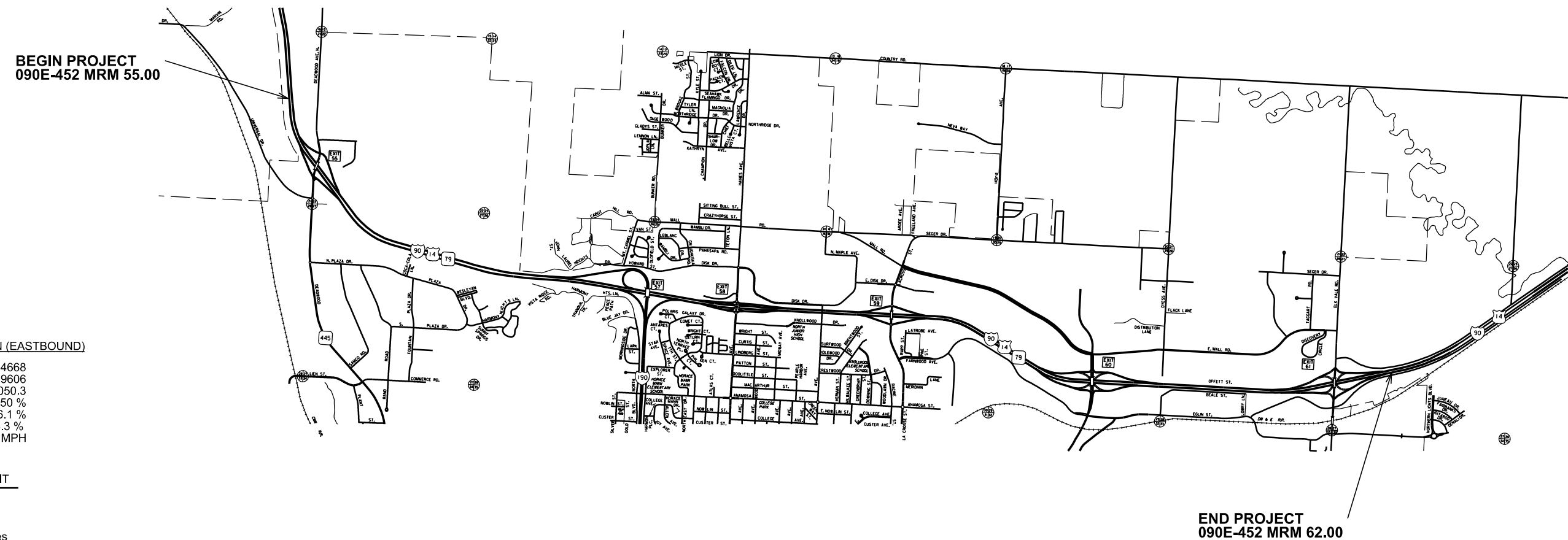
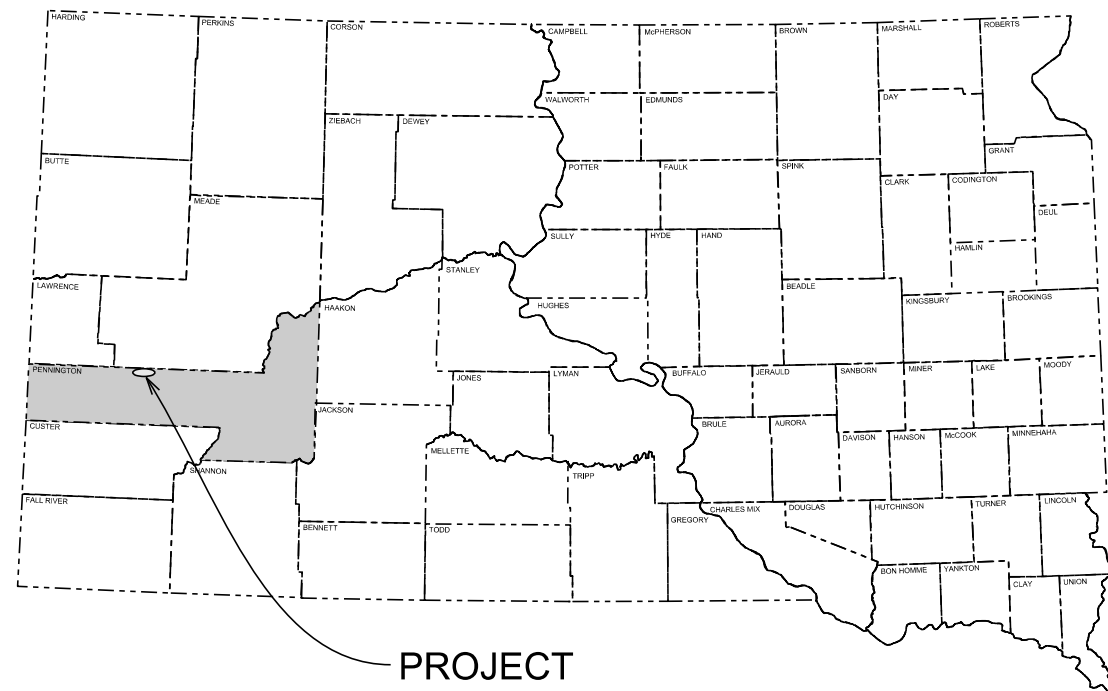


EROSION REPAIR  
PCN i36M

## INDEX OF SHEETS

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| 2 - 11  | Estimate With General Notes & Tables |
| 12      | Typical Section                      |
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| 15 - 20 | Standard Plates                      |

DESIGN DESIGNATION (EASTBOUND)

|            |        |
|------------|--------|
| ADT (2012) | 14668  |
| ADT (2032) | 19606  |
| DHV        | 2050.3 |
| D          | 50 %   |
| T DHV      | 6.1 %  |
| T ADT      | 13.3 % |
| V          | 65 MPH |

## STORM WATER PERMIT

Major Receiving  
Body of Water: None  
Area Disturbed: 8.1 acres  
Total Project Area: 8.1 acres

ESTIMATE OF QUANTITIES

| Bid Item Number | Item                                 | Quantity | Unit |
|-----------------|--------------------------------------|----------|------|
| 009E0010        | Mobilization                         | Lump Sum | LS   |
| 120E0600        | Contractor Furnished Borrow          | 49       | CuYd |
| 230E0020        | Placing Contractor Furnished Topsoil | 1,819    | CuYd |
| 634E0100        | Traffic Control                      | 1,378    | Unit |
| 634E0120        | Traffic Control, Miscellaneous       | Lump Sum | LS   |
| 634E0420        | Type C Advance Warning Arrow Panel   | 2        | Each |
| 634E0920        | Hazard Identification Beacon         | 2        | Site |
| 730E0210        | Type F Permanent Seed Mixture        | 176      | Lb   |
| 731E0200        | Fertilizing                          | 9.00     | Ton  |
| 732E0200        | Fiber Mulching                       | 6.7      | Ton  |
| 734E0103        | Type 3 Erosion Control Blanket       | 789      | SqYd |
| 734E0154        | 12" Diameter Erosion Control Wattle  | 300      | Ft   |
| 734E0510        | Shaping for Erosion Control Blanket  | 300      | Ft   |

SPECIFICATIONS

Standard Specifications for Roads & Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or 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 E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance.

Action Taken/Required:

The DENR and the US Environmental Protection Agency (EPA) have issued separate general permits for the discharge of storm water runoff. The DENR permit applies to discharges on state land and the EPA permit applies to discharges on federal or reservation land. The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

The Contractor shall adhere to the “Special Provision Regarding Storm Water Discharges to Waters of the State”.

A major component of the storm water construction permits is development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which is a joint effort and responsibility of the SDDOT and the Contractor. Erosion control measures and best management practices will be implemented in accordance with the SWPPP. The SWPPP is a dynamic document and is to be available on-site at all times.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT: <http://sddot.com/transportation/highways/environmental/stormwater/Default.aspx>

DENR: <http://www.denr.sd.gov/des/sw/stormwater.aspx>

EPA: [http://cfpub.epa.gov/npdes/home.cfm?program\\_id=6](http://cfpub.epa.gov/npdes/home.cfm?program_id=6)

Contractor Certification Form:

The “Department of Environmental and Natural Resources – Contractor Certification Form” (SD EForm – 2110LDV1-ContractorCertification.pdf) shall be completed by the Contractor or their certified Erosion Control Supervisor after the award of the contract. Work may not begin on the project until this form is signed.

