

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0037(149)113	1	10
Plotting Date: 02/11/2016			

REVISED 2-11-16

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
PROJECT NH 0037(149)113
SD HIGHWAY 37
BEADLE & SANBORN COUNTIES

MICRO-SURFACING
PCN 05KE

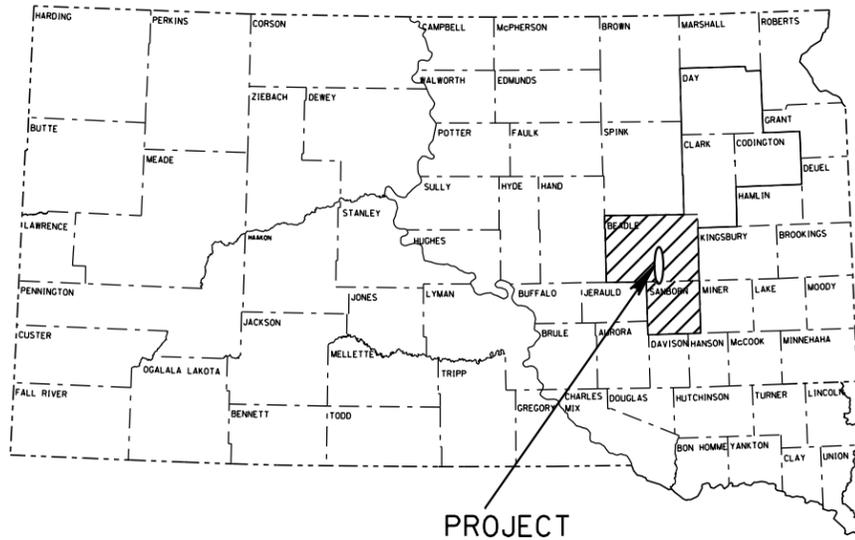
INDEX OF SHEETS

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PLOT SCALE - 1:220

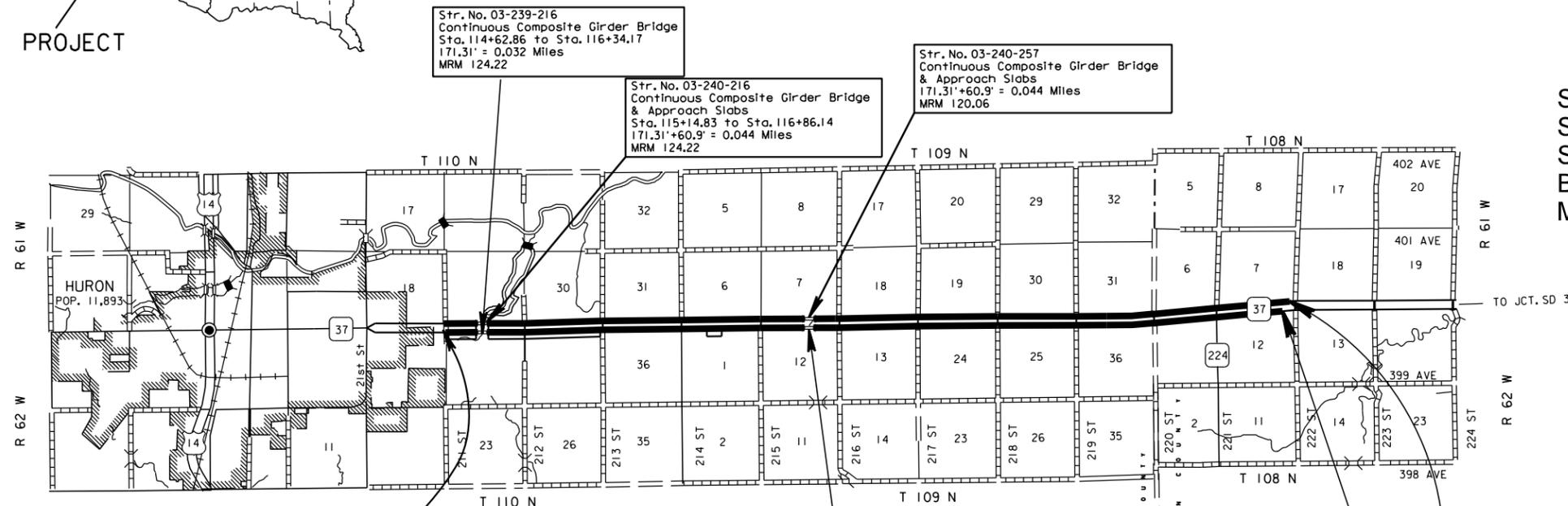
PLOT NAME - 1

FILE - ... \TITLE SHEET.DGN



SD 37
SEGMENT #1: SOUTHBOUND
STA. 0+00 TO 565+06.6
BEADLE COUNTY
MRM: 124.72 TO 113.00+0.946

SD 37
SEGMENT #2: NORTHBOUND
STA. 0+00 TO 567+23.0
BEADLE COUNTY
MRM: 124.72 TO 113.00+0.906



Str. No. 03-239-216
Continuous Composite Girder Bridge
Sta. 114+62.86 to Sta. 116+34.17
171.31' = 0.032 Miles
MRM 124.22

Str. No. 03-240-216
Continuous Composite Girder Bridge
& Approach Slabs
Sta. 115+14.83 to Sta. 116+86.14
171.31'+60.9' = 0.044 Miles
MRM 124.22

Str. No. 03-240-257
Continuous Composite Girder Bridge
& Approach Slabs
171.31'+60.9' = 0.044 Miles
MRM 120.06

