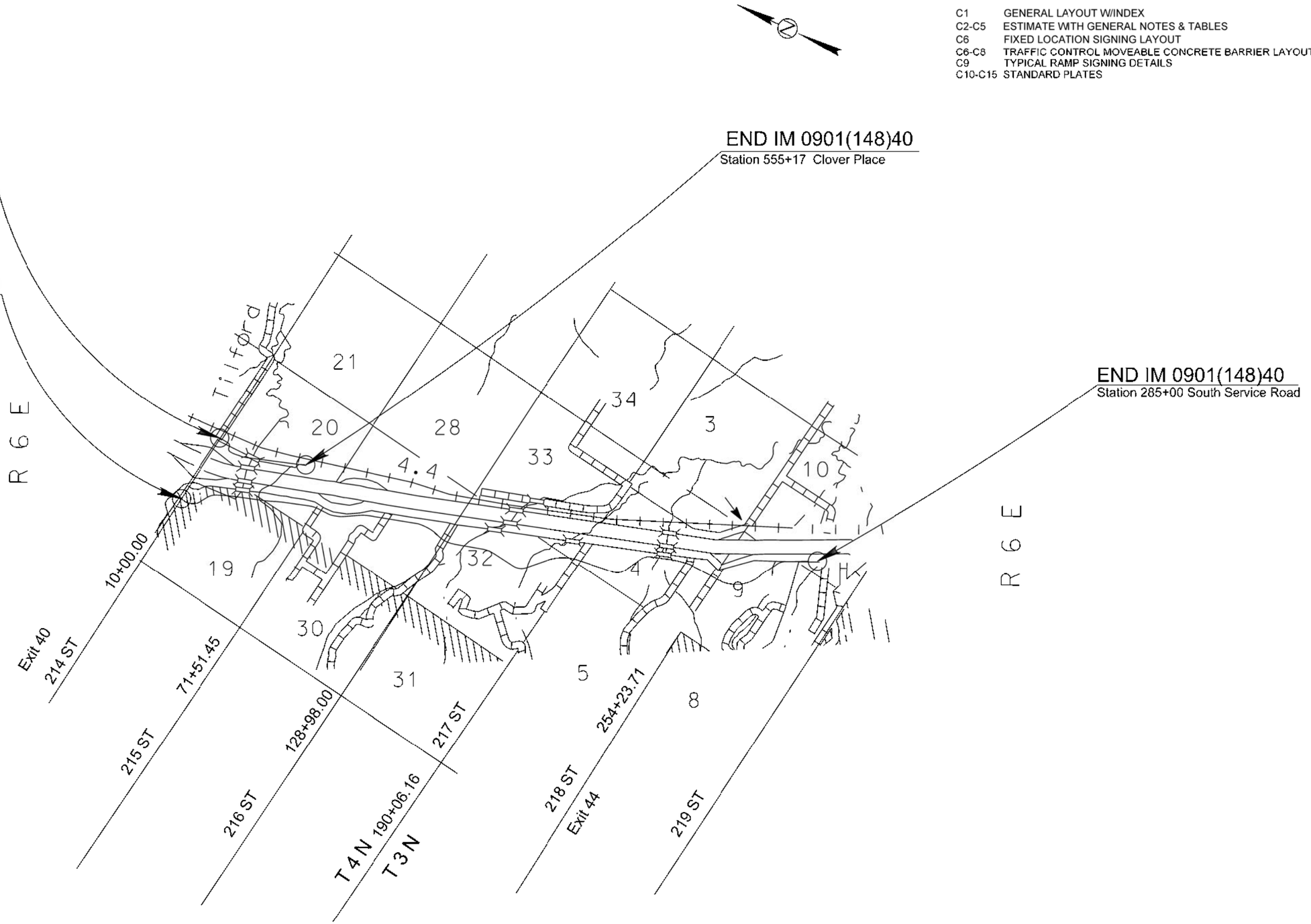
SECTION C: TRAFFIC CONTROL PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(148)40	C1	C15

Revised 8/6/14 - BP

Plotting Date: 08/06/2014

INDEX OF SHEETS



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Revised 8/6/2014 - HWJ

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(148)40	C2	C15

SECTION C – ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
004E0010	Blading	100	Hour
628E1110	Movable F Shape Concrete Barrier, End Section	4	Each
634E0010	Flagging	750	Hour
634E0020	Pilot Car	350	Hour
634E0100	Traffic Control	4,547	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0320	Temporary Road Markers	0.700	Mile
634E0420	Type C Advance Warning Arrow Panel	2	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	30	Each
634E0630	Temporary Pavement Marking	1.4	Mile
634E0700	Traffic Control Movable Concrete Barrier	30	Each
634E0750	Temporary Concrete Barrier End Protection	2	Each
634E0755	Remove and Reset Temporary Concrete Barrier End Protection	2	Each
634E0760	Temporary Concrete Barrier End Protection Module Set or Repair Kit	1	Each
634E0920	Hazard Identification Beacon	1	Site
634E1215	Contractor Furnished Portable Changeable Message Sign	2	Each

TRAFFIC CONTROL – GENERAL NOTES

1. 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.

2. 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.

3. 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.

4. 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 but not limited to, traffic signal heads, delineation, and signing shall be the responsibility of the Contractor. Non-applicable signing and all traffic control devices 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 48 hours. The cost of removing or covering non-applicable signs shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

5. 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.

6. Drums are required in all lane closure tapers.

7. Construction signing mounted on portable supports shall not be used for 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.

8. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

9. All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.

10. 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.

11. The Contractor shall be required to have a person available 24 hours/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.

12. 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".

13. Vehicles working in traffic or alongside traffic shall be equipped with flashing amber lights 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. All haul trucks shall be equipped with a second flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights shall be incidental to the various related contract bid items.

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

15. 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.

16. Temporary Road Markers (Tabs) shall be used for lane closure tapers or lane shift tapers and shall be installed at 5' spacing. Tabs used for tapers and shifts will not be measured for payment. All costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and removal of all markers will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

17. When a pilot car and flaggers are being used traffic shall be delayed no more than 15 minutes at a time.

18. 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 unit price per site for "Hazard Identification Beacon".

19. All earthwork shall be completed in such a manner that drainage and access to existing crossroads is continuous throughout the project. The Contractor shall coordinate embankment operations and pipe installations so that drainage is continuous, but does not damage new or existing grading sections. If necessary, temporary pipe, temporary connections, plugs, and channels, or temporary approaches may be used to avoid damage to new or existing grade or partial omission of permanent drainage features may be required. The cost to install, maintain, and remove temporary items and any incidentals necessary for partial installations of permanent drainage features shall be incidental to the various pipe and grading bid items.

20. Vertical drop-offs resulting from excavation near the traveled lane greater than 1 foot or the thickness of the pavement, whichever is less, 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.

21. Construction related traffic for the construction of the interstate crossovers used 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.

22. The pilot car shall be a four-wheeled vehicle with the Contractor's name prominently displayed on both sides of the vehicle. The pilot car will be equipped with flashing amber lights.

23. Bump Signs (black on orange – 36"x36") with appropriate Speed Advisory Plate (black on orange – 24"x24") shall be placed 500' in advance of the bump or as approved by the Engineer for adequate sight distance. Type I Object Markers (orange - 18"x18") shall be placed at the bump location.

24. Flags shall be placed on traffic control signs as directed by the Engineer. Flags shall be 16 inch square or larger and shall be orange or fluorescent red-orange in color. Payment for the flags shall be 10 traffic control units each and are included in the Table of Traffic Control Devices. Payment shall be full compensation for furnishing, installing, maintaining, replacing and removal of the flags as required by the Engineer.

25. When Standard Plate 634.63 is used, SPEED LIMIT 65 signs shall be installed prior to RIGHT LANE CLOSED AHEAD signs at a distance of B/2. The REDUCED SPEED AHEAD (45), FINES DOUBLED, SPEED LIMIT 45, and FLAGGER signs shall be used when the workspace is manned and should be spaced at 500' between each sign. These signs shall be clearly visible within the lane closure and shall be moved to coincide with the manned workspace within the lane closure as directed by the Engineer. Those signs shall be covered or removed immediately when the workspace is no longer manned. The cost for covering or removing these signs shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

SEQUENCE OF OPERATIONS FOR GRADING & SURFACING

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

1. Set up the project Traffic Control signing.
2. Remove existing fence and set up temporary fence as needed in advance of grading operations.
3. Begin Initial Phase of sediment controls as shown in Section D.
4. Begin earth moving activities and Structure work.
5. Implement the Interim Phase of Erosion and Sediment Controls as shown in Section D.
6. Complete grading and placement of surfacing materials.
7. Place temporary pavement marking paint. Final lift shall receive tabs for temporary pavement marking.
8. Finish gravel surfacing installation on approaches, install guardrail and perform general cleanup activities.
9. Apply permanent pavement markings.
10. Remove surfacing from old service road and existing bridges.
11. Complete Final Phase of erosion control as shown in Section D, fencing, and miscellaneous items to finish project.

SEQUENCE OF OPERATIONS FOR CROSSOVERS

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

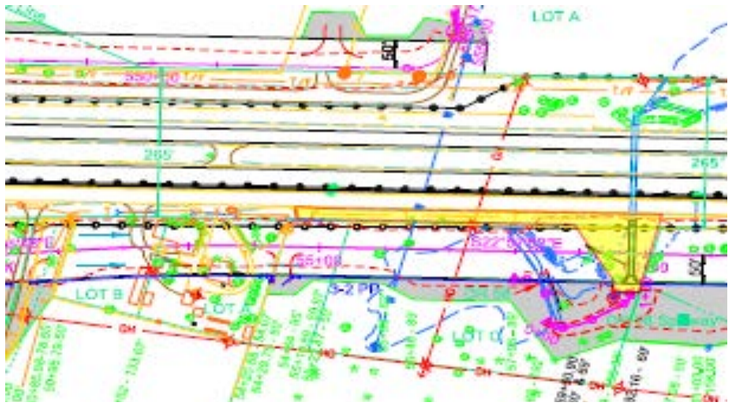
1. Close EB and WB passing lanes using Standard Plate No.634.63 and move traffic to the driving lanes.
2. Complete crossover work in the median at I-90 WB MRM 43.00+0.250 and WB MRM 45.00+0.235.
3. Complete erosion control and misc. items to finish crossovers.
4. Remove traffic control.

