

Section D: Erosion Control Plans

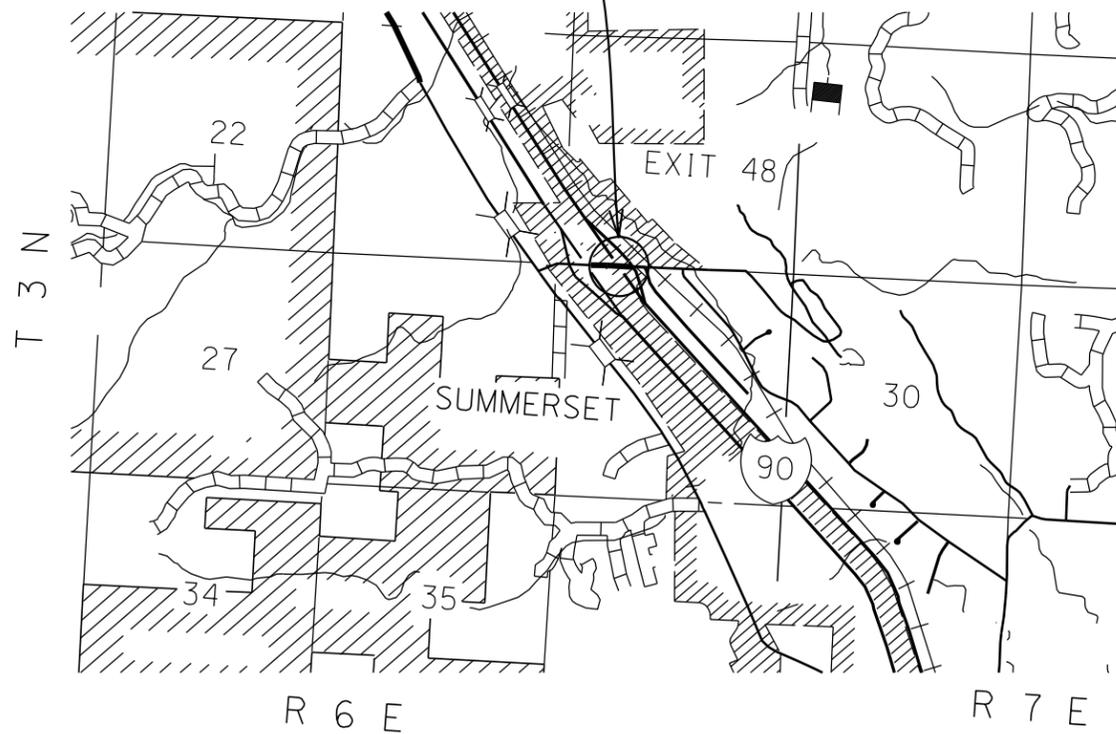
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|-----------------------|-------------|-------|--------------|
| | 090 W - 468 | D1 | D4 |

