fence, and cover crop to control erosion and capture sediment during active construction.**
- **Install inlet and culvert protection after completing storm drainage and other utility installations.**
- **Complete final grading.**
- **Replace topsoil as soon as possible—plant cover crop, install temporary mulch, complete surface roughening, install erosion control wattles, and/or apply soil stabilizer if permanent seeding cannot be completed immediately after placement of topsoil.**
- **Complete final paving and sealing of concrete.**
- **Fertilize and reseed areas disturbed by removal activities**.
- **Install mulching, erosion control blanket, turf reinforcement mat, and erosion control wattles.**

❖ **EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))**

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
  - ☒ Temporary Seeding (Cover Crop Seeding)
  - ☒ Permanent Seeding
  - ☐ Sodding
  - ☐ Planting (Woody Vegetation for Soil Stabilization)
  - ☒ Mulching (Grass Hay or Straw)
  - ☐ Hydraulic Mulch (Wood Fiber Mulch)
  - ☒ Soil Stabilizer
  - ☐ Bonded Fiber Matrix
  - ☒ Erosion Control Blankets or Mats
  - ☐ Vegetation Buffer Strips
  - ☒ Roughened Surface (e.g. tracking)
  - ☐ Dust Control
- **Structural Temporary Erosion and Sediment Controls**
  - ☒ Silt Fence
  - ☐ Floating Silt Curtain
  - ☐ Straw Bale Check
  - ☐ Temporary Berm
  - ☐ Temporary Slope Drain
  - ☒ Straw Wattles or Rolls
  - ☒ Turf Reinforcement Mat
  - ☒ Rip Rap
  - ☒ Gabions
  - ☐ Rock Check Dams
  - ☐ Sediment Traps/Basins
  - ☒ Inlet Protection
  - ☐ Outlet Protection
  - ☐ Surface Inlet Protection (Area Drain)
  - ☐ Curb Inlet Protection
  - ☒ Stabilized Construction Entrances
  - ☐ Entrance/Exit Equipment Tire Wash
  - ☐ Interceptor Ditch
  - ☒ Concrete Washout Area
  - ☐ Temporary Diversion Channel
  - ☐ Work Platform
  - ☐ Temporary Water Barrier
  - ☐ Temporary Water Crossing
  - ☒ Other: Articulated Concrete Mattresses
- **Wetland Avoidance**

  Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☒ No ☐ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.
- **Storm Water Management (4.2 2.b., (1) and (2))**

  Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.
- **Other Storm Water Controls (4.2 2.c., (1) and (2))**
  - **Waste Disposal**

    All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.
  - **Hazardous Waste**

    All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the contractor's on-site representative will be responsible for seeing that these practices are followed.
  - **Sanitary Waste**

    Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management contractor or as required by any local regulations.

❖ **Maintenance and Inspection (4.2 3. and 4.2 4.)**

- **Maintenance and Inspection Practices**
  - Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
  - All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
  - Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches $^1/_3$ of the height of the silt fence.
  - Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
  - Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.
  - All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
  - Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
  - The SDDOT Project Engineer and contractor's site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

❖ **Non-Storm Water Discharges (3.0)**

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- ☐ Discharges from water line flushing.
- ☐ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☐ Uncontaminated ground water associated with dewatering activities.

❖ **Materials Inventory (4.2. 2.c.(2))**

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).

- ☒ Concrete and Portland Cement
- ☐ Detergents
- ☒ Paints
- ☒ Metals
- ☒ Bituminous Materials
- ☒ Petroleum Based Products
- ☐ Cleaning Solvents
- ☒ Wood
- ☒ Cure
- ☐ Texture
- ☐ Chemical Fertilizers
- ☐ Other:

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❖ **Spill Prevention (4.2 2.c.(2))**

➢ **Material Management**

- Housekeeping
  - Only needed products will be stored on-site by the contractor.
  - Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
  - Products must be stored in original containers and labeled.
  - Material mixing will be conducted in accordance with the manufacturer's recommendations.
  - When possible, all products will be completely used before properly disposing of the container off site.
  - The manufacturer's directions for disposal of materials and containers will be followed.
  - The contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
  - Dust generated will be controlled in an environmentally safe manner.
  - Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.

- Hazardous Materials
  - Products will be kept in original containers unless the container is not resealable.
  - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
  - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
  - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
  - Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
  - Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

➢ **Product Specific Practices (6.8)**

- Petroleum Products
  All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- Fertilizers
  Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.
- Paints
  All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.
- Concrete Trucks
  Contractors will provide designated truck washout areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

➢ **Spill Control Practices (4.2 2 c.(2))**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill clean up will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for clean up purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

➢ **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

❖ **Spill Notification**

In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

➢ A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately **if any one of the following** conditions exists:

- The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
- The discharge causes an immediate danger to human health or safety.
- The discharge exceeds 25 gallons.
- The discharge causes a sheen on surface water.
- The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
- The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
- The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
- The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

❖ **Construction Changes (4.4)**

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.

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❖ CERTIFICATIONS

➢ **Certification of Compliance with Federal, State, and Local Regulations**

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➢ **South Dakota Department of Transportation**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature (See the General Permit, Section 6.7.1.C.)

➢ **Prime Contractor**

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

❖ CONTACT INFORMATION

➢ **Contractor Information**:

- Prime Contractor Name:
- Contractor Contact Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➢ **Erosion Control Supervisor**

- Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➢ **SDDOT Project Engineer**

- Name:
- Business Address:
- Job Office Location:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➢ **SD DENR Contact Spill Reporting**
- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➢ **SD DENR Contact for Hazardous Materials.**
- (605) 773-3153

➢ **National Response Center Hotline**
- (800) 424-8802.

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EROSION AND SEDIMENT CONTROL LEGEND

SYMBOLOGY FOR BEST MANAGEMENT PRACTICES

- STORM WATER DISCHARGE POINT
- LOW FLOW SILT FENCE
- HIGH FLOW SILT FENCE
- HIGH FLOW SILT FENCE AT PIPE INLET
- SILT TRAP
- SEDIMENT CONTROL AT INLET BEFORE PLACEMENT OF SURFACING
- TEMPORARY SEDIMENT BARRIER
- TEMPORARY WATER BARRIER
- FLOATING SILT CURTAIN
- SEDIMENT FILTER BAGS
- TRIANGULAR SILT BARRIERS
- EROSION CONTROL WATTLES ON SLOPES
- EROSION CONTROL WATTLES AT INLETS
- EROSION CONTROL WATTLES IN DITCHES
- EROSION BALES
- SURFACE ROUGHENING
- SOIL STABILIZER / TEMPORARY MULCH / DUST CONTROL
- CUT INTERCEPTOR DITCH
- TEMPORARY SLOPE DRAIN
- SEDIMENT CONTROL AT INLET AFTER PLACEMENT OF SURFACING
- HYDRAULIC STRAW MULCH / FIBER MULCHING / BONDED FIBER MATRIX / FIBER REINFORCED MATRIX
- ROCK CHECK DAM
- SODDING
- TYPE 1 EROSION CONTROL BLANKET
- TYPE 2 EROSION CONTROL BLANKET
- TYPE 3 EROSION CONTROL BLANKET
- TYPE 4 EROSION CONTROL BLANKET
- TYPE 1 TURF REINFORCEMENT MAT
- TYPE 2 TURF REINFORCEMENT MAT
- TYPE 3 TURF REINFORCEMENT MAT
- ARTICULATED CONCRETE MATTRESS
- TYPE 1 SEDIMENT TRAP
- TYPE 2 SEDIMENT TRAP
- TYPE 3 SEDIMENT TRAP

BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) are split into three categories and are to be used throughout construction.

INITIAL PHASE

BMPs from the Legend shown as Orange Symbols on the Erosion and Sediment Control Plan Sheets are to be installed in the Initial Phase prior to earth disturbing activities and remain in place for the Intermediate Phase for temporary stabilization and in the Final Phase to achieve final stabilization.

INTERIM PHASE

BMPs from the Legend shown as Blue Symbols on the Erosion and Sediment Control Plan Sheets are to be installed in the Interim Phase for temporary stabilization and remain in place in the Final Phase to achieve final stabilization.

FINAL PHASE

BMPs from the Legend shown as Green Symbols on the Erosion and Sediment Control Plan Sheets are to be installed in the Final Phase to achieve final stabilization.

