

	STATE	PROJECT	SHEET NO.	TOTAL SHEETS	
	OF SD	090W-391. 090E-391	1	16	
	INDI	FX OF SHEETS			
Shee	et No.I	Title Sheet & Layout M	ap A Dian	**	
Shee Shee Shee Shee	9† Nos. 2 - 9† Nos. 7 - 9† No. 11 9† Nos. 12 -	 6 Estimate of quantities 10 Typical Sections & Plan Table of Repair Locatio 16 Standard Construction 	& Pian Sheets Ins Plates	Notes	
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MEDIAN D		FPAIR	Ļ		
END PRO	JECT		Q	D	
PCN IINE MRM 227	.01		Λ		
STA 7+6	4		μ		
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Big 1 Bend Dam		0W-391 & 090E-391 N IINR & IINQ			
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STATISTICS CHAI	MBERLAIN				
(47) long					
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ESTIMATE OF QUANTITIES

090W-391 & 090E-391 PCN I1NR & I1NQ

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
120E0600	Contractor Furnished Borrow	195	CuYd
250E0010	Incidental Work	Lump Sum	LS
250E0030	Incidental Work, Structure	Lump Sum	LS
634E0100	Traffic Control	170	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
730E0210	Type F Permanent Seed Mixture	15	Lb
732E0100	Mulching	0.5	Ton

090E-391 PCN I1NE

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E1120	Remove Concrete Median Pavement	285.2	SqYd
120E0600	Contractor Furnished Borrow	48	CuYd
634E0100	Traffic Control	1,126	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
670E4210	Type N Grate	64	Each
730E0210	Type F Permanent Seed Mixture	23	Lb
732E0100	Mulching	0.5	Ton
734E0102	Type 2 Erosion Control Blanket	1,268	SqYd
734E0132	Type 2 Turf Reinforcement Mat	661.1	SaYd

090W-391 PCN I1ND

Bid Item Number	Item	Quantity	Unit	
009E0010	Mobilization	Lump Sum	LS	
110E7510	Remove Pipe End Section for Reset	6	Each	
120E0010	Unclassified Excavation	3,700	CuYd	
230E0010	Placing Topsoil	1,510	CuYd	
250E0020	Incidental Work, Grading	Lump Sum	LS	
450E9001	Reset Pipe End Section	6	Each	
634E0010	Flagging	40	Hour	
634E0100	Traffic Control	1,204	Unit	
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS	
634E0300	Temporary Road Marker	360	Each	
634E0420	Type C Advance Warning Arrow Panel	2	Each	
730E0210	Type F Permanent Seed Mixture	15	Lb	
732E0100	Mulching	1.0	Ton	

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

SEQUENCE OF OPERATIONS

The Contractor shall submit his proposed sequence of operations for the Engineer's approval at least one week prior to the preconstruction meeting.

Traffic shall be maintained through the project at all times.

SCOPE OF WORK

090W-391 & 090E-391 PCN I1NR & I1NQ

This project consists of the repair and stabilization of the bridge berm embankments on the I-90 structures at MRM 143.30, MRM 225.38, MRM 226.41, MRM 235.43, MRM 239.66 & MRM 251.09.

090E-391 PCN I1NE

This project consists of removing and replacing the existing median drain grates from MRM 211.14 to MRM 227.01.

090W-391 PCN I1ND

This project consists of grading the Interstate median to reestablish original grade line by removing low and heaved areas from MRM 151.6 to MRM 152.2.

BERM STABILIZATION - MRM 143.30

The Contractor will be required to reshape the existing bridge berms to reestablish the typical section as shown on the plan sheets. For information purposes, it is estimated that 15 cuyd of material will have to be reshaped and 30 cuyd of Contractor furnished borrow will be required for the repair. Compaction of the material will be to the satisfaction of the Engineer. Plans quantities will be the basis of payment. No separate measurements will be made.

All costs associated with the reshaping of the bridge berms shall be incidental to the contract lump sum price for "Incidental Work". All costs for placing the borrow material shall be included in the contract unit price per cubic yard for "Contractor Furnished Borrow". Basis of payment will be plans quantity.

