

FOR BIDDING PURPOSES ONLY

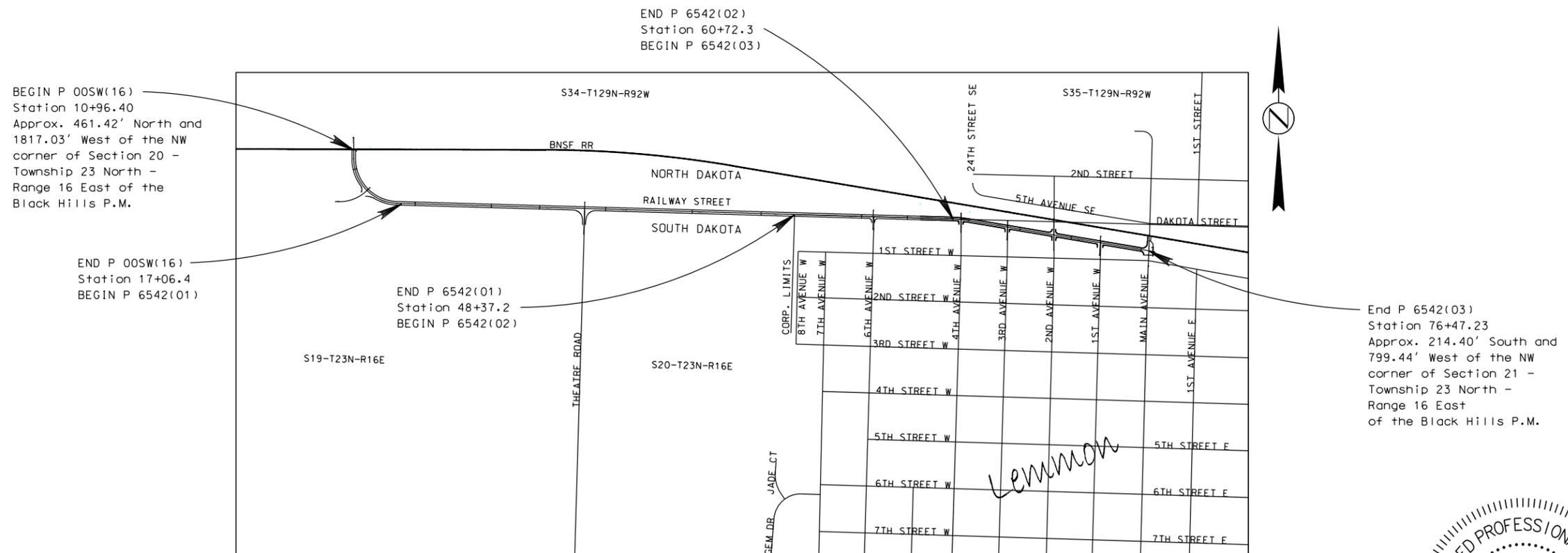
# SECTION D: EROSION AND SEDIMENT CONTROL PLANS

STATE OF	PROJECTS	SHEET NO.	TOTAL SHEETS
SOUTH DAKOTA	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	D1	D27
FILE: ...*Sheet_Files#D1.dgn PLOTTING DATE: 12-02-2014		REV DATE: INITIAL:	

INDEX OF SHEETS

D1	General Layout w/ Index
D2-D12	Erosion Control Notes
D13-D24	Erosion and Sediment Control Plans
D25-D29	Standard Plates

Plot Scale - 1:1000



Plotted From - rmmasfesa

**SECTION D ESTIMATE OF QUANTITIES**

Std. Bid Item	Item Description	P 00SW(16) Quantity	P 6542(01) Quantity	P 6542(02) Quantity	P 6542(03) Quantity	Total Quantity	Unit
110E1690	Remove Sediment	16.0	13.0	5.0	5.0	39.0	CuYd
110E1693	Remove Erosion Control Wattle	1,104	2,919	2,162	3,259	9,444	Ft
110E1695	Remove Sediment Filter Bag				734	734	Ft
110E1700	Remove Silt Fence				638	638	Ft
120E6300	Water for Vegetation			215.3	150.2	365.5	MGal
120E9000	Pit Run Material	55.0	55.0	55.0	55.0	220.0	Ton
230E0010	Placing Topsoil	89	1,408	720	472	2,689	CuYd
730E0100	Cover Crop Seeding	0.2	2.1	0.9	0.6	3.8	Bu
730E0200	Type A Permanent Seed Mixture	4	38	13		55	Lb
730E0206	Type D Permanent Seed Mixture			58	189	247	Lb
731E0100	Fertilizing	319	3,162	1,071	62	4614	Lb
732E0100	Mulching	0.4	4.2	1.4		6.0	Ton
732E0250	Fiber Mulching			377	1242	1619	Lb
734E0101	Type 1 Erosion Control Blanket	250	1,750	750	750	3,500	SqYd
734E0154	12" Diameter Erosion Control Wattle	1,104	2,919	2,162	3,259	9,444	Ft
734E0180	Sediment Filter Bag				734	734	Ft
734E0604	High Flow Silt Fence				638	638	Ft
734E0610	Mucking Silt Fence				43	43	CuYd
734E0620	Repair Silt Fence				100	100	Ft
734E0840	Sediment Control at Type B Reinforced Concrete Drop Inlet				14	14	Each
734E5010	Sweeping	2	8	4	4	18	Hour
831E0300	MSE Geotextile Fabric	82	82	82	82	328	SqYd
900E1300	Granular Material for Construction Entrance	55.0	55.0	55.0	55.0	220.0	Ton

**EROSION CONTROL SUPERVISOR**

The Contractor shall have an Erosion Control Supervisor committed to the project for the duration of the project.

The Erosion Control Supervisor shall:

- attend the SDDOT Erosion and Sediment Control/Storm Water Management Training
- pass the certification exam at the end of this course
- maintain the SDDOT Erosion and Sediment Control/Storm Water Management certification

Alternatives to the SDDOT training include retaining certification credentials in one of the following:

- Certified Professional in Erosion & Sediment Control
- Certified Professional in Storm Water Management
- Certified Erosion, Sediment & Storm Water Inspector
- Certified Professional in Storm Water Quality

The Erosion Control Supervisor must be a responsible employee of the Contractor with the authority to represent the Contractor. Responsibilities would include, but not be limited to, the following:

- discussing the SWPPP and other measures during the weekly construction meetings
- implementing and updating the Storm Water Pollution Prevention Plan
- inspections as required by the construction storm water permit
- complete a SDDOT 298 inspection form showing all of the work completed during every inspection.
- reporting and record keeping of erosion and sediment controls used and fixed
- ensuring that erosion and sediment controls remain in working order
- coordinating work with the Contractor to ensure sites are stabilized within 14 days of being disturbed as required by the General Permit For Storm Water Discharges Associated With Construction Activities
- be responsible for ensuring the prevention and proper cleanup from vehicle tracking on paved surfaces, spills, trash, etc
- ensure the Contractor's temporary work for culverts meet storm water permit requirements
- be available by mobile phone to project personnel 24 hours/day, seven days/week and be available to be at the project site within 12 hours of being needed
- coordinate and communicate throughout the project with the Engineer and Owner
- at the minimum, shall be onsite every 7 days and after every rain event of 1/2" or more to conduct inspections and to maintain and/or install erosion and sediment controls

All cost associated with the Erosion Control Supervisor work as discussed above shall be included in the bid item "Erosion Control Supervisor".

**NOTICE OF INTENT**

A Notice of Intent (NOI) for coverage under the General Permit for Storm Water Discharges Associated with Construction Activities has been submitted to the SD DENR and the permit will be available at the preconstruction meeting.

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 00SW(16) / P 6542(01) P 6542(02) / P 6542(03)	D2	D27

Plotting Date: 1/30/2015

Revised 01/30/2015



**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 until vegetation has been established and then they shall be removed in accordance with the Engineer.

An additional quantity of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels and as an alternative to low flow or high flow silt fence at wetland areas adjacent to the highway.

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			
Station to Station	L/R	Quantity	(Ft)
<b>P 00SW(16)</b>			
10+96.4	15+50.0	L	434
10+96.4	14+19.7	R	351
14+70.6	17+06.4	R	259
Field Determined			60
			Total: 1,104
<b>P 6542(01)</b>			
17+06.4	25+00.0	R	818
17+50.0	@ culvert	L	34
22+00.0	@ culvert	L	60
28+00.0		L	20
28+00.0		R	20
29+00.0		L	20
29+00.0		R	20
30+00.0		L	20
30+00.0		R	20
31+00.0		L	20
31+00.0		R	20
31+00.0	31+78.0	L	94
31+00.0	31+52.1	R	121
31+99.0	32+50.0	L	65
32+00.0	@ culvert	R	25
32+03.0	32+50.0	R	110
32+50.0		L	20
32+50.0		R	15
33+50.0		L	20
33+50.0		R	15
34+50.0		L	20
34+50.0		R	15
35+50.0		L	20
35+50.0		R	15
35+50.0	45+00.0	L	951
36+50.0		R	15
37+50.0		R	15
38+50.0		R	15
43+00.0		R	15
44+00.0		R	20
44+60.0	@ culvert	R	21
45+00.0		L	20
45+00.0		R	15
46+00.0		L	20
46+00.0		R	15
47+00.0		L	20
47+00.0		R	15
48+00.0		L	20
48+00.0		R	15
Field Determined			100
			Total: 2,919

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 00SW(16) / P 6542(01) P 6542(02) / P 6542(03)	D3	D27

Plotting Date: 12/2/2014

TABLE OF 12" DIAMETER EROSION CONTROL WATTLE			
Station to Station	L/R	Quantity	(Ft)
<b>P 6542(02)</b>			
49+00.0		L	20
49+00.0		R	15
50+00.0		L	20
50+00.0		R	15
51+00.0		L	20
51+00.0		R	10
51+00.0	51+86.9	L	92
51+00.0	54+42.9	R	365
51+80.0	@ culvert	L	21
52+09.8	54+54.7	L	250
52+50.0	@ culvert	L	24
54+72.4	57+11.1	L	252
54+73.3	57+87.0	R	346
57+37.4	60+72.3	L	343
58+16.4	59+56.5	R	165
59+76.5	60+72.3	R	104
Field Determined			100
			Total: 2,162
<b>P 6542(03)</b>			
60+72.3	68+61.6	L	809
60+72.3	61+28.1	R	69
61+76.8	63+31.3	R	181
63+47.2	65+00.8	R	187
65+46.7	67+03.0	R	184
67+18.0	67+58.3	R	54
67+82.3	68+74.8	R	114
68+60.0	@ culvert	L	21
69+08.5	76+15.8	L	826
69+19.8	72+35.0	R	349
70+82.3	@ jb	L	26
72+92.9	76+30.3	R	339
Field Determined			100
			Total: 3,259



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 00SW(16) / P 6542(01) P 6542(02) / P 6542(03)	D4	D27

Plotting Date: 12/2/2014

**EROSION CONTROL BLANKET**

Erosion Control Blanket shall be installed as determined in the field by the Engineer.

