

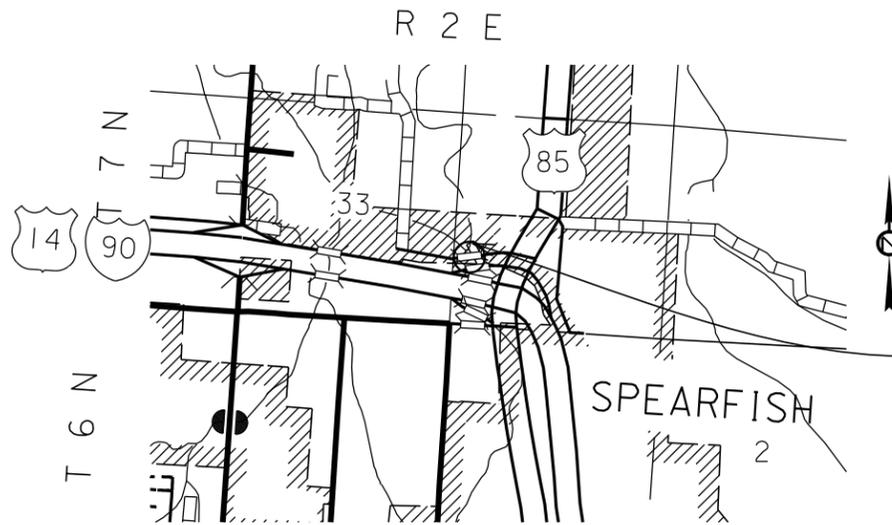
|                             |               |       |                 |
|-----------------------------|---------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT       | SHEET | TOTAL<br>SHEETS |
|                             | IM 0901(163)9 | D1    | D4              |