The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the Surface Water Discharge General Permit for Storm Water Discharges Associated with Construction Activities for the Project.

The online form can be found at: <http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf>

|                       |          |       |              |
|-----------------------|----------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT  | SHEET | TOTAL SHEETS |
|                       | 090E-452 | 2     | 20           |

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 designated option borrow 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: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact Jim Donohue, State Archaeological Research Center (ARC) at 605-394-1741 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 staging areas, borrow sites, waste disposal sites, or material processing sites 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.

**COMMITMENT K: RAPID CITY AREA AIR QUALITY CONTROL ZONE**

|                             |          |       |                 |
|-----------------------------|----------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT  | SHEET | TOTAL<br>SHEETS |
|                             | 090E-452 | 3     | 20              |

Administrative Rule of South Dakota (ARSD) 74:36:18:03 states that "no state facility or state contractor may engage in any construction activity or continuous operation activity within the Rapid City air quality control zone which may cause fugitive emissions of particulate to be released into the ambient air without first obtaining a permit issued by the board or the secretary."

Construction activity is defined as any temporary activity at a state facility, which involves the removal or alteration of the natural or pre-existing cover of one acre or more of land. One acre of surface area is based on a cumulative area of disturbance to be completed for the entire project. Construction activity shall include, but not be limited to, stripping of topsoil, drilling, blasting, excavation, dredging, ditching, grading, street maintenance and repair, or earth moving. Construction activity is generally completed within one year. It also includes stockpiles, access roads, and disposal areas. An off-site disposal area of excess material will require an additional permit.

**Action Taken/Required:**

In order to be considered eligible for authorization to conduct a construction activity under the terms and conditions of this permit, the owner operator must submit a Notice of Intent (NOI) form. The form must be submitted to the address below at least seven business days prior to the anticipated date of beginning the construction activity.

South Dakota Department of Environment and Natural Resources Air Quality Program  
523 East Capitol, Joe Foss Building  
Pierre, SD 57501-3181  
Phone: 605-773-3151

The permit requires the Contractor to use reasonably available technology to control fugitive dust emissions. The Contractor is required to use control measures for track out, paved areas, unpaved roads, unpaved parking lots, disturbed areas, and for material handling and storage. The control measures that the Contractor is required to use are listed in the permit.

**UTILITIES**

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor shall contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

The Contractor shall contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It shall be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

|                             |          |       |                 |
|-----------------------------|----------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT  | SHEET | TOTAL<br>SHEETS |
|                             | 090E-452 | 4     | 20              |

|                             |          |       |                 |
|-----------------------------|----------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT  | SHEET | TOTAL<br>SHEETS |
|                             | 090E-452 | 5     | 20              |

|                |        |          |       |        |              | Contractor<br>Furnished<br>Topsoil | Permanent<br>Seeding | Fertilizing | Fiber<br>Mulching |
|----------------|--------|----------|-------|--------|--------------|------------------------------------|----------------------|-------------|-------------------|
| Location       | Ramp   | Shoulder | Width | Length | Area         |                                    |                      |             |                   |
| Exit           | On/Off | R/L      | Ft    | Ft     | Sq Ft        | CuYd                               | Lb                   | Lb          | Lb                |
| <b>Exit 61</b> |        |          |       |        |              |                                    |                      |             |                   |
| EB             | Off    | L        | 3     | 590    | 1770         | 10.9                               | 1.06                 | 61          | 81                |
| EB             | Off    | R        | 3     | 720    | 2160         | 13.3                               | 1.29                 | 74          | 99                |
| EB             | On     | L        | 3     | 604    | 1812         | 11.2                               | 1.08                 | 62          | 83                |
| EB             | On     | R        | 3     | 604    | 1812         | 11.2                               | 1.08                 | 62          | 83                |
| <b>Exit 60</b> |        |          |       |        |              |                                    |                      |             |                   |
| EB             | Off    | L        | 3     | 1276   | 3828         | 23.6                               | 2.28                 | 132         | 176               |
| EB             | Off    | R        | 3     | 1476   | 4428         | 27.3                               | 2.64                 | 152         | 203               |
| EB             | On     | L        | 5     | 1012   | 5060         | 31.2                               | 3.02                 | 174         | 232               |
| EB             | On     | R        | 3     | 1012   | 3036         | 18.7                               | 1.81                 | 105         | 139               |
| <b>Exit 59</b> |        |          |       |        |              |                                    |                      |             |                   |
| EB             | Off    | R        | 3     | 100    | 300          | 1.9                                | 0.18                 | 10          | 14                |
| EB             | On     | L        | 3     | 200    | 600          | 3.7                                | 0.36                 | 21          | 28                |
| EB             | On     | R        | 9     | 200    | 1800         | 11.1                               | 1.07                 | 62          | 83                |
| EB             | On     | R        | 3     | 400    | 1200         | 7.4                                | 0.72                 | 41          | 55                |
| <b>Exit 58</b> |        |          |       |        |              |                                    |                      |             |                   |
| EB             | Off    | R        | 3     | 337    | 1011         | 6.2                                | 0.6                  | 35          | 46                |
| EB             | On     | R        | 20    | 400    | 8000         | 49.4                               | 4.78                 | 275         | 367               |
| EB             | On     | R        | 3     | 300    | 900          | 5.6                                | 0.54                 | 31          | 41                |
| <b>Exit 57</b> |        |          |       |        |              |                                    |                      |             |                   |
| EB             | Off    | R        | 3     | 880    | 2640         | 16.3                               | 1.58                 | 91          | 121               |
| EB             | On     | R        | 3     | 1214   | 3642         | 22.5                               | 2.17                 | 125         | 167               |
| <b>Exit 55</b> |        |          |       |        |              |                                    |                      |             |                   |
| EB             | Off    | L        | 3     | 200    | 600          | 3.7                                | 0.36                 | 21          | 28                |
| EB             | Off    | R        | 3     | 900    | 2700         | 16.7                               | 1.61                 | 93          | 124               |
| EB             | On     | L        | 3     | 577    | 1731         | 10.7                               | 1.03                 | 60          | 79                |
| EB             | On     | R        | 7     | 580    | 4060         | 25.1                               | 2.42                 | 140         | 186               |
| <b>TOTAL:</b>  |        |          |       |        | <b>53090</b> | <b>327.7</b>                       | <b>31.68</b>         | 1827        | 2435              |
|                |        |          |       |        |              |                                    |                      | <b>Ton</b>  | <b>Ton</b>        |
|                |        |          |       |        |              |                                    |                      | <b>0.9</b>  | <b>1.2</b>        |

**PLACING CONTRACTOR FURNISHED TOPSOIL**

The Contractor will be required to furnish and place 2 inches of topsoil on the erosion repair areas 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”. The topsoil quantity for “Placing Contractor Furnished Topsoil” as shown in the Estimate of Quantities will be measured in the hauling vehicle.

**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 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 unit price per pound for the corresponding permanent seed mixture.

**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 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> |

**PERMANENT SEEDING**

The areas to be seeded comprise of all areas in Table of Erosion Repair and areas as directed by the Engineer. The area around the delineators to be seeded was based on areas that have no vegetation in a 25’ x 25’ area.

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



FIBER MULCHING

Fiber mulch shall be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier shall be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier shall be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier shall be synthetic.

Fiber mulch shall be applied at the rate of 2000 pounds per acre.

The Contractor shall allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials shall be incidental to the contract unit price per ton for "Fiber Mulching".

The fiber mulch provided shall be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

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

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 plans quantity for "Contractor Furnished Borrow" as shown in the Estimate of Quantities will be the basis of payment for this item.

Restoration of the Contractor furnished borrow site shall be the responsibility of the Contractor.

TABLE OF CONTRACTOR FURNISHED BORROW

|                                    | (CuYd) |
|------------------------------------|--------|
| Exit 55 off - gore area (70')      | 6      |
| Exit 55 on – top of ramp R (30')   | 10     |
| MRM 59.425 to MRM 59.48 – M (200') | 24     |
| Total:                             | 40     |

EROSION CONTROL BLANKET

Erosion control blanket shall be installed 20' feet wide at the 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.

