

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
PROJECT 212-472
US HIGHWAY 212
MEADE COUNTY

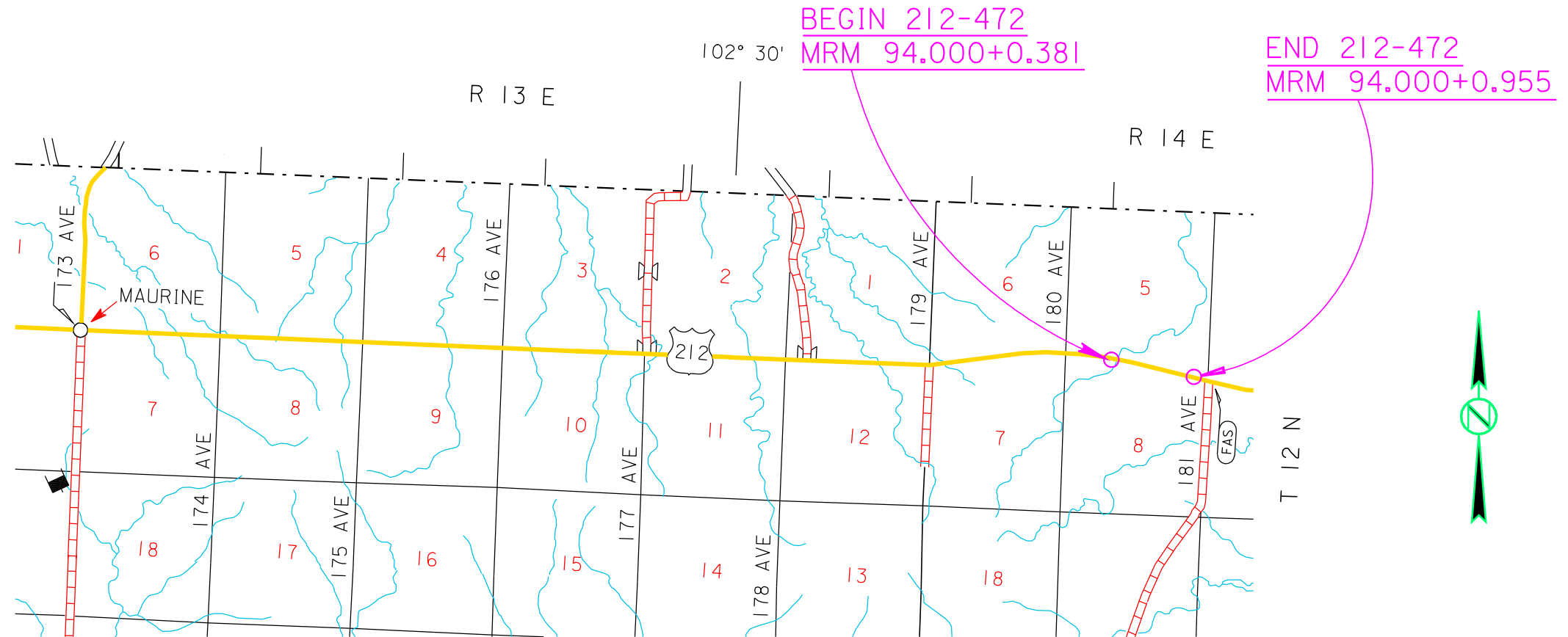
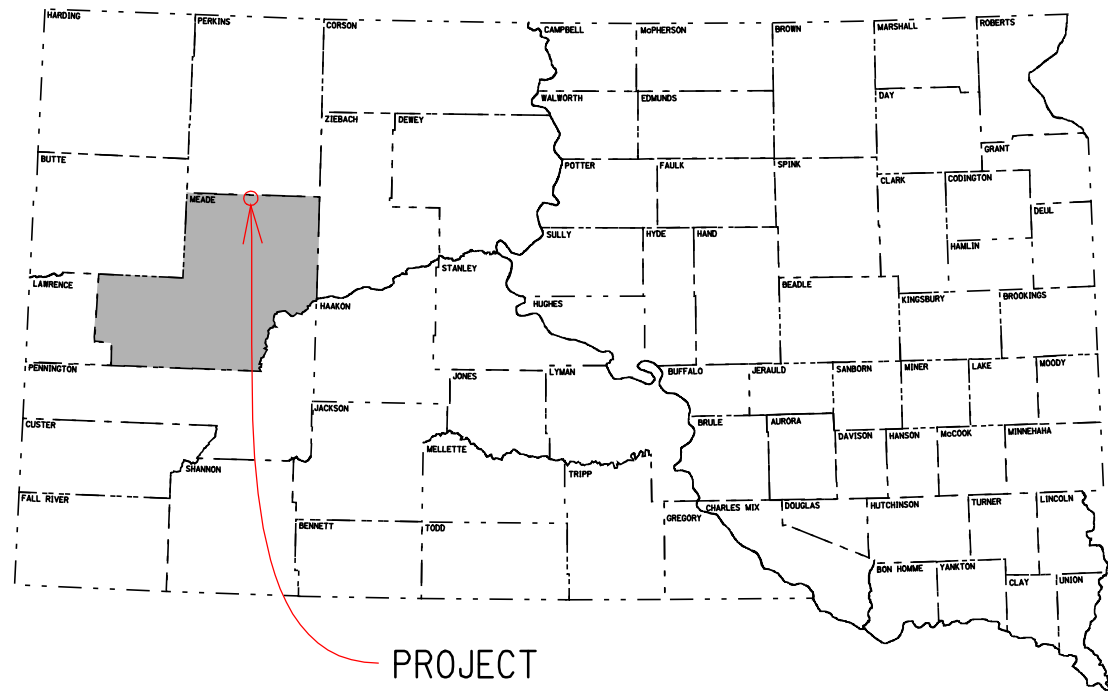
EROSION REPAIR
PCN IIJN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	212-472	1	8