PRESS RELEASE ANNOUNCEMENTS

The SDDOT will prepare a Press Release to be released 5 days prior to any phase change or any other major change that affects traffic flow. The SDDOT will be responsible to keep law enforcement, emergency services, and the traveling public notified of changes in project access. The Contractor shall provide the Engineer with pertinent information 7 days prior to any phase change or any other major changes that affect traffic flow.

CONCRETE BOX CULVERT EXTENSION AT STATION 59+78.39

Prior to August 11, 2015 work on, and access to, the box culvert extension at Station 59+78.39 will be limited to areas that do not interfere with available camping spaces. The Contractor's access would be limited to the existing ROW between the approach at Sta. 54+20 and the box culvert extension at Sta. 59+78. The Contractor will need to coordinate with the Engineer and the Landowner on campsite locations near the inlet. In general, work and access to the box culvert extension work area prior to August 11, 2015 would be restricted to locations as depicted below.



TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS

Concrete barriers will be provided by the State and are available for pickup in the State owned stockpile site at Exit 52, located in the NW1/4 SW1/4 Section 5 – T25N – R7E, Meade County. Barriers to be adjusted or moved shall be disconnected from adjacent barriers to minimize damage to connecting pins. Pins damaged by the Contractor shall be replaced at no cost to the Department. All costs associated with picking up from Exit 52, transporting, setting, connecting, and hauling back to the DOT South Maintenance Yard, located south of Rapid City adjacent to Highway 79, shall be incidental to the contract unit price per each for "Traffic Control Movable Concrete Barrier".

The barriers shall be used to protect traffic in the areas with Reinforced Concrete Box Culvert extensions. The box culvert extension areas are located at stations 59+78.39 Rt. and 282+72.84 Rt.

Concrete barrier sections shall be placed as depicted in the plans. The barriers shall be pinned and bolted together as directed by the Engineer. Included in Section F – Surfacing Plans are 3 M gallons of Water for Granular Material and 250 tons of Base Course, Salvaged, State Furnished for construction of the wedge on the shoulder of the road for the placement of the Traffic Control Movable Concrete Barriers. The wedge shall be built as depicted in the drawings in this section and as directed by the Engineer.

MOVABLE F SHAPE CONCRETE BARRIER, END SECTION

The Contractor shall furnish 4 Movable F Shape Concrete Barrier End Sections. The Department shall retain possession of the end sections.

The Contractor shall transport the 4 Movable F Shape Concrete Barrier End Sections from their place of origin to the project to be placed at both ends of each run of Traffic Control Movable Concrete Barriers.

BARRIER MOUNTED LINEAR DELINEATION SYSTEM PANELS

A linear delineation system panel shall be attached to the traffic side of the barrier section. The color shall be the same as the nearest pavement marking, white along outside edgelines. The linear delineation system shall be 34 inches long and 6 inches in height and be constructed of aluminum formed into a shape to provide retroreflective properties across a wide range of angles. It shall be sheeted with super high or very high intensity sheeting. The Contractor shall furnish, install, and maintain one panel along each side of the barrier. The panels shall be installed at the center of the barrier when measured along the length, with the top of the panel 4 inches below the top of the barrier. Installation shall be as per the manufacturer's recommendation using stainless steel inserts and bolts. This will allow for easy removal for replacement of damaged panels or to replace with an alternate color. Replacement of damaged linear delineation system panels shall be furnished and replaced by the Contractor. All costs associated with furnishing, installing and maintaining the linear delineation system shall be included in the contract unit price per each for Linear Delineation System Panel, Barrier Mounted.

All linear delineation system panels shall remain attached to the barrier sections and shall become property of the State of South Dakota upon completion of the project.

The Contractor shall verify the number of LDS panels that will need to be installed or replaced on the Traffic Control Moveable Concrete Barriers. The contract amount of LDS panels is an estimate and the full contract amount may not be required.

TEMPORARY CONCRETE BARRIER END PROTECTION

Crash attenuators meeting the requirements of NCHRP 350 TL-3 or MASH shall be furnished and installed by the Contractor. Attachment of the attenuators to the concrete barriers shall be by approved methods.

All costs associated with furnishing, transporting, initial setup, connecting, maintaining, and removal shall be incidental to the contract unit price per each for "Temporary Concrete Barrier End Protection".

Crash attenuators that need to be moved and reset to accommodate traffic flows after initial setup shall be paid for at the contract unit price per each for Remove and Reset Temporary Concrete Barrier End Protection. All costs associated with removing from initial placement and resetting at a new location shall be incidental to the contract unit price per each. No additional payment will be made for end protections that are not immediately reset at a new location on the project and will be stored onsite until they are either reset or removed from the project as determined by the Engineer. No additional payment will be made for minor adjustments.

The Contractor shall have replacement hardware available so that, in the event that an attenuator is hit and made unusable, the attenuator can be made functional within 24 hours. The cost of replacement is included in the contract unit price per each for "Temporary Concrete Barrier End Module Set or Repair Kit". No payment will be made for the Concrete Barrier End Module Set or Repair Kit in the event that no repairs are necessary. Upon completion of the project, crash attenuators shall remain the property of the Contractor.

Revised 10/31/2014 - HWJ

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	IM 0901(148)40	C4	C15

CONTRACTOR FURNISHED PORTABLE CHANGEABLE MESSAGE SIGN

The Contractor shall furnish 2 portable changeable message signs to be used for the duration of the project. Message signs shall be installed to inform the travelling public of when construction will begin for each type of work, changes that impact traffic, and as directed by the Engineer. The changeable message sign shall be furnished, programmed and maintained for the entire project duration.

Locations for the changeable message signs shall be staked in the field and approved by the Engineer. The Contractor will submit messages for approval to the Engineer prior to the messages being programmed into the message signs. The message signs shall be clearly visible from a minimum of 900 feet and shall be solar powered or wired directly to a power source. Diesel and gas powered messages signs will not be allowed.

The portable message signs will be paid for at the contract unit price per each for Contractor Furnished Portable Changeable Message Sign. Payment will be full compensation for furnishing, maintaining, and relocating as many times as required by the Engineer and the Contractor's operations.

BLADING

Work areas on existing alignment from Station 65+00 to 85+00 and from Station 273+00 to 285+98 shall be constructed using flaggers and a pilot car during daylight hours. Traffic may be maintained on earthen grade during dry conditions. Two-way traffic shall be maintained at all locations when work is not in progress. A 24 ft. minimum width driving surface will be required for two-way traffic. If two-way traffic is not being properly maintained on a 24 ft. minimum width roadway, the Contractor will be required to provide traffic control with pilot car and flaggers or radio-equipped flaggers to adequately maintain one-lane traffic.

The Contractor shall provide a blade and operator for the purpose of maintaining a smooth and passable roadway for traffic as determined by the Engineer. Maintenance of traffic shall be the blade and operator's main priority. The cost for blading the road for maintenance of traffic shall be paid at the contract unit price per hour for "Blading".

Included in Section F – Surfacing Plans are 12 M gallons of Water for Granular Material and 1,000 tons of Base Course, Salvaged, State Furnished for maintaining traffic during inclement weather as directed by the Engineer.

CONTRACTOR FURNISHED PROGRESS SCHEDULES

The Progress Schedule is an integral part of the project. It is used as a resource for both the Owner and the Contractor to monitor work progress. The Contractor shall ensure operations are conducted such that the Progress Schedule is adhered to by all contracting parties involved. The Contractor shall ensure the Progress Schedule meets specified interim and overall contract completion dates for all scheduled activities. The Progress Schedule shall consist of a bar chart method construction schedule using the most current version of Microsoft Project scheduling software, or approved equal, and a written narrative.

At least two weeks prior to the Preconstruction Meeting the Contractor shall furnish the Engineer two copies of the Progress Schedule. Within 7 calendar days after the Preconstruction Meeting the Engineer will review the schedule and will either accept the initial schedule or ask for more information. If more information is required, the Contractor shall submit the requested information within 7 calendar days of the Engineer's request. The Engineer will accept or reject the schedule based solely on completeness of criteria listed below. Acceptance does not modify the contract or constitute endorsement or validation by the Engineer of the Contractor's logic, activity durations, or assumptions in creating the schedule. Nor does acceptance of the schedule relieve the Contractor of his obligation to complete all work within interim and overall contract completion dates. The Contractor shall not begin work until the Engineer accepts the Progress Schedule in writing.

At a minimum, the bar chart method construction schedule shall contain the following information:

1. All work activities needed to perform and complete the work, and critical activities shown on a time scale.
2. The planned start and completion dates for each activity, the duration of each activity (stated in working days, and with activities of more than 15 working days in duration broken into two or more activities distinguished by location or some other feature), and the sequencing of all activities.
3. Days when work is not expected to be performed, i.e. weekends, holidays, etc.
4. The quantity and estimated daily production rate for critical activities.
5. Dates related to the procurement of materials, equipment, articles of special manufacture, etc.
6. Dates related to the submission of working drawings, plans, and other data specified for review or approval by the Department.
7. Dates related to required inspection of structural steel fabrication, etc.
8. Dates related to specified activities by the Department and third parties.
9. Definition and relation of work activities to contract pay items.

At a minimum, the written narrative shall contain the following information:

1. The proposed work progress sequence describing the relationship of the work activities listed in the bar chart schedule to complete the contract, including utility coordination, Tier 1 Certifications, shop drawing submittals (including estimated maximum waiting periods for all required shop drawings), permits (including estimated maximum waiting periods for all required permits), and fabrication and delivery activities.
2. A detailed description and the progress time of each work activity listed in the bar chart schedule, measured by working day or calendar day, as appropriate.
3. A detailed description of the bar chart schedule, including holidays, planned workdays per week, number of crews per activity, number of shifts per day per activity, hours per shift, size of work crews, equipment utilization, including type and quantity, and other resources used, and resultant rates of production per activity.
4. A detailed description of how the schedule accommodates adverse weather days for each month and consideration for how work activities could be adjusted to meet the schedule if above average adverse weather is encountered.
5. A detailed description of how operations will be adjusted in order to meet or exceed the scheduled activity completion for delays not authorized by Contract Change Orders.