TABLE OF EROSION CONTROL BLANKET

| MRM to                                | MRM          | M/R | Location             | Type | Quantity (SqYd) |
|---------------------------------------|--------------|-----|----------------------|------|-----------------|
| Exit 55 off - gore area (70')         |              | R   | Ditch Channel        | 3    | 156             |
| Exit 55 on – top of ramp (30')        |              | R   | Slope                | 3    | 89              |
| 59.425                                | 59.48 (200') | M   | Ditch Channel        | 3    | 444             |
|                                       |              |     | Additional Quantity: | 3    | 100             |
| Total Type 3 Erosion Control Blanket: |              |     |                      |      | 789             |

SHAPING FOR EROSION CONTROL BLANKET

The ditches shall be shaped for the erosion control blanket as specified on Standard Plate 734.01.

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

| STATE OF SOUTH DAKOTA | PROJECT  | SHEET | TOTAL SHEETS |
|-----------------------|----------|-------|--------------|
|                       | 090E-452 | 7     | 20           |

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations where Erosion Control Blanket is installed 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.

Erosion control wattles shall remain on the project until vegetation has been established.

300' of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control.

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

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

SEQUENCE OF OPERATIONS – GENERAL NOTES

1. All lane closures shall be removed at the end of each day. The Contractor shall limit work to the hours of 8:30 AM to 3:30 PM.
2. Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of one week prior to potential implementation.
3. Unless otherwise stated in these plans, no work will be allowed during hours of darkness. Hours of darkness are defined, as ½ hour after sunset until ½ hour before sunrise.
4. Storage of vehicles and equipment shall be as near the right-of-way as possible. 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 right-of-way will not be permitted. Any damage of 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.
5. Existing guide, route, informational logo, regulatory, and warning signs shall be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Non-applicable signing shall be covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 36 hours. The cost of removing or covering non-applicable signs shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".
6. Construction signing mounted on portable supports shall not be used for a duration of more than 3 days, unless approved by the Engineer. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location, ground mounted, breakaway supports.
7. If inappropriate/conflicting pavement markings exist, the markings shall be removed and replaced with applicable temporary pavement markings when the work duration is more than 3 days. When the work duration is less than 3 days, the channelizing devices in the area where the pavement markings conflict shall be placed at a spacing of ½ G. Pavement marking removals shall be paid for at the contract unit price for Remove Pavement Marking, 4" or equivalent. Temporary pavement marking shall be paid for at the contract unit bid price for "Temporary Pavement Marking". The additional channelizing devices shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".
8. The quantity of Signs paid for will be for the greatest number of installations per sign in place at any one time regardless of the number of set-ups on the project.
9. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

10. All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.
11. The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.
12. The Contractor shall be required to have a person available 24 hour/day, 7 days/week to maintain traffic control devices. The name and cellular telephone number of this individual shall be given to the Engineer at the preconstruction meeting.
13. The Contractor or designated traffic control subcontractor shall make night inspections at the initial set up of traffic control and every week thereafter to ensure the adequacy, legibility and reflectivity of each sign and device. A written summary of each inspection shall be given to the Engineer within 24 hours after completion of the inspection. The cost for the nighttime inspection work shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.
14. Vehicles working in traffic or alongside traffic shall be equipped with a flashing amber light visible from all directions. The amber light shall be mounted on the uppermost part of the contractor's vehicle. Lights must have peak intensity within the range of 40 to 400 candelas and must flash at 75 ± 15 flashes per minute. Vehicle flasher/hazard lights are not acceptable.
15. All construction operations shall be conducted in the general direction of traffic movement.
16. If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD – whichever is more stringent shall be used, as determined by the Engineer.
17. Temporary Road Markers shall be used for lane closure tapers or lane shift tapers. Temporary Road Markers used for tapers and shifts will not be measured for payment and will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.
18. Drums are required in all lane closure tapers.
19. Construction work zones shall be limited to 3 miles in length. The distance between the closest points of any two construction work areas, including channelizing devices shall not be less than 3 miles.
20. Lane closures will be required in both the eastbound and westbound direction for median work.
21. The Interstate shall be kept open to one lane traffic at all times in each direction.
22. Sufficient traffic control devices have been included in these plans to sign two lane closures. If the Contractor elects to work on additional sites simultaneously, the cost for additional traffic control devices shall be incidental to the contract unit price per unit for "Traffic Control".

|                             |          |       |                 |
|-----------------------------|----------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT  | SHEET | TOTAL<br>SHEETS |
|                             | 090E-452 | 8     | 20              |

TYPE C ADVANCE WARNING ARROW PANEL

The quantity of Type C Advance Warning Arrow Panels paid will be the most installations in place at any one time regardless of the number of setups on the project.

FLAGS

Flags shall be installed on traffic control signs as detailed in the plans and as directed by the Engineer. Payment for the flags shall be 10 traffic control units per each flag. Payment will be full compensation for all costs associated to furnish, install, maintain (including replacement as required by the Engineer at no cost to the Department), and remove flag.

HAZARD IDENTIFICATION BEACON

Hazard identification beacons (warning lights) will be utilized to supplement the retroreflectorization of channelizing devices and signs as shown in the plans and as directed by the Engineer. The beacon shall be a "Shielded Type B Warning Light" conforming to the latest edition of the MUTCD. Red color lens shall only be used on "Stop", "Do Not Enter" and "Wrong Way" signs. Yellow color lens shall be used on all other signs and channelizing devices.

Payment for hazard identification beacon will be at the contract unit bid price per site. A site is defined as each individual installation. Payment will be for all costs to furnish, install, maintain, and remove hazard identification beacon.

TABLE OF TRAFFIC CONTROL DEVICES

| SIGN<br>CODE | SIGN SIZE | DESCRIPTION                               | NUMBER<br>REQUIRED | UNITS<br>PER<br>SIGN | UNITS |
|--------------|-----------|---|--------------------|----------------------|-------|
| G20-2        | 48" x 24" | END ROAD WORK                             | 4                  | 24                   | 96    |
| R1-2         | 60" x 60" | YIELD                                     | 2                  | 44                   | 88    |
| R2-1         | 36" x 48" | SPEED LIMIT ##                            | 2                  | 29                   | 58    |
| W3-2         | 48" x 48" | YIELD AHEAD (SYMBOL)                      | 2                  | 34                   | 68    |
| W4-1         | 48" x 48" | MERGE (SYMBOL)                            | 4                  | 34                   | 136   |
| W4-2         | 48" x 48" | LEFT OR RIGHT LANE ENDS (SYMBOL)          | 4                  | 34                   | 136   |
| W4-3         | 48" X 48" | ADDED LANE (SYMBOL)                       | 2                  | 34                   | 68    |
| W5-4         | 48" X 48" | RAMP NARROWS                              | 2                  | 34                   | 68    |
| W13-1P       | 30" x 30" | ADVISORY SPEED PLATE                      | 2                  | 21                   | 42    |
| W13-4P       | 36" X 36" | ON RAMP                                   | 2                  | 27                   | 54    |
| W20-1        | 48" x 48" | ROAD WORK ##### FT. OR AHEAD              | 6                  | 34                   | 204   |
| W20-5        | 48" x 48" | LT. OR RT. LANE CLOSED ##### FT. OR AHEAD | 4                  | 34                   | 136   |
| W21-5        | 48" x 48" | SHOULDER WORK                             | 4                  | 34                   | 136   |
| SPECIAL      | 36 x 32   | EXIT WITH 45 DEGREE ARROW                 | 2                  | 24                   | 48    |
| SPECIAL      | x         | FLAGS                                     | 4                  | 10                   | 40    |
| TOTAL UNITS  |           |   |                    |                      | 1378  |



**STORM WATER POLLUTION PREVENTION PLAN CHECKLIST**

*(The numbers right of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES)*

❖ **SITE DESCRIPTION (4.2 1)**

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
  - ☐ Clearing and grubbing
  - ☐ Excavation/borrow
  - ☐ Grading and shaping
  - ☐ Filling
  - ☐ Cutting and filling
  - ☒ Other (Erosion Repair):
- **Total Project Area** 8.1 ac **(4.2 1.b.)**
- **Total Area To Be Disturbed** 8.1 ac **(4.2 1.b.)**
- **Existing Vegetative Cover (%)**
- **Soil Properties: AASHTO Soil or USDA-NRCS Soil Series**  
Classification **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** none **(4.2 1.e.)**

