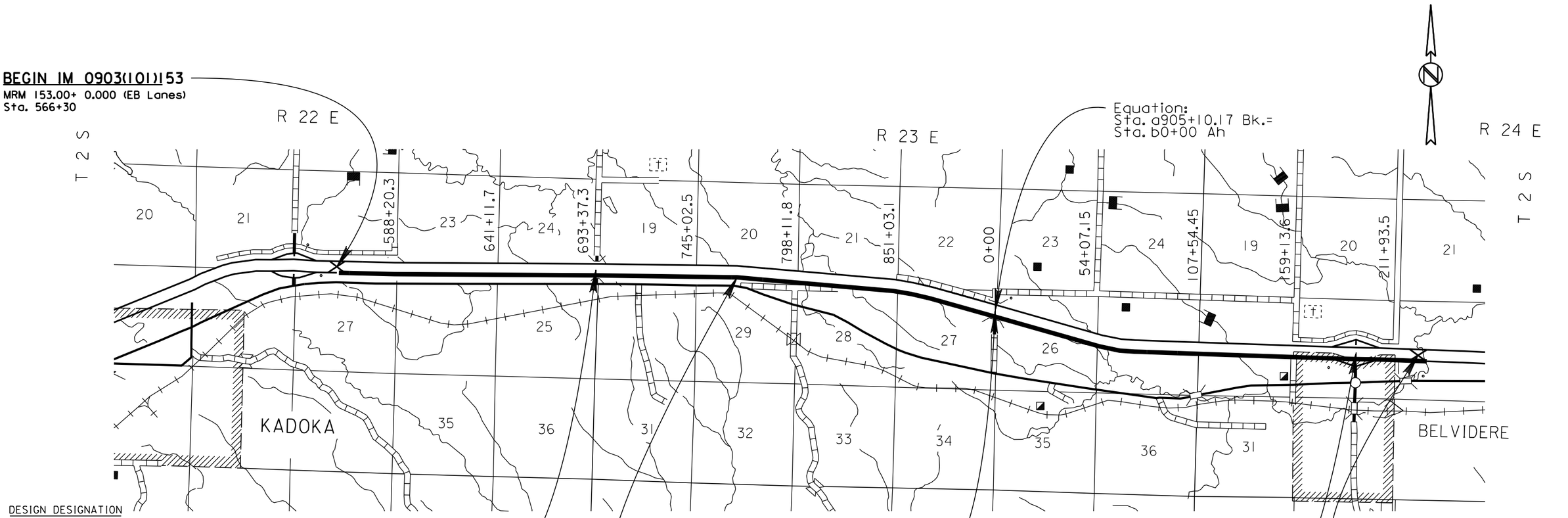
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | IM0903(101)153 | C1 | C19 |

Plotting Date: 08/12/2015

# SECTION -C TRAFFIC CONTROL

INDEX OF SHEETS






DESIGN DESIGNATION

| | |
|---|---|
| ADT (2014) | 2787 |
| ADT (2034) | 3208 |
| DHV | 612.7 |
| D | 51 |
| T DHV | 11.9 |
| T ADT | 26.1 |
| V | 80 |

| | | |
|---|---|---|
| LENGTH | 55440 FEET | 10.5 MILES |
| EXCEPTIONS | 451.10 FEET | 0.085 MILES |
| NET | 54988.90 FEET | 10.415 MILES |

Plans Stationing is at the Centerline of the Eastbound Lanes Underlying Plans Stationing is in the Median

## ESTIMATE OF QUANTITIES

**Section C - Traffic Control**

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|---|---|---|---|
| 634E0010 | Flagging | 480.0 | Hour |
| 634E0110 | Traffic Control Signs | 2,827 | SqFt |
| 634E0120 | Traffic Control, Miscellaneous | Lump Sum | LS |
| 634E0285 | Type 3 Barricade, 8' Double Sided | 15 | Each |
| 634E0340 | Temporary Raised Pavement Markers | 12.600 | Mile |
| 634E0380 | Tubular Marker | 1,201 | Each |
| 634E0420 | Type C Advance Warning Arrow Board | 4 | Each |
| 634E0560 | Remove Pavement Marking, 4" or Equivalent | 5,000 | Ft |
| 634E0620 | Temporary Pavement Marking, Continuous 4" Edge Line | 111,936 | Ft |
| 634E0630 | Temporary Pavement Marking | 7.8 | Mile |
| 634E1002 | Detour Signing | 1,973.8 | SqFt |
| 634E1215 | Contractor Furnished Portable Changeable Message Sign | 4 | Each |

## TRAFFIC CONTROL SEQUENCE PLANNING

The Contractor will submit a detailed schedule and sequence to the Engineer prior to the preconstruction meeting as described in the provisions.

The plans have been organized to aid in the guidance and requirements as they pertain to the various conditions and traffic control setups required for the project. Though notes may appear under a specific heading, they are to be applied to the project as a whole as per installation, maintenance, payment, standard plates, etc. and where directed by the Engineer.

### Traffic Control Allotments

For the planning of the traffic control sequencing purposes, the Contractor has been allotted, to be used at his discretion, sufficient signage quantities to develop his sequence of operations as follows:

One – Mobile Shoulder setup for off mainline road work
One – Temporary Lane closure for SD248 Asphalt patching
Two – 3.0 mile lane closures for I-90 mainline work
One - Two-Way setup for all traffic in WB lanes
Two - Emergency Detour Layouts

The lane closures will be paid for once during their initial use on the project, regardless of the number of times they are moved by the Contractor.

Payment for the 4” temporary pavement markings for individual lane closure tapers that must remain overnight, shall be incidental to the various traffic control items.

## TRAFFIC CONTROL SEQUENCE PLANNING-continued

The Contractor may utilize the above traffic control to best fit his planned sequence and operation. Sufficient traffic control devices have been allotted to be used and for the safe movement of the traveling public. The Contractor may submit to the Department an alternative proposal if he finds alternatives that are not covered by these plans for consideration by the Department.

All work activities shall be conducted during daylight hours only, unless approved by the Engineer.

The Contractor is prohibited from using SD Highway 248 for loaded trucks during the I-90 construction unless prior written approval authorization is attained from the Engineer. The authorization will only be given for short segments associated with entering and exiting the plant site area.

For sequence planning purposes, the main portion of the project, which consists of the eastbound lanes of I-90 from MRM 153.00 to MRM 163.809 and the cold milling and asphalt concrete resurfacing of the EB ramps at Exit 163 will consist primarily of the following main activities. These tables are intended as a guide only to the Contractor to aid in setting up his sequence of operations and are not inclusive of all work activities:

**Traffic Control**
Fixed Location Signs
Overwidth Detour
Emergency Closures
Two-Way Traffic setup
Surface Exit 163 Ramp Detours

**Structures**
Guardrail Removal Embankment
Guardrail installation

**Mainline**
Removal of existing PCC
Shoulder work to typical section
Undercutting
Grading
Underdrains
Placement of Gravel Cushion
PCC Surfacing
Shoulder/Inslope Grading
Asphalt Paving on Shoulders
Grinding of Median rumble strips
Permanent Pavement Markings
Permanent Sign Installation

**Miscellaneous**
Asphalt Patching SD248
Exit 163 Ramp repairs
Install Fault Drains
Install Haul Road

## MAINTENANCE OF TRAFFIC

Traffic control shall be in accordance with Section 634 of the Specifications, and Plan Notes. Traffic shall be maintained in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).

The Contractor will erect four (4) fixed location support Road Work Ahead signs at the following locations, as directed by the Engineer:

County RD North of Exit 152
County RD South of Exit 152
County RD North of Exit 163
County RD South of Exit 163

The name and phone number of the Contractor's designated employee(s) who will be available 24 hours/day, 7 days/week to be responsible for the maintenance of traffic shall be provided to the SD Department of Transportation (842-0810), SD Highway Patrol (Pierre State Radio (773-3536) and Jackson County Sheriff Department (669-7111).

Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators or signs damaged or lost shall be replaced by the Contractor at no cost to the State.

The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the ground in rural areas. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location supports, unless approved by the Engineer. If the duration is more than 3 days the signs shall meet the minimum mounting heights of 5 foot for rural areas and 7 foot for urban areas.

Additional standard signs, as ordered by the Engineer, shall be available within 2 working days. Failure to provide signs within this time limit will result in Liquidated Damages being assessed in the amount of $400.00 per Calendar Day. Payment for additional signs will be paid using the contract unit price per sqft. for Traffic Control.

Channelizing devices in a series shall be of the same type. Channelizing drums shall be of a two part construction with breakaway bases. The Contractor may use 42" Grabber Cones for longitudinal delineation only. All tapers and lane transitions shall be accomplished utilizing drums.

All fixed location signs and applicable traffic control devices shall be installed or in place prior to the start of work or mobilization of equipment within the traveled way.

Non-applicable signing shall be covered or removed during periods of in-activity. Improper covering will result in Liquidated Damages being assessed in the amount of $400 per calendar day. All costs to do this work shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to 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.

## MAINTENANCE OF TRAFFIC-continued

A shadow vehicle, equipped with a flashing amber light and a ROAD MACHINERY AHEAD sign prominently displayed, shall be used in advance of landscaping, cleanup and other mobile work activities.

Highway equipment working within traffic or adjacent to traffic shall, at all times, display a flashing or revolving amber light to warn the traveling public.

The Contractor shall furnish, install and maintain TRUCK CROSSING signs. The TRUCK CROSSING signs shall be displayed at all times when haul vehicles are hauling material. When the truck haul condition no longer exists, the signs shall be covered or removed from view. Hinged signs may be used. The exact number and location of "TRUCK CROSSING" signs will be determined on construction.

The use of interstate maintenance crossovers will not be permitted except when both the left (inside) lanes for each directional set of lanes on the same section of interstate are closed and the crossover is within the closures.

The four (4) Type C Advance Warning Arrow Boards will be paid for only once during initial use regardless the number of times used on the project in single lane closures.

Work within a single lane closure with stored material stockpiles, vehicles, and equipment shall be marked by Type 3 barricades. Traffic sight distances shall not be obstructed and located as far from the traveled way as feasible.

## TRAFFIC CONTROL TWO-WAY TRAFFIC

The Contractor's vehicles and equipment will not be allowed to use the maintenance crossovers at any time during the two-way traffic closure of the project. The crossovers located within the project limits shall be blocked off by the use of four (4) Drums. The Contractor will not be allowed to enter or exit the two way traffic section via the maintenance crossovers. Interchange ramps must be used.

The lanes of the interstate that have been closed to traffic shall not be opened to traffic until the Contractor has installed all of the permanent pavement marking paint. The permanent pavement markings shall include the edge lines, centerline, gore areas and ramp edge lines at Exit 163.

During the removal or construction of temporary entrances, temporary exit ramps, or work in the median, the Contractor shall close both the Eastbound and Westbound passing lanes.

In conjunction with the TWO WAY TRAFFIC SINGS installed at 2 mile intervals on the two-way traffic section, the Contractor shall install a DO NOT PASS warning sign at 2 mile intervals on the two-way traffic section.

## INCIDENTS

An incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic such as an accident, hazardous materials spill, severe weather or similar event.

The Contractor shall set up a meeting, a minimum of one week prior to the installation of the two-way traffic zone. The Contractor will invite the Department of Transportation, the South Dakota Highway Patrol, Jackson County Sheriff, Jackson County Emergency Services, Jones County Sheriff, and Jones County Emergency Services. The Engineer will conduct the meeting.

The Contractor will assist in maintaining traffic as required by these plan notes and as agreed to at the meeting.

**EMERGENCY CLOSURE SITES EXIT 152 and EXIT 183**

The Contractor shall provide the necessary certified flaggers to direct traffic at Exit 152 EB and Exit 183 WB in the event that I90 must be closed due to an emergency. In any incident, it is the Contractor's responsibility to furnish sufficient personnel on short notice to address emergency flagging and signing needs 24 hours per day, 7 days per week. Flagging and the use of the Contractor's traffic control devices shall be paid for in accordance with the appropriate contract bid item.

The Contractor is responsible for furnishing, installing, and maintaining all traffic control devices for this closure, as shown on the I-90 Emergency Layout. These devices shall be located at the referenced locations prior to the diverting interstate traffic onto SD HWY 248. All sign and channelizing devices will have their locations marked and materials in place along the shoulder of the road for rapid employment if needed. Traffic control devices will be paid for at the time they are located at their respective sites.

If the Contractor's contact person for emergency operations is **not** the same individual identified as the employee whose only responsibility is the maintenance of traffic (see previous Maintenance of Traffic notes above), then another individual's name and cellular telephone number shall be given to the Engineer and Law enforcement.

## CONTRACTOR FURNISHED PORTABLE CHANGEABLE MESSAGE SIGNS

Portable Message signs will be utilized as follows:

2 – Two-Way Traffic setup from MRM 152 to MRM 164**

**The portable message signs leading into the two-way traffic closures shall be programmed with the following messages for use during normal traffic flow:

REDUCED SPEED
TWO WAY TRAFFIC

During heavy traffic or during incident management:

SLOW TRAFFIC AHEAD
BE PREPARED TO STOP

Portable message signs which are not being utilized, due to the Contractor's Sequence of Operations, shall be used as directed by the Engineer.

The portable message sign shall be programmed to use standard abbreviations and wording as described in the MUTCD or as directed by the Engineer.

The portable changeable message signs shall be paid for at the contract unit price per each for CONTRACTOR FURNISHED PORTABLE CHANGEABLE MESSAGE SIGN. This payment shall be full compensation for furnishing, operating, and maintaining the signs for the duration of the project.

## REMOVE PAVEMENT MARKING

Existing pavement marking which conflicts with the desired traffic patterns detailed in the traffic control lay outs in the plans shall be removed by the Contractor unless otherwise shown.

Cost for removing pavement marking shall be incidental to the contract unit price per foot for Remove Pavement Marking, 4" or Equivalent.