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 ditches shall be shaped for the erosion control blanket as specified on Standard Plate 734.01. All costs for shaping the ditches for erosion control blanket including labor and equipment shall be incidental to the contract unit price or "Type 1 Erosion Control Blanket".

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

TABLE OF EROSION CONTROL BLANKET	
Location	Quantity (SqYd)
<b>P 00SW(16)</b>	
Field Determined	250
Total:	250
<b>P 6542(01)</b>	
Field Determined	1,750
Total:	1,750
<b>P 6542(02)</b>	
Field Determined	750
Total:	750
<b>P 6542(03)</b>	
Field Determined	750
Total:	750

**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.

**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.

**INTERIM SEDIMENT CONTROL AT INLETS, MANHOLES, AND JUNCTION BOXES AFTER SURFACING REMOVAL AND BEFORE PLACEMENT OF SURFACING**

Refer to Standard Plate 734.05 for details of installation of high flow silt fence at drop inlets, manholes, and junction boxes.

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>

In addition, the Contractor shall do the following for this installation:

- A space of at least 1' shall be provided between the silt fence installation and the inlet. This space shall be filled completely with a 2" depth of aggregate, 2" minus or smaller.
- The top elevation of the silt fence shall be such that a 12" horizontal flap of silt fence will remain at the bottom.
- The base of the silt fence shall conform to the natural ground profile but does not need to be trenched in at the bottom.
- The extra 12" of the silt fence material may be cut so that the material will lay flat upon the subgrade.
- Sediment filter bags shall be placed on the 12" flap around the perimeter of the silt fence installation. The sediment filter bags shall overlap 6" at the ends and be placed tightly together.
- The sediment filter bags shall be filled with clean aggregate 2" minus or smaller.

Sediment Filter Bag	
Product	Manufacturer
Snake Bag	Sacramento Bag Manufacturing Co. Sacramento, CA Phone: 1-800-287-2247 <a href="http://www.sacbag.com">www.sacbag.com</a>

The sediment filter bag shall be the Snake Bag from Sacramento Bag Manufacturing Company or an approved equal.

All costs for furnishing and installing the sediment filter bags shall be incidental to the contract unit price per foot for "Sediment Filter Bag."

All costs for removing the sediment filter bags shall be incidental to the contract unit price per foot for "Remove Sediment Filter Bag".

Payment for high flow silt fence shall be as stated in Section 734.5 of the Specifications.

All costs for furnishing, installing, and removing the 2" depth of aggregate shall be incidental to other erosion and sediment control bid items.

All costs for removing and disposing of sediment collected by the sediment control device shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

The Contractor and Engineer shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event greater than 1/2".



Plotting Date: 12/2/2014

**FOR BIDDING PURPOSES ONLY**

**TABLE OF INTERIM SEDIMENT CONTROL AT INLETS, MANHOLES, AND JUNCTION BOXES AFTER SURFACING REMOVAL AND BEFORE PLACEMENT OF SURFACING**

ID	High Flow Silt Fence Quantity (Ft)	Sediment Filter Bag Quantity (Ft)	Removal of Sediment Filter Bag Quantity (Ft)
<b>P 00SW(16)</b>			
no quantity			
Total:	0	0	0
<b>P 6542(01)</b>			
no quantity			
Total:	0	0	0
<b>P 6542(02)</b>			
no quantity			
Total:	0	0	0
<b>P 6542(03)</b>			
DI #1 @ 61+02 R	26	32	32
DI #2 @ 61+02 L	30	36	36
DI#3 @ 64+75 R	26	32	32
DI#4 @ 64+75 L	30	36	36
DI#5 @ 68+33 R	30	36	36
DI#6 @ 68+33 L	30	36	36
DI#7 @ 70+79 L	30	36	36
DI#8 @ 72+08 R	26	32	32
DI#9 @ 72+08 L	30	36	36
DI#10 @ 74+98 R	26	32	32
DI#11 @ 74+98 L	30	36	36
DI#12 @ 73+80 L	30	36	36
DI#13 @ 67+00 R	26	32	32
DI#13B @ 66+98 L	30	36	36
JB#1 @ 73+83.2 L	38	44	44
Field Determined	200	206	206
Total:	638	734	734

**SEDIMENT CONTROL AT TYPE B REINFORCED CONCRETE DROP INLET**  
This type of sediment control device should be used where there is pavement in the vicinity of the drop inlets and storm water or sediment could possibly enter the frame and grate. Sediment Control at Type B Reinforced Concrete Drop Inlet shall be installed prior to working in the vicinity of the drop inlets.

The Contractor shall be responsible for maintaining and repairing the sediment control devices for the duration of the project for which sediment control measures are required. Maintenance shall be scheduled to prevent storm water from backing up into the driving lane.

“Sediment Control at Type B Reinforced Concrete Drop Inlet” will be paid for one time at each location, regardless of the number of times the sediment control devices are installed, inspected, cleaned, removed, repaired, or replaced. All costs associated with furnishing, installing, inspecting, maintaining, cleaning, sediment removal, and repairing Sediment Control at Type B Reinforced Concrete Drop Inlet shall be incidental to the contract unit price per each for “Sediment Control at Type B Reinforced Concrete Drop Inlet”.

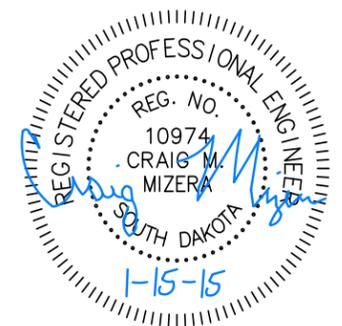
Sediment collection devices shall be:

A commercial made sediment collection device from the “Sediment Control at Type B Reinforced Concrete Drop Inlet” list or an approved equal. The device shall be installed in reinforced concrete drop inlets according to the manufacturer’s recommendations.

Sediment Control at Inlet with Frame and Grate Approved List:	
Product	Manufacturer
InfraSafe Debris Collection Device with filter sock	Royal Environmental Systems, Inc. Stacy, MN Phone: 1-800-817-3240 <a href="http://www.royalenterprises.net">www.royalenterprises.net</a>
Dandy Curb Sack	Dandy Products Inc. Dublin, OH Phone: 1-800-591-2284 <a href="http://www.dandyproducts.com">www.dandyproducts.com</a>
Silt Trapper	Storm Water Solutions Lakeville, MN Phone: 1-952-461-4376 <a href="http://www.silttrapper.com">www.silttrapper.com</a>
DIP Basket	Skyview Construction Co., LLC Waubay, SD Phone: 1-605-520-0555 <a href="http://www.skyviewconst.com">www.skyviewconst.com</a>
FLEXSTORM Inlet Filters	Inlet and Pipe Protection, Inc. Naperville, IL Phone: 1-866-287-8655 <a href="http://www.inletfilters.com">www.inletfilters.com</a>
GR-8 Guard or Combo Guard	ERTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 <a href="http://www.ertecsystems.com">www.ertecsystems.com</a>
Sediment Catchers	Shaun Jensen Brookings, SD Phone: 1-605-690-4950
Grate FX, Slammer, or VertPro	Enviroscape ECM, Ltd. Oakwood, OH Phone: 1-419-594-3210 <a href="http://www.strawblanket.com">www.strawblanket.com</a>
BX Inlet Sediment Boxes	BX Civil and Construction Dell Rapids, SD Phone: 1-605-428-5483 <a href="http://bx-cc.com">bx-cc.com</a>

**TABLE OF SEDIMENT CONTROL AT TYPE B REINFORCED CONCRETE DROP INLET**

ID	Quantity (Each)
<b>P 00SW(16)</b>	
no quantity	
Total:	0
<b>P 6542(01)</b>	
no quantity	
Total:	0
<b>P 6542(02)</b>	
no quantity	
Total:	0
<b>P 6542(03)</b>	
DI#1	1
DI#2	1
DI#3	1
DI#4	1
DI#5	1
DI#6	1
DI#7	1
DI#8	1
DI#9	1
DI#10	1
DI#11	1
DI#12	1
DI#13	1
DI#13B	1
Total:	14



**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 1/2"	90-100%
1 1/2"	25-60%
3/4"	0-10%
1/2"	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 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.

TABLE OF STABILIZED CONSTRUCTION ENTRANCE				
Station	# of Entrances	Pit Run Material (Ton)	Granular Material (Ton)	MSE Geotextile (SqYd)
<b>P 00SW(16)</b>				
Field Determined	0.5	55.0	55.0	82
	Total:	55.0	55.0	82
<b>P 6542(01)</b>				
Field Determined	0.5	55.0	55.0	82
	Total:	55.0	55.0	82
<b>P 6542(02)</b>				
Field Determined	0.5	55.0	55.0	82
	Total:	55.0	55.0	82
<b>P 6542(03)</b>				
Field Determined	0.5	55.0	55.0	82
	Total:	55.0	55.0	82

**STREET SWEEPING**

Vehicle tracking of sediment from the construction site shall be minimized. Street sweeping shall be used if erosion and sediment control best management practices are not adequate to prevent sediment from being tracked onto the street.

The Contractor shall use a pickup broom having integral self-contained storage to clean the roadway. The pickup broom used shall be a minimum of 6 feet wide and have working gutter brooms.

At a minimum, sweeping will be required:

1. Prior to opening any segment or roadway to traffic.

All costs for cleaning the roadway with a pickup broom shall be incidental to the contract unit price per hour for "Sweeping".

TABLE OF SWEEPING	
Location	Quantity (Hour)
<b>P 00SW(16)</b>	
Field Determined	2
Total:	2
<b>P 6542(01)</b>	
Field Determined	8
Total:	8
<b>P 6542(02)</b>	
Field Determined	4
Total:	4
<b>P 6542(03)</b>	
Field Determined	4
Total:	4

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STATE OF SOUTH DAKOTA	PROJECT P 00SW(16) / P 6542(01) P 6542(02) / P 6542(03)	SHEET D6	TOTAL SHEETS D27
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Plotting Date: 12/2/2014

**PLACING TOPSOIL**

The topsoil shall be installed to the depths shown in Section B.

All costs to install the topsoil shall be included in the contract unit price per cubic yard for "Placing Topsoil."

**MYCORRHIZAL INOCULUM**

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

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

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

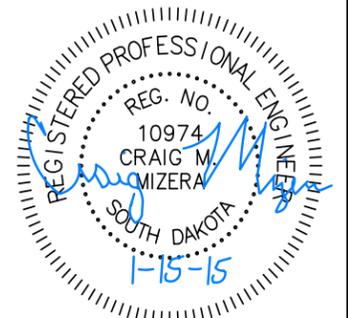
Seed Mix D shall be inoculated by the seed supplier with a minimum of 20,000 live propagules of mycorrhizal fungi per 1,000 square feet. All costs of inoculating the seed shall be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

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 <a href="http://www.mycorrhizae.com/">http://www.mycorrhizae.com/</a>

**DRILLS**

In addition to the drills specified in Section 730 of the 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 1/4" to 1/2".



**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 seed mixtures are preferred varieties.

Native harvest seed will be allowed.