END
SBL - SEGMENT #1
Station 565+06.6
MRM 124.72+0.000
MILEAGE: 38.571

NBL - SEGMENT #2
Station 567+23.0
MRM 124.72+0.000
MILEAGE: 38.595

Str. No. 03-239-257
Continuous Composite Girder Bridge
171.31' = 0.032 Miles
MRM 120.06

North Bound Lanes
GROSS LENGTH 56,506.56 FEET 10.702 MILES
LENGTH OF EXCEPTIONS 342.62 FEET 0.088 MILES
NET LENGTH 56,163.94 FEET 10.614 MILES

South Bound Lanes
GROSS LENGTH 56,554.08 FEET 10.743 MILES
LENGTH OF EXCEPTIONS 342.62 FEET 0.088 MILES
NET LENGTH 56,211.46 FEET 10.655 MILES

BEGIN
SBL - SEGMENT #1
Station 0+00.00
MRM 113.0+0.946
MILEAGE: 27.869

NBL - SEGMENT #2
Station 0+00.00
MRM 113.0+0.906
MILEAGE: 27.852



STORM WATER PERMIT
(None Required)

DESIGN DESIGNATION (SEGMENT #1)

ADT (2014)	1350
ADT (2034)	1624
DHV	166
D	50%
T DHV	2.7%
T*ADT	11.9%
V	70 M.P.H.

TOTAL PROJECT LENGTHS
GROSS LENGTH = 21.445 MILES
LENGTH OF STRUCTURE EXCEPTIONS = 0.176 MILES
NET LENGTH = 21.269 MILES

DESIGN DESIGNATION (SEGMENT #2)

ADT (2014)	1350
ADT (2034)	1624
DHV	166
D	50%
T DHV	2.6%
T*ADT	11.9%
V	70 M.P.H.

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ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
320E0300	Asphalt Emulsion for Microsurfacing	152,075	Gal
320E4510	Mineral Aggregate for Microsurfacing	4,974.7	Ton
633E1300	Pavement Marking Paint, White	495	Gal
633E1305	Pavement Marking Paint, Yellow	362	Gal
634E0010	Flagging	131.0	Hour
634E0110	Traffic Control Signs	592	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Board	2	Each
634E0630	Temporary Pavement Marking	42.9	Mile

SPECIFICATIONS

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

SEQUENCE OF OPERATIONS

The following Sequence of Operation shall be used for this project. The Contractor may submit an alternate Sequence of Operations, which shall be submitted to the Area Engineer a minimum of 2 weeks prior to the preconstruction meeting.

1. Install Construction Signing
2. Apply Microsurfacing Scratch course
3. Apply Microsurfacing Surface course
4. Apply Permanent Pavement Markings
5. Project Cleanup and Removal of Construction Signing

COORDINATION OF WORK

The Contractor shall schedule the work around PCN 048G, Rout & Seal, which is scheduled to be completed in 2016. Microsurfacing work shall not start for 30 calendar days following the completion of the Rout and Seal of this corridor. The contractor shall, also, coordinate with the contractor for PCN 053E, Chip Seal, to ensure the operations are not disrupted.

MICROSURFACING

The polymer modified emulsion used in the mixture shall be a CQS-1p.

A scratch course shall be applied across the surface of the entire project at the rates provided. Adjustments in the rates of materials to level the surface shall be approved by the Engineer.

A surface course shall be applied across the surface at the rates provided.

Applied in 24 feet wide in 2 – 12’ wide passes.

TRAFFIC CONTROL

Work activities during non-daylight hours are subject to prior approval.

Traffic approaching the project from intersecting roadways, streets, and approaches must be adequately accommodated. Major intersections or large commercial entrances may require additional signing, flaggers, and channelizing devices on a temporary basis until work activities pass these areas.

“ROAD WORK NEXT ___ MILES” and “END ROAD WORK” signs are the only signs that need to be mounted on Fixed Location Breakaway Sign Supports. “ROAD WORK AHEAD”, “FLAGGER”, “RT. OR LT. LANE CLOSED AHEAD” and any other signs may be mounted on portable supports. 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 pavement in rural areas. The signs mounted on portable supports shall be moved as necessary to keep current with the work activities.

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. Traffic Control units will be paid for separately for each segment.

Delete the first paragraph of Section 984.1 and replace with the following: Temporary traffic control devices, including signs, drums, cones, tubular markers, barricades, vertical panels, and direction indicator barricades shall be reflectorized with sheeting applied to a satisfactory backing. For all temporary traffic control warning signs, the reflective sheeting shall meet or exceed the standards of Type VII, Type VIII, Type IX, or Type XI as defined by AASHTO M 268 (ASTM D4956). For all other temporary traffic control signs, the reflective sheeting shall meet or exceed the standards of Type IV, Type V, Type VII, Type VIII, Type IX, or Type XI as defined by AASHTO M 268 (ASTM D4956). For barricades, vertical panels, and direction indicator barricades; the reflective sheeting shall meet or exceed the standards of Type III as defined by AASHTO M 268 (ASTM D4956). Round surfaced temporary traffic control devices including, but not limited to; drums, cones, and tubular markers shall be reflectorized with reflectorized sheeting meeting or exceeding the standards of Type IV as defined by AASHTO M 268 (ASTM D4956). All orange colored material shall be fluorescent.

HAUL ROAD

The Contractor shall be responsible for any haul roads used to transport material to the project site. The State will not participate in the cost of restoration of any haul roads used by the Contractor.

TEMPORARY PAVEMENT MARKINGS

Paint will not be allowed for Temporary Pavement Marking. Temporary flexible vertical markers shall be used to mark dashed centerline and applicable lane lines.

