

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

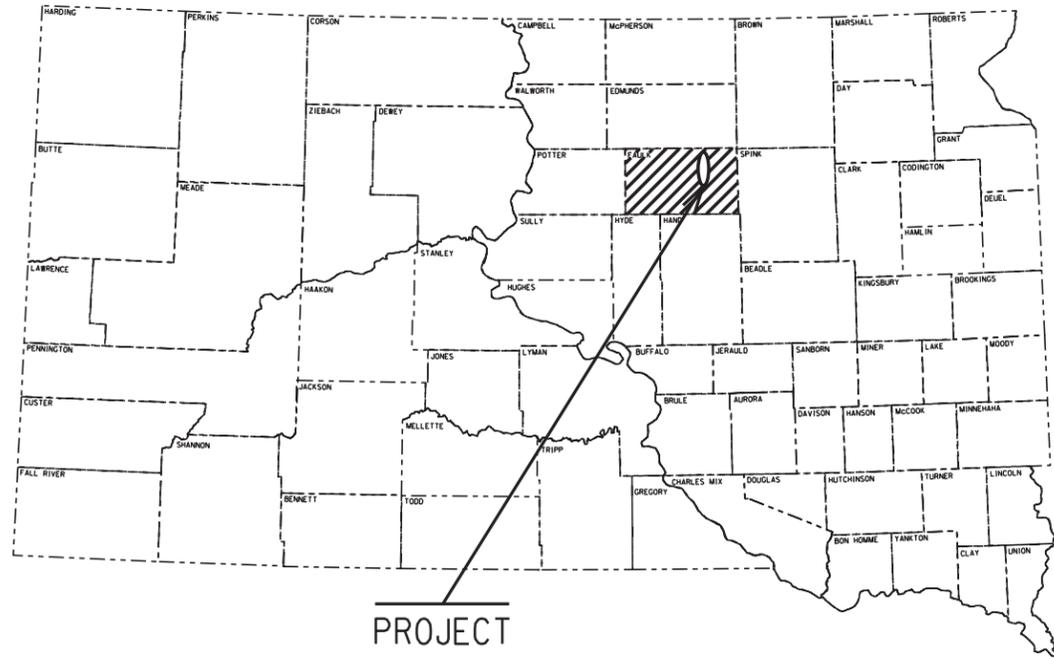
PLANS FOR PROPOSED
**PROJECTS P 0045(52)148
& P 0020(138)294**