Plotting Date: 13-MAY-2010

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DESIGN DESIGNATION

ADT (2008)	440
ADT (2028)	595
DHV	90
D	50%
T DHV	7.8%
T ADT	17.1%
V	65

STORM WATER PERMIT

No Permit Required

PLOT SCALE -- 200,000000:1,000000

PLOTTED FROM -- ITRC11951

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ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E1690	Remove Sediment	5.0	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
634E0010	Flagging	20	Hour
634E0100	Traffic Control	320	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
700E0110	Class A Riprap	675.0	Ton
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	90	Ft
831E0110	Type B Drainage Fabric	617	SqYd

SPECIFICATIONS

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

SCOPE OF WORK

The intent of the work on this project is to install riprap in areas where the inslope is eroded to prevent further erosion.

HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain 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 are provided, project number, and PCN are shown. 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(s), 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 (605-773-3721). 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 area(s), borrow site(s), waste disposal site(s) 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.

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

- 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".
- 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.

STORM WATER

Appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	212-472	2	8

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed on the downhill edge of any excavation site prior to any ground disturbing activities at that site and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor shall provide certification that the erosion control wattles do not contain noxious weed seeds.

The Contractor will not be required to remove the erosion control wattles.

The erosion control wattle provided shall be from the list shown below:

Product	Manufacturer
Curlex Sediment Log AEC Premier Straw Wattles	American Excelsior Company Arlington, TX Phone: 1-800-777-7645 www.amerexcel.com
Aspen Excelsior Logs and Excel Straw Logs	Western Excelsior Corporation Mancos, CO Phone: 1-800-833-8573 www.westernexcelsior.com
Earth Saver Rice Straw Wattles	R.H. Dyck Inc. Winters, CA Phone: 1-866-928-8537 www.earth-savers.com
Amber Waves Straw Wattles	Limpert Environmental Litchfield, MN Phone: 1-320-693-2565 www.limpertenvironmental.com
Bio Logs	Flaxtech, LLC Rock Lake, ND Phone: 1-866-444-3529
Stenlog	ECB Bioproducts St. Andrews, MB Phone: 1-866-317-3346 www.erosioncontrolblanket.com
Winters Wattles	Winters Excelsior Company Birmingham, AL Phone: 1-800-248-7237 www.wintersexcelsior.com
Patriot Wood Fiber Logs and Patriot Straw Wattles	Patriot Environmental Products, Inc. Mesa, AZ Phone: 1-480-345-7293 www.digitaldesigncore.com/patriot/WattleSpecs.pdf

REMOVE AND REPLACE TOPSOIL

Topsoil shall be salvaged and stockpiled prior to beginning excavation. Limits of this work, depth of salvage, and stockpile location will be directed by the Engineer. Following completion of construction, topsoil shall be spread evenly over the disturbed areas.

The estimated amount of topsoil to be removed and replaced is 150 CuYd.

