

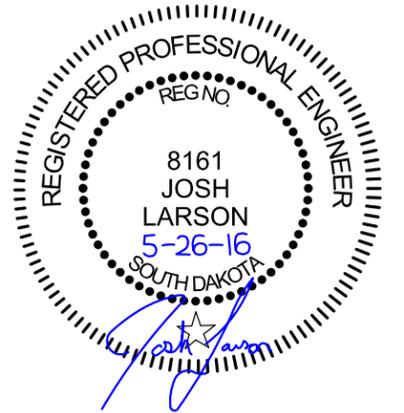
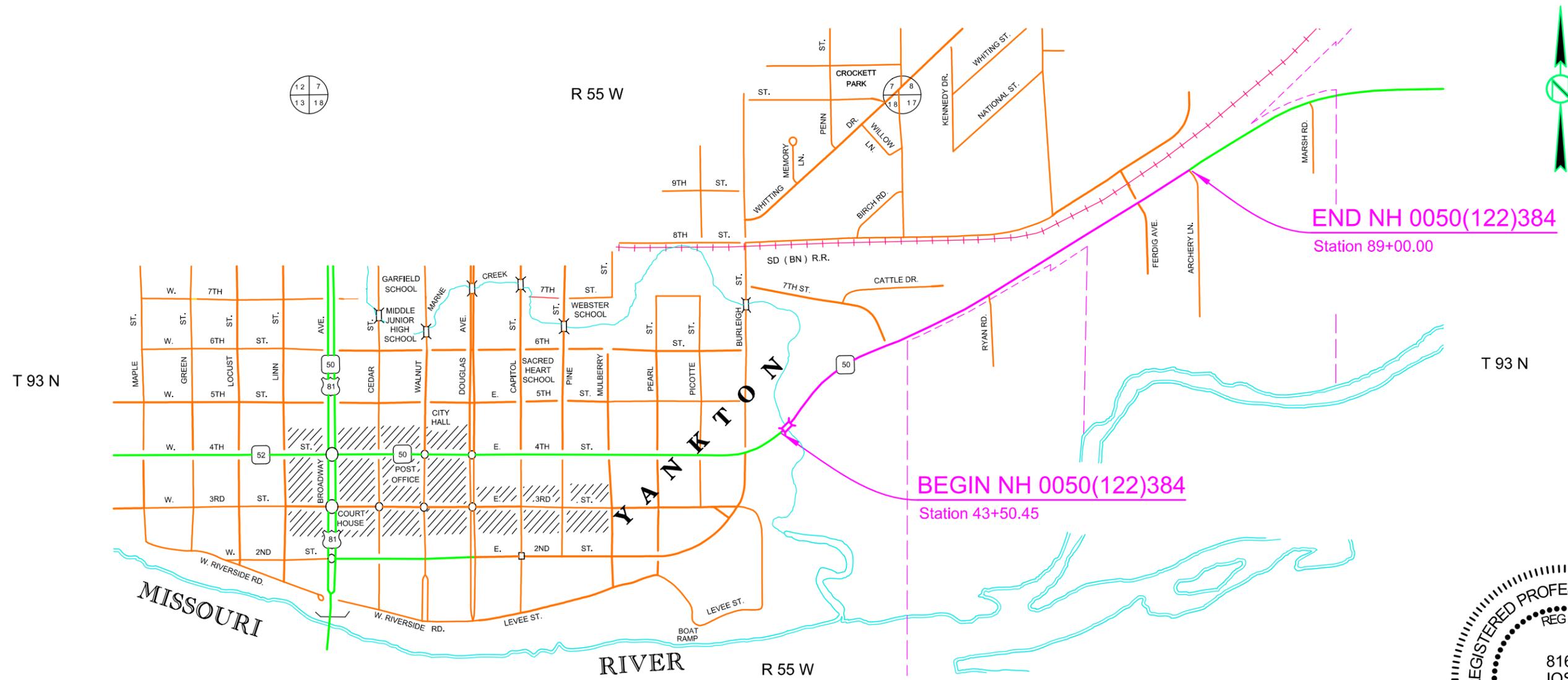
SECTION D: EROSION AND SEDIMENT CONTROL PLANS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0050(122)384	SHEET D1	TOTAL SHEETS D24
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- D10 Symbology / Legend
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SECTION D ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E1690	Remove Sediment	5.0	CuYd
110E1695	Remove Sediment Filter Bag	1,830	Ft
110E1700	Remove Silt Fence	663	Ft
230E0010	Placing Topsoil	1,339	CuYd
730E0206	Type D Permanent Seed Mixture	759	Lb
731E0200	Fertilizing	1.79	Ton
732E0200	Fiber Mulching	2.5	Ton
734E0042	Soil Stabilizer	1,000.0	SqYd
734E0103	Type 3 Erosion Control Blanket	76	SqYd
734E0180	Sediment Filter Bag	1,820	Ft
734E0602	Low Flow Silt Fence	1,252	Ft
734E0604	High Flow Silt Fence	1,397	Ft
734E0610	Mucking Silt Fence	184	CuYd
734E0620	Repair Silt Fence	663	Ft
734E0630	Floating Silt Curtain	240	Ft
734E0680	Flocculent Housing Unit	1	Each
734E0683	500K Gallon Treatment Flocculent Bag	1	Each
734E0845	Sediment Control at Inlet with Frame and Grate	13	Each
734E0847	Sediment Control at Type S Reinforced Concrete Drop Inlet	288	Ft
734E5000	Dewatering	12	Hour
734E5010	Sweeping	12	Hour
900E1310	Concrete Washout Facility	2	Each
900E1320	Construction Entrance	4	Each

PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements.

The estimated amount of topsoil to be placed is 1339 CuYd.

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:

- Glomus intraradices* 25%
- Glomus aggregatu* 25%
- Glomus mosseae* 25%
- Glomus etunicatum* 25%

All seed 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 as shown 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.

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FERTILIZING (CONTINUED)

The application rate is 34 pounds per 1,000 square feet.

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

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

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.

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

FIBER MULCHING

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

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

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 ton for "Fiber Mulching".

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

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



SOIL STABILIZER

An estimated quantity of 1000 square yards of soil stabilizer has been included in the Estimate of Quantities. The soil Stabilizer may be applied on disturbed areas as needed for erosion control during construction, on topsoil stockpiles, and other areas as deemed necessary by the Engineer. These quantities can be adjusted or eliminated by CCO, depending on field conditions

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 square yard for "Soil Stabilizer".

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

<u>Product</u>	<u>Manufacturer</u>
StarTak 600 applied at a rate of 150 Lb/Acre	Chemstar Products Company 3915 Hiawatha Avenue Minneapolis, MN Phone: 800-328-5037 www.chemstar.com
Pam-12 Plus applied at a rate of: Slope None to 4:1 1000 Lb/Acre 4:1 to 3:1 1000 to 2000 Lb/Acre 3:1 to 2:1 2000 to 3000 Lb/Acre	ENCAP, LLC Green Bay, WI Phone: 877-405-5050 http://professional.encap.net/
M-Binder applied at a rate of 150 Lb/Acre	Ecology Controls P.O. Box 1275 Carpinteria, CA Phone: 805-684-0436 www.ssseeds.com
R-Tack applied at a rate of 150 Lb/Acre	Rantec Corporation P.O. Box 729 Ranchester, WY Phone: 307-655-9565 www.ranteccorp.com
Super Tack applied at a rate of 60 Lb/Acre	Rantec Corporation P.O. Box 729 Ranchester, WY Phone: 307-655-9565 www.ranteccorp.com



LOW FLOW SILT FENCE

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.

TABLE OF LOW FLOW SILT FENCE

Station	L/R	Location	Quantity (Ft)
43+87 to 44+20	L	Along Creek Bank	36
45+06 to 45+23	L	Along Creek Bank	37
74+19 to 74+85	R	Along Grading Limits	67
75+19 to 77+34	R	Along Grading Limits	226
77+71 to 79+02	R	Along Grading Limits	142
79+38 to 82+58	R	Along Grading Limits	420
82+83 to 83+79	R	Just Inside Easement	142
84+91 to 85+38	R	Just Inside ROW	47
87+77 to 88+40	R	Just Inside Easement	66
88+91 to 89+16	L	Across Ditch	42
88+05 to 88+06	R	Across Ditch	27
Total:			1252

HIGH FLOW SILT FENCE

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.

TABLE OF HIGH FLOW SILT FENCE

Station	L/R	Location	Quantity (Ft)
85+09	R	Inlet End of Pipe	18
88+05	R	Inlet End of Pipe	18
Silt Fence as Interim Sediment Control			1361
Total:			1397

FLOATING SILT CURTAIN

Floating silt curtains shall be installed at locations noted in the table and at locations determined by the Engineer during construction.

The Contractor shall determine the water depth and other waterway characteristics such as stream flow velocity and seek technical advice from the manufacturer before ordering the floating silt curtain so that the floating silt curtain installed is the correct type for the individual sites.

The Contractor shall install the floating silt curtain according to the manufacturer's installation instructions or as directed by the Engineer.

The Contractor shall maintain the floating silt curtains for the duration of the project to ensure continuous protection of the waterway.

A list of known manufacturers of floating silt curtain is shown below for informational purpose. Contractors may also use Engineer approved floating silt curtain from manufacturers that are not included in the list.

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ABASCO, LLC
Houston, TX
Phone: 1-800-242-7745
www.abasco.net

American Boom and Barrier Corp.
Cape Canaveral, FL
Phone: 1-800-843-2110
www.abbcoboom.com

Elastec/American Marine, Inc.
Carmi, IL
Phone: 1-618-382-2525
www.turbiditycurtains.com

Parker Systems, Inc.
Chesapeake, VA
Phone: 1-866-472-7537
www.parkersystemsinc.com

Aer-Flo, Inc.
Bradenton, FL
Phone: 1-800-823-7356
www.aerflo.com

ENVIRO-USA, LLC
Cocoa, FL
Phone: 1-321-222-9551
www.enviro-usa.com

Geo-Synthetics, LLC (GSI)
Waukesha, WI
Phone: 1-800-444-5523
www.geosynthetics.com

TABLE OF FLOATING SILT CURTAIN

Station	L/R	Location	Quantity (Ft)
44+50	L&R	Along Shoreline	120
44+60	L&R	Along Shoreline	120
Total:			240

EROSION CONTROL BLANKET

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

TABLE OF EROSION CONTROL BLANKET

Station to	Station	L/R	Location	Type	Quantity (SY)
45+15	45+55	L	Creek Bank	3	76
Total Type 3 Erosion Control Blanket:					76

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.

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 www.sacbag.com

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".

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

Station	L/R	High Flow Silt Fence Quantity (Ft)	Sediment Filter Bag Quantity (Ft)
45+69.9 - 26.80'	L	34	45
45+85.3 - 27.37'	R	28	37
47+50.0 - 34.13'	R	42	56
49+20.2 - 34.13'	R	42	56
50+44.9 - 34.13'	R	42	56
50+45.2 - 31.67'	L	22	29
51+68.0 - 34.13'	R	42	56
53+00.0 - 34.13'	R	42	56
58+70.0 - 34.13'	L	42	56
58+84.5 - 34.13'	R	42	56
61+94.0 - 34.13'	L	42	56
61+94.0 - 34.13'	R	42	56
65+26.4 - 34.13'	L	42	56
65+26.4 - 34.13'	R	42	56
68+10.0 - 34.13'	L	42	56
68+10.0 - 34.13'	R	42	56
69+67.0 - 31.67'	L	22	29
69+67.0 - 31.67'	R	26	34
71+22.0 - 34.13'	L	42	56
71+22.0 - 35.63'	R	48	64
72+57.0 - 31.67'	L	22	29
72+57.0 - 31.67'	R	29	39
73+97.0 - 34.13'	L	42	56
74+21.5 - 35.63'	R	48	64
77+05.2 - 35.63'	R	48	64
79+80.0 - 34.13'	L	42	56
79+80.0 - 34.13'	R	42	56
81+91.3 - 34.13'	L	42	56
82+26.5 - 34.13'	R	42	56
82+52.3 - 58.67'	L	26	34
82+75.4 - 33.13'	L	32	42
82+75.4 - 69.64'	L	28	37
83+39.1 - 70.08'	L	22	29
83+92.0 - 31.67'	L	22	29
86+05.0 - 34.13'	L	42	56
87+50.0 - 31.67'	L	22	29
88+55.0 - 34.13'	L	42	56
Totals:		1361	1810

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TABLE OF SEDIMENT FILTER BAGS

Station	Length (Ft)
46+42.9 - 85.58' R	5
46+72.2 - 84.70' R	5
Sediment Filter Bags as Interim Sediment Control	1810
Total:	1820

SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

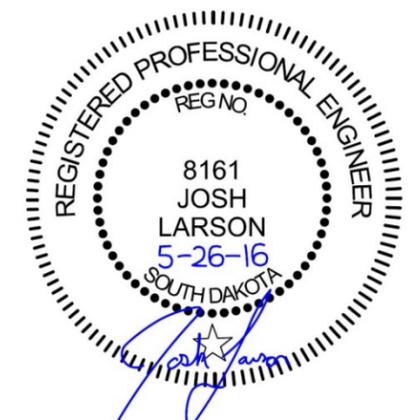
This type of sediment control device should be used where there is pavement in the vicinity of the drop inlets and storm water or sediment could possibly enter the frame and grate. Sediment Control at Inlets with Frame and Grates shall be installed prior to working in the vicinity of the drop inlets.

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 Inlets with Frames and Grates" 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 Inlets with Frames and Grates shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

Sediment collection devices shall be:

A commercial made sediment collection device from the "Sediment Control at Inlet with Frame and Grate" list or an approved equal. The device shall be installed in reinforced concrete drop inlets according to the manufacturer's recommendations.



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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 www.royalenterprises.net
Dandy Curb Sack	Dandy Products Inc. Dublin, OH Phone: 1-800-591-2284 www.dandyproducts.com
Silt Trapper	Storm Water Solutions Lakeville, MN Phone: 1-952-461-4376 www.silstrapper.com
Sediment Control at Inlet with Frame and Grate Approved List (Continued):	
DIP Basket	Skyview Construction Co., LLC Waubay, SD Phone: 1-605-520-0555 www.skyviewconst.com
FLEXSTORM Inlet Filters	Inlet and Pipe Protection, Inc. Naperville, IL Phone: 1-866-287-8655 www.inletfilters.com
GR-8 Guard or Combo Guard	ERTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com
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 www.strawblanket.com
BX Inlet Sediment Boxes	BX Civil and Construction Dell Rapids, SD Phone: 1-605-428-5483 bx-cc.com

TABLE OF SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

Station	L/R	Quantity (Each)
45+69.9	L	1
45+85.3	R	1
50+45.2	L	1
56+30.0	L	1
69+67.0	L	1
69+67.0	R	1
72+57.0	L	1
72+57.0	R	1
82+52.3	L	1
82+75.4	L	1
83+39.1	L	1
83+92.0	L	1
87+50.0	L	1
Total:		13

SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS

The sediment control device provided shall be from the list shown below. Refer to Standard Plate 734.11 for details.