BERM STABILIZATION – MRM 225.38

The Contractor shall repair the existing bridge berms near the approach slabs as per the detail for MSE Backfill Repair. The contractor shall install a galvanized steel plate as per the detail for MSE Backfill Repair to cover the expansion gap adjacent to the abutment created by the MSE Backfill and prevent fill material from entering the expansion gap. The area shall then be backfilled to the top of the approach slab with material approved by the Engineer and compacted to the satisfaction of the Engineer.

All costs associated with the reshaping and backfilling of the existing bridge berms near the approach slabs, installing the galvanized steel cover plate and drainage fabric as per the detail for MSE Backfill Repair. shall be incidental to the contract lump sum price for "Incidental Work, Structure".

BERM STABILIZATION - MRM 226.41

The Contractor will be required to reshape the existing bridge berms to reestablish the typical section as shown on the plan sheets. For information purposes, it is estimated that 30 cuyd of material will have to be reshaped and 70 cuyd of Contractor furnished borrow will be required for the repair. Compaction of the material will be to the satisfaction of the Engineer. Plans quantities will be the basis of payment. No separate measurements will be made.

All costs associated with the reshaping of the bridge berms shall be incidental to the contract lump sum price for Incidental Work. All costs for placing the borrow material shall be included in the contract unit price per cubic yard for "Contractor Furnished Borrow". Basis of payment will be plans quantity.

The Contractor shall also repair the existing bridge berms near the approach slabs as per the detail for MSE Backfill Repair. The contractor shall install a galvanized steel plate as per the detail for MSE Backfill Repair to cover the expansion gap adjacent to the abutment created by the MSE Backfill and prevent fill material from entering the expansion gap. The area shall then be backfilled to the top of the approach slab with material approved by the Engineer and compacted to the satisfaction of the Engineer.

All costs associated with the reshaping and backfilling of the existing bridge berms near the approach slabs, installing the galvanized steel cover plate and drainage fabric as per the detail for MSE Backfill Repair. shall be incidental to the contract lump sum price for "Incidental Work, Structure".

BERM STABILIZATION - MRM 235.43

The Contractor will be required to reshape the existing bridge berms to reestablish the typical section as shown on the plan sheets. For information purposes, it is estimated that 10 cuyd of material will have to be reshaped and 25 cuyd of Contractor furnished borrow will be required for the repair. Compaction of the material will be to the satisfaction of the Engineer. Plans quantities will be the basis of payment. No separate measurements will be made.

be plans quantity.

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All costs associated with the reshaping of the bridge berms shall be incidental to the contract lump sum price for "Incidental Work". All costs for placing the borrow material shall be included in the contract unit price per cubic yard for "Contractor Furnished Borrow". Basis of payment will

BERM STABILIZATION - MRM 239.66

The Contractor will be required to reshape the existing bridge berms to reestablish the typical section as shown on the plan sheets. For information purposes, it is estimated that 20 cuyd of material will have to be reshaped and 30 cuyd of Contractor furnished borrow will be required for the repair. Compaction of the material will be to the satisfaction of the Engineer. Plans quantities will be the basis of payment. No separate measurements will be made.

All costs associated with the reshaping of the bridge berms shall be incidental to the contract lump sum price for "Incidental Work". All costs for placing the borrow material shall be included in the contract unit price per cubic vard for "Contractor Furnished Borrow". Basis of payment will be plans quantity.

BERM STABILIZATION - MRM 251.00

The Contractor will be required to reshape the existing bridge berms to reestablish the typical section as shown on the plan sheets. For information purposes, it is estimated that 10 cuyd of material will have to be reshaped and 40 cuyd of Contractor furnished borrow will be required for the repair. Compaction of the material will be to the satisfaction of the Engineer. Plans quantities will be the basis of payment. No separate measurements will be made.

All costs associated with the reshaping of the bridge berms shall be incidental to the contract lump sum price for "Incidental Work"

. All costs for placing the borrow material shall be included in the unit price per cubic yard for "Contractor Furnished Borrow". Basis of payment will be plans quantity.

MEDIAN REPAIR – MRM 151.6 to 152.2

The Contractor will be required to reshape the median ditch to match original construction plans from station 491+25 to station 520+75. The estimated cubic yards of excavation to remove heave areas, remove and stockpile 3" of topsoil, and fill in low areas is 3,700 CuYd. Water for construction is estimated at the rate of 12 gallons per cubic yard. Compaction shall be to the satisfaction of the Engineer. All costs associated with the grading of the median shall be incidental to the contract unit price per cubic yard for "Unclassified Excavation". The plan quantity for "Unclassified Excavation" will be the basis of payment for this item and no field measurement will be made.

