

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT PH 0030(11)
SD HIGHWAYS 20 & 63
CORSON, DEWEY & ZIEBACH COUNTIES

DURABLE PAVEMENT MARKING
PCN 03B5

INDEX OF SHEETS

Sheet 1	Title Sheet
Sheets 2 & 3	Estimate and Notes
Sheet 4	Pavement Marking Details

DESIGN DESIGNATION - SD 20 - Segment 1

ADT (2015)	276
ADT (2035)	359
DHV	43.1
D	50%
T DHV	9.2%
T ADT	20.2%
V	65 MPH

DESIGN DESIGNATION - SD 63 - Segment 2

ADT (2015)	533
ADT (2035)	727
DHV	112.0
D	51%
T DHV	3.8%
T ADT	8.4%
V	65 MPH

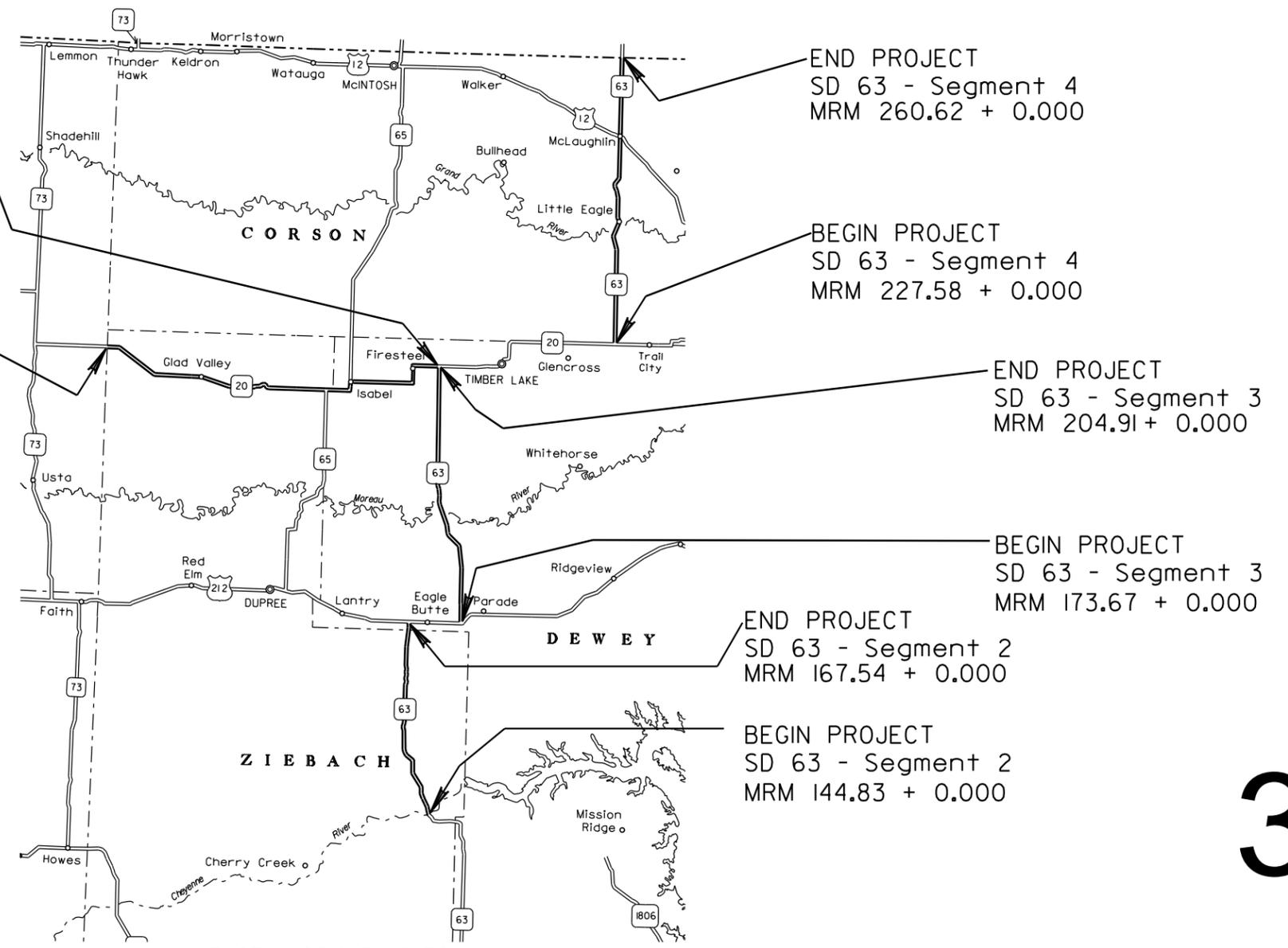
DESIGN DESIGNATION - SD 63 - Segment 3

ADT (2015)	561
ADT (2035)	681
DHV	104.8
D	51%
T DHV	4.7%
T ADT	10.3%
V	65 MPH

DESIGN DESIGNATION SD 63 Segment - 4

ADT (2015)	502
ADT (2035)	685
DHV	105.6
D	51%
T DHV	6.9%
T ADT	15.3%
V	55 MPH

STORM WATER PERMIT
(None Required)



Revised by TJO on 3/2/2016

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
633E1205	Waterborne Pavement Marking Paint with High Grade Polymer, Yellow	2,463	Gal
633E5100	Grooving for Durable Pavement Marking, 4"	467,828	Ft
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

Construction and/or demolition debris may be disposed of within the Public ROW.

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

The waste disposal site(s) 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 Project 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 and/or 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 and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public 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 Public 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.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. 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 shall arrange and pay for a cultural resource survey and/or records search. 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; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC 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 artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). 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.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility 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 shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

GENERAL NOTES

This project consists of grooving and painting the existing 4" painted centerlines.

Surface preparation, removal and cleaning work shall be conducted in such a manner as to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owners.

Work will be allowed only during daylight hours.

Work shall be sequenced so that any pavement markings removed, shall also be replaced with permanent pavement markings the same day.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	PH 0030(11)	3	4

Revised by TJO on 3/2/2016

MAINTENANCE OF TRAFFIC

Traffic shall be maintained in accordance with the Manual on Uniform Traffic Control Devices and as follows:

Mobile operations shall have appropriate devices on the equipment (that is, high-intensity rotating, flashing, oscillating, or strobe lights, signs, or special lighting) all other equipment shall display flashing amber lights visible to traffic in all directions as a minimum, or shall use a separate vehicle with appropriate warning devices.