Plotting Date: 07/02/2014

# Section D: Erosion Control Plans

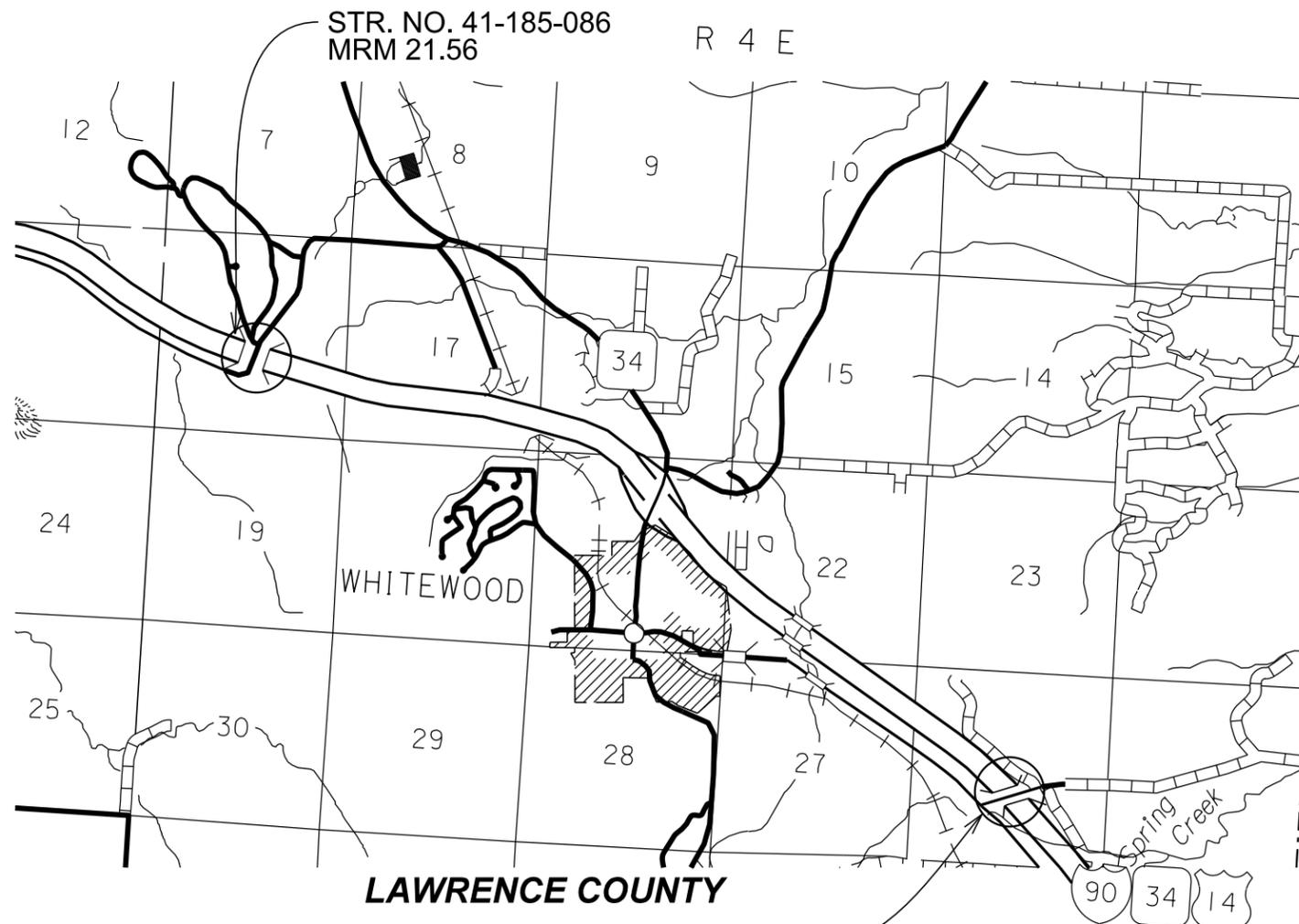
## INDEX OF SHEETS

- D1 - D2 General Layout W/Index
- D3 Estimate With General Notes & Tables
- D4 Layout Sheet



