

	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		016B-452	1	16
	Plotting Date:	02/25/2021		

INDEX OF SHEETS

General Layout with Index
Estimate with General Notes & Tables
Horizontal Alignment & Control Data
Legend
Plan and Profile Sheet
Cross Sections
Standard Plates



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# **ESTIMATE OF QUANTITIES**

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
120E0010	Unclassified Excavation	545	CuYd
230E0020	Contractor Furnished Topsoil	100	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
634E0110	Traffic Control Signs	68.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Board	1	Each
734E0131	Type 1 Turf Reinforcement Mat	712.0	SqYd
734E0154	12" Diameter Erosion Control Wattle	50	Ft
734E0400	Rock Check Dam	242.0	CuYd
900E5147	Articulated Concrete Mattress	711.0	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 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. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. 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: https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf

For guestions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

# **COMMITMENT C: WATER SOURCE**

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment shall be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

# Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at: http://sdleastwanted.com/maps/default.aspx

South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species: https://sdlegislature.gov/rules/DisplavRule.aspx?Rule=41:10:04

#### 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.

# 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:

ROW.

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 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 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.

6-1.13, and ARSD 74:27:10:06. 1.31.

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

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 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-

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

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.

# COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

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

#### Action Taken/Required:

All earth disturbing activities not designated within the plans 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 in 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 within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery 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.

# COMMITMENT K: RAPID CITY AREA AIR QUALITY CONTROL ZONE

Administrative Rule of South Dakota (ARSD) 74:36:18:03 states that "no state facility or state contractor may engage in any construction activity or continuous operation activity within the Rapid City air quality control zone which may cause fugitive emissions of particulate to be released into the ambient air without first obtaining a permit issued by the board or the secretary."

Construction activity is defined as any temporary activity which involves the removal or alteration of the natural or pre-existing cover of one acre or more of land. One acre of surface area is based on a cumulative area of disturbance to be completed for the entire project. Construction activity will include, but not be limited to, stripping of topsoil, drilling, blasting, excavation, dredging, ditching, grading, street maintenance and repair, or earth moving. It also includes stockpiles, access roads, and disposal areas. An off-site disposal area of excess material will require an additional permit.

#### Action Taken/Required:

To be considered eligible for authorization to conduct a construction activity under the terms and conditions of this permit, the owner operator must submit a Notice of Intent (NOI) form. The form must be submitted to the address below at least seven business days prior to the anticipated date of beginning the construction activity.

South Dakota Department of Environment and Natural Resources Air Quality Program, 523 East Capitol, Joe Foss Building, Pierre, SD 57501-3181, Phone: 605-773-3151.

The permit requires the Contractor to use reasonably available technology to control fugitive dust emissions. The Contractor is required to use control measures for track out, paved areas, unpaved roads, unpaved parking lots, disturbed areas, and for material handling and storage. The control measures that the Contractor is required to use are listed in the permit.

The Rapid City Air Quality Permit will need to be renewed annually by the Contractor until construction activities are completed.

The online form can be found at: <u>http://denr.sd.gov/des/aq/airpermits.aspx</u>

# **UTILITIES**

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

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 will contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

# **UNCLASSIFIED EXCAVATION**

Unclassified Excavation is provided on the project for removing excess material to shape the drainage channel in accordance with the typical sections. The excess material will be used to fill the nearby eroded channel at no additional cost to the Department. The estimate of quantities provides 545 cubic yards of Unclassified Excavation for performing this work. Approximately 150 cubic yards of excess material will be handled as waste and hauled off the project at no additional cost to the Department.

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

# REMOVE AND REPLACE TOPSOIL

Prior to beginning grading operations, a 4" depth of topsoil will be salvaged within the work limits where available. The Contractor will minimize the damage to existing vegetation. Following completion of grading operations, topsoil will be replaced over all disturbed areas. The exact limit will be determined by the Engineer during construction.

All costs associated with removing and replacing the topsoil on the project will be incidental to the lump sum price for "Remove and Replace Topsoil".

# **CONTRACTOR FURNISHED TOPSOIL**

The Contractor will be required to furnish and place 100 CuYd of topsoil in the newly graded channel prior to installation of the Articulated Concrete Mattress or as determined by the Engineer during construction.

Contractor furnished topsoil will be free from stones, coarse gravel, or similar objects larger than 3/4 inch in diameter. Brush, stumps, roots, wood, objectionable weeds, liter, or any other material which may be harmful to plant growth will not be allowed. Organic material will be decomposed.

All costs to furnish and place the Contractor furnished topsoil will be incidental to the contract unit price per cubic yard for "Contractor Furnished Topsoil".

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# **EROSION CONTROL**

The estimated area requiring erosion control is 15,000 square feet. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, and fertilizing will be incidental to the contract lump sum price for "Erosion Control".

The disturbed areas will be seeding and fertilized prior to installation of the articulated concrete mattress and turf reinforcement mat.