If these items are applicable they are to be shown in the updated SWPPP using the Symbols given.

- TS — TOPSOIL STOCKPILES
- B — BORROW AREAS
- CE — STABILIZED CONSTRUCTION ENTRANCES
- VB — VEGETATED BUFFER STRIPS
- CW — CONCRETE WASHOUTS
- AP — ASPHALT PLANT SITES
- CP — CONCRETE PLANT SITES
- V — VEHICLE AND EQUIPMENT PARKING, FUELING, AND MAINTENANCE AREAS
- D — DUMPSTER OR OTHER TRASH AND DEBRIS CONTAINERS
- M — ON-SITE CONSTRUCTION MATERIAL STORAGE AREAS
- SK — SPILL KIT
- WP — WORK PLATFORM
- DRAINAGE ARROW

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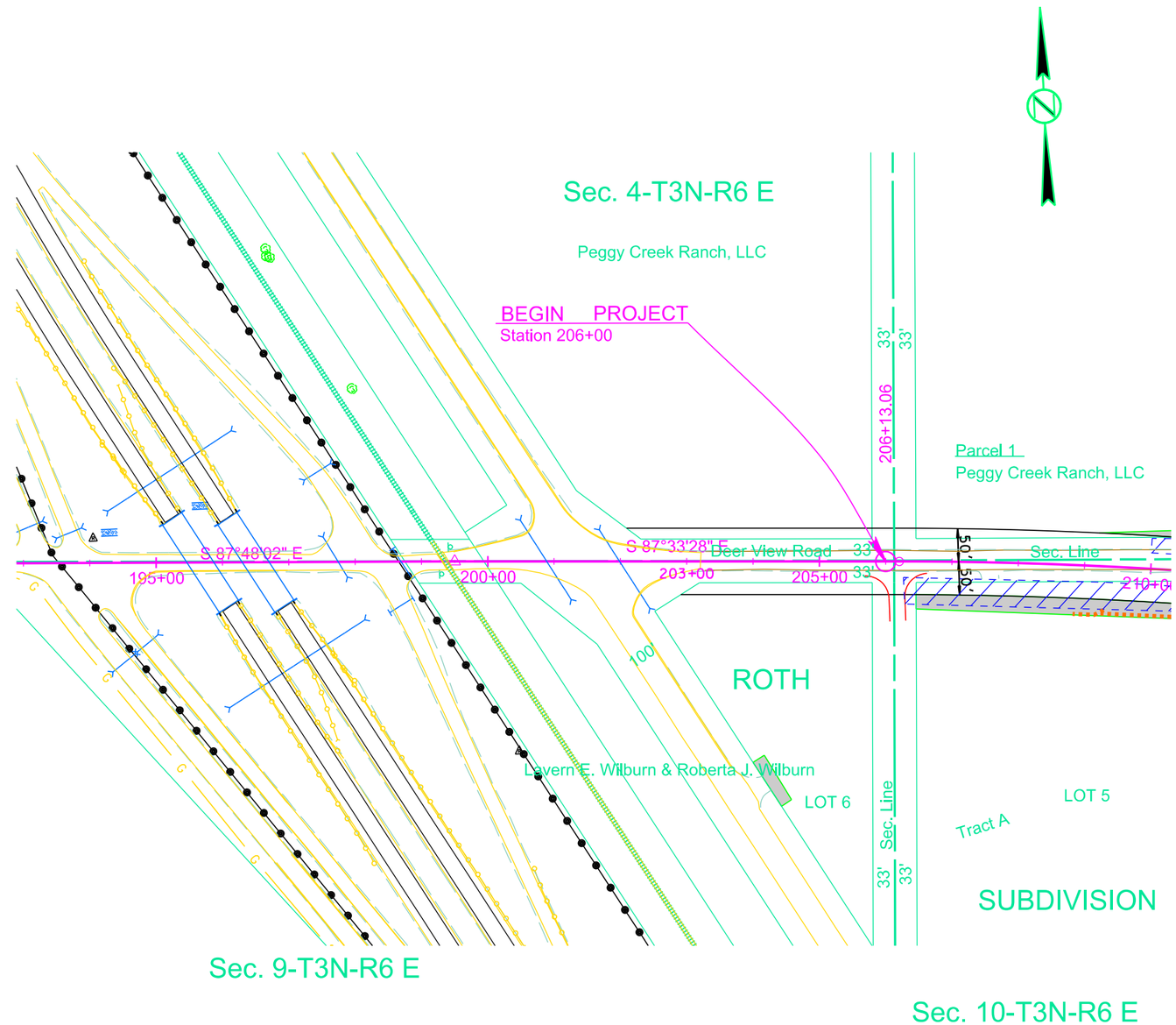
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(108)44	D10	D20

Plotting Date: 03/17/2014

EROSION AND SEDIMENT CONTROL PLAN



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(108)44	D11	D20

Plotting Date: 03/17/2014

EROSION AND SEDIMENT CONTROL PLAN

INITIAL PHASE

Install Temporary Sediment Barriers for Perimeter Protection at the following locations:

208+85 to 213+35 R	340 Ft
210+10 to 214+10 L	320 Ft
214+21 to 218+94 L	420 Ft
232+43 to 233+14 L	165 Ft

INTERIM PHASE

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:

214+50 to 216+00 R	50' spacing	10' ea location	40 Ft
216+50 to 219+00 R	25' spacing	10' ea location	110 Ft
221+25 to 221+75 R	50' spacing	10' ea location	20 Ft
225+25 to 232+00 R	25' spacing	10' ea location	400 Ft
233+50 to 235+00 R	50' spacing	10' ea location	40 Ft

Install High Flow Silt Fence at the following locations:

231+67 L	Inlet end of pipe	18 Ft
235+00 L	Inlet end of pipe	18 Ft

FINAL PHASE

Install Type 2 Erosion Control Blanket 8' wide in the highway ditch channel bottom at the following locations:

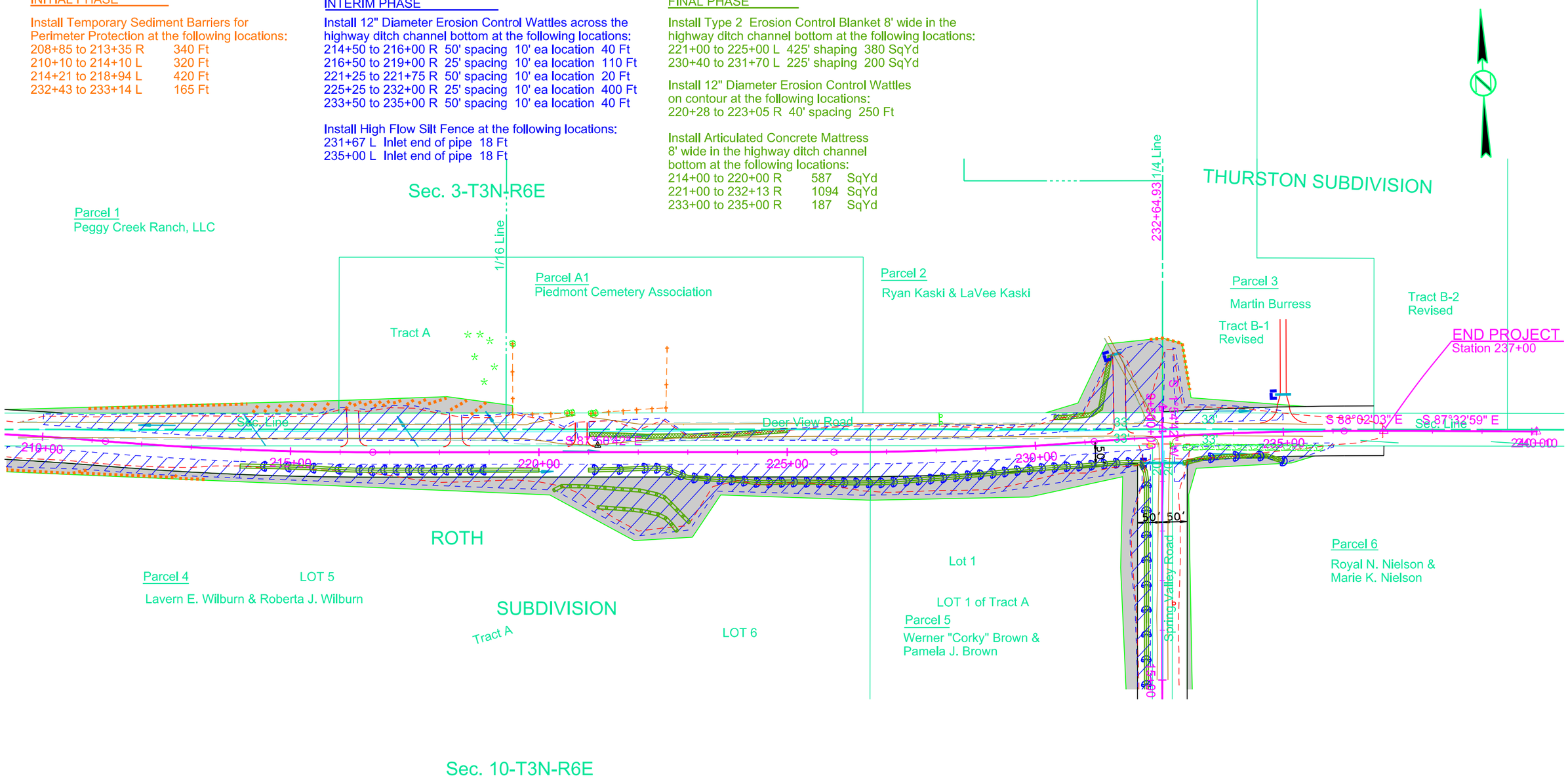
221+00 to 225+00 L	425' shaping	380 SqYd
230+40 to 231+70 L	225' shaping	200 SqYd