## TEMPORARY RAISED PAVEMENT MARKERS

Temporary Raised Pavement Markers shall be used on the mainline centerline, closure tapers, ramp detours and median crossovers. Temporary Raised Pavement Markers will not be used for the white temporary edgeline in the two-way traffic section.

Temporary Raised Pavement Markers shall be attached to the roadway surface with a bituminous adhesive capable of being removed from the roadway surface.

Payment for the Temporary Raised Pavement Markers used for centerline, which consist of two-4"raised pavement markers @ 5' intervals, will be paid as one line. Cost for furnishing, installing, maintaining (including cleaning and replacing, if necessary), removing markers and bituminous adhesive shall be included in the contract unit price per mile (4" equivalent) for Temporary Raised Pavement Markers.

## TUBULAR MARKERS

At Entrance Ramp and Exit Ramp locations, additional Tubular Markers shall be installed at 20’ spacing from the gore point to the end of the ramp taper or 600’ past the opposite entrance ramp if ramp acceleration/deceleration lanes exist as shown on the standard plates.

Shoulder marking shall be installed on the shoulders of the westbound lanes on Interstate 90 from the beginning of the lane closure taper throughout the length of the two-way traffic, extending to the lane reduction. This marking shall consist of white tubular markers at a spacing of 500’. The white tubular markers shall be installed a minimum of 2’ laterally from the edge of the driving lane, or as approved by the Engineer.

Cost for furnishing, installing, maintaining (including cleaning, if necessary), removing markers and bituminous adhesive shall be incidental to the contract unit price per Each for Tubular Marker.

## TEMPORARY PAVEMENT MARKING, CONTINUOUS EDGELINE

The Contractor shall paint the yellow edgeline white and repaint the existing white edgeline white within the two-way traffic section when two-way traffic is maintained on the westbound lanes.

Cost for Temporary Pavement Marking, Continuous 4” Edge Line is included in the contract unit price per foot for Temporary Pavement Marking, Continuous 4” Edge Line.

Temporary Pavement Markings shall be applied at the rates as specified in Section-M of the plans.

## TEMPORARY PAVEMENT MARKING

Temporary Flexible Vertical Markers (Tabs) may be used on the interchange crossroad and ramps during resurfacing. If used, the Contractor shall remove and dispose of them after Permanent Pavement Marking is applied. Method of removal shall be nondestructive to the road surface and shall be accomplished within one week of completion of the Permanent Pavement Marking. Payment for placing Temporary Flexible Vertical Markers shall be included in the contract unit price per Mile for Temporary Pavement Marking.

Pavement marking on the SD HWY 248 patching work (estimated at 5 miles) shall be completed prior to establishing two-way traffic on I-90. This pavement marking on SD248 shall be installed on all patches and will include the installation of white edge lines. Cost for placing the pavement marking on SD248 shall be included in the contract unit bid price per Mile for Temporary Pavement Marking.

### ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

| | | CONVENTIONAL ROAD | | | | EXPRESSWAY / INTERSTATE | | | |
|---|---|---|---|---|---|---|---|---|---|
| SIGN CODE | SIGN DESCRIPTION | NUMBER | SIGN SIZE | SQFT PER SIGN | SQFT | NUMBER | SIGN SIZE | SQFT PER SIGN | SQFT |
| R1-2 | YIELD | | 36" x 36" | 9 | | 1 | 60" x 60" | 25 | 25 |
| R2-1 | SPEED LIMIT 45 | | 24" x 30" | 5 | | 2 | 36" x 48" | 12 | 24 |
| R2-1 | SPEED LIMIT 65 | | 24" x 30" | 5 | | 11 | 36" x 48" | 12 | 132 |
| R2-1 | SPEED LIMIT 80 | | 24" x 30" | 5 | | 4 | 36" x 48" | 12 | 48 |
| R2-6aP | FINES DOUBLE (plaque) | | 24" x 18" | 3 | | 10 | 36" x 24" | 6 | 60 |
| R4-1 | DO NOT PASS | | 24" x 30" | 5 | | 9 | 36" x 48" | 12 | 108 |
| R4-7 | KEEP RIGHT (symbol) | | 24" x 30" | 5 | | 1 | 36" x 48" | 12 | 12 |
| R5-1 | DO NOT ENTER | | 30" x 30" | 6 | | 1 | 36" x 36" | 9 | 9 |
| R11-2 | ROAD CLOSED | | 48" x 30" | 10 | | 1 | 48" x 30" | 10 | 10 |
| W1-4 | REVERSE CURVE (L or R) | | 48" x 48" | 16 | | 4 | 48" x 48" | 16 | 64 |
| W1-6 | LARGE ARROW (one direction) | | 48" x 24" | 8 | | 2 | 60" x 30" | 13 | 26 |
| W3-4 | BE PREPARED TO STOP | 2 | 48" x 48" | 16 | 32 | | 48" x 48" | 16 | |
| W3-5 | SPEED REDUCTION AHEAD (__ MPH) | | 48" x 48" | 16 | | 10 | 48" x 48" | 16 | 160 |
| W4-1 | MERGE (symbol) | | 48" x 48" | 16 | | 3 | 48" x 48" | 16 | 48 |
| W4-2 | LEFT or RIGHT LANE ENDS (symbol) | | 48" x 48" | 16 | | 18 | 48" x 48" | 16 | 288 |
| W4-3 | ADDED LANE (symbol) | | 48" x 48" | 16 | | 1 | 48" x 48" | 16 | 16 |
| W5-4 | RAMP NARROWS | | 48" x 48" | 16 | | 1 | 48" x 48" | 16 | 16 |
| W6-3 | TWO WAY TRAFFIC (symbol) | | 48" x 48" | 16 | | 15 | 48" x 48" | 16 | 240 |
| W7-3aP | NEXT __ MILES (plaque) | | 36" x 30" | 8 | | 12 | 36" x 30" | 8 | 96 |
| W8-6 | TRUCK CROSSING | | 48" x 48" | 16 | | 2 | 48" x 48" | 16 | 32 |
| W13-1P | ADVISORY SPEED (plaque) | | 30" x 30" | 6 | | 17 | 30" x 30" | 6 | 102 |
| W13-4P | ON RAMP (plaque) | | 36" x 36" | 9 | | 1 | 36" x 36" | 9 | 9 |
| W20-1 | ROAD WORK AHEAD | 4 | 48" x 48" | 16 | 64 | 22 | 48" x 48" | 16 | 352 |
| W20-2 | DETOUR AHEAD | | 48" x 48" | 16 | | 6 | 48" x 48" | 16 | 96 |
| W20-3 | ROAD CLOSED AHEAD | | 48" x 48" | 16 | | 1 | 48" x 48" | 16 | 16 |
| W20-4 | ONE LANE ROAD AHEAD | 2 | 48" x 48" | 16 | 32 | | 48" x 48" | 16 | |
| W20-5 | LEFT or RIGHT LANE CLOSED AHEAD | | 48" x 48" | 16 | | 23 | 48" x 48" | 16 | 368 |
| W20-7 | FLAGGER (symbol) | 4 | 48" x 48" | 16 | 64 | 4 | 48" x 48" | 16 | 64 |
| W24-1 | DOUBLE REVERSE CURVE (L or R) | | 48" x 48" | 16 | | 1 | 48" x 48" | 16 | 16 |
| G20-1 | ROAD WORK NEXT __ MILES | | 36" x 18" | 5 | | 5 | 48" x 24" | 8 | 40 |
| G20-2 | END ROAD WORK | 4 | 36" x 18" | 5 | 20 | 6 | 48" x 24" | 8 | 48 |
| W13-2 | EXIT XX MPH | | " x " | | | 1 | 30" x 30" | 6 | 6 |
| W13-3 | RAMP XX MPH | | " x " | | | 1 | 30" x 30" | 6 | 6 |
| SPECIAL | 45º ARROW | | " x " | | | 1 | 36" x 72" | 18 | 18 |
| SPECIAL | EXIT 163 1000 FT | | " x " | | | 2 | 60" x 48" | 20 | 40 |
| SPECIAL | EXIT 163 with Arrow | | " x " | | | 1 | 60" x 48" | 20 | 20 |
| TRAFFIC CONTROL SIGNS TOTAL | 2827 SQFT | CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT | | | 212 | EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT | | | 2615 |

### TYPE 3 BARRICADES

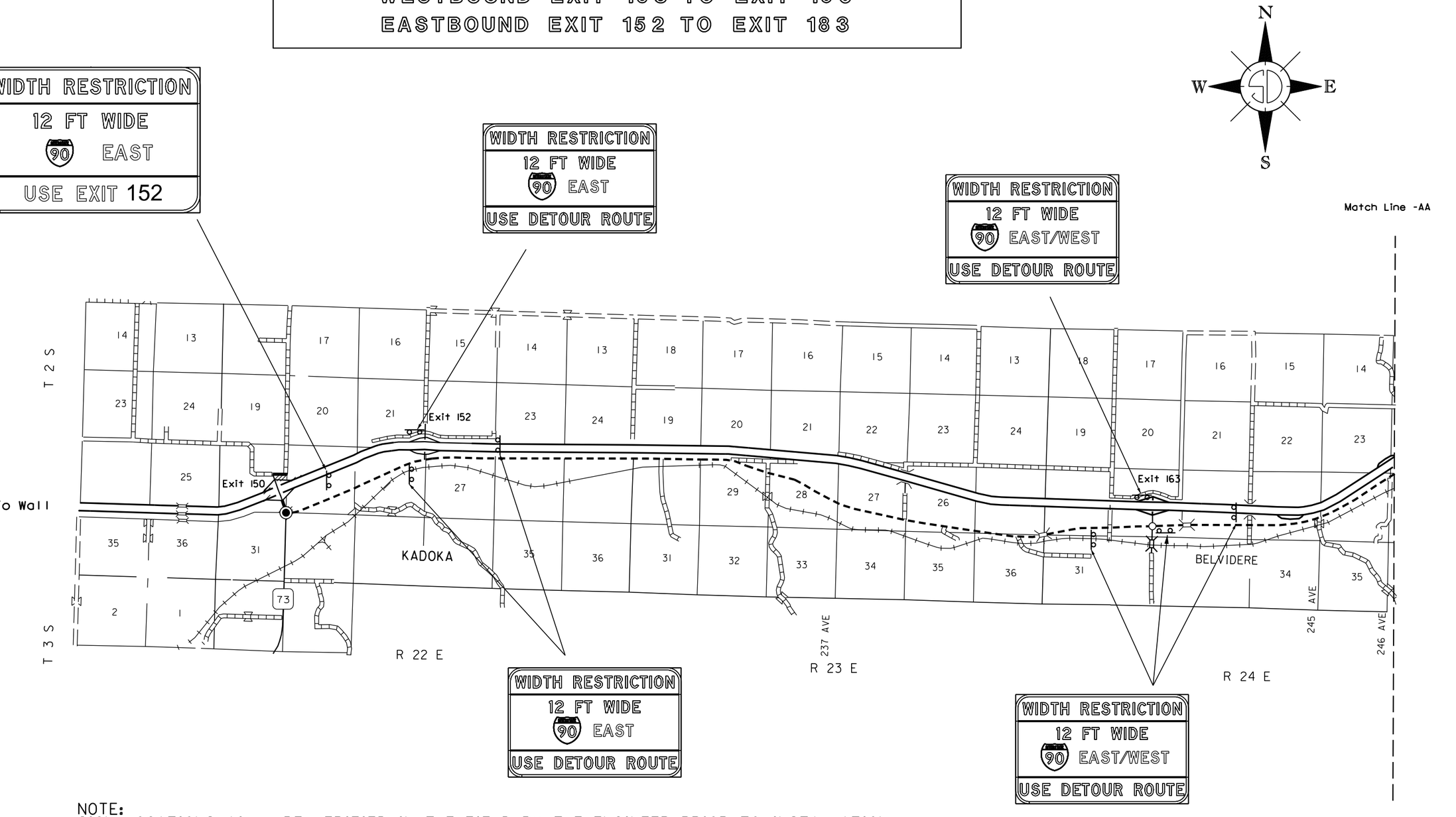
| ITEM DESCRIPTION | QUANTITY |
|---|---|
| Type 3 Barricade, 8' Double Sided | 15 Each |

### ARROW BOARDS

| ITEM DESCRIPTION | QUANTITY |
|---|---|
| Type C Advance Warning Arrow Board | 4 Each |

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | IM 0903(101)153 | C6 | C19 |

# GUIDES FOR TRAFFIC CONTROL DEVICES
# SHOWING WIDTH RESTRICTION SIGNS
# WESTBOUND EXIT 183 TO EXIT 150
# EASTBOUND EXIT 152 TO EXIT 183




NOTE:
SIGN LOCATIONS WILL BE VERIFIED IN THE FIELD BY THE ENGINEER PRIOR TO INSTALLATION.