The temporary flexible vertical markers shall have secure covers. The Contractor will be required to remove the covers manually and properly dispose the covers. Any markers that are non-reflective will be cleaned. Cleaning of flexible vertical markers will be incidental to the contract unit

price per mile for TEMPORARY PAVEMENT MARKINGS. Petroleum products shall not be used to clean markers.

All costs associated with furnishing, installing, removing covers and cleaning of the flexible vertical markers used on this project will be incidental to the contract unit price per mile for Temporary Pavement Marking.

Flagger symbol signs (W20-7) and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights, shall be positioned on the roadway shoulder in advance of workers for both directions of traffic during the installation of temporary road markers. The traffic control device used shall be moved to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1) sign, a Workers symbol sign (W21-1), or a BE PREPARED TO STOP (W3-4) warning sign shall be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work shall be approved by the Engineer.

Quantities of Temporary Pavement Markings consist of:

One pass on top of the Scratch Course and one pass on the Surface Course.

COLD WEATHER, WATERBORNE PAINT

Waterborne paint applied after October 15 shall be formulated as cold weather, waterborne paint, and shall be applied in accordance with manufacturer’s recommendations, including minimum temperature requirements.

Cold weather, waterborne paint shall conform to section 980 of the specifications except for the following;

980.1 A - Resin Binder shall be Fastrack XSR manufactured by Dow, or approved equal.

980.1.1 Quantitative Requirements:

The Pigment, Percent By Weight for white : 60.0 – 63.0, and for yellow: 58.5-61.5.

The Pigment, Percent By Weight when tested in accordance with ASTM D3723 for white: 60.0-63.0 and for yellow: 56.1-59.2. The Non-volatile Vehicle, percent by weight; min. white: 41.5 and yellow: 41.5 when tested in accordance with FTMS 141c (method 4051.1)

RATES OF MATERIALS

The Estimate of Quantities is based on the following quantities of materials per mile.

MICROSURFACING:

Segment	ROUTE	Station		Station
1	SD HWY 37	0+00	to	565+06.6
2	SD HWY 37	0+00	to	567+23.0

Scratch Course:

CQS-1p Asphalt for Microsurfacing at the rate of 3230 applied 24 feet wide.
(Rate = 0.23 Gal./S.Y.).

Aggregate for Microsurfacing at the rate of 106 tons applied 24 feet wide.
(Rate= 15 Lbs./S.Y.).

Surface Course:

CQS-1p Asphalt for Microsurfacing at the rate of 3876 applied 24 feet wide.
(Rate = 0.28 Gal./S.Y.).

Aggregate for Microsurfacing at the rate of 127 tons applied 24 feet wide.
(Rate= 18 Lbs./S.Y.).

FIXED LOCATION SIGNS GROUND MOUNTED BREAKAWAY SUPPORT

NOTES:

All Fixed Location signs shall remain in place until the permanent pavement marking is complete.

Signs shall be placed 200' to 300' from intersection. Exact location to be approved by the Engineer.

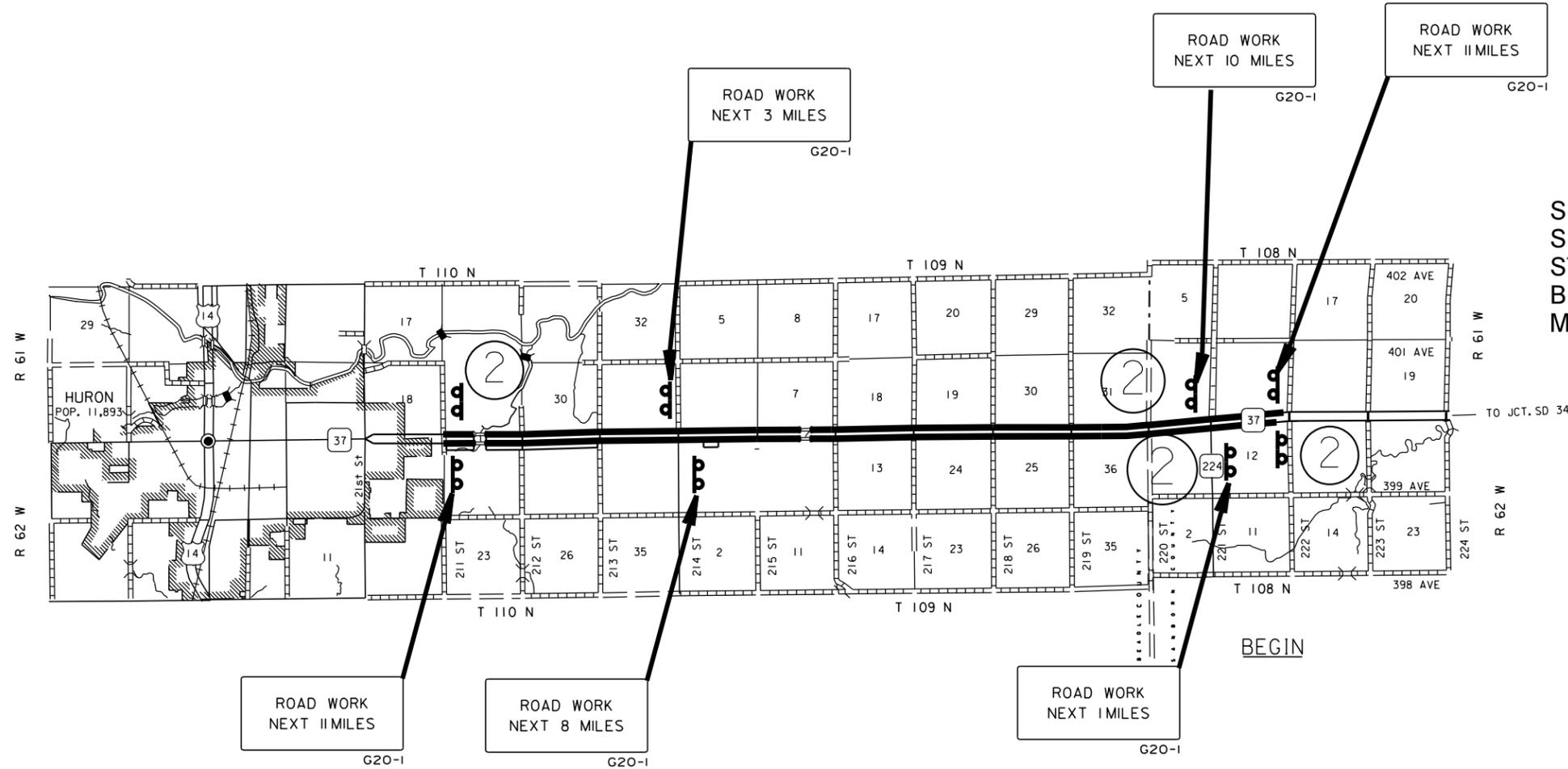
Construction signs shall not obscure existing signs and must be installed a minimum of 200' from an existing sign.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (FEET)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000
75	1000



