

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
462E0100	Class M6 Concrete	6.0	CuYd
491E0110	Abrasive Blasting of Bridge Deck	44.4	SqYd
634E0010	Flagging	100.0	Hour
634E0110	Traffic Control Signs	112.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

TRAFFIC CONTROL – GENERAL NOTES

Unless otherwise stated in these plans, no work will be allowed during hours of darkness.

Traffic Control Signs, as shown in the Estimate of Quantities, are estimates. Contractor’s operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

Non-applicable traffic control devices shall be completely 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.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

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

The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

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.

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

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.

All costs associated with the traffic control for mobile operation including signs, arrow panels and equipment shall be incidental to the contract lump sum price for “Traffic Control, Miscellaneous”.

INVENTORY OF TRAFFIC CONTROL DEVICES

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	48" x 24"	8.0	16.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			
		112.0			

INCIDENTAL WORK (REPAIR CATTLE PASS)

The cattle pass lift ports shall be repaired in accordance with the Chemical Grout Manufacturer’s directions to prevent future infiltration/exfiltration of soils and water.

The cattle pass lift ports will be repaired with a sealant comprised of water reactive hydrophilic polyurethane resin and dry oil free oakum. All grout will be injected under such pressure so as not to damage the existing drainage structure or roadway structure.

The Contractor shall submit to the Engineer for approval a detailed procedure for the installation of the polyurethane grout.

The work shall include, but is not limited to sealing each cattle pass lift port with a hydrophilic polyurethane grout meeting the following specifications:

GEL FOAM II (Saturated Oakum Rope Joint Packing) as manufactured by Green Mountain International, LLC or equal.

ULTRA (Single Component Grout for Joint Injection) as manufactured by Green Mountain International, LLC or equal.

Excess grout and oakum shall be trimmed from the interior face of the port prior to applying the UV Protection (Gel Coat). The epoxy gel coat compound shall be as recommended by the Manufacturer for both surface sealing and protecting the hydrophilic grout from UV exposure. The epoxy gel compound shall be mixed and handled in accordance with the Manufacturer’s recommendations and shall meet the following requirements:

Epoxy gel sealant compounds manufactured by Green Mountain Grouts, LLC or equal.

All costs for all equipment, material and labor required to complete the work shall be incidental to the contract lump sum price for Incidental Work. Completion of the work includes initial saturated oakum rope packing of each joint, follow up injection of grout into the back side of each joint, trimming the excess grout and oakum from the interior face of the joint, application of the epoxy gel coat and site clean-up.

ABRASIVE BLASTING OF CATTLE PASS

1. The entire cattle pass floor shall be thoroughly cleaned by abrasive blast cleaning to the satisfaction of the Engineer.
2. Upon completion of the abrasive blasting, the cattle pass floor shall be blown clean with dry compressed air to remove all dust and debris.
3. Cleaning by abrasive blasting and compressed air shall be done no more than 24 hours prior to the placement of the M6 Concrete Overlay. In the event that the M6 Concrete Overlay is not placed within 24 hours of abrasive blast cleaning or in the event of rain or other inclement weather contaminating the surface, the surface shall be re-cleaned by abrasive blast cleaning and dry compressed air.
4. Access to the cattle pass shall be restricted once the floor has been cleaned and prepared for application of the M6 Concrete Overlay.
5. Abrasive Blasting of the cattle pass will be measured to the nearest 0.1 foot and the area computed to the nearest 0.1 square yard. Abrasive Blasting of the cattle pass will be paid for at the contract unit price per square yard. Payment will be full compensation for all labor, equipment, materials, and all incidental work required to clean the cattle pass floor.
6. The Contractor will be responsible for cleaning up and disposing of all blast media in an approved offsite location.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-492	3	8