The median ditch shall be constructed with two 10-foot width bottoms at 20:1 slope with a 6:1 backslope. The Engineer may direct the Contractor to adjust the typical cross section and slopes to ensure proper ditch drainage and alignment with drainage structures.

MEDIAN REPAIR – MRM 151.6 to 152.2 (CONTINUED)

Construction Gradeline Elevations

Sta. 491+25	Ditch Block	2469.1
491+25	Flowline	2467.6
Sta. 492+00	Flowline	2467.4
Sta. 495+00	Flowline	2466.7
Sta. 500+00	Flowline	2465.6
Sta. 501+46	Pipe Inlet	2465.2
Sta. 501+60	Ditch Block	2466.5
Sta. 502+00	Flowline	2465.1
Sta. 505+00	Flowline	2464.2
Sta. 510+00	Flowline	2462.7
Sta. 513+50	Pipe Inlet	2461.6
Sta. 515+00	Flowline	2461.8
Sta. 520+00	Flowline	2462.3
Sta. 520+75	Ditch Block	2462.8

Median Slope

Sta. 491+00 to 501+46 0.23% Sta. 501+60 to 513+50 0.30% Sta. 520+75 to 513+50 0.10%

The Contractor shall remove existing pipe ends prior to completing grade work and reinstall pipe ends after reestablishment of median drain line. All RCP end sections that are reinstalled shall have tie bolts installed between the first section and end section of pipe. The Contractor shall field drill the existing RCP pipe and end sections to install the new tie bolts, if necessary. The bolts shall be installed in accordance with Standard Plate No. 450.18. Costs for removing tie bolts, drilling tie bolts, and furnishing tie bolts shall be incidental to the contract unit price for "Remove Pipe End Section for Reset" and "Reset Pipe End Section".

Pipe End Section Remove & Reset

Sta. 491+00	18" RCP	Remove & Reset Inlet & Outlet End (2 Each)
Sta. 501+45	18" RCP	Remove & Reset Inlet & Outlet End (2 Each)
Sta. 513+50	18" RCP	Remove & Reset Inlet & Outlet End (2 Each)

All median pipe and pipe ends that are removed and reset within the project limits shall be cleared of sediment by a method approved by the Engineer. The method of cleaning shall be submitted for approval prior to the preconstruction meeting. The pipe inlet ends shall be protected with an acceptable erosion control BMP during construction to the satisfaction of the Engineer. All costs associated with the cleaning of the existing pipe and installation of the erosion control BMP, including material, labor, excavation, and equipment shall be incidental to the contract lump sum price for "Incidental Work, Grading".

All disturbed areas shall have salvage topsoil placed. The contractor shall disk and rake the topsoil such that there are not any clumps of sod or topsoil greater than 3 inches in diameter existing prior to seeding.

MEDIAN REPAIR – MRM 151.6 to 152.2 (CONTINUED)

The area will be reseeded with Type F Permanent Seed Mixture (estimated @ 0.4 acres). Permanent Seeding will be measured and paid for where embankment work is accomplished.

the Engineer.

Type F Permanent Seed Mixture shall consist of the following:

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

Following permanent seeding, a mulch consisting of grass hay or straw shall be blown on at the rate of 2 tons per acre and punched in on slopes 3:1 and flatter and on 2:1 slopes where equipment can be operated without rutting the slope due to slippage. Bales with noxious weed contamination will be rejected and the Contractor will be required to remove the contaminated bales from the project.

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Hand seeding devices approved by the Engineer will be allowed. All seed broadcast, including the use of a hydroseeder, must be raked or dragged in (incorporated) with the top 1/4 to 1/2 inch of topsoil to the satisfaction of

MEDIAN DRAIN REPAIR - MRM 210.14 to 227.01

- 1. Remove concrete apron & rosettes
- 2. Clean out riser and "T" section
- 3. Install grate extension
- 4. Place contractor furnished borrow
- 5. Install new Type N Grate
- 6. Shape median drain area for Type 2 Turf Reinforcement Mat
- 7. Install Type 2 Turf Reinforcement Mat
- 8. Shape median ditch 100 feet in both directions
- 9. Seed TRM & all disturbed ground
- 10. Soil Fill TRM area
- 11. Install Type 2 Erosion Control Blanket over TRM area

This work consists of replacing median covers and erosion repair at various locations on I-90 from MRM 210.14 to MRM 227.01. A list of the Median Drain locations and quantities area as listed in the table "MEDIAN DRAIN REPAIR TABLE".