The schedule shall be updated and resubmitted on a monthly interval until the project is substantially complete and at each major phase change. The Contractor shall include on the schedule updates planned start and finish dates for each activity shown on the most recent accepted schedule. For newly started or finished activities, include the actual start or finish date. For activities previously started and still ongoing, show the remaining duration and planned finish dates. Next to each activity on the update show the planned or "target" dates of performance from the most recent accepted schedule. Start and end dates of upcoming activities shall be adjusted based on actual end dates of activities that have impact on upcoming activities.

Progress Schedule Revisions are revisions made to the Progress Schedule that reflect changes to the Contractor's operations in order to meet the requirements of the contract. The Engineer may request in writing a Progress Schedule Revision to be submitted for approval due to, but not limited to, the following:

1. A delay (actual or projected) of interim or overall contract completion dates by 21 calendar days or more.
2. A delay (actual or projected) of interim or overall contract completion dates by 7 calendar days or more for Sturgis Motorcycle Rally requirements.
3. A difference between the actual rate of progress and that depicted in the schedule.
4. The issuance of a Contract Change Order that, by adding, deleting, or revising activities, changes the planned sequence of work or the method and manner of its performance.

If it is determined that a Progress Schedule Revision is required, it shall be provided to the Engineer for review within 10 calendar days of written notification. The Engineer's review of the revised schedule will not exceed 7 calendar days. Revisions required as a result of the Engineer's review shall be submitted within 7 calendar days. When written acceptance is provided by the Engineer, the Revised Schedule shall become the project Progress Schedule.

There will be no direct payment for the contractor-furnished schedule. All costs associated with the schedule shall be incidental to the related items. Failure to properly submit the required construction schedules will result in the withholding of progress payments until an approved schedule is received.

Revised 10/31/2014 - HWJ

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(148)40	C5	C15

INVENTORY OF TRAFFIC CONTROL DEVICES

Service Road

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	10	17	170
R4-7	24" x 30"	KEEP RIGHT (SYMBOL)	2	18	36
R11-2	48" x 30"	ROAD CLOSED	10	27	270
W3-4	48" x 48"	BE PREPARED TO STOP	4	34	136
W8-1	36" x 36"	BUMP	6	27	162
W8-2	48" x 48"	PAVEMENT ENDS	2	34	68
W8-7	48" x 48"	LOOSE GRAVEL	2	34	68
W8-7a	48" x 48"	WINDROW	2	34	68
W8-11	48" x 48"	UNEVEN LANES	4	34	136
W13-1P	24" x 24"	ADVISORY SPEED (plaque)	2	16	32
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	14	34	476
W20-4	48" x 48"	ONE LANE ROAD #### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	4	34	136
W21-3	48" x 48"	ROAD MACHINERY AHEAD	2	34	68
OM1-3	18" x 18"	TYPE 1 OBJECT MARKER	6	5	30
SPECIAL	16" x 16"	FLAGS	6	10	60
*****		TYPE III BARRICADE - 8 FT. DOUBLE SIDED	20	56	1120
				TOTAL UNITS	**3104**

Interstate Crossovers

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-1	48" x 24"	ROAD WORK NEXT ## MILES	4	24	96
G20-2	48" x 24"	END ROAD WORK	2	24	48
R1-2	60" x 60"	YIELD	1	44	44
R2-1	36" x 48"	SPEED LIMIT XX	11	29	319
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)	2	34	68
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	5	34	170
W20-5	48" x 48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	4	34	136
SPECIAL	16 x 16	FLAGS	4	10	40
				TOTAL UNITS	**1443**

TEMPORARY PAVEMENT MARKING

Temporary pavement marking paint shall be used for centerline delineation as per the table below. The total quantity for performing this work is approximately 1.4 miles. Paint shall not be used for Temporary Pavement Marking on the final lift of asphalt concrete. Temporary Pavement Marking paint shall be paid for at the contract unit price per mile for “Temporary Pavement Marking”.

Temporary Road Markers (Tabs) with covers shall be used on the top lift of asphalt surfacing. Dashes shall occur with an overall cycle length of 40’. Two temporary road markers in one line at a 4’ spacing shall designate each dash. After completion of the Flush Seal, the protective covers on the temporary road markers shall be removed. The total quantity for performing this work is 0.7 miles. All costs for furnishing and installing Tabs shall be incidental to the contract unit price per mile for “Temporary Road Markers”.

TEMPORARY PAVEMENT MARKING TABLE

Location	Length	Paint	Tabs
65+00 to 85+00	0.4 miles	0.8 miles	0.4 miles
273+00 to 285+98	0.3 miles	0.6 miles	0.3 miles
Total		**1.4 miles**	**0.7 miles**

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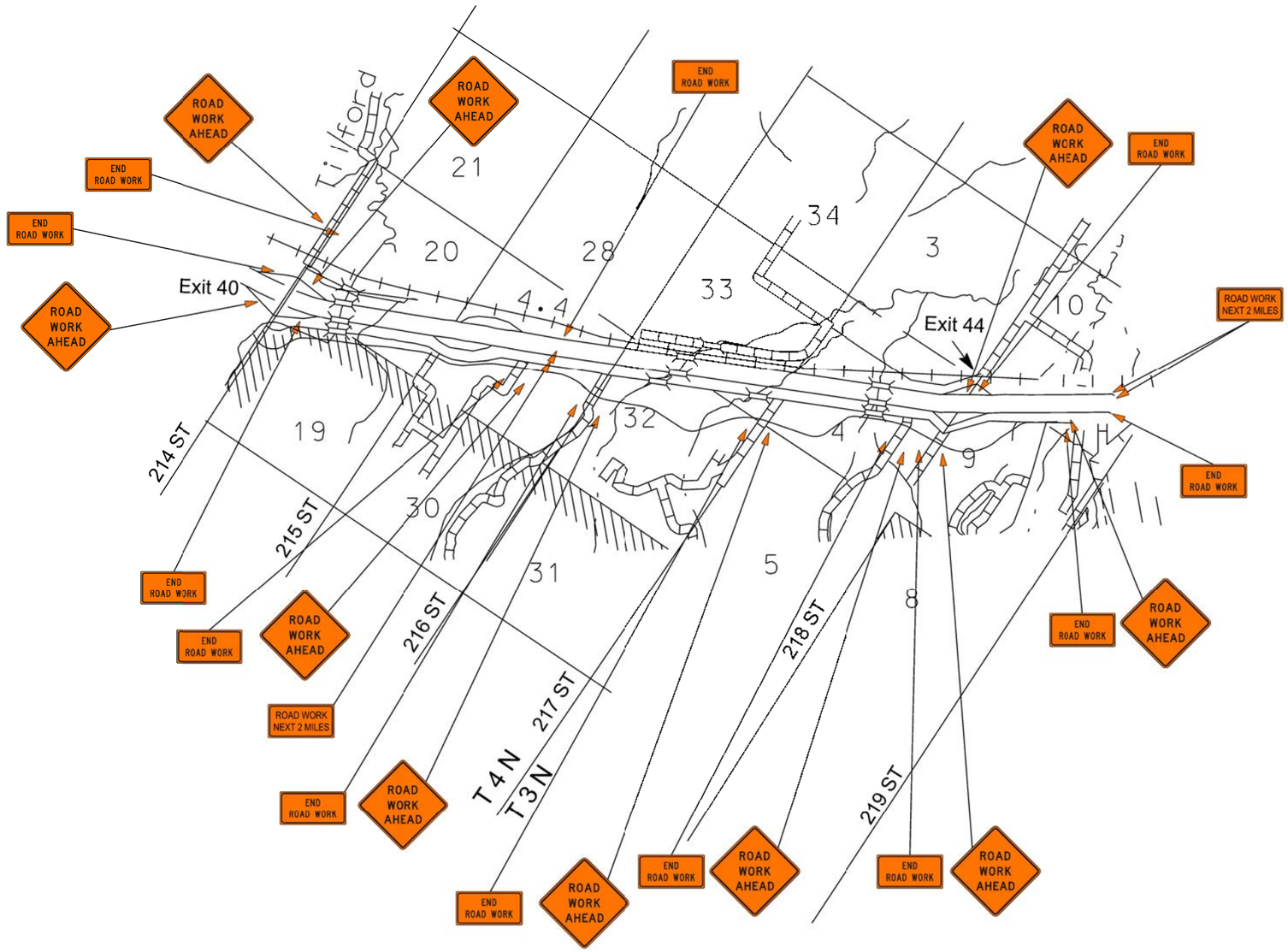
Plotting Date: 12/17/2013