Install 12" Diameter Erosion Control Wattles on contour at the following locations:

220+28 to 223+05 R	40' spacing	250 Ft

Install Articulated Concrete Mattress 8' wide in the highway ditch channel bottom at the following locations:

214+00 to 220+00 R	587	SqYd
221+00 to 232+13 R	1094	SqYd
233+00 to 235+00 R	187	SqYd



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(108)44	D12	D20

Plotting Date: 03/17/2014

EROSION AND SEDIMENT CONTROL PLAN

INITIAL PHASE

Install Temporary Sediment Barriers for Perimeter Protection at the following locations:
16+18 to 20+18 L 65 Ft
27+80 to 28+39 L 60 Ft

INTERIM PHASE

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:

11+00 to 19+50 R	50' spacing	10' ea location	180 Ft
21+50 to 24+00 R	50' spacing	10' ea location	60 Ft
24+00 to 26+00 L	50' spacing	10' ea location	50 Ft
25+50 to 26+00 R	50' spacing	10' ea location	20 Ft
26+75 to 28+00 L	25' spacing	10' ea loction	60 Ft
27+00 to 28+25 R	25' spacing	10' ea location	60 Ft
28+50 L			10 Ft

Install High Flow Silt Fence at the following locations:

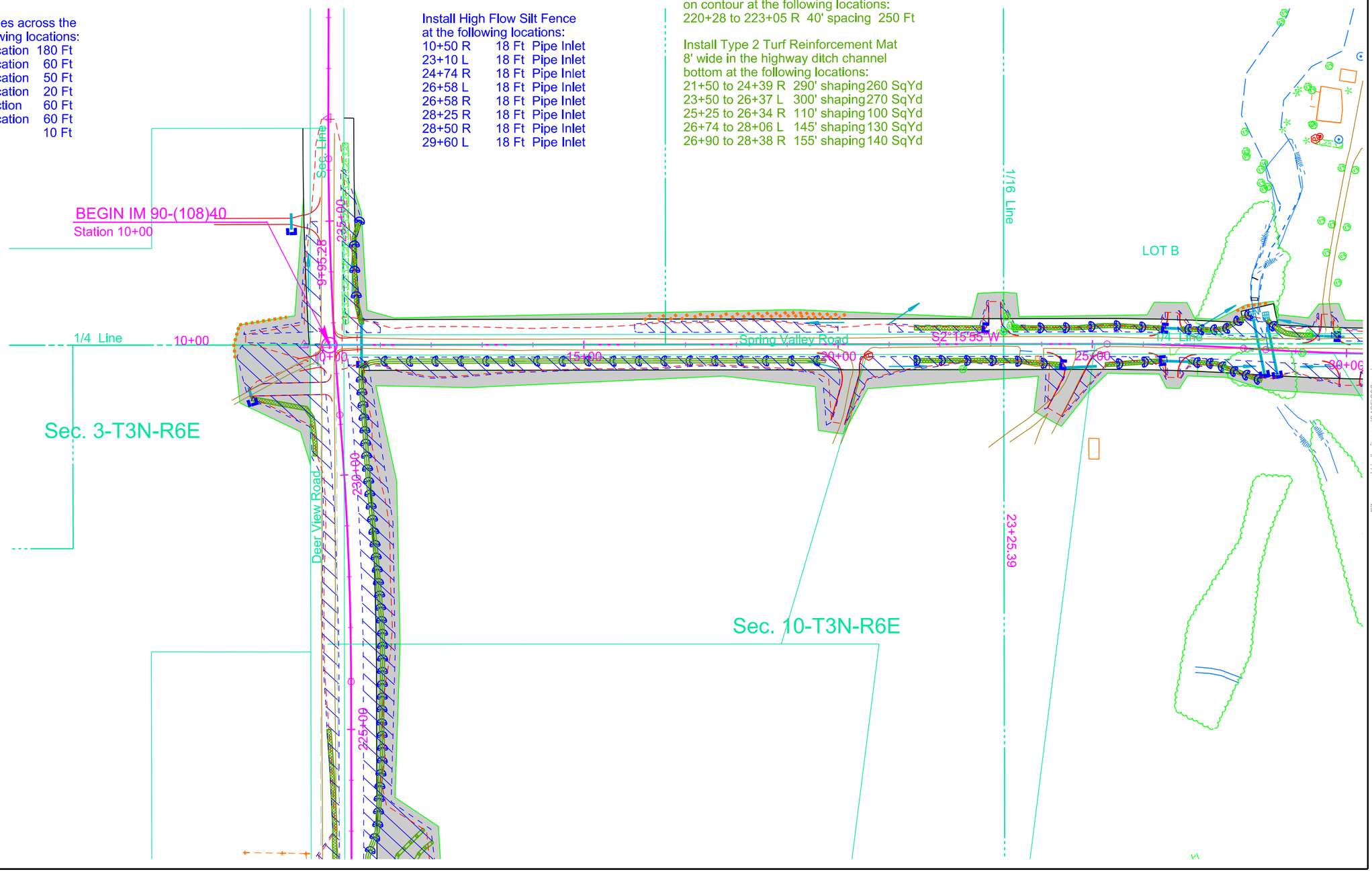
10+50 R	18 Ft	Pipe Inlet
23+10 L	18 Ft	Pipe Inlet
24+74 R	18 Ft	Pipe Inlet
26+58 L	18 Ft	Pipe Inlet
26+58 R	18 Ft	Pipe Inlet
28+25 R	18 Ft	Pipe Inlet
28+50 R	18 Ft	Pipe Inlet
29+60 L	18 Ft	Pipe Inlet

FINAL PHASE

Install Type 2 Erosion Control Blanket 8' wide in the highway ditch channel bottom at the following locations:
21+50 to 22+85 L 135' shaping 120 SqYd
28+38 to 29+33 L 105' shaping 95 SqYd

Install 12" Diameter Erosion Control Wattles on contour at the following locations:
220+28 to 223+05 R 40' spacing 250 Ft

Install Type 2 Turf Reinforcement Mat 8' wide in the highway ditch channel bottom at the following locations:
21+50 to 24+39 R 290' shaping 260 SqYd
23+50 to 26+37 L 300' shaping 270 SqYd
25+25 to 26+34 R 110' shaping 100 SqYd
26+74 to 28+06 L 145' shaping 130 SqYd
26+90 to 28+38 R 155' shaping 140 SqYd



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(108)44	D13	D20

Plotting Date: 03/17/2014

EROSION AND SEDIMENT CONTROL PLAN

INITIAL PHASE

Install Temporary Sediment Barriers for Perimeter Protection at the following locations:

33+07 to 33+64 L	135 Ft
53+22 to 53+72 L	25 Ft
54+43 to 56+01 L	240 Ft
59+08 to 59+57 L	35 Ft