M6 CONCRETE OVERLAY

1. The overlay placed on the existing cattle pass floor shall consist of a M6 Concrete.
2. The Concrete shall be Class M6 and conform to Section 462 of the construction Specification except as modified by these notes.
3. A minimum thickness of 1.5" of M6 Concrete shall be maintained on the cattle pass floor.
4. The M6 Concrete at the time of placement shall contain 6.5 percent plus 1.0 or minus 1.5 percent entrained air and slump of the concrete shall be maintained between 2.75 and 6.50 inches.
5. The Contractor shall provide a heavy broom finish on the concrete overlay surface throughout the cattle pass.
6. Grout for bonding new concrete to old concrete shall consist of equal parts by weight of Portland cement and sand, mixed with sufficient water to form a thick slurry. The consistency of the slurry shall be such that it can be applied with a stiff brush or broom to the old concrete in a thin, even coating that will not run or puddle in low spots. For sealing vertical joints between adjacent areas of placement, grout shall be thinned to consistency of paint.
7. The grout shall be applied on a dry surface immediately before concrete placement. The thin coating of grout shall be scrubbed into the surface. The area to receive the overlay shall receive an even thorough grout coating. Care shall be taken to ensure that excess grout does not collect in pockets and that the rate of application is limited to an amount that will be covered with concrete before it dries.
8. Any fence or vegetation that is disturbed by the Contractor during the construction process shall be returned to its original condition by the Contractor. All costs associated with this work shall be incidental to the unit price for Class M6 Concrete.

PLOT SCALE - 1:164.563

PLOTTED FROM - TRCU10206

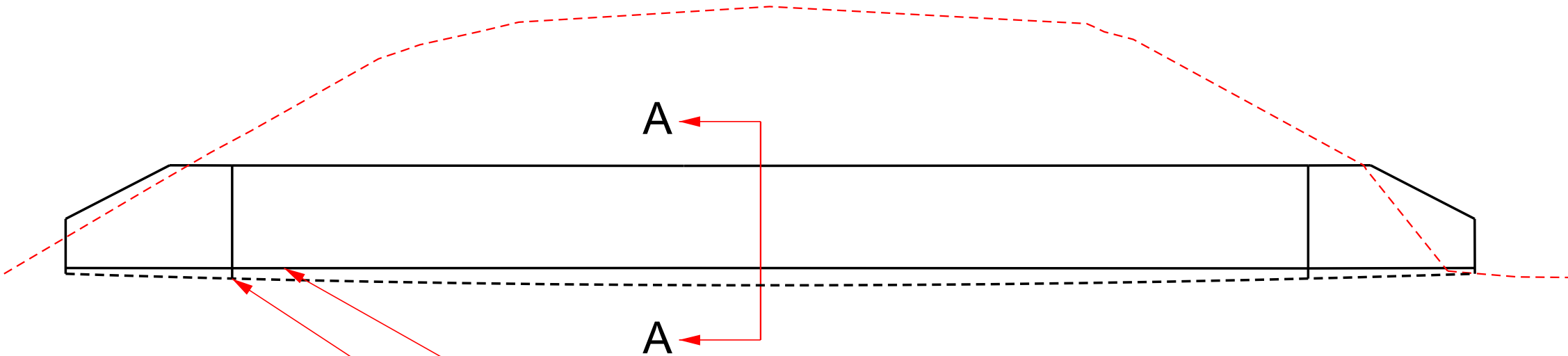
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-492	4	8