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

# Mycorrhizal Inoculum

Mycorrhizal inoculum will 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 will provide certification of the fungal species claimed and the live propagule count. The inoculum will include the following fungal species:

- 25% Glomus intraradices
- 25% Glomus aggregatum or deserticola
- 25% Glomus mosseae
- 25% Glomus etunicatum

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

The mycorrhizal inoculum will be as shown below or an approved equal:

Product Manufacturer MycoApply Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com AM 120 Multi Species Blend Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769

www.reforest.com

# Fertilizing

The Contractor will apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (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 will 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 will 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 will 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 fertilizer will be applied at a rate of 1,500 pounds per acre in accordance with the manufacturer's recommended method of application.

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

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 <u>www.sustane.com</u>
Perfect Blend	Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 <u>www.perfect-blend.com</u>

# **Permanent Seeding**

The areas to be seeded consist of below the articulated concrete mattress and newly disturbed areas within the project limits.

Type F Permanent Seed Mixture will consist of the following:

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

# TURF REINFORCEMENT MAT

Turf Reinforcement Mat will be installed at locations shown in the table at the widths specified, and at locations determined by the Engineer during construction. The Contractor will use a turf reinforcement mat from the approved products list. The approved product list for turf reinforcement mat may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

Turf Reinforcement Mat will be installed in accordance with the manufacturer's installation instructions.

# TABLE OF TURF REINFORCEMENT MAT

				Width		Quantity
Station to	Station	Location	L/R	(Ft)	Туре	(SqYd)
3+50	7+50	Channel Bank	L	8	1	356
3+50	7+50	Channel Bank	R	8	1	356
					_	

# **ARTICULATED CONCRETE MATTRESS**

Articulated concrete mattress will be installed along the channel as noted in the plans and at locations determined by the Engineer during construction.

Installation of the articulated concrete mattress will be in accordance with the manufacturer's installation instructions.

Mattress".

equal:

#### Product

Flexamat

# TABLE OF ARTICULATED CONCRETE MATTRESS

Station 3+50 to 7+50

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712 Total Type 1 Turf Reinforcement Mat:

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

The articulated concrete mattress will be as shown below or an approved

Manufacturer

Motz Enterprises, Inc. Cincinnati, OH Phone: 1-513-772-6689 http://www.flexamat.com/

Width (Ft)	Location	Quantity (SqYd)
16	Channel	711
	Total	: 711

# ROCK CHECK DAM

The rock for the rock check dam will be 6-8" and angular. The rock check dam will be constructed to the limits shown on Standard Plate 734.03. All costs for constructing the rock check dam including labor, equipment, excavation, and rock will be incidental to the contract unit price per cubic yard for "Rock Check Dam".

#### TABLE OF ROCK CHECK DAMS

Otation		Quantity
Station		(Cura)
2+04		22
3+00		22
3+50		22
4+00		22
4+50		22
5+00		22
5+50		22
6+00		22
6+50		22
7+00		22
7+50		22
	Total:	242

# **EROSION CONTROL WATTLE**

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

Erosion control wattles will remain on the project to decompose.

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

# TABLE OF EROSION CONTROL WATTLE

	Diameter			Quantity
Station	(Inch)	Location		(Ft)
7+86	12	Channel Bottom		50
			Total:	50

# TRAFFIC CONTROL – GENERAL NOTES

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

A longitudinal buffer space will be provided at the beginning of the activity area in accordance with Table 6C-2 in Part 6 of the MUTCD.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Traffic Control Signs, as shown in the Estimate of Quantities, are estimates. Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs used on the project, in accordance with the Specifications.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

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

All haul trucks will 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 will be incidental to the various related contract bid items.

# **INVENTORY OF TRAFFIC CONTROL DEVICES**

# ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W4-2	LEFT or RIGHT LANE ENDS (symbol)	1	48" x 48"	16.0	16.0
W20-1	ROAD WORK AHEAD	1	48" x 48"	16.0	16.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	1	48" x 48"	16.0	16.0
W21-5	SHOULDER WORK	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	1	36" x 18"	4.5	4.5
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			68.5

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# HORIZONTAL ALIGNMENT DATA

Channel						
Туре	Station			Northing	Easting	
POB	0+00.00			631964.854	1208355.314	
		TL= 171.50	N 82°05'20" E			
PI	1+71.50			631988.459	1208525.185	
		TL= 88.43	S 59°56'33" E			
PI	2+59.94			631944.165	1208601.726	
		TL= 489.14	S 88°31'29" E			
PI	7+49.08			631931.572	1209090.707	
		TL= 36.55	S 82°30'01" E			
PI	7+85.63			631926.802	1209126.942	
		TL= 114.37	S 77°04'03" E			
POE	9+00.00			631901.205	1209238.414	

POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
KB10	Rebar	631984.202	1208368.935	3450.396
KB11	Rebar	631970.162	1209355.069	3413.534

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2011); epoch 2010.00; Geoid 12A. The elevations shown are based on NAVD 96.