Plotting Date: 04/09/2014

INDEX OF SHEETS

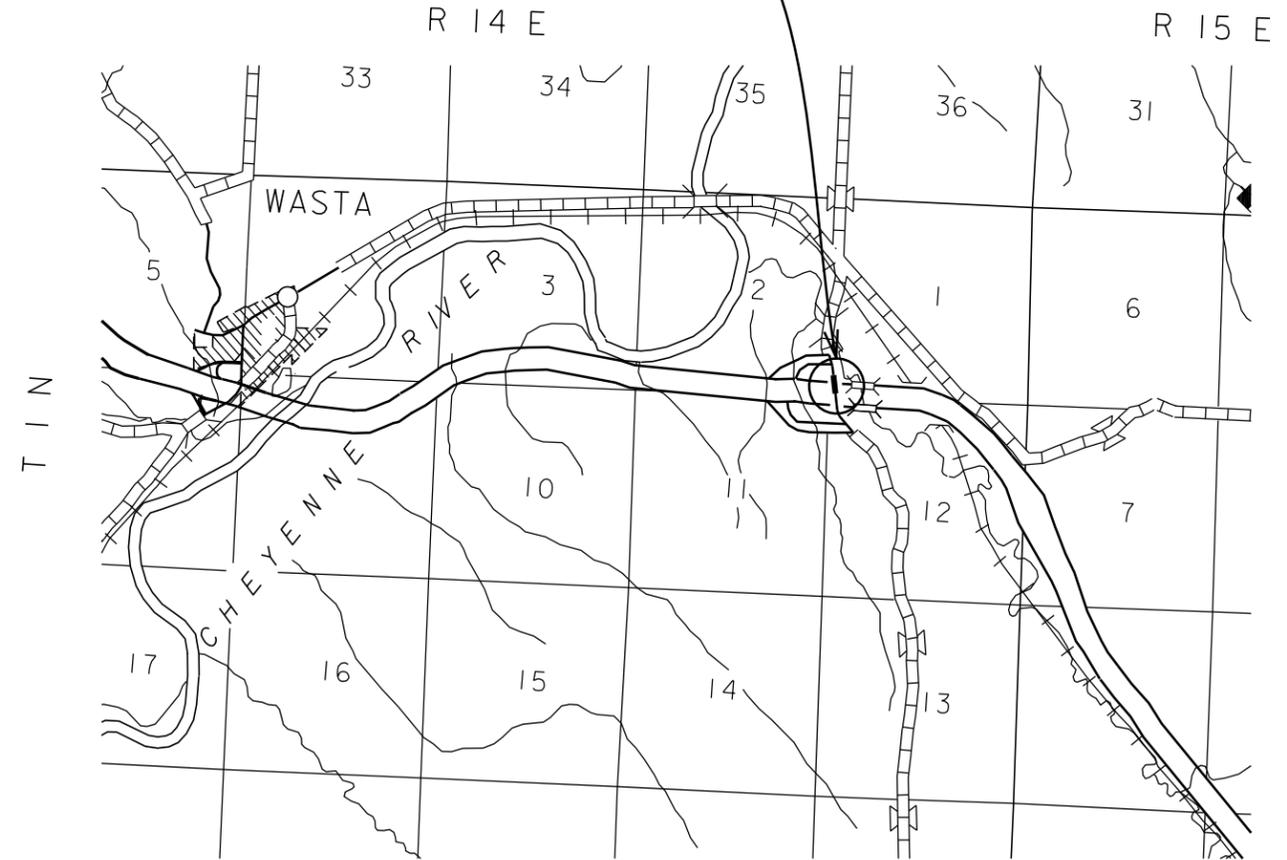
- D1 General Layout W/Index
- D2 Estimate With General Notes & Tables
- D3 Plan Sheet
- D4 Standard Plates

PROJECT 090 W - 468
STR. NO. 47-111-580
MRM 48.43



MEADE COUNTY

PROJECT 090 W - 468
STR. NO. 52-830-310
MRM 101.23



PENNINGTON COUNTY

Plot Scale - 1:200

Plotted From - trc11610

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SECTION D ESTIMATE OF QUANTITIES – PCN i39v

| Bid Item Number | Item | Quantity | Unit |
|-----------------|--------------------------------|----------|------|
| 734E0010 | Erosion Control | Lump Sum | LS |
| 734E0101 | Type 1 Erosion Control Blanket | 242 | SqYd |

EROSION CONTROL

The contract lump sum price for Erosion Control shall include all material, equipment, and labor necessary to seed, mycorrhizal inoculum and fertilizer areas disturbed as a result of the Contractor's operation to repair the back wall of Str. 52-830-310. The Engineer, at the time of construction, shall determine limits of the Erosion Control work.

The estimated area to be seeded is approximately 2,176 Sq Ft.

MYCORRHIZAL INOCULUM

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 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. Grants Pass, OR Phone: 1-866-476-7800 http://www.mycorrhizae.com/ |

FERTILIZING

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 34 pounds per 1,000 square feet.

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 Cannon Falls, Minnesota Phone: 1-800-352-9245 http://www.sustane.com/ |

PERMANENT SEEDING

The areas to be seeded consist of areas of the berms disturbed by the Back Wall Repair.

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/1000 SqFt) |
|---|-----------------------------------|---|
| Western Wheatgrass | Flintlock, Rodan, Rosana | 2.5 |
| Green Needlegrass | Lodorm | 1.5 |
| Sideoats Grama | Butte, Killdeer, Pierre, Trailway | 1 |
| Blue Grama | Bad River, Willis | 1 |
| Oats or Spring Wheat: April through May; Winter Wheat: August through November | | 3 |
| Total: | | 9 |

EROSION CONTROL BLANKET

Erosion control blanket shall be installed 32' x 34' at the top of the berm that is disturbed by the Back Wall Repair locations noted in the table and at locations determined by the Engineer during construction.

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

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

The Contractor shall install erosion control blanket according to the manufacturer's installation instructions.