TRAFFIC CONTROL

FIXED LOCATION SIGNING LAYOUT



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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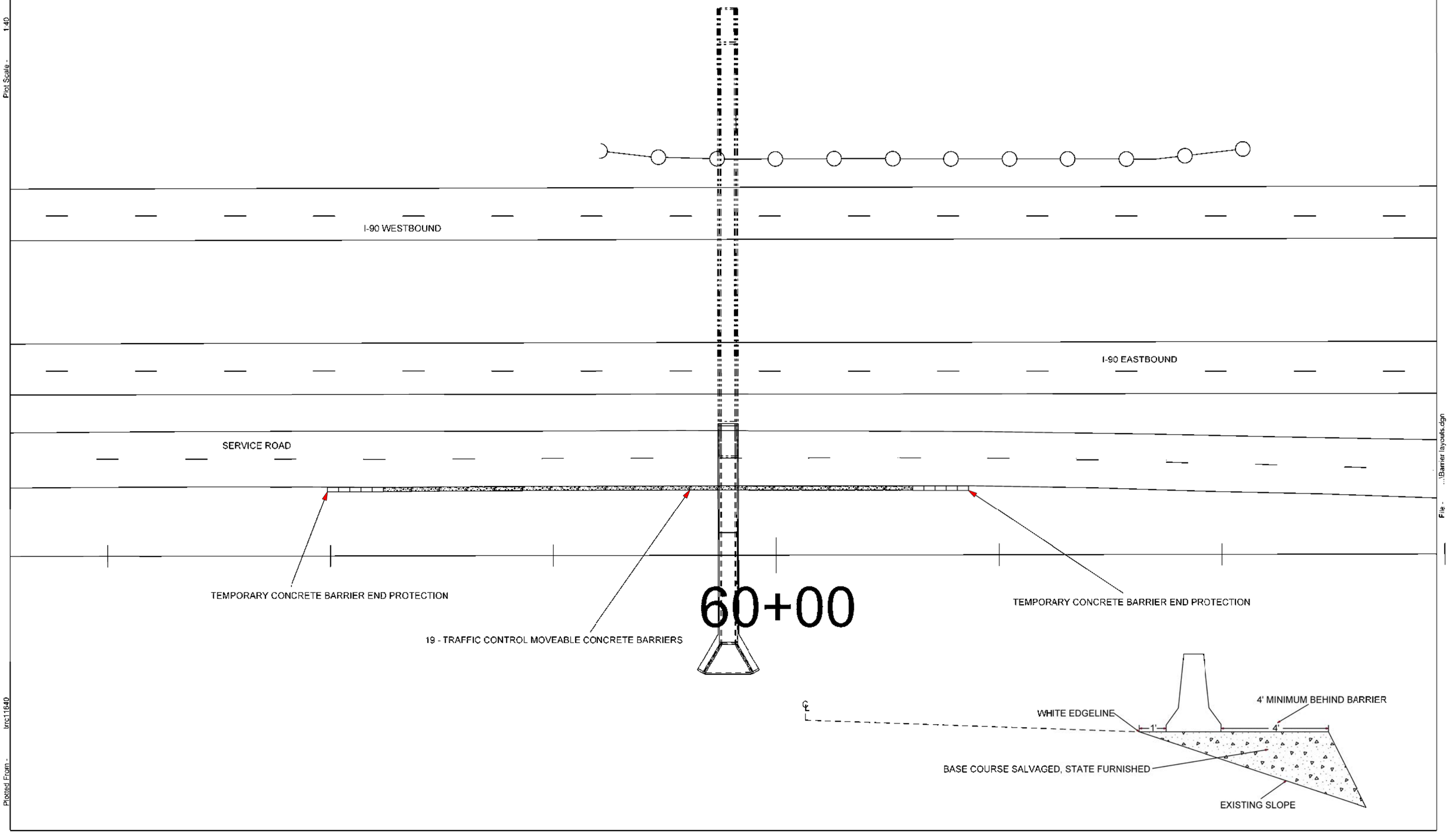
Plotting Date: 03/12/2014

TRAFFIC CONTROL

TRAFFIC CONTROL MOVEABLE CONCRETE BARRIER LAYOUT



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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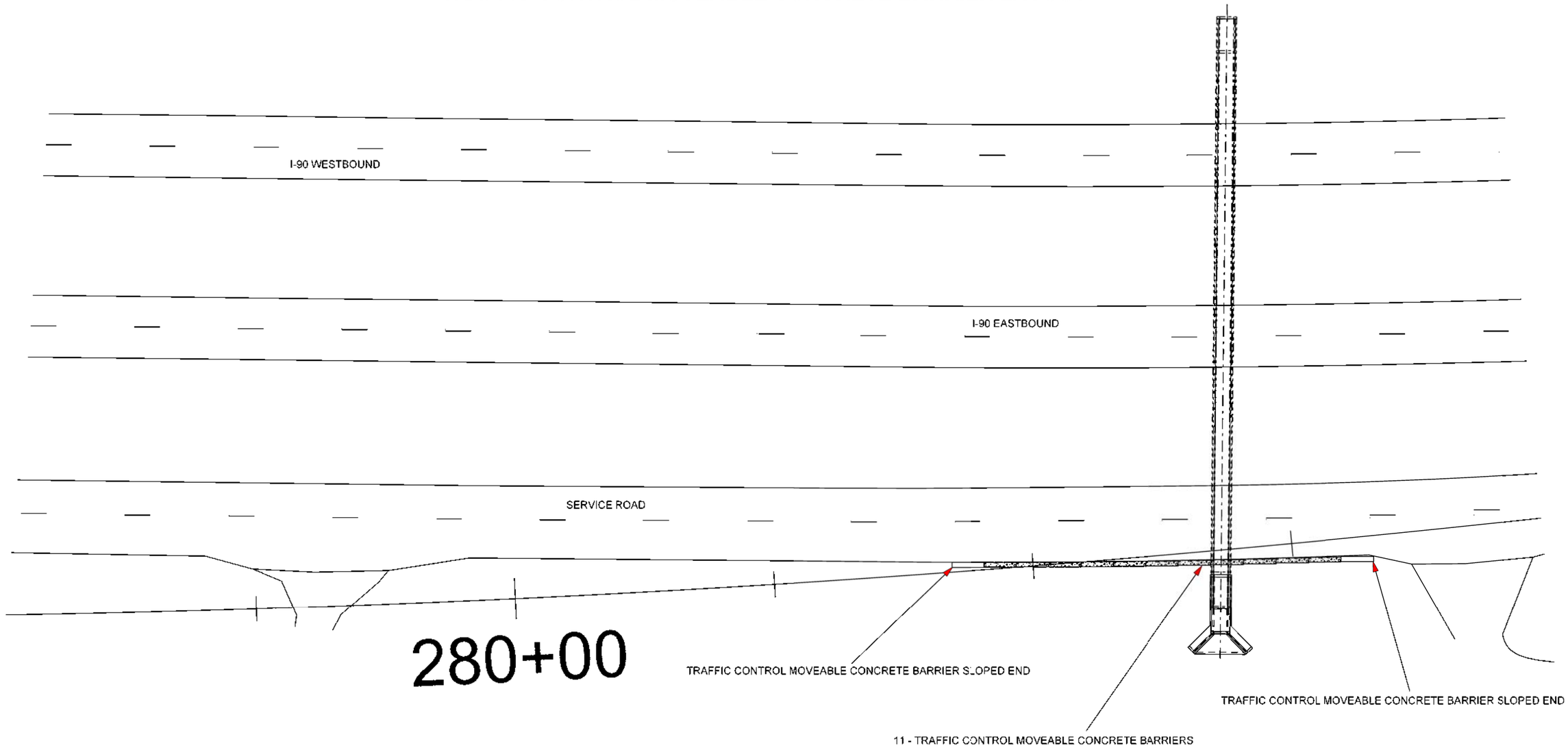
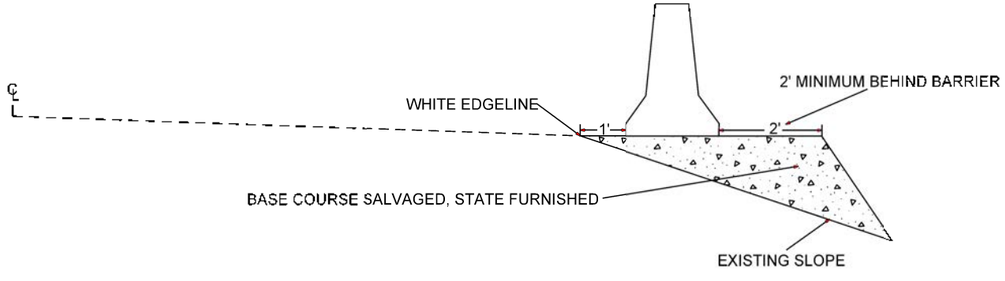
Plotting Date: 03/12/2014

TRAFFIC CONTROL

TRAFFIC CONTROL MOVEABLE CONCRETE BARRIER LAYOUT





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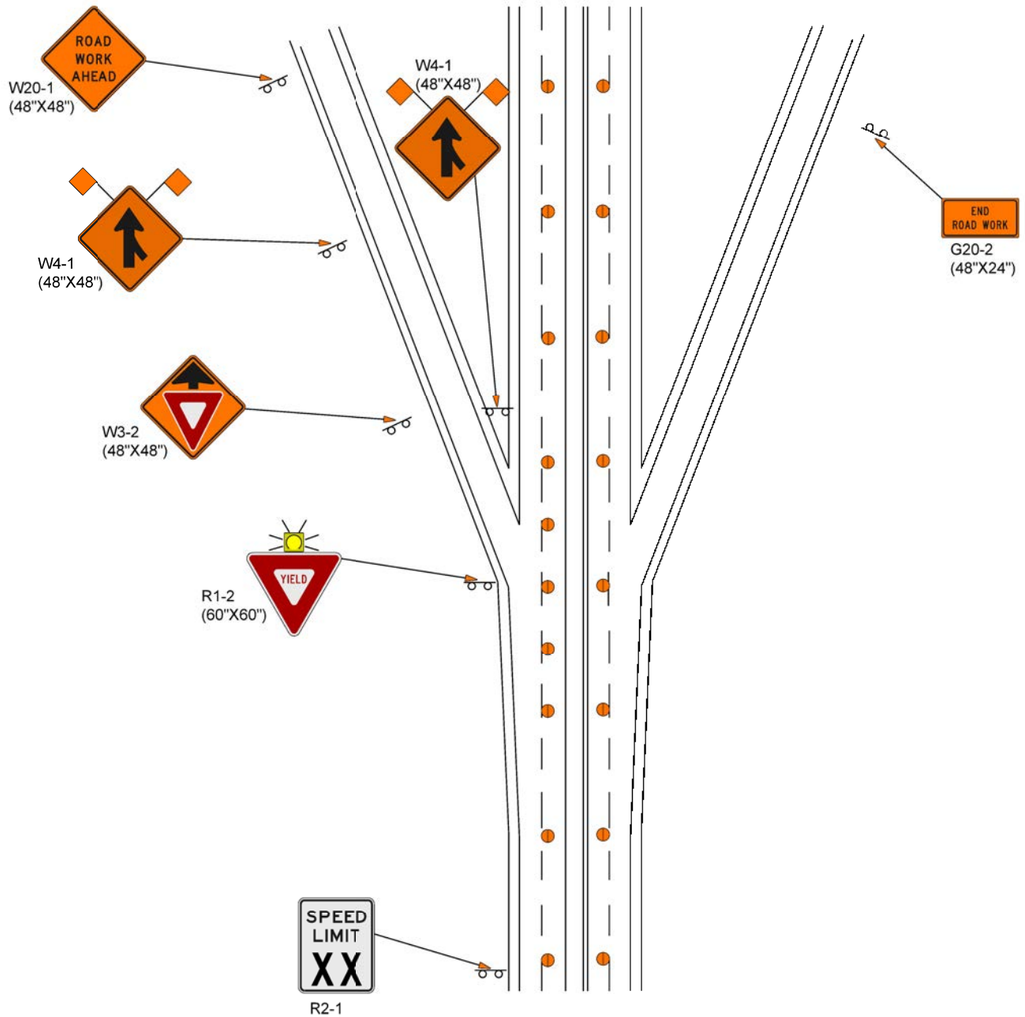
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(148)40	C9	C15

