

STATE OF	PROJECT	SHEET	TOTAL SHEETS
DAKOTA	090W-451	1	17
Plotting Date:	05/23/2018		

## INDEX OF SHEETS

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Sheets 2-5	Estimate with General Notes & Tables
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Sheets 7-8 Sheets 9-14 Sheets 15-17	Standard Plates Cross Sections



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#### **ESTIMATE OF QUANTITIES**

BID ITEM NUMBER	ІТЕМ	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E7510	Remove Pipe End Section for Reset	1	Each
110E7802	Remove Fence for Reset	90	Ft
120E0010	Unclassified Excavation	310	CuYd
450E9001	Reset Pipe End Section	1	Each
462E0100	Class M6 Concrete	80.0	CuYd
620E0510	Type 1 Temporary Fence	160	Ft
620E1020	2 Post Panel	2	Each
620E4100	Reset Fence	90	Ft
634E0110	Traffic Control Signs	80.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Board	1	Each
700E0310	Class C Riprap	547.0	Ton
734E0010	Erosion Control	Lump Sum	LS
734E0604	High Flow Silt Fence	50	Ft
831E0110	Type B Drainage Fabric	520	SqYd

#### **SPECIFICATIONS**

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

#### **ENVIRONMENTAL COMMITMENTS**

The SDDOT is committed to protecting the environment and uses Section A Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <u>http://www.sddot.com/resources/Manuals/EnvironProcManual.pdf</u>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Office at 605-773-3098 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

## COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

#### COMMITMENT B2: WHOOPING CRANE

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

#### Action Taken/Required:

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

#### COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

#### Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

#### Action Taken/Required:

The DENR General Permit for Storm Water Discharges Associated with Construction Activities is required for construction activity disturbing one or more acres of earth and work in a waterway. The SDDOT is the owner of this permit and will submit the NOI to DENR 15 days prior to project start in order to obtain coverage under the General Permit. Work can begin once the DENR letter of approval is received.

The Contractor must adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State."

The Contractor will complete the DENR Contractor Certification Form prior to the pre-construction meeting. The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the permit for this project. Work may not begin on this project until this form is signed and submitted to DENR.

The form can be found at:

http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf

The Contractor is advised that permit coverage may also be required for offsite activities, such as borrow and staging areas, which are the responsibility of the Contractor.

### COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

### Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

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#### **COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES**

State Historical Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

#### Action Taken/Required:

All earth disturbing activities require a cultural resource review prior to scheduling the pre-construction meeting. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view of which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office to determine an appropriate course of action.

The Contractor is responsible for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

#### **UTILITIES**

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

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

http://sddot.com/business/design/files/Default.aspx

#### Storm Water Pollution Prevention Plan

The Storm Water Pollution Prevention Plan (SWPPP) will be developed prior to the submittal of the NOI and will be implemented for all construction activities for compliance with the permit. The SWPPP must be kept on-site and updated as site conditions change. Erosion control measures and best management practices will be implemented in accordance with the SWPPP.

The Storm Water, Erosion, and Sediment Control Inspection Report Form DOT 298, will be used for site inspections and to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents and retained for a minimum of three years.

The inspection will include disturbed areas of the construction site that have not been finally stabilized, areas used for storage materials, structural control measures, and locations where vehicles enter or exit the site. These areas will be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP will be observed to ensure that they are operating correctly and sediment is not tracked off of the site.

nformation on storm water	permits and	SWPPPs are	available o	n the follov	vin
vebsites:					

SDDOT:	
http://www.sddot.com/business/environmental/stormwater/Default.aspx	

DENR: http://denr.sd.gov/des/sw/stormwater.aspx

EPA: <u>https://www.epa.gov/npdes</u>

#### **SEQUENCE OF OPERATIONS**

The intent of the plan sequence of operations is to have the least amount of impact on the traveling public and adjacent landowners. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of two weeks prior to potential implementation. Work shall proceed according to the following sequence or as approved by the Engineer:

Set up temporary traffic control.
 Remove existing fence for reset.
 Place erosion control.
 Excavate channel.
 Place fabric, riprap, and concrete.
 Place permanent erosion control measures.
 Reset fence.
 Remove temporary traffic control.

PI 11+05.32

POE 11+20.31

#### HORIZONTAL ALIGNMENT DATA

 Type
 Station

 POB
 100+00.00

 POE
 102+35.09

 Type
 Station

 POB
 0+00.00

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 T

 PI
 0+10.15

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POE 0+50.08

Type Station

POB 10+00.00

ΡI

ΡI

ΡI

PI

PI

ΡI

ΡI

PI

10+20.69

10+30.08

10+40.23

10+50.09

10+60.11

10+69.67

10+79.87

10+89.49

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#### Mainline – Interstate 90 WB

	Northing	Easting
	256411.808	1013100.432
TL= 235.09 S 85°52'50"	E	
1	256394.920	1013334.910

#### Channel 1

		Northing	Easting
		256487.862	1013142.349
TL= 10.15	N 85°28'34" E		
		256488.662	1013152.467
TL= 9.80	N 79°50'03" E		
		256490.392	1013162.115
ΓL= 10.07	N 82°38'27" E		
		256491.683	1013172.105
TL= 20.05	N 82°40'59" E		
		256494.237	1013191.996