Type A Permanent Seed Mixture shall 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
Canada Wildrye	Mandan	2
Total:		18

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 Varieties	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

**COVER CROP SEEDING**

Cover crop seeding has been included in the estimate of quantities to be used as determined by the Engineer.

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 actual limits and use of cover crop seeding shall be determined by the Engineer during construction.

**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 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 <a href="http://www.sustane.com/">http://www.sustane.com/</a>

At Seed Mix A, the application rate is **1,500 pounds per acre**.

At Seed Mix D, a commercial fertilizer with a minimum guaranteed analysis of 13-13-13, 18-46-0, 11-52-0, or an approved alternate fertilizer sold for use as a lawn starter fertilizer shall be applied to all areas designated for permanent seeding. The application rate is **100 pounds per acre**.

**MULCHING (GRASS HAY OR STRAW)**

At Seed Mix A, mulching (grass hay or straw) shall be applied.

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

**FIBER MULCHING**

At Seed Mix D, 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 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>

**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 **50 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”.



TABLE OF SEED, FERTILIZER, MULCH AND WATER										
Station to Station	Offset	Area (SqYd)	Seed (Lb)		Cover Crop (Bu)	Fertilizer (Lb)		Hay/Straw Mulch (Ton)	Fiber Mulch (Lb)	Water for Veg. (MGal)
			Mix A	Mix D		Mix A	Mix D			
<b>P 00SW(16)</b>										
10+96.4	17+06.4	Lt	486	1.8	0.10	150.6		0.2		24
10+96.4	14+19.7	Rt	303	1.1	0.06	93.9		0.1		15
14+70.6	17+06.4	Rt	239	0.9	0.05	74.1		0.1		12
		Total:	1028	4	0	319	0	0.4	0	51
					Grand Total:	319				
<b>P 6542(01)</b>										
17+06.4	31+78.0	Lt	3228	12.0	0.67	1000.4		1.3		161
17+06.4	31+52.1	Rt	2788	10.4	0.58	864.0		1.2		139
31+99.0	48+37.2	Lt	1825	6.8	0.38	565.6		0.8		91
32+03.0	44+69.3	Rt	1748	6.5	0.36	541.7		0.7		87
44+79.8	48+37.2	Rt	613	2.3	0.13	190.0		0.3		31
		Total:	10202	38	2.1	3162	0	4.2	0	510
					Grand Total:	3162				
<b>P 6542(02)</b>										
48+37.2	51+89.6	Lt	933	3.5	0.19	289.1		0.4		47
48+37.2	54+48.7	Rt	1312	4.9	0.27	406.5		0.5		66
52+09.8	54+54.8	Lt	373	1.4	0.08	115.6		0.2		19
54+67.8	57+91.8	Rt	422	1.6	0.09	130.8		0.2		21
54+72.4	57+17.7	Lt	356	1.3	0.07	110.4		0.1		18
57+31.8	60+72.3	Lt	506		31.9	0.10		10.5		209
58+11.4	59+60.4	Rt	258		16.3	0.05		5.3		107
59+72.7	60+72.3	Rt	148		9.3	0.03		3.1		61
		Total:	4308	13	57	1	1052	19	1.4	377
					Grand Total:	1071				
<b>P 6542(03)</b>										
60+72.3	68+68.9	Lt	537		33.8	0.11		11.1		222
60+72.3	61+35.1	Rt	92		5.8	0.02		1.9		38
61+69.3	63+36.5	Rt	159		10.0	0.03		3.3		66
63+44.9	65+07.1	Rt	162		10.2	0.03		3.4		67
65+39.6	67+08.2	Rt	159		10.0	0.03		3.3		66
67+13.6	67+63.8	Rt	76		4.8	0.02		1.6		31
67+77.0	68+81.6	Rt	122		7.7	0.03		2.5		50
68+96.5	76+26.3	Lt	1084		68.3	0.22		22.4		448
69+12.0	72+42.8	Rt	329		20.7	0.07		6.8		136
72+85.8	76+14.2	Rt	285		18.0	0.06		5.9		118
		Total:	3005	0	189	0.6	0	62	0	1242
					Grand Total:	62				

## STORM WATER POLLUTION PREVENTION PLAN CHECKLIST FOR BIDDING PURPOSES ONLY

*(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 9.0 acres (4.2 1.b.)**
- **Total Area To Be Disturbed 9.0 acres (4.2 1.b.)**
- **Existing Vegetative Cover (%) Asphalt Roadway 50%, Grass 50%**
- **Soil Properties: CL and SM (4.2 1. d.)**
- **Name of Receiving Water Body/Bodies (4.2 1.e.)**
  - West half of project drains south to Thunder Hawk Creek, SD
  - East half of project drains north to Plum Creek, ND

### ❖ 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.)
- **Install stabilized construction entrance(s).**
  - **Install perimeter protection where runoff sheets from the site.**
  - **Install channel and ditch bottom protection.**
  - **Clearing and grubbing.**
  - **Remove and store topsoil.**
  - **Stabilize disturbed areas.**
  - **Install utilities, storm sewers, curb and gutter.**
  - **Install inlet and culvert protection after completing storm drainage and other utility installations.**
  - **Complete final grading.**
  - **Complete final paving.**
  - **Complete traffic control installation and protection devices.**
  - **Reseed areas disturbed by removal activities.**

### ❖ 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
    - Other:

### ➤ 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:
- **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 1/2 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:

❖ **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, degreasing 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.

FOR BIDDING PURPOSES ONLY

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➤ **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.



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➤ **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.

❖ **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



FOR BIDDING PURPOSES ONLY

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❖ **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**

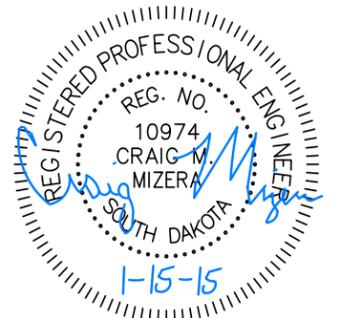
- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➤ **SD DENR Contact for Hazardous Materials.**

- (605) 773-3153

➤ **National Response Center Hotline**

- (800) 424-8802.



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECTS P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	SHEET NO. D12	TOTAL SHEETS D27
FILE: ...*Sheet_Files*D12.dgn PLOTING DATE: 12-03-2014		REV DATE: INITIAL:	

# Erosion and Sediment Control Plan

SEC. 34 - T. 129 N. - R. 92 W.

SEC. 19 - T. 23 N. - R. 16 E.

**NOTE:**

Wattles to be installed 5' from Construction Limits except where Permanent or Temporary Easement was not acquired.

Seeding areas shall extend 5' past Construction Limits except where Permanent or Temporary Easement was not acquired.

Construction Limit Line to be staked in the field by Surveyor prior to Wattle installation.



**LEGEND**

- Flow Arrows
- Wattles
- Existing ROW/Property Lines
- Type A Seeding
- Type D Seeding
- Limits of Construction
- R.O.W to be Acquired
- Temporary Construction Easement

10+00  
Railway Street W

BNSF RR

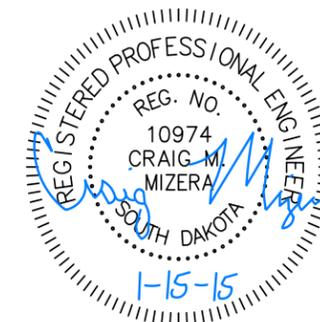
11+00

12+00

13+00

14+00

15+00

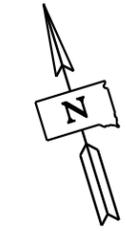


Plot Scale - 1:40

Plotted From - rmmasfesa

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	D13	D27
FILE: ...*Sheet_Files#D13.dgn PLOTING DATE: 12-02-2014		REV DATE: INITIAL:	

# Erosion and Sediment Control Plan



**LEGEND**

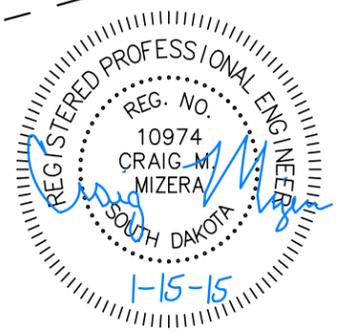
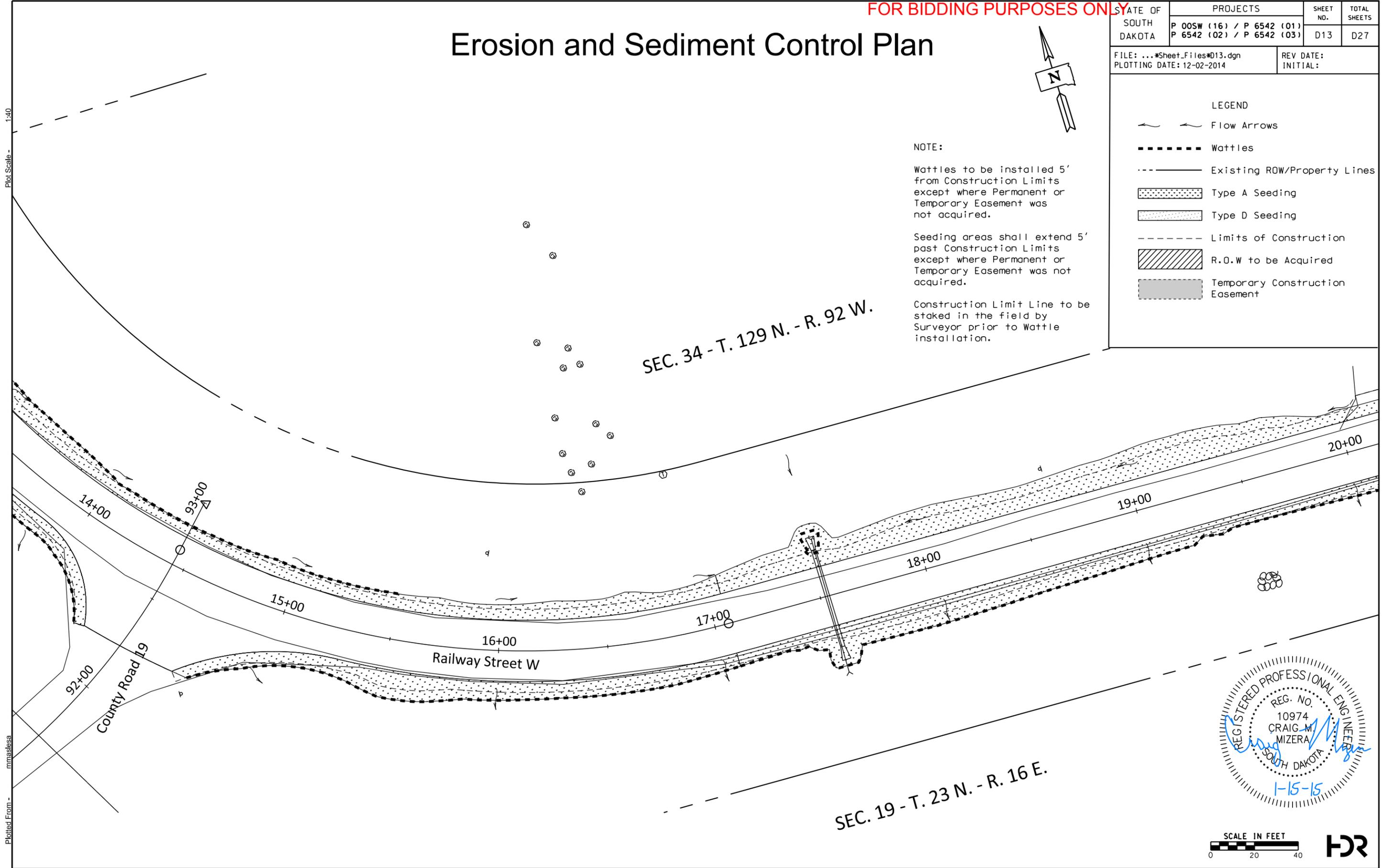
- Flow Arrows
- Wattles
- Existing ROW/Property Lines
- Type A Seeding
- Type D Seeding
- Limits of Construction
- R.O.W to be Acquired
- Temporary Construction Easement

**NOTE:**

Wattles to be installed 5' from Construction Limits except where Permanent or Temporary Easement was not acquired.

