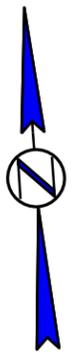


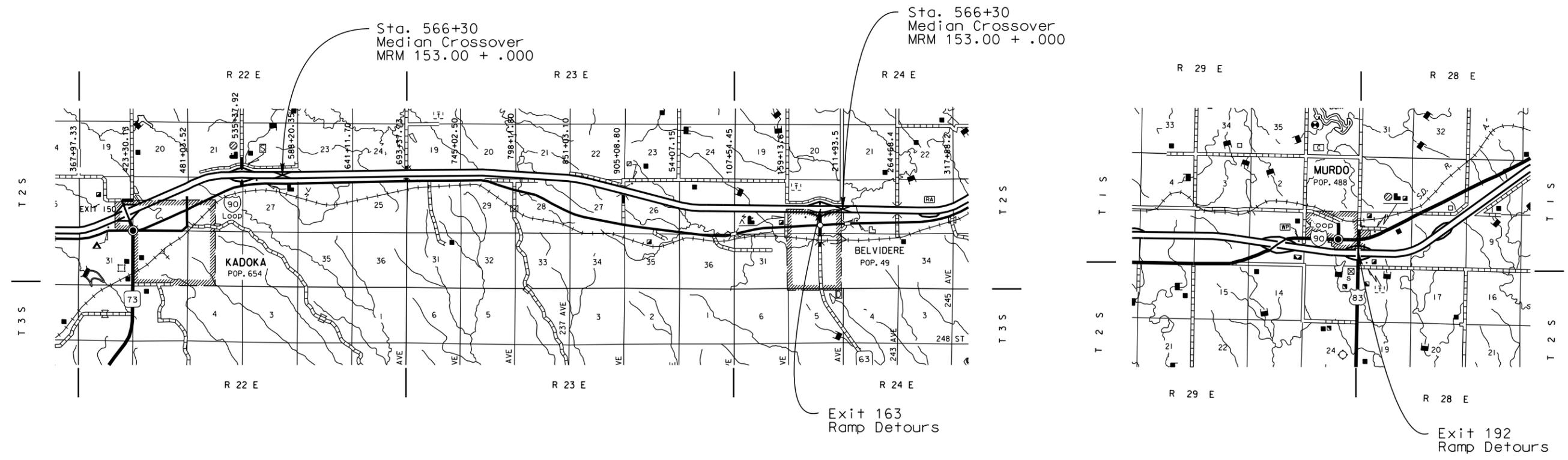
|                             |                 |       |                 |
|-----------------------------|-----------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT         | SHEET | TOTAL<br>SHEETS |
|                             | IM 0903(103)152 | 1     | C6              |

# SECTION C: TRAFFIC CONTROL



## INDEX OF SECTIONS

- C1 Layout Map and Index
- C2-C3 Estimate of Quantities and Notes
- C4 Ramp Details
- C5-C6 Standard Plates



PLOT SCALE - 1:10560

PLOTTED FROM - TRW11INT26

PLOT NAME - 1

FILE - ... \JACK03\W\DESIGN\TITLE C.DGN

## ESTIMATE OF QUANTITIES

| Bid Item Number | Item                               | Quantity | Unit |
|-----------------|------------------------------------|----------|------|
| 634E0010        | Flagging                           | 100      | Hour |
| 634E0100        | Traffic Control                    | 3,766    | Unit |
| 634E0120        | Traffic Control, Miscellaneous     | Lump Sum | LS   |
| 634E0420        | Type C Advance Warning Arrow Panel | 4        | Each |
| 634E0640        | Temporary Pavement Marking         | 9,000    | Ft   |

## SEQUENCE OF OPERATIONS

The Department has a PCC surfacing project (IM0903(91)174 PCN 020K) on I-90 from approximately MRM 174.00 + 0.154 to MRM 189.00 + 0.634 where work from that project may occur simultaneous with this project. If work occurs simultaneously, the Contractor shall coordinate with the Winner Area Office personnel along with the PCC surfacing project contractor to make any necessary adjustments and/or modifications of the traffic control setups between both projects to avoid any possible interference between the two setups.

Work shall proceed according to the following sequence or as approved by the Engineer:

- Close passing lanes using Standard Plate No.634.63 and move traffic to the driving lanes.
- Complete work in the median.
- Close driving lanes using Standard Plate No.634.63 and move traffic to the passing lanes.
- Complete work on the shoulder for ramp detours – Use Standard Plate No.634.69 and the "Ramp Entrance and Exit Traffic Control Details" drawing for work on the ramps.

**Note: Only 2 sites can be worked on at any one time.**

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.