#### Channel 2

		Northing	Easting
		256488.116	1013181.758
TL= 20.69	N 59°07'41" E		
		256498.733	1013199.517
TL= 9.39	N 36°43'40" E		
		256506.256	1013205.130
TL= 10.16	N 36°01'29" E		
		256514.471	1013211.104
TL= 9.85	N 47°53'59" E		
		256521.078	1013218.416
TL= 10.02	N 55°49'37" E		
		256526.709	1013226.710
TL= 9.55	N 35°25'48" E		
		256534.492	1013232.247
TL= 10.20	N 41°09'38" E		
		256542.173	1013238.962
TL= 9.62	N 31°49'43" E		
		256550.348	1013244.036
TL= 15.83	N 15°20'17" E		
		256565.612	1013248.223
TL= 15.00	N 5°18'11" E		
		256580.544	1013249.609

#### SHRINKAGE FACTOR: Embankment +20%

#### **UNCLASSIFIED EXCAVATION**

Unclassified Excavation is provided on the project for constructing the armored channel in accordance with the typical section and cross sections.

Plans quantity shall be the basis of payment for the Unclassified Excavation quantity. If changes are made in the field during construction, measurements shall be taken and the quantity shall be adjusted accordingly.

#### TABLE OF QUANTITIES

						Type B
			Unclassified	Riprap	M6	Drainage
	Location		Excavation	Quantity	Concrete	Fabric
Channel	Station to	Station	(CuYd)	(Tons)	(CuYd)	(SqYd)
1	0+00	0+50	75	165	24	162
2	10+00	10+90	235	382	56	358
		Totals:	310	547	80	520

#### TABLE OF PIPE QUANITIES

	Remove 48"	Reset 48"	
	End Section	End	
	for Reset	Section	
Location	(Each)	(Each)	
10+00	1	1	

#### **TABLE OF FENCE QUANTITIES**

7	Location	Remove Fence for Reset (Ft)	Reset Fence (Ft)	Type 1 Temporary Fence (Ft)	2 Post Panel (Each)
	100+78 to 101+67	90	90	160	2

#### TRAFFIC CONTROL – GENERAL NOTES

Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of one week prior to potential implementation.

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

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

Existing guide, route, informational logo, regulatory, warning signs and delineation shall be temporarily reset and maintained during construction as directed by the Engineer. Removing, relocating, salvaging and resetting of the above items shall be the responsibility of the Contractor.

All non-applicable existing signing and temporary traffic control devices shall be covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 48 hours. The cost of removing or covering non-applicable signs and temporary traffic control devices shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

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

All haul trucks shall be equipped with a second flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights shall be incidental to the various related contract bid items.

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

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

All costs associated with the traffic control for mobile operation including signs, arrow panels and equipment shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

Temporary Flexible Vertical Markers (Tabs) shall be used for lane closure tapers or lane shift tapers and shall be installed at 5' spacing. Tabs used for tapers and shifts will not be measured for payment. All costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and remove all markers will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

#### INVENTORY OF TRAFFIC CONTROL DEVICES

		EX	PRESSWAY	/ INTERST	<b>ΔTE</b>
SIGN CODE	SIGN DESCRIPTION	NUM BER	SIGN SIZE	SQFT PER SIGN	SQ
W4-2	LEFT or RIGHT LANE ENDS (symbol)	1	48" x 48"	16.0	1
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	3
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	1	48" x 48"	16.0	1
G20-2	END ROAD WORK	2	48" x 24"	8.0	1
		EXPRES	SWAY / INTI	RSTATE	
		TRAFFIC CONTROL SIGNS			80
			SQFT		

#### ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

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#### **EROSION CONTROL**

The estimated area requiring erosion control is approximately 900 square feet. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, fertilizing, mycorrhizal inoculum, and mulching shall be incidental to the contract lump sum price for "Erosion Control".

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

#### Mycorrhizal Inoculum

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

Glomus intraradices	25%
Glomus aggregatu	25%
Glomus mosseae	25%
Glomus etunicatum	25%

All seed shall be inoculated with a minimum of 100,000 live propagules of mycorrhizal fungi per acre.

#### 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 application rate is 1500 pounds per acre.

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

#### Product

Sustane

Manufacturer

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

#### Hydroseeding

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

Type F Permanent Seed Mixture shall consist of the following:

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

#### **HIGH FLOW SILT FENCE**

internet site:

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

#### TABLE OF HIGH FLOW SILT FENCE

		High Flow Silt Fence
Station	Description	(Ft)
10+90	Across Channel Bottom	50
	Total	50

#### **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 fiber mulch including labor, equipment, and materials shall be incidental to the contract lump sum price for "Erosion Control".

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

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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

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

# **RIPRAP LINED CHANNEL** DETAIL







PROJECT

TOTAL SHEETS

SHEET



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	Plotting Date:	05/23/2018		1	17
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Parcel A1 100+78 L to 101+73 L Temporary Easement containing 0.08 ac, more or less ...\PlanSheet.d



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	Plotting Date:	05/2	3/2018			
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	SOUTH DAKOTA	090W-451	9	SHEETS 17
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shall be const t bridge openi te Projects s	tructed o ings, catt hall be co	ne foot within e passes, and as nstructed within		
wher's side e the Engineer	xcept at	bridge openings,		ī
14 ga. wire. "spacings and in strands at	Two poin I the fou 5" spacir	t barbs shall be - point barbs shall gs.		
nd sizes are tolerances f all conform to to ASTM AI21	the minim for steel design (	um acceptable posts shall ind specifications		
		December 23, 200	04	
	VD GENER/	PLATE NUMBER	5	
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## Plot Scale

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