❖ **ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)**

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)

- **Complete traffic control installation and protection devices.**
- **Place Topsoil.**
- **Seed areas.**

❖ **EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))**

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
  - ☐ Temporary Seeding (Cover Crop Seeding)
  - ☒ Permanent Seeding
  - ☐ Sodding
  - ☐ Planting (Woody Vegetation for Soil Stabilization)
  - ☐ Mulching (Grass Hay or Straw)
  - ☒ Hydraulic Mulch (Wood Fiber Mulch)
  - ☐ Soil Stabilizer
  - ☐ Bonded Fiber Matrix
  - ☒ Erosion Control Blankets or Mats
  - ☐ Vegetation Buffer Strips
  - ☐ Roughened Surface (e.g. tracking)
  - ☐ Dust Control
  - ☐ Other:
- **Structural Temporary Erosion and Sediment Controls**
  - ☐ Silt Fence
  - ☐ Floating Silt Curtain
  - ☐ Straw Bale Check
  - ☐ Temporary Berm
  - ☐ Temporary Slope Drain
  - ☒ Straw Wattles or Rolls
  - ☐ Turf Reinforcement Mat
  - ☐ Rip Rap
  - ☐ Gabions
  - ☐ Rock Check Dams
  - ☐ Sediment Traps/Basins

- ☐ Inlet Protection
- ☐ Outlet Protection
- ☐ Surface Inlet Protection (Area Drain)
- ☐ Curb Inlet Protection
- ☐ Stabilized Construction Entrances
- ☐ Entrance/Exit Equipment Tire Wash
- ☐ Interceptor Ditch
- ☐ Concrete Washout Area
- ☐ Temporary Diversion Channel
- ☐ Work Platform
- ☐ Temporary Water Barrier
- ☐ Temporary Water Crossing
- ☐ Other:

➤ **Wetland Avoidance**

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☐ No ☐ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

➤ **Storm Water Management (4.2 2.b., (1) and (2))**

Storm water management will be handled by temporary controls outlined in “EROSION AND SEDIMENT CONTROLS” above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.

➤ **Other Storm Water Controls (4.2 2.c., (1) and (2))**

▪ **Waste Disposal**

All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.

▪ **Hazardous Waste**

All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the contractor's on-site representative will be responsible for seeing that these practices are followed.

▪ **Sanitary Waste**

Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management contractor or as required by any local regulations.

❖ **Maintenance and Inspection (4.2 3. and 4.2 4.)**

➤ **Maintenance and Inspection Practices**

- Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches  $\frac{1}{3}$  of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches  $\frac{1}{2}$  the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and contractor's site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

❖ **Non-Storm Water Discharges (3.0)**

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- ☐ Discharges from water line flushing.
- ☐ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☐ Uncontaminated ground water associated with dewatering activities.

❖ **Materials Inventory (4.2. 2.c.(2))**

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings “EROSION AND SEDIMENT CONTROLS” and “SPILL PREVENTION” (check all that apply).

- ☐ Concrete and Portland Cement
- ☐ Detergents
- ☐ Paints
- ☐ Metals
- ☐ Bituminous Materials
- ☒ Petroleum Based Products
- ☐ Cleaning Solvents
- ☐ Wood
- ☐ Cure
- ☐ Texture
- ☐ Chemical Fertilizers
- ☐ Other:

❖ **Spill Prevention (4.2 2.c.(2))**

➤ **Material Management**

▪ Housekeeping

- Only needed products will be stored on-site by the contractor.
- Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
- Products must be stored in original containers and labeled.
- Material mixing will be conducted in accordance with the manufacturer's recommendations.
- When possible, all products will be completely used before properly disposing of the container off site.
- The manufacturer's directions for disposal of materials and containers will be followed.
- The contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
- Dust generated will be controlled in an environmentally safe manner.
- Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.

▪ Hazardous Materials

- Products will be kept in original containers unless the container is not resealable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.
- If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

➤ **Product Specific Practices (6.8)**

▪ Petroleum Products

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

▪ Fertilizers

Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

▪ Paints

All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the

manufacturer's instructions and any applicable state and local regulations.

▪ Concrete Trucks

Contractors will provide designated truck washout areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

➤ **Spill Control Practices (4.2 2 c.(2))**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill clean up will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for clean up purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

➤ **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.

- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

❖ **Spill Notification**

In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately **if any one of the following** conditions exists:
  - The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
  - The discharge causes an immediate danger to human health or safety.
  - The discharge exceeds 25 gallons.
  - The discharge causes a sheen on surface water.
  - The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
  - The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
  - The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
  - The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

❖ **Construction Changes (4.4)**

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.

❖ **CERTIFICATIONS**

➤ **Certification of Compliance with Federal, State, and Local Regulations**

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➤ **South Dakota Department of Transportation**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Authorized Signature (See the General Permit, Section 6.7.1.C.)

➤ **Prime Contractor**

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

❖ **CONTACT INFORMATION**

➤ **Contractor Information:**

- Prime Contractor Name:
- Contractor Contact Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➤ **Erosion Control Supervisor**

- Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➤ **SDDOT Project Engineer**

- Name:
- Business Address:
- Job Office Location:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➤ **SD DENR Contact Spill Reporting**

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➤ **SD DENR Contact for Hazardous Materials.**

- (605) 773-3153

➤ **National Response Center Hotline**

- (800) 424-8802.