The Contractor may perform work only during daylight hours unless additional hours are approved by the Engineer. The Contractor shall maintain traffic through the project at all times.

## GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including signing and 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 and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

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.

All traffic control sign locations shall be set in the field by the Contractor and verified by the Engineer prior to installation.

Traffic Control units, as shown in the Estimate of Quantities, are estimates. The amount of Traffic Control paid for will be the greatest number of installations per sign in place at any one time, regardless of the number of set-ups throughout the duration of the project. Payment will be for those signs actually ordered by the Engineer and used.

The bottom of all signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location, ground mounted, breakaway supports during the time of initial installation, except portable sign supports will be allowed where surfacing prohibits installation.

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.

Traffic control drums, barricades, cones, and/or tubular markers shall be used as needed to safely delineate traffic during work per standard plates and directed by the Engineer. Tapers on lane closures for interstate work shall be with drums.

All materials and equipment shall be stored minimum of 30 feet from edge of traveled path during nonworking hours.

All construction operations shall be conducted in the general direction of traffic movement.

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.

Existing guide, route, informational logo, regulatory, and warning signs shall be temporarily reset and maintained during construction. Non applicable signing, including construction signing, shall be covered completely or removed from shoulder during periods of in-activity. Period of inactivity is defined as 3 days. All costs to perform this work shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

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.

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

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 related contract items.

Vertical drop-offs resulting from excavation near the traveled lane greater than 1 foot will not be permitted overnight. Excavation that would result in an overnight drop-off greater than 1 foot shall be protected by placing embankment adjacent to the vertical edge at a slope of no steeper than a 5:1. All excavations shall be delineated by barrels at 25' spacing.

All costs to provide, mount, and maintain the flashing light on top of the Yield signs and the flags used on the signs as shown in these plans shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

Construction related traffic for the delivery of material and equipment including but not limited to aggregates, concrete, cement, asphalt, salvage base material, asphalt concrete pavement, etc. shall not cross interstate traffic. Construction traffic shall only enter and exit the interstate by the use of existing interchanges. The Contractor will be allowed to use maintenance crossovers providing all of the following requirements are met:

- The passing lanes in both directions are closed and signed as per Standard Plate No. 634.63.
- Flaggers may be required to prevent through traffic from entering the passing lanes used by turning trucks.
- A minimum of one mile shall always be maintained from the end of an active construction work zone (in the driving lane) to where haul trucks turn from the passing lane across a maintenance crossover.
- All crossover use is subject to approval by the Engineer and will not be allowed if deemed unsafe for the physical conditions and traffic.
- All damage to the maintenance crossovers shall be repaired after work is completed at the Contractors expense.

## TEMPORARY PAVEMENT MARKING

Temporary Pavement Marking paint shall be used as directed by the Engineer.

It is anticipated that when the work is completed at each location that Temporary Pavement Marking paint will be required. It is estimated that MRM 153 median crossover will require 1,500 feet, MRM 163 median crossover & ramp detours will require 4,500 feet, and MRM 192 ramp detours will require 3,000 feet of Temporary Pavement Marking respectively.

**INVENTORY OF TRAFFIC CONTROL DEVICES**

**MRM 153 Median Crossover**

| SIGN CODE          | SIGN SIZE | DESCRIPTION                               | NUMBER<br>REQUIRED | UNITS<br>PER<br>SIGN | UNITS      |
|--------------------|-----------|---|--------------------|----------------------|------------|
| G20-2              | 48" x 24" | END ROAD WORK                             | 2                  | 24                   | 48         |
| R2-1               | 36" x 48" | SPEED LIMIT ##                            | 6                  | 29                   | 174        |
| R2-6aP             | 36" x 24" | FINES DOUBLE                              | 4                  | 20                   | 80         |
| W3-5               | 48" x 48" | REDUCED SPEED LIMIT AHEAD                 | 4                  | 34                   | 136        |
| W4-2               | 48" x 48" | LEFT OR RIGHT LANE ENDS (SYMBOL)          | 4                  | 34                   | 136        |
| W20-1              | 48" x 48" | ROAD WORK ##### FT. OR AHEAD              | 4                  | 34                   | 136        |
| W20-5              | 48" x 48" | LT. OR RT. LANE CLOSED ##### FT. OR AHEAD | 4                  | 34                   | 136        |
| W20-7              | 48" x 48" | FLAGGER (SYMBOL)                          | 2                  | 34                   | 68         |
| *****              |           | TYPE 3 BARRICADE - 8 FT. SINGLE SIDED     | 2                  | 40                   | 80         |
| <b>TOTAL UNITS</b> |           |   |                    |                      | <b>994</b> |