Product	Manufacturer
Dandy Curb	Dandy Products Inc. Dublin, OH Phone: 1-800-591-2284 www.dandyproducts.com
Gutterbuddy	ACF Environmental Richmond, VA Phone: 1-800-448-3636 www.acfenvironmental.com
SS-300	Silt-Saver, Inc. Conyers, GA Phone: 1-888-382-7458 www.siltsaver.com
Curb Inlet Guard	ECTEC Environmental Systems LLC Alameda, CA Phone: 1-866-521-0724 www.ertecsystems.com

TABLE OF SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS

Station	L/R	Clear Opening Width (Ft)	Quantity* (Ft)
47+50.0	R	10	12
49+20.2	R	10	12
50+44.9	R	10	12
51+68.0	R	10	12
53+00.0	R	10	12
58+70.0	L	10	12
58+84.5	R	10	12
61+94.0	L	10	12
61+94.0	R	10	12
65+26.4	L	10	12
65+26.4	R	10	12
68+10.0	L	10	12
68+10.0	R	10	12
71+22.0	L	10	12
71+22.0	R	10	12
73+97.0	L	10	12
74+21.5	R	10	12
77+05.2	R	10	12
79+80.0	L	10	12
79+80.0	R	10	12
81+91.3	L	10	12
82+26.5	R	10	12
86+05.0	L	10	12
88+55.0	L	10	12
Total:			288

* Quantity shown is the minimum length required and shall be the basis of payment.

DEWATERING AND SEDIMENT COLLECTING

The Contactor has the option to treat sediment laden water trapped within the project limits with the DEWATERING AND SEDIMENT COLLECTION SYSTEM as shown on the attached detailed sheet, or the Contractor may elect to transport sediment laden water off the project.

If the Contractor elects to transport sediment laden water off the project, no additional payment for loading, transporting, and labor costs will be made. Water transported off the project limits shall not be disposed of in an area where it can enter a waterway. The disposal site must be approved by the Engineer.



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.
2. Following pavement grooving operations and prior to the application of the pavement marking tape.
3. When sawing operations are underway in the inside driving lanes, the outside driving lanes and gutter may need to be swept to control dust.

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

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:

<u>Product</u>	<u>Manufacturer</u>
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

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:

<u>Sieve Size</u>	<u>Percent Passing</u>
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:

<u>Sieve Size</u>	<u>Percent Passing</u>
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.

CONCRETE WASHOUT FACILITY

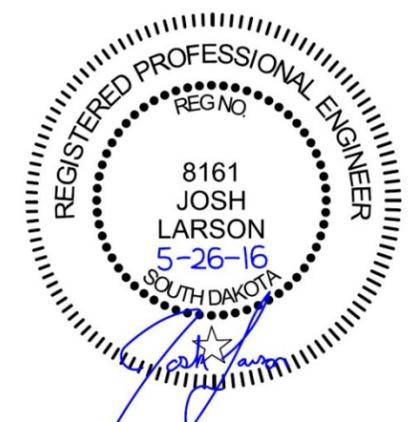
The Contractor shall install Concrete Washout Facilities as necessary for capture of all wasted concrete and washout water dumped at the construction site. Locations of Concrete Washout Facilities shall be coordinated with and approved by the Engineer during construction.

All costs for furnishing, installing, and maintaining the washout facility, as well as removal of concrete and washout facility shall be incidental to the contract unit price per each for "Concrete Washout Facility".

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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** 10.06 Acres **(4.2 1.b.)**
- **Total Area To Be Disturbed** 10.06 Acres **(4.2 1.b.)**
- **Existing Vegetative Cover (%)** 25
- **Soil Properties:** AASHTO Soil Classification A-3, A-4, A-6, and A-7 **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Marne 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 where runoff sheets from the site.**
- **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 and sealing of concrete.**
- **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.

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❖ **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)**

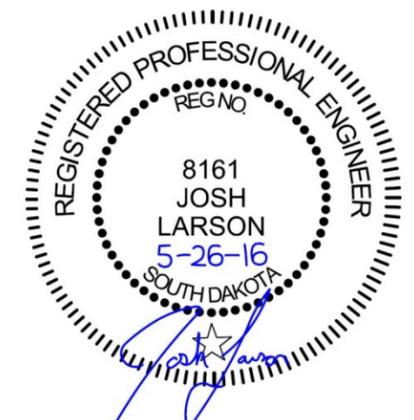
The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- 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:



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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**

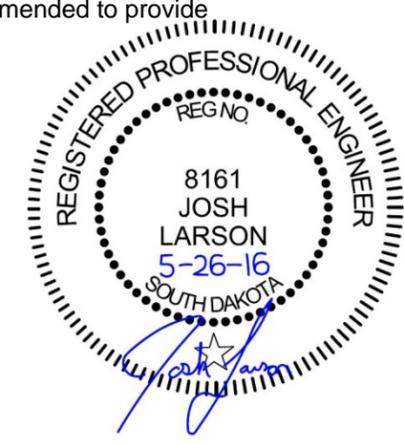
In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- 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.



EROSION AND SEDIMENT CONTROL LEGEND

SYMBOLOLOGY FOR BEST MANAGEMENT PRACTICES

-  STORM WATER DISCHARGE POINT
-  LOW FLOW SILT FENCE
-  HIGH FLOW SILT FENCE
-  SILT TRAP
-  SEDIMENT CONTROL AT INLET WHEN SURFACING IS IN PLACE
-  TEMPORARY SEDIMENT BARRIER
-  TEMPORARY WATER BARRIER
-  FLOATING SILT CURTAIN
-  SEDIMENT FILTER BAGS
-  TRIANGULAR SILT BARRIERS
-  EROSION CONTROL WATTLES
-  EROSION BALES
-  SURFACE ROUGHENING
-  SOIL STABILIZER / TEMPORARY MULCH / DUST CONTROL
-  CUT INTERCEPTOR DITCH
-  TEMPORARY SLOPE DRAIN
-  SEDIMENT CONTROL AT INLET BEFORE 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
-  SYNTHETIC CHANNEL PROTECTION
-  TOPSOIL STOCKPILES
-  BORROW AREAS
-  STABILIZED CONSTRUCTION ENTRANCES
-  CONCRETE WASHOUTS
-  VEGETATED BUFFER STRIPS
-  ASPHALT PLANT SITE
-  CONCRETE PLANT SITE
-  ON-SITE CONSTRUCTION MATERIAL STORAGE AREAS
-  SPILL KIT
-  WORK PLATFORM
-  PORTABLE TOILET
-  VEHICLE AND EQUIPMENT PARKING, FUELING, AND MAINTENANCE AREAS
-  DUMPSTER OR OTHER TRASH AND DEBRIS CONTAINERS

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BEST MANAGEMENT PRACTICES

BEST MANAGEMENT PRACTICES (BMP'S) SHOULD BE USED THROUGHOUT CONSTRUCTION. TO REMIND CONTRACTORS AND FIELD PERSONNEL THAT BMP'S FOR WATER QUALITY SHOULD BE UTILIZED THROUGHOUT THE CONSTRUCTION PROCESS, THE SYMBOLOLOGY IS COLORED AS FOLLOWS:

RED BMPS ARE TO BE INSTALLED BEFORE EARTH MOVING ACTIVITIES COMMENCE. RED BMPS ARE USED FOR PERIMETER CONTROL. THEY PREVENT SEDIMENT FROM LEAVING THE SITE OR ENTERING FROM ANOTHER SITE. THEY MAY ALSO DETER WATER AWAY FROM OR AROUND THE SITE. THEY MAY BE LEFT IN PLACE AND MAINTAINED FOR THE REMAINDER OF CONSTRUCTION OR UNTIL VEGETATION HAS REACHED 70% OF THE BACKGROUND LEVEL.

BLUE BMPS ARE TO BE INSTALLED DURING CONSTRUCTION. BLUE BMPS ARE USED FOR TEMPORARY STABILIZATION. THEY PREVENT EROSION DURING CONSTRUCTION. THEY MAY ALSO BE SEDIMENT CONTROLS UTILIZED AFTER DRAIN PIPES AND STORM SEWERS ARE IN PLACE. THEY MAY BE LEFT IN PLACE AND MAINTAINED FOR THE REMAINDER OF CONSTRUCTION OR UNTIL VEGETATION HAS REACHED 70% OF THE BACKGROUND LEVEL. SOME YELLOW BMPS WILL BE REMOVED OR REPLACED DURING CONSTRUCTION.

GREEN BMPS ARE TO BE INSTALLED WHEN GRADING IS COMPLETE. GREEN BMPS ARE USED FOR FINAL STABILIZATION. THEY ARE PERMANENT EROSION CONTROL MEASURES THAT ARE NOT REMOVED.

IF THE CONTRACTOR OR ENGINEER DECIDE TO USE ADDITIONAL BEST MANAGEMENT PRACTICES OR LABEL THE LOCATIONS OF THEM THEY SHOULD USE THE SYMBOLOLOGY SHOWN. OTHER BEST MANAGEMENT PRACTICES FOR WHICH THERE IS NO SYMBOLOLOGY INCLUDE:

PERMANENT SEEDING IS DONE BEFORE THE APPLICATION OF ALL TYPES OF MULCHING AND HYDRAULICALLY APPLIED SOIL MULCHES AND MATRIXS. PERMANENT GRASS HAY/ STRAW MULCH IS NOT SHOWN ON PLAN SHEETS, BUT IT CAN BE ASSUMED THAT ALL AREAS THAT ARE NOT ROADWAYS ON RURAL PROJECTS WILL BE SEEDED THEN MULCHED. AREAS WHERE AN ALTERNATE TO GRASS HAY /STRAW MULCH IS USED WILL BE SHOWN WITH THE APPROPRIATE SYMBOLOLOGY.

SEDIMENT BASINS UTILIZED DURING CONSTRUCTION WILL BE SHOWN ON PLAN SHEETS AND IN SECTION X.

GEOTEXTILE FABRIC USUALLY SUPPLEMENTS OTHER BMPS, BUT IT MAY BE USED TO TEMPORARILY COVER AREAS FOR EROSION PROTECTION UNTIL IT IS PERMANENTLY INSTALLED.

STREET SWEEPING SHOULD BE DONE AS NEEDED TO KEEP SEDIMENT ON ROADWAYS FROM LEAVING THE SITE.

DEWATERING AND SEDIMENT COLLECTING IS SHOWN ON A DETAIL SHEET WHEN IT IS NEEDED. DEWATERING WITHOUT SEDIMENT COLLECTING DOES NOT HAVE A DETAIL, JUST A DETAILED NOTE. SEDIMENT LADEN WATER SHOULD NEVER BE PUMPED OFF THE SITE.

GABIONS AND RIP RAP AT PIPE AND CULVERT OUTLETS ARE DETAILED IN SECTION B.

PROJECT PHASING

PROJECT PHASING MAY BE ONE OF THE MOST IMPORTANT BMPS. DURING PHASING REMEMBER THE FOLLOWING:

ALWAYS INSTALL PERIMETER CONTROLS BEFORE BEGINNING EARTH MOVING ACTIVITIES.

DO NOT DISTURB MORE AREA THAN WHAT IS NEEDED TO COMPLETE EACH PHASE OF CONSTRUCTION.

IF POSSIBLE CONSTRUCT SEDIMENT BASINS AND STABILIZE THEM BEFORE BEGINNING ROADWAY GRADING.

TEMPORARILY STABILIZE AREAS THAT WILL NOT BE TOUCHED WITHIN 14 DAYS.

PERMANENTLY STABILIZE AREAS WHEN GRADING IN THAT AREA IS COMPLETE. PERMANENT STABILIZATION CAN BE COMPLETED IN PHASES AND DOES NOT HAVE TO WAIT UNTIL THE WHOLE ROADWAY HAS BEEN CONSTRUCTED.

CONTINUALLY MAINTAIN ALL SEDIMENT CONTROLS AND MONITOR AREAS WHERE EROSION CONTROL HAS BEEN INSTALLED.

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PERIMETER CONTROL

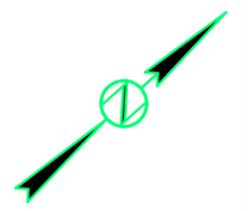
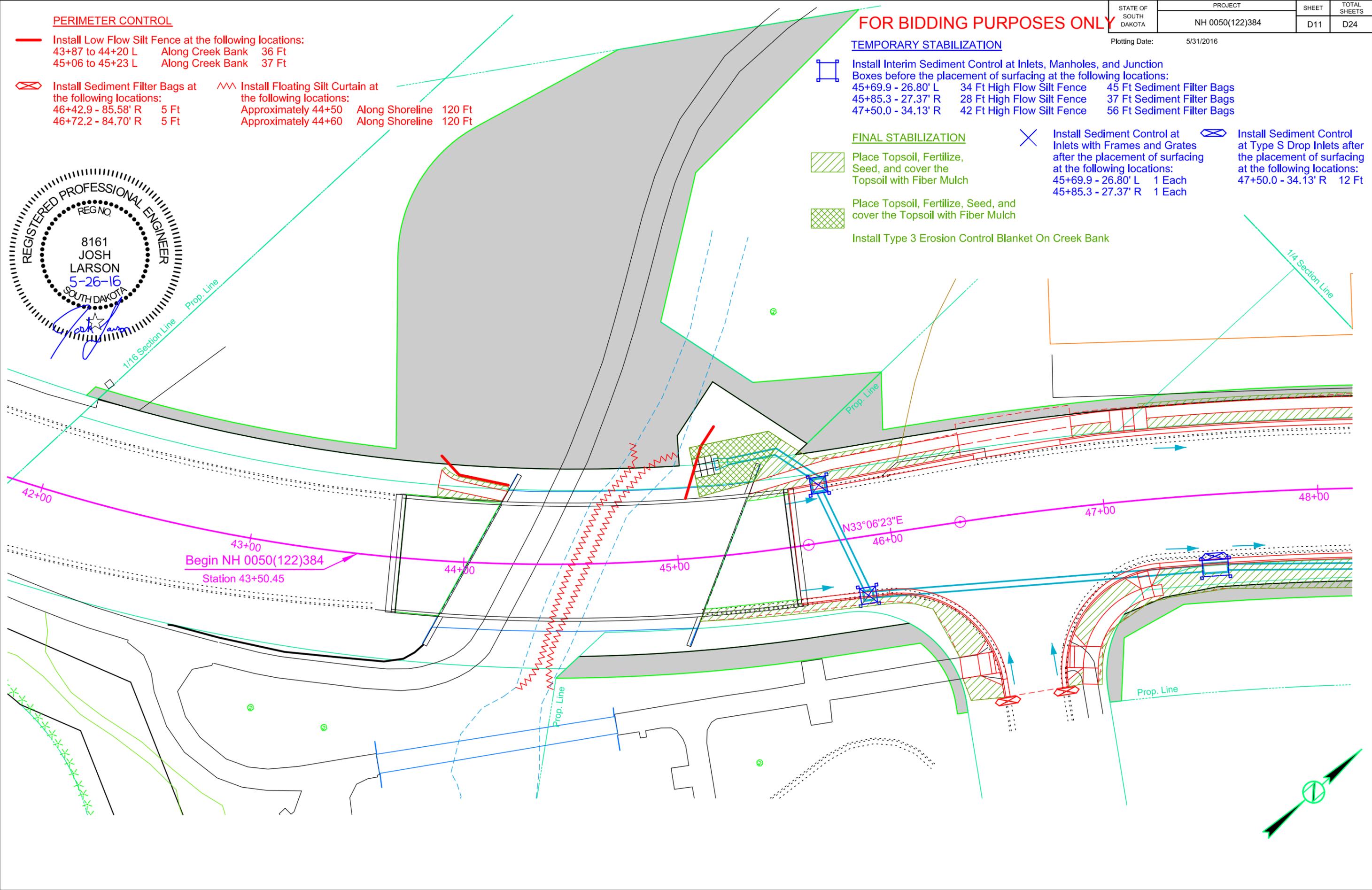
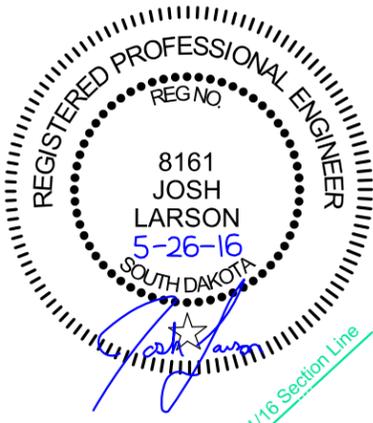
- Install Low Flow Silt Fence at the following locations:
 43+87 to 44+20 L Along Creek Bank 36 Ft
 45+06 to 45+23 L Along Creek Bank 37 Ft
- ⊠ Install Sediment Filter Bags at the following locations:
 46+42.9 - 85.58' R 5 Ft
 46+72.2 - 84.70' R 5 Ft
- ∩∩∩ Install Floating Silt Curtain at the following locations:
 Approximately 44+50 Along Shoreline 120 Ft
 Approximately 44+60 Along Shoreline 120 Ft