Plotting Date: 05/15/2019

PLOT NAME - 1

FILE - ... \CATTLE PASS PLANS\TYP.DGN

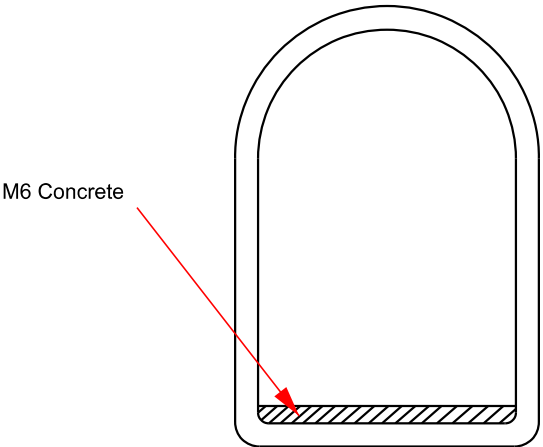
Cattle Pass Leveling Detail



Final Floor Flowline

Exiting Floor

SECTION A-A



PLOT SCALE - 1:164.563

PLOTTED FROM - TRCU10206

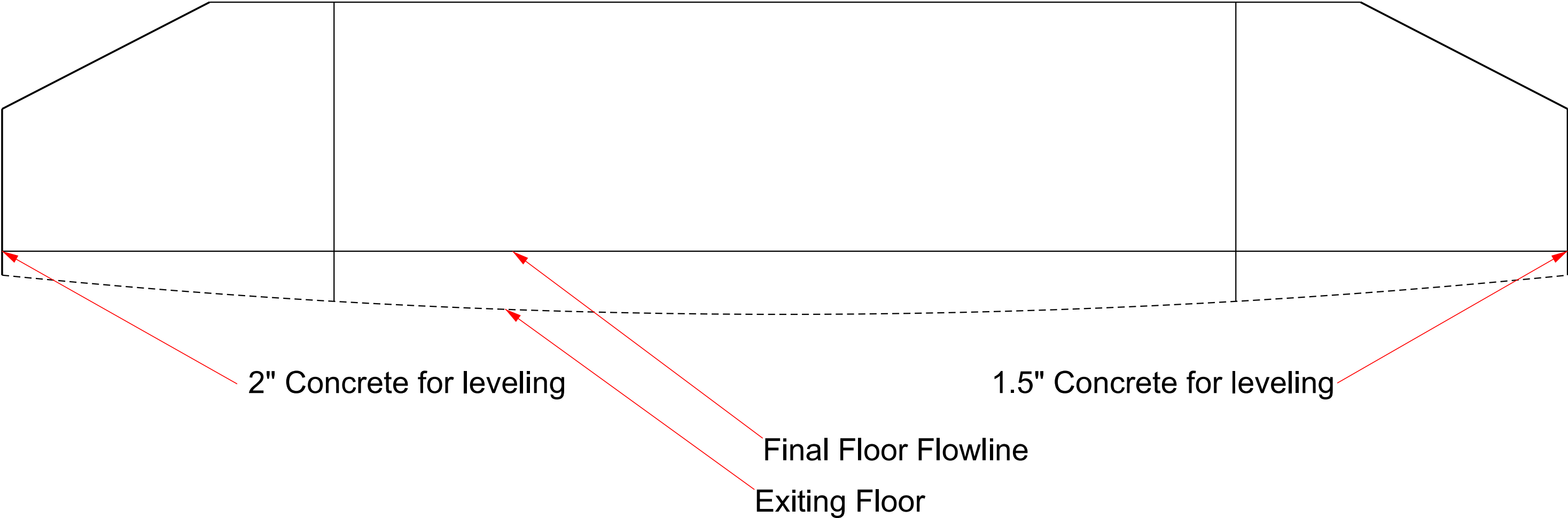
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-492	5	8

Plotting Date: 05/15/2019

PLOT NAME - 2

FILE - ... \CATTLE PASS PLANS\TYP.DGN

Cattle Pass Leveling Detail