Utilize Low Flow Silt Fence During Box Culvert Installation at the following locations:

33+10	400 Ft
40+88	400 Ft

INTERIM PHASE

Install High Flow Silt Fence at the following locations:

33+91 R	18 Ft	Pipe Inlet
35+75 L	18 Ft	Pipe Inlet
36+70 R	18 Ft	Pipe Inlet
47+00 R	18 Ft	Pipe Inlet
53+00 R	18 Ft	Pipe Inlet
56+00 R	18 Ft	Pipe Inlet
59+64 R	18 Ft	Pipe Inlet

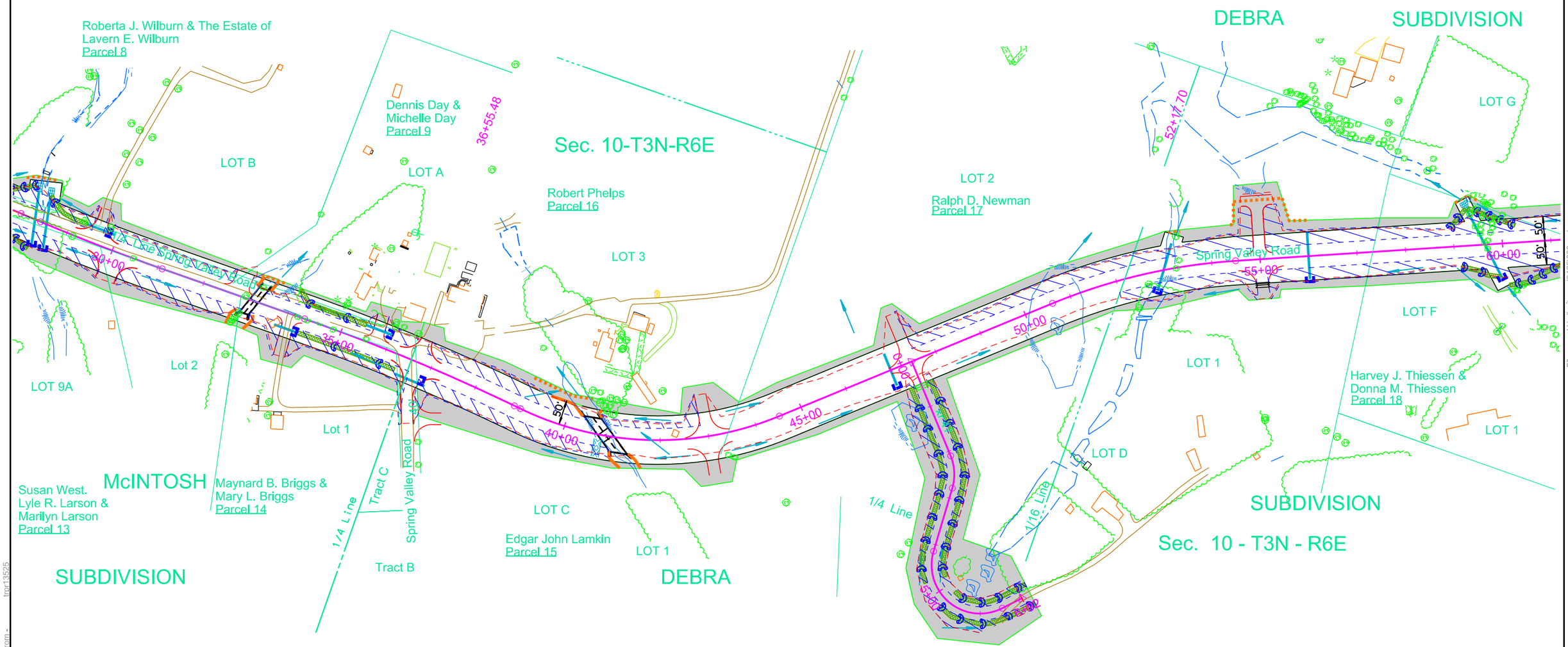
Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:

34+25 to 35+00 L	75' spacing	10'ea location	20 Ft
35+00 to 36+00 R	100' spacing	10'ea location	20 Ft
xr 47 1+00 to 4+50 L	50' spacing	10'ea location	80 Ft
xr 47 1+00 to 4+50 R	50' spacing	10'ea location	80 Ft
xr 47 5+25 to 7+00 R	50' spacing	10'ea location	50 Ft
xr 47 5+50 to 7+00 L	50' spacing	10'ea location	40 Ft
59+00 to 60+25 L	25' spacing	10'ea location	60 Ft
59+25 to 59+75 R	50' spacing	10'ea location	20 Ft

FINAL PHASE

Install Type 2 Erosion Control Blanket 8' wide in the highway ditch channel bottom at the following locations:

30+90 to 35+72 L	165' shaping	150 SqYd
34+14 to 36+31 R	220' shaping	200 SqYd
xr47 0+50 to 4+75 L	430' shaping	385 SqYd
xr47 0+50 to 4+75 R	430' shaping	385 SqYd
xr47 5+25 to 7+00 L	165' shaping	150 SqYd
xr47 5+25 to 7+00 R	225' shaping	200 SqYd
58+94 to 59+73 L	50' shaping	45 SqYd



Plot Scale - 1:200

Plotted From - trpr13525

File - U:\rd\prj\mead3465\030ec.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(108)44	D14	D20

Plotting Date: 03/17/2014

EROSION AND SEDIMENT CONTROL PLAN

INITIAL PHASE

Install Temporary Sediment Barriers for Perimeter Protection at the following locations:

74+47 to 75+80 L	120 Ft	
85+75 to 86+13 L	40 Ft	
86+39 to 86+49 L	40 Ft	
87+65 to 89+41 L	110 Ft	

INTERIM PHASE

Install High Flow Silt Fence at the following locations:

66+76 L	18 Ft	Pipe Inlet
66+76 R	18 Ft	Pipe Inlet
75+10 R	18 Ft	Pipe Inlet
85+50 R	18 Ft	Pipe Inlet
88+50 R	18 Ft	Pipe Inlet

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:

60+25 to 62+00 R	25'spacing	10'ea location	80 Ft
xr 80 1+50 to 3+00 R	150'spacing	10'ea location	20 Ft