TEMPORARY STABILIZATION

- ⊠ Install Interim Sediment Control at Inlets, Manholes, and Junction Boxes before the placement of surfacing at the following locations:
 45+69.9 - 26.80' L 34 Ft High Flow Silt Fence 45 Ft Sediment Filter Bags
 45+85.3 - 27.37' R 28 Ft High Flow Silt Fence 37 Ft Sediment Filter Bags
 47+50.0 - 34.13' R 42 Ft High Flow Silt Fence 56 Ft Sediment Filter Bags

FINAL STABILIZATION

- ▨ Place Topsoil, Fertilize, Seed, and cover the Topsoil with Fiber Mulch
- ▩ Place Topsoil, Fertilize, Seed, and cover the Topsoil with Fiber Mulch
- ✕ Install Sediment Control at Inlets with Frames and Grates after the placement of surfacing at the following locations:
 45+69.9 - 26.80' L 1 Each
 45+85.3 - 27.37' R 1 Each
- ⊠ Install Sediment Control at Type S Drop Inlets after the placement of surfacing at the following locations:
 47+50.0 - 34.13' R 12 Ft
- ▨ Install Type 3 Erosion Control Blanket On Creek Bank



TEMPORARY STABILIZATION



Install Interim Sediment Control at Inlets, Manholes, and Junction Boxes before the placement of surfacing at the following locations:

49+20.2 - 34.13' R	42 Ft High Flow Silt Fence	56 Ft Sediment Filter Bags
50+44.9 - 34.13' R	42 Ft High Flow Silt Fence	56 Ft Sediment Filter Bags
50+45.2 - 31.67' L	22 Ft High Flow Silt Fence	29 Ft Sediment Filter Bags
51+68.0 - 34.13' R	42 Ft High Flow Silt Fence	56 Ft Sediment Filter Bags
53+00.0 - 34.13' R	42 Ft High Flow Silt Fence	56 Ft Sediment Filter Bags



Install Sediment Control at Inlets with Frames and Grates after the placement of surfacing at the following locations:

50+45.2 - 31.67' L	1 Each
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Install Sediment Control at Type S Drop Inlets after the placement of surfacing at the following locations:

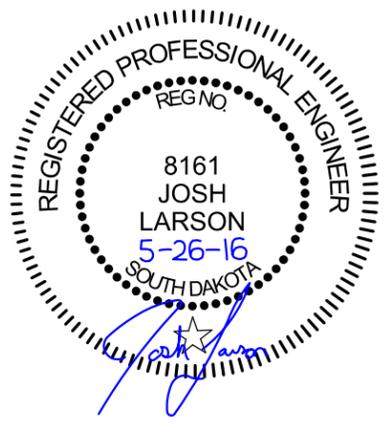
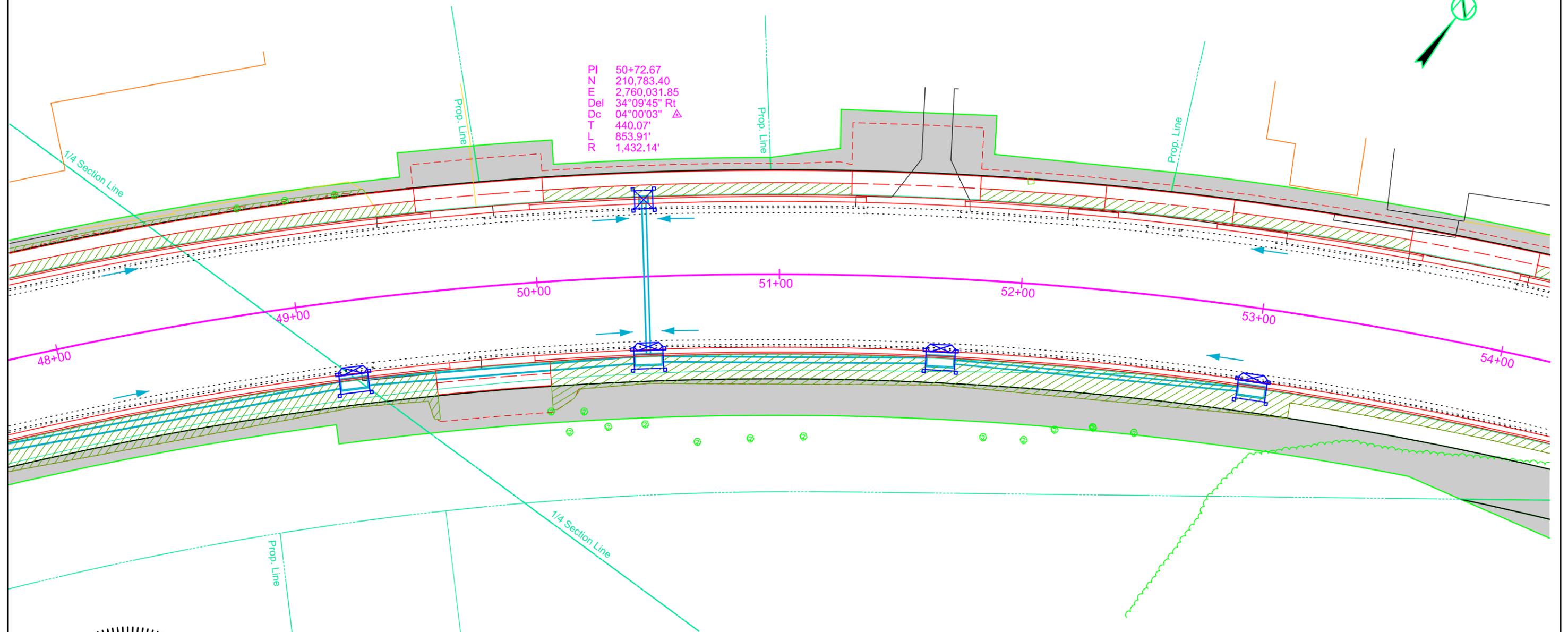
49+20.2 - 34.13' R	12 Ft
50+44.9 - 34.13' R	12 Ft
51+68.0 - 34.13' R	12 Ft
53+00.0 - 34.13' R	12 Ft

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FINAL STABILIZATION
Place Topsoil, Fertilize, Seed, and cover the Topsoil with Fiber Mulch

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PERIMETER CONTROL

Install Sediment Filter Bags at the following locations:
56+75.6 - 117.03' L 5 Ft

FINAL STABILIZATION

Place Topsoil, Fertilize, Seed, and cover the Topsoil with Fiber Mulch

TEMPORARY STABILIZATION FOR BIDDING PURPOSES ONLY

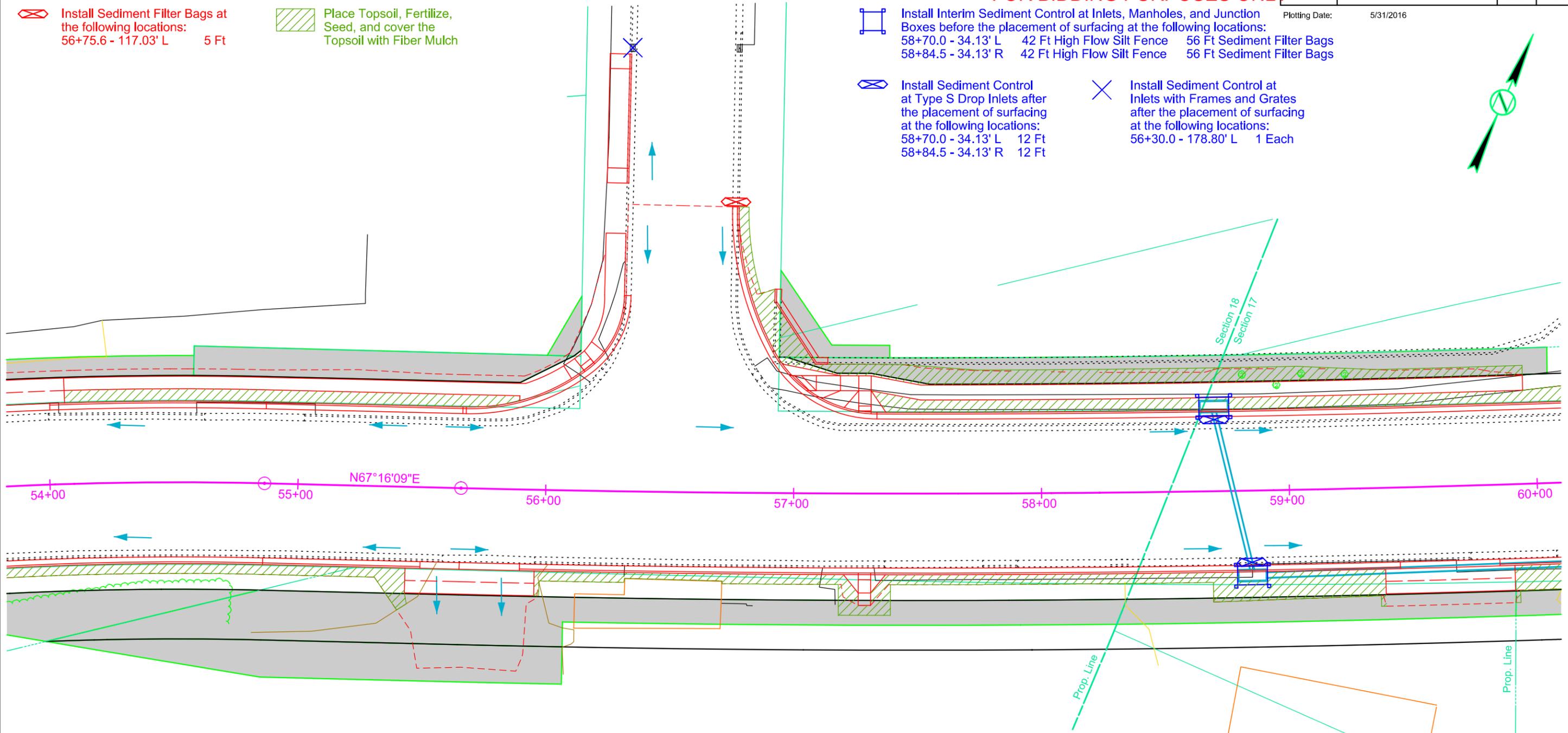
Install Interim Sediment Control at Inlets, Manholes, and Junction Boxes before the placement of surfacing at the following locations:
58+70.0 - 34.13' L 42 Ft High Flow Silt Fence 56 Ft Sediment Filter Bags
58+84.5 - 34.13' R 42 Ft High Flow Silt Fence 56 Ft Sediment Filter Bags

Install Sediment Control at Type S Drop Inlets after the placement of surfacing at the following locations:
58+70.0 - 34.13' L 12 Ft
58+84.5 - 34.13' R 12 Ft

Install Sediment Control at Inlets with Frames and Grates after the placement of surfacing at the following locations:
56+30.0 - 178.80' L 1 Each

STATE OF SOUTH DAKOTA	PROJECT NH 0050(122)384	SHEET D13	TOTAL SHEETS D24
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Plotting Date: 5/31/2016



TEMPORARY STABILIZATION



Install Interim Sediment Control at Inlets, Manholes, and Junction Boxes before the placement of surfacing at the following locations:
 61+94.0 - 34.13' L 42 Ft High Flow Silt Fence 56 Ft Sediment Filter Bags
 61+94.0 - 34.13' R 42 Ft High Flow Silt Fence 56 Ft Sediment Filter Bags
 65+26.4 - 34.13' L 42 Ft High Flow Silt Fence 56 Ft Sediment Filter Bags
 65+26.4 - 34.13' R 42 Ft High Flow Silt Fence 56 Ft Sediment Filter Bags



Install Sediment Control at Type S Drop Inlets after the placement of surfacing at the following locations:
 61+94.0 - 34.13' L 12 Ft
 61+94.0 - 34.13' R 12 Ft
 65+26.4 - 34.13' L 12 Ft
 65+26.4 - 34.13' R 12 Ft