Plotting Date: 03/11/2014

TRAFFIC CONTROL

RAMP ENTRANCE AND EXIT SIGNING DETAILS #2



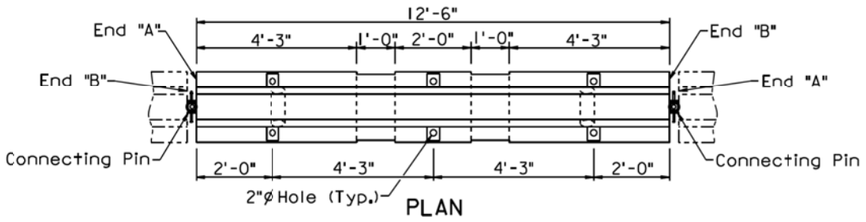
USE APPROPRIATE SPEED LIMIT

-- 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"

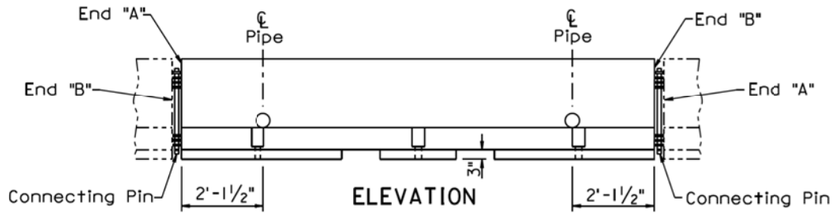
Plot Scale - 1.40

Plotted From - lrrc11640

File - ...\Typical ramp signing details.dgn

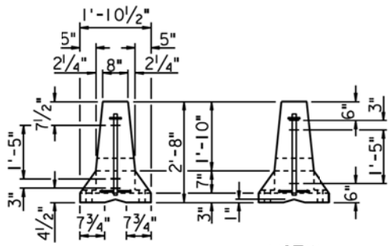


PLAN



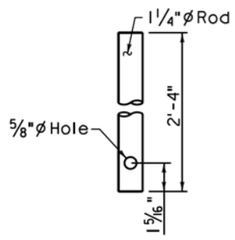
ELEVATION

PLATE A

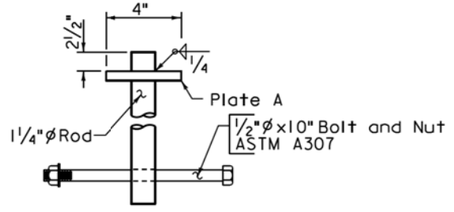


VIEW END A

VIEW END B



CONNECTING PIN DETAIL



ASSEMBLED CONNECTING PIN

June 26, 2009

Published Date: 3rd Qtr. 2014	SDDOT	TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS (F SHAPE INTERIOR SECTION)	PLATE NUMBER 628.01 Sheet 1 of 2

GENERAL NOTES:

The detailed drawings are for illustrative purpose and depicts the current version of the F shape concrete barrier. If new movable concrete barriers are requested on a project, they shall be constructed according to the F shape movable concrete barrier details on standard plate 628.10.

Each movable concrete barrier section weighs 5030 ± pounds.

Each movable concrete barrier section is detailed to provide end "A" to end "B" connection by insertion of a pin through steel loops.

The Jersey shape or any version of the F shape traffic control movable concrete barriers may be used on a project, however, only the same type or version shall be used for each run of barriers.

Movable concrete barrier sections shall be placed to provide uniform bearing of the sections with the paved surface as approved by the Engineer.

Movable concrete barrier sections shall never be moved or lifted using the end loops.

Movable concrete barrier sections that have been damaged shall not be used. Barrier sections are considered damaged if the loops are end welded onto existing damaged loops, loops are fractured, or there is exposed rebar from fractured concrete.

All cost for transporting the barriers from the specified location to the project site, installing, and returning the barriers to the specified location shall be incidental to the contract unit price per each for "Traffic Control Movable Concrete Barrier".

If the concrete barriers need to be moved and reset on the project, requiring the barriers to be transported by truck, all cost for removing, transporting, and resetting the barriers shall be incidental to the contract unit price per ecch for "Remove and Reset Traffic Control Movable Concrete Barrier". All cost for small shifts in alignment of the barriers, not requiring the barriers to be transported by truck, shall be incidental to various contract items.

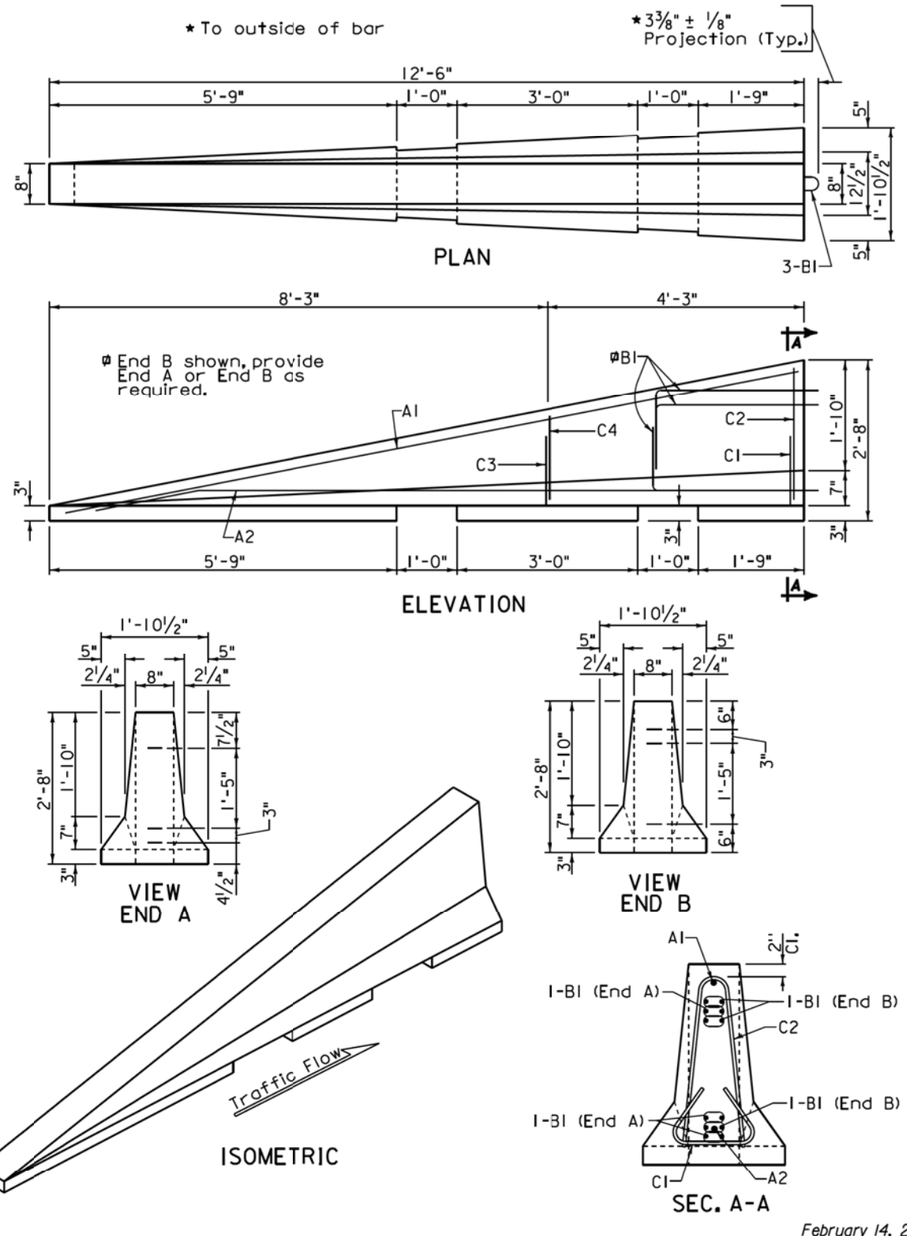
June 26, 2009

Published Date: 3rd Qtr. 2014	SDDOT	TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS (F SHAPE INTERIOR SECTION)	PLATE NUMBER 628.01 Sheet 2 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(148)40	C11	C15