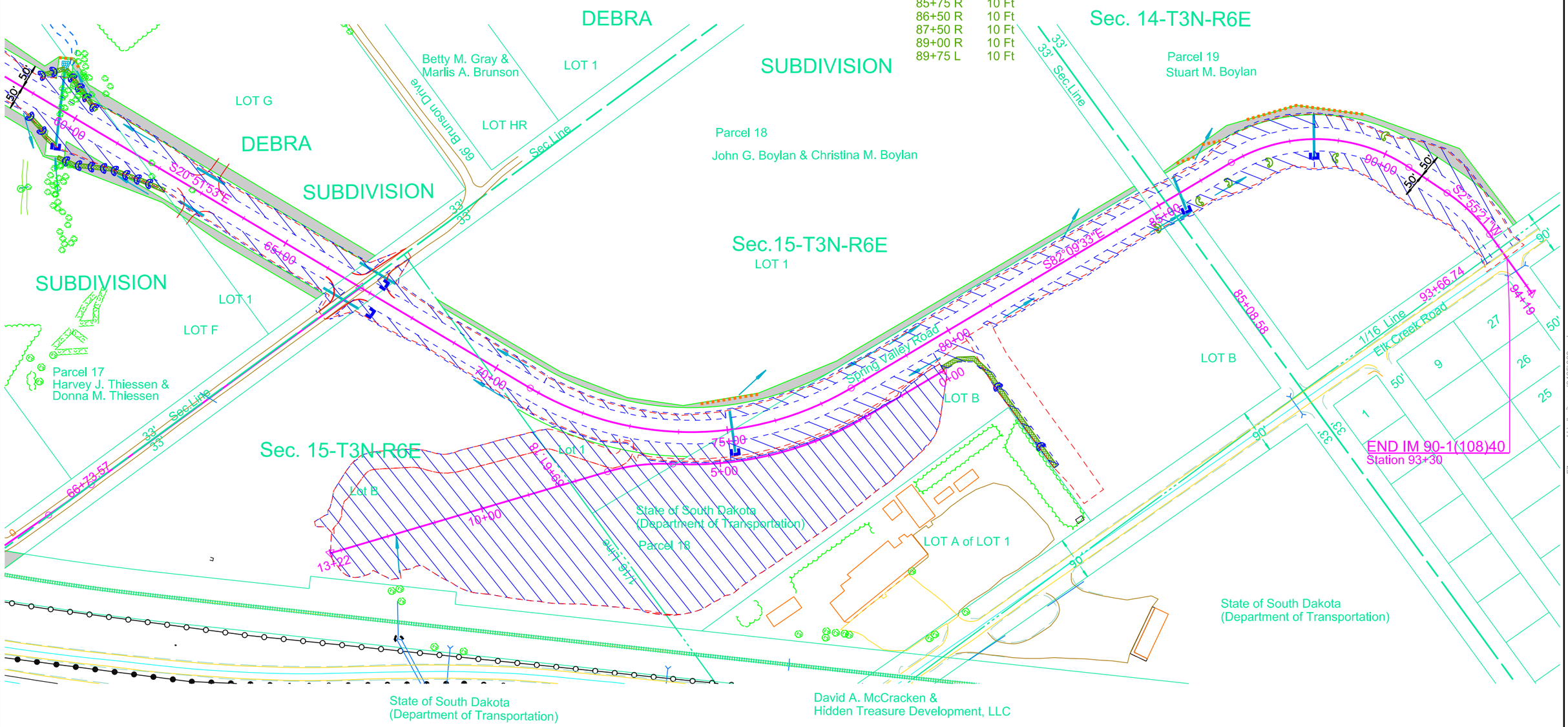
FINAL PHASE

Install Type 2 Erosion Control Blanket 8' wide in the highway ditch channel bottom at the following locations:

59+32 to 60+30 L	105' shaping	95 SqYd
59+12 to 59+64 R	85' shaping	80 SqYd
60+83 to 62+32 R	235' shaping	210 SqYd
xr80 0+54 to 3+50 R	360' shaping	320 SqYd

Install 12" Diameter Erosion Control Wattles across the highway ditch channel bottom at the following locations:

84+75 R	10 Ft
85+75 R	10 Ft
86+50 R	10 Ft
87+50 R	10 Ft
89+00 R	10 Ft
89+75 L	10 Ft



Plot Scale - 1:200

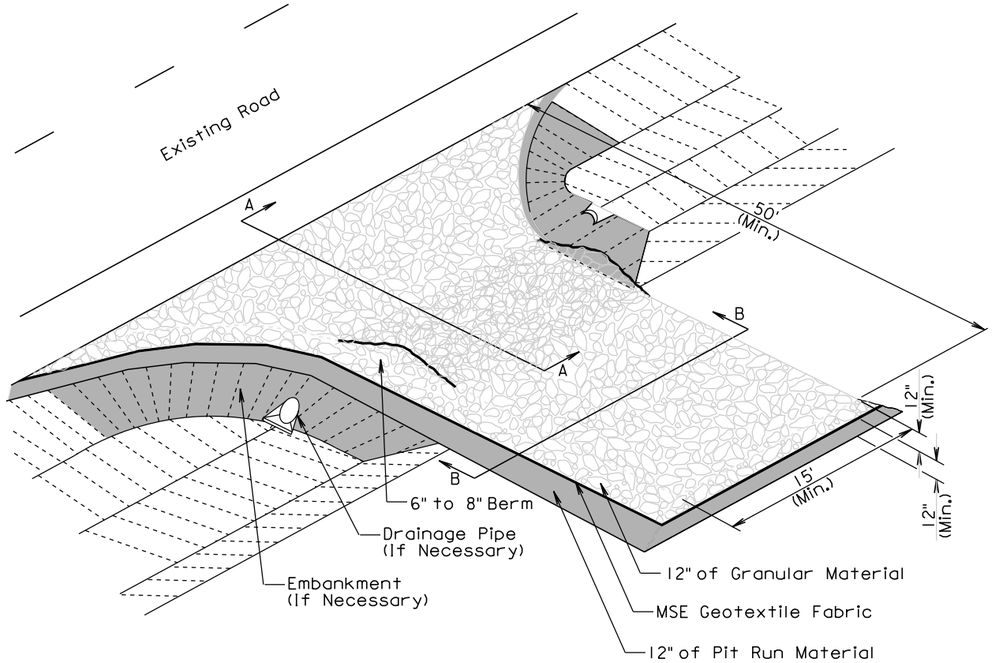
Plotted From - trpr13525

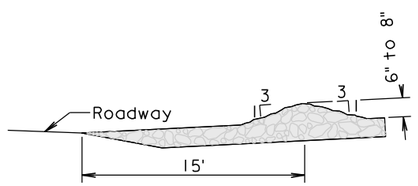
File - U:\rd\prj\mead3465\060ec.dgn

CONSTRUCTION ENTRANCE

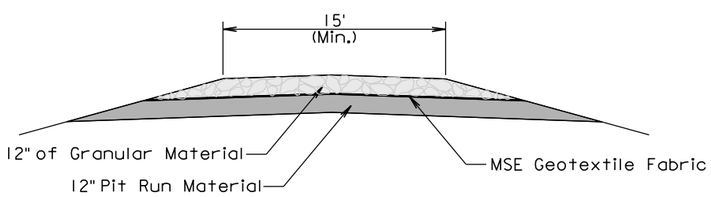
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(108)44	D15	D20

Plotting Date: 03/17/2014





SECTION A-A



SECTION B-B

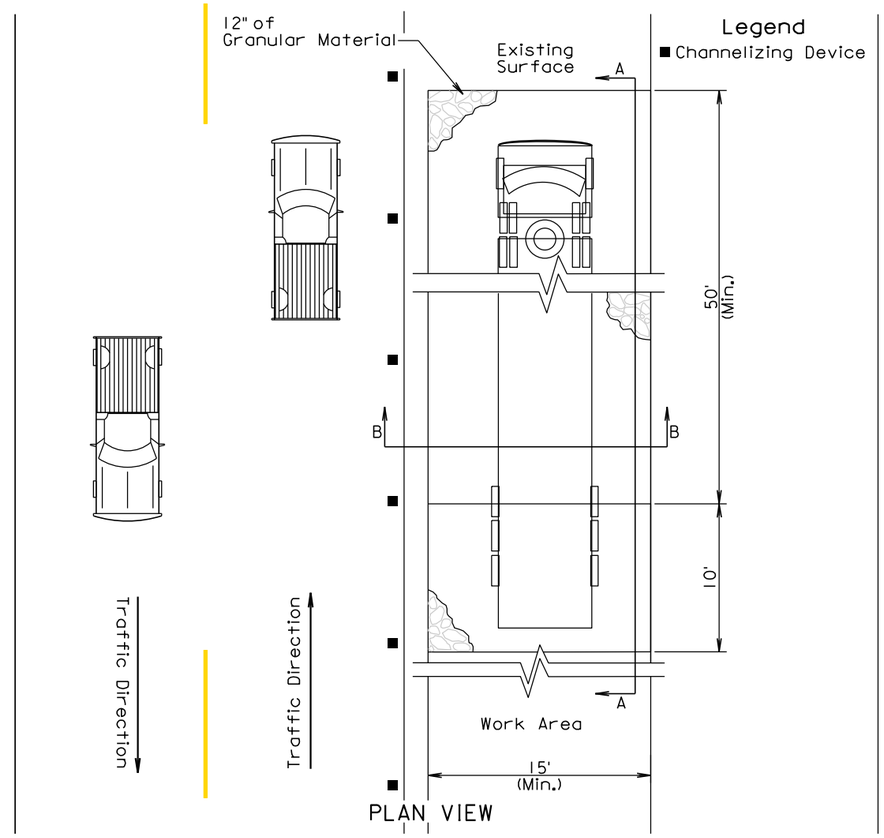
GENERAL NOTES:

If the grade of the entrance slopes down to the roadway, a berm of extra rock shall be used to prevent sediment or mud from being deposited on the roadway. See SECTION A-A.