**SD HIGHWAYS 45 & 20
FAULK COUNTY**

COLD MILLING ASPHALT CONCRETE,
ASPHALT CONCRETE RESURFACING,
SIGNING & EROSION REPAIR

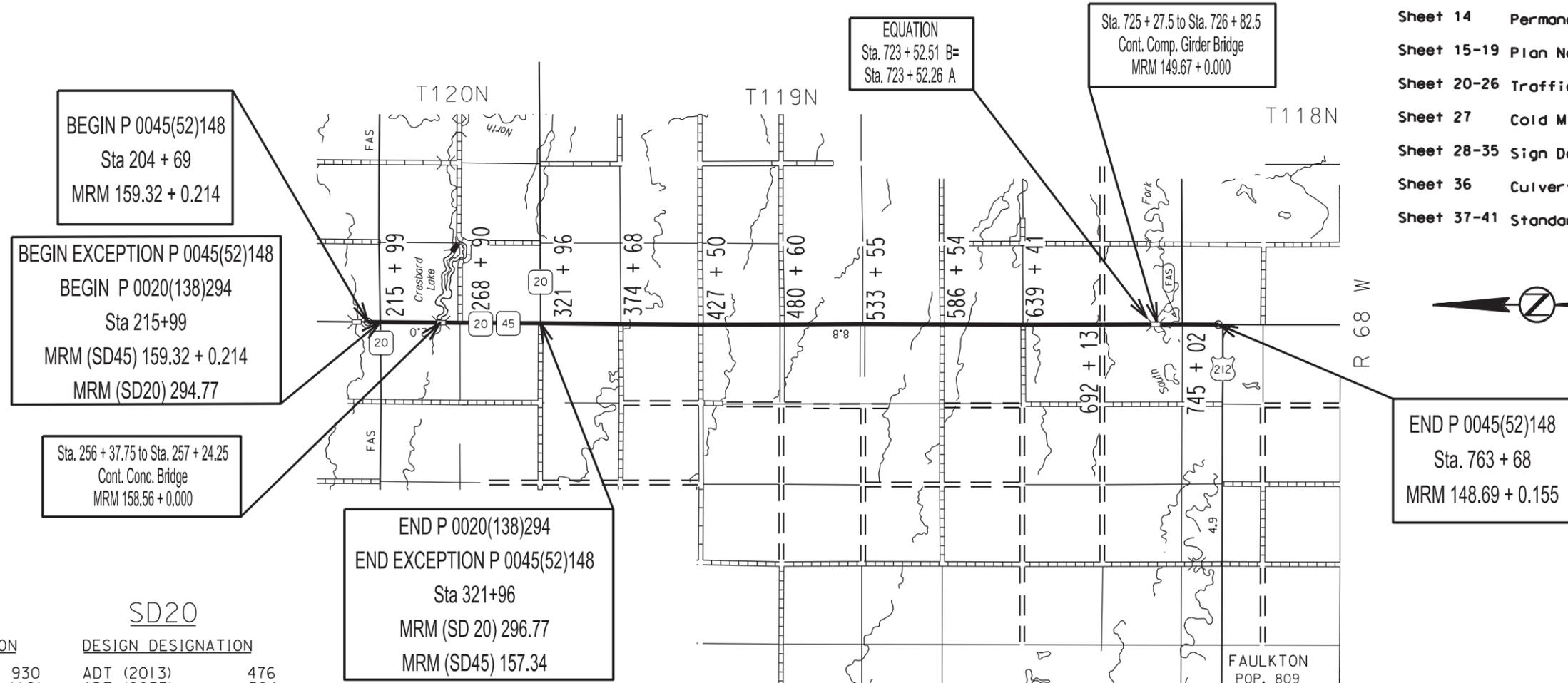
PCN 04EK & 04EL

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(52)148 P 0020(138)294	1	41
Plotting Date:			



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SD 45		SD20	
DESIGN DESIGNATION		DESIGN DESIGNATION	
ADT (2013)	930	ADT (2013)	476
ADT (2033)	1161	ADT (2033)	594
DHV	14.2	DHV	12.5
D	50%	D	50%
T DHV	4.2	T DHV	4.8
T ADT	17.1%	T ADT	19.6%
V	65 MPH	V	65 MPH

GROSS LENGTH	55899.44 FEET	10.587 MILES
LENGTH OF EXCEPTIONS	441.5 FEET	0.084 MILES
NET LENGTH	55458.11 FEET	10.503 MILES

STORM WATER PERMIT
None Required

ESTIMATE OF QUANTITIES
04EK

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0130	Remove Traffic Sign	28	Each
110E7150	Remove Sign for Reset	3	Each
110E7510	Remove Pipe End Section for Reset	1	Each
120E0100	Unclassified Excavation, Digouts	426	CuYd
260E1010	Base Course	851.0	Ton
260E1050	Base Course, Salvaged Asphalt Mix	960.0	Ton
* 260E6000	Granular Material, Furnish	1,444.3	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	3,610.8	Ton
320E0005	PG 58-34 Asphalt Binder	1,152.7	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	23,731.4	Ton
320E1800	Asphalt Concrete Blade Laid	1,276.9	Ton
320E4000	Hydrated Lime	251.3	Ton
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	16.4	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	74.2	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	37.5	Ton
330E2000	Sand for Flush Seal	442.7	Ton
332E0010	Cold Milling Asphalt Concrete	151,613	SqYd
450E9001	Reset Pipe End Section	1	Each
600E0300	Type III Field Laboratory	1	Each
632E1320	2.0"x2.0" Perforated Tube Post	294.0	Ft
632E1340	2.5"x2.5" Perforated Tube Post	74.0	Ft
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	165.1	SqFt
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	114.8	SqFt
632E3500	Reset Sign	3	Each
633E1300	Pavement Marking Paint, White	293.0	Gal
633E1305	Pavement Marking Paint, Yellow	102.0	Gal
634E0010	Flagging	314	Hour
634E0020	Pilot Car	157	Hour
634E0100	Traffic Control	1,306	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	34.1	Mile
700E0210	Class B Riprap	72.4	Ton
720E1015	Bank and Channel Protection Gabion	10.0	CuYd
734E0010	Erosion Control	Lump Sum	LS
831E0110	Type B Drainage Fabric	21	SqYd
900E0010	Refurbish Single Mailbox	4	Each
900E0012	Refurbish Double Mailbox	1	Each
900E1980	Storage Unit	1	Each