Seeding areas shall extend 5' past Construction Limits except where Permanent or Temporary Easement was not acquired.

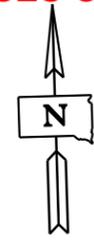
Construction Limit Line to be staked in the field by Surveyor prior to Wattle installation.



Plotted From - rmmasfesa

# Erosion and Sediment Control Plan

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	D14	D27
FILE: ...*Sheet_Files*D14.dgn PLOTING DATE: 12-03-2014		REV DATE: INITIAL:	



SEC. 34 - T. 129 N. - R. 92 W.

**NOTE:**

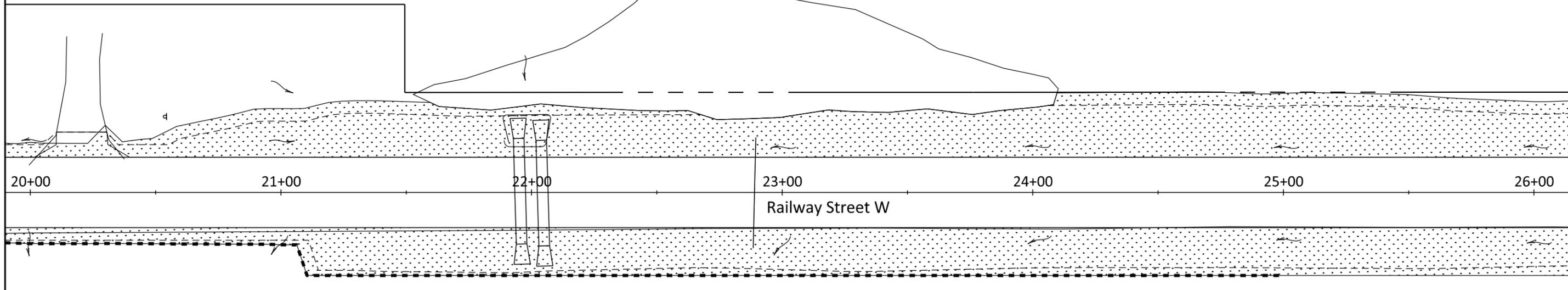
Wattles to be installed 5' from Construction Limits except where Permanent or Temporary Easement was not acquired.

Seeding areas shall extend 5' past Construction Limits except where Permanent or Temporary Easement was not acquired.

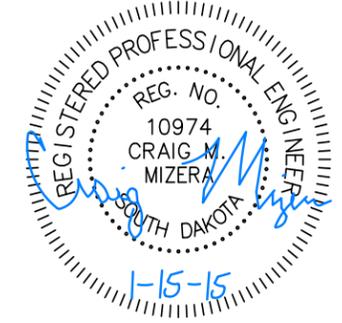
Construction Limit Line to be staked in the field by Surveyor prior to Wattle installation.

LEGEND	
	Flow Arrows
	Wattles
	Existing ROW/Property Lines
	Type A Seeding
	Type D Seeding
	Limits of Construction
	R.O.W to be Acquired
	Temporary Construction Easement

DO NOT DISTURB THE EXISTING WETLAND OUTSIDE OF THE LIMITS OF CONSTRUCTION



SEC. 19 - T. 23 N. - R. 16 E.



Plot Scale - 1:40

Plotted From - mmasfesa

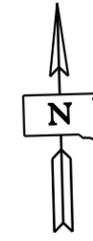
FOR BIDDING PURPOSES ONLY

# Erosion and Sediment Control Plan

STATE OF SOUTH DAKOTA	PROJECTS P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	SHEET NO. D15	TOTAL SHEETS D27
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FILE: ...\*Sheet\_Files#D15.dgn  
PLOTTING DATE: 12-03-2014

REV DATE:  
INITIAL:



LEGEND	
	Flow Arrows
	Wattles
	Existing ROW/Property Lines
	Type A Seeding
	Type D Seeding
	Limits of Construction
	R.O.W to be Acquired
	Temporary Construction Easement

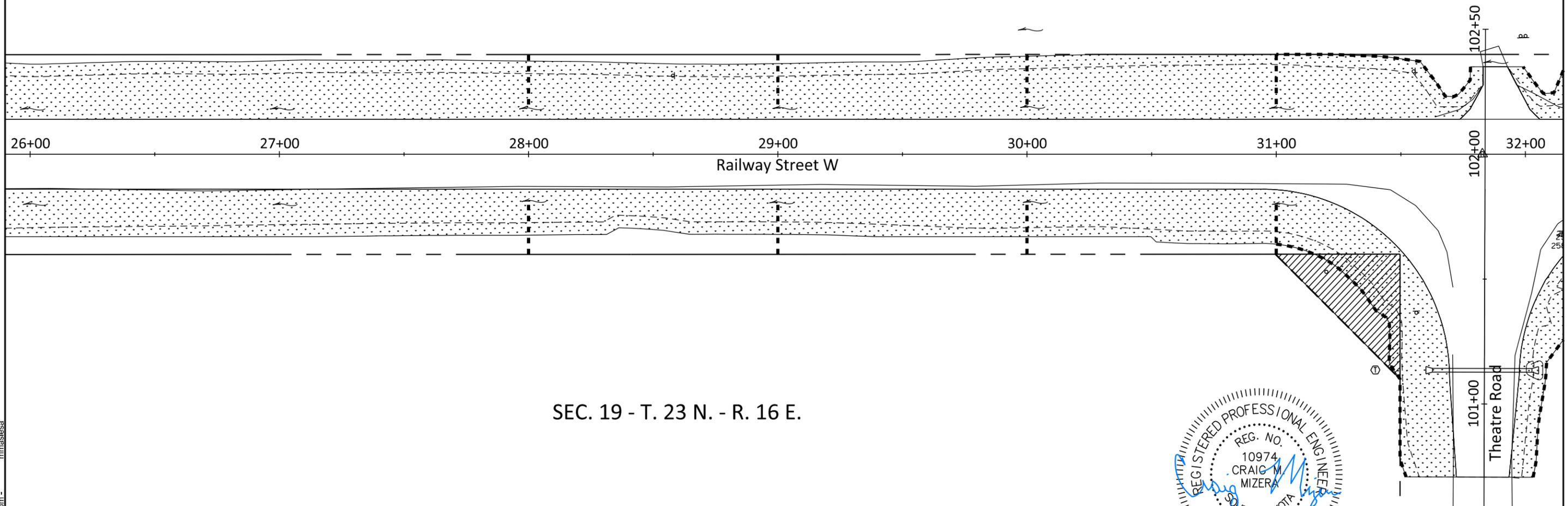
SEC. 34 - T. 129 N. - R. 92 W.

**NOTE:**

Wattles to be installed 5' from Construction Limits except where Permanent or Temporary Easement was not acquired.

Seeding areas shall extend 5' past Construction Limits except where Permanent or Temporary Easement was not acquired.

Construction Limit Line to be staked in the field by Surveyor prior to Wattle installation.



SEC. 19 - T. 23 N. - R. 16 E.



Plot Scale - 1:40

Plotted From - rmasfesa

FOR BIDDING PURPOSES ONLY

# Erosion and Sediment Control Plan

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	D16	D27
FILE: ...*Sheet_Files#D16.dgn PLOTTING DATE: 12-03-2014		REV DATE: INITIAL:	



SEC. 34 - T. 129 N. - R. 92 W.

**NOTE:**

Wattles to be installed 5' from Construction Limits except where Permanent or Temporary Easement was not acquired.

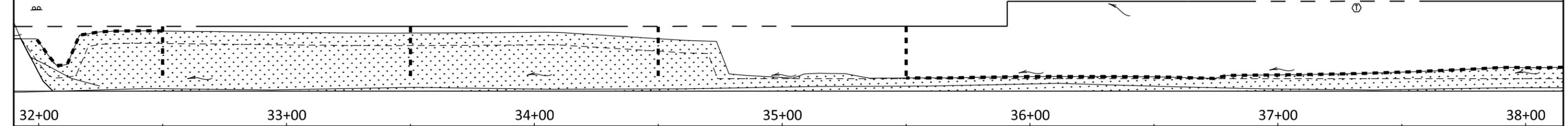
Seeding areas shall extend 5' past Construction Limits except where Permanent or Temporary Easement was not acquired.

Construction Limit Line to be staked in the field by Surveyor prior to Wattle installation.

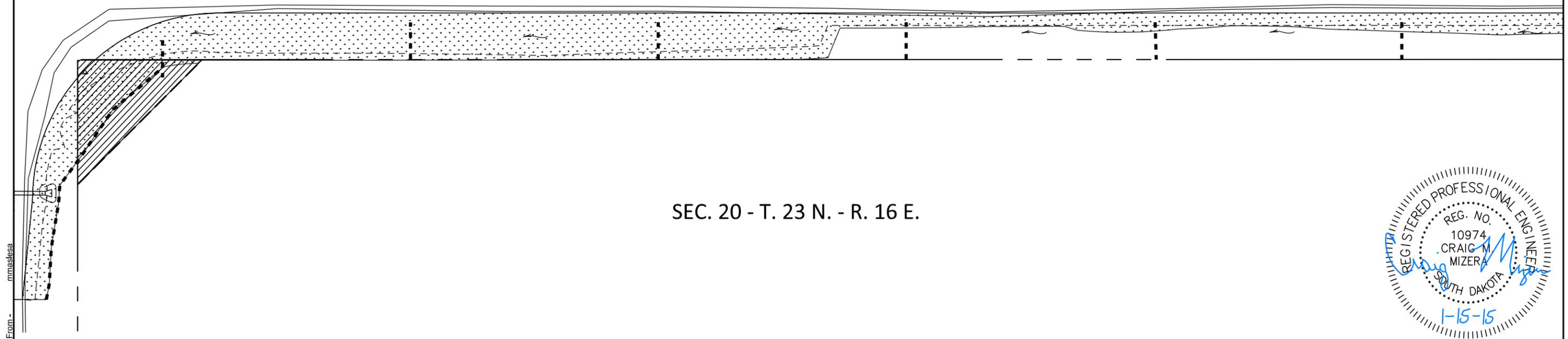
LEGEND

	Flow Arrows
	Wattles
	Existing ROW/Property Lines
	Type A Seeding
	Type D Seeding
	Limits of Construction
	R.O.W to be Acquired
	Temporary Construction Easement

Plot Scale - 1:40



Railway Street W



SEC. 20 - T. 23 N. - R. 16 E.