**Exit 163 Median Crossover/Ramp Detours**

| SIGN CODE          | SIGN SIZE | DESCRIPTION                                   | NUMBER<br>REQUIRED | UNITS<br>PER<br>SIGN | UNITS       |
|--------------------|-----------|---|--------------------|----------------------|-------------|
| E5-1a              | 60" x 48" | EXIT ### WITH 45 DEGREE ARROW (1 or 2 digits) | 1                  | 38                   | 38          |
| G20-2              | 48" x 24" | END ROAD WORK                                 | 3                  | 24                   | 72          |
| R1-2               | 60" x 60" | YIELD   | 1                  | 44                   | 44          |
| R2-1               | 36" x 48" | SPEED LIMIT ##                                | 6                  | 29                   | 174         |
| R2-6aP             | 36" x 24" | FINES DOUBLE                                  | 4                  | 20                   | 80          |
| W3-2               | 48" x 48" | YIELD AHEAD (SYMBOL)                          | 1                  | 34                   | 34          |
| W3-5               | 48" x 48" | REDUCED SPEED LIMIT AHEAD                     | 4                  | 34                   | 136         |
| W4-1               | 48" x 48" | MERGE (SYMBOL)                                | 1                  | 34                   | 34          |
| W4-2               | 48" x 48" | LEFT OR RIGHT LANE ENDS (SYMBOL)              | 4                  | 34                   | 136         |
| W5-4               | 48" X 48" | RAMP NARROWS                                  | 1                  | 34                   | 34          |
| W13-1P             | 30" x 30" | ADVISORY SPEED PLATE                          | 1                  | 21                   | 21          |
| W13-4P             | 36" X 36" | ON RAMP                                       | 1                  | 27                   | 27          |
| W20-1              | 48" x 48" | ROAD WORK ##### FT. OR AHEAD                  | 6                  | 34                   | 204         |
| SPECIAL            | 48" x 48" | RAMP WORK AHEAD                               | 1                  | 34                   | 34          |
| W20-4              | 48" x 48" | ONE LANE ROAD ##### FT. OR AHEAD              | 1                  | 34                   | 34          |
| W20-5              | 48" x 48" | LT. OR RT. LANE CLOSED ##### FT. OR AHEAD     | 4                  | 34                   | 136         |
| W20-7              | 48" x 48" | FLAGGER (SYMBOL)                              | 2                  | 34                   | 68          |
| *****              |           | TYPE 3 BARRICADE - 8 FT. SINGLE SIDED         | 2                  | 40                   | 80          |
| <b>TOTAL UNITS</b> |           |   |                    |                      | <b>1386</b> |