FINAL STABILIZATION

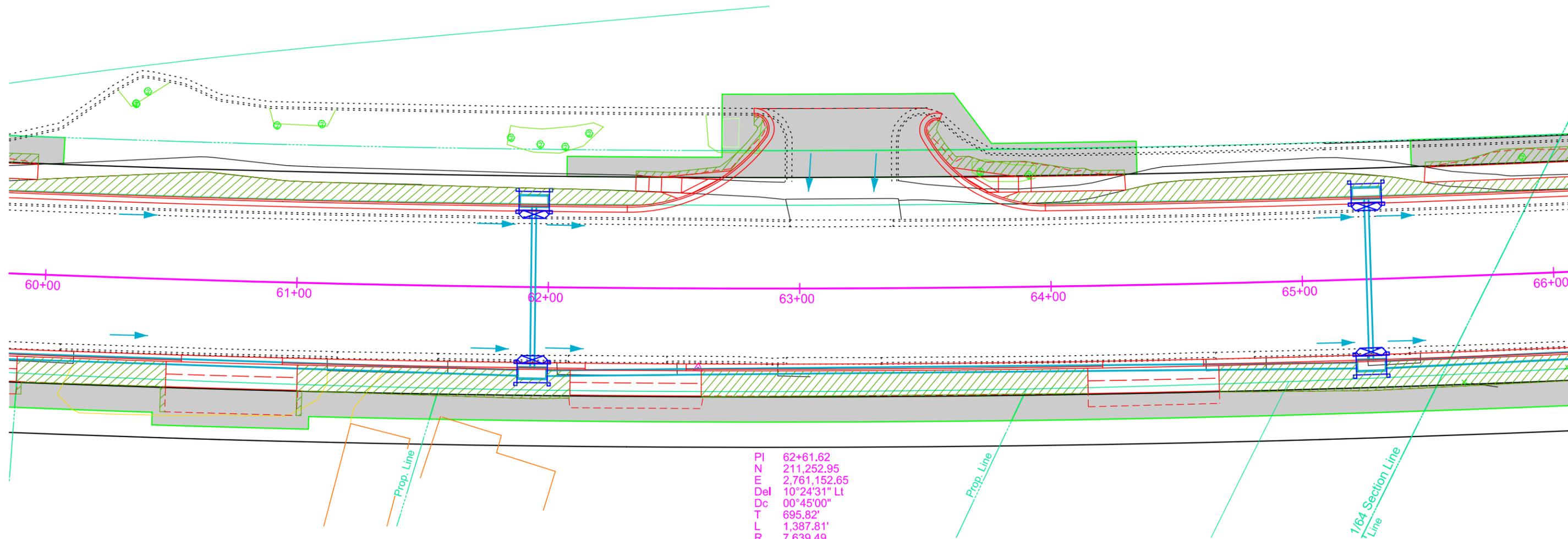
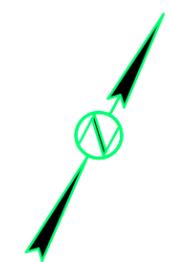


Place Topsoil, Fertilize, Seed, and cover the Topsoil with Fiber Mulch

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	D14	D24

Plotting Date: 5/31/2016



TEMPORARY STABILIZATION

FINAL STABILIZATION

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	D15	D24

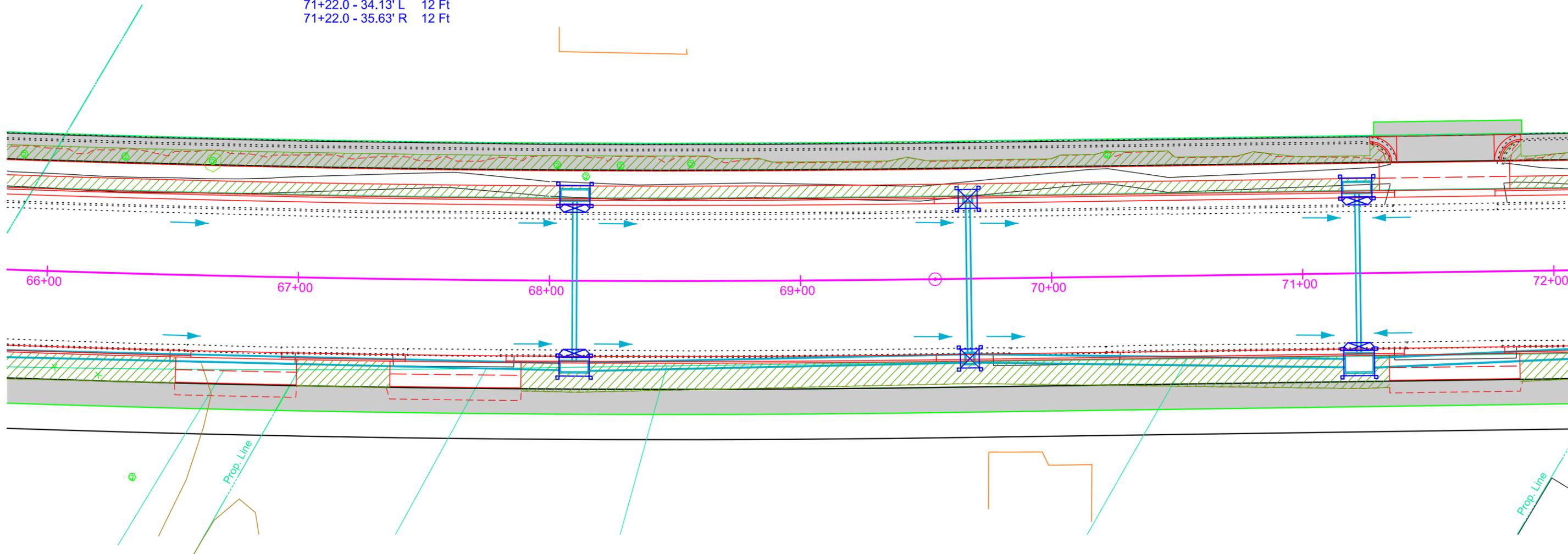
Plotting Date: 5/31/2016

- Install Interim Sediment Control at Inlets, Manholes, and Junction Boxes before the placement of surfacing at the following locations:
- | | | |
|--------------------|----------------------------|----------------------------|
| 68+10.0 - 34.13' L | 42 Ft High Flow Silt Fence | 56 Ft Sediment Filter Bags |
| 68+10.0 - 34.13' R | 42 Ft High Flow Silt Fence | 56 Ft Sediment Filter Bags |
| 69+67.0 - 31.67' L | 22 Ft High Flow Silt Fence | 29 Ft Sediment Filter Bags |
| 69+67.0 - 31.67' R | 26 Ft High Flow Silt Fence | 34 Ft Sediment Filter Bags |
| 71+22.0 - 34.13' L | 42 Ft High Flow Silt Fence | 56 Ft Sediment Filter Bags |
| 71+22.0 - 35.63' R | 48 Ft High Flow Silt Fence | 64 Ft Sediment Filter Bags |

Place Topsoil, Fertilize, Seed, and cover the Topsoil with Fiber Mulch

- Install Sediment Control at Inlets with Frames and Grates after the placement of surfacing at the following locations:
- | | |
|--------------------|--------|
| 69+67.0 - 31.67' L | 1 Each |
| 69+67.0 - 31.67' R | 1 Each |

- Install Sediment Control at Type S Drop Inlets after the placement of surfacing at the following locations:
- | | |
|--------------------|-------|
| 68+10.0 - 34.13' L | 12 Ft |
| 68+10.0 - 34.13' R | 12 Ft |
| 71+22.0 - 34.13' L | 12 Ft |
| 71+22.0 - 35.63' R | 12 Ft |



PERIMETER CONTROL

Install Low Flow Silt Fence at the following locations:
 74+19 to 74+85 R Along Grading Limits 67 Ft
 75+19 to 77+34 R Along Grading Limits 226 Ft
 77+71 to 79+02 R Along Grading Limits 142 Ft

TEMPORARY STABILIZATION

Install Interim Sediment Control at Inlets, Manholes, and Junction Boxes before the placement of surfacing at the following locations:
 72+57.0 - 31.67' L 22 Ft High Flow Silt Fence 29 Ft Sediment Filter Bags
 72+57.0 - 31.67' R 29 Ft High Flow Silt Fence 39 Ft Sediment Filter Bags
 73+97.0 - 34.13' L 42 Ft High Flow Silt Fence 56 Ft Sediment Filter Bags
 74+21.5 - 35.63' R 48 Ft High Flow Silt Fence 64 Ft Sediment Filter Bags
 77+05.2 - 35.63' R 48 Ft High Flow Silt Fence 64 Ft Sediment Filter Bags

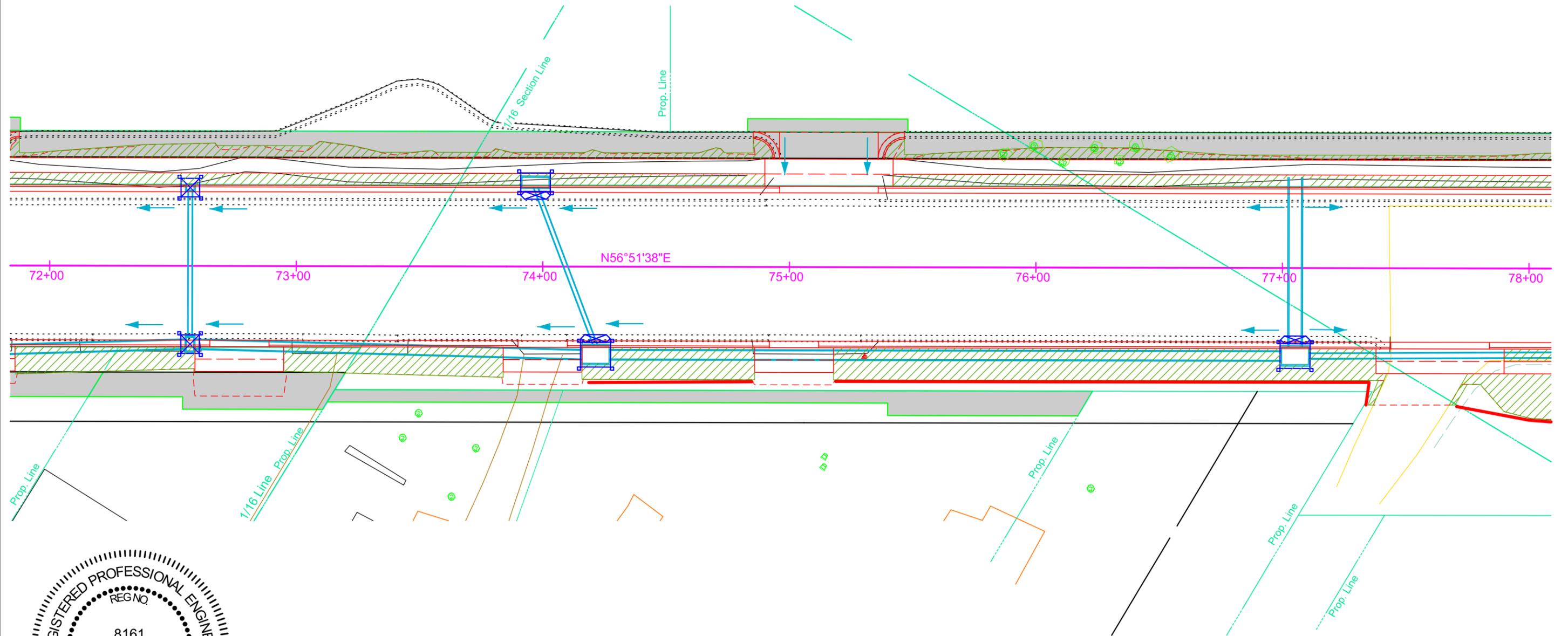
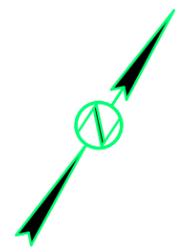
Install Sediment Control at Inlets with Frames and Grates after the placement of surfacing at the following locations:
 72+57.0 - 31.67' L 1 Each
 72+57.0 - 31.67' R 1 Each

Install Sediment Control at Type S Drop Inlets after the placement of surfacing at the following locations:
 73+97.0 - 34.13' L 12 Ft
 74+21.5 - 35.63' R 12 Ft
 77+05.2 - 35.63' R 12 Ft

FINAL BIDDING PURPOSES ONLY

Place Topsoil, Fertilize, Seed, and cover the Topsoil with Fiber Mulch

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	D16	D24
Plotting Date: 5/31/2016			



PERIMETER CONTROL

Install Low Flow Silt Fence at the following locations:
 79+38 to 82+58 R Along Grading Limits 420 Ft
 82+83 to 83+79 R Just Inside Easement 142 Ft

TEMPORARY STABILIZATION

Install Interim Sediment Control at Inlets, Manholes, and Junction Boxes before the placement of surfacing at the following locations:

79+80.0 - 34.13' L	42 Ft High Flow Silt Fence	56 Ft Sediment Filter Bags
79+80.0 - 34.13' R	42 Ft High Flow Silt Fence	56 Ft Sediment Filter Bags
81+91.3 - 34.13' L	42 Ft High Flow Silt Fence	56 Ft Sediment Filter Bags
82+26.5 - 34.13' R	42 Ft High Flow Silt Fence	56 Ft Sediment Filter Bags
82+52.3 - 58.67' L	26 Ft High Flow Silt Fence	34 Ft Sediment Filter Bags
82+75.4 - 33.13' L	32 Ft High Flow Silt Fence	42 Ft Sediment Filter Bags
82+75.4 - 69.64' L	28 Ft High Flow Silt Fence	37 Ft Sediment Filter Bags
83+39.1 - 70.08' L	22 Ft High Flow Silt Fence	29 Ft Sediment Filter Bags
83+92.0 - 31.67' L	22 Ft High Flow Silt Fence	29 Ft Sediment Filter Bags

Install Sediment Control at Inlets with Frames and Grates after the placement of surfacing at the following locations:

82+52.3 - 58.67' L	1 Each
82+75.4 - 69.64' L	1 Each
83+39.1 - 70.08' L	1 Each
83+92.0 - 31.67' L	1 Each