All cost associated with removing and replacing the topsoil shall be incidental to the contract lump sum price for "Remove and Replace Topsoil".

Care shall be taken during the removal of the topsoil in areas where the ground has eroded beneath the surface, creating a tunnel under the topsoil.

EROSION CONTROL

The contract lump sum price for Erosion Control shall include all material, equipment, and labor necessary to seed and mulch all areas disturbed by construction of this project. It is the Contractor's responsibility to verify estimated acreage. No adjustment in quantity will be allowed unless additional work is ordered by the Engineer.

RESTORATION SEEDING FOR DISTURBED AREAS

All costs associated with restoration seeding for disturbed areas shall be incidental to the contract lump sum price for "Erosion Control".

All restoration seeding 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.

South Dakota native grown seed is an acceptable alternative to any of the seed varieties listed below. South Dakota native grown seeds used as an alternative shall conform to the same specification and requirements for that individual seed type.

All disturbed areas shall be seeded with the following Type F Permanent Seed Mixture at the rate of 5 pounds per 1000 square feet:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds)
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; Winter Wheat: August through November		10
Total:		26

MULCHING (GRASS HAY OR STRAW)

All seeded areas are to be mulched. Hand mulching may be allowed for small areas if approved by the Engineer. All costs associated with mulching shall be incidental to the contract lump sum price for "Erosion Control".

Bales with noxious weed contamination will be rejected and the Contractor will be required to remove the contaminated bales from the project.

FERTILIZING

Application of fertilizer will not be required on this project.

TYPE B DRAINAGE FABRIC

Type B Drainage Fabric shall be placed on the newly constructed slope prior to placement of the Riprap. The fabric shall conform to Section 831 of the Standard Specifications.

The Contractor shall cover all excavated slopes with Type B Drainage Fabric at the end of each working day as a temporary erosion control measure. All Type B Drainage Fabric shall be held in place with sandbags until Class A Riprap can be placed.

All labor, equipment, material, and incidental costs associated with placing Type B Drainage Fabric shall be incidental to the contract unit price per square yard for "Type B Drainage Fabric".

CLASS A RIPRAP

Riprap shall be Contractor furnished. All riprap shall be Class A Riprap.

TABLE OF RIPRAP AND DRAINAGE FABRIC

Station to Station	L/R	Class A Riprap (Ton)	Type B Drainage Fabric (SqYd)
390+63 to 391+00	R	128	121
410+89 to 412+06	L	442	396
412+42 to 412+70	R	105	100
Total:		675	617

GRADING OPERATIONS

Excavation and construction of embankments for the riprap channels shall be performed in accordance with Section 120 of the Standard Specifications. Compaction of embankments shall be to the satisfaction of the Engineer.

The Contractor shall construct each of the riprap channels so that the channel side slopes at the uphill end match the existing topography and smoothly transition to a v-shaped channel ending at the right-of-way fence. The elevation of the flow line at the uphill end of the channel shall match the flow line of the existing drainage channel and the elevation of the flow line at the downhill end of the channel shall match the flow line of the existing drainage channel to prevent any ponding or drop-offs created by a change in flow line elevation. The flow line of the riprap channel shall be a steady drop from the uphill end to the downhill end without large drop-offs or flat spots. The side slopes of the channel shall not exceed a 2:1 slope.

Care shall be taken not to disturb the right-of-way fence. All work is to be performed within the right-of way-fence.

All areas where the ground has eroded shall be graded and covered with Type B Drainage Fabric and Class A Riprap including areas where the ground has eroded beneath the surface.

TRAFFIC CONTROL

Traffic Control shall at all times be maintained in accordance with applicable MUTCD Standards and Section 634 of the Standard Specifications.

The Contractor shall be paid for the amount of signs in place at any one time regardless of the number of set-ups on the project.