The existing 4" concrete aprons and existing concrete rosette lids shall be removed, hauled, and stockpiled at the State Stockpile site located in the SE ¼ - Section 22 - T105N - R77W adjacent to US Highway 183, just South of Presho. The Contractor shall notify Tim Huffman at (605) 842-5387 to determine exact location within the state stockpile site to place the rosette concrete. All costs for this work shall be included in the contract unit price per square yard, "Remove Median Pavement."

The Contractor shall place borrow material, as called for in the table Median Drain Repair, at each site where the concrete apron was removed. Compaction shall be to the satisfaction of the Engineer. All costs for placing the borrow material shall be included in the unit price per cubic yard for "Contractor Furnished Borrow". Basis for payment will be plans quantity.

Clean out of the riser and "T" section shall remove all wood, rubble, dirt, rocks, etc. from the riser area. Cost to complete this work will be incidental to the various bid items.

The Contractor shall install a 1.0 ft section of concrete pipe on the existing pipe culvert prior to installation of the Type N grate. The extension shall be connected to the existing pipe culvert with two tie bolts to hold the extension in place. The Type "N" Grates shall conform to Section 670.2 and standard plate number 670.70 and be installed at the locations as noted in the table of Median Drain Repair. The contractor shall verify the size of the pipe and assure that the pipe extension matches up with the existing pipe culvert. Payment for furnishing and installing both the extension grates and the Type "N" Grates shall be paid per each under the unit bid item "TYPE N GRATE".

The area around each median drain shall have a soil filled Type 2 Turf Reinforcement Mat (TRM) as per the sizing in the table Median Drain Repair. The Type 2 TRM shall be selected from the Department's approved products list and installed in accordance with the Standard Specifications Section 734 – "Permanent Erosion Control" and or the manufactures recommendations, whichever is more stringent.

MEDIAN DRAIN REPAIR - MRM 210.14 to 227.01 (CONTINUED)

All outside edges of the Type 2 TRM shall be trenched in 6".

The final grade of the soil filled Type 2 TRM shall be level with the top of the Type "N" Grate.

At no times shall the existing riser/median drain be left unattended or left over night ,in which there exists an elevation difference of greater than 6" from the top of the median drain to the surrounding ground.

The TRM installation dimensions are as stated in the table TRM/ECB Dimension Table. The width shall be the distance as measure along a line parallel to the centerline of the ditch and be centered on the rosette(s). The length shall be a distance as measured on a line perpendicular to the centerline of the ditch and be centered on the rosette(s). The SQYDs listed in the tables are the finished surface measurements and do not account for any additional material for laps, trenches & splices. Payment will be based on the table quantities.

The TRM shall be installed around the drain as follows:

- 1. The TRM placed over the median drain riser shall be cut into a minimum or eight equal wedge like sections. Each cut shall start at the center of the median drain and proceed outward and terminated at the outside edge of the median drain riser.
- 2. Each of the wedge sections shall be tucked under the uncut portion of the TRM. The contractor will ensure that gaps between the riser and the TRM are negligible. A minimum of two staples shall be installed per cut wedge section to secure the TRM around the median drain riser.

Soil filing of the TRM shall be at a minimum of 1" and a maximum 3" of topsoil be placed on top of the TRM.

Seeding over the TRM will be at a rate of 2.0 lbs per 1000 sqft and shall be applied 2.0 ft beyond the edges of the TRM. Hand seeding will be allowed over the TRM, as approved by the Engineer.

The Engineer has the authority to alter the installation of the TRM to best fit field conditions.

All costs for installation of the Type 2 soil filled TRM shall be paid under the contract unit price per square yard for "Turf Reinforcement Mat."

Upon completion of the TRM, the median ditch shall be shaped for 100' or less, as directed by the Engineer, in both directions from the median drain to allow for proper drainage and reseeded.