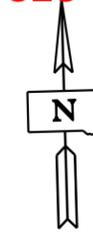


Plotted From - mmasfesa

FOR BIDDING PURPOSES ONLY

# Erosion and Sediment Control Plan

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	D17	D27
FILE: ...*Sheet_Files#D17.dgn PLOTTING DATE: 12-03-2014		REV DATE: INITIAL:	



SEC. 34 - T. 129 N. - R. 92 W.

**NOTE:**

Wattles to be installed 5' from Construction Limits except where Permanent or Temporary Easement was not acquired.

Seeding areas shall extend 5' past Construction Limits except where Permanent or Temporary Easement was not acquired.

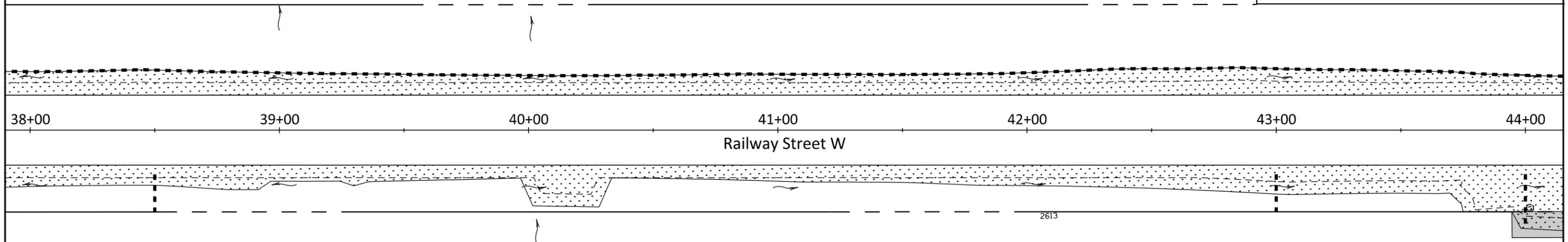
Construction Limit Line to be staked in the field by Surveyor prior to Wattle installation.

**LEGEND**

- Flow Arrows
- Wattles
- Existing ROW/Property Lines
- Type A Seeding
- Type D Seeding
- Limits of Construction
- R.O.W to be Acquired
- Temporary Construction Easement

Plot Scale - 1:40,000

Plotted From - mmasfesa



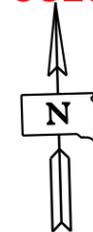
SEC. 20 - T. 23 N. - R. 16 E.



FOR BIDDING PURPOSES ONLY

# Erosion and Sediment Control Plan

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	D18	D27
FILE: ...*Sheet_Files*D18.dgn PLOTING DATE: 12-03-2014		REV DATE: INITIAL:	



LEGEND	
	Flow Arrows
	Wattles
	Existing ROW/Property Lines
	Type A Seeding
	Type D Seeding
	Limits of Construction
	R.O.W to be Acquired
	Temporary Construction Easement

SEC. 34 - T. 129 N. - R. 92 W.

**NOTE:**

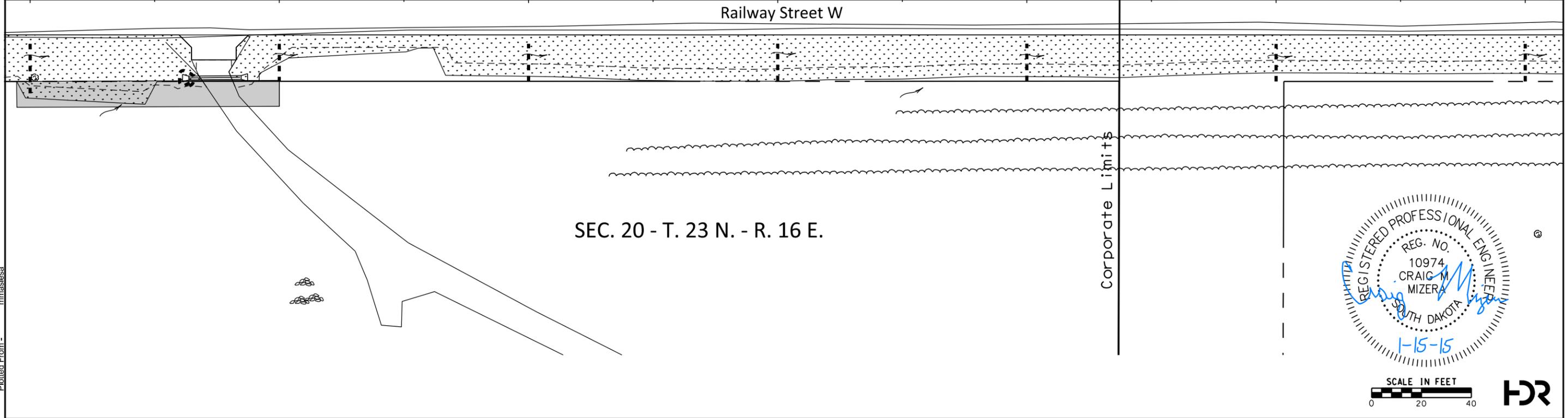
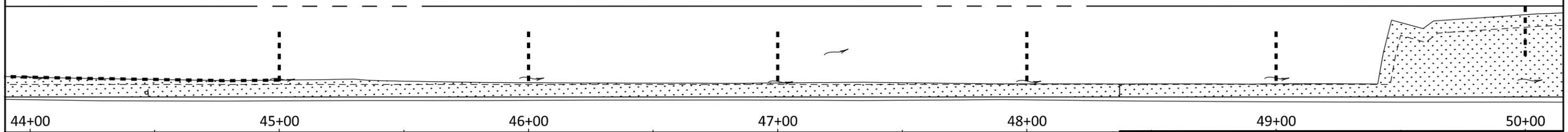
Wattles to be installed 5' from Construction Limits except where Permanent or Temporary Easement was not acquired.

Seeding areas shall extend 5' past Construction Limits except where Permanent or Temporary Easement was not acquired.

Construction Limit Line to be staked in the field by Surveyor prior to Wattle installation.

Plot Scale - 1:40

Plotted From - mmasfesa



SEC. 20 - T. 23 N. - R. 16 E.



# Erosion and Sediment Control Plan

STATE OF SOUTH DAKOTA	PROJECTS P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	SHEET NO. D19	TOTAL SHEETS D27
FILE: ...*Sheet_Files#D19.dgn PLOT DATE: 12-03-2014		REV DATE: INITIAL:	

**NOTE:**

Wattles to be installed 5' from Construction Limits except where Permanent or Temporary Easement was not acquired.

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Construction Limit Line to be staked in the field by Surveyor prior to Wattle installation.

SEC. 34 - T. 129 N. - R. 92 W.

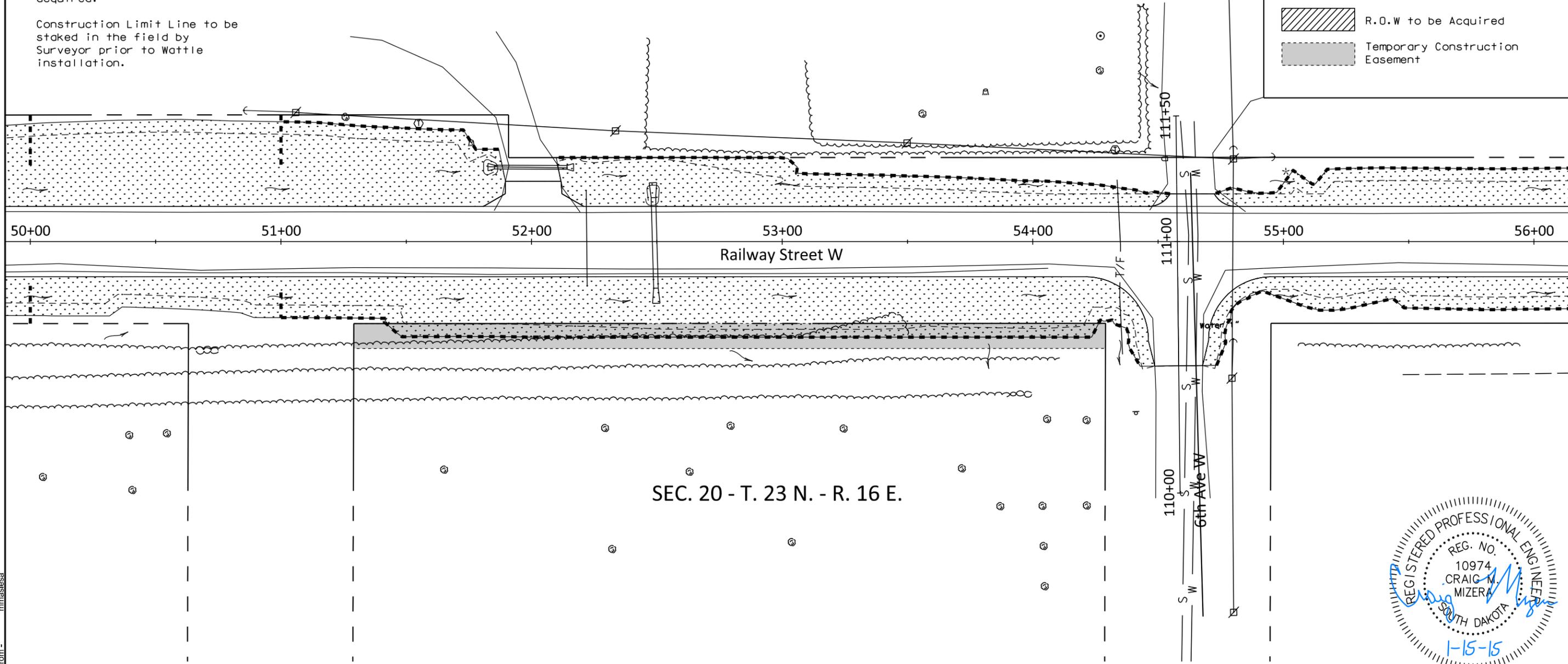
SEC. 20 - T. 23 N. - R. 16 E.

**LEGEND**

- Flow Arrows
- Wattles
- Existing ROW/Property Lines
- Type A Seeding
- Type D Seeding
- Limits of Construction
- R.O.W to be Acquired
- Temporary Construction Easement

Plot Scale - 1:40

Plotted From - mmasfesa



FOR BIDDING PURPOSES ONLY

# Erosion and Sediment Control Plan

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	D20	D27
FILE: ...*Sheet_Files#D20.dgn PLOT DATE: 12-03-2014		REV DATE: INITIAL:	



LEGEND	
	Flow Arrows
	Wattles
	Existing ROW/Property Lines
	Type A Seeding
	Type D Seeding
	Limits of Construction
	R.O.W to be Acquired
	Temporary Construction Easement
	Inlet Protection

**NOTE:**

Wattles to be installed 5' from Construction Limits except where Permanent or Temporary Easement was not acquired.

