

Interest in the second second

STATE OF SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION PLANS FOR PROPOSED

**PROJECT 090E-391** 

	STATE OF	PROJECT	SHEET	TOTAL SHEETS
	DAKOTA	090F - 391	1	9
	Plotting Date:	02/20/2013		
	r lotting bate.	02/20/2013		
	INDEX	UF SHEEIS		
Sheet No	ol Ti	tle Sheet & Lavout Map		
Sheet No	s.2-6 E	stimate of Quantities & Plan	Notes	
Sheet No	s.7-9 S	tandard Plates		
		1		
		$\mathbf{\nabla}$		
de la companya				
$\mathcal{V}$				
l v				
1				
(m))				
CHAMBERLAIN				
The second se				
6				
2				
۲ ۳				
jou III				

...\Design\l2RM\_Title Page.dgn

## **ESTIMATE OF QUANTITIES**

### 090E-391 PCN I2RM

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E1120	Remove Concrete Median Pavement	279.0	SqYd
120E0600	Contractor Furnished Borrow	35	CuYd
634E0010	Flagging	40	Hour
634E0100	Traffic Control	966	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	2	Each
670E4210	Type N Grate	46	Each
734E0010	Erosion Control	Lump Sum	LS
734E0102	Type 2 Erosion Control Blanket	974	SqYd
734E0132	Type 2 Turf Reinforcement Mat	500.0	SqYd

### **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

This work consists of replacing median covers and erosion repair at various locations on I-90 from MRM 166.1 to MRM 209.8. A list of the Median Drain locations and quantities area as listed in the table "MEDIAN DRAIN REPAIR TABLE".

### MEDIAN DRAIN REPAIR

- 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

The existing 4" concrete aprons shall be removed and the existing concrete rosette lids shall be disposed of by the contractor in accordance with waste disposal notes elsewhere in these plans. All costs for this work shall be included in the contract unit price per square yard, "Remove Concrete 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.

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".

## **MEDIAN DRAIN REPAIR (CONTINUED)**

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.

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 time 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:

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
SOUTH DAKOTA	090E - 391	2	9

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.

### MEDIAN DRAIN REPAIR (CONTINUED)

Soil filling 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.

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 "Type 2 Erosion Control Blanket."

### **MEDIAN DRAIN REPAIR (CONTINUED)**

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 for under the lump sum bid price for "Erosion Control". It is estimated that 46 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 2.0 ton of mulch will be required for the median drain repair. All costs associated with the installation of the mulch shall be paid for under the lump sum bid price for "Erosion Control.

#### **CONTRACTOR FURNISHED BORROW**

The Contractor shall provide a suitable site for Contractor furnished borrow material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material shall be approved by the Engineer. The Contractor may obtain the borrow material from within the ROW, but area and restoration must be approved by the Engineer prior to obtaining the borrow material. The plans quantity for "Contractor Furnished Borrow" as shown in the Estimate of Quantities will be the basis of payment for this item.

## **Median Drain Repair Locations**

MRM	Nı Ro		
	E		
166.10			
168.02			
168.24			
177.64			
191.97			
192.50			
196.17			
198.22			
198.44			
198.57			
198.79			
199.03			
199.35			
199.60			
199.74			
200.23			
200.33			
200.64			
200.87			
201.24			
201.45			
201.58			
201.87			
202.14			
202.51			
202.56			
202.97			
203.14			
203.67			
203.96			
204.60			
204.85			
205.20			
205.63			
205.80			
205.91			
206.06			
206.95			
207.35			
208.27			
208.36			
208.59			
209.06			
209.79			
Total =	4		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
SOUTH DAKOTA	090E - 391	3	9

mber settes	Apron Removal	Borrow Dirt	Type N Grate	Grate Extension
ACH	SQYD	CUYD	EACH	EACH
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
1	6.2	0.75	1	1
3	12.4	2.25	3	3
6.0	279.0	34.5	46.0	46.0

## TRM/ECB DIMENSION TABLE

	TRM Reinfor	– cment Ma	Turf	ECB – Blanke	Erosion t	Control
#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

### **TYPE F PERMANENT SEED MIXTURE**

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

## **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.

## HISTORICAL PRESERVATION OFFICE CLEARANCES (CONTINUED)

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 the DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3268). 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.

## WASTE DISPOSAL SITE

The Contractor will be required to furnish a site(s) for the disposal of 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 be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway 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) shall 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 Engineer.

# WASTE DISPOSAL SITE (CONTINUED)

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".

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) shall be incidental to the various contract items.

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
SOUTH DAKOTA	090E - 391	4	9

### **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 Report 350 or MASH 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 in-activity. 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.

### MAINTENANCE OF TRAFFIC (CONTINUED)

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.

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 and lane transitions shall be accomplished utilizing drums in accordance with the MUTCD. The use of the concrete barriers as displayed in the standard plate 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 rightof-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.

## **MAINTENANCE OF TRAFFIC (CONTINUED)**

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.

closed.

The length of repair zones will depend on the Contractor's operation; however, the length shall not exceed three miles and it will be classified and signed as one repair zone by placement of continuous channelization throughout the entire length of the repair zone. Under no circumstances will the Contractor be allowed to set up two work zones in the same direction of travel which are closer than three miles apart.

The sign tabulation units were calculated assuming work would be conducted in 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.

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

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
SOUTH DAKOTA	090E - 391	5	9

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

## MAINTENANCE OF TRAFFIC (CONTINUED)

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	NUM BER REQUIRED	UNITS PER SIGN	UNITS
	G20-2A	36" x 18"	END ROAD WORK	2	17	34
	W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
	W7-3a	30" x 24"	NEXT ## MILES	4	18	72
	W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	4	34	136
	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 / LEFT SHOULDER CLOSED	4	34	136
	W21-5b	48" x 48"	RIGHT / LEFT SHOULDER CLOSED A HEAD	4	34	136
	*****	****	TYPE III BARRICADE - 8 FT. DOUBLE SIDED	2	56	112
				TOTA	L UNITS	966

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090E - 391	6	9





...\Design\S63461 S63464.dq







	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		090E - 391	9	9
	Plotting Date:	02/20/2013		