STR. NO. 41-091-057  
190 WF - MRM 9.86

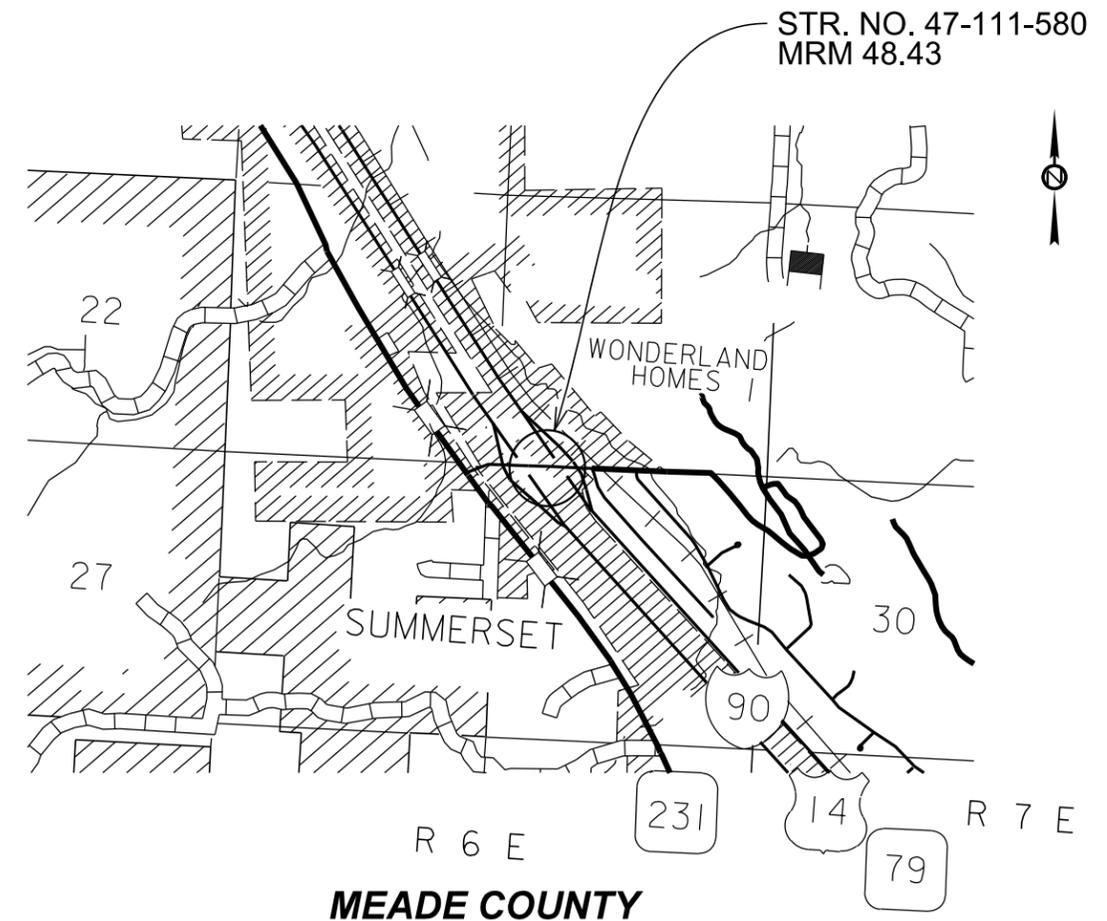
**LAWRENCE COUNTY**



STR. NO. 41-185-086  
MRM 21.56

**LAWRENCE COUNTY**

STR. NO. 41-226-107  
MRM 26.14



STR. NO. 47-111-580  
MRM 48.43

**MEADE COUNTY**

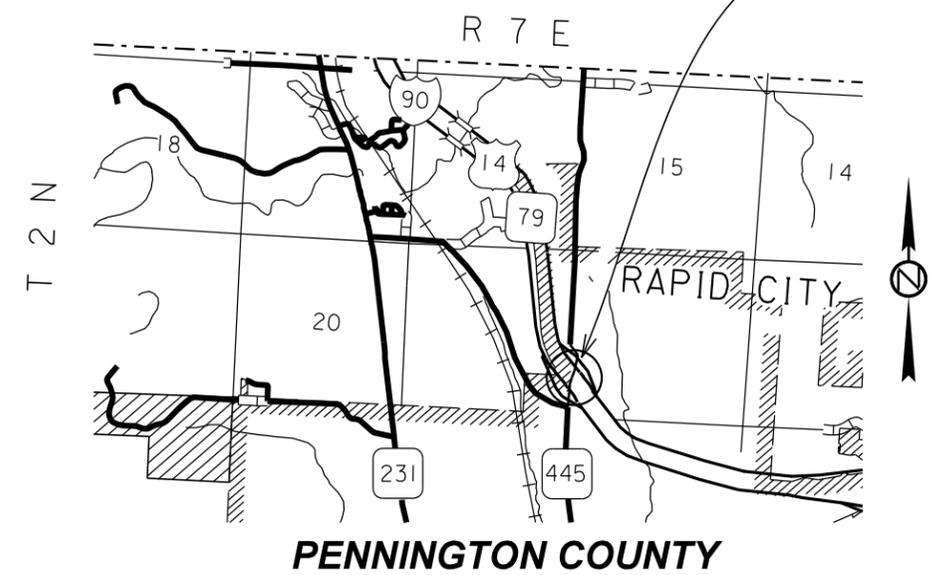
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**MEADE COUNTY**

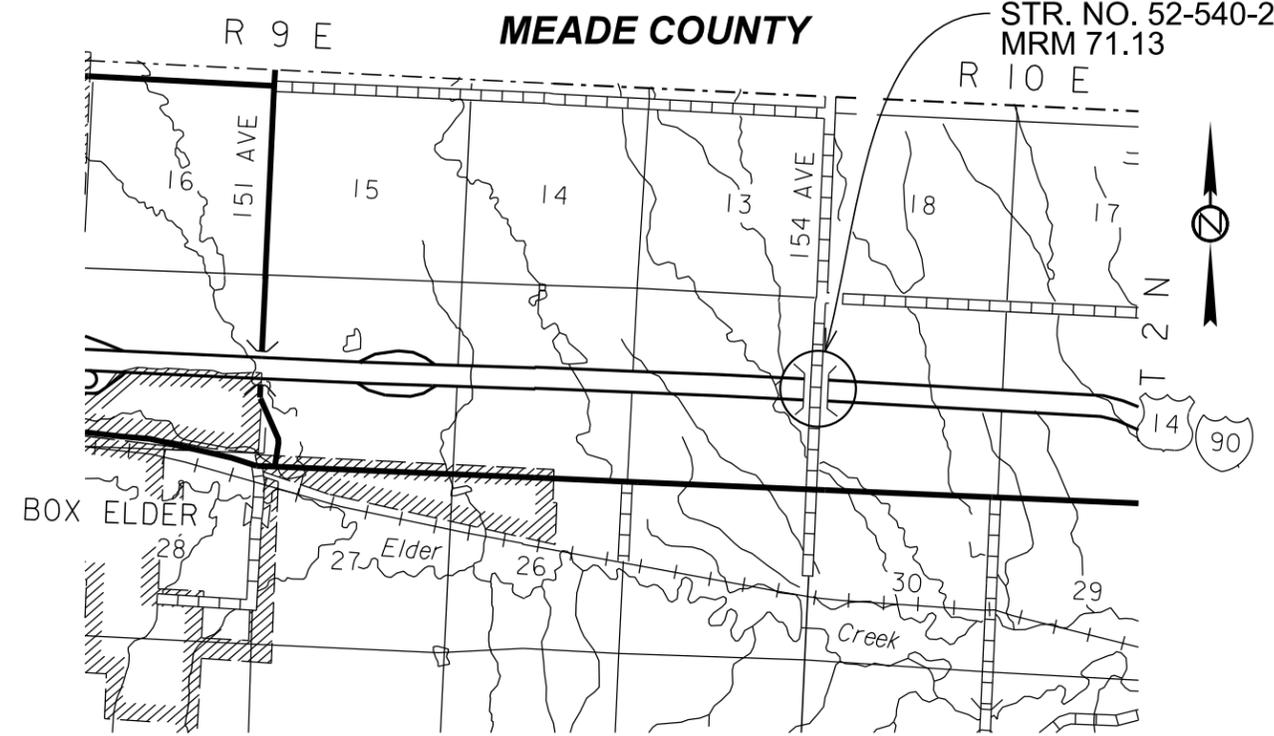
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MRM 55.66