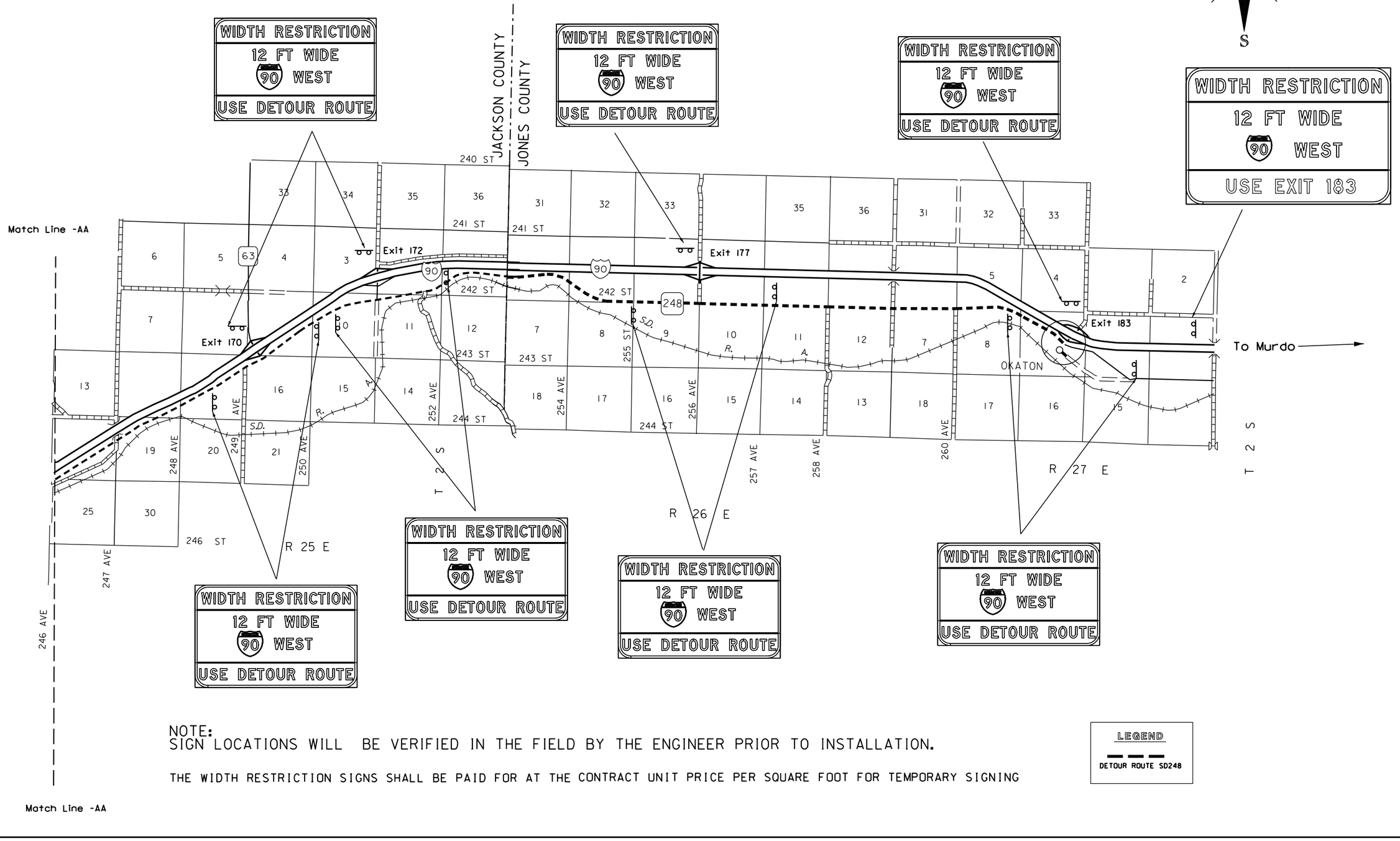
THE WIDTH RESTRICTION SIGNS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT FOR TEMPORARY SIGNING

LEGEND

DETOUR ROUTE SD248

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | IM 0903(101)153 | C7 | C19 |

# GUIDES FOR TRAFFIC CONTROL DEVICES SHOWING WIDTH RESTRICTION SIGNS WESTBOUND EXIT 183 TO EXIT 150 EASTBOUND EXIT 152 TO EXIT 183




NOTE:
SIGN LOCATIONS WILL BE VERIFIED IN THE FIELD BY THE ENGINEER PRIOR TO INSTALLATION.

THE WIDTH RESTRICTION SIGNS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT FOR TEMPORARY SIGNING

LEGEND

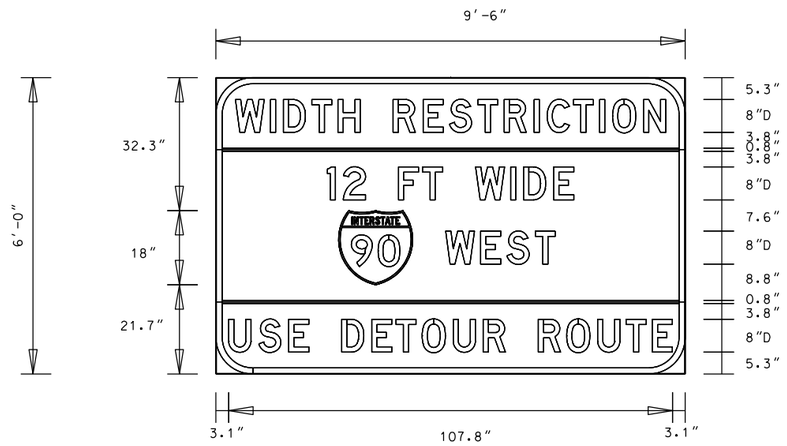
DETOUR ROUTE SD248

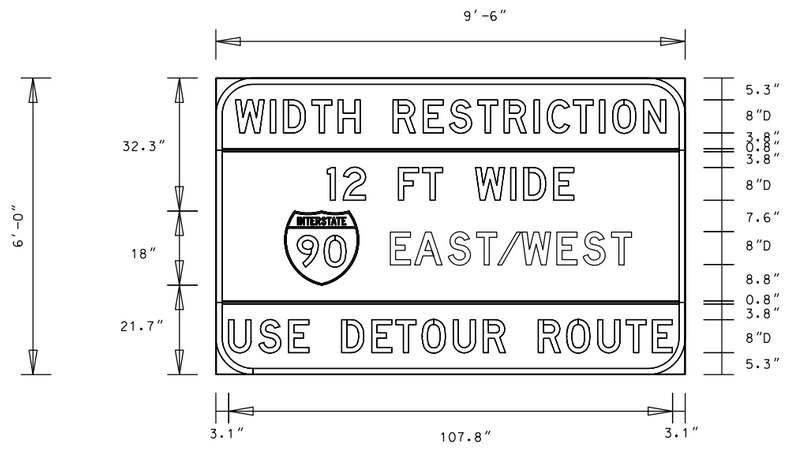
Match Line -AA

# WIDTH RESTRICTION SIGN DESIGN

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | IM 0903(101)153 | C8 | C19 |

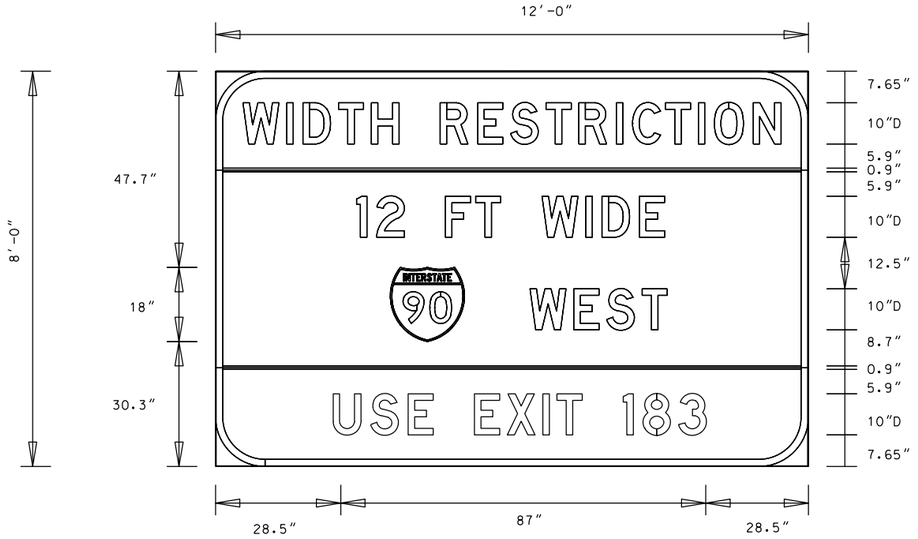
## STATE HIGHWAYS



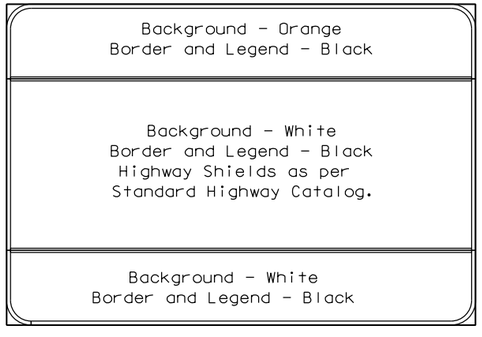




EXIT 152 three signs around interchange roads are to read EAST
EXIT 163 four signs around interchange roads are to read EAST/WEST
EXIT 170 three signs around interchange roads are to read WEST
EXIT 172 three signs around interchange roads are to read WEST
EXIT 177 three signs around interchange roads are to read WEST
EXIT 183 three signs around interchange roads are to read WEST

## INTERSTATE




Two signs are required, one reading EAST - USE EXIT 152, and one as shown.

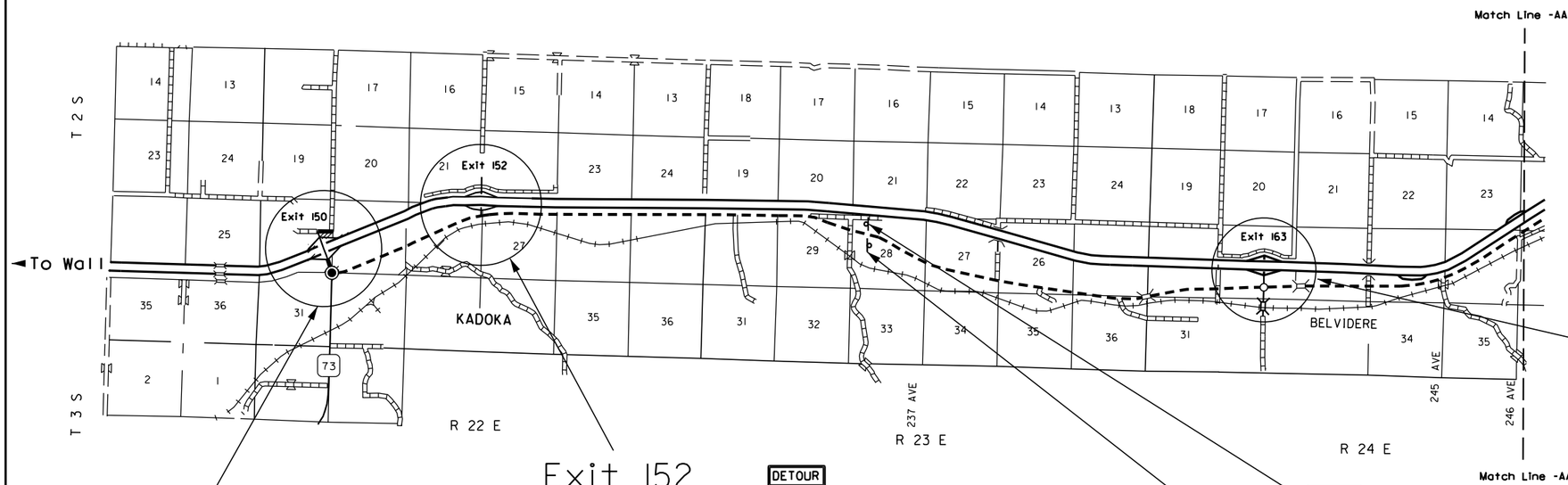


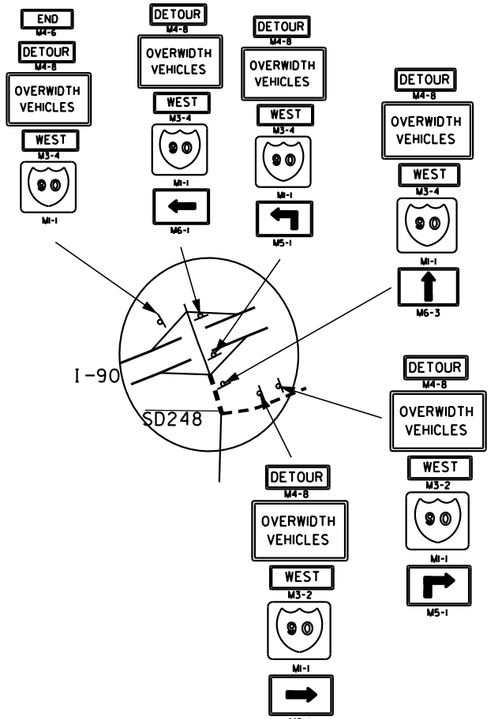

Typical Sign Layout for Overwidth Warning Signs

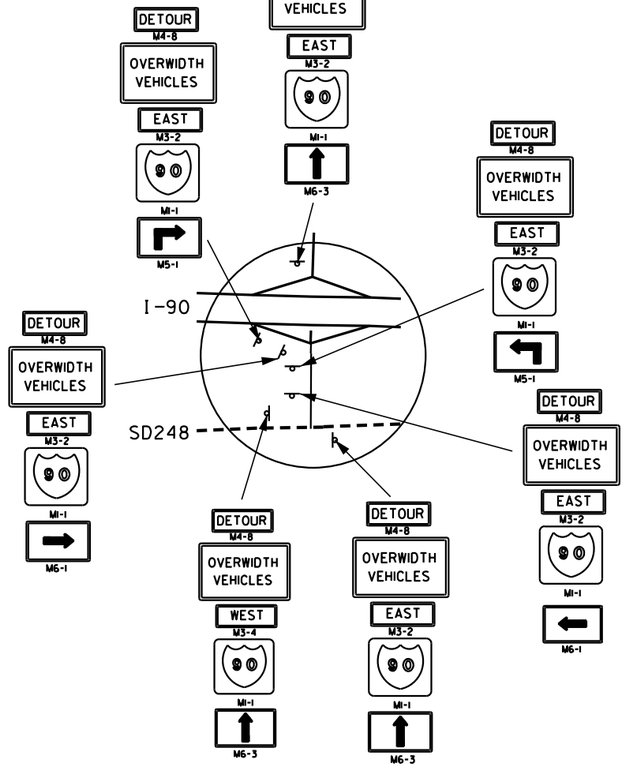
THE WIDTH RESTRICTION SIGNS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT FOR DETOUR SIGNING

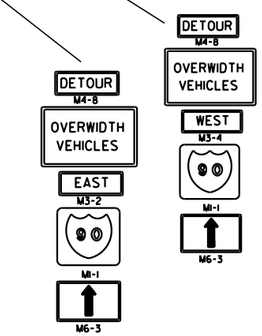
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | IM 0903(101)153 | C9 | C19 |