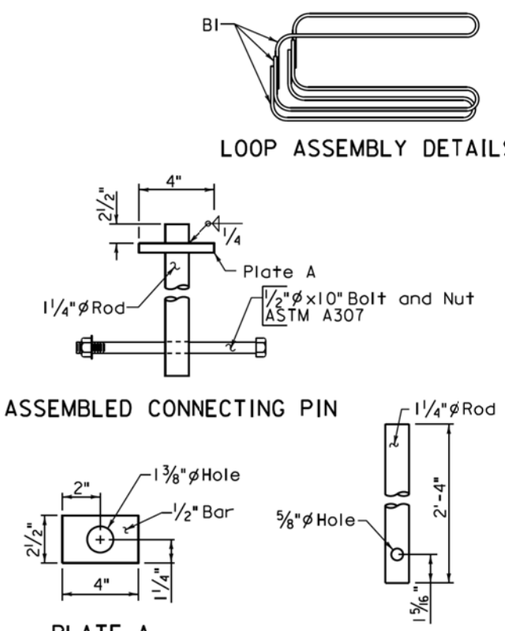
Plotting Date: 08/06/2014

Plot Scale - 1.200



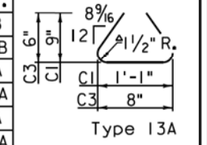
February 14, 2011

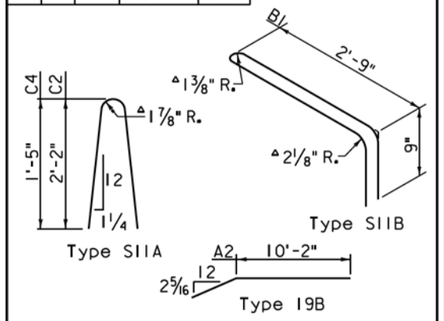
Published Date: 3rd Qtr. 2014	SDDOT	MOVABLE F SHAPE CONCRETE BARRIERS (END SECTION)	PLATE NUMBER 628.11
			Sheet 1 of 2



REINFORCING SCHEDULE
(for one end section)

Mk.	No.	Size	Length	Type	Bending Details
A1	1	5	12'-4"	Str.	
A2	1	5	11'-9"	19B	
BI	3	6	7'-3"	S11B	
C1	1	4	2'-9"	13A	
C2	1	4	4'-6"	S11A	
C3	1	4	1'-10"	13A	
C4	1	4	3'-1"	S11A	





NOTES:
All dimensions are out to out of bars
△All radii are to inside of bars.

GENERAL NOTES:

Concrete shall be Class M6 in accordance with Section 462 of the Standard Specifications. Type I, II, or III cement shall be used.

All reinforcing steel shall conform to ASTM A615 Grade 60, except BI bars. The BI loop bars shall be ¾ inch smooth steel bars with a minimum yield of 60 ksi, a tensile strength of not less than 1.25 times the yield strength but a minimum of 80 ksi, an 8 inch elongation of 14%, and passing a 180 degree bend test using a 3.5D pin bend diameter. The loops shall be installed within ⅛ inch of the plan dimensions.

Steel for pins shall conform to ASTM A36.

Galvanize the connecting pin assembly after fabrication in accordance with ASTM A123. Paint exposed portions of the loop assembly BI bars with a zinc rich galvanizing paint.

All exposed edges shall be chamfered ¾ inch.

Use 2 inch clear cover on all reinforcing steel EXCEPT as shown.

Each movable concrete barrier end section is detailed to provide End "A" to End "B" connection by insertion of a pin through loops formed by re-bars "BI".

All costs for materials, labor, equipment, and incidentals necessary for furnishing the complete movable concrete barrier end section including one connecting pin assembly shall be incidental to the contract unit price per each for "Movable F Shape Concrete Barrier, End Section".

For informational purposes only, each movable concrete barrier end section contains 0.6 Cu. Yds. of concrete and 66 Lbs. of reinforcing steel.

February 14, 2011

Published Date: 3rd Qtr. 2014	SDDOT	MOVABLE F SHAPE CONCRETE BARRIERS (END SECTION)	PLATE NUMBER 628.11
			Sheet 2 of 2

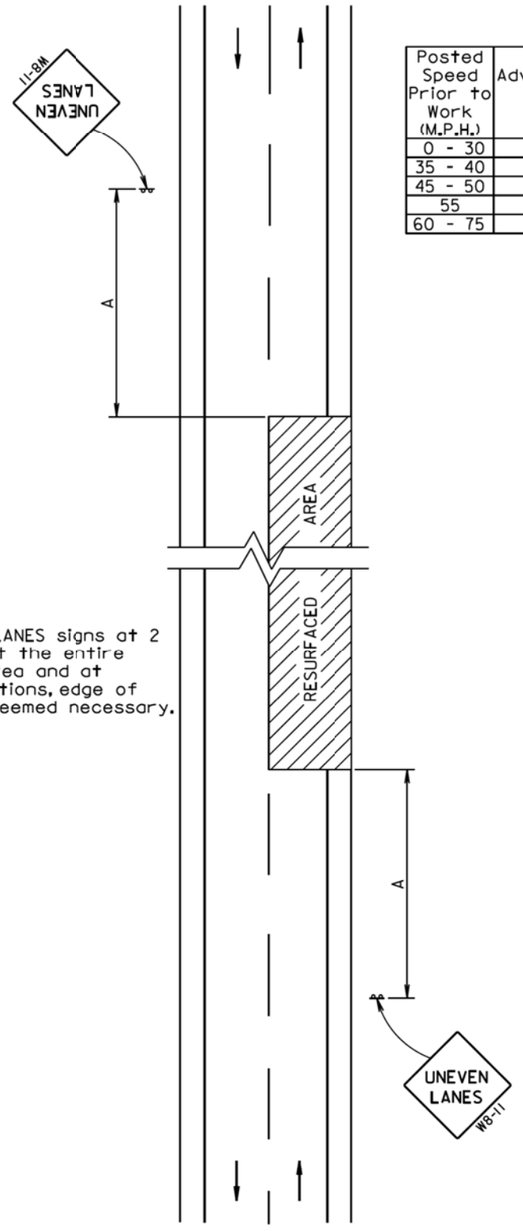
- Plotted From - trrc11640

File - ...\Standard Plates.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0901(148)40	C12	C15

Plotting Date: 08/06/2014

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



Install additional UNEVEN LANES signs at 2 mile intervals throughout the entire length of the uneven area and at affected major intersections, edge of towns, and other sites deemed necessary.

July 1, 2005

Published Date: 3rd Qtr. 2014	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES UNEVEN ROAD SURFACE	PLATE NUMBER 634.22 Sheet 1 of 1

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.

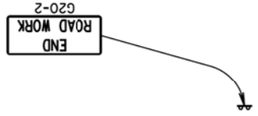
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

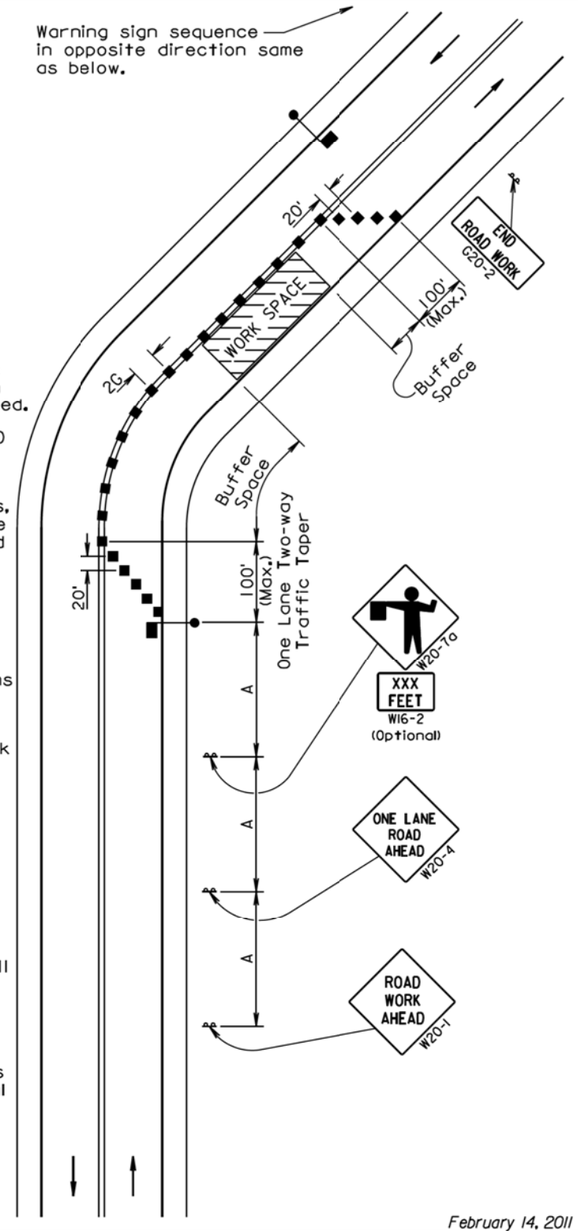
The channelizing devices shall be drums or 42" cones.

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.