**PENNINGTON COUNTY**

**MEADE COUNTY**

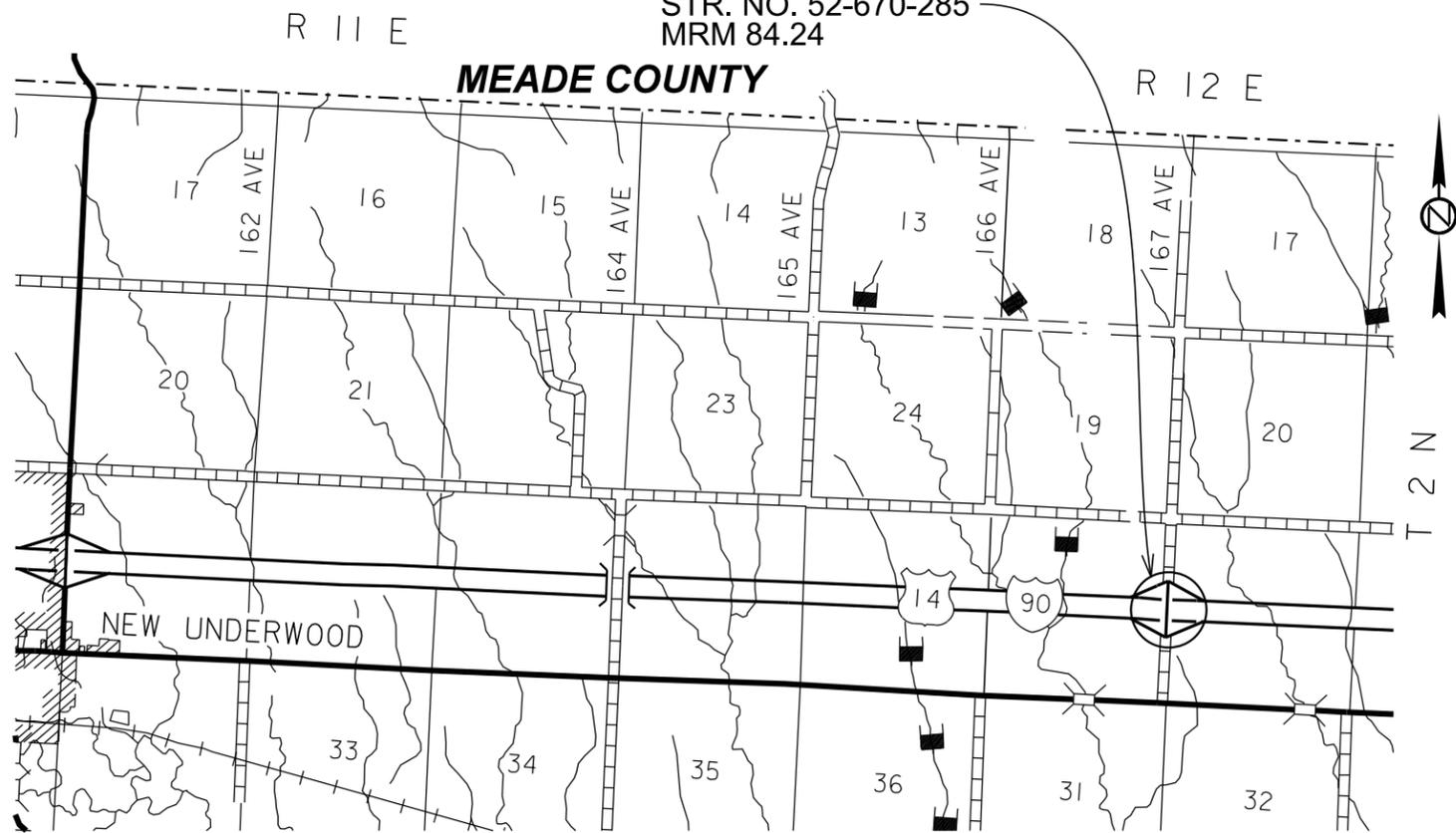
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MRM 71.13