INVENTORY OF TRAFFIC CONTROL DEVICES

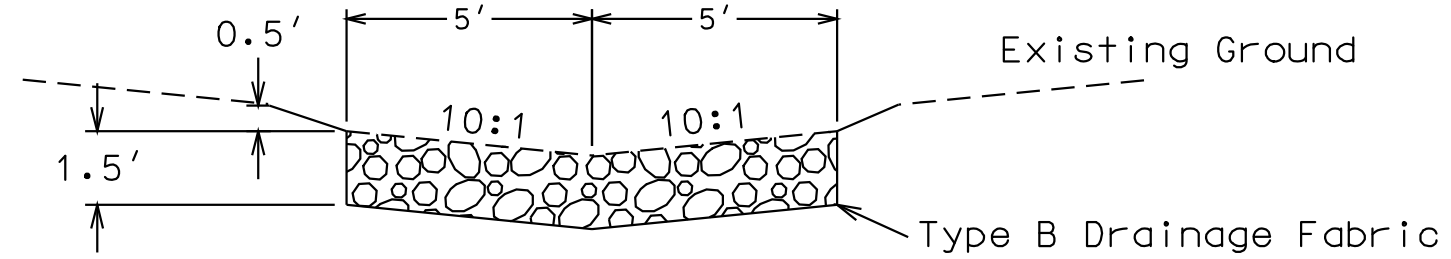
SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W8-6	48" x 48"	TRUCK CROSSING	2	34	68
W16-2	24" x 18"	### FEET	2	7	14
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	2	34	68
W20-4	48" x 48"	ONE LANE ROAD #### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	2	34	68
TOTAL UNITS					320

STATE OF SOUTH DAKOTA	PROJECT 212-472	SHEET 5	TOTAL SHEETS 8
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Plotting Date: 13-MAY-2010

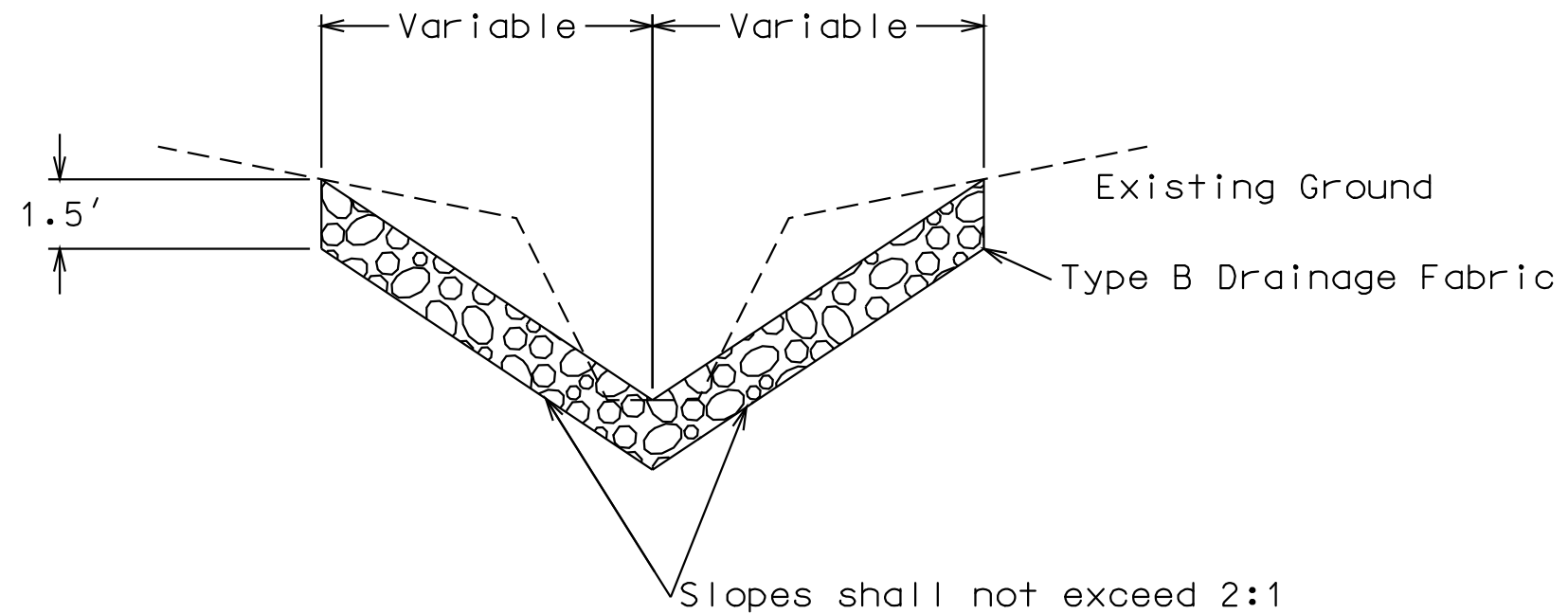
TYPICAL SECTIONS

Uphill End of Riprap Channel



Riprap shall be installed just below the existing ground.