**Exit 192 Ramp Detours**

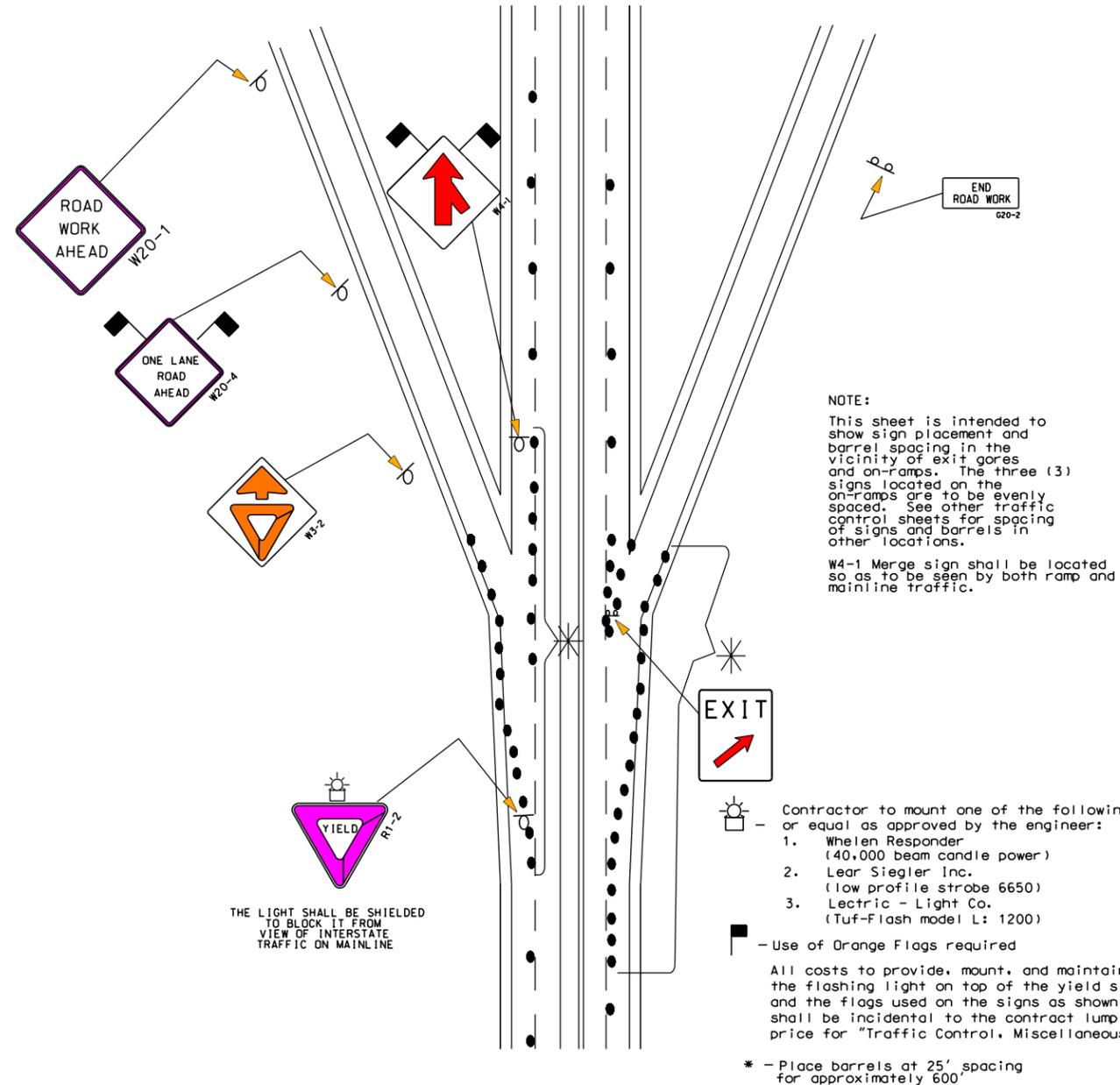
| SIGN CODE          | SIGN SIZE | DESCRIPTION                                   | NUMBER<br>REQUIRED | UNITS<br>PER<br>SIGN | UNITS       |
|--------------------|-----------|---|--------------------|----------------------|-------------|
| E5-1a              | 60" x 48" | EXIT ### WITH 45 DEGREE ARROW (1 or 2 digits) | 1                  | 38                   | 38          |
| G20-2              | 48" x 24" | END ROAD WORK                                 | 3                  | 24                   | 72          |
| R1-2               | 60" x 60" | YIELD   | 1                  | 44                   | 44          |
| R2-1               | 36" x 48" | SPEED LIMIT ##                                | 6                  | 29                   | 174         |
| R2-6aP             | 36" x 24" | FINES DOUBLE                                  | 4                  | 20                   | 80          |
| W3-2               | 48" x 48" | YIELD AHEAD (SYMBOL)                          | 1                  | 34                   | 34          |
| W3-5               | 48" x 48" | REDUCED SPEED LIMIT AHEAD                     | 4                  | 34                   | 136         |
| W4-1               | 48" x 48" | MERGE (SYMBOL)                                | 1                  | 34                   | 34          |
| W4-2               | 48" x 48" | LEFT OR RIGHT LANE ENDS (SYMBOL)              | 4                  | 34                   | 136         |
| W5-4               | 48" X 48" | RAMP NARROWS                                  | 1                  | 34                   | 34          |
| W13-1P             | 30" x 30" | ADVISORY SPEED PLATE                          | 1                  | 21                   | 21          |
| W13-4P             | 36" X 36" | ON RAMP                                       | 1                  | 27                   | 27          |
| W20-1              | 48" x 48" | ROAD WORK ##### FT. OR AHEAD                  | 6                  | 34                   | 204         |
| SPECIAL            | 48" x 48" | RAMP WORK AHEAD                               | 1                  | 34                   | 34          |
| W20-4              | 48" x 48" | ONE LANE ROAD ##### FT. OR AHEAD              | 1                  | 34                   | 34          |
| W20-5              | 48" x 48" | LT. OR RT. LANE CLOSED ##### FT. OR AHEAD     | 4                  | 34                   | 136         |
| W20-7              | 48" x 48" | FLAGGER (SYMBOL)                              | 2                  | 34                   | 68          |
| *****              |           | TYPE 3 BARRICADE - 8 FT. SINGLE SIDED         | 2                  | 40                   | 80          |
| <b>TOTAL UNITS</b> |           |   |                    |                      | <b>1386</b> |

The amount of Traffic Control paid for will be the greatest number of installations per sign in place at any one time, regardless the number of set-ups throughout the duration of the project.

|                             |                 |       |                 |
|-----------------------------|-----------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT         | SHEET | TOTAL<br>SHEETS |
|                             | IM 0903(103)152 | 4     | C6              |