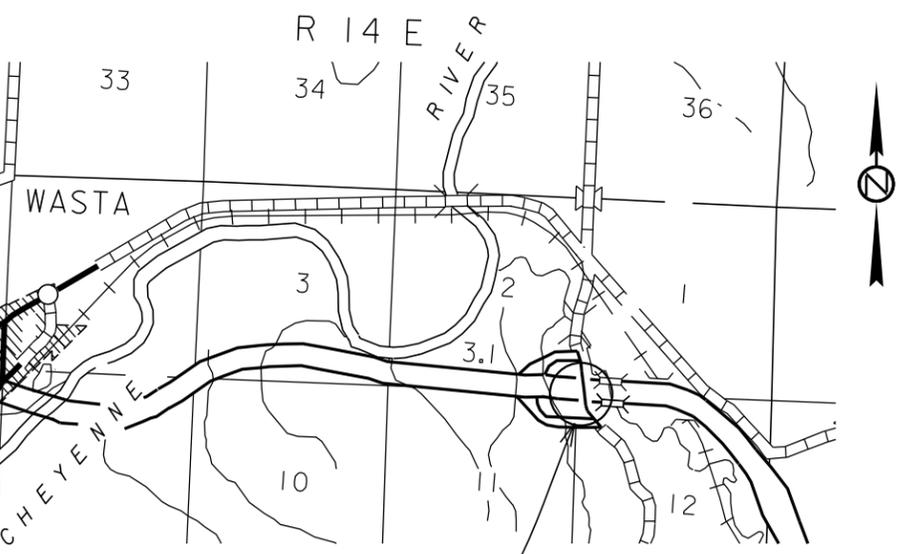
**PENNINGTON COUNTY**

**MEADE COUNTY**

STR. NO. 52-670-285  
MRM 84.24



**PENNINGTON COUNTY**



STR. NO. 52-830-310  
MRM 101.23

**PENNINGTON COUNTY**

**SECTION D ESTIMATE OF QUANTITIES**

| Bid Item Number | Item                                 | Quantity | Unit |
|-----------------|--------------------------------------|----------|------|
| 230E0020        | Placing Contractor Furnished Topsoil | 5        | CuYd |
| 734E0010        | Erosion Control                      | Lump Sum | LS   |
| 734E0131        | Type 1 Turf Reinforcement Mat        | 44.4     | SqYd |

**PLACING CONTRACTOR FURNISHED TOPSOIL – STR. NO. 47-111-480**

It is anticipated that a larger volume of topsoil will be needed for the new grade than can be salvaged from the existing grade. The Contractor will be required to furnish and place 4 inches of topsoil on roadway inslopes and areas as determined by the Engineer during construction.

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

**EROSION CONTROL – STR. NO. 47-111-580**

The contract lump sum price for Erosion Control shall include all material, equipment, and labor necessary to seed, mycorrhizal inoculum and fertilizer all areas disturbed by construction of this project. The Engineer, at the time of construction, shall determine limits of the Erosion Control work. The estimated area to be seeded is approximately 400 SqFt.

**MYCORRHIZAL INOCULUM – STR. NO. 47-111-580**

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

|                            |     |
|----------------------------|-----|
| <i>Glomus intraradices</i> | 25% |
| <i>Glomus aggregatu</i>    | 25% |
| <i>Glomus mosseae</i>      | 25% |
| <i>Glomus etunicatum</i>   | 25% |

All seed shall 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 shall be incidental to the contract lump sum price for "Erosion Control".

The mycorrhizal inoculum shall be from the list below or an approved equal:

| <u>Product</u> | <u>Manufacturer</u>   |
|----------------|---|
| MycoApply      | Mycorrhizal Applications, Inc.<br>Grants Pass, OR<br>Phone: 1-866-476-7800<br><a href="http://www.mycorrhizae.com/">http://www.mycorrhizae.com/</a> |

**FERTILIZING – STR. NO. 47-111-580**

The Contractor shall apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer shall have a minimum guaranteed analysis of 4-6-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 3.2%, a minimum of 6% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer shall be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer shall have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer shall also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The all-natural slow release fertilizer shall be applied according to the manufacturer's application recommendations.