* - Denotes Non-Participating

ESTIMATE OF QUANTITIES
04EL

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0130	Remove Traffic Sign	11	Each
120E0100	Unclassified Excavation, Digouts	100	CuYd
260E1010	Base Course	199.0	Ton
260E1050	Base Course, Salvaged Asphalt Mix	210.0	Ton
320E0005	PG 58-34 Asphalt Binder	298.0	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	6,181.8	Ton
320E1800	Asphalt Concrete Blade Laid	298.6	Ton
320E4000	Hydrated Lime	65.1	Ton
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	3.0	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	18.7	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	8.8	Ton
330E2000	Sand for Flush Seal	103.5	Ton
332E0010	Cold Milling Asphalt Concrete	38,723	SqYd
632E1320	2.0"x2.0" Perforated Tube Post	109.0	Ft
632E1340	2.5"x2.5" Perforated Tube Post	22.0	Ft
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	113.5	SqFt
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	18.7	SqFt
633E1300	Pavement Marking Paint, White	67.0	Gal
633E1305	Pavement Marking Paint, Yellow	24.0	Gal
634E0010	Flagging	74	Hour
634E0020	Pilot Car	37	Hour
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	8.0	Mile

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal

ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT		SHEET NO.	TOTAL SHEETS
	P 0045 (52) 148	P 0020 (138) 294	3	41

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 B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

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:

- 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".

- 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 designated option borrow 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.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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COMMITMENT N: SECTION 404 PERMIT

The SDDOT has obtained a Section 404 Permit from the US Army Corps of Engineers for the permanent actions associated with this project.

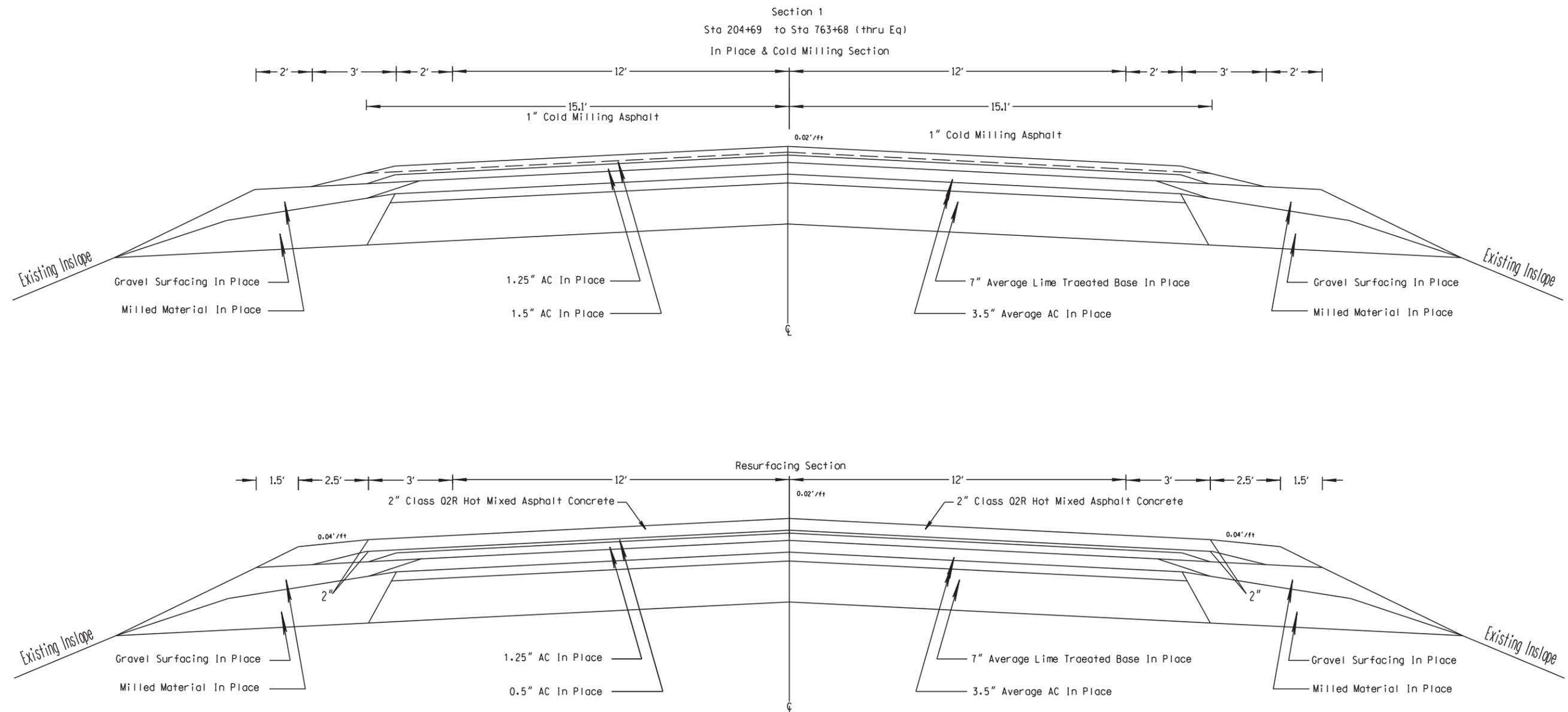
Action Taken/Required:

The Contractor shall comply with all requirements contained in the Section 404 permit.

The Contractor shall also be responsible for obtaining a Section 404 permit for any dredge, excavation, or fill activities associated with staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands or waters of the United States.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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TYPICAL RESURFACING SECTION



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(52)148 P 0020(138)294	6	41

RATES OF MATERIALS

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

STA. 204+69 to 763+68 (Thru Equation)

CLASS Q2R HOT MIXED ASPHALT CONCRETE - FIRST LIFT

Crushed Aggregate.....	1956 Tons
Salvaged Asphalt Concrete	489 Tons
PG 58-34 Asphalt Binder.....	115 Tons
Total without Lime	2560 Tons
Hydrated Lime.....	26 Tons
Total with Lime	2586 Tons

The exact proportion of these materials will be determined on construction.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **4.8** tons applied **39** feet wide.
(Rate = 0.05 Gal./Sq.Yd.)

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of **4.4** tons applied **35** feet wide.
(Rate = 0.05 Gal./Sq.Yd.).

Sand for Flush Seal at the rate of **52** tons applied **22** feet wide. (Rate = 8 Lb./Sq.Yd.).

TABLE OF PROJECT STATIONING

SECTION	STATION	TO	STATION	LENGTH	GROSS SECTION LENGTH	EXCEPTIONS	NET SECTION LENGTH
				(Ft)	(Miles)	(Miles)	(Miles)
SD 45	204+69	TO	215+99	1130	0.214	0.000	0.214
	321+96	TO	763+68	44172	8.366	0.067	8.299
SECTION 1 TOTAL				45302	8.580	0.067	8.513
SD 20	215+99	TO	321+96	10597	2.007	0.016	1.991
	SECTION 2 TOTAL				10597	2.007	0.016
PROJECT TOTAL:				55899	10.587	0.084	10.503

TABLE OF MATERIAL QUANTITIES

SECTION	UNCLASSIFIED EXCAVATION, DIGOUTS	BASE COURSE	COLD MILLING ASPHALT CONCRETE	ASPHALT CONCRETE BLADE LAID	Blade Laid			Spot Leveling					Main Line						SS-1h/ CSS-1h ASPH. FOR FLUSH SEAL	SAND FOR FLUSH SEAL
					HYDRATED LIME	PG 58-34 ASPHALT BINDER	VIRG. AGGR. (NABI.)	CLASS Q2R HOT MIXED ASPHALT CONCRETE	HYDRATED LIME	PG 58-34 ASPHALT BINDER	SALVAGED ASPHALT CONCRETE RAP (NABI.)	VIRG. AGGR. (NABI.)	CLASS Q2R HOT MIXED ASPHALT CONCRETE	PG 58-34 ASPHALT BINDER	HYDRATED LIME	SALVAGED ASPHALT CONCRETE RAP (NABI.)	VIRG. AGGR. (NABI.)			
	CuYd	Ton	SqYd	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton
SD 20	100	199	35268	298.6	3.0	22.5	273.1	199.1	2.0	9.0	37.6	150.4	5147.7	228.9	51.8	973.4	3893.6	17.1	8.8	103.5
SD 45	426	851	150824	1276.9	12.8	96.2	1168.0	851.3	8.6	38.6	160.8	643.3	22014.1	979.0	221.3	4162.8	16651.1	72.8	37.5	442.7
Additional Quantities	SD 20	-	3455	-	-	-	-	-	-	-	-	-	835.0	37.6	8.4	157.8	631.3	1.6	-	-
	SD 45	-	789	-	-	-	-	-	-	-	-	-	866.0	39.0	8.7	163.7	654.7	1.4	-	-
Totals	525	1050	190337	1575.5	15.8	118.7	1441.1	1050.3	10.6	47.6	198.4	793.7	28862.9	1284.4	290.1	5457.7	21830.7	92.9	46.2	546.2