MEDIAN DRAIN REPAIR - MRM 210.14 to 227.01 (CONTINUED)

The entire TRM area shall be covered with a Type 2 Erosion Control Blanket from the approved products list. Each site's quantity shall be as set forth in the Table of Median Drain Repair and the TRM/ECB Dimension Table. The erosion control blanket shall be trimmed to fit around each median drain and sufficiently pinned in place. Only the two ditch upstream edges shall be trenched in 6".

The ECB installation dimensions are as stated in the table TRM/ECB Dimension Table. The width shall be the distance as measure along a line parallel to the centerline of the ditch and be centered on the rosette(s). The length shall be a distance as measured on a line perpendicular to the centerline of the ditch and be centered on the rosette(s). The ECB has been computed such that it will extend 2.0' beyond all of the edges of the installed TRMs. The SQYDs listed in the tables are the finished surface measurements and do not account for any additional material for laps, trenches & splices. Payment will be based on the table quantities.

All costs associated with installation of the Type 2 Erosion Control Blanket shall be paid under the contract unit price per square yard for "Standard Erosion Control Blanket."

The newly shaped ditch areas may be done with a "hand" seeding method approved by the Engineer. All areas seeded by "hand" shall be raked/dragged in prior to covering with mulch. Seed shall be applied at rate of 2.0 lbs per 1000 sqft.

Seed for the repair of the median drains shall be as specified in the median drain repair section of the plans under Type F Permanent Seed Mixture.

All seed for the repair of the median drain areas shall be paid under the unit bid price per pound for Type F Permanent Seed Mixture. It is estimated that 23 lbs of seed will be required for the median drain repair.

All newly seeded areas not covered by the erosion control blanket shall be mulched at a rate of 2 tons per acre. Mulch will be installed as per Section 732. It is estimated that 0.5 ton of mulch will be required for the median drain repair.

TRM/ECB DIMENSION TABLE

	TRM – Turf Reinforcment Mat			ECB – Erosion Contro Blanket		
#of Rosettes	Width	Length	SQYD	Width	Length	SQYD
Single	10	10	11.11	14	14	21.78
Double	10	15	16.67	14	19	29.56
Triple	10	20	22.22	14	24	37.33

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PERMANENT SEEDING – BRIDGE BERM REPAIR

The newly shaped berm repair areas may be done with a "hand" seeding method approved by the Engineer. All areas seeded by "hand" shall be raked/dragged in prior to covering with mulch. Seed shall be applied at rate of 2.0 lbs per 1000 sqft.

Seed for the repair of the bridge berms shall be as specified in the median drain repair section of the plans under Type F Permanent Seed Mixture.

All seed for the repair of the median drain areas shall be paid under the contract unit price per pound for Type F Permanent Seed Mixture. It is estimated that 15 lbs of seed will be required for the median drain repair.

All newly seeded areas not covered by the erosion control blanket shall be mulched at a rate of 2 tons per acre. Mulch will be installed as per Section 732. It is estimated that 0.5 ton of mulch will be required for the median drain repair.

TABLE OF CONTRACTOR FURNISHED BORROW – BRIDGE BERM REPAIR

MRM	CUYD
143.0	30.0
226.4	70.0
235.4	25.0
239.6	30.0
251.0	40.0
TOTAL =	195.0

GUARDRAIL

The Contractor will not be required to remove any of the existing guardrail located near the repair areas. If the contractor elects to remove a section of guardrail for the bridge berm repair, it will be allowed, but will be at the contractors expense. Once the repair is complete any guardrail removed must be reset to the satisfaction of the Engineer. No guardrail shall be removed adjacent to the structures in the Eastbound and Westbound lanes of I-90.

Any guardrail item damaged during the repair must be repaired and/or replaced by the contractor at no cost to the department. All costs associated to remove, reset and/or replace the guardrail items will be the sole responsibility of the contractor.

Once the existing guardrail is removed from any item of concern, the contractor shall place drums or Type II Barricades at 25 foot intervals at each location where the existing guardrail is removed. These devices shall extend 175 feet beyond the item of concern for each direction of traffic. Drums or barricades shall remain in place until the guardrail is replaced. Cost of furnishing, installing and maintaining drums or barricades shall be incidental to the contract lump sum price for Traffic Control Miscellaneous.