Each vehicle in the pavement marking operation is required to display a slow moving vehicle emblem when operating at speeds of 25 miles per hour or less (These signs are removed when operating above 25 miles per hour).

A lead vehicle is optional if the striper operates in its own lane. A trail vehicle shall be used at all times. The trail vehicle shall operate in the same position as the striper. The trail vehicle shall display a sign with the legend "WET PAINT AHEAD" and an arrow panel operating in the caution mode (2 lane highways), or an alternative acceptable to the Engineer shall be used at all times. PASS WITH CARE SIGNS shall also be used.

All cost for signs and traffic control devices shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

GROOVING FOR DURABLE PAVEMENT MARKING, 4"

The groove shall be made using stacked diamond tipped blade cutting heads to prevent damage at the joints.

Grooving for durable pavement markings will replicate the existing 4" pavement marking lines.

Grooving on approach slabs and bridge decks shall start and stop a sufficient distance from the expansion joints so no damage occurs in these areas.

Unless otherwise specified in the plans, the Contractor shall groove the surface for pavement markings as specified below:

The grooving shall be completed within the following tolerances:

Depth of groove - Sum of pavement marking thickness and reflective media + 15 mils ±5 mils

Width of groove 5" to 6" ± 1/8"

Length of skip lines 10'-6" ± 3"

Tapers at begin/end lines 6" to 9"

The equipment shall be capable of:

- grooving the total width of the groove in one pass or uniform depths with multiple passes
- grooving without causing damage to the pavement joints or joint sealant material
- providing uniform alignment and depth
- moving continuously to permit a mobile traffic work operation

If damage to joints, joint sealant material, backer rod, etc. occurs, the grooving operation shall be stopped and modifications shall be made to the grooving

operation to prevent further damage. Damage caused to joints, the joint sealant material, backer rod, etc. shall be repaired or replaced by the Contractor, as directed by the Engineer. No additional payment will be made for the repair work or any reapplication of the pavement marking in the area of the repair.

The bottom of the groove shall be uniform and free of loose material. The groove shall be flat and of uniform depth for the entire width of the groove.

WATERBORNE PAVEMENT MARKING PAINT WITH HIGH GRADE POLYMER

All materials shall be applied as per manufacturer's recommendations.

This material shall consist of a durable high build, low VOC, fast drying, waterborne traffic paint with a 100% acrylic polymer (Dow DT-400 or Dow HD-21A or equivalent) and with reflective media adhered to the paint. The reflective media shall consist of glass beads as well as bonded core reflective elements.