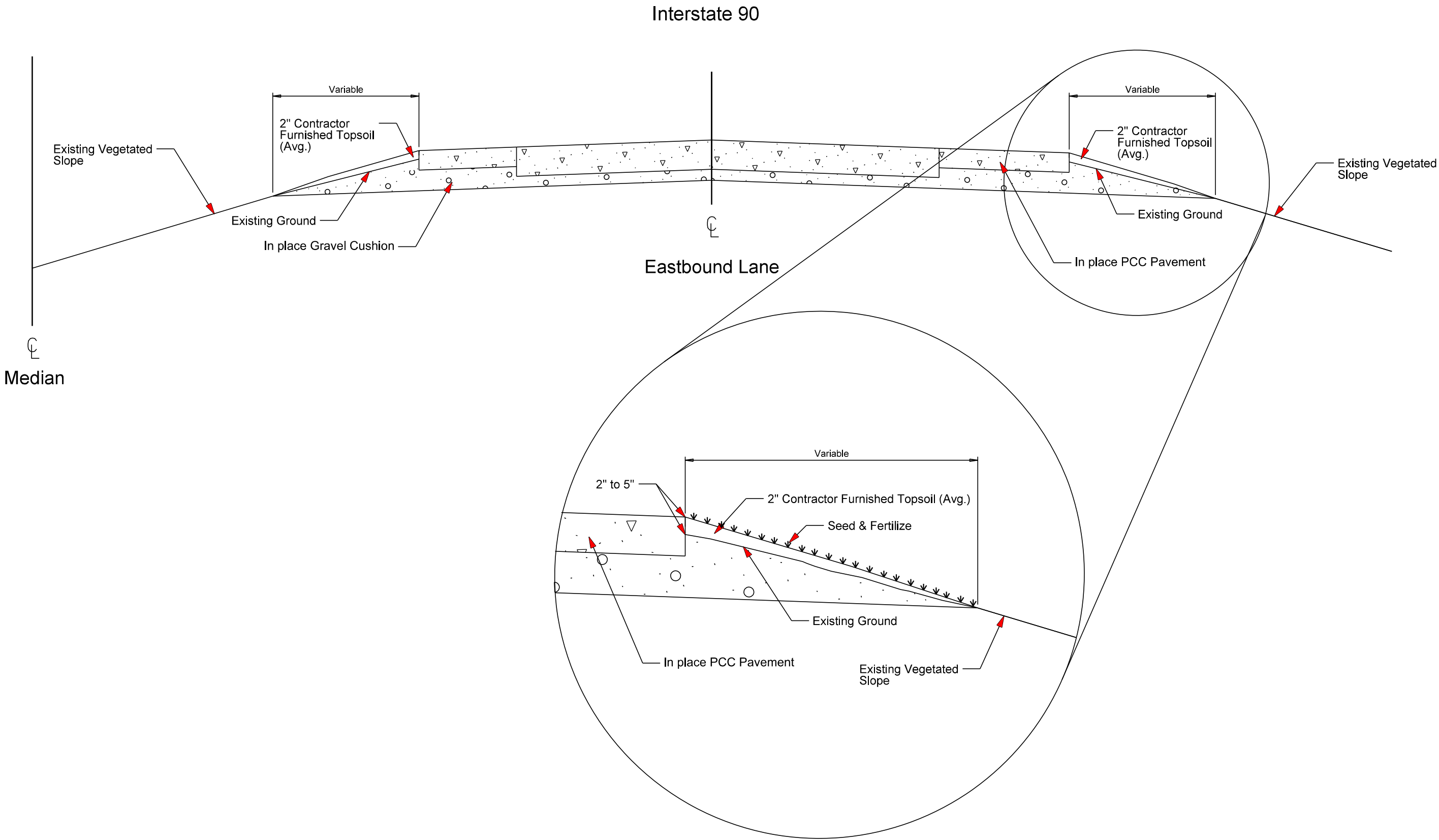
Plot Scale - 1:200

Plotted From - trc11610

|                             |          |       |                 |
|-----------------------------|----------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT  | SHEET | TOTAL<br>SHEETS |
|                             | 090E-452 | 12    | 20              |

Plotting Date: 04/03/2014

# TYPICAL SECTION

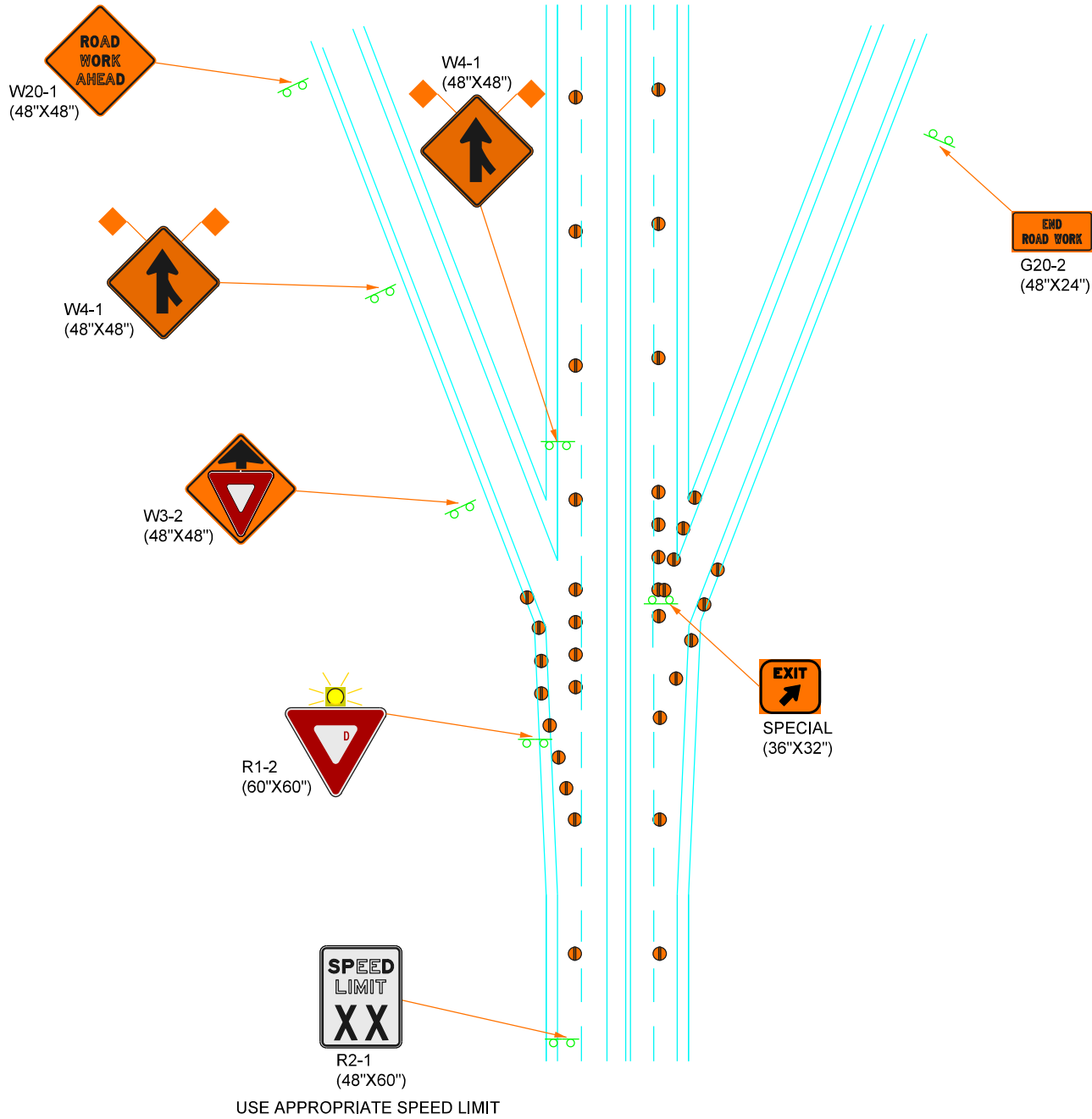


# TRAFFIC CONTROL

## RAMP ENTRANCE AND EXIT SIGNING DETAILS #1

|                             |          |       |                 |
|-----------------------------|----------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT  | SHEET | TOTAL<br>SHEETS |
|                             | 090E-452 | 13    | 20              |

Plotting Date: 04/03/2014



THE WARNING LIGHT SHALL BE A SHIELDED TYPE B, IN ACCORDANCE WITH THE MUTCD AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SITE FOR "HAZARD IDENTIFICATION BEACON"