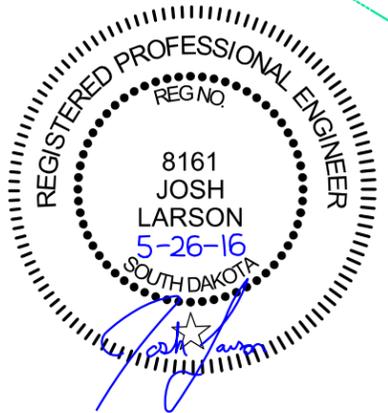
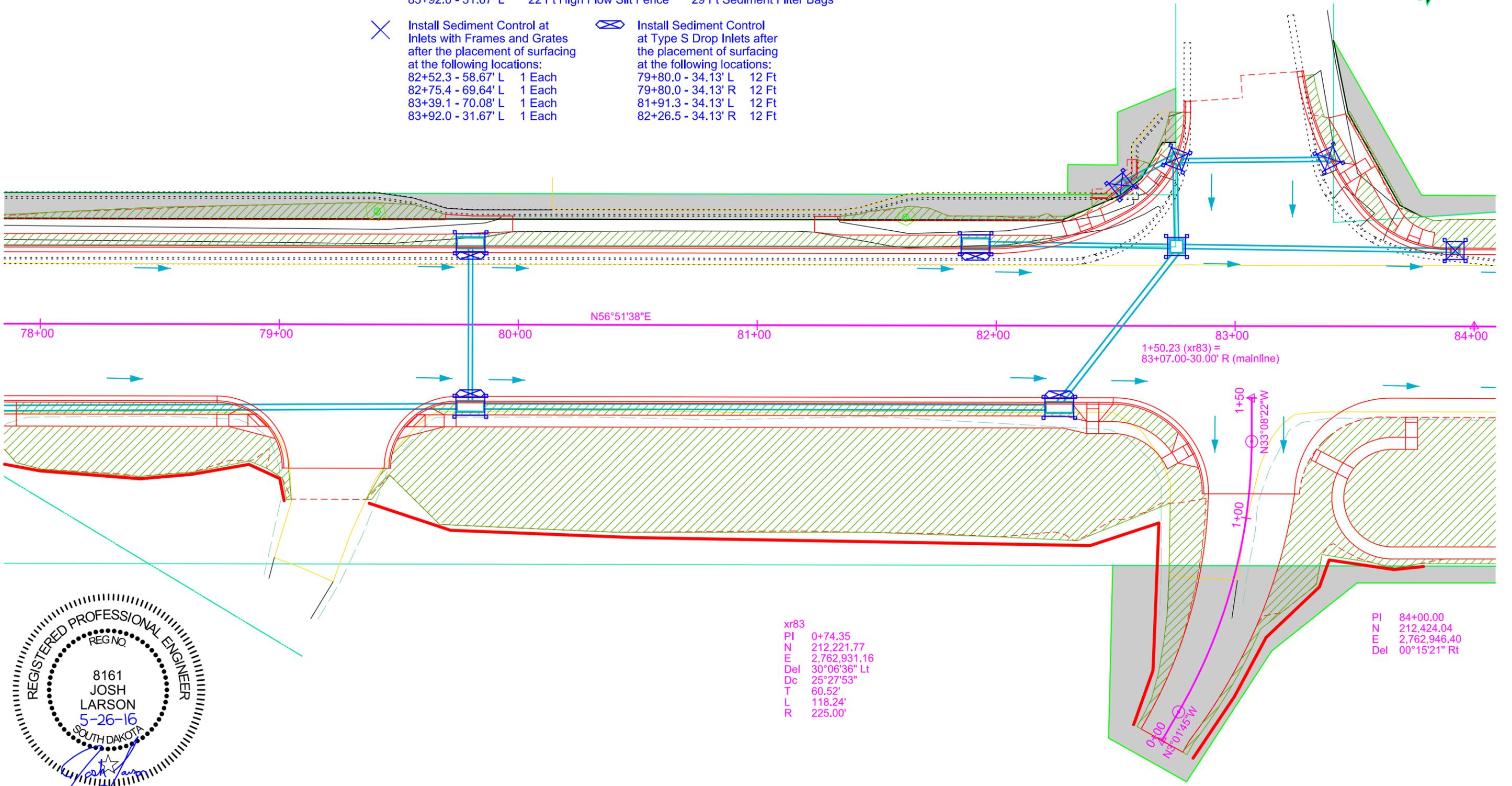
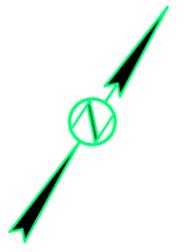
Install Sediment Control at Type S Drop Inlets after the placement of surfacing at the following locations:

79+80.0 - 34.13' L	12 Ft
79+80.0 - 34.13' R	12 Ft
81+91.3 - 34.13' L	12 Ft
82+26.5 - 34.13' R	12 Ft

FINAL FOR BIDDING PURPOSES ONLY

Place Topsoil, Fertilize, Seed, and cover the Topsoil with Fiber Mulch

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	D17	D24
Plotting Date: 5/31/2016			



xr83
 PI 0+74.35
 N 212,221.77
 E 2,762,931.16
 Del 30°06'36" Lt
 Dc 25°27'53"
 T 60.52'
 L 118.24'
 R 225.00'

PI 84+00.00
 N 212,424.04
 E 2,762,946.40
 Del 00°15'21" Rt

Plotting Date: 5/31/2016

PERIMETER CONTROL

- Install Low Flow Silt Fence at the following locations:
- 84+91 to 85+38 R Just Inside ROW 47 Ft
- 87+77 to 88+40 R Just Inside Easement 66 Ft
- 88+91 to 89+16 L Across Ditch 42 Ft
- 89+05 to 89+06 R Across Ditch 27 Ft

TEMPORARY STABILIZATION

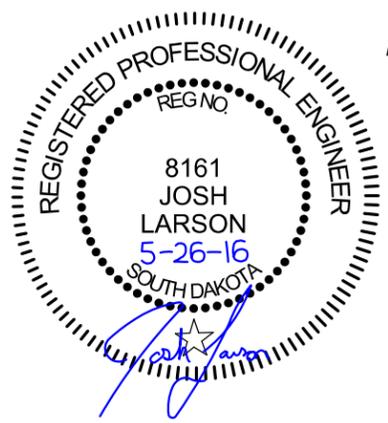
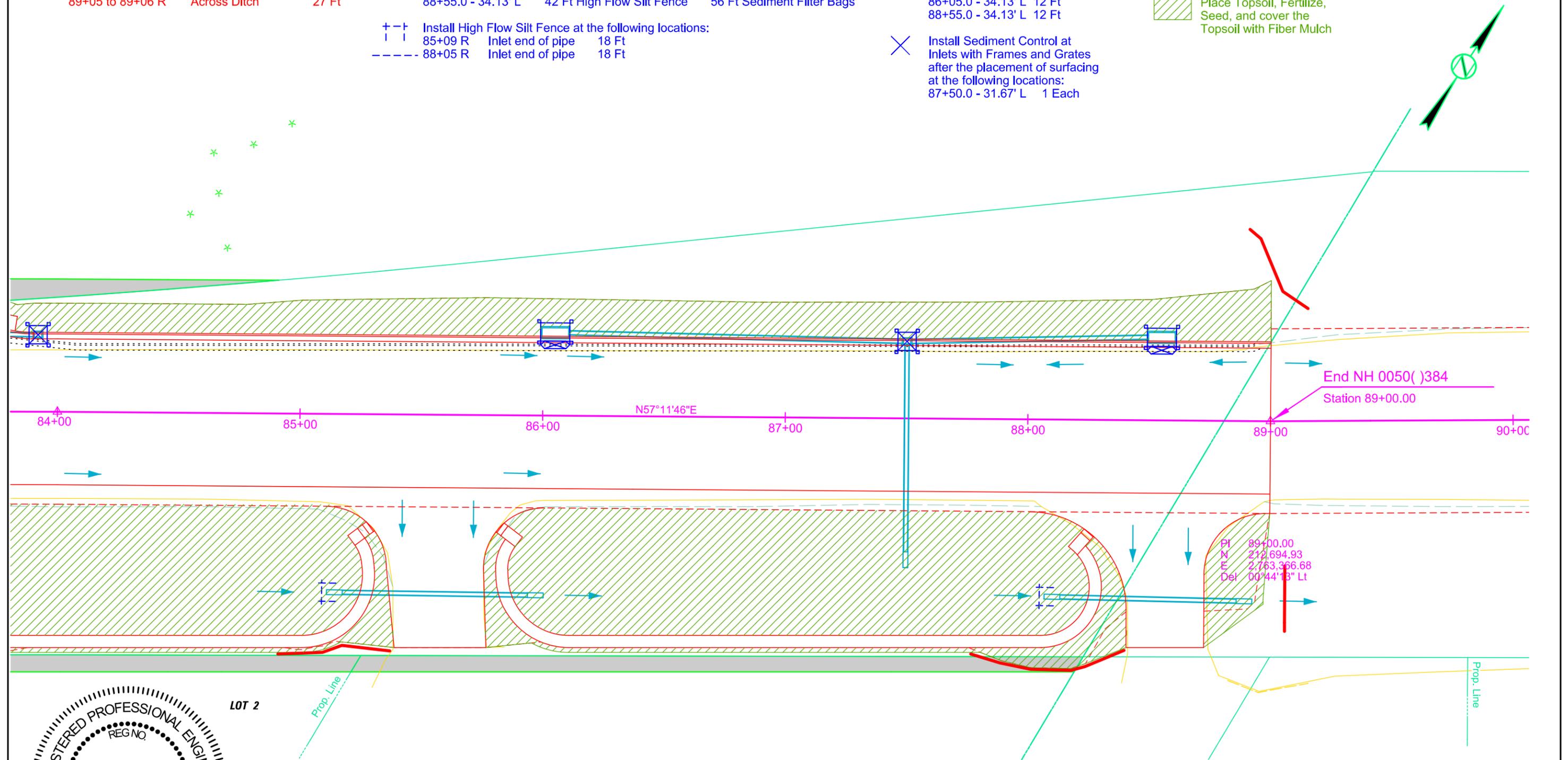
- ☐ Install Interim Sediment Control at Inlets, Manholes, and Junction Boxes before the placement of surfacing at the following locations:
- 86+05.0 - 34.13' L 42 Ft High Flow Silt Fence 56 Ft Sediment Filter Bags
- 87+50.0 - 31.67' L 22 Ft High Flow Silt Fence 29 Ft Sediment Filter Bags
- 88+55.0 - 34.13' L 42 Ft High Flow Silt Fence 56 Ft Sediment Filter Bags
- +-+ Install High Flow Silt Fence at the following locations:
- 85+09 R Inlet end of pipe 18 Ft
- 88+05 R Inlet end of pipe 18 Ft

FOR BIDDING PURPOSES ONLY

- ☒ Install Sediment Control at Type S Drop Inlets after the placement of surfacing at the following locations:
- 86+05.0 - 34.13' L 12 Ft
- 88+55.0 - 34.13' L 12 Ft
- ✕ Install Sediment Control at Inlets with Frames and Grates after the placement of surfacing at the following locations:
- 87+50.0 - 31.67' L 1 Each

FINAL STABILIZATION

- ▨ Place Topsoil, Fertilize, Seed, and cover the Topsoil with Fiber Mulch



LOT 2

Prop. Line

Prop. Line

End NH 0050()384
Station 89+00.00

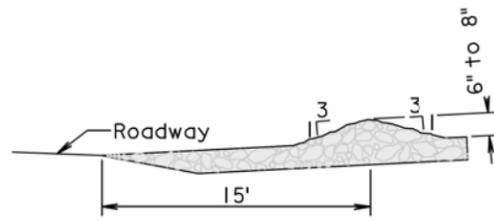
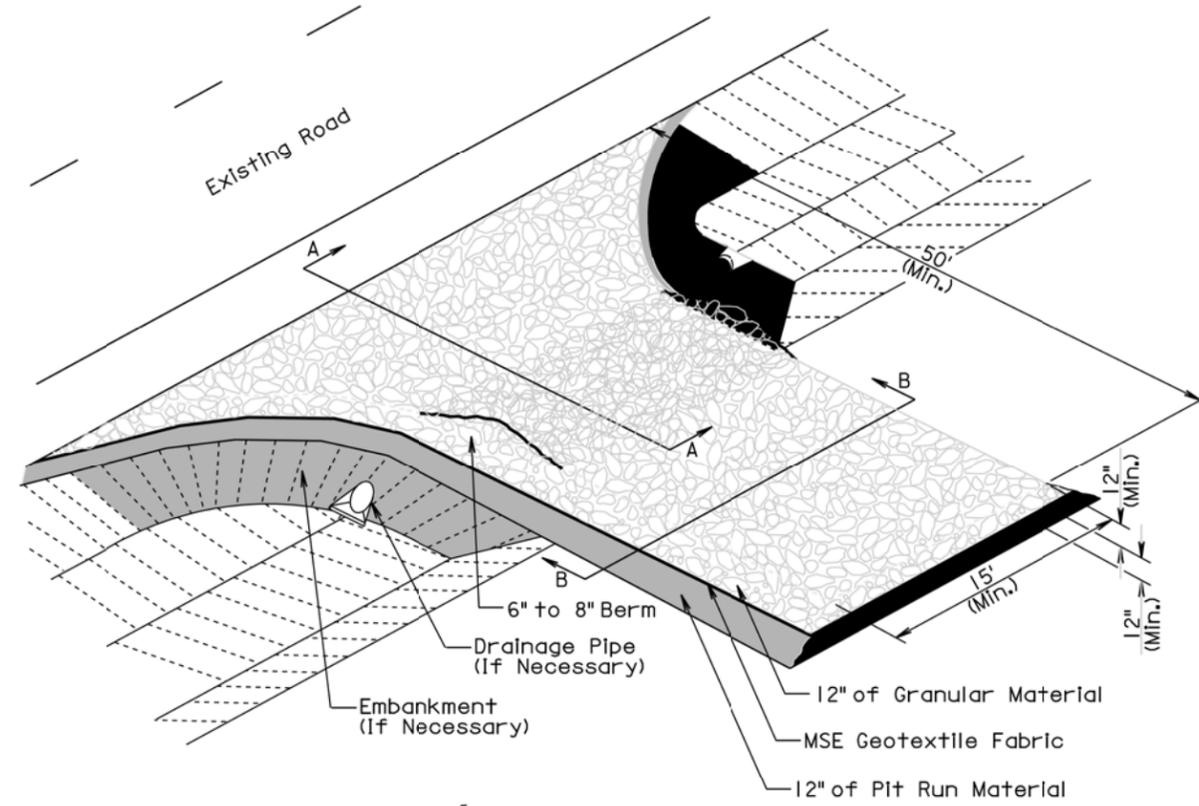
PI 89+00.00
N 212.694.93
E 2,763.366.68
Del 00°44'13" Lt

CONSTRUCTION ENTRANCE

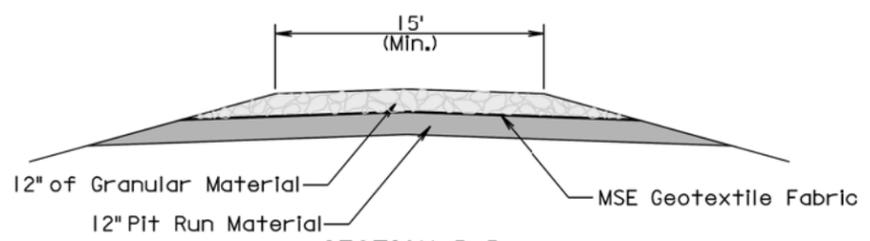
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0050(122)384	D19	D24