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-492	6	8

Plotting Date: 05/15/2019

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

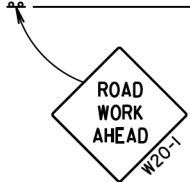
The signs illustrated shall be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

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

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

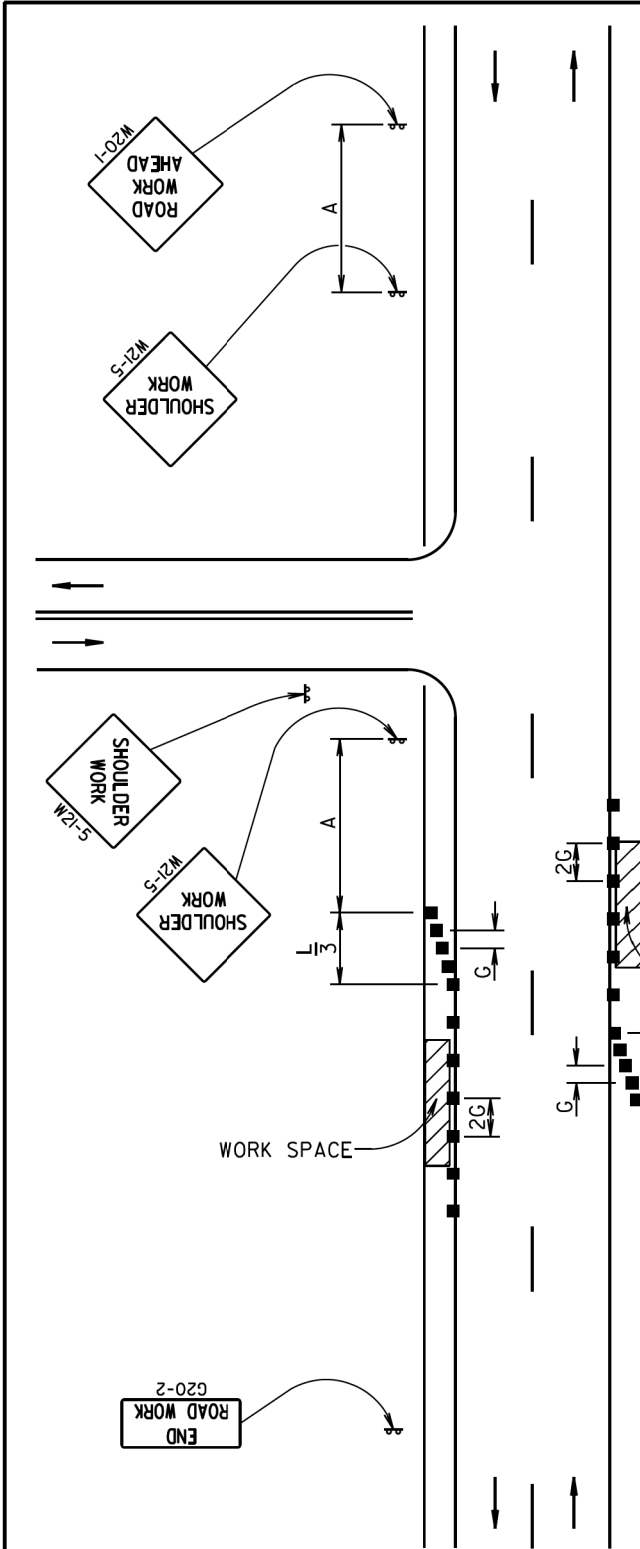
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