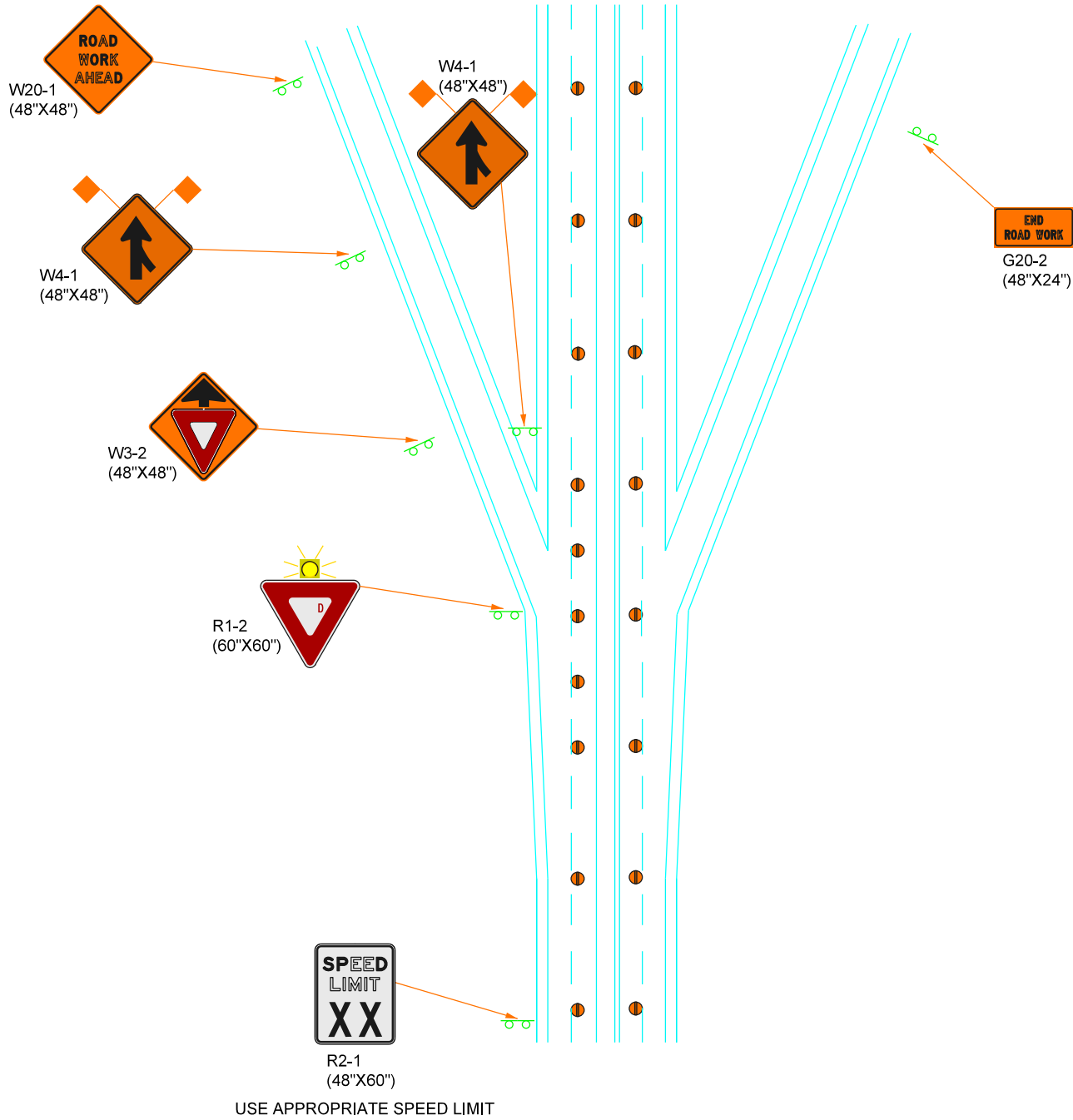


# TRAFFIC CONTROL

## RAMP ENTRANCE AND EXIT SIGNING DETAILS #2

|                             |          |       |                 |
|-----------------------------|----------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT  | SHEET | TOTAL<br>SHEETS |
|                             | 090E-452 | 14    | 20              |

Plotting Date: 04/03/2014



THE WARNING LIGHT SHALL BE A SHIELDED TYPE B, IN ACCORDANCE WITH THE MUTCD AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SITE FOR "HAZARD IDENTIFICATION BEACON"

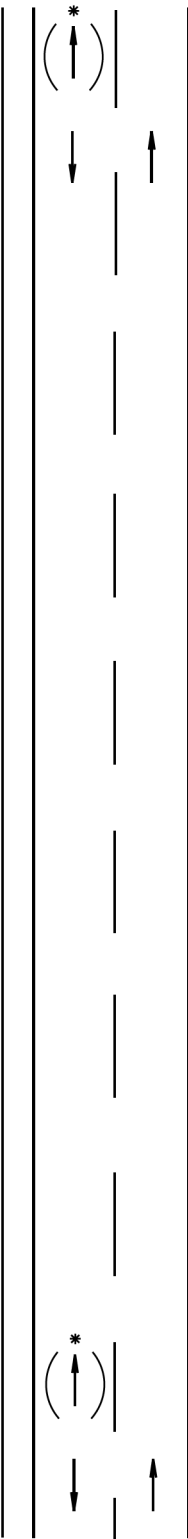
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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.

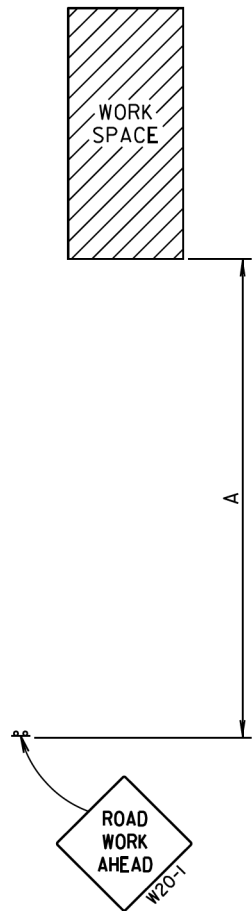
The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

\* 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.

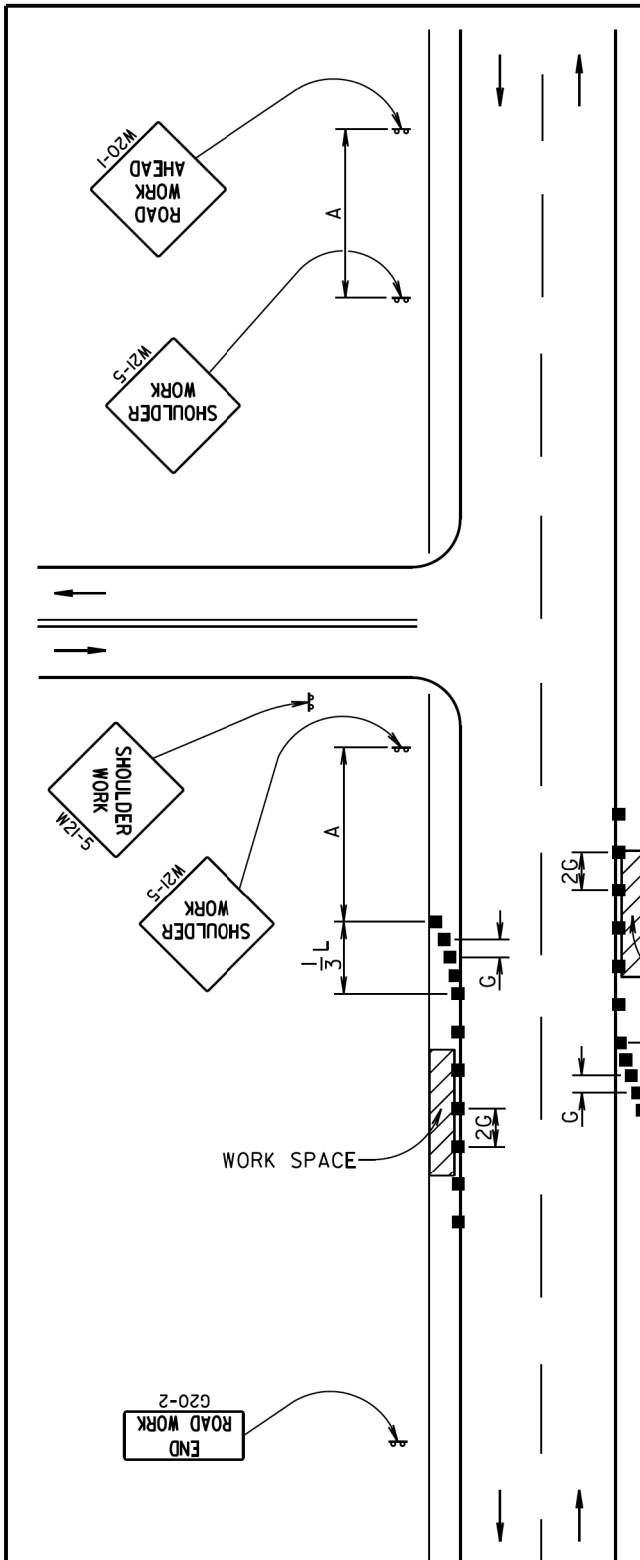


| Posted Speed<br>Prior to Work<br>(M.P.H.) | Spacing of Advance<br>Warning Signs<br>(Feet)<br>(A) |
|---|--|
| 0 - 30                                    | 200  |
| 35 - 40                                   | 350  |
| 45 - 50                                   | 500  |
| 55  | 750  |
| 60 - 75       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



July 1, 2005

|                               |                       |  |                        |
|-------------------------------|-----------------------|--|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | GUIDES FOR TRAFFIC CONTROL DEVICES<br>WORK BEYOND THE SHOULDER | PLATE NUMBER<br>634.01 |
|                               |                       |  | Sheet 1 of 1           |
|                               |                       |  |                        |



| Posted Speed<br>Prior to Work<br>(M.P.H.) | Spacing of<br>Advance Warning<br>Signs<br>(Feet)<br>(A) | Taper<br>Length<br>(Feet)<br>(L) | Spacing of<br>Channelizing<br>Devices<br>(Feet)<br>(G) |
|---|---|----------------------------------|--|
| 0 - 30                                    | 100 - 200   | 180                              | 25   |
| 35 - 40                                   | 350   | 320                              | 25   |
| 45 - 50                                   | 500   | 600                              | 50   |
| 55  | 750   | 660                              | 50   |
| 60 - 65                                   | 1000  | 780                              | 50   |

Channelizing Device



The channelizing devices shall be drums or 42" cones if traffic control must remain overnight or longer.