Plotting Date: 5/31/2016



SECTION A-A

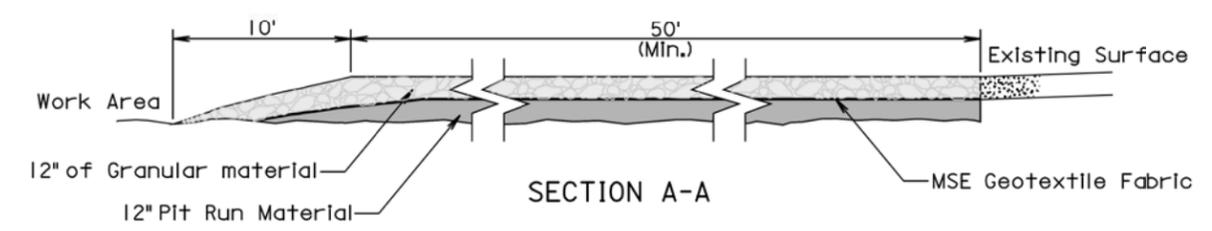
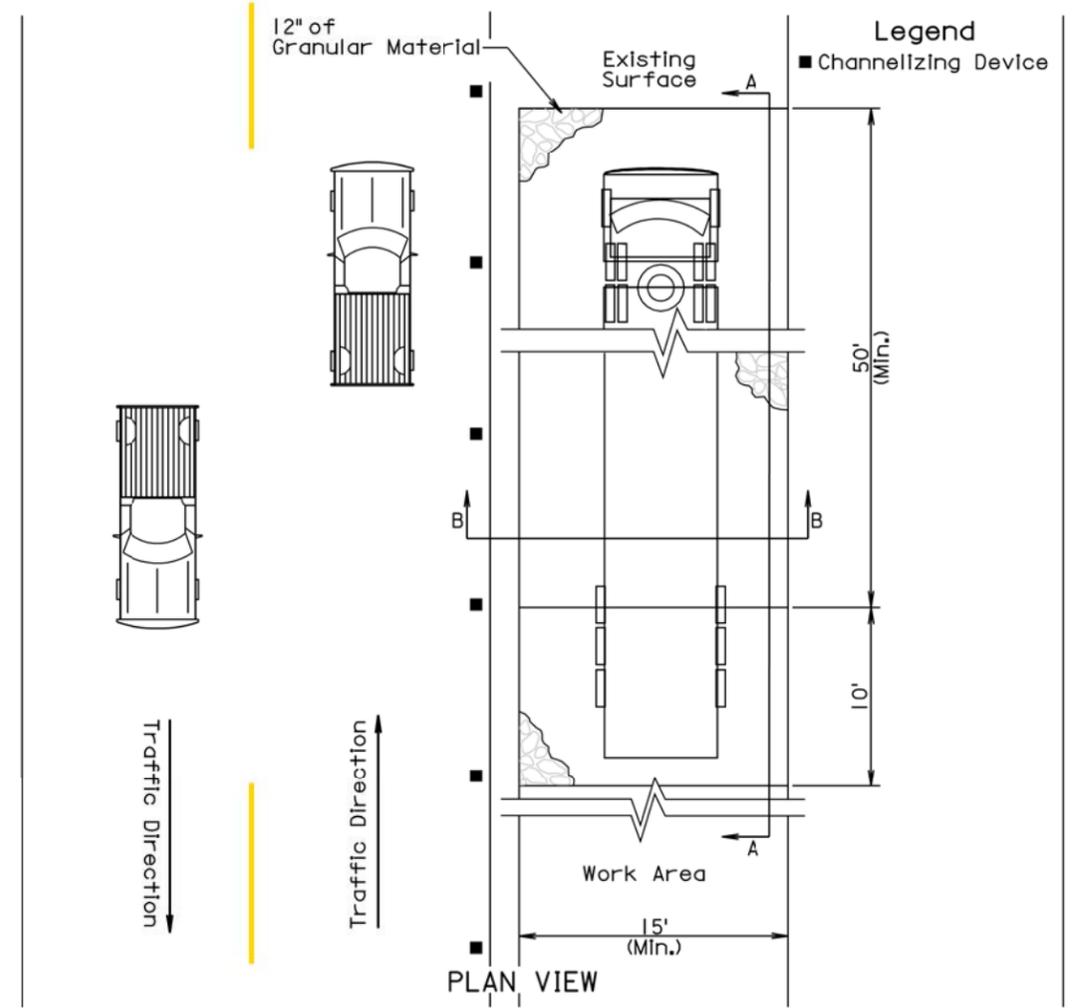


SECTION B-B

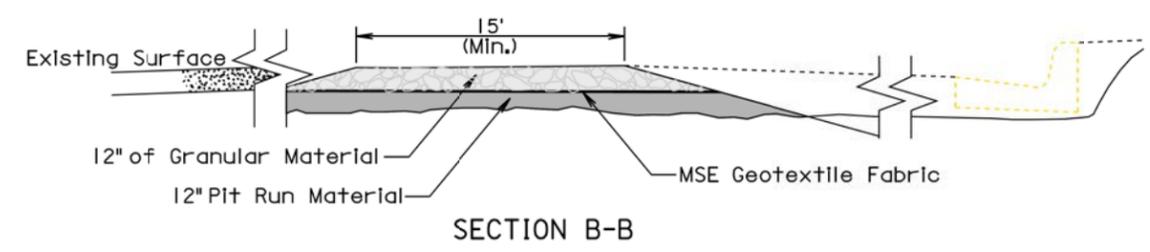
GENERAL NOTES:

- 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 various bid items.
- If embankment is necessary it shall be pit run material.

TRANSVERSE TO ROADWAY



SECTION A-A



SECTION B-B

PARALLEL TO ROADWAY

PLOT SCALE - 200,000000,1,000000

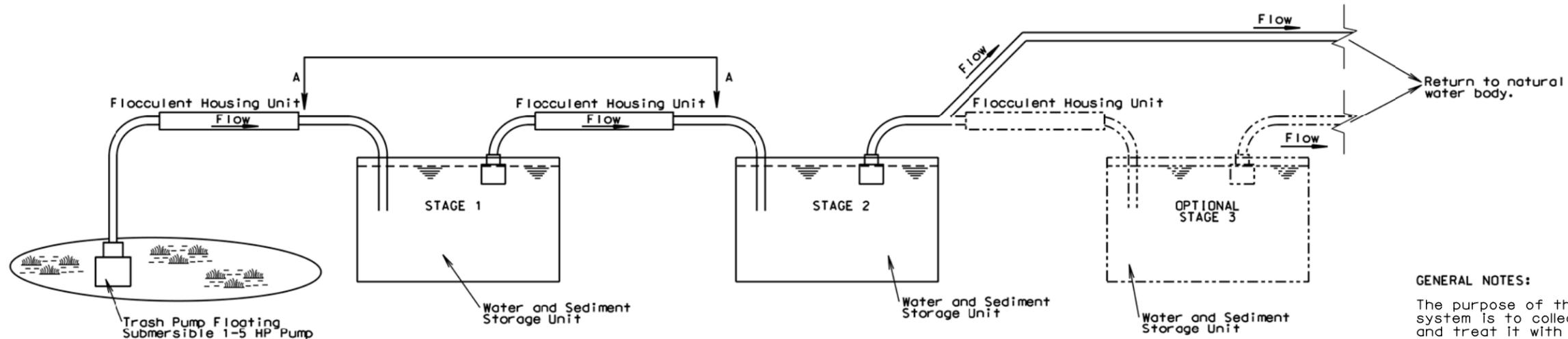
FILE - U:\RD\MISC\DESIGN\TOPIC\ES&C\BMP5\CONSTRUCTION ENTRANCE\STABILIZEDCONENT

DEWATERING AND SEDIMENT COLLECTION SYSTEM

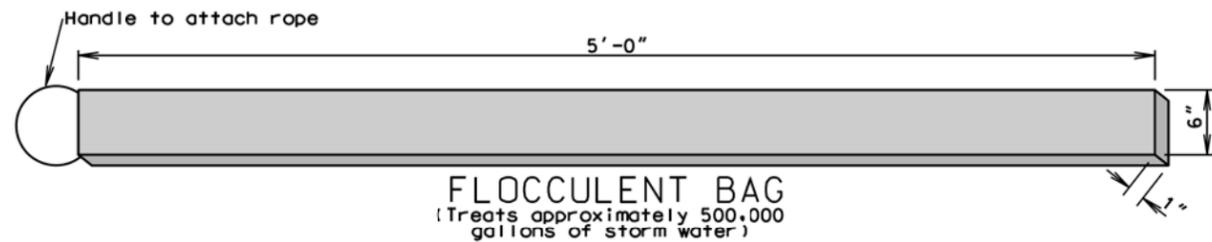
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0050(122)384	SHEET D20	TOTAL SHEETS D24
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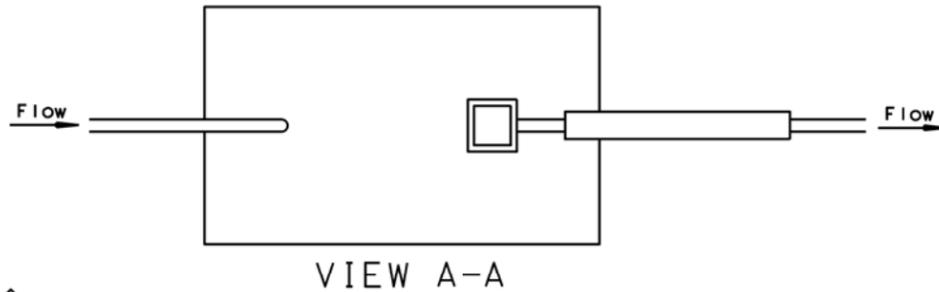
Plotting Date: 5/31/2016



ELEVATION VIEW
CASCADE SYSTEM



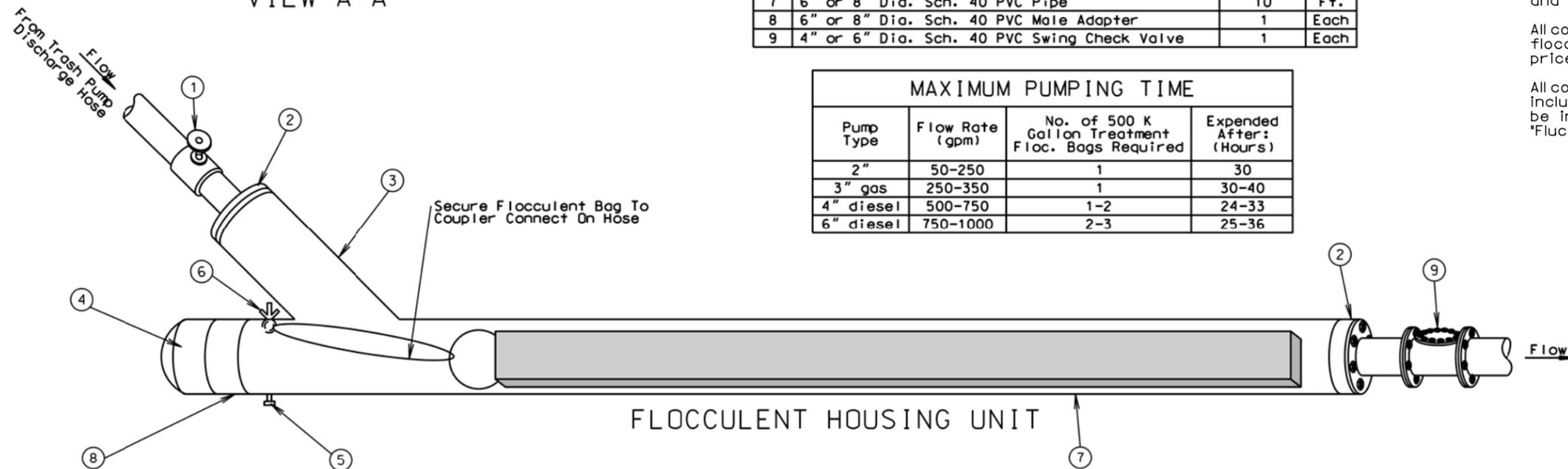
FLOCCULENT BAG
(Treats approximately 500,000 gallons of storm water)



VIEW A-A

FLOCCULENT HOUSING UNIT (Estimated Quantities) (For Information Only)			
NO.	DESCRIPTION	QUANTITY	UNIT
1	4" or 6" Dia. Sch. 40 Gate Valve	1	Each
2	4" X 6" or 6" X 8" Sch. 40 PVC Bushing	2	Each
3	6" or 8" Dia. Sch. 40 PVC "Y"	1	Each
4	6" or 8" Dia. Sch. 40 PVC Female Threaded Cap	1	Each
5	1" Dia. Sch. 80 PVC Drain Valve	1	Each
6	1/2" Eye Bolt With Wing Nut and Rubber Gromets	1	Each
7	6" or 8" Dia. Sch. 40 PVC Pipe	10	Ft.
8	6" or 8" Dia. Sch. 40 PVC Male Adapter	1	Each
9	4" or 6" Dia. Sch. 40 PVC Swing Check Valve	1	Each

MAXIMUM PUMPING TIME			
Pump Type	Flow Rate (gpm)	No. of 500 K Gallon Treatment Floc. Bags Required	Expended After: (Hours)
2"	50-250	1	30
3" gas	250-350	1	30-40
4" diesel	500-750	1-2	24-33
6" diesel	750-1000	2-3	25-36



FLOCCULENT HOUSING UNIT

GENERAL NOTES:

The purpose of the dewatering and sediment collection system is to collect turbid storm water on the project and treat it with a flocculent. The sediment would then be discharged into the storm sewer, lake, stream, vegetated ditch, or other Engineer approved Site. Clear water for this project is defined as having a maximum of 30 mg/L of suspended solids. The clear water discharged shall have a ph between 6.1 and 8.5, with a ph of 7.0 preferred.

The drawing of the cascade system is for conceptual purposes only; however, the cascade system shall at a minimum incorporate the use of 2 flocculent housing units and 2 water and sediment storage units.

Design and construction of the water and sediment storage units are project site specific and shall be the Contractor's responsibility. A water and sediment storage unit may consist of a storage bin lined with plastic, the bed of a dump truck lined with plastic, a sediment basin, or other Engineer approved unit.

The 500,000 gallon treatment flocculent bag shall be a BIOSTAR™ CH product or approved equal. Information concerning the product may be found on the internet at the following location: <http://www.biostar-ch.com>

All costs for the dewatering and sediment collection including disposal of sediment collected in the water and sediment storage units, pumping, labor, materials, and incidentals necessary for the dewatering and sediment collection shall be incidental to the contract unit price per hour for "Dewatering". Measurement shall be based on the number of hours pumping occurs for the dewatering and sediment collection system.

All costs for furnishing the 500,000 gallon treatment flocculent bag shall be incidental to the contract unit price per each for "500 K Gallon Treatment Flocculent Bag".