Plotting Date: 08/11/2014

# RAMP ENTRANCE AND EXIT TRAFFIC CONTROL DETAILS



SIGNING LAYOUT FOR TRAFFIC  
MERGING AT RAMPS - TRAFFIC  
IN PASSING LANE

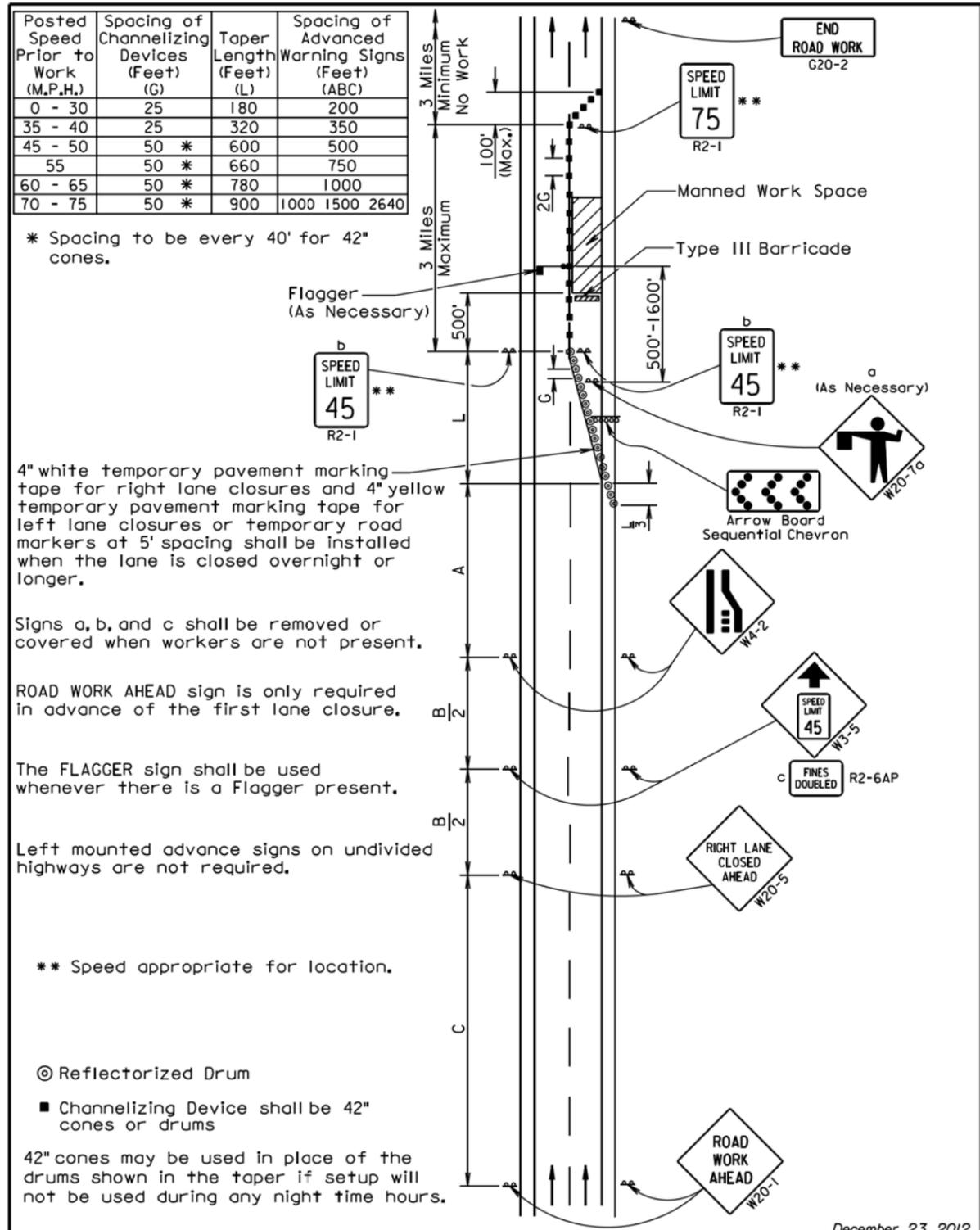
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PLOTTED FROM - TRW11NT26