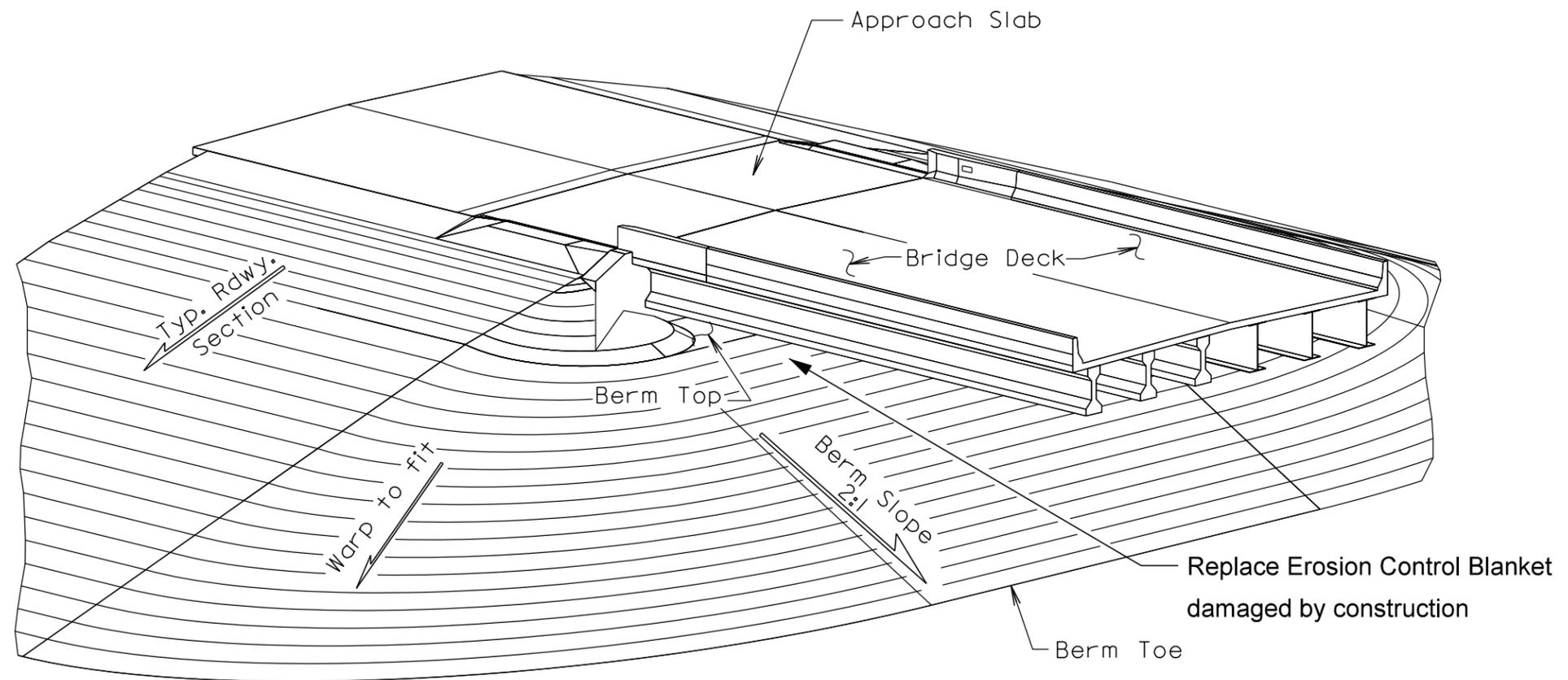
All costs for shaping the berms for erosion control blanket including labor and equipment shall be incidental to the contract unit price per square yard for "Erosion Control Blanket".

TABLE OF EROSION CONTROL BLANKET

| MRM | L/R | Location | Type | Quantity (SqYd) |
|---------------------------------------|-----|-------------|------|-----------------|
| 101.2 | L | Bridge Berm | 1 | 121 |
| 101.2 | R | Bridge Berm | 1 | 121 |
| Total Type 1 Erosion Control Blanket: | | | | 242 |

| | | | |
|-----------------------------|-------------|-------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | 090 W - 468 | D3 | D4 |