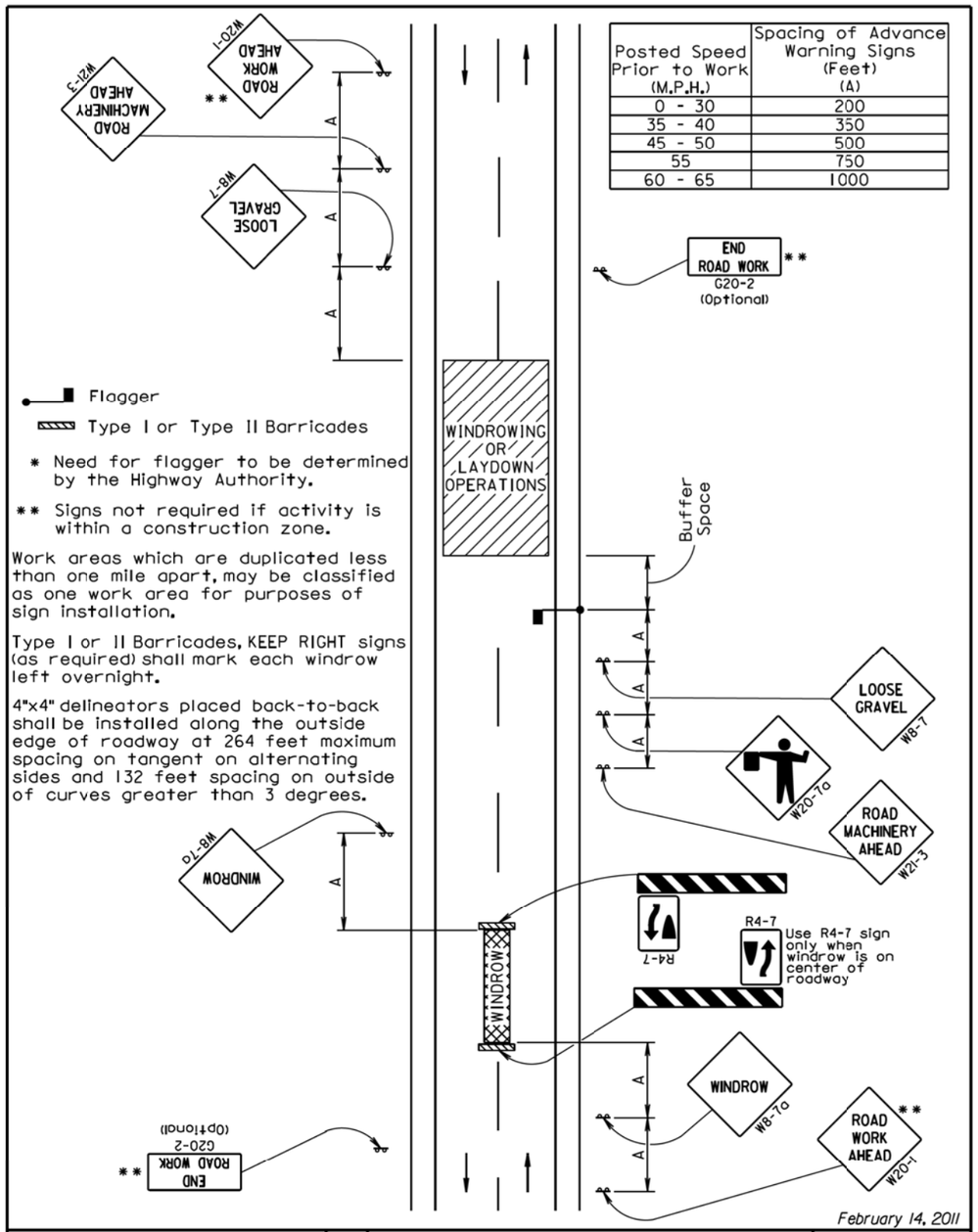
February 14, 2011

Published Date: 3rd Qtr. 2014	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23 Sheet 1 of 1

Plot Scale - 1.200

- Plotted From - trrc11640

File - ...\Standard Plates.dgn



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

Type I or Type II Barricades

* Need for flagger to be determined by the Highway Authority.

** Signs not required if activity is within a construction zone.

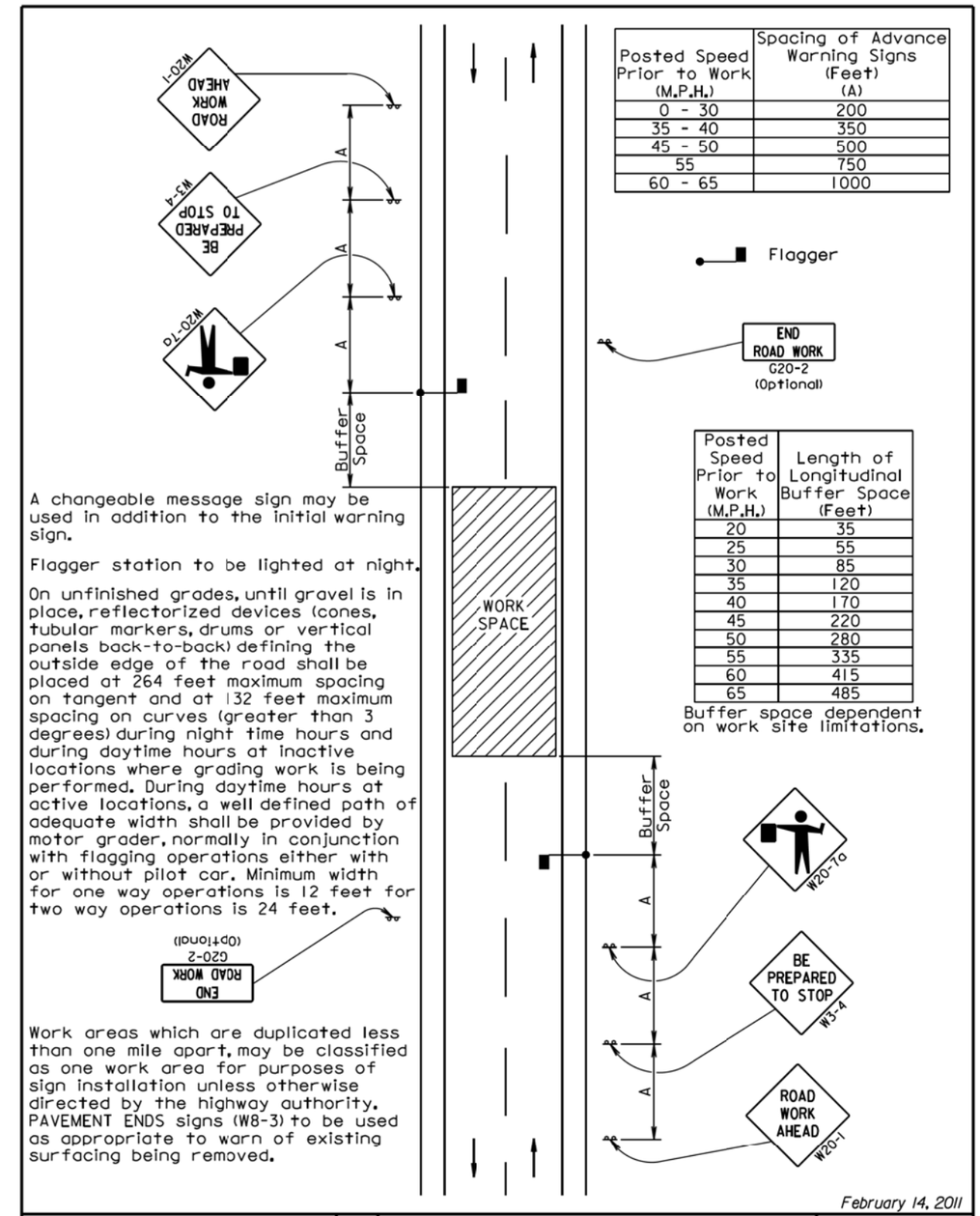
Work areas which are duplicated less than one mile apart, may be classified as one work area for purposes of sign installation.

Type I or II Barricades, KEEP RIGHT signs (as required) shall mark each windrow left overnight.

4"x4" delineators placed back-to-back shall be installed along the outside edge of roadway at 264 feet maximum spacing on tangent on alternating sides and 132 feet spacing on outside of curves greater than 3 degrees.

February 14, 2011

Published Date: 3rd Qtr. 2014	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES WINDROWING OR LAYDOWN OPERATION	PLATE NUMBER 634.27 Sheet 1 of 1



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.

A changeable message sign may be used in addition to the initial warning sign.

Flagger station to be lighted at night.

On unfinished grades, until gravel is in place, reflectorized devices (cones, tubular markers, drums or vertical panels back-to-back) defining the outside edge of the road shall be placed at 264 feet maximum spacing on tangent and at 132 feet maximum spacing on curves (greater than 3 degrees) during night time hours and during daytime hours at inactive locations where grading work is being performed. During daytime hours at active locations, a well defined path of adequate width shall be provided by motor grader, normally in conjunction with flagging operations either with or without pilot car. Minimum width for one way operations is 12 feet for two way operations is 24 feet.

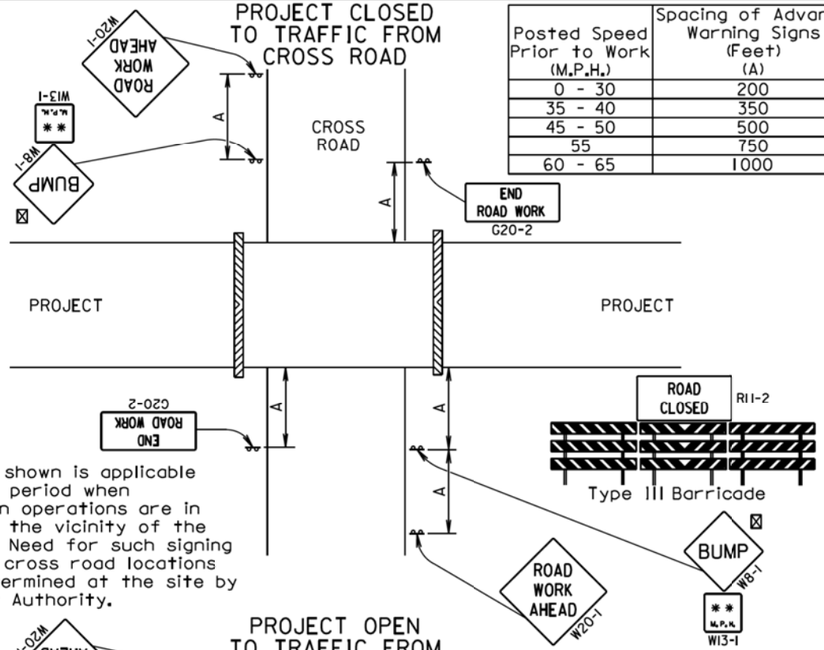
Work areas which are duplicated less than one mile apart, may be classified as one work area for purposes of sign installation unless otherwise directed by the highway authority. PAVEMENT ENDS signs (W8-3) to be used as appropriate to warn of existing surfacing being removed.