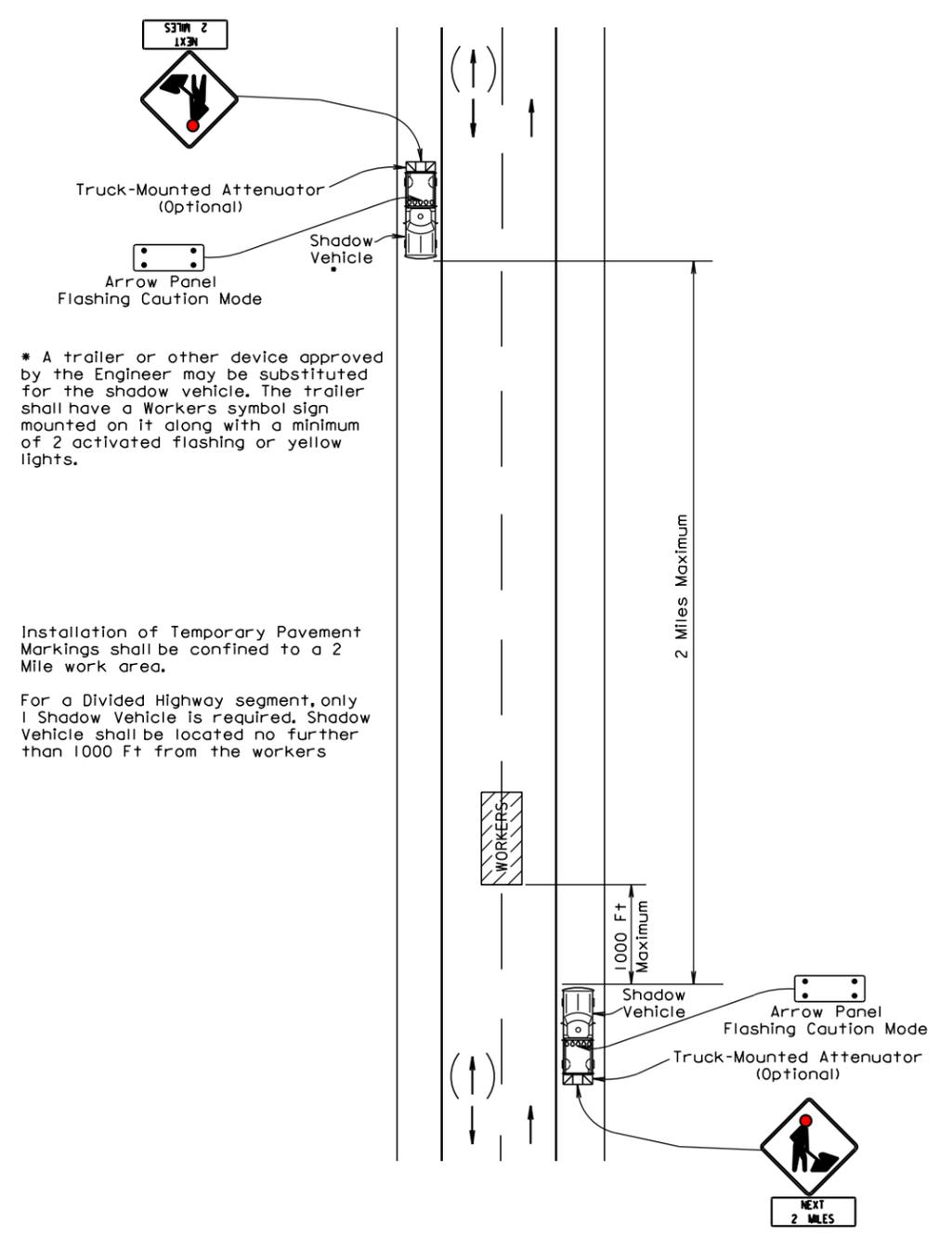
SD 37
SEGMENT #1: SOUTHBOUND
STA. 0+00 TO 565+06.6
BEADLE COUNTY
MRM: 124.72 TO 113.00+0.946