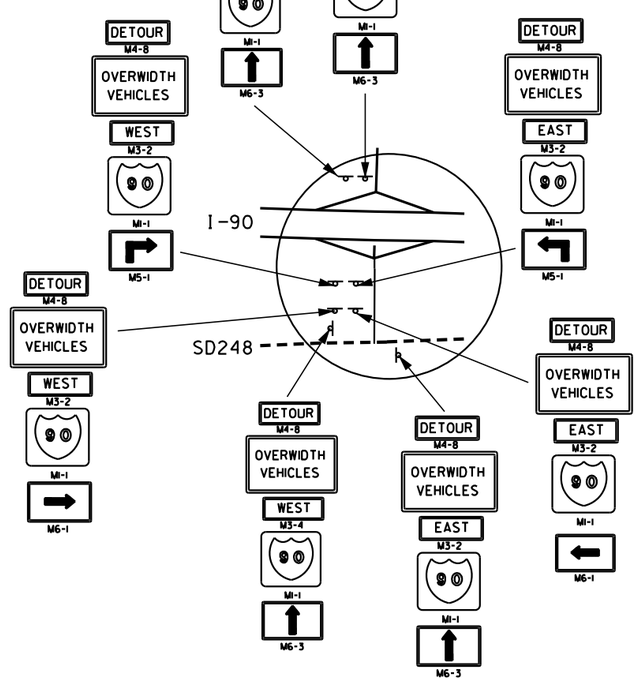
# GUIDES FOR TRAFFIC CONTROL DEVICES
# SHOWING WIDTH RESTRICTION DETOUR SIGNS
# WESTBOUND EXIT 183 TO EXIT 150 VIA SD HWY 248
# EASTBOUND EXIT 152 TO EXIT 170 VIA SD HWY 248



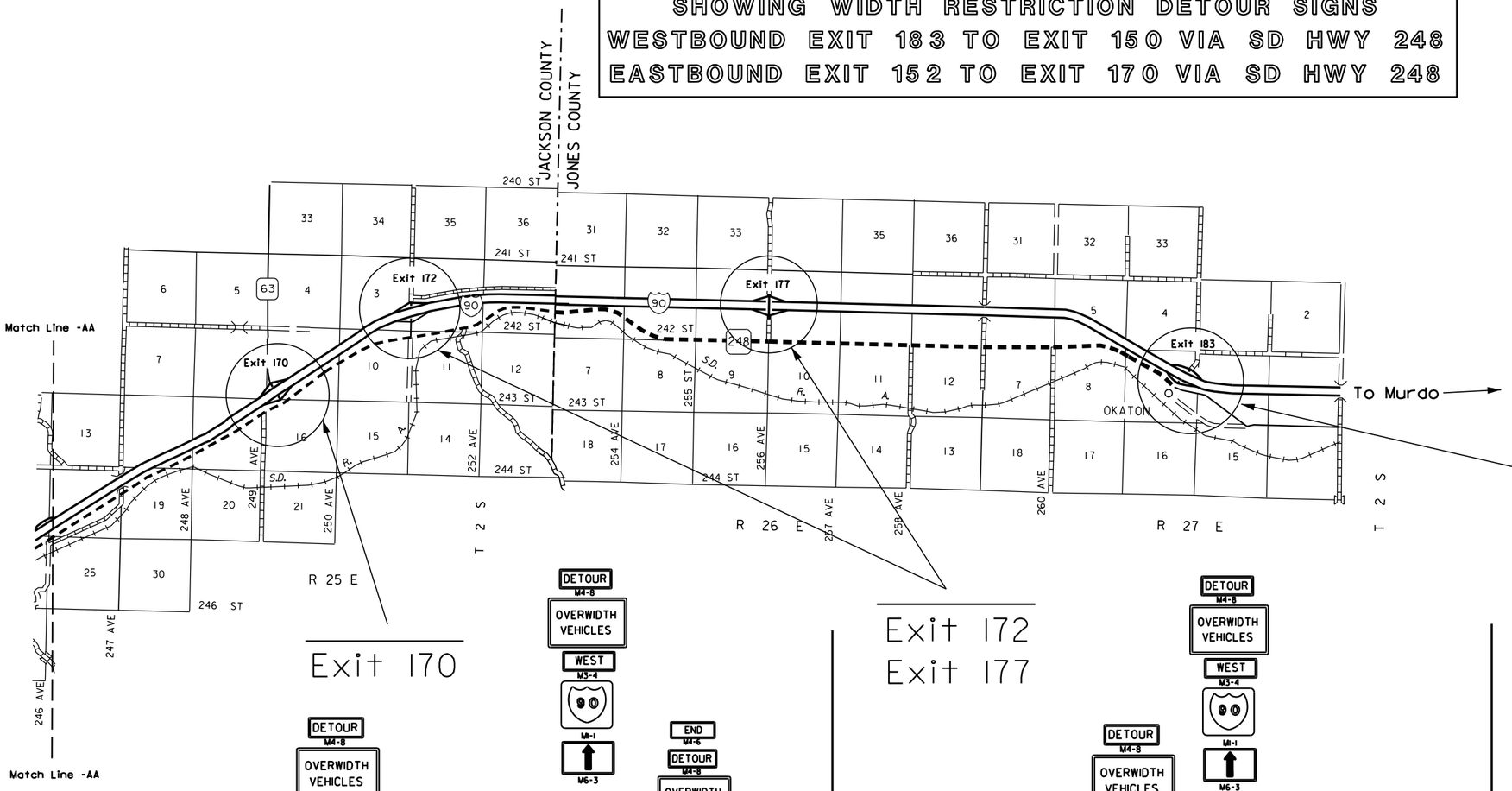




**LEGEND**

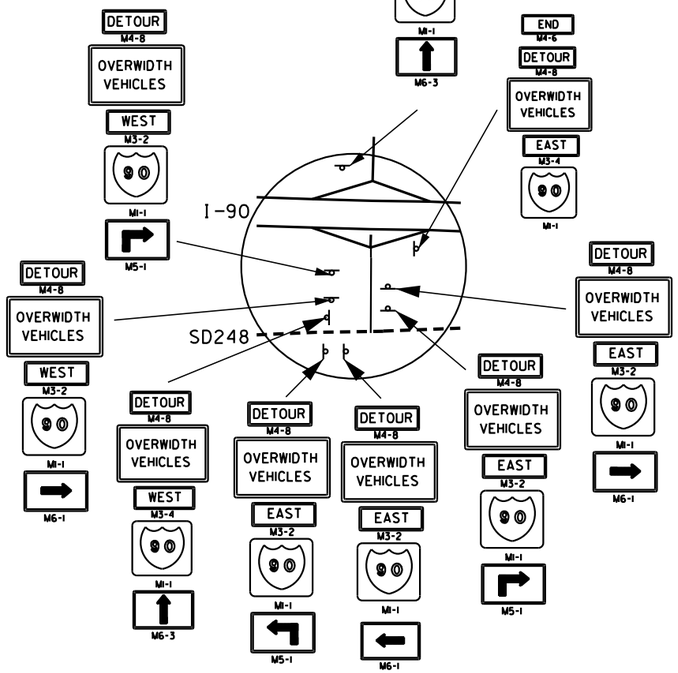
DETOUR ROUTE SD248

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | IM 0903(101)153 | C10 | C19 |

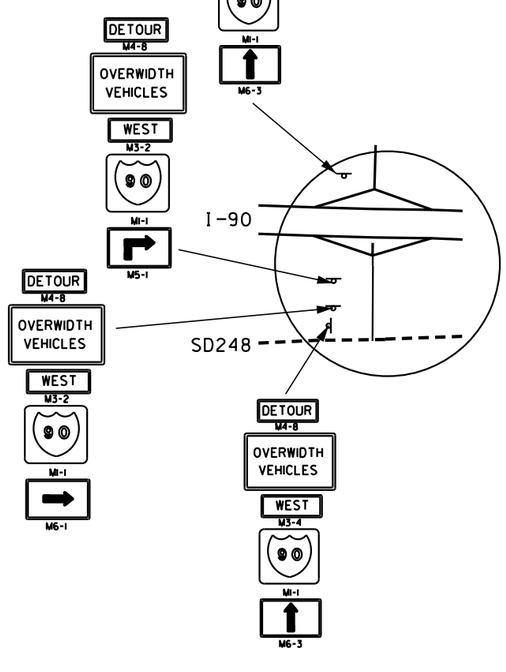
# GUIDES FOR TRAFFIC CONTROL DEVICES
# SHOWING WIDTH RESTRICTION DETOUR SIGNS
## WESTBOUND EXIT 183 TO EXIT 150 VIA SD HWY 248
## EASTBOUND EXIT 152 TO EXIT 170 VIA SD HWY 248



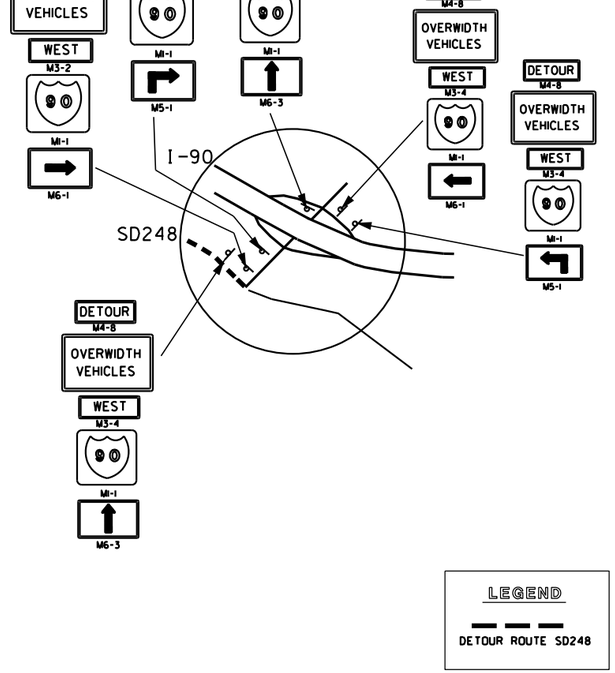

## Exit 170




## Exit 172
## Exit 177




## Exit 183

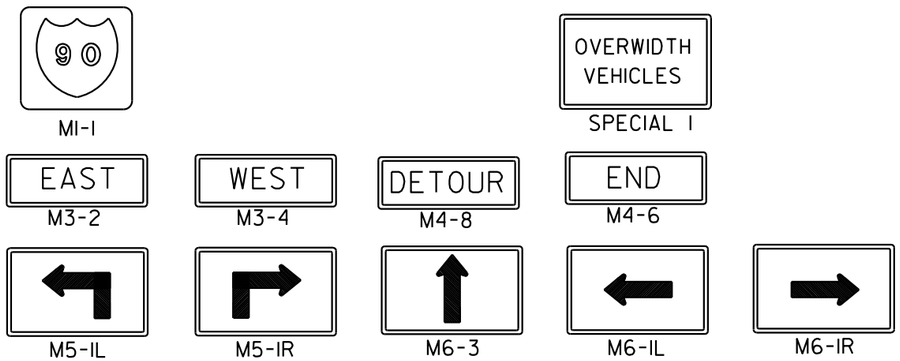



LEGEND

DETOUR ROUTE SD248

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | IM 0903(101)153 | C11 | C19 |

# OVERWIDTH DETOUR AND DETOUR SIGNING ROUTE AND AUXILIARY MARKERS

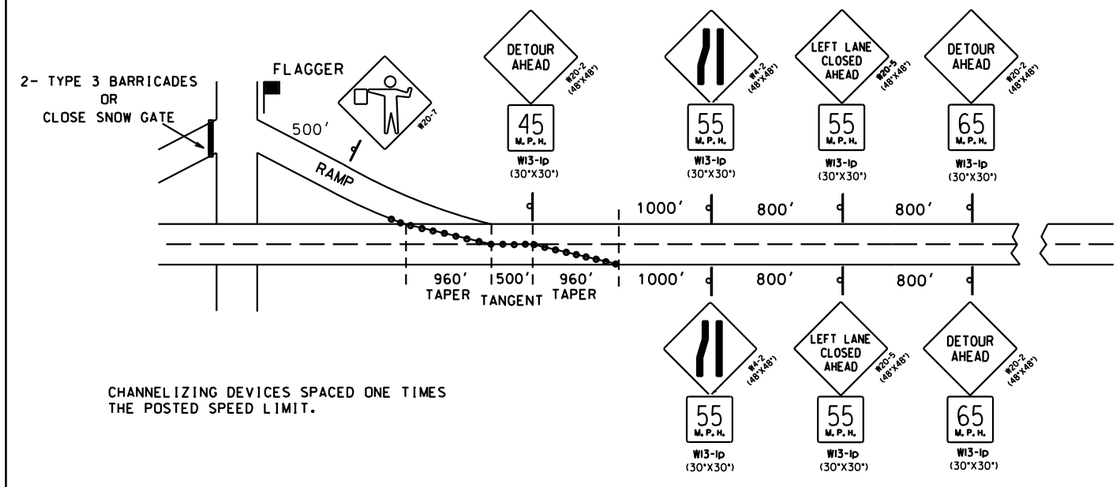



| SIGN | SQFT per SIGN | DIMENSIONS (INCHES) WIDTH A | HEIGHT B | MARGIN | BORDER | CORNER RADIUS | LETTER SIZE | LETTER SPACING | QUANTITY REQUIRED (EACH) | SQFT REQUIRED |
|---|---|---|---|---|---|---|---|---|---|---|
| MI-1 | 4.0 | 24 | 24 | - | - | 1 ½ | 12C | CENTERED | 46 | 184 |
| MI-4 | 5.0 | 30 | 24 | - | - | 1 ½ | 12C | CENTERED | | |
| MI-5 | 5.0 | 30 | 24 | - | - | 1 ½ | 12C | CENTERED | | |
| M3-1 | 2.0 | 24 | 12 | ⅜ | ⅝ | 1 ½ | 6C | CENTERED | | |
| M3-2 | 2.0 | 24 | 12 | ⅜ | ⅝ | 1 ½ | 6C | CENTERED | 16 | 32 |
| M3-3 | 2.0 | 24 | 12 | ⅜ | ⅝ | 1 ½ | 6C | CENTERED | | |
| M3-4 | 2.0 | 24 | 12 | ⅜ | ⅝ | 1 ½ | 6C | CENTERED | 30 | 60 |
| M4-6 | 2.0 | 24 | 12 | ⅜ | ⅝ | 1 ½ | 6B | 20% REDUCED | 2 | 4.0 |
| M4-8 | 2.0 | 24 | 12 | ⅜ | ⅝ | 1 ½ | 6B | 20% REDUCED | 46 | 92 |
| M5-1R | 2.2 | 21 | 15 | ⅜ | ⅝ | 1 ½ | - | - | 8 | 17.6 |
| M5-1L | 2.2 | 21 | 15 | ⅜ | ⅝ | 1 ½ | - | - | 5 | 11 |
| M6-1R | 2.2 | 21 | 15 | ⅜ | ⅝ | 1 ½ | - | - | 8 | 17.6 |
| M6-1L | 2.2 | 21 | 15 | ⅜ | ⅝ | 1 ½ | - | - | 5 | 11 |
| M6-3 | 2.2 | 21 | 15 | ⅜ | ⅝ | 1 ½ | - | - | 18 | 39.6 |
| SPECIAL 1 | 5.0 | 30 | 24 | ⅜ | ⅝ | 1 ½ | 5B | CENTERED | 46 | 230 |
| SPECIAL 2 | 5.0 | 30 | 24 | ⅜ | ⅝ | 1 ½ | 5B | CENTERED | | |
| | | | | | | | | | | |
| | | | | | | | | TOTAL | 230 | 698.8 |