Seeding areas shall extend 5' past Construction Limits except where Permanent or Temporary Easement was not acquired.

Construction Limit Line to be staked in the field by Surveyor prior to Wattle installation.

SEC. 34 - T. 129 N. - R. 92 W.

SEC. 20 - T. 23 N. - R. 16 E.

BNSF RR

Railway Street W

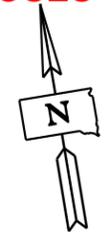
4th Ave W

Plot Scale - 1:40

Plotted From - rmasfesa



# Erosion and Sediment Control Plan



PROJECTS	SHEET NO.	TOTAL SHEETS
P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	D21	D27

FILE: ...\*Sheet\_Files\*D21.dgn  
PLOTTING DATE: 12-03-2014

REV DATE: INITIAL:

SEC. 34 - T. 129 N. - R. 92 W.

BNSF RR

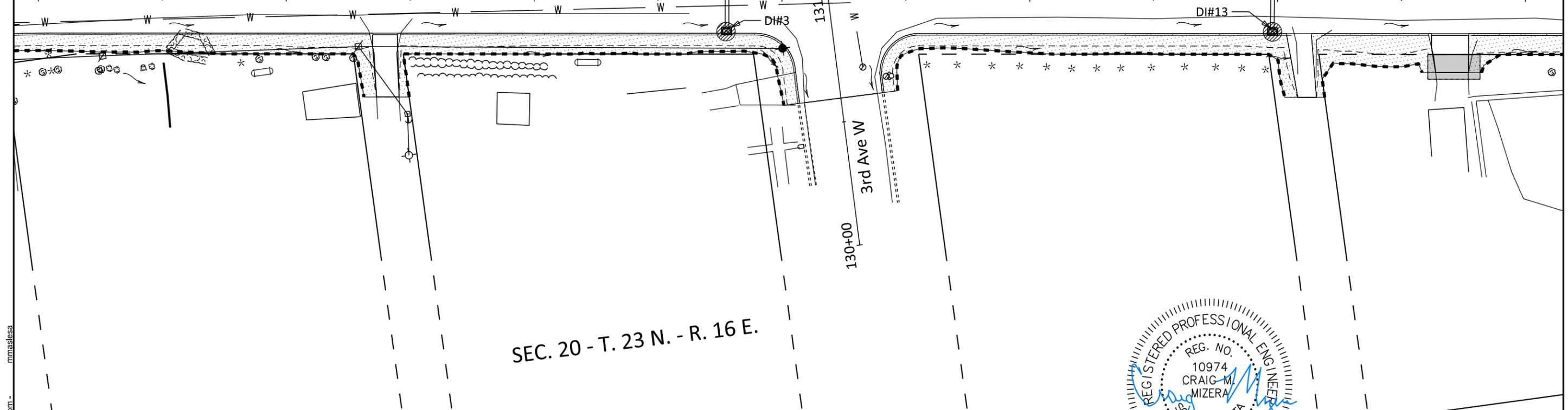
NOTE:  
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Seeding areas shall extend 5' past Construction Limits except where Permanent or Temporary Easement was not acquired.  
Construction Limit Line to be staked in the field by Surveyor prior to Wattle installation.

LEGEND

- Flow Arrows
- Wattles
- Existing ROW/Property Lines
- Type A Seeding
- Type D Seeding
- Limits of Construction
- R.O.W to be Acquired
- Temporary Construction Easement
- Inlet Protection

Plot Scale - 1:40

62+00      63+00      64+00      Railway Street W      65+00      66+00      67+00      68+00



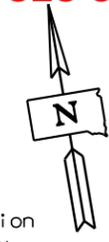
SEC. 20 - T. 23 N. - R. 16 E.



Plotted From - mmasfesa

# Erosion and Sediment Control Plan

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	D22	D27
FILE: ...*Sheet_Files*D22.dgn PLOTING DATE: 12-03-2014		REV DATE: INITIAL:	



NOTE:

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Construction Limit Line to be staked in the field by Surveyor prior to Wattle installation.

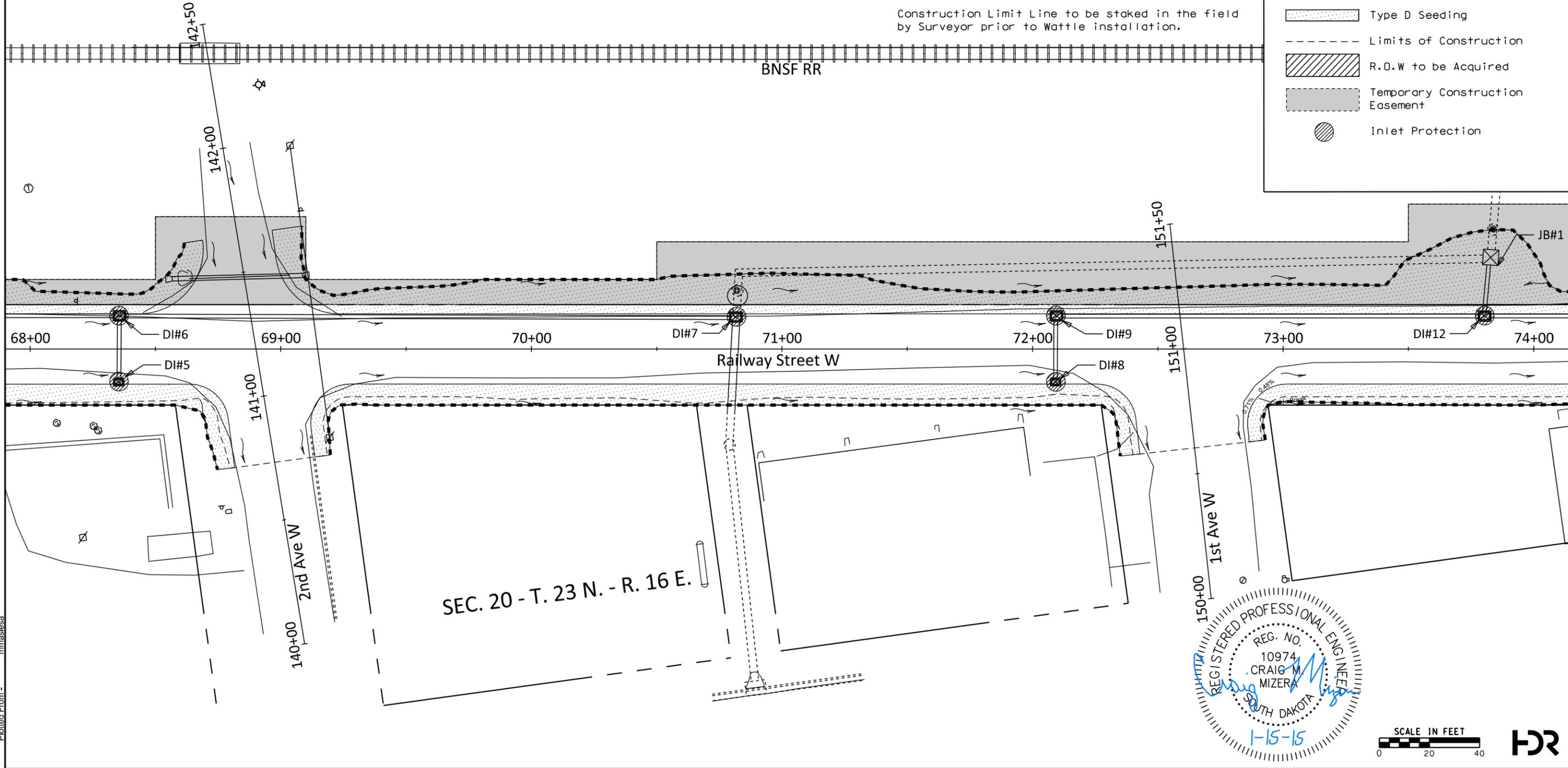
SEC. 34 - T. 129 N. - R. 92 W.

LEGEND

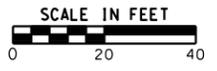
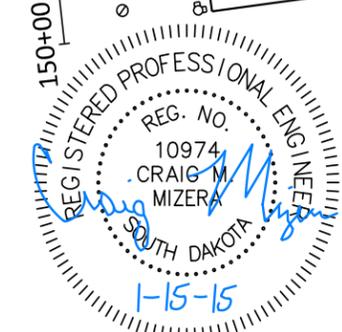
- Flow Arrows
- Wattles
- Existing ROW/Property Lines
- Type A Seeding
- Type D Seeding
- Limits of Construction
- R.O.W to be Acquired
- Temporary Construction Easement
- Inlet Protection

Plot Scale - 1:40

Plotted From - rmasfesa



SEC. 20 - T. 23 N. - R. 16 E.