SD 37
SEGMENT #2: NORTHBOUND
STA. 0+00 TO 567+23.0
BEADLE COUNTY
MRM: 124.72 TO 113.00+0.906

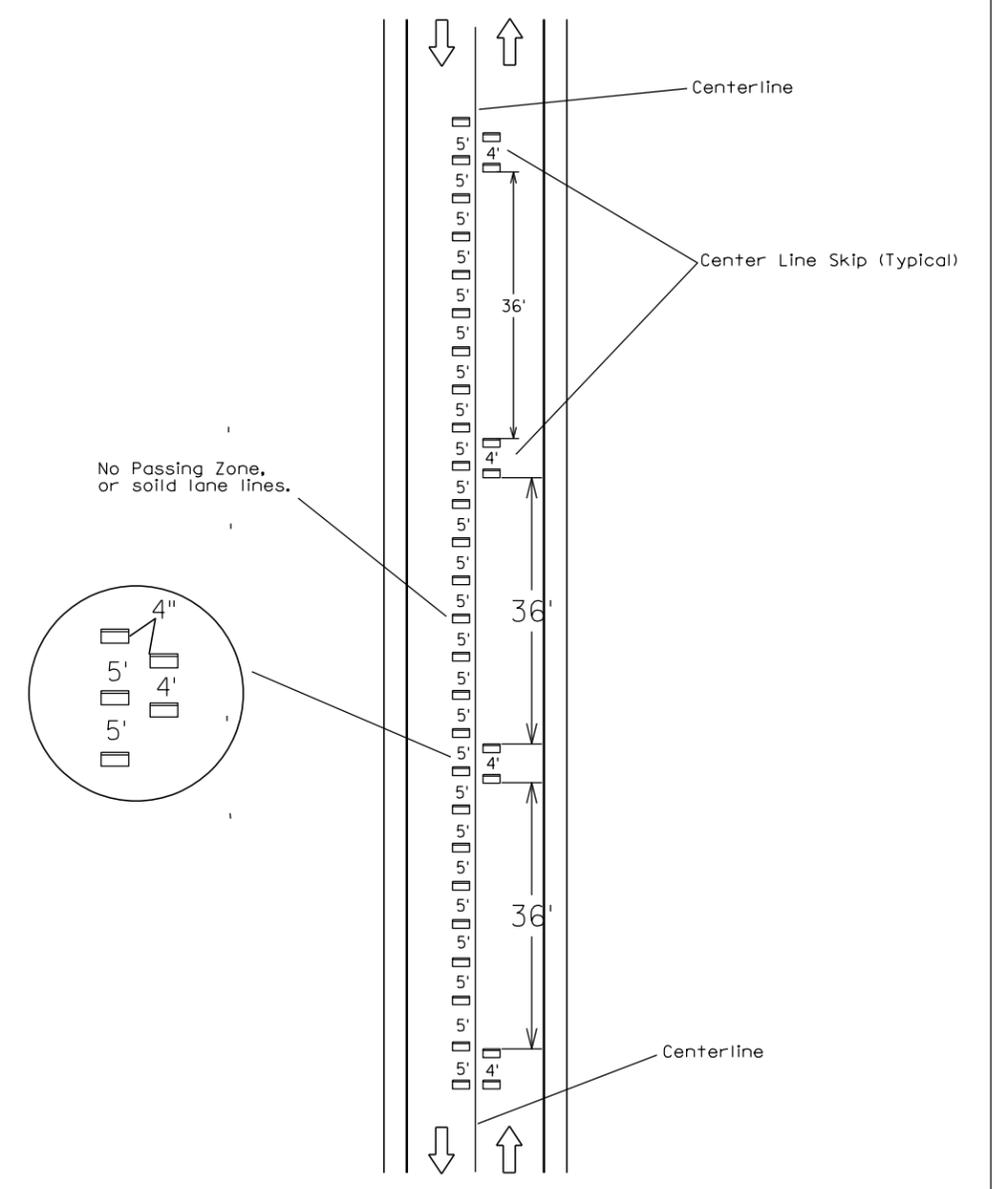


W20-1 ROAD WORK AHEAD signs shall be mounted on portable supports and shall be placed on intersecting roadways as directed by the Engineer. ROAD WORK AHEAD shall be moved as necessary to keep current with work activities.