The bonded core reflective elements shall contain either clear or yellow tinted microcrystalline ceramic beads bonded to the outer surface. All microcrystalline ceramic beads bonded to reflective elements shall have a minimum index of refraction of 1.8 when tested using the liquid oil immersion method.

The Department will take retroreflectivity readings on the pavement marking lines no sooner than 3 days and no later than 30 days after the completion of all line applications required for an individual highway route using a portable retroreflectometer conforming to 30-meter geometry. Retroreflectivity readings will be taken on a test location with cleaning being limited to light hand brooming.

Pavement markings not conforming to the retroreflectivity requirements shall be removed and replaced. If replacement of markings cannot be applied within the same year, the Contractor shall schedule subject work to be completed no later than June 15th in the following year. Upon replacement, the retroreflectivity testing process will be done again requiring new readings.

The Department will randomly select one test location per mile of centerline (solid and/or skip line will be considered as one centerline). Three retroreflectivity readings will be taken at each test location. The three readings will be averaged and become the reading for that test location.

Initial readings:

<u>Pavement Marking Color</u>	<u>Minimum Value</u>
Yellow	275 mc/m ² /lux

All pavement markings not conforming to the requirements provided in these plans will be considered deficient and shall be removed and replaced. Additional retroreflectivity readings will be taken by the Department to determine the limits of removal. The removal shall be accomplished using suitable sand blasting or grinding equipment unless the Engineer authorizes other means. The removal process shall remove at least 90% of the deficient line, with no excessive scarring of the existing pavement. The removal width shall be one inch wider all around the nominal width of the pavement marking to be removed. Removal and replacement of the pavement markings shall be at the Contractor's expense, with no cost incurred by the State.

RATES OF MATERIALS FOR PAINT WITH HIGH GRADE POLYMER

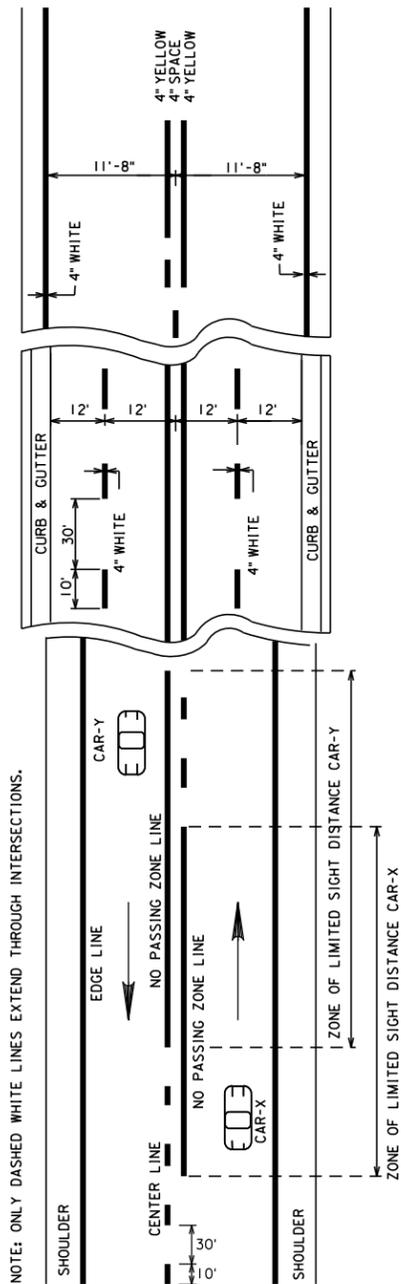
Solid 4" line = 27.8 Gals/Mile
Glass Beads = 5.3 Lbs/Gal.
Composite Reflective Elements = 2.1 Lbs/Gal.

All cost for materials, labor and equipment necessary to furnish and install the pavement markings shall be incidental to the contract unit price per gallon for Waterborne Pavement Marking Paint with High Grade Polymer, Yellow.

PAVEMENT MARKING DETAILS

APPLICATION OF PAVEMENT MARKING FOR

UNDIVIDED ROADWAY



ESTIMATE OF QUANTITIES

ROUTE	HIGH GRADE POLYMER PAINT	
	WHITE	YELLOW
Segment 1	0 Gals.	658 Gals.
Segment 2	0 Gals.	383 Gals.
Segment 3	0 Gals.	658 Gals.
Segment 4	0 Gals.	764 Gals.
TOTALS	0 Gals.	2,463 Gals.