Downhill End of Riprap Channel



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	212-472	6	8

Plotting Date: 05-MAY-2010

390+63 to 391+00 R
Install Class A Riprap
(128 Tons)

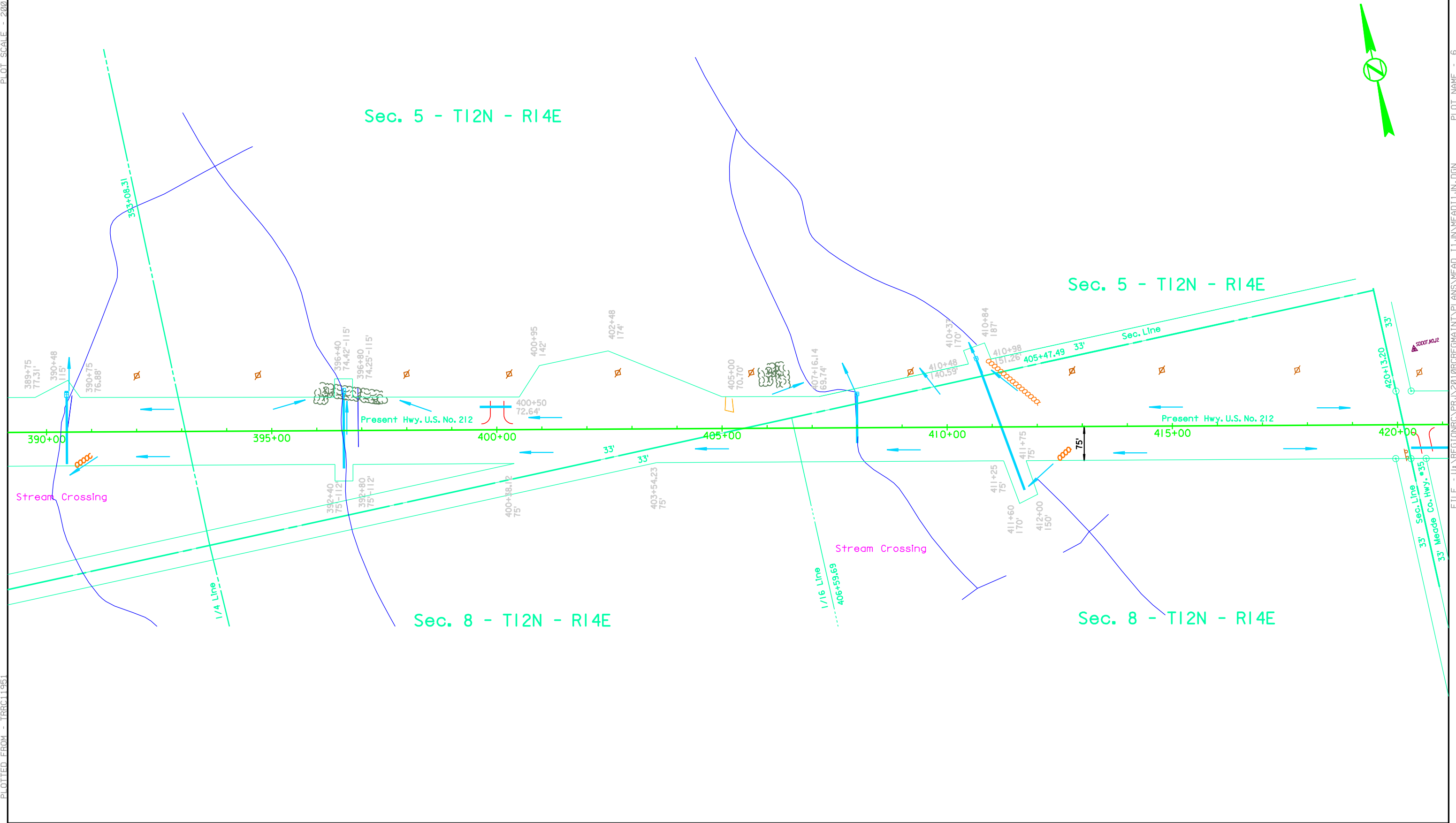
410+89 to 412+06 L
Install Class A Riprap
(442 Tons)

412+42 to 412+70 R
Install Class A Riprap
(105 Tons)

PLOT SCALE - 200,000,000:1,000,000

PLOTTED FROM - ITRC11951

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Plotting Date: 09-JUN-2009

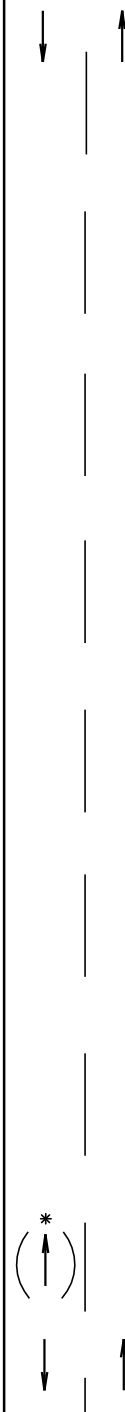
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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 the shoulder.