**GUIDES FOR TRAFFIC CONTROL DEVICES
APPLICATION OF TEMPORARY PAVEMENT MARKING TABS**



**GUIDES FOR TRAFFIC CONTROL DEVICES
TEMPORARY ROAD MARKER INSTALLATION**

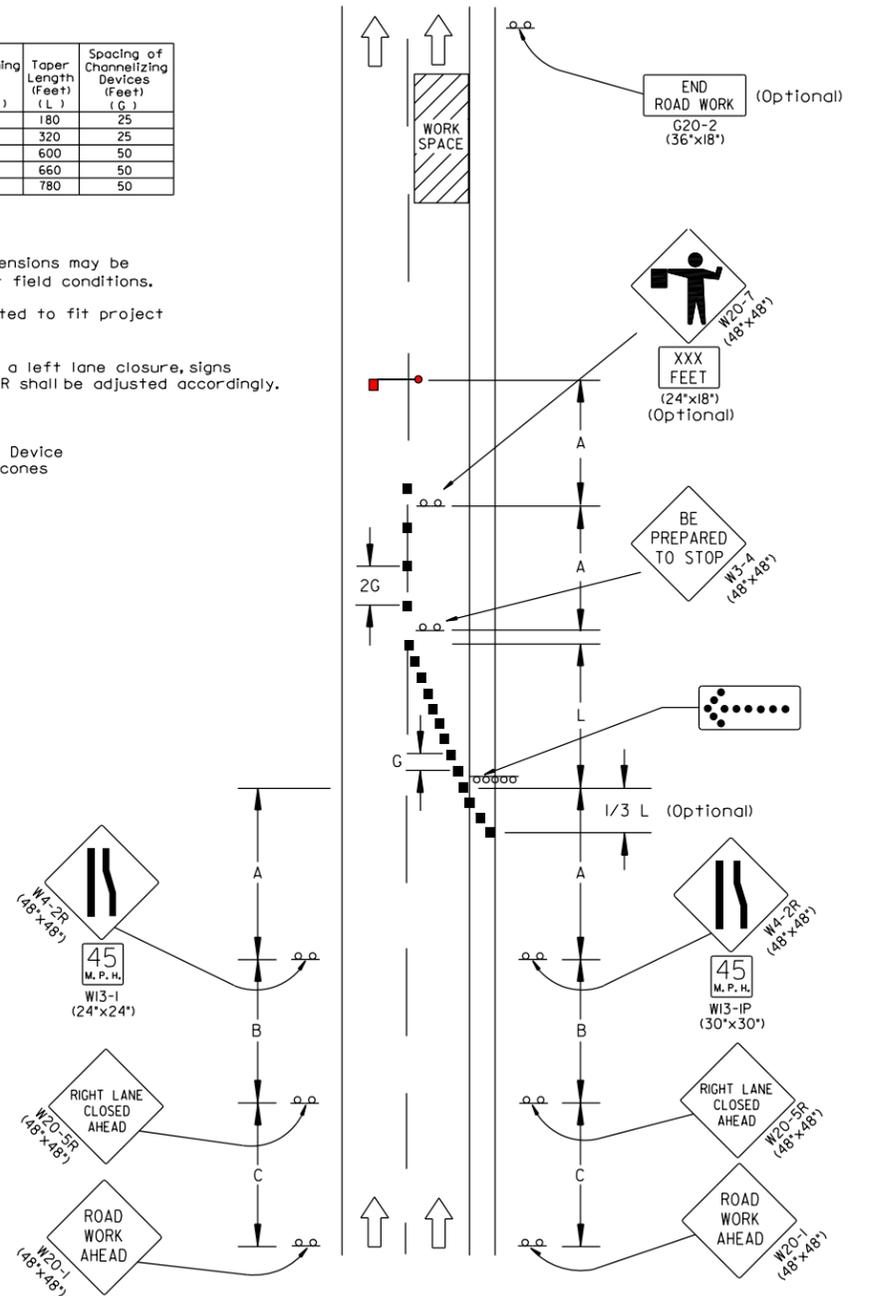


Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)			Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
	(A)	(B)	(C)		
0 - 30	200	180		25	
35 - 40	350	320		25	
45 - 50	500	600		50	
55	750	660		50	
60 - 65	1000	780		50	

NOTES:

- Longitudinal dimensions may be adjusted to fit field conditions.
- L may be adjusted to fit project conditions.
- In the case of a left lane closure, signs W4-2R and W20-5R shall be adjusted accordingly.

- Channelizing Device shall be 42" cones or drums



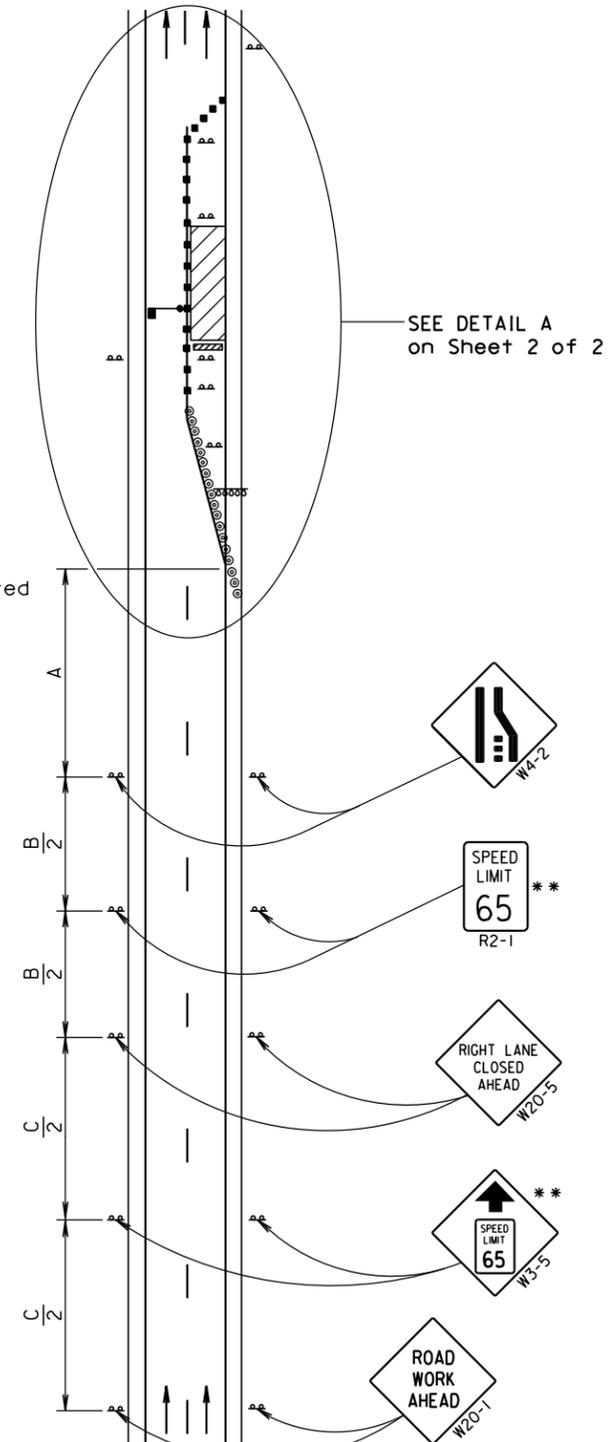
GUIDES FOR TRAFFIC CONTROL DEVICES 4-LANE DIVIDED, RIGHT LANE CLOSED

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.
- o 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.