February 14, 2011

Published Date: 3rd Qtr. 2014	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LONG TERM ROAD WORK	PLATE NUMBER 634.31 Sheet 1 of 1

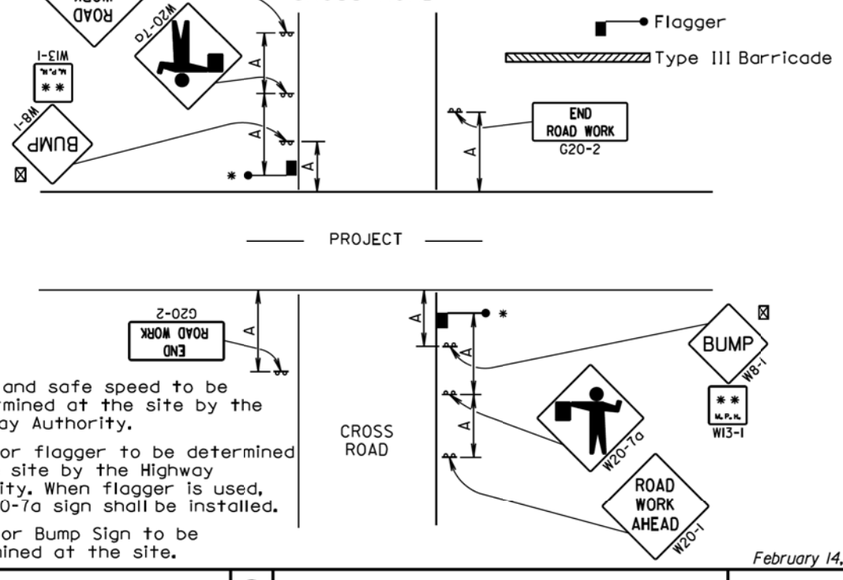
PROJECT CLOSED TO TRAFFIC FROM CROSS ROAD

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



The signing shown is applicable during that period when construction operations are in progress in the vicinity of the cross road. Need for such signing at specific cross road locations shall be determined at the site by the Highway Authority.

PROJECT OPEN TO TRAFFIC FROM CROSS ROAD



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

* Need for flagger to be determined at the site by the Highway Authority. When flagger is used, the W20-7a sign shall be installed.

☒ Need for Bump Sign to be determined at the site.

February 14, 2011

Published Date: 3rd Qtr. 2014	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES CROSSROAD SIGNING	PLATE NUMBER 634.32 Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)	Spacing of Advanced Warning Signs (Feet) (ABC)
0 - 30	25	180	200
35 - 40	25	320	350
45 - 50	50 *	600	500
55	50 *	660	750
60 - 65	50 *	780	1000
70 - 75	50 *	900	1000 1500 2640

* Spacing to be every 40' for 42" cones.

4" white temporary pavement marking tape for right lane closures and 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 or longer.

Signs a, b, and c shall be removed or covered when workers are not present.

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

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

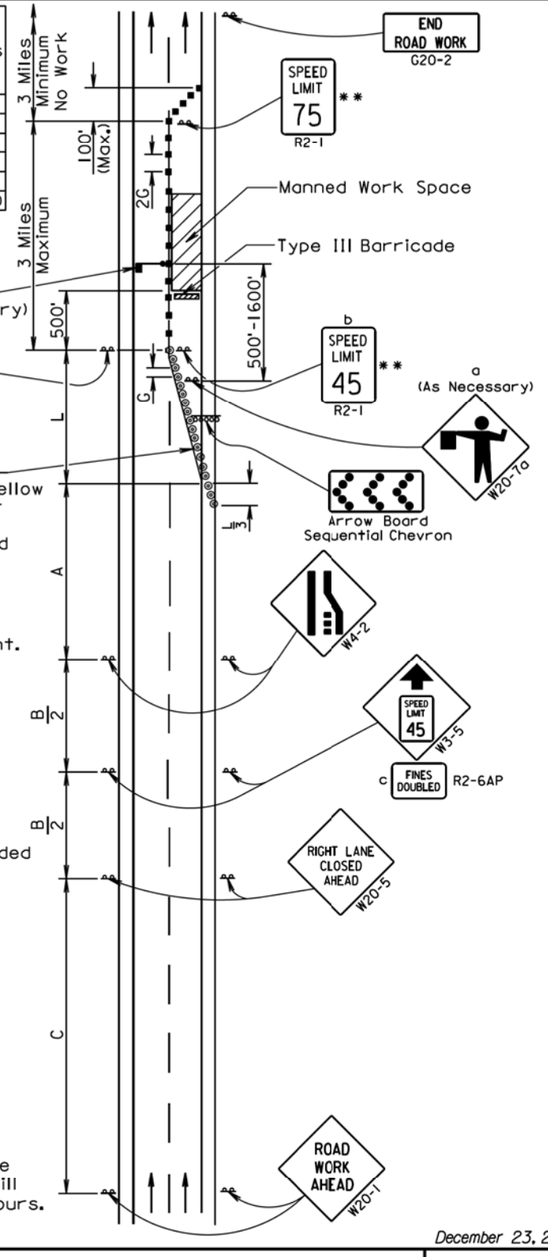
Left mounted advance signs on undivided highways are not required.

** Speed appropriate for location.

◎ Reflectorized Drum

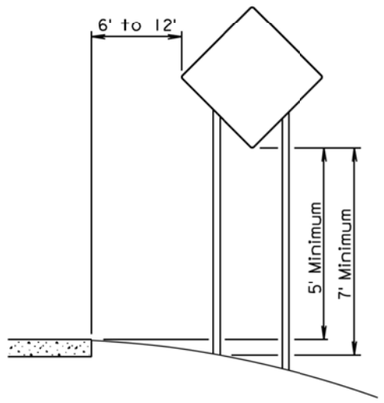
■ Channelizing Device shall be 42" cones or drums

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

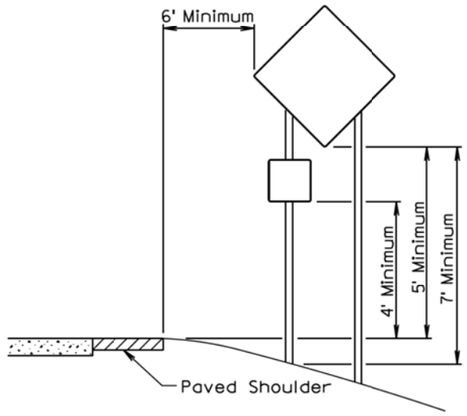


December 23, 2012

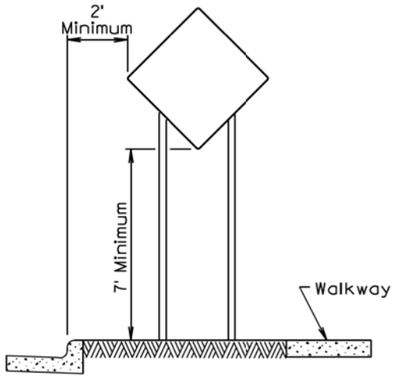
Published Date: 3rd Qtr. 2014	SDDOT	MANNED WORK SPACE SIGNING FOR DIVIDED AND UNDIVIDED HIGHWAYS	PLATE NUMBER 634.63 Sheet 1 of 1



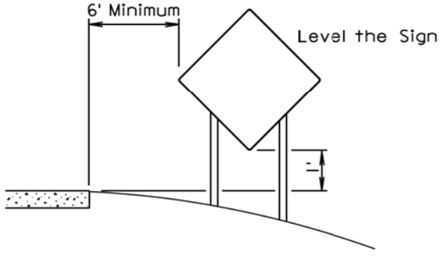
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



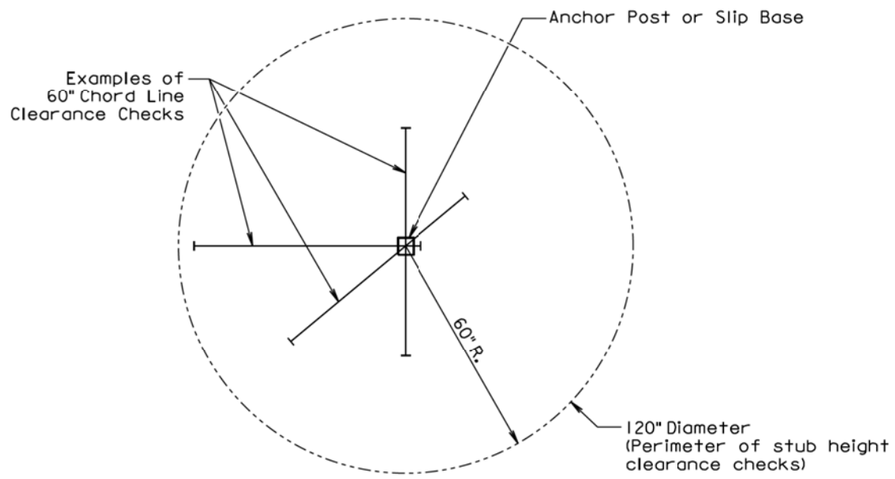
URBAN DISTRICT



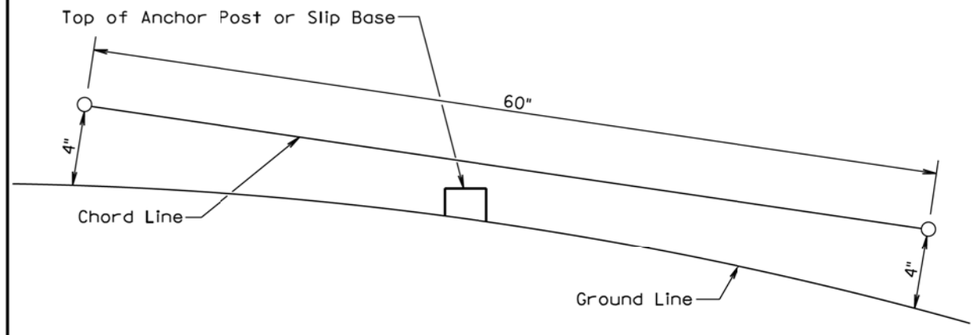
RURAL DISTRICT
3 DAY MAXIMUM

February 14, 2011

Published Date: 3rd Qtr. 2014	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

Published Date: 3rd Qtr. 2014	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1