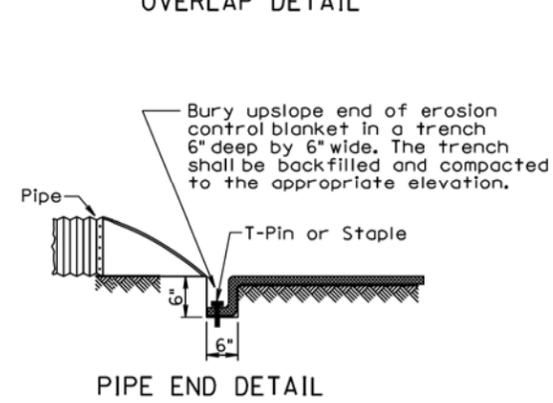
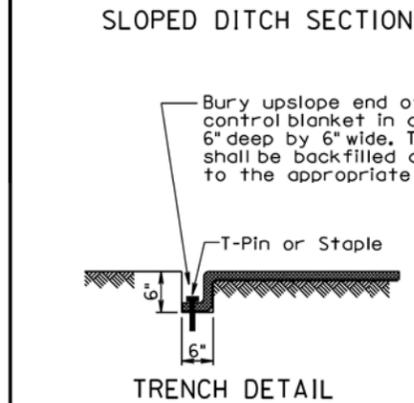
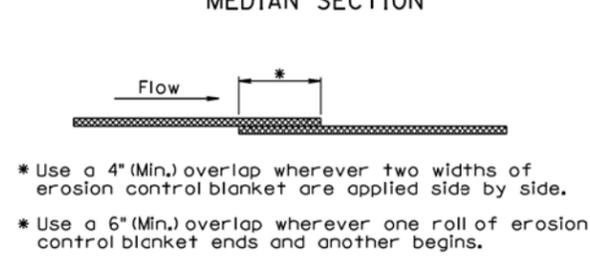
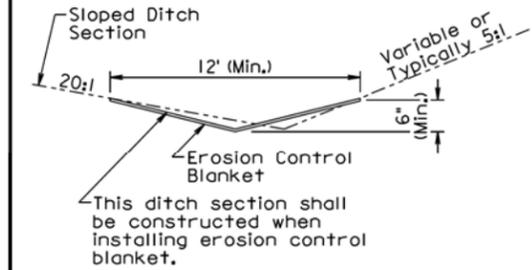
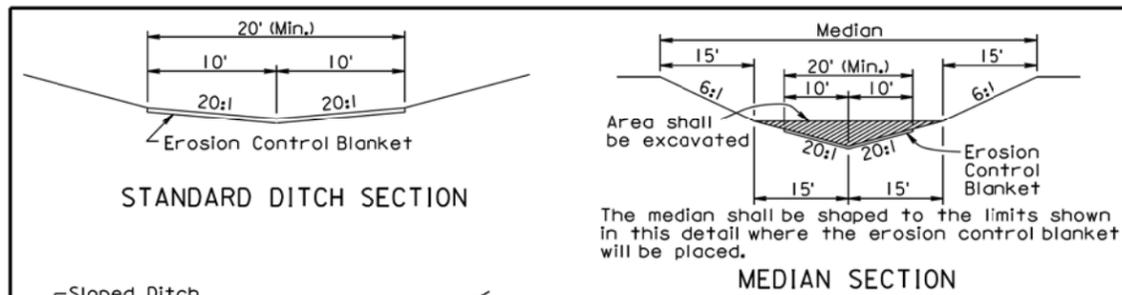
All costs for furnishing the flocculent housing unit including all labor, materials, and incidentals shall be incidental to the contract unit price per each for "Flocculent Housing Unit".

PLOT SCALE - 1/8" = 1'-0"

PLOT NAME - 1

FILE - ... \BMP5\DEWATERING\DEWATERING.DGN

PLOTTED FROM - TRPB13525



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.

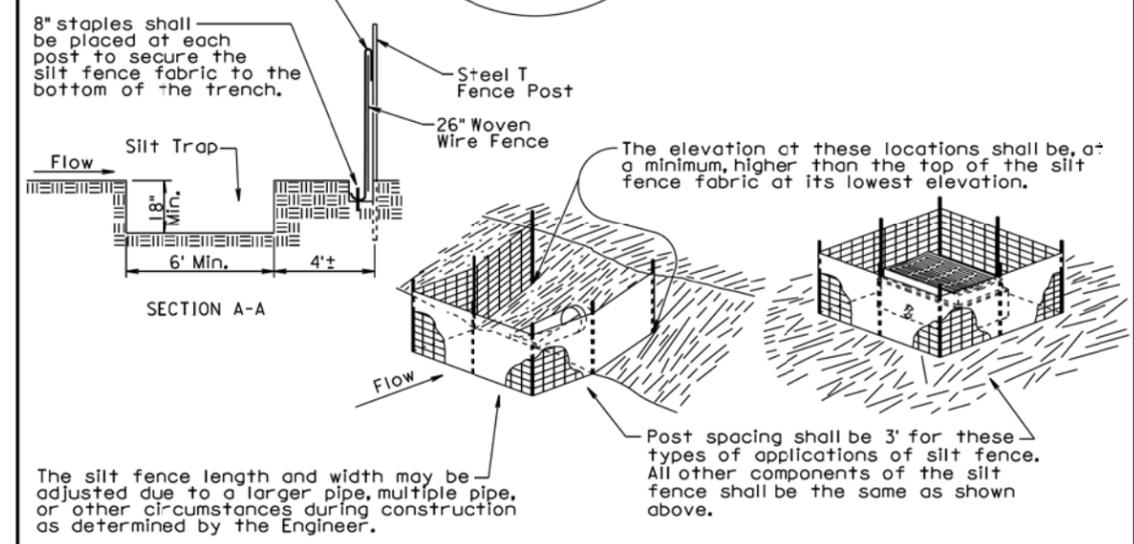
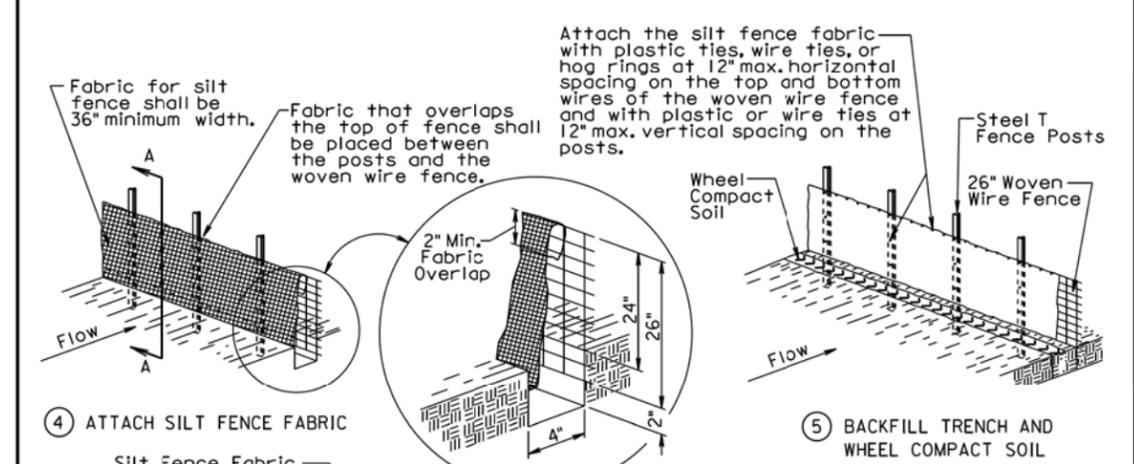
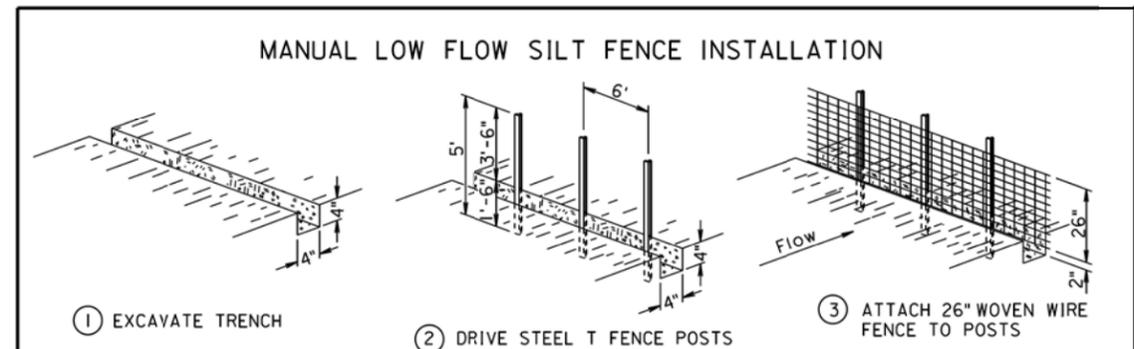
After the placement of the erosion control blanket, the Contractor shall fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

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

S D D O T	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
		Sheet 1 of 1

Published Date: 1st Qtr. 2016



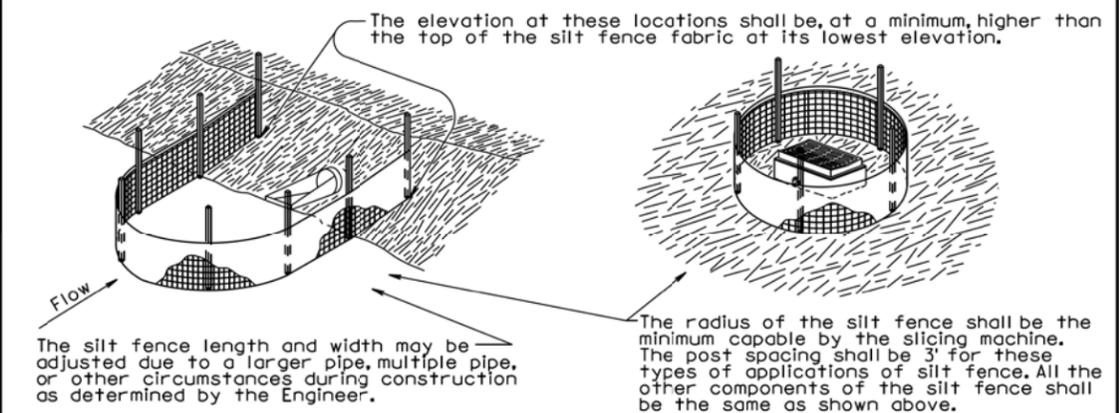
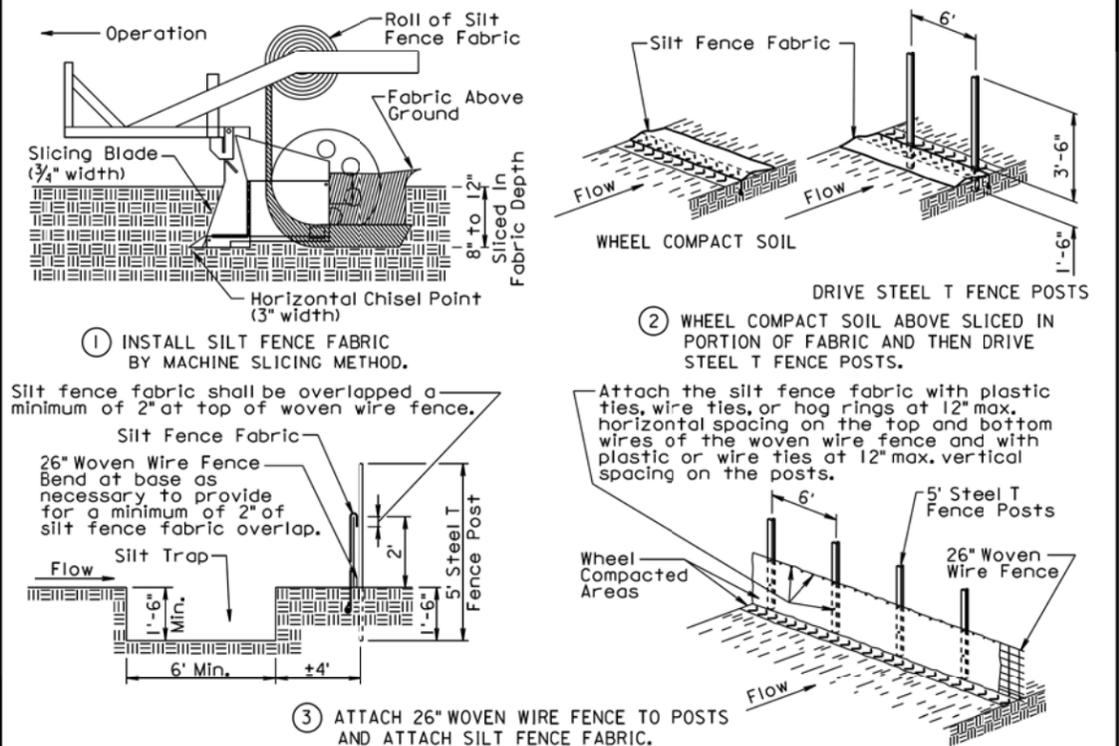
The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