For short duration operations (1 hour or less) all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

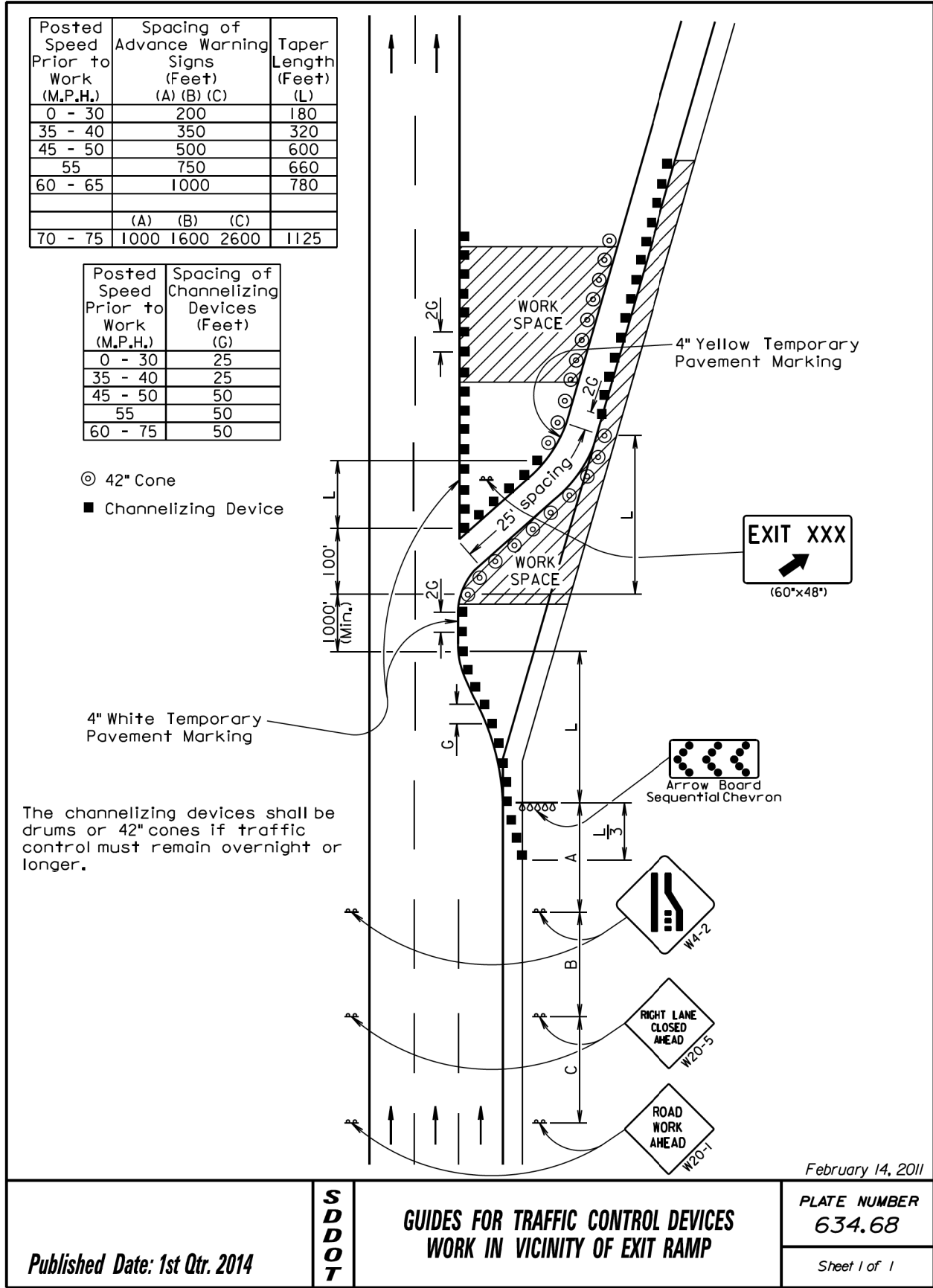
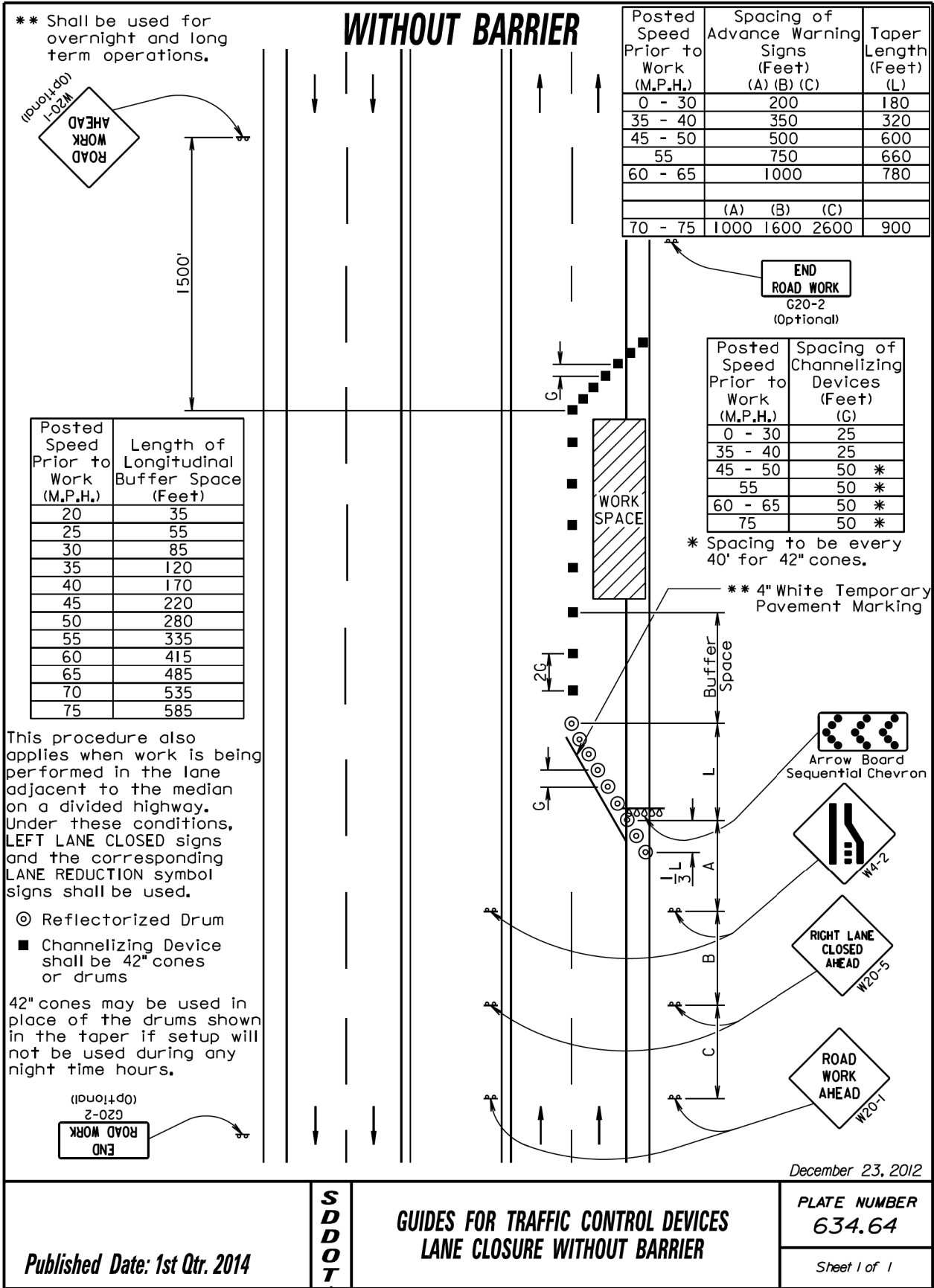
Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