NOTE: ABOVE SIGNS FOR THE ROUTE AND AUXILIARY MARKERS SHALL CONFORM WITH THE LATEST EDITIONS OF THE M.U.T.C.D. AND THE STANDARD HIGHWAY SIGNS MANUAL.

THIS SIGNING WILL BE PAID FOR AT THE CONTRACT SQFT PRICE FOR "DETOUR SIGNING"

# I-90 EMERGENCY LAYOUT: EXIT 152 EASTBOUND & 183 WESTBOUND




CHANNELIZING DEVICES SPACED ONE TIMES THE POSTED SPEED LIMIT.

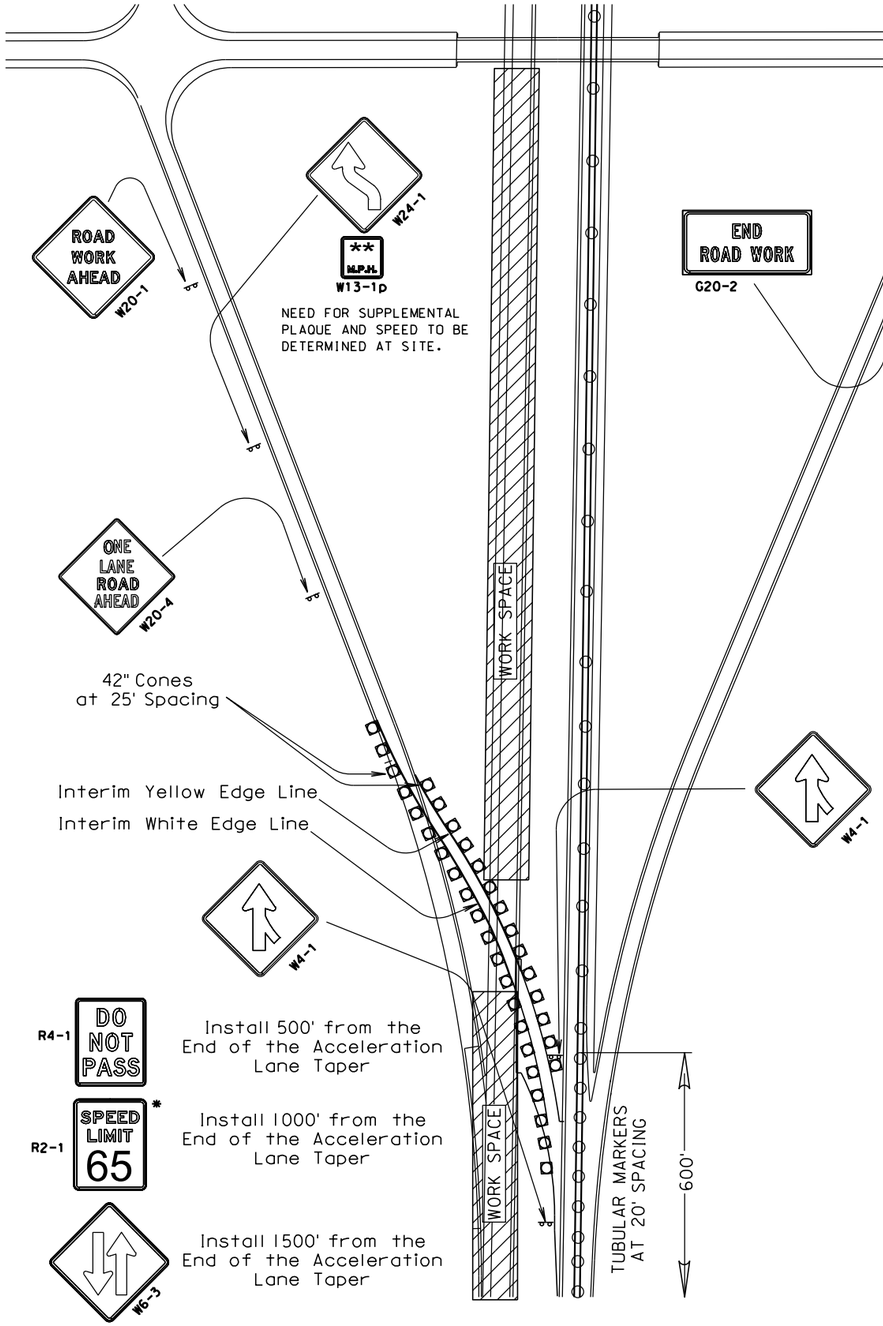
FLAGGERS ARE TO INSTRUCT DRIVERS TO FOLLOW THE SIGNED OVERWIDTH DETOUR (SD 248).

NOTES:

TO EXPEDITE AN EMERGENCY CLOSURE, CHANNELIZING DEVICE LOCATIONS SHALL BE MARKED ON THE PAVEMENT SURFACE IN A MANNER ACCEPTABLE TO THE ENGINEER. THIS SHALL BE COMPLETED PRIOR TO ESTABLISHING LANE CLOSURES ON THE WESTBOUND OR EASTBOUND LANES.

SIGNS SHALL BE MOUNTED ON TEMPORARY BASES AT THE TIME THESE SIGNS ARE DELIVERED TO THEIR RESPECTIVE LOCATIONS.

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | IM 0903(101)153 | C12 | C19 |




***TRAFFIC CONTROL DEVICES FOR NON-EMERGENCY ENTRANCE DETOUR RAMP***

***{Typical}***

* SPEED AS DIRECTED BY THE ENGINEER

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| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | IM0903(101)153 | C13 | C19 |

Plotting Date: 08/12/2015

| 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.

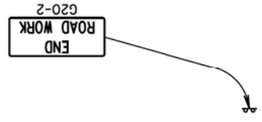
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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 42" cones.

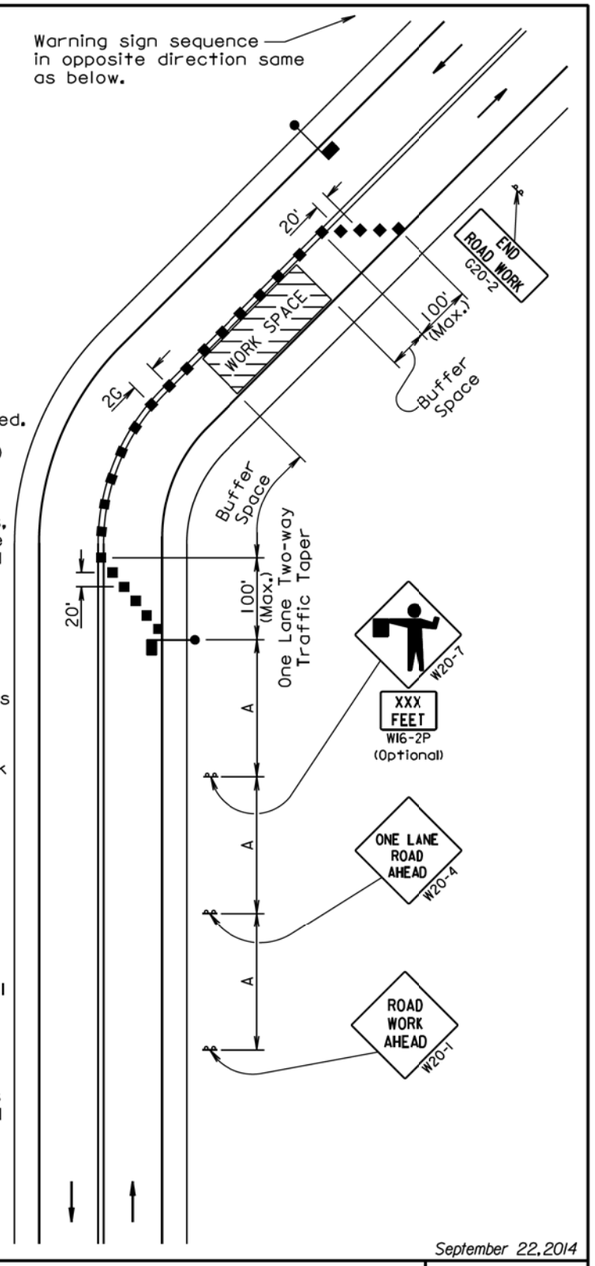
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.




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

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.




September 22, 2014

| Published Date: 3rd Qtr. 2015 | SDDOT | GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED | PLATE NUMBER 634.23 |
|---|---|---|---|
| | | | Sheet 1 of 1 |

Conditions represented are for work that requires closings during daytime hours only.

This application is intended for a planned temporary closing not to exceed 15 to 20 minutes.

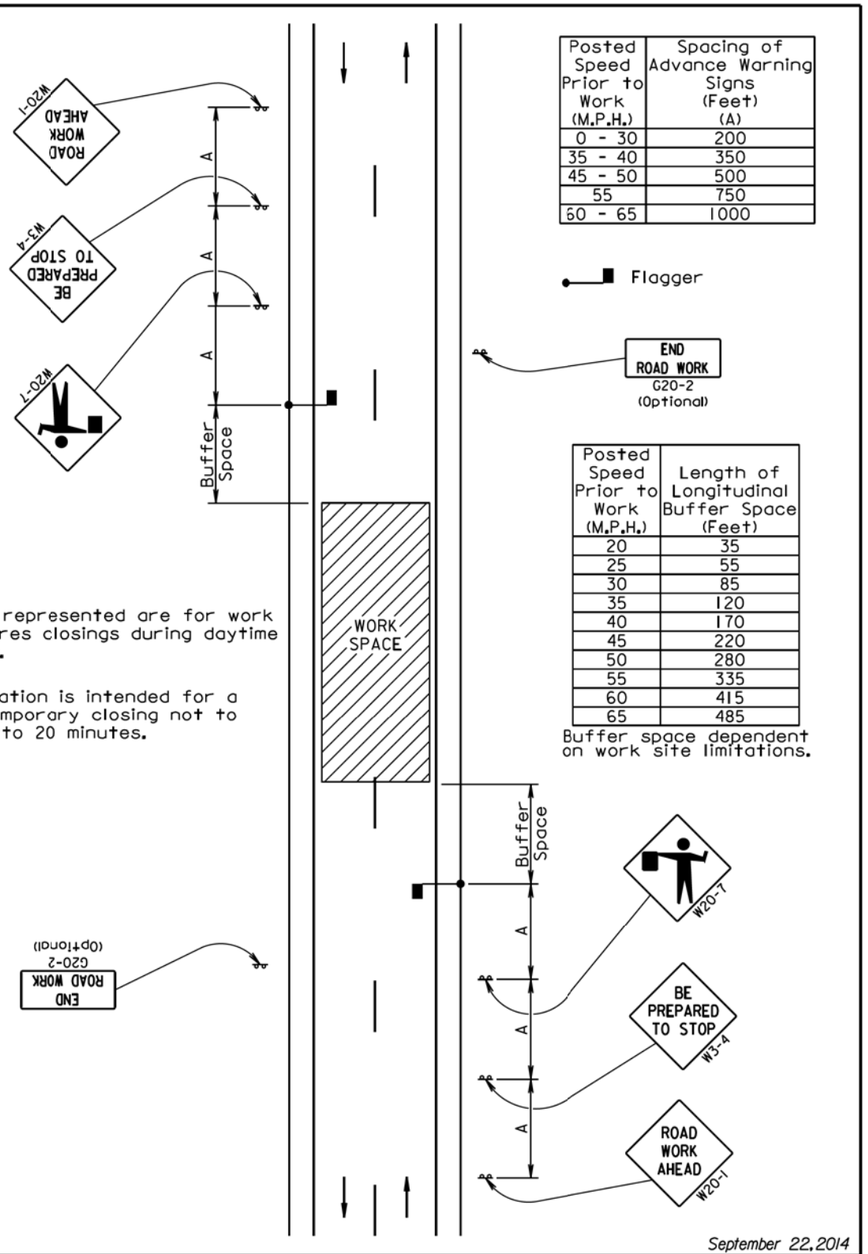
| Posted Speed Prior to Work (M.P.H.) | Spacing of Advance Warning Signs (Feet) (A) |
|---|---|
| 0 - 30 | 200 |
| 35 - 40 | 350 |
| 45 - 50 | 500 |
| 55 | 750 |
| 60 - 65 | 1000 |

Flagger

END ROAD WORK G20-2 (Optional)

| Posted Speed Prior to Work (M.P.H.) | Length of Longitudinal Buffer Space (Feet) |
|---|---|
| 20 | 35 |
| 25 | 55 |
| 30 | 85 |
| 35 | 120 |
| 40 | 170 |
| 45 | 220 |
| 50 | 280 |
| 55 | 335 |
| 60 | 415 |
| 65 | 485 |

Buffer space dependent on work site limitations.