* 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 light is used.



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 75	1000

July 1, 2005

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45 - 50	500	50
55	750	50
60 - 65	1000	50

- Flagger
- Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

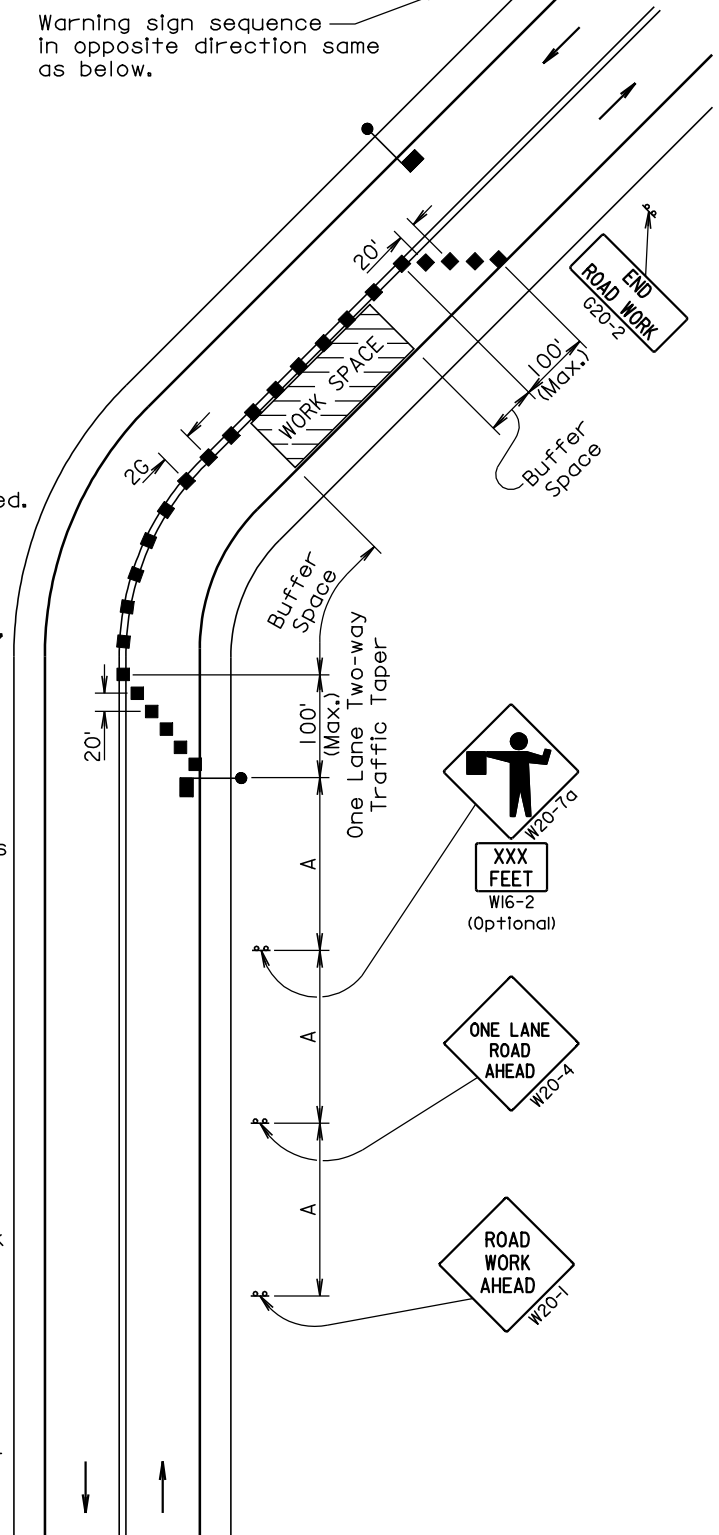
Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer. During daylight hours, 42" cones may be used in lieu of drums or type II barricades along the centerline.