# Erosion and Sediment Control Plan

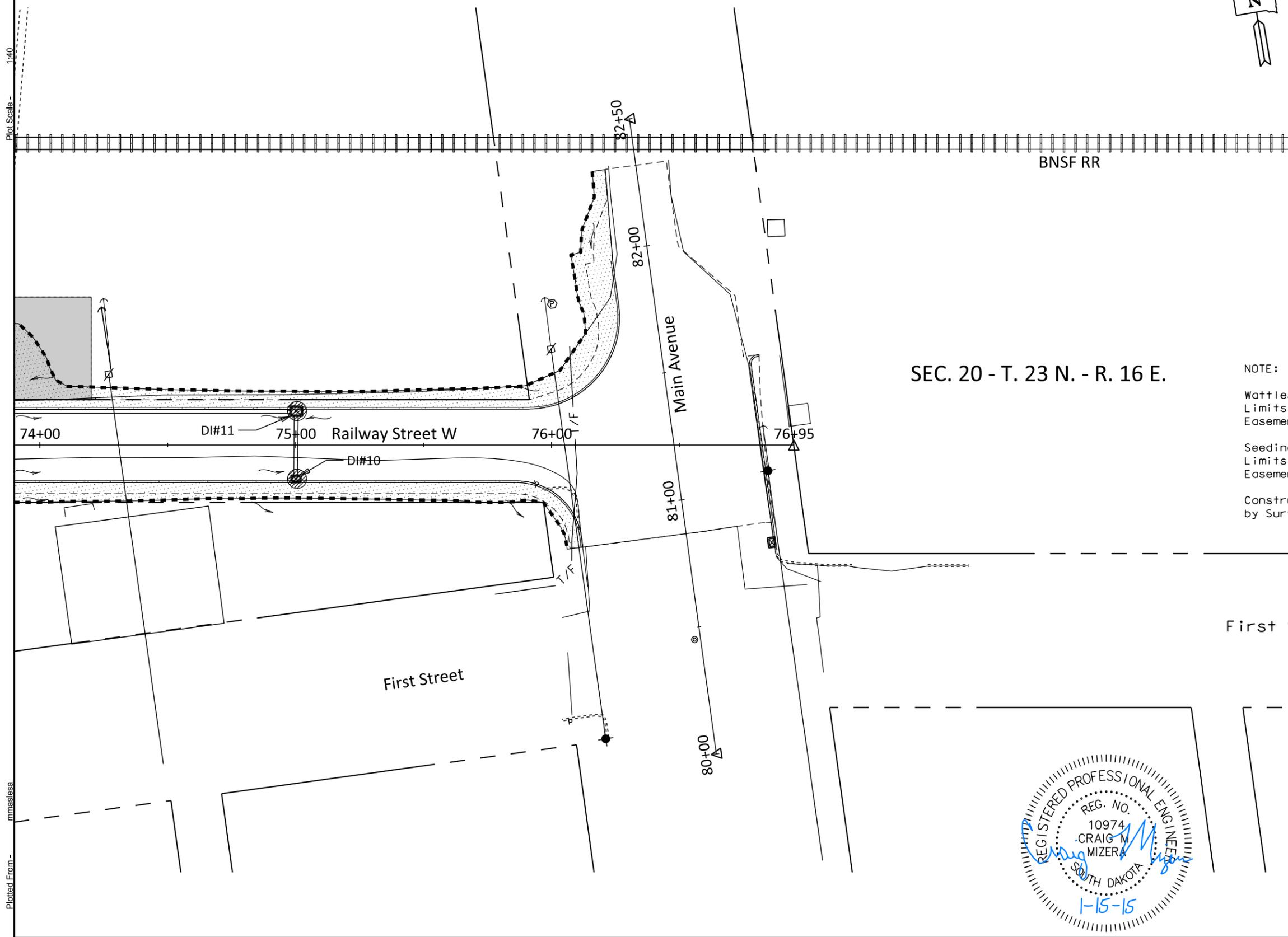


PROJECTS	SHEET NO.	TOTAL SHEETS
P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	D23	D27

FILE: ...\*Sheet\_Files\*D23.dgn  
PLOTTING DATE: 12-02-2014

REV DATE: INITIAL:

LEGEND	
	Flow Arrows
	Wattles
	Existing ROW/Property Lines
	Type A Seeding
	Type D Seeding
	Limits of Construction
	R.O.W to be Acquired
	Temporary Construction Easement
	Inlet Protection



SEC. 20 - T. 23 N. - R. 16 E.

NOTE:  
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 Seeding areas shall extend 5' past Construction Limits except where Permanent or Temporary Easement was not acquired.  
 Construction Limit Line to be staked in the field by Surveyor prior to Wattle installation.

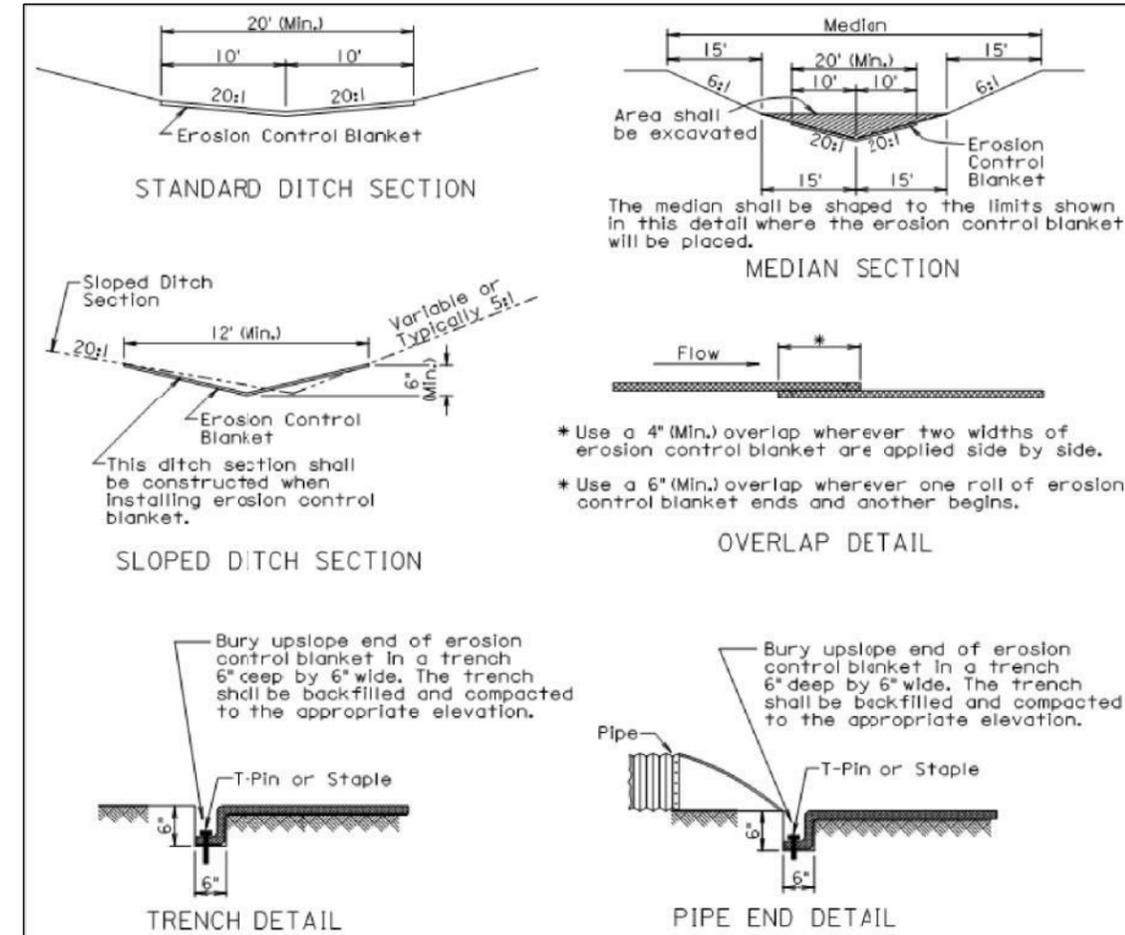
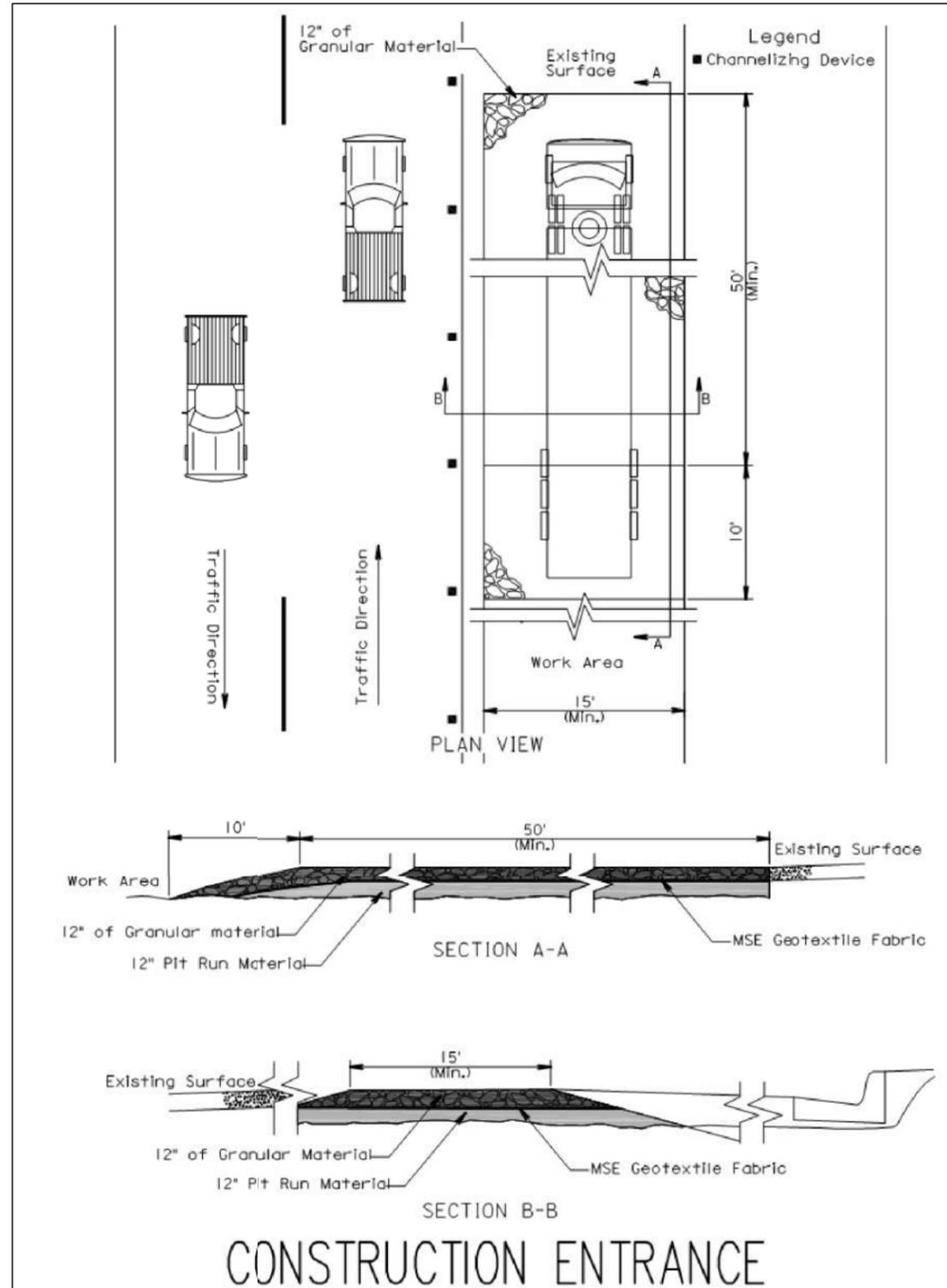


Plot Scale - 1:40

Plotted From - mmasfesa

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 005W (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	D24	D27
FILE: ...*Sheet_Files#D24-D27.dgn PLOTING DATE: 12-02-2014		REV DATE: INITIAL:	