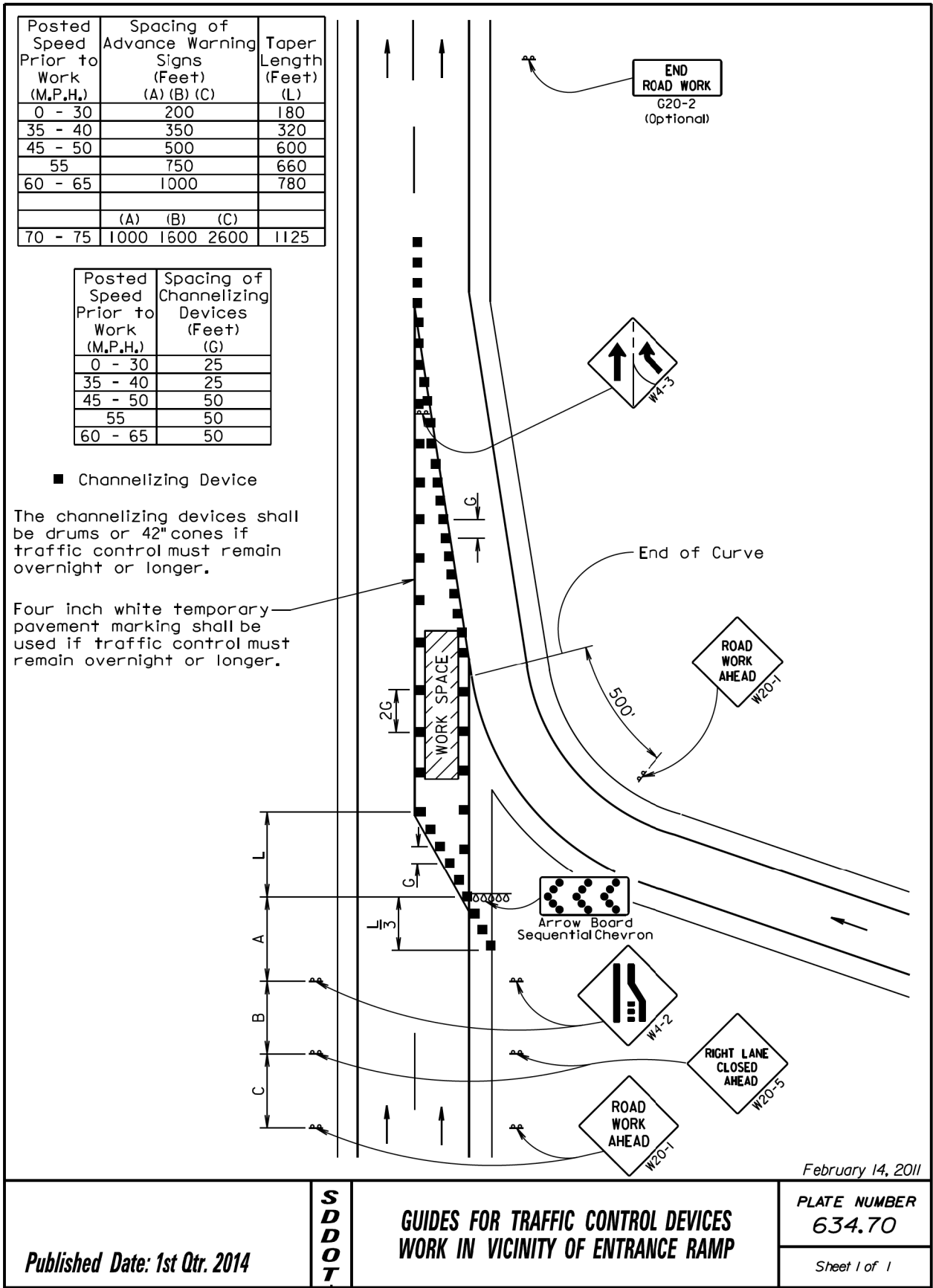
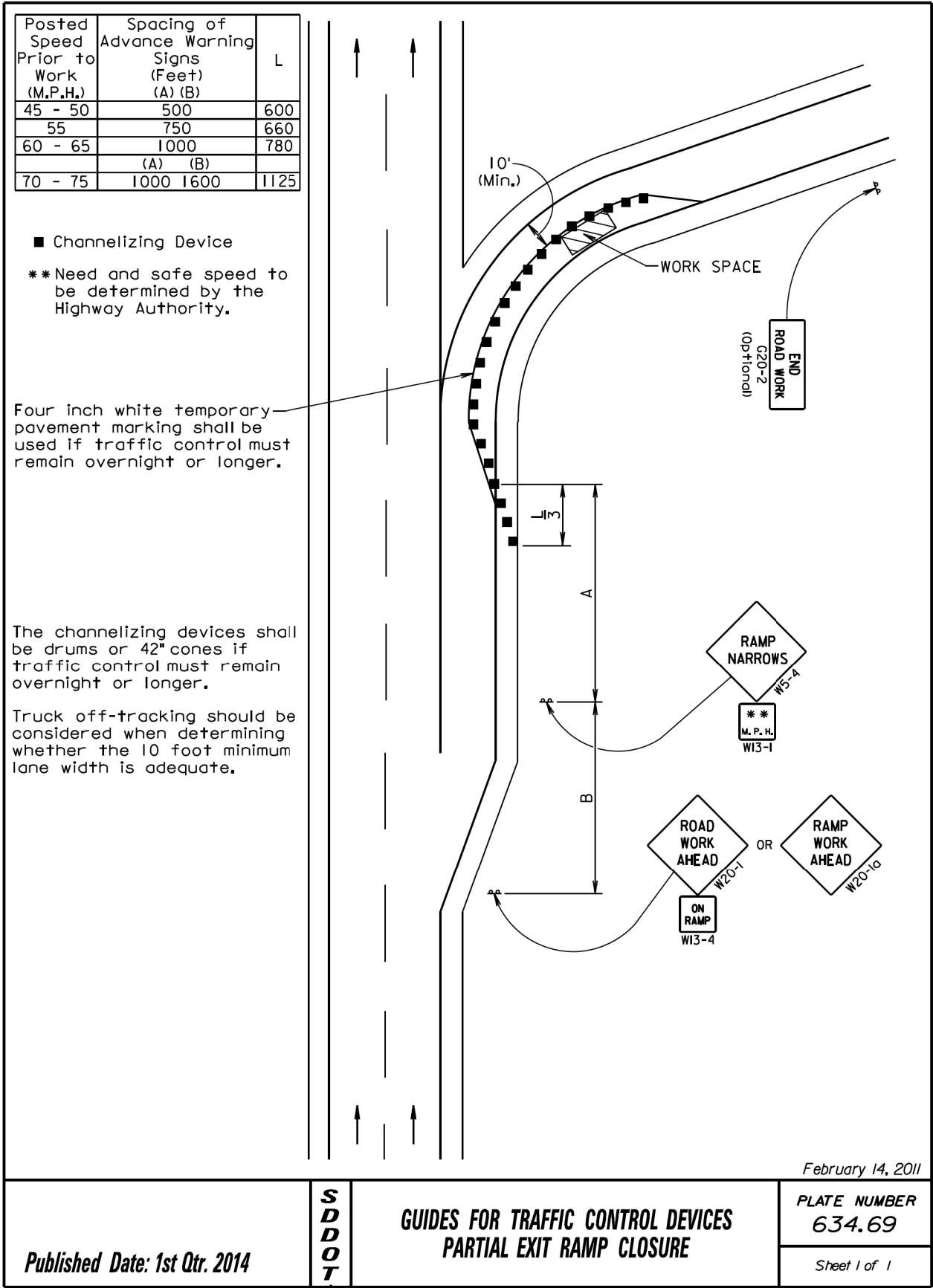
A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

|                               |                       |   |                        |
|-------------------------------|-----------------------|---|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | GUIDES FOR TRAFFIC CONTROL DEVICES<br>WORK ON SHOULDERS | PLATE NUMBER<br>634.03 |
|                               |                       |   | Sheet 1 of 1           |
|                               |                       |   |                        |

February 14, 2011











1:200  
Plot Scale -

- Plotted From: -  
trc11610

|                             |          |       |                 |
|-----------------------------|----------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT  | SHEET | TOTAL<br>SHEETS |
|                             | 090E-452 | 20    | 20              |

Plotting Date: 04/03/2014

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

|                                      |                                  |                               |                                      |
|--------------------------------------|----------------------------------|-------------------------------|--------------------------------------|
| <i>Published Date: 1st Qtr. 2014</i> | <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>EROSION CONTROL WATTLE</b> | <i>PLATE NUMBER</i><br><b>734.06</b> |
|                                      |                                  |                               | <i>Sheet 2 of 2</i>                  |

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