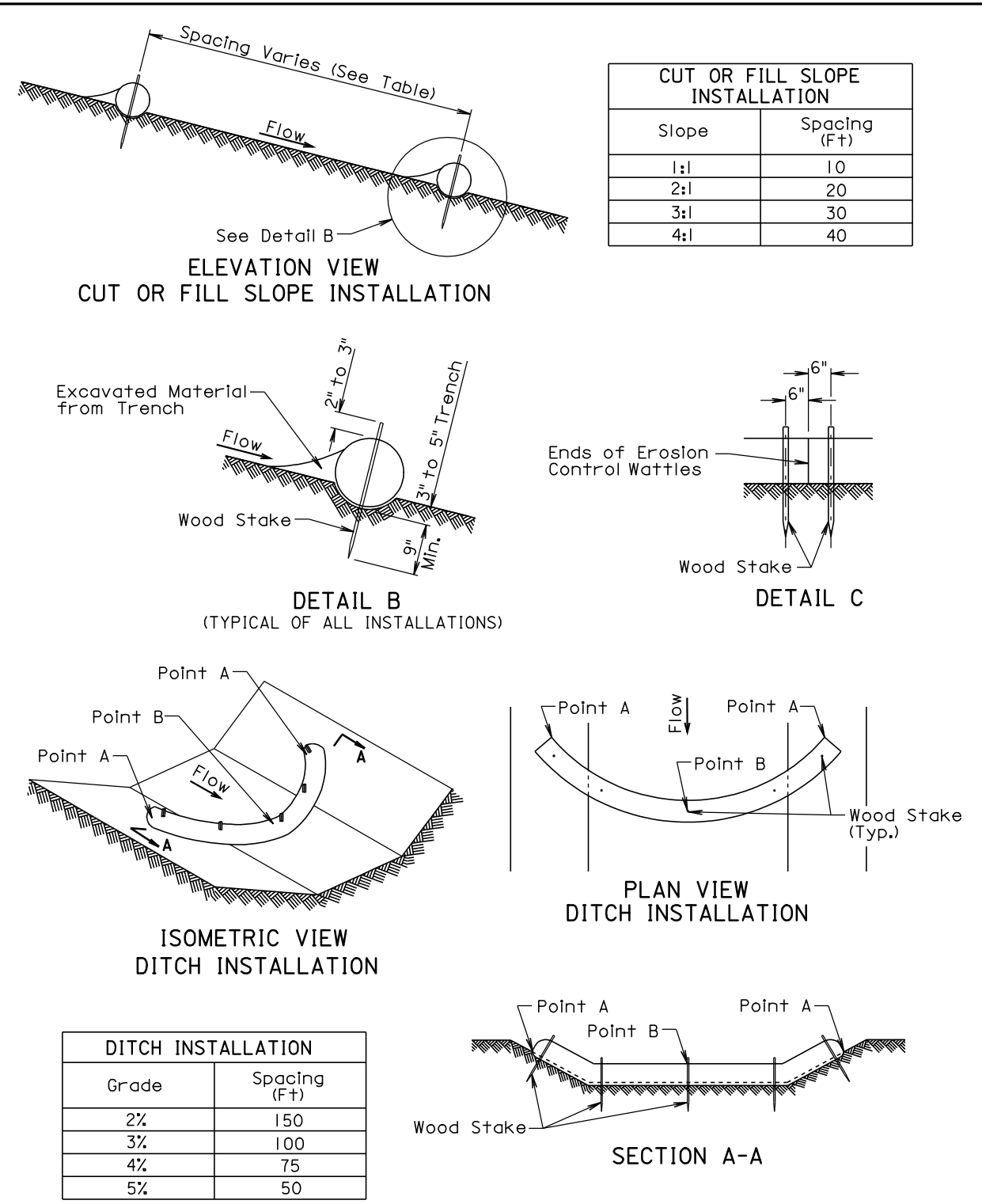
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space shall be a sufficient length so that the channelizing devices are visible to approaching traffic.



June 26, 2006



December 23, 2004

GENERAL NOTES:

At cut or fill slope installations, wattles shall be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor shall dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes shall be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

Where installing running lengths of wattles, the Contractor shall butt the second wattle tightly against the first and shall not overlap the ends. See Detail C.

The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than 1/2". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

December 23, 2004

Username - trrc12245