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



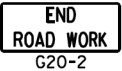
April 15, 2015

Published Date: 2nd Qtr. 2019	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
			Sheet 1 Of 1



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

■ Channelizing Device



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

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

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

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

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

WORK SPACE



June 3, 2016

Published Date: 2nd Qtr. 2019	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
			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	500	25
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.

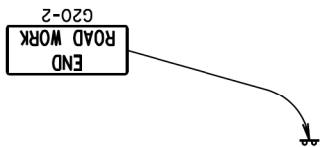
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

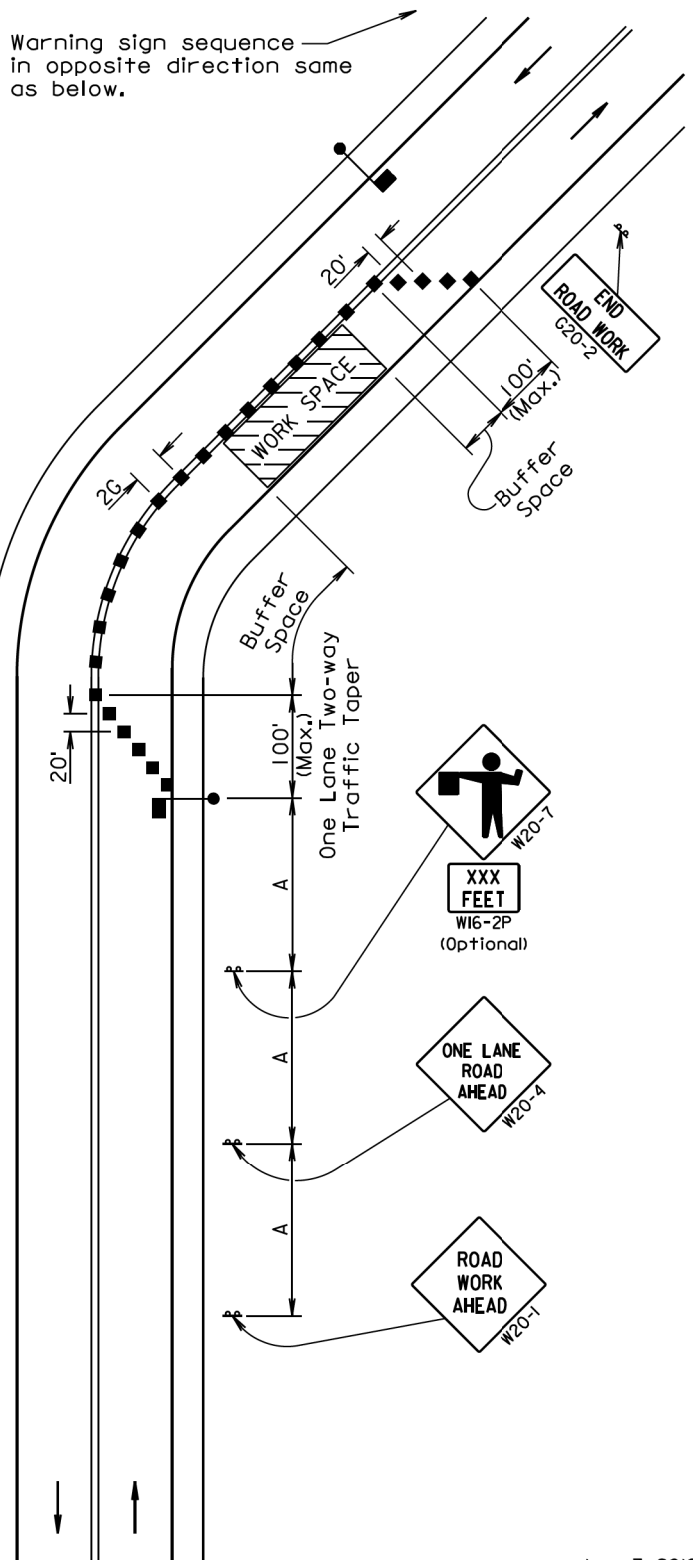


Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

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.

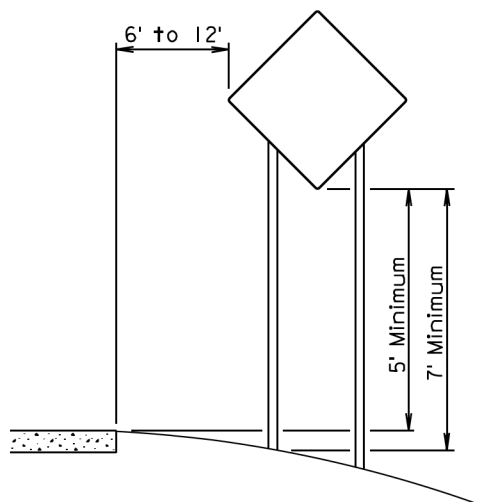
The length of A may be adjusted to fit field conditions.

Warning sign sequence in opposite direction same as below.

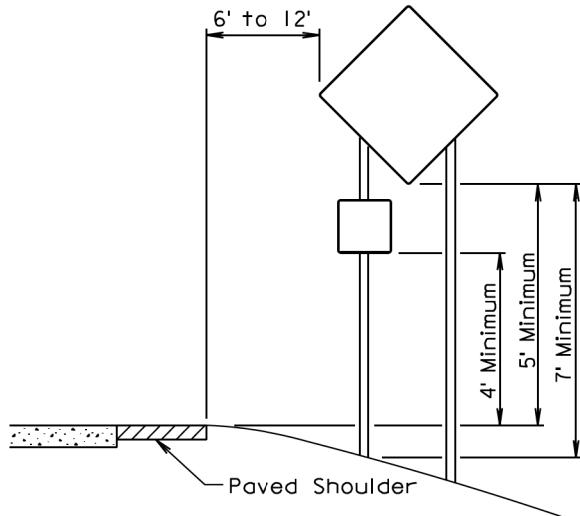


June 3, 2016

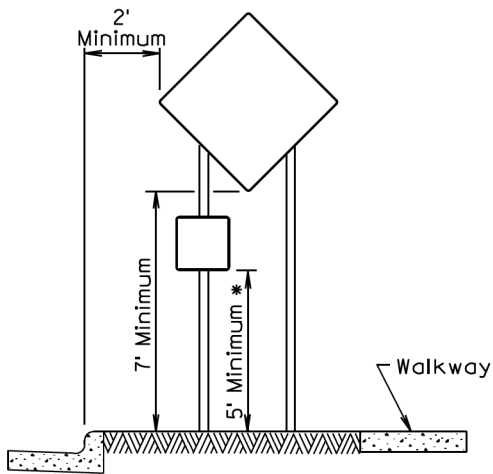
Published Date: 2nd Qtr. 2019	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1



RURAL DISTRICT

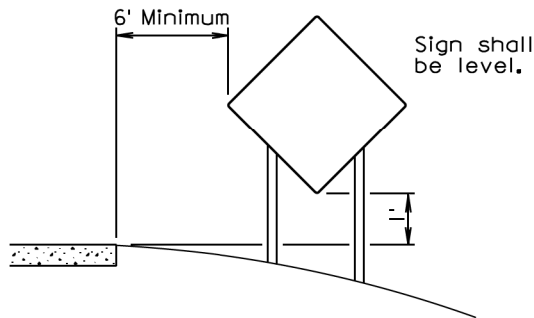


RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT

* 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.