GUARDRAIL (CONTINUED)

Prior to any guardrail removal, a written construction schedule for work in the guardrail area shall be developed by the Contractor and Subcontractor (if any), and approved by the Engineer. In no case shall the work cease between the controlling items of work for more than 4 days. The replacement of the guardrail shall be completed within five (5) working days from the completion of the controlling item of work.

If the contractor fails to complete the required work within the time allowed, the Contractor will be assessed liquidated damages of \$500 for each calendar day that the guardrail work remains incomplete.

This provision applies up to the Contract completion date, as extended. After the completion date, liquidated damages of \$500 for each calendar day will be assessed along with liquidated damages in accordance with Section 8.7, until the guardrail installation is completed.

WASTE DISPOSAL SITE

The Contractor shall haul all 4" concrete aprons and existing rosette lids to the State Stockpile site located in the SE 1/4 - Section 22 - T105N - R77W adjacent to US Highway183, just South of Presho. The Contractor will be required to furnish a site(s) for the disposal of all other construction/demolition debris generated by this project.

Construction/demolition debris may not be disposed of within the State ROW.

The waste disposal site(s) shall not be located in a wetland, within 200 ft 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 Engineer.

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

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

WASTE DISPOSAL SITE (CONTINUED)

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.

contract items.

HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain State Historical Preservation Office (SHPO) clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. In lieu of a cultural resources survey, the Contractor could request a records search from Jim Donohue, State Archaeological Research Center (SARC). Provide SARC with the following: a topographical map or aerial view on 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 no artifacts have been found on the site. The Contractor shall arrange and pay for the cultural resource survey and/or records search.

If any earth disturbing activities occur within the current geographical or historic boundaries of any South Dakota reservation, the Contractor shall obtain Tribal Historical Preservation Office (THPO) clearance. If no THPO exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.

To facilitate SHPO or THPO responses, the Contractor should submit a records search or cultural resources survey report to Tom Lehmkuhl, DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO/THPO approval. The Contractor is responsible for obtaining all required permits and clearances for staging areas, borrow sites, waste disposal sites, and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

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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) shall be incidental to the various

MAINTENANCE OF TRAFFIC

Traffic control shall be in accordance with Section 634 of the Standard Specifications, and the Plan Notes pertaining thereto.

The Contractor shall designate an employee who will be available 24 hours/day, 7 days/week to be responsible for the maintenance of traffic. The person so designated must have training and experience in the field of construction traffic control and be knowledgeable about the Manual on Uniform Traffic Control Devices (MUTCD). The cost of the traffic control person shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous". The Engineer must approve the employee selected. The name and phone number of person(s) shall be provided to the SD Department of Transportation (842-0810), SD Highway Patrol, Jackson County Sheriff (837-2285) and Lyman County Sheriff Department (869-2200).

During construction of the project, existing State owned traffic control devices shall be removed, reset or relocated as necessary by the Contractor. Devices no longer needed shall be neatly stockpiled on the project at a location(s) designated by the Engineer. Cost of this work shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

All traffic control devices shall be in "like new" condition.

The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

All fixed location signs and applicable traffic control devices shall be installed or in place prior to the start of work or mobilization of equipment within the traveled way.

Non-applicable signing shall be covered or removed during periods of inactivity. All costs to do this work shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location supports, unless approved by the Engineer.

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

MAINTENANCE OF TRAFFIC (CONTINUED)

The Contractor is responsible to ensure that all traffic control devices are displayed in accordance with the MUTCD, corresponding plan sheets and standard plates illustrated in the plans. If a device is improperly displayed, or not displayed at all when it should be, it will be considered as an infraction upon the plans. The Contractor will be assessed a bid item payment deduction of \$450.00 for each infraction that is not corrected within one hour. Any infraction not corrected within one hour may be considered as an additional infraction. The Engineer will inform the Contractor of each noted infraction for which the assessed deduction will be invoked. Other Traffic Control Plan requirement violations as noted by the Engineer are also subject to a price adjustment.

The Contractor may use 42" Grabber Cones for longitudinal delineation only. All tapers, lane transitions, and marking of full depth repairs shall be accomplished utilizing drums in accordance with the MUTCD.

The use of the concrete barriers as displayed in Standard Plate 634.61 "Shoulder Closed" will not be required.

Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to 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.