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# CONTROL DATA

# US 16B

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Anchor Antenna Approach Assumed Corner Azimuth Marker **BBQ Grill/ Fireplace** Bearing Tree Bench Mark Box Culvert Bridge Brush/Hedge Buildings Bulk Tank Cattle Guard Cemetery Centerline Cistern Clothes Line Concrete Symbol Control Point Creek Edge Curb/Gutter Curb Dam Grade/Dike/Levee Deck Edge Ditch Block Doorway Threshold Drainage Profile Drop Inlet Edge Of Asphalt Edge Of Concrete Edge Of Gravel Edge Of Other Edge Of Shoulder Electric Transformer/Power Junction Box Fence Barbwire Fence Chainlink Fence Electric Fence Miscellaneous Fence Rock Fence Snow Fence Wood Fence Woven Fire Hydrant Flag Pole Flower Bed Gas Valve Or Meter Gas Pump Island Grain Bin Guardrail Gutter Guy Pole Haystack Highway ROW Marker Interstate Close Gate Iron Pin Irrigation Ditch Lake Edge Lawn Sprinkler

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Mailbox Manhole Electric Manhole Gas Manhole Miscellaneous Manhole Sanitary Sewer Manhole Storm Sewer Manhole Telephone Manhole Water Merry-Go-Round Microwave Radio Tower Miscellaneous Line Miscellaneous Property Corner Miscellaneous Post Overhang Or Encroachment Overhead Utility Line -OH-Parking Meter Pedestrian Push Button Pole Pipe With End Section Pipe With Headwall Pipe Without End Section Playground Slide Playground Swing Power And Light Pole Power And Telephone Pole Power Meter Power Pole Power Pole And Transformer Power Tower Structure Propane Tank Property Pipe Property Pipe With Cap Property Stone Public Telephone Railroad Crossing Signal Railroad Milepost Marker Railroad Profile Railroad ROW Marker Railroad Signs Railroad Switch Railroad Track Railroad Trestle Rebar Rebar With Cap Reference Mark Retaining Wall Riprap  $\alpha$ River Edge Rock And Wire Baskets Rockpiles Satellite Dish Septic Tank Shrub Tree Sidewalk Sign Face Sign Post Slough Or Marsh Spring Stream Gauge Street Marker

Subsurface Utility Exploration Test Hole	•
Telephone Fiber Optics	— T/F —
Telephone Junction Box	Ō
Telephone Pole	Ø
Television Cable Jct Box	0
Television Tower	夲
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Tree Deciduous	0
Tree Stumps	٨
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Underground Gas Line	— G —
Underground High Pressure Gas Line	— HG —
Underground Sanitary Sewer	— s —
Underground Storm Sewer	= s =
Underground Tank	_
Underground Telephone Line	— т —
Underground Television Cable	— TV —
Underground Water Line	— W —
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Water Meter	
Water Tower	۸
Water Valve	0
Water Well	$\odot$
Weir Rock	
Windmill	8
Wingwall	
Witness Corner	<b>(10)</b>

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State and Natio County Line Section Line Quarter Line	onal Line	-			
Property Line Construction L ROW Line	ine	-			
New ROW Lin Cut and Fill Lin Control of Acce New Control of Proposed ROV (After Property	ie nits ess f Access V Disposal)		• • • • • • • • • • • • • • • • • • •		
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Remove Conci	rete Drivev	vay Pavement			
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Remove Conci	rete Media	n Pavement			
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Turf Reinforceme	nt — \	/	Turf Reinfor	rcement
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Posted Speed Prior to	Spacing of Advance Warning Signs	Taper Length	Spo Cha D	ocing nneli evice	of zing es		
Work	(Feet)	(Feet)		Feet	)	†	
0 - 30	200			25		1	
35 - 40	350	320		25			
45	500	600		25			
50	500	600		50	*		
<u>55</u>	1000	780		50	*	-	
<ul> <li>* Spacin</li> <li>© Refle</li> <li>Chann</li> <li>(4)</li> <li>4" Whith Paven</li> </ul>	ng is 40' for 42" actorized Drum nelizing Device ite Temporary ment Marking	cones.					
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Plotted From - trrc1162



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#### **GENERAL NOTES:**

At cut or fill slope installations, wattles will be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor will dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes will be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes will be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles will be 3' to 4'.

Where installing running lengths of wattles, the Contractor will butt the second wattle tightly against the first and will not overlap the ends. See Detail C.

The Contractor and Engineer will inspect the erosion control wattles in accordance with the storm water permit. The Contractor will remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping will be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials will be incidental to the contract unit price per foot for the corresponding erosion control wattle contract item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials will be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

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	STATE OF	PROJECT	SHEET	TOTAL SHEETS
SOUTH DAKOTA	SOUTH DAKOTA	016B-452	16	16
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