PLOT NAME - 2

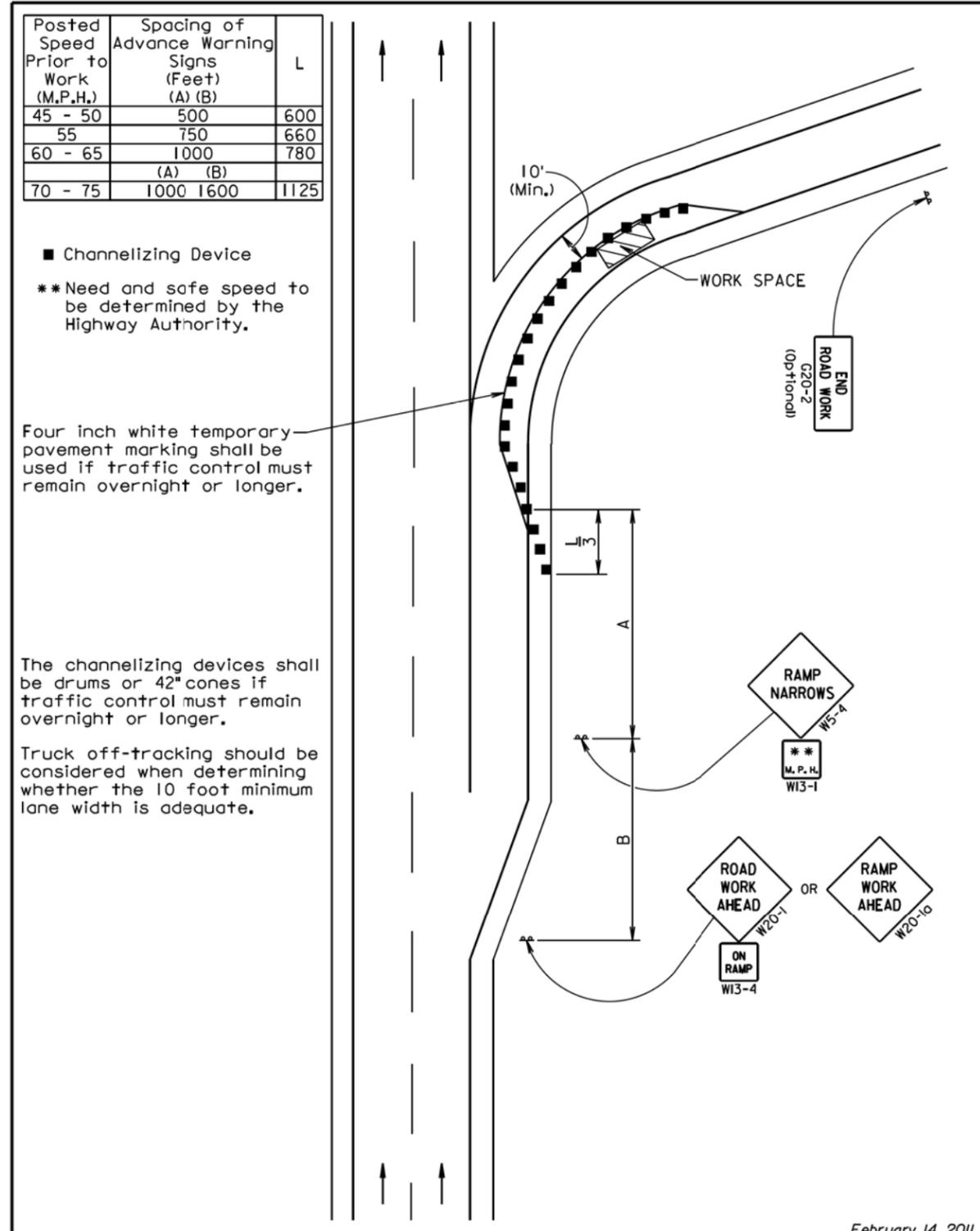
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Plot Scale - 1:200



December 23, 2012

|                                  |   |                               |
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| <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>MANNED WORK SPACE SIGNING<br/>FOR DIVIDED AND UNDIVIDED HIGHWAYS</b> | PLATE NUMBER<br><b>634.63</b> |
|                                  | Published Date: 3rd Qtr. 2014   | Sheet 1 of 1                  |