SEE DETAIL A on Sheet 2 of 2

April 15, 2015

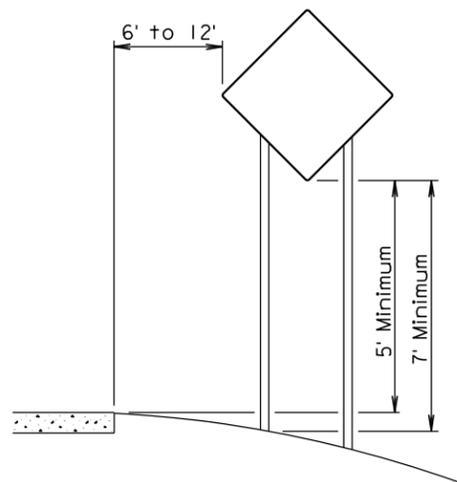
Published Date: 1st Qtr. 2016

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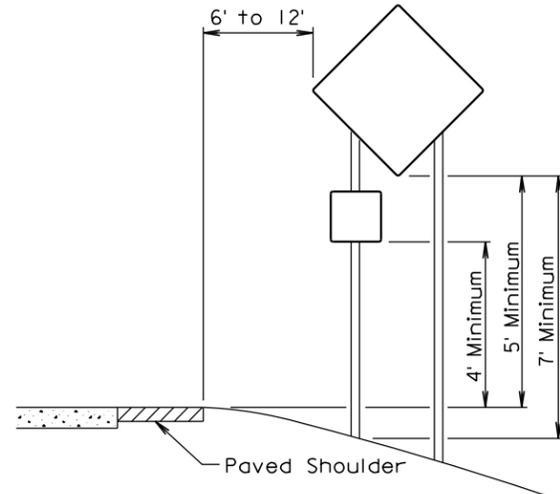
WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS

PLATE NUMBER 634.63

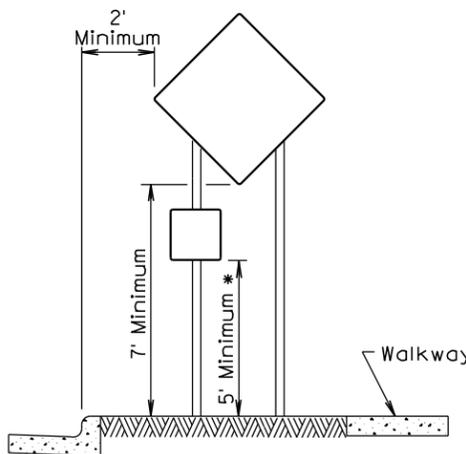
Sheet 1 of 2



RURAL DISTRICT

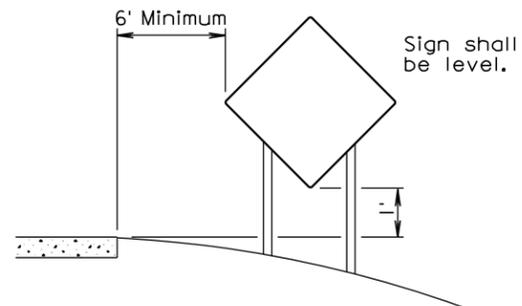


RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



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

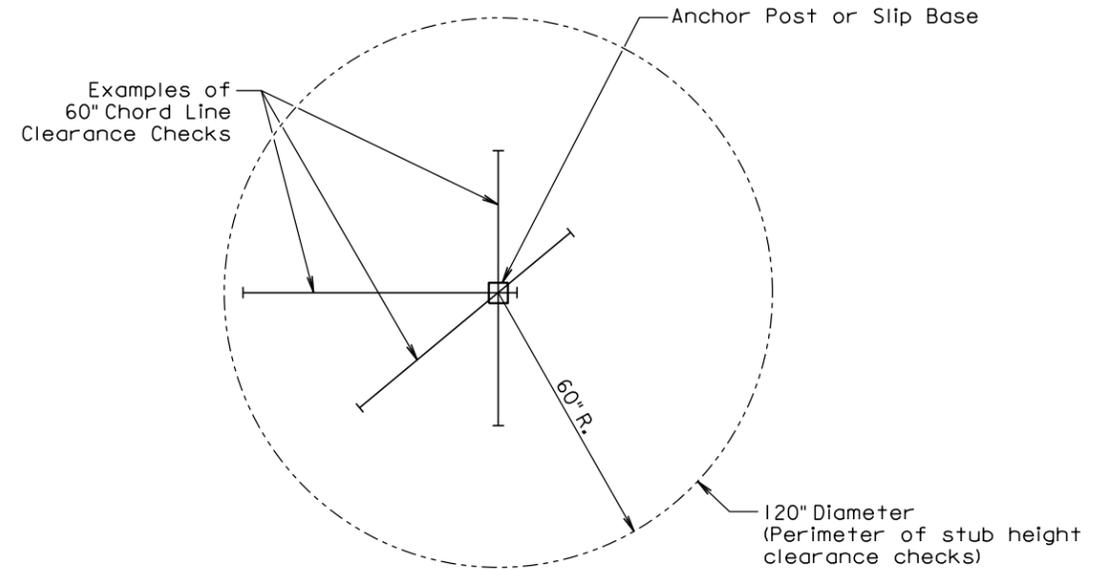
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CRASHWORTHY SIGN SUPPORTS
(Typical Construction Signing)