The application rate is 1,500 pounds per acre.

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

| <u>Product</u> | <u>Manufacturer</u>   |
|----------------|---|
| Sustane        | Sustane Corporate Headquarters<br>Cannon Falls, Minnesota<br>Phone: 1-800-352-9245<br><a href="http://www.sustane.com/">http://www.sustane.com/</a> |

| STATE OF SOUTH DAKOTA | PROJECT       | SHEET | TOTAL SHEETS |
|-----------------------|---------------|-------|--------------|
|                       | IM 0901(163)9 | D23   | D#4          |

Revised: 7-8-14 klh

**PERMANENT SEEDING – STR. NO. 47-111-580**

All permanent seed shall be planted in the topsoil at a depth of ¼" to ½".

All seed broadcast must be raked or dragged in (incorporated) within the top ¼" to ½" of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

The varieties listed for seed mixtures are preferred varieties.

Native harvest seed will be allowed.

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:<br>April through May;<br>Winter Wheat: August<br>through November |                                   | 10                                 |
| Total:  |                                   | 26                                 |

**TURF REINFORCEMENT MAT – STR. NO. 47-111-580**

Turf Reinforcement Mat shall be installed at locations shown in the table at the widths specified, and at locations determined by the Engineer during construction. The Contractor shall 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://sddot.com/business/certification/products/Default.aspx>

Installation of the Turf Reinforcement Mat shall be according to the manufacturer's installation instructions.

**TABLE OF TURF REINFORCEMENT MAT**

| Structure No.                        | Location            | Width (Ft) | Type | Quantity (SqYd) |
|--------------------------------------|---------------------|------------|------|-----------------|
| 47-111-580                           | NE corner of Bridge | 20         | 1    | 44.4            |
| Total Type 1 Turf Reinforcement Mat: |                     |            |      | 44.4            |

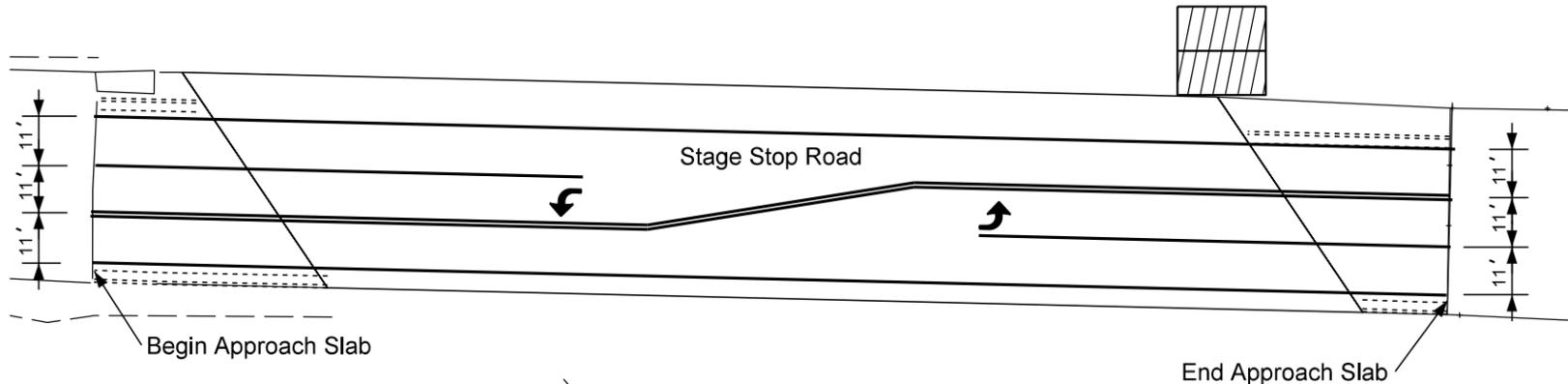
# EROSION CONTROL LAYOUT

|                       |               |       |              |
|-----------------------|---------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT       | SHEET | TOTAL SHEETS |
|                       | IM 0901(163)9 | D4    | D4           |

Plotting Date: 07/02/2014

Str. No. 47-111-580

Install Turf Reinforcement Mat on Bridge Berm at the following location:  
NE corner of Bridge 44.4SqYd



Plot Scale - 1:40

Plotted From - trcs11610

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