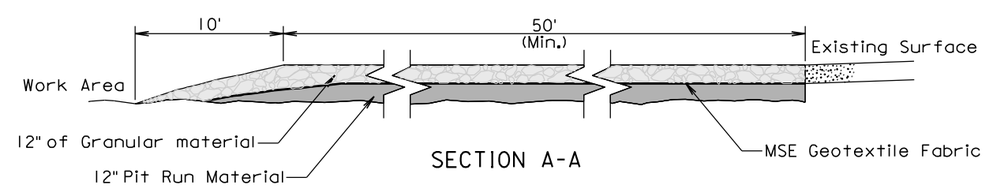
If a drainage pipe is necessary the size and type shall be determined by the Contractor to meet field conditions. All cost shall be incidental to the cost per each Construction Entrance.

If embankment is necessary it shall be pit run material.

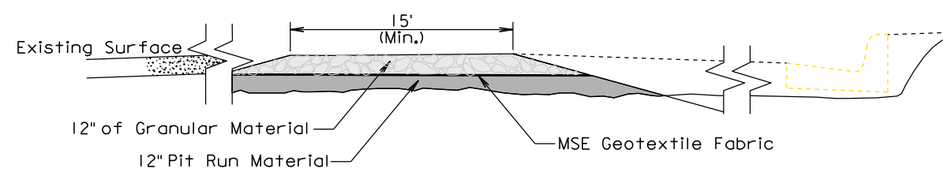
TRANSVERSE TO ROADWAY



PLAN VIEW



SECTION A-A



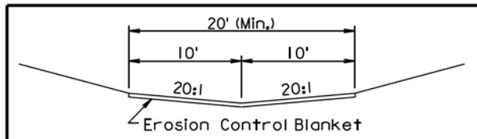
SECTION B-B

PARALLEL TO ROADWAY

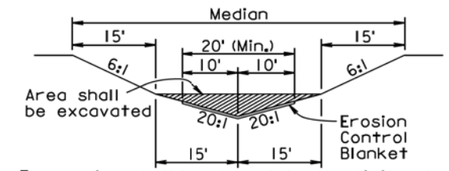
Plot Scale - 1:200
Plotted From - tpgr13525
File - ...\mead3465\Stabilizedconent.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		D16	D20

Plotting Date: 03/17/2014

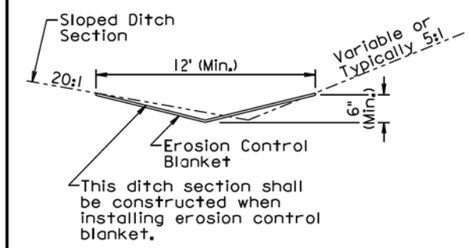


STANDARD DITCH SECTION

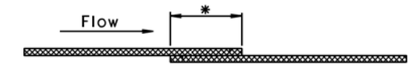


The median shall be shaped to the limits shown in this detail where the erosion control blanket will be placed.

MEDIAN SECTION



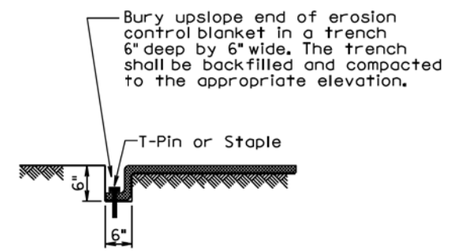
SLOPED DITCH SECTION



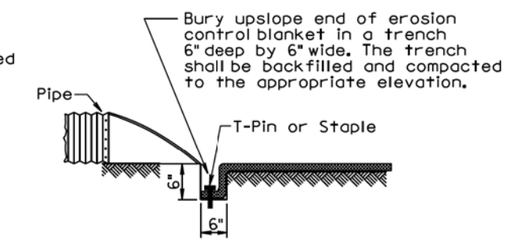
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



TRENCH DETAIL



PIPE END DETAIL

GENERAL NOTES:

Prior to placement of the erosion control blanket, the areas shall be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket shall be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket shall be buried in a trench 6" wide by 6" deep. There shall be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.

The erosion control blanket shall be pinned to the ground according to the manufacturer's installation recommendations.

After the placement of the erosion control blanket, the Contractor shall fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

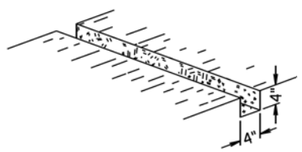
All ditch sections shall be shaped when installing the erosion control blanket. All costs for shaping the ditches shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

December 23, 2004

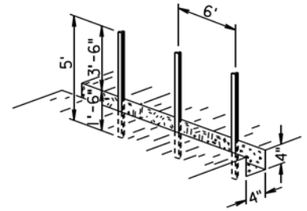
Published Date: 1st Qtr. 2014	SDDOT	***EROSION CONTROL BLANKET***	***PLATE NUMBER*** *734.01*
			Sheet 1 of 1

Plot Scale - 1:200
Plotted From - tropr13525
File - ...\proj\mead3465\s73401s\73403.dgn

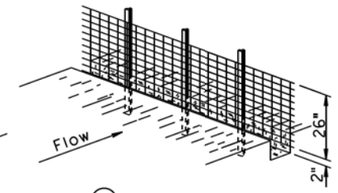
MANUAL LOW FLOW SILT FENCE INSTALLATION



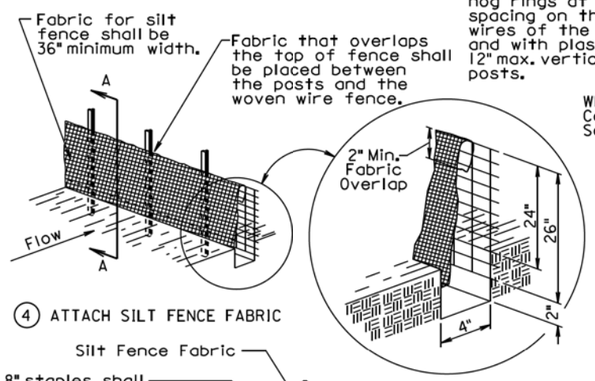
① EXCAVATE TRENCH



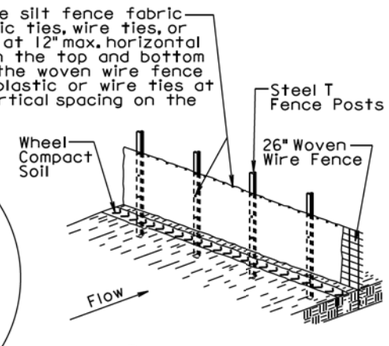
② DRIVE STEEL T FENCE POSTS



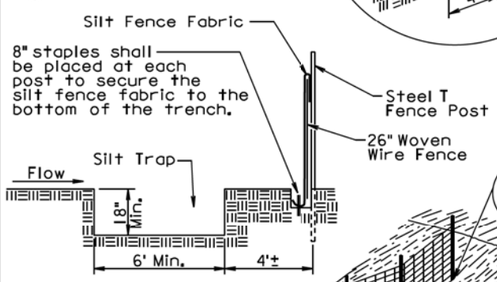
③ ATTACH 26" WOVEN WIRE FENCE TO POSTS



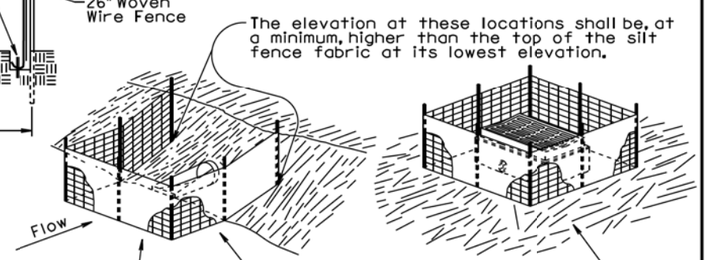
④ ATTACH SILT FENCE FABRIC



⑤ BACKFILL TRENCH AND WHEEL COMPACT SOIL



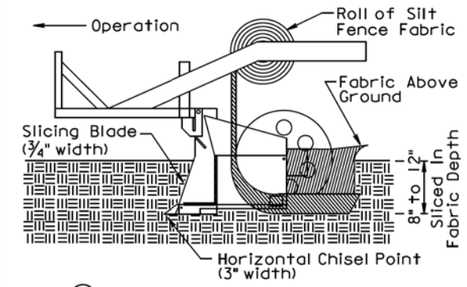
SECTION A-A



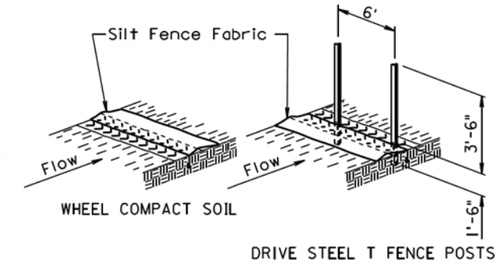
December 23, 2003

Published Date: 1st Qtr. 2014	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 1 of 2