PLATE NUMBER
634.85

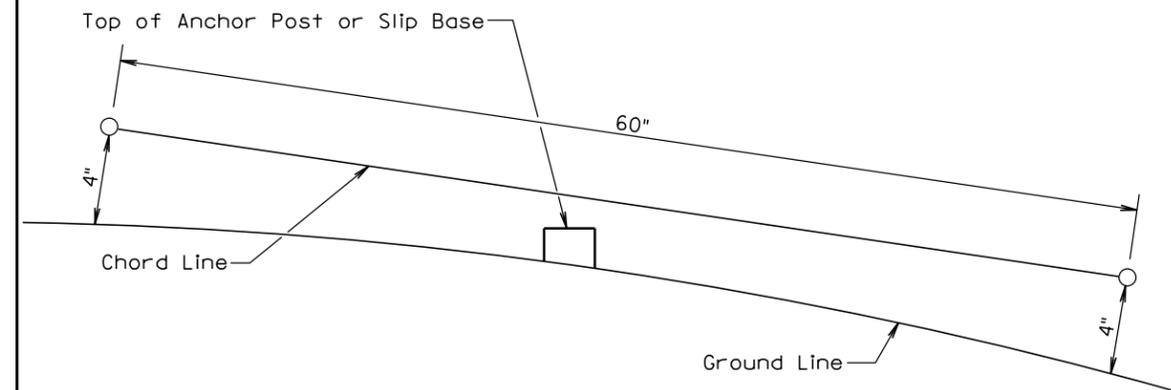
Sheet 1 of 1

Published Date: 4th Qtr. 2014



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

**S
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BREAKAWAY SUPPORT STUB CLEARANCE

PLATE NUMBER
634.99

Sheet 1 of 1

Published Date: 4th Qtr. 2014

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0037(149)113	9	10

Plotting Date: 11/23/2015

REVISED 1-27-2016

SEGMENT #1 & #2

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT _	2	36" x 48"	12	24
W3-4	BE PREPARED TO STOP	1	48" x 48"	16	16
W3-5	SPEED REDUCTION AHEAD (_ MPH)	2	48" x 48"	16	32
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16	32
W20-1	ROAD WORK AHEAD	2	48" x 48"	16	32
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	4	48" x 48"	16	64
G20-1	ROAD WORK NEXT _ MILES	3	48" x 24"	8	24
G20-2	END ROAD WORK	1	48" x 24"	8	8
EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT					296

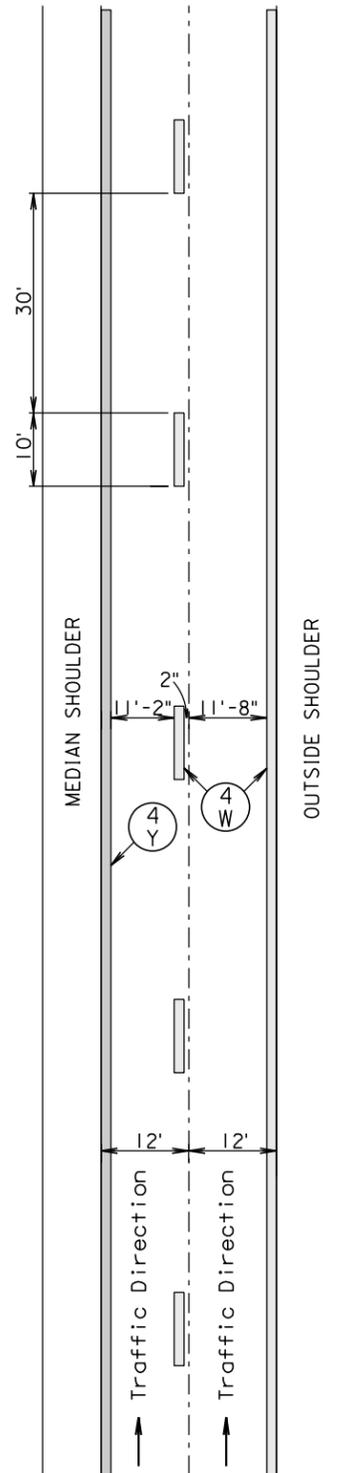
ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Arrow Board	1 Each

PAVEMENT MARKING DETAIL

**FOUR LANE
PAVEMENT MARKING
ONLY ONE DIRECTION SHOWN**

FURNISHING AND APPLYING PAVEMENT MARKING PAINT



1. The approximate paint application rates shall be as follows:

Undivided Roadway

Divided Roadway

Yellow Centerline
12+ Gallons/Pass-Mile
(Includes No-passing lines)

White Centerline
6.20 Gallons/Pass-Mile

White Edgeline
16.90 Gallons/Pass-Mile
(Solid Line)

Yellow or White Edgeline
16.90 Gallons/Pass-Mile
(Solid Line)

2. The typical pavement markings as shown on the following sheet shall be applied throughout the entire length of the project.

3. Traffic Control shall be incidental to the cost of application. The striper and advance or trailing warning vehicle shall be equipped with flashing amber lights or advance warning arrow panel.

KEY	ITEM
(4) W	4" White
(4) Y	4" Yellow
(24) W	24" White
(Y) SA	Yellow Square Area