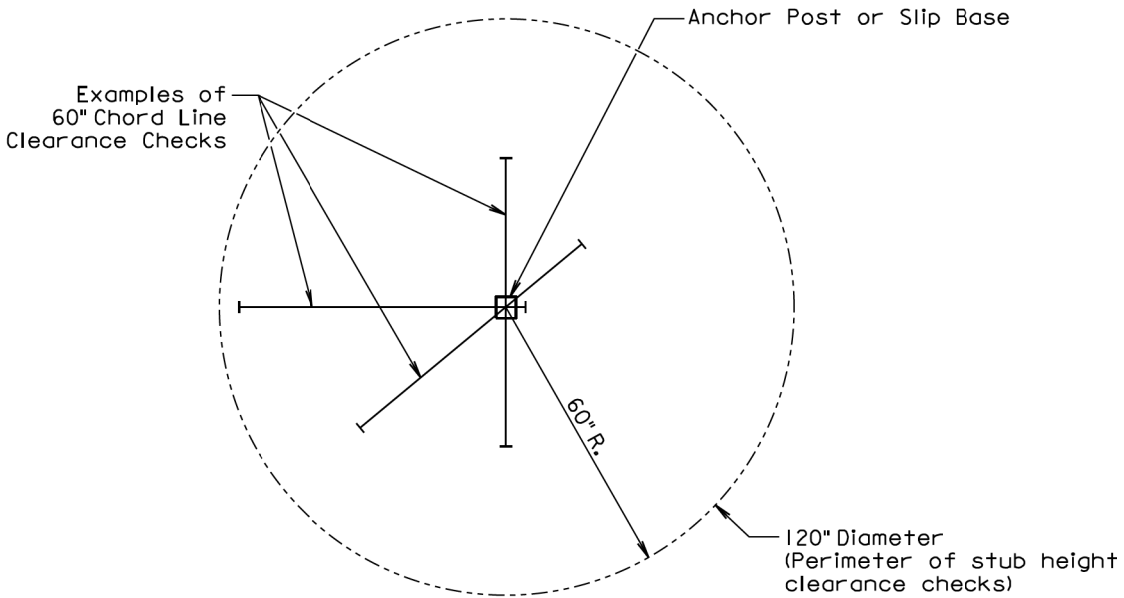
RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

September 22, 2014

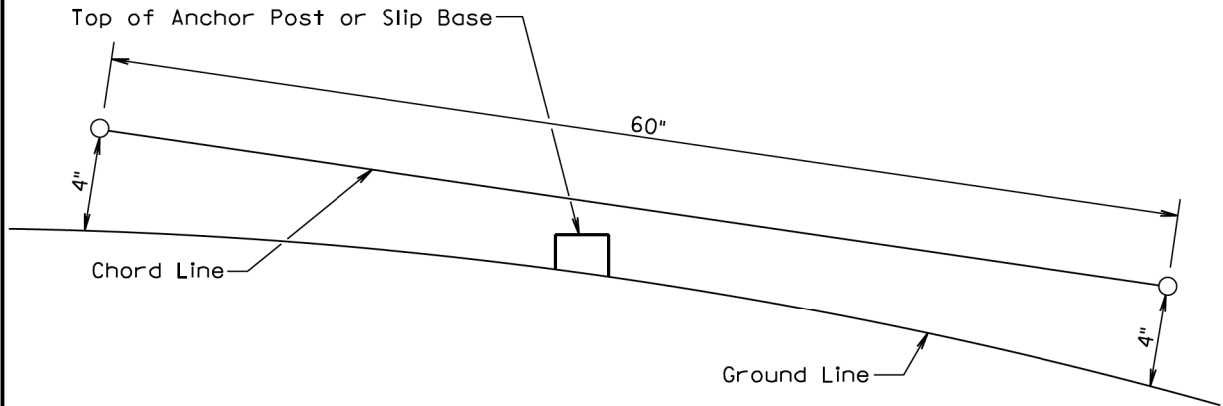
Published Date: 2nd Qtr. 2019	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-492	8	8

Plotting Date: 05/15/2019



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

<i>Published Date: 2nd Qtr. 2019</i>	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1