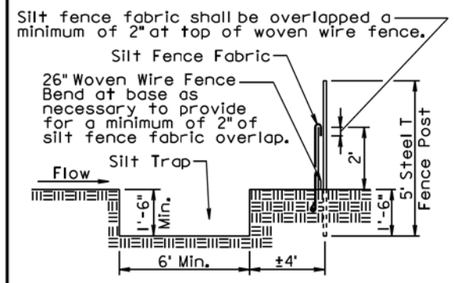
MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION

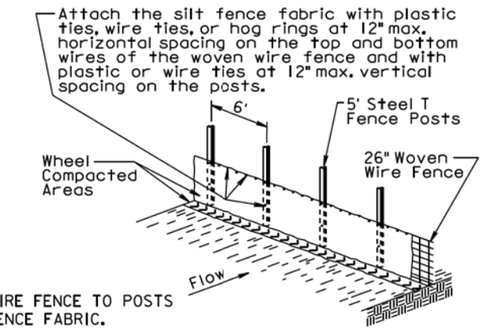


① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

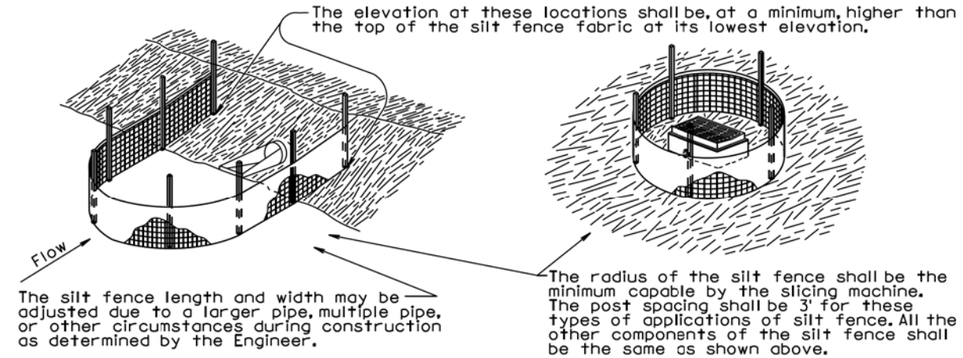


② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.





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



GENERAL NOTES:

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

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

December 23, 2003

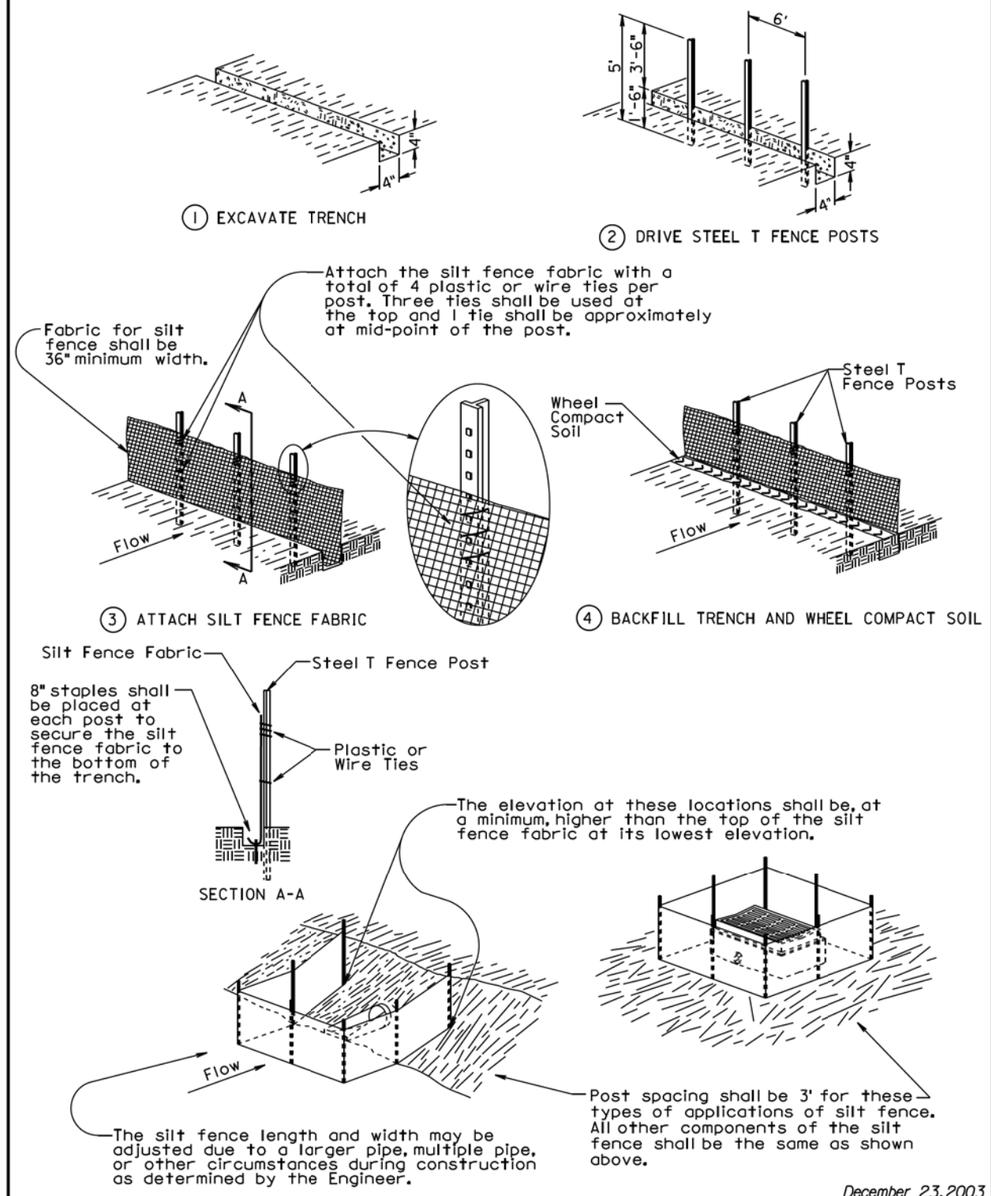
Published Date: 1st Qtr. 2014	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 2 of 2

Plot Scale - 1:200
Plotted From - trpr13525
File - ...\mead3465\s734.04_1\s734.04_2.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		D18	D20