A shadow vehicle, equipped with a flashing amber light and a ROAD MACHINERY AHEAD sign prominently displayed, shall be used in advance of landscaping, clean up and other mobile work activities.

Highway equipment working within traffic or adjacent to traffic shall, at all times, display a flashing or revolving amber light to warn the traveling public.

The Contractor shall furnish, install and maintain TRUCK CROSSING signs. The exact number and location will be determined on construction.

The TRUCK CROSSING signs shall be displayed at all times when haul vehicles are hauling material. When the truck haul condition no longer exists, the signs shall be covered or removed from view. Hinged signs may be used.

The use of interstate maintenance crossovers will not be permitted except when both the left (inside) lanes for each directional set of lanes on the same section of interstate are closed.

Work activities will not be allowed during non-daylight hours.

MAINTENANCE OF TRAFFIC (CONTINUED)

The Contractor will be allowed to set up traffic control closing the shoulder for two work zones not exceeding nine miles in length, one for Eastbound traffic and one for Westbound traffic, for the median drain repair portion of this contract. Portable sign supports may be allowed for this work based on the Contractor's schedule of work approved at the preconstruction meeting. The Contractor shall install "Shoulder Closed" signs at three locations spaced equal distances apart throughout the length of the shoulder closure setups and sign interval shall be not greater than 3-miles.

The sign tabulation units were calculated assuming work would be conducted in both the Eastbound and Westbound lanes concurrently within two separate lane closure setups. The Contractor will be paid for the actual quantity of movable signs used, not to exceed two repair zones, regardless of the number of times they are moved or the number of work zones. Traffic control signs furnished will be paid for only once. No payment will be made for signs used in traffic setups exceeding two repair zones.

Traffic shall be maintained on the proper directional set of lanes and ramps throughout the project during construction operations. No crossing over of traffic to the opposing set of lanes or wrong way movement on ramps will be allowed. The Contractor will so arrange the details of his operations as to cause a minimum of inconvenience and delay to the traveling public. Routing traffic onto the asphalt shoulders during any phase of the construction will not be allowed.

At interchange ramp tapers, locations of signs, barricades and channelizing devices on the mainline shall be adjusted to accommodate traffic entering or leaving the work area.

ITEMIZED LIST FOR TRAFFIC CONTROL

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	4	17	68
R2-1	30" x 36"	SPEED LIMIT ##	8	23	184
W3-5	48" x 48"	SPEED REDUCTION	4	34	136
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W7-3a	30" x 24"	NEXT ## MILES	4	18	72
W8-6	48" x 48"	TRUCK CROSSING	2	34	68
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	8	34	272
W20-5	48" x 48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	2	34	68
W21-5a	48" x 48"	RIGHT SHOULDER CLOSED	24	34	816
W21-5b	48" x 48"	RIGHT SHOULDER CLOSED AHEAD	4	34	136
SPECIAL	30" x 24"	FINES DOUBLED	4	18	72
****	****	TYPE III BARRICADE - 8 FT. DOUBLE SIDED	6	56	336
			TOT	AL UNITS	2500

STATE	PROJECT	SHEET NO.	TOTAL SHEETS
SOUTH DAKOTA	090W-391 & 090E-391	6	16

















MEDIAN DRAIN REPAIR TABLE

MEDIAN DRAIN REPAIR TABLE (CONTINUED)