September 22, 2014

| Published Date: 3rd Qtr. 2015 | SDDOT | GUIDES FOR TRAFFIC CONTROL DEVICES TEMPORARY ROAD WORK | PLATE NUMBER 634.30 |
|---|---|---|---|
| | | | Sheet 1 of 1 |

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | IM0903(101)153 | C14 | C19 |

Plotting Date: 08/12/2015

| Posted Speed Prior to Work (M.P.H.) | Spacing of Advance Warning Signs (Feet) (A) (B) (C) |
|---|---|
| 0 - 30 | 200 |
| 35 - 40 | 350 |
| 45 - 50 | 500 |
| 55 | 750 |
| 60 - 65 | 1000 |
| | |
| | (A) (B) (C) |
| 70 - 80 | 1000 1500 2640 |

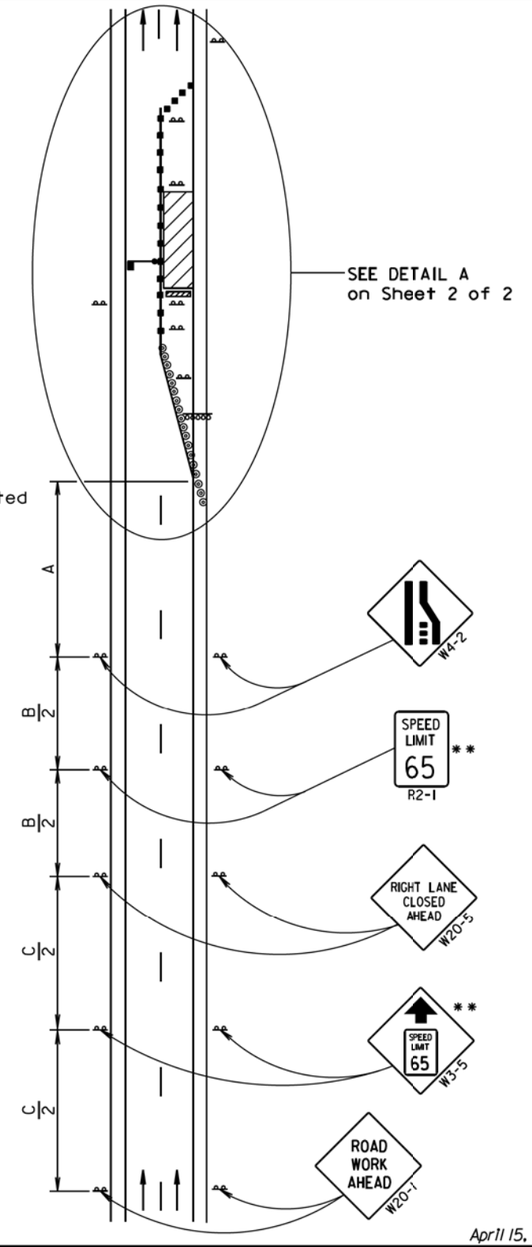
** Speed appropriate for location.

◎ Reflectorized Drum

■ Channelizing Device

ROAD WORK AHEAD sign is only required in advance of the first lane closure.

High speed is defined as having a posted speed limit greater than 45 mph.




April 15, 2015

| Published Date: 3rd Qtr. 2015 | SDDOT | WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS | PLATE NUMBER 634.63 Sheet 1 of 2 |
|---|---|---|---|

| Posted Speed Prior to Work (M.P.H.) | Spacing of Channelizing Devices (Feet) (G) | Taper Length (Feet) (L) |
|---|---|---|
| 0 - 30 | 25 | 180 |
| 35 - 40 | 25 | 320 |
| 45 - 50 | 50 * | 600 |
| 55 | 50 * | 660 |
| 60 - 65 | 50 * | 780 |
| 70 - 80 | 50 * | 960 |

* Spacing is 40' for 42" cones.

** Speed appropriate for location.

*** Use speed limit designated for the condition when workers are present in the work space. Signs shall be covered or removed when workers are not present.

■● Flagger (As Necessary)

◎ Reflectorized Drum

■ Channelizing Device

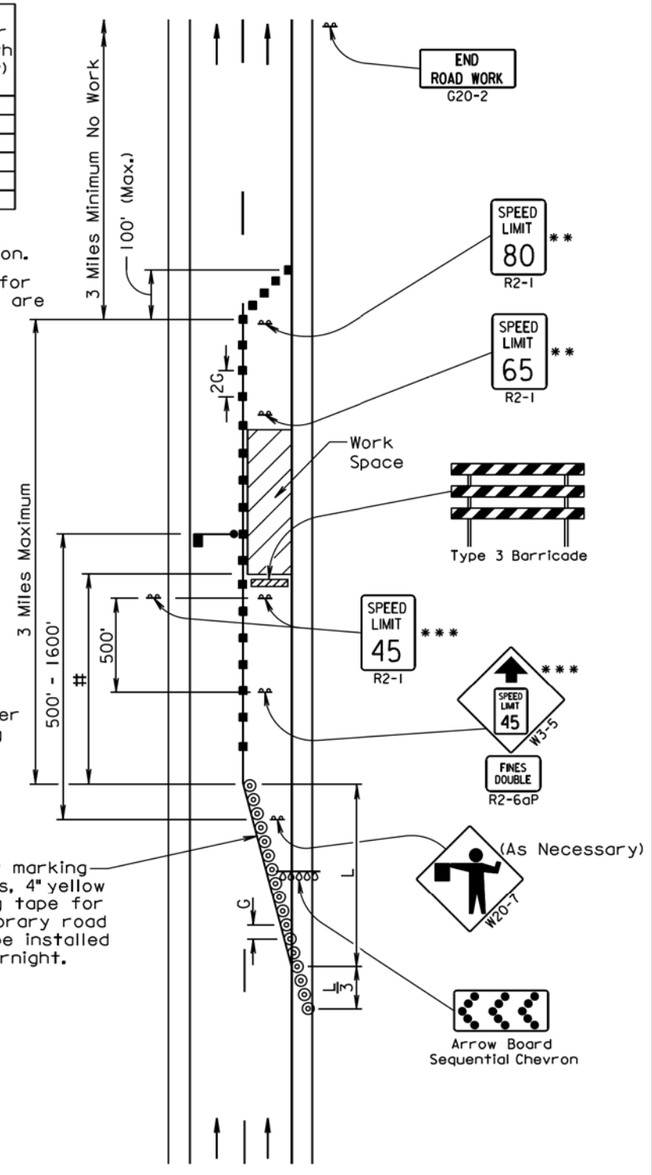
# The Work Space shall be a minimum of 500' from the end of the taper.

The FLAGGER sign shall be used whenever there is a Flagger present.

The channelizing devices shall be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

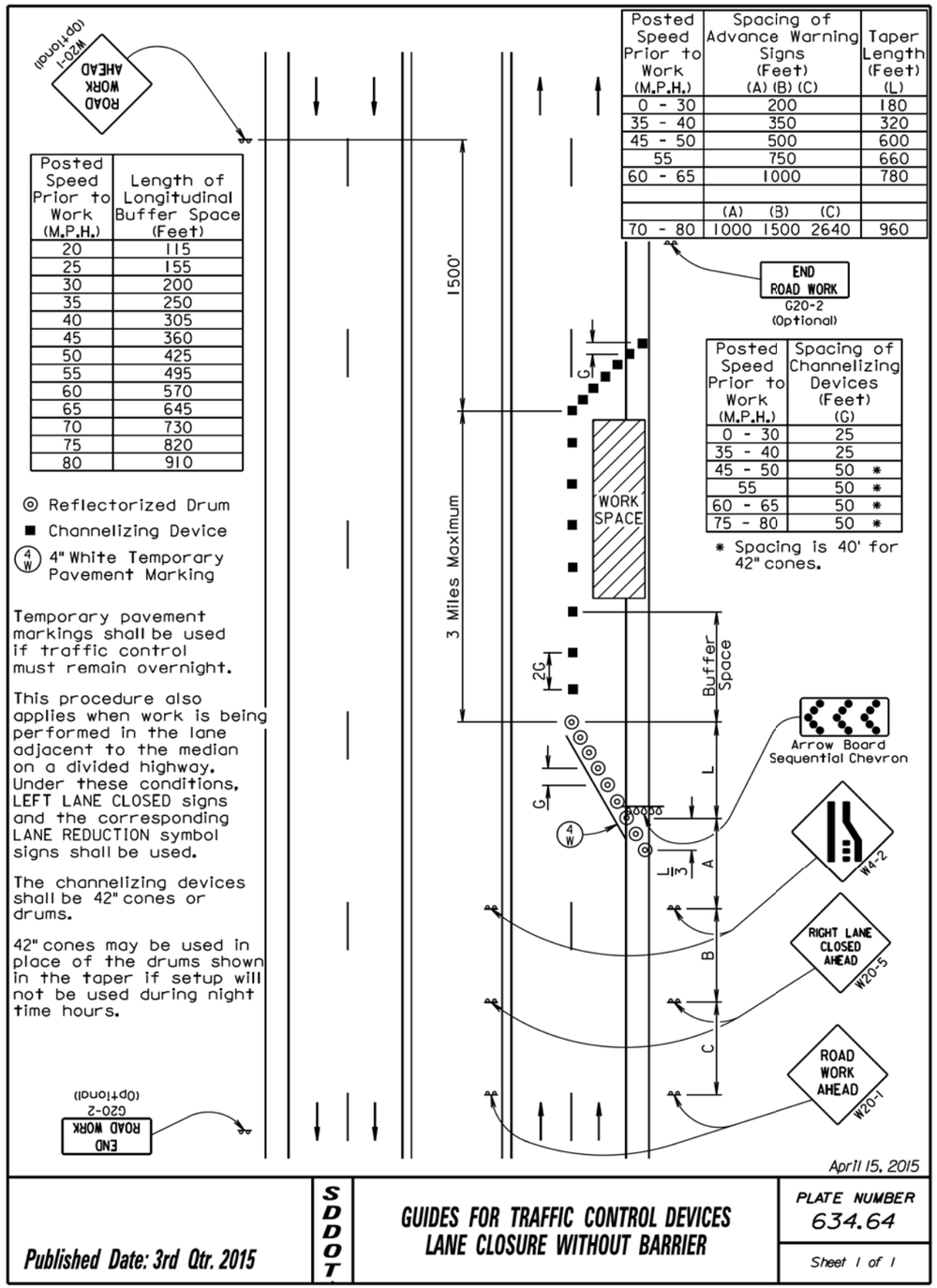
4" white temporary pavement marking tape for right lane closures, 4" yellow temporary pavement marking tape for left lane closures, or temporary road markers at 5' spacing shall be installed when the lane is closed overnight.




DETAIL A

April 15, 2015

| Published Date: 3rd Qtr. 2015 | SDDOT | WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS | PLATE NUMBER 634.63 Sheet 2 of 2 |
|---|---|---|---|




| Posted Speed Prior to Work (M.P.H.) | Length of Longitudinal Buffer Space (Feet) |
|---|---|
| 20 | 115 |
| 25 | 155 |
| 30 | 200 |
| 35 | 250 |
| 40 | 305 |
| 45 | 360 |
| 50 | 425 |
| 55 | 495 |
| 60 | 570 |
| 65 | 645 |
| 70 | 730 |
| 75 | 820 |
| 80 | 910 |

◎ Reflectorized Drum

■ Channelizing Device

(4 W) 4" White Temporary Pavement Marking

Temporary pavement markings shall be used if traffic control must remain overnight.

This procedure also applies when work is being performed in the lane adjacent to the median on a divided highway. Under these conditions, LEFT LANE CLOSED signs and the corresponding LANE REDUCTION symbol signs shall be used.

The channelizing devices shall be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

| Posted Speed Prior to Work (M.P.H.) | Spacing of Advance Warning Signs (Feet) (A) (B) (C) | Taper Length (Feet) (L) |
|---|---|---|
| 0 - 30 | 200 | 180 |
| 35 - 40 | 350 | 320 |
| 45 - 50 | 500 | 600 |
| 55 | 750 | 660 |
| 60 - 65 | 1000 | 780 |
| | | |
| | (A) (B) (C) | |
| 70 - 80 | 1000 1500 2640 | 960 |

| Posted Speed Prior to Work (M.P.H.) | Spacing of Channelizing Devices (Feet) (G) |
|---|---|
| 0 - 30 | 25 |
| 35 - 40 | 25 |
| 45 - 50 | 50 * |
| 55 | 50 * |
| 60 - 65 | 50 * |
| 75 - 80 | 50 * |

* Spacing is 40' for 42" cones.