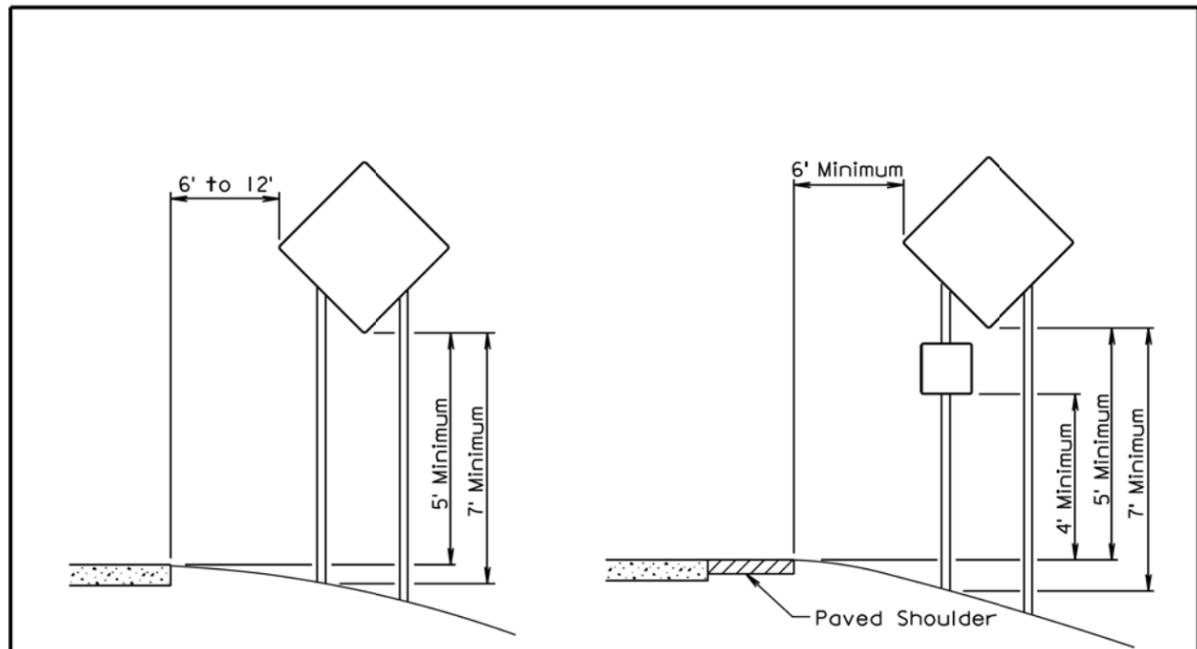
February 14, 2011

|                                  |   |                               |
|----------------------------------|---|-------------------------------|
| <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>GUIDES FOR TRAFFIC CONTROL DEVICES<br/>PARTIAL EXIT RAMP CLOSURE</b> | PLATE NUMBER<br><b>634.69</b> |
|                                  | Published Date: 3rd Qtr. 2014   | Sheet 1 of 1                  |

- Plotted From - tw11m26

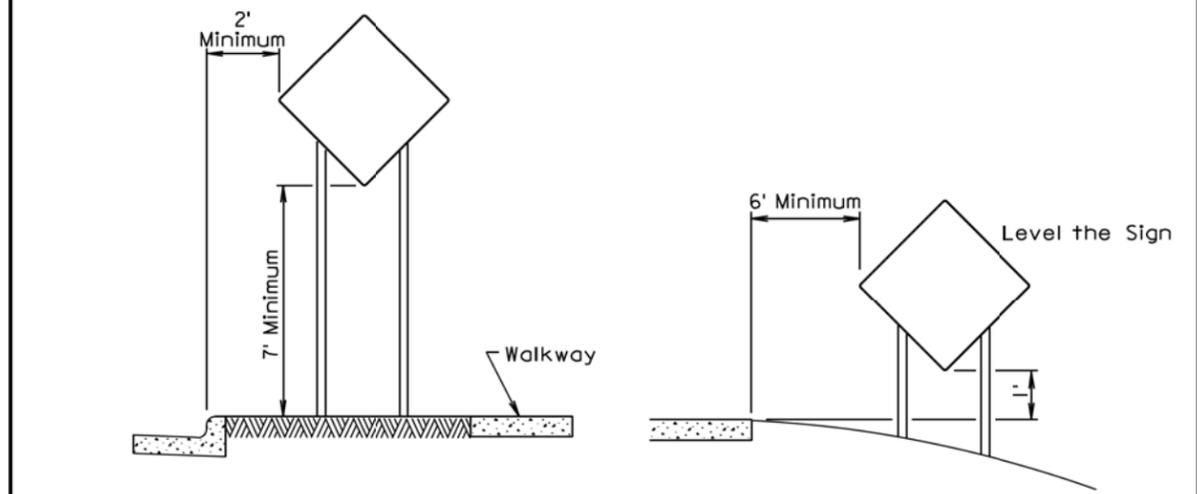
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Plot Scale - 1:200