Station		Number of	Apron	Borrow	Soil Filled Turf	Erosion Control	Type N	Grate
		Rosetts	Removal	Dirt	Reinforcement	Blanket	Grate	Extension
					Mat			
		Each	SQYD	CUYD	SQYD	SQYD	Each	Each
40+80	1st	1	4.19	0.75	11.11	21.78	1	1
54+70	1st	1	4.19	0.75	11.11	21.78	1	1
82+35	1st	1	4.19	0.75	11.11	21.78	1	1
105+20	1st	1	4.19	0.75	11.11	21.78	1	1
138+05	1st	1	4.19	0.75	11.11	21.78	1	1
EQ 158+54	4.94 b	k = 0+00 ah						
7+35	2nd	1	4.19	0.75	11.11	21.78	1	1
13+95	2nd	1	4.19	0.75	11.11	21.78	1	1
24+54	2nd	1	4.19	0.75	11.11	21.78	1	1
44+20	2nd	1	4.19	0.75	11.11	21.78	1	1
51+20	2nd	1	4.19	0.75	11.11	21.78	1	1
59+00	2nd	1	4.19	0.75	11.11	21.78	1	1
66+55	2nd	1	4.19	0.75	11.11	21.78	1	1
75+00	2nd	1	4.19	0.75	11.11	21.78	1	1
109+00	2nd	1	4.19	0.75	11.11	21.78	1	1
139+80	2nd	1	4.19	0.75	11.11	21.78	1	1
147+10	2nd	1	4.19	0.75	11.11	21.78	1	1
153+10	2nd	1	4.19	0.75	11.11	21.78	1	1
161+15	2nd	1	4.19	0.75	11.11	21.78	1	1
171+75	2nd	1	4.19	0.75	11.11	21.78	1	1
203+20	2nd	1	4.19	0.75	11.11	21.78	1	1
210+00	2nd	1	4.19	0.75	11.11	21.78	1	1
216+00	2nd	1	4.19	0.75	11.11	21.78	1	1
232+10	2nd	1	4.19	0.75	11.11	21.78	1	1
254+10	2nd	1	4.19	0.75	11.11	21.78	1	1
262+00	2nd	1	4.19	0.75	11.11	21.78	1	1
268+25	2nd	1	4.19	0.75	11.11	21.78	1	1
276+05	2nd	1	4.19	0.75	11.11	21.78	1	1
294+10	2nd	1	4.19	0.75	11.11	21.78	1	1
306+05	2nd	1	4.19	0.75	11.11	21.78	1	1

Station		Number of	Apron	Borrow	Soil Filled Turf	Erosion Control	Type N	Grate
		Rosetts	Removal	Dirt	Reinforcement	Blanket	Grate	Extension
					Mat			
		Each	SQYD	CUYD	SQYD	SQYD	Each	Each
212+00	2nd	1	/ 10	0.75	11 11	21 78	1	1
210,05	2nd	1	4.19	0.75	11.11	21.70	1	1
220+00	211U 2nd	1	4.19	0.75	11.11	21.70	1	1
220+00	211U 2nd	1	4.19	0.75	11.11	21.70	1	1
255+00	211U 2nd	ן ר	4.19	0.75	11.11	21.70	<u>ເ</u>	1
267:02	211U 2nd	1	10.30	0.75	10.07	29.00	2	<u> </u>
200+15	211U 2nd	1	4.19	0.75	11.11	21.70	1	1
400+00	2nd	1	4.19	0.75	11.11	21.70	1	1
400+00	2nd	1	4.19	0.75	11.11	21.70	1	1
437+60	2110 2nd	2	10.38	1 50	16.67	29.56	2	2
449+70	2nd	1	4 19	0.75	11 11	21.78	1	1
470+28	2nd	2	10.38	1 50	16.67	29.56	2	2
478+30	2nd	1	4 19	0.75	11 11	21.78	1	1
496+15	2nd	2	10.38	1 50	16.67	29.56	2	2
509+10	2nd	1	4 19	0.75	11 11	21.78	1	1
533+00	2nd	1	4.19	0.75	11.11	21.78	1	1
566+50	2nd	1	4.19	0.75	11.11	21.78	1	1
587+00	2nd	2	10.38	1.50	16.67	29.56	2	2
600+00	2nd	3	15.65	2.25	22.22	37.33	3	3
620+00	2nd	1	4.19	0.75	11.11	21.78	1	1
645+15	2nd	1	4.19	0.75	11.11	21.78	1	1
659+20	2nd	1	4.19	0.75	11.11	21.78	1	1
681+05	2nd	2	10.38	1.50	16.67	29.56	2	2
691+00	2nd	2	10.38	1.50	16.67	29.56	2	2
713+00	2nd	1	4.19	0.75	11.11	21.78	1	1
Q 725+4	9.11 b	k = 0+00 ah						
3+91	3rd	1	4.19	0.75	11.11	21.78	1	1
Total =		64.0	285.2	48.0	661.1	1267.9	64.0	64.0

STATE OF	PROJECT	SHEET NO.	
SOUTH DAKOTA	090W-391 & 090E-391	11	16







more than 2 feet behind the curb. or 15 feet or more from the edge of any The signs illustrated shall be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations. The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow

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