April 15, 2015

| Published Date: 3rd Qtr. 2015 | SDDOT | GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITHOUT BARRIER | PLATE NUMBER 634.64 |
|---|---|---|---|
| | | | Sheet 1 of 1 |

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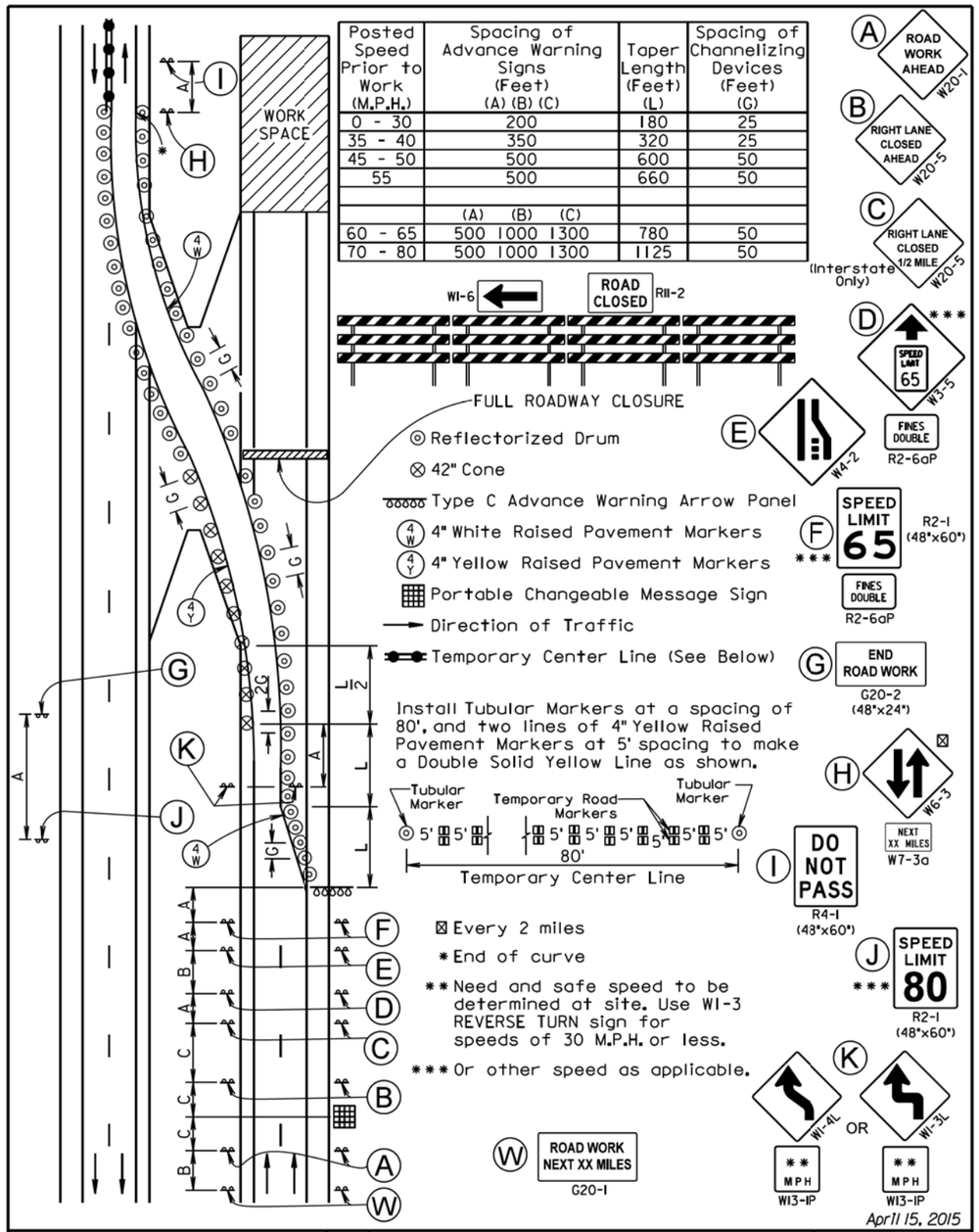
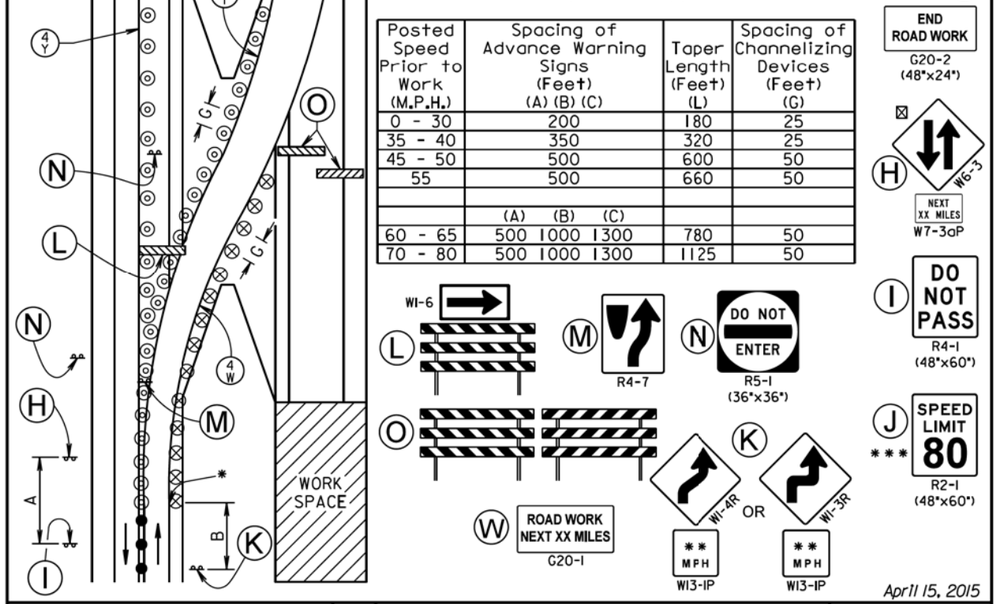
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | IM0903(101)153 | C16 | C19 |

Plotting Date: 08/12/2015

| Posted Speed Prior to Work (M.P.H.) | Spacing of Advance Warning Signs (Feet) (A) (B) (C) | Taper Length (Feet) (L) | Spacing of Channelizing Devices (Feet) (G) |
|---|---|---|---|
| 0 - 30 | 200 | 180 | 25 |
| 35 - 40 | 350 | 320 | 25 |
| 45 - 50 | 500 | 600 | 50 |
| 55 | 500 | 660 | 50 |
| | | | |
| | (A) (B) (C) | | |
| 60 - 65 | 500 1000 1300 | 780 | 50 |
| 70 - 80 | 500 1000 1300 | 1125 | 50 |




| Published Date: 3rd Qtr. 2015 | SDDOT | GUIDES FOR TRAFFIC CONTROL DEVICES MEDIAN CROSSOVER ON DIVIDED HIGHWAY | PLATE NUMBER 634.66 Sheet 1 of 2 |
|---|---|---|---|

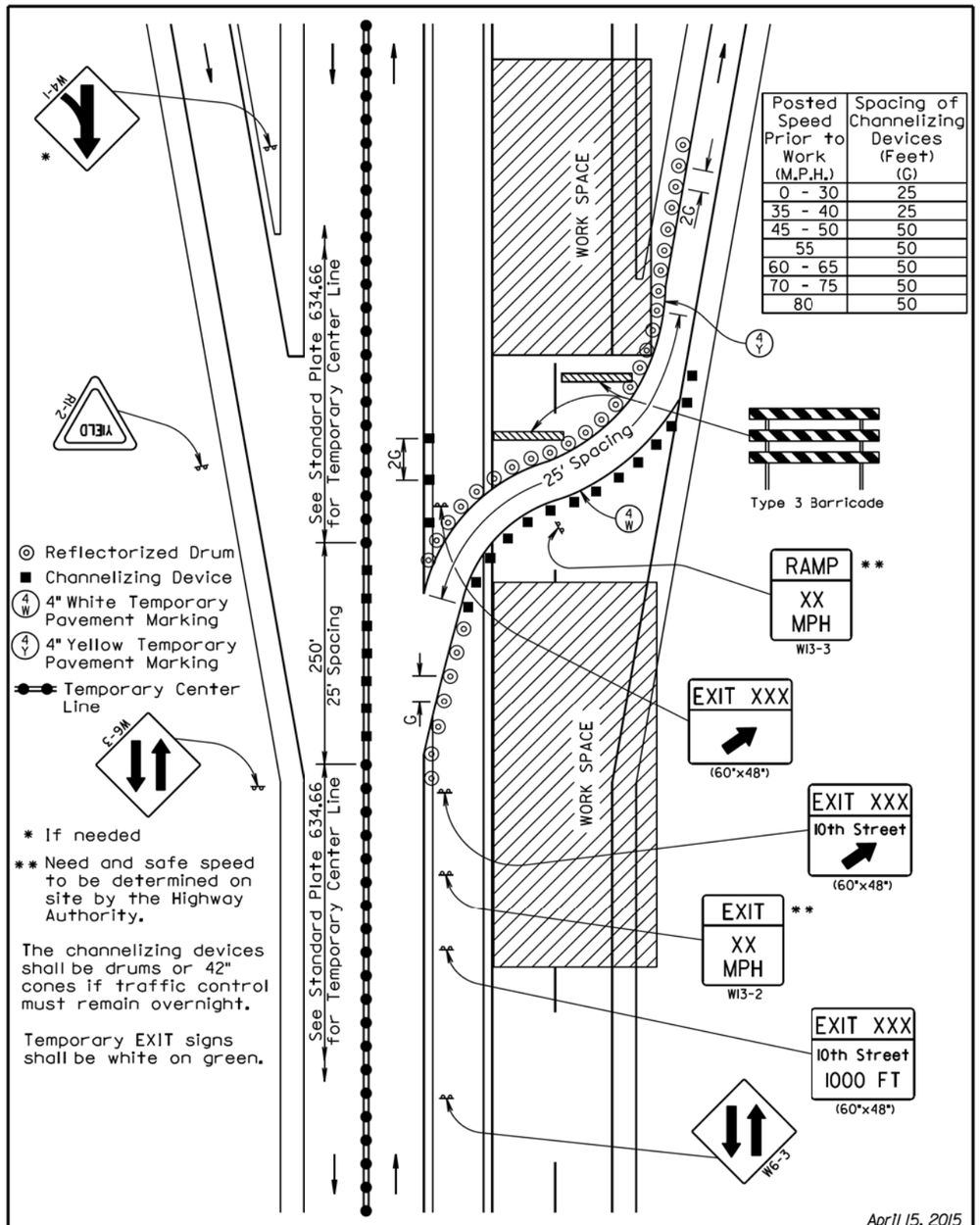



| Published Date: 3rd Qtr. 2015 | SDDOT | GUIDES FOR TRAFFIC CONTROL DEVICES MEDIAN CROSSOVER ON DIVIDED HIGHWAY | PLATE NUMBER 634.66 Sheet 2 of 2 |
|---|---|---|---|

Plot Scale - 1:200
Plotted From - tm1mt19
File - ...ts63466_1ts63466_2.dgn

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | IM0903(101)153 | C17 | C19 |

Plotting Date: 08/12/2015




| Posted Speed Prior to Work (M.P.H.) | Spacing of Channelizing Devices (Feet) (G) |
|---|---|
| 0 - 30 | 25 |
| 35 - 40 | 25 |
| 45 - 50 | 50 |
| 55 | 50 |
| 60 - 65 | 50 |
| 70 - 75 | 50 |
| 80 | 50 |

April 15, 2015

Published Date: 3rd Qtr. 2015

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
MEDIAN CROSSOVER FOR EXIT RAMP

PLATE NUMBER 634.67

Sheet 1 of 1

| Posted Speed Prior to Work (M.P.H.) | Spacing of Advance Warning Signs (Feet) (A) (B) (C) | Taper Length (Feet) (L) |
|---|---|---|
| 0 - 30 | 200 | 180 |
| 35 - 40 | 350 | 320 |
| 45 - 50 | 500 | 600 |
| 55 | 750 | 660 |
| 60 - 65 | 1000 | 780 |
| | | |
| | (A) (B) (C) | |
| 70 - 80 | 1000 1500 2640 | 1125 |

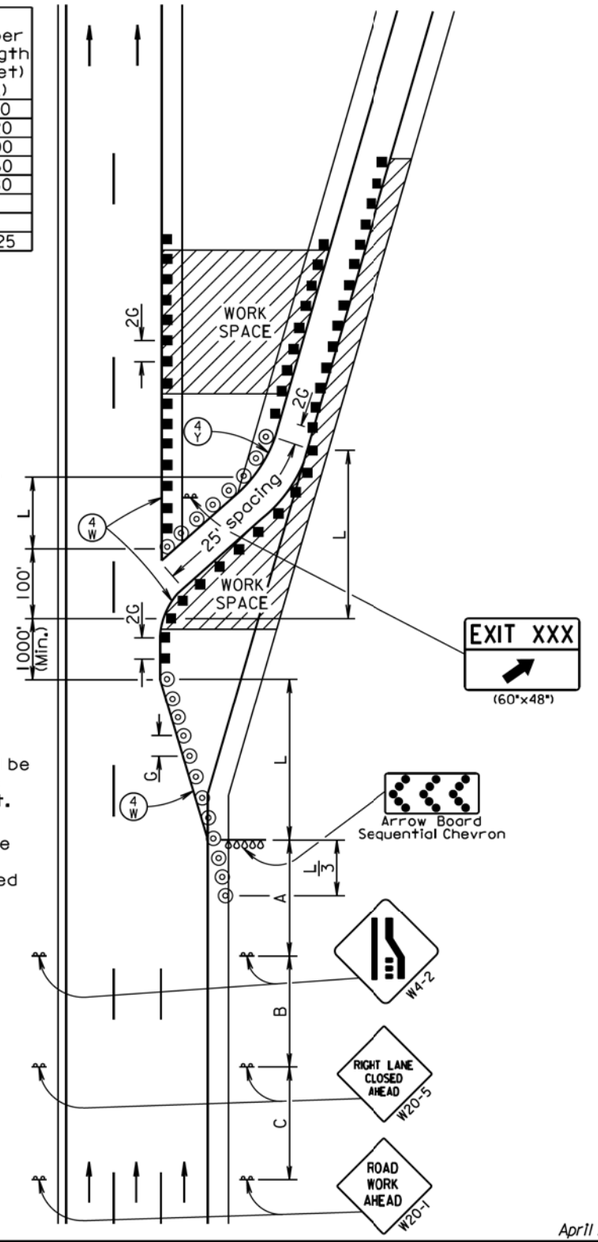
| Posted Speed Prior to Work (M.P.H.) | Spacing of Channelizing Devices (Feet) (G) |
|---|---|
| 0 - 30 | 25 |
| 35 - 40 | 25 |
| 45 - 50 | 50 * |
| 55 | 50 * |
| 60 - 80 | 50 * |

* Spacing is 40' for 42" cones.