Plotting Date: 03/17/2014

MANUAL HIGH FLOW SILT FENCE INSTALLATION



1 EXCAVATE TRENCH

2 DRIVE STEEL T FENCE POSTS

3 ATTACH SILT FENCE FABRIC

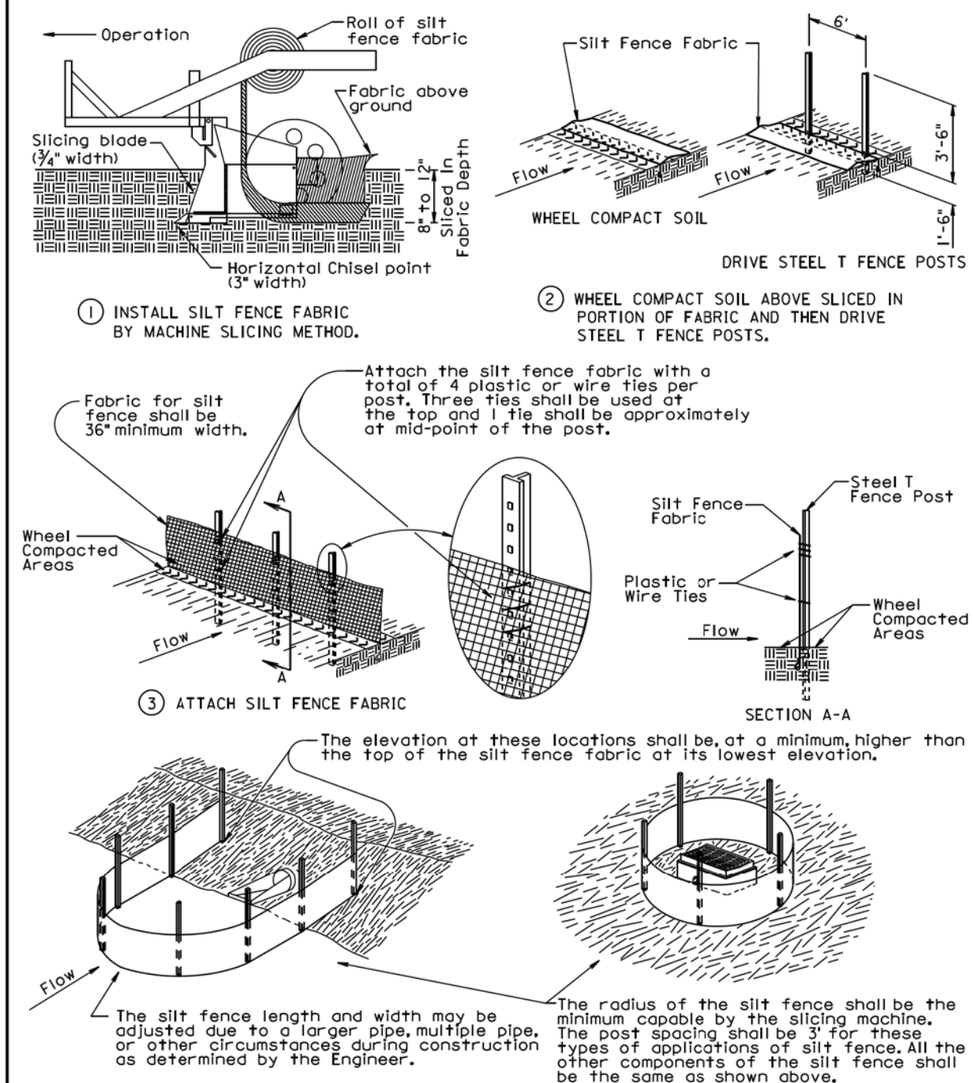
4 BACKFILL TRENCH AND WHEEL COMPACT SOIL

SECTION A-A

December 23, 2003

Published Date: 1st Qtr. 2014	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 1 of 2

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



1 INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

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

3 ATTACH SILT FENCE FABRIC

SECTION A-A

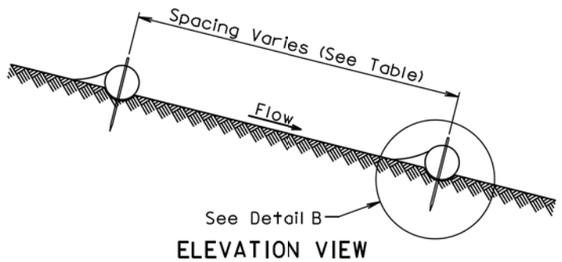
GENERAL NOTE:

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

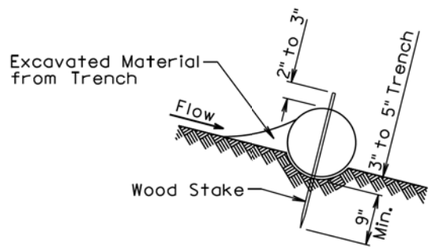
Published Date: 1st Qtr. 2014	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 2 of 2

Plot Scale - 1:200
- Plotted From - trpr13525
File - ...\mead3465\s73405_1s73405_2.dgn

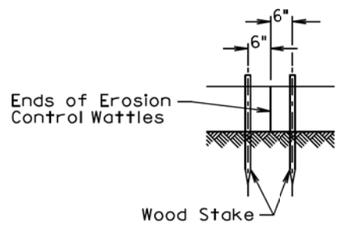


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

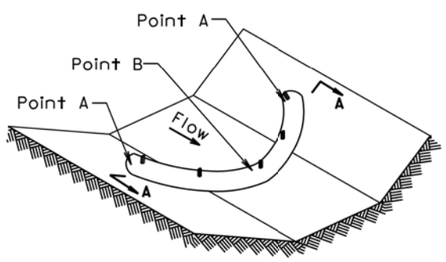
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



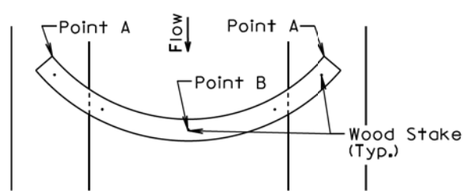
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

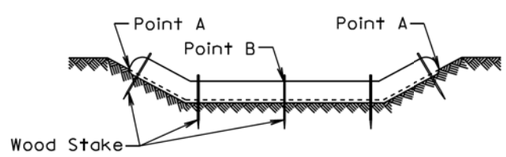


ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION

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



SECTION A-A

December 23, 2004

Published Date: 1st Qtr. 2014	SDDOT	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 ½". 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".

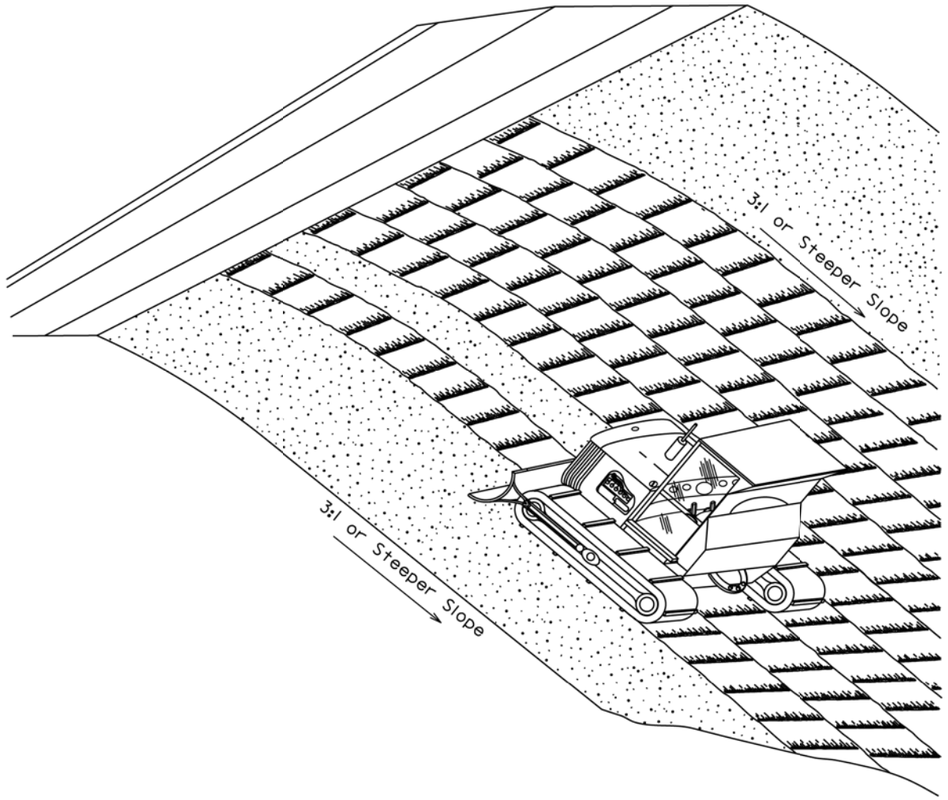
December 23, 2004

Published Date: 1st Qtr. 2014	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

Plot Scale - 1:200
Plotted From - tmpr13525
File - ...\mead3465\s734.06_1s734.06_2.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		D20	D20

Plotting Date: 03/17/2014



GENERAL NOTES:

Where practical, surface roughening shall be done on slopes 3:1 and steeper and on slopes deemed necessary by the Engineer.

The equipment used for surface roughening shall be equipped with tracks that are capable of creating ridges in the soil that are perpendicular to the slope. The final condition of the surface roughening shall be approved by the Engineer.

Measurement for surface roughening shall be to the nearest tenth of an acre.

All costs associated with surface roughening including labor, equipment, and materials shall be incidental to the contract unit price per acre for "Surface Roughening".

June 26, 2009

Published Date: 1st Qtr. 2014	SDDOT	SURFACE ROUGHENING	PLATE NUMBER 734.25
			Sheet 1 of 1

Plot Scale - 1:200
Plotted From - trpr13525
File - U:\rd\prj\mead3465\s73425.dgn