December 23, 2003

S D D O T	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
		Sheet 1 of 2

Published Date: 1st Qtr. 2016

MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION



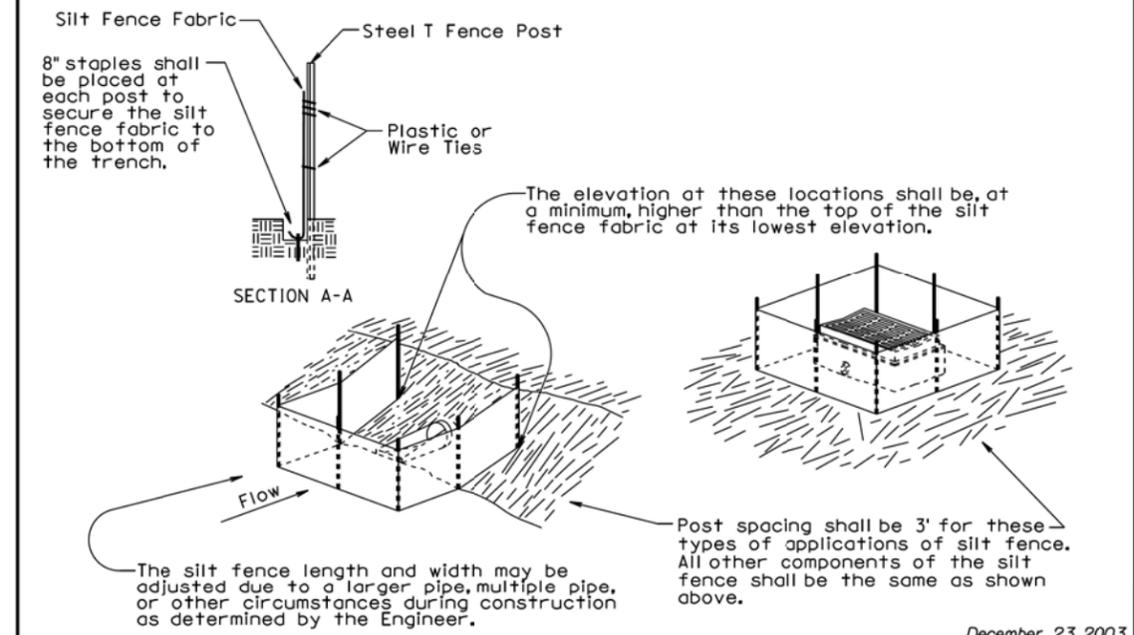
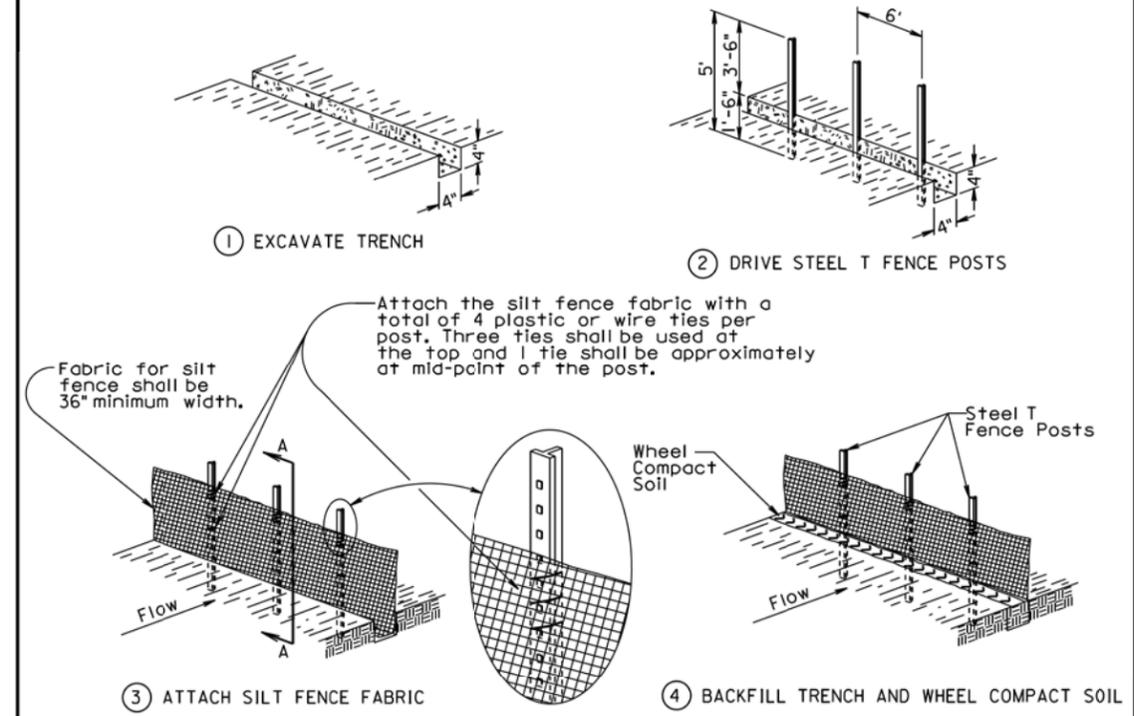
GENERAL NOTES:
 A silt trap shall be provided when specified by a plan note. All costs for constructing the silt trap shall be incidental to the contract unit price per cubic yard for "Silt Trap".
 If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (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

S D D O T	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
		Sheet 2 of 2

Published Date: 1st Qtr. 2016

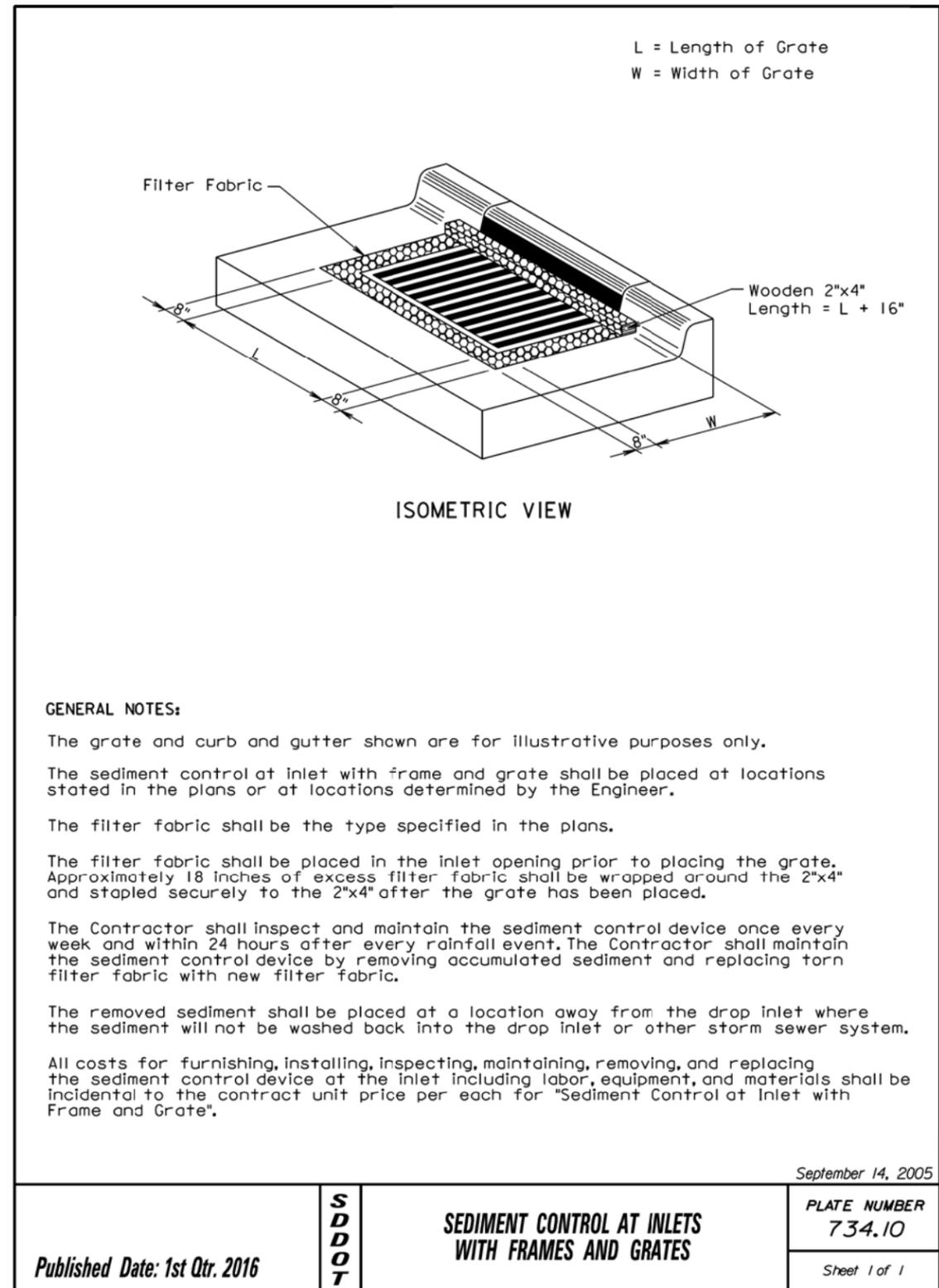
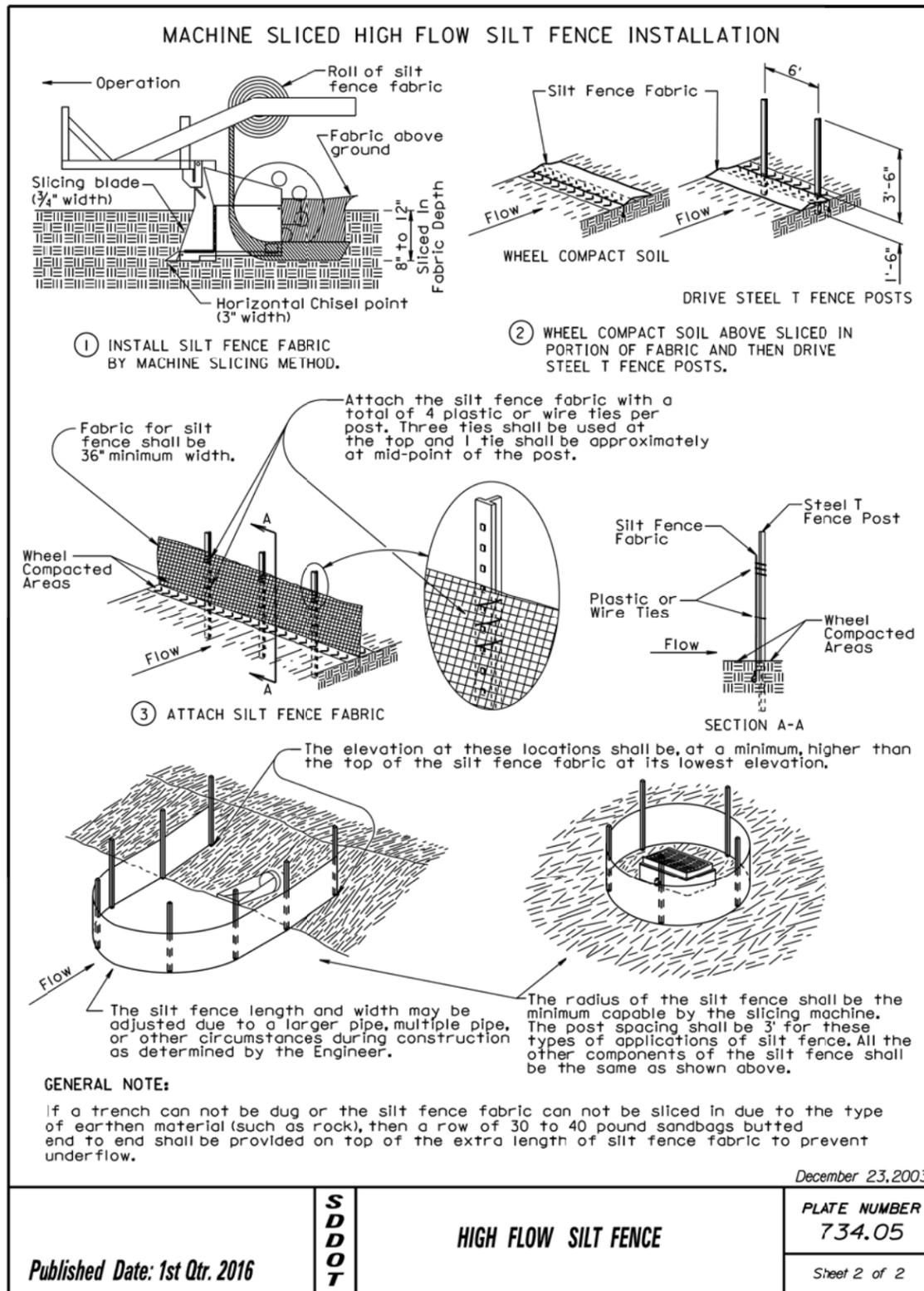
MANUAL HIGH FLOW SILT FENCE INSTALLATION



S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
		Sheet 1 of 2

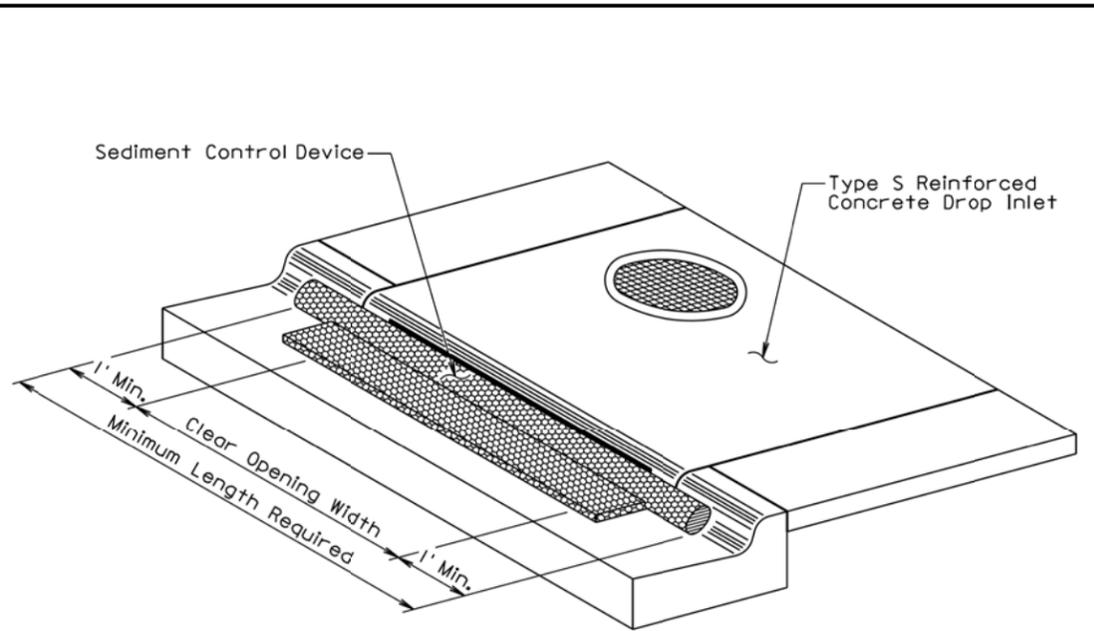
Published Date: 1st Qtr. 2016

December 23, 2003



STATE OF SOUTH DAKOTA	PROJECT NH 0050(122)384	SHEET D24	TOTAL SHEETS D24
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Plotting Date: 5/31/2016



ISOMETRIC VIEW

GENERAL NOTES:

- The type of sediment control device shown is for illustrative purposes only.
- The type of sediment control device used shall be one of the types as specified in the plans.
- The sediment control device shall be placed at the drop inlets according to the manufacturers' installation instructions.
- The sediment control at inlet for type S reinforced concrete drop inlet shall be placed at locations stated in the plans or at locations determined by the Engineer.
- 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 the device, removing accumulated sediment, and resetting the device.
- 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.
- Payment for the "Sediment Control at Type S Drop Inlet" shall be based on the minimum length required at the drop inlets. Some of the sediment control devices specified in the plans will have to be longer due to available length.
- All costs for furnishing, installing, inspecting, maintaining, removing, and resetting the sediment control device at the drop inlet including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Sediment Control at Type S Reinforced Concrete Drop Inlet".

September 14, 2005

S D D O T	SEDIMENT CONTROL AT INLETS FOR TYPE S REINFORCED CONCRETE DROP INLETS	PLATE NUMBER 734.11
		Sheet 1 of 1

Published Date: 1st Qtr. 2016