Reflectorized Drum
Channelizing Device
4 W 4" White Temporary Pavement Marking
4 Y 4" Yellow Temporary Pavement Marking

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

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.




April 15, 2015

Published Date: 3rd Qtr. 2015

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
WORK IN VICINITY OF EXIT RAMP

PLATE NUMBER 634.68

Sheet 1 of 1

| Posted Speed Prior to Work (M.P.H.) | Spacing of Advance Warning Signs (Feet) (A) (B) | L (Feet) |
|---|---|---|
| 45 - 50 | 500 | 600 |
| 55 | 750 | 660 |
| 60 - 65 | 1000 | 780 |
| | (A) (B) | |
| 70 - 80 | 1000 1500 | 1125 |

| Posted Speed Prior to Work (M.P.H.) | Spacing of Channelizing Devices (Feet) (G) |
|---|---|
| 0 - 30 | 25 |
| 35 - 40 | 25 |
| 45 - 50 | 50 * |
| 55 | 50 * |
| 60 - 80 | 50 * |

* Spacing is 40' for 42" cones.

■ Channelizing Device

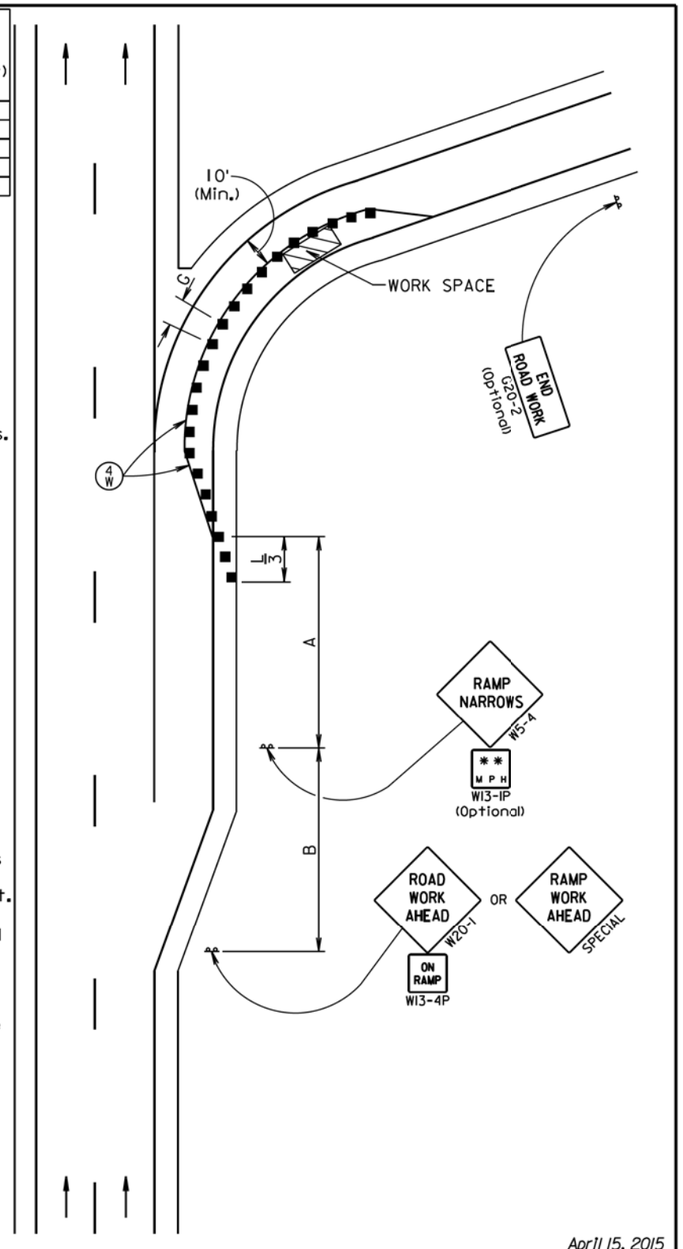
(4W) 4" White Temporary Pavement Marking

** Need and safe speed to be determined by the Highway Authority.

Temporary pavement markings shall be used if traffic control must remain overnight.

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

Truck off-tracking should be considered when determining whether the 10-foot minimum lane width is adequate.




April 15, 2015

| Published Date: 3rd Qtr. 2015 | SDDOT | GUIDES FOR TRAFFIC CONTROL DEVICES PARTIAL EXIT RAMP CLOSURE | PLATE NUMBER 634.69 Sheet 1 of 1 |
|---|---|---|---|

| Posted Speed Prior to Work (M.P.H.) | Spacing of Advance Warning Signs (Feet) (A) (B) (C) | Taper Length (Feet) (L) |
|---|---|---|
| 0 - 30 | 200 | 180 |
| 35 - 40 | 350 | 320 |
| 45 - 50 | 500 | 600 |
| 55 | 750 | 660 |
| 60 - 65 | 1000 | 780 |
| | | |
| | (A) (B) (C) | |
| 70 - 80 | 1000 1500 2640 | 1125 |

| Posted Speed Prior to Work (M.P.H.) | Spacing of Channelizing Devices (Feet) (G) |
|---|---|
| 0 - 30 | 25 |
| 35 - 40 | 25 |
| 45 - 50 | 50 * |
| 55 | 50 * |
| 60 - 80 | 50 * |

* Spacing is 40' for 42" cones.

◎ Reflectorized Drum

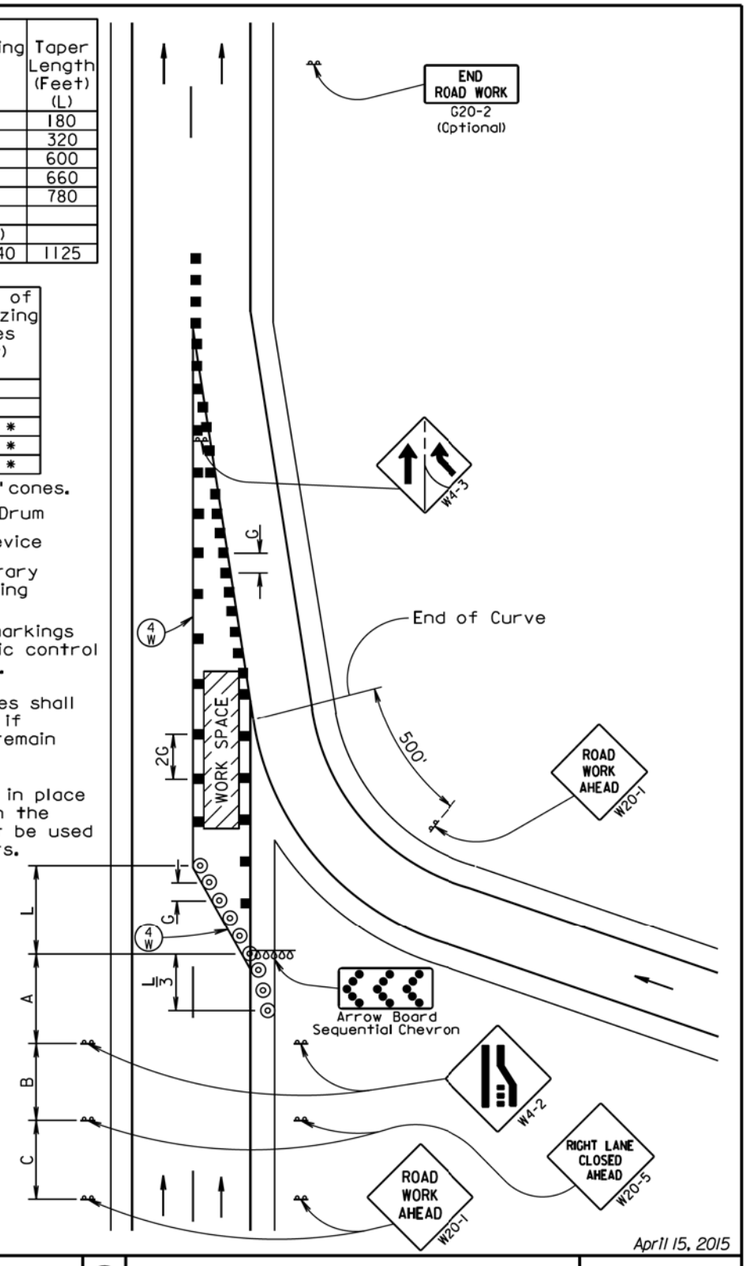
■ Channelizing Device

(4W) 4" White Temporary Pavement Marking

Temporary pavement markings shall be used if traffic control must remain overnight.

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

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

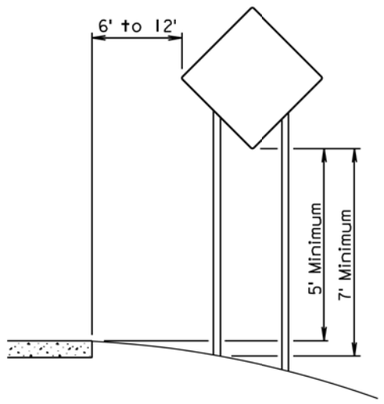



April 15, 2015

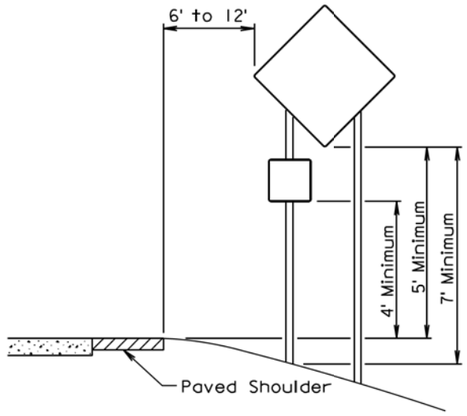
| Published Date: 3rd Qtr. 2015 | SDDOT | GUIDES FOR TRAFFIC CONTROL DEVICES WORK IN VICINITY OF ENTRANCE RAMP | PLATE NUMBER 634.70 Sheet 1 of 1 |
|---|---|---|---|

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | IM0903(101)153 | C19 | C19 |

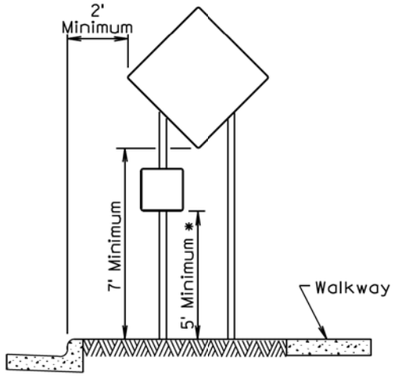
Plotting Date: 08/12/2015



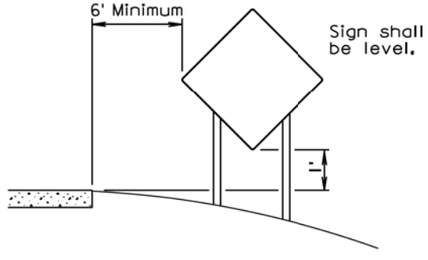

RURAL DISTRICT




RURAL DISTRICT WITH SUPPLEMENTAL PLATE




URBAN DISTRICT

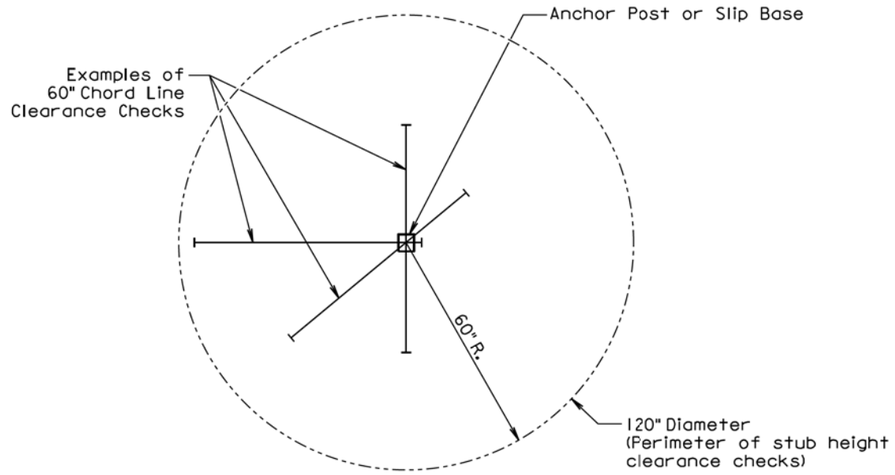



RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

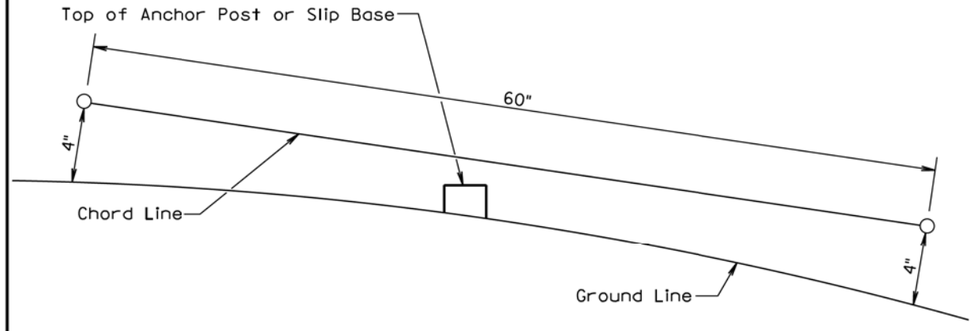
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

*September 22,2014*

| Published Date: 3rd Qtr. 2015 | SDDOT | CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing) | PLATE NUMBER 634.85 |
|---|---|---|---|
| | | | Sheet 1 of 1 |




PLAN VIEW
(Examples of stub height clearance checks)




ELEVATION VIEW

**GENERAL NOTES:**

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

*July 1, 2005*

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|---|---|---|---|
| | | | Sheet 1 of 1 |