RURAL DISTRICT

RURAL DISTRICT WITH  
SUPPLEMENTAL PLATE

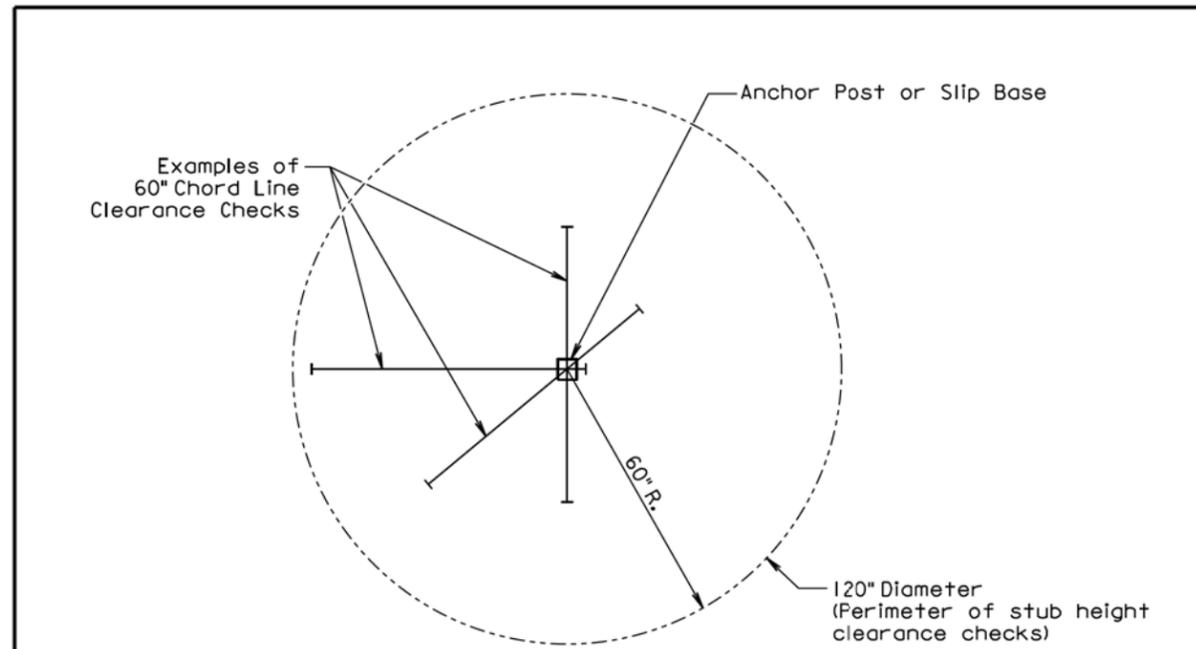


URBAN DISTRICT

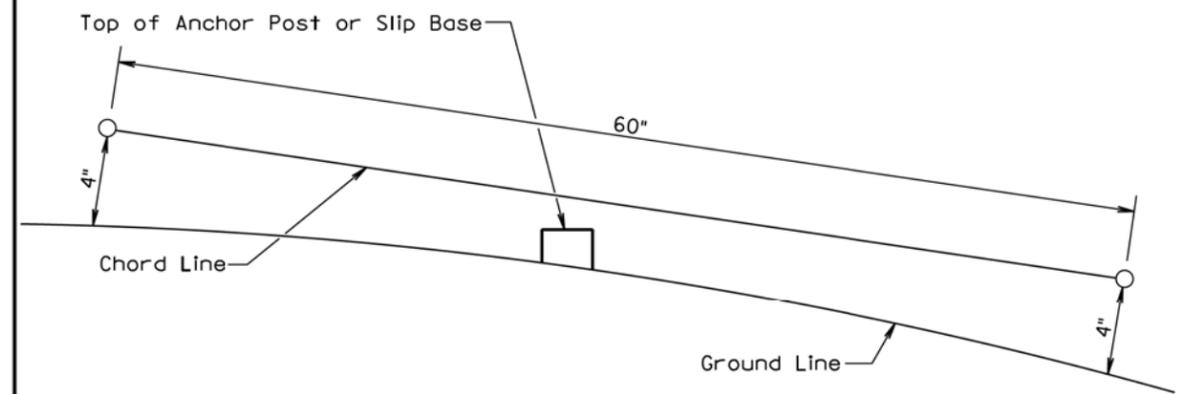
RURAL DISTRICT  
3 DAY MAXIMUM

February 14, 2011

|                               |                       |   |                        |
|-------------------------------|-----------------------|---|------------------------|
| Published Date: 3rd Qtr. 2014 | S<br>D<br>D<br>O<br>T | CRASHWORTHY SIGN SUPPORTS<br>(Typical Construction Signing) | PLATE NUMBER<br>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

|                               |                       |                                  |                        |
|-------------------------------|-----------------------|----------------------------------|------------------------|
| Published Date: 3rd Qtr. 2014 | S<br>D<br>D<br>O<br>T | BREAKAWAY SUPPORT STUB CLEARANCE | PLATE NUMBER<br>634.99 |
|                               |                       |                                  | Sheet 1 of 1           |

- Plotted From - tw11m26

File - ...I:\design\156348563499.dgn