# Standard Details



**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".

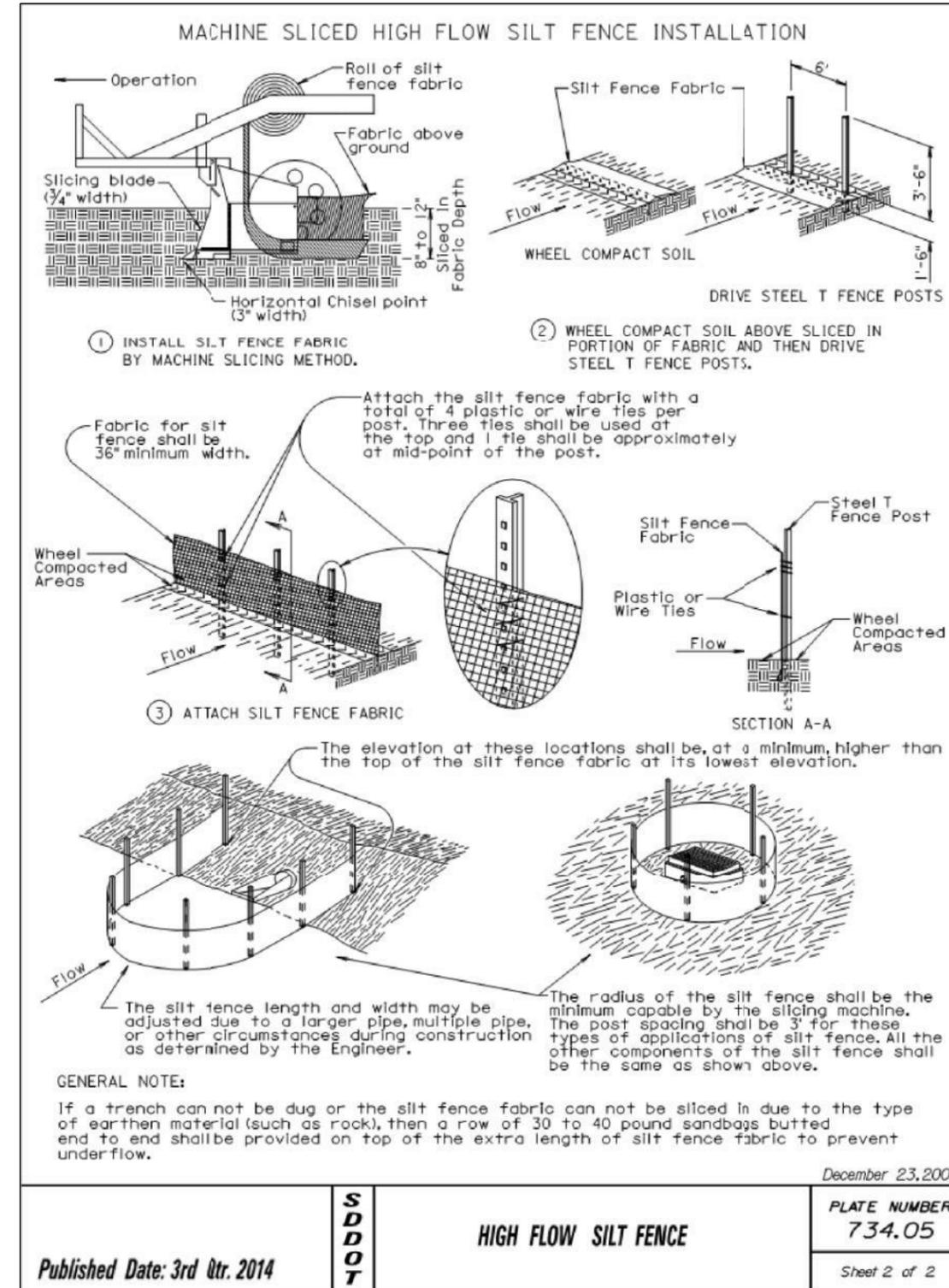
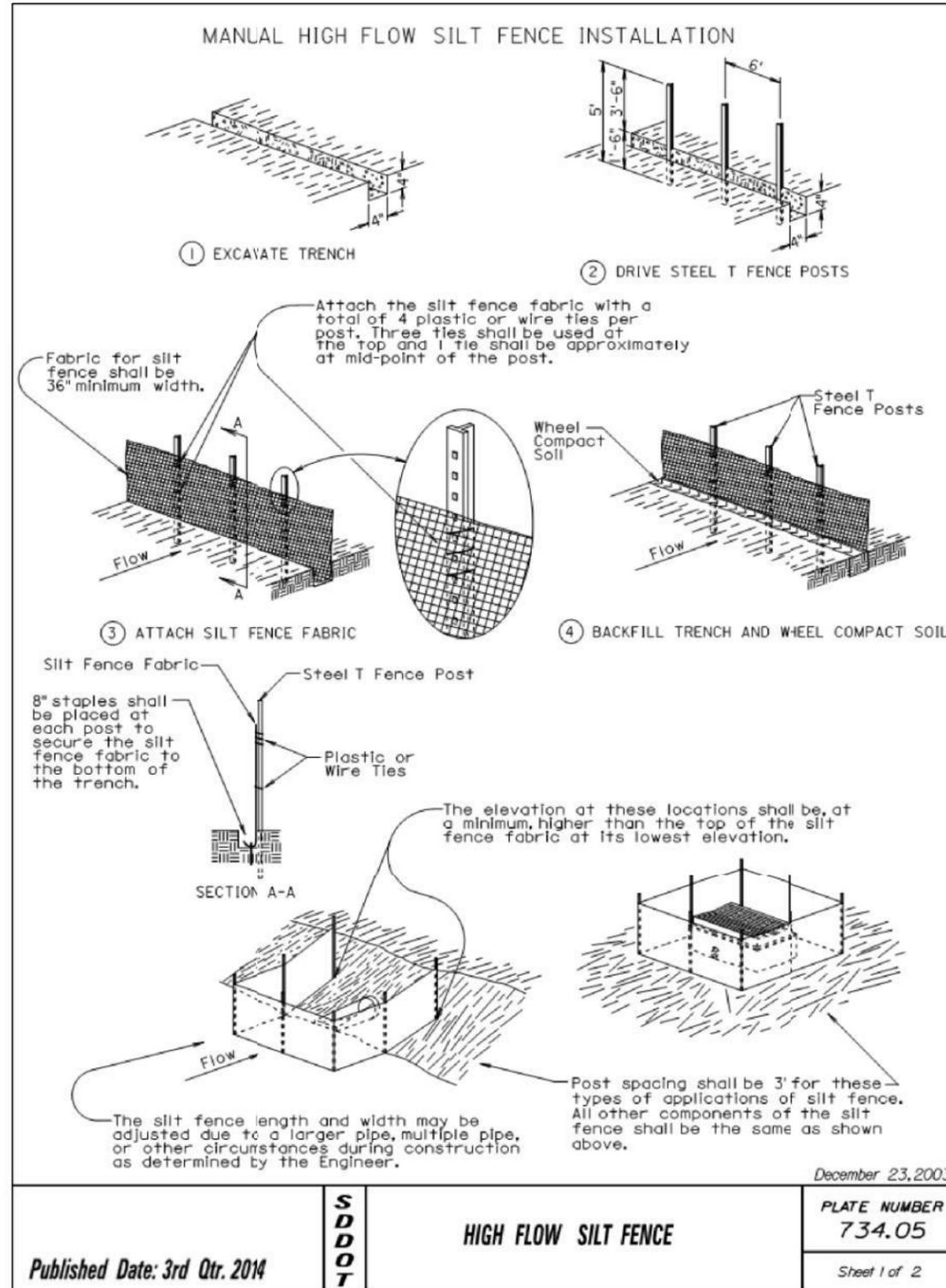
December 23, 2004

Published Date: 3rd Qtr. 2014	S D D O T	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
			Sheet 1 of 1

Plotted From: mmassfesa

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	D25	D27
FILE: ...*Sheet_Files#D24-D27.dgn		REV DATE:	
PLOTING DATE: 12-02-2014		INITIAL:	

# Standard Details



Plotted From: rmmasfesa



# Standard Details

STATE OF SOUTH DAKOTA	PROJECTS	SHEET NO.	TOTAL SHEETS
	P 005W (16) / P 6542 (01) P 6542 (02) / P 6542 (03)	D26	D27
FILE: ...*Sheet_Files#D24-D27.dgn		REV DATE:	
PLOTTING DATE: 12-02-2014		INITIAL:	

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**

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

December 23, 2004

S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
		Sheet 1 of 2

Published Date: 3rd Qtr. 2014

**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

S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
		Sheet 2 of 2

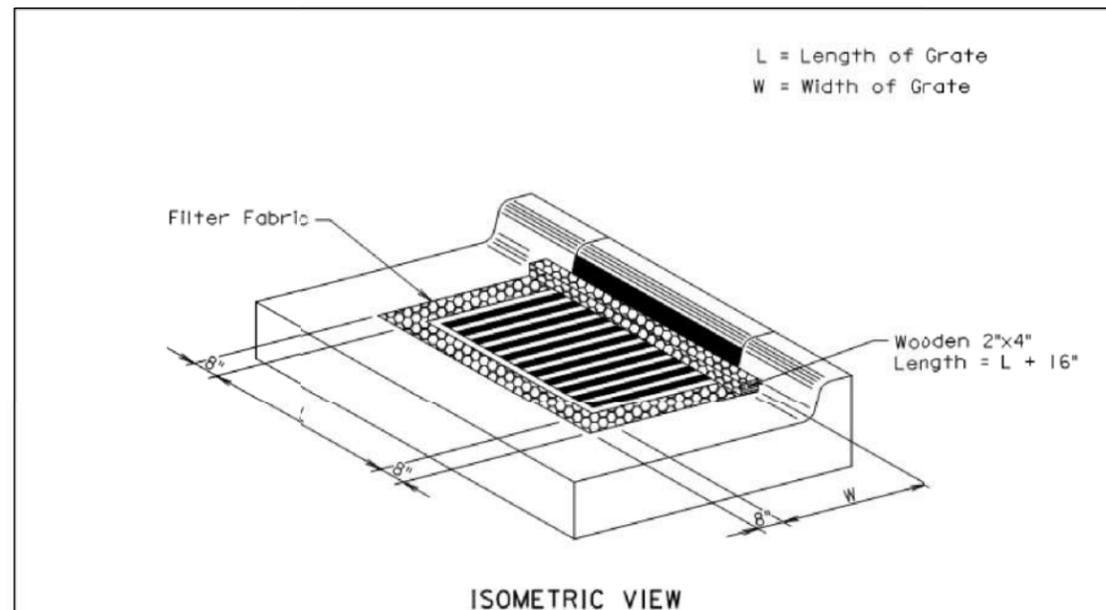
Published Date: 3rd Qtr. 2014

Plotted From: rmmasfesa



STATE OF	PROJECTS		SHEET NO.	TOTAL SHEETS
	SOUTH DAKOTA	P 00SW (16) / P 6542 (01) P 6542 (02) / P 6542 (03)		
FILE: ...*Sheet_Files#D24-D27.dgn			REV DATE:	
PLOTTING DATE: 12-02-2014			INITIAL:	

# Standard Details



**GENERAL NOTES:**

- The grate and curb and gutter shown are for illustrative purposes only.
- The sediment control at inlet with frame and grate shall be placed at locations stated in the plans or at locations determined by the Engineer.
- The filter fabric shall be the type specified in the plans.
- The filter fabric shall be placed in the inlet opening prior to placing the grate. Approximately 18 inches of excess filter fabric shall be wrapped around the 2"x4" and stapled securely to the 2"x4" after the grate has been placed.
- The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing accumulated sediment and replacing torn filter fabric with new filter fabric.
- The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.
- All costs for furnishing, installing, inspecting, maintaining, removing, and replacing the sediment control device at the inlet including labor, equipment, and materials shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

September 14, 2005

Published Date: 3rd Qtr. 2014	S D D O T	SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES	PLATE NUMBER 734.10
			Sheet 1 of 1