Plotting Date: 04/10/2014

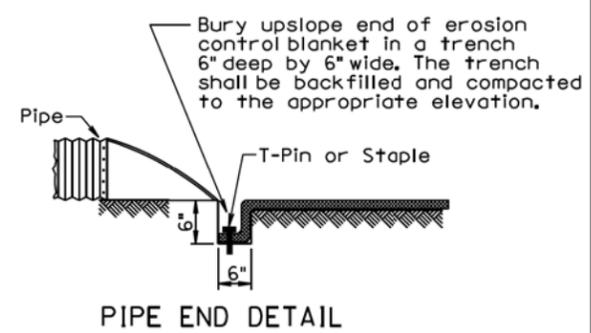
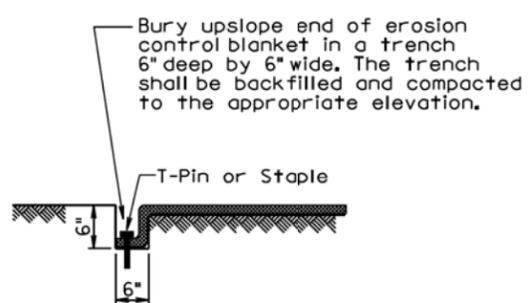
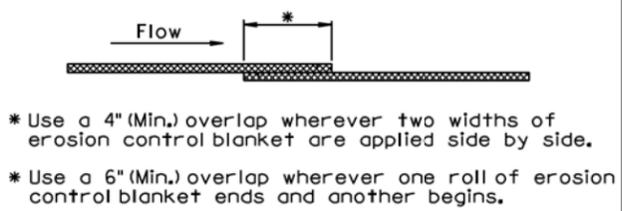
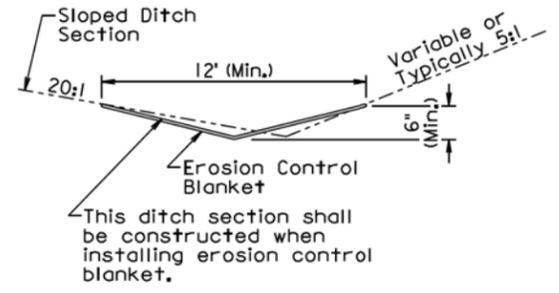
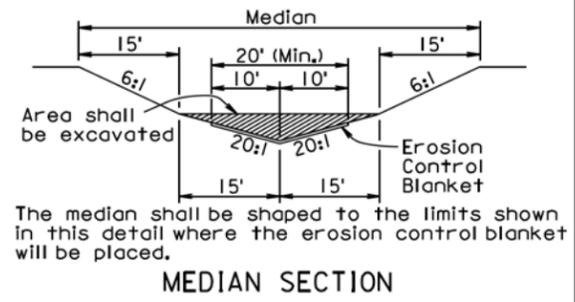
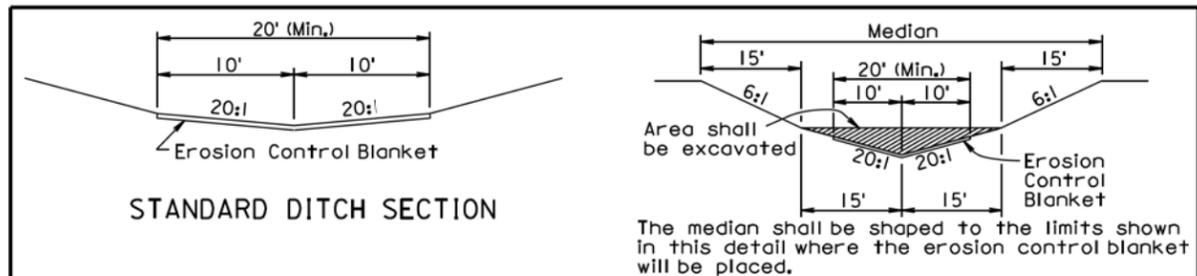


ISOMETRIC VIEW OF BRIDGE BERM

Plot Scale - 1:200

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GENERAL NOTES:

Prior to placement of the erosion control blanket, the areas shall be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket shall be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket shall be buried in a trench 6" wide by 6" deep. There shall be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.

The erosion control blanket shall be pinned to the ground according to the manufacturer's installation recommendations.

After the placement of the erosion control blanket, the Contractor shall fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

All ditch sections shall be shaped when installing the erosion control blanket. All costs for shaping the ditches shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

December 23, 2004

| | | |
|----------------------------------|--------------------------------|-------------------------------|
| S D D O T | EROSION CONTROL BLANKET | PLATE NUMBER 734.01 |
| | | Sheet 1 of 1 |

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