SUMMARY OF ASPHALT CONCRETE

LOCATIONS:

P 0020(138)294, PCN 04EL SD HWY 20

24' wide mainline

5.5' Shoulder and 1.5' wide shoulder sluff

Spot leveling, strengthening, and repair of existing surface

Table of Additional Quantities

P 0045((52)148, PCN 04EK SD HWY 45

24' wide mainline

5.5' shoulder and 1.5' wide shoulder sluff

Spot leveling, strengthening, and repair of existing surface

Table of Additional Quantities

Class Q2R Hot Mixed Asphalt Concrete with Specified Density Compaction	Class Q2R Hot Mixed Asphalt Concrete without Specified Density Compaction
<u>(TON)</u>	<u>(TON)</u>

3145.4

-

-

2002.4

199.1

835.0

13451.0

-

-

8563.1

-

851.3

-

866.0

TOTAL

16596.4

13316.9

Total Class Q2R Hot Mixed Asphalt Concrete:

29913.2

Tons

04EK TABLE OF ADDITIONAL QUANTITIES

LOCATIONS:	BASE	CLASS Q2R	PG 58-34	HYDRATED	SALVAGED	VIRGIN	COLD
	COURSE	HOT MIXED			ASPHALT		
	SALVAGED	ASPHALT	ASPHALT	LIME	(RAP)	(NABI)	ASPHALT
	ASPHALT MIX	CONCRETE	BINDER	(TON)	(TON)	(TON)	(SQ. YD.)
	(TON)	(TON)	(TON)				
Field/Farm Entrances:							
37 Pads	555	-	-	-	-	-	-
Paved to the ROW							
MRM 150.451 East Residential	-	20.0	0.90	0.20	3.8	15.1	-
MRM 151.316 East Residential	-	20.0	0.90	0.20	3.8	15.1	-
MRM 153.888 West Residential	-	20.0	0.90	0.20	3.8	15.1	-
Paved to the Radius Point							
MRM 149.427 West Residential	15	15.0	0.68	0.15	2.8	11.3	-
MRM 156.973 West Residential	15	15.0	0.68	0.15	2.8	11.3	-
MRM 157.111 East Residential	15	15.0	0.68	0.15	2.8	11.3	-
Intersecting Roads:							
Paved to the Radius Point							
161st Street East & West	60	40.0	1.80	0.40	7.6	30.2	-
160st Street West	30	20.0	0.90	0.20	3.8	15.1	-
159th Street East & West	60	40.0	1.80	0.40	7.6	30.2	-
158th Street East & West	60	40.0	1.80	0.40	7.6	30.2	-
157th Street East & West	60	40.0	1.80	0.40	7.6	30.2	-
156th Street West	30	20.0	0.90	0.20	3.8	15.1	-
155th Street East & West	60	40.0	1.80	0.40	7.6	30.2	-
Paved to the ROW							
MRM 149.327 Faulk Co. Hwy 10	-	35.0	1.58	0.35	6.6	26.5	320
5 Mailbox Turnouts	-	80.0	3.60	0.80	15.1	60.5	-
Historic Marker	-	20.0	0.90	0.20	3.8	15.1	-
Acceleration/Deceleration Lanes:							
Sta 313+13 Lt to 326+73 Lt	-	197.0	8.87	1.97	37.2	148.9	241
Sta 317+53 Rt to 330+93 Rt	-	189.0	8.51	1.89	35.7	142.9	228
TOTALS	960	866.0	39.0	8.7	163.7	654.7	789.0

04EL TABLE OF ADDITIONAL QUANTITIES

LOCATIONS:	BASE	CLASS Q2R	PG 58-34	HYDRATED	SALVAGED	VIRGIN	COLD
	COURSE	HOT MIXED			ASPHALT		
	SALVAGED	ASPHALT	ASPHALT	LIME	(RAP)	(NABI)	ASPHALT
	ASPHALT MIX	CONCRETE	BINDER	(TON)	(TON)	(TON)	(SQ. YD.)
	(TON)	(TON)	(TON)				
Field/Farm Entrances:							
6 Pads	90	-	-	-	-	-	-
Intersecting Roads:							
Paved to the Right of Way							
SD 20 West Junction	-	125.0	5.63	1.25	23.6	94.5	1115
SD 20 East Junction	-	120.0	5.40	1.20	22.7	90.7	1080
Paved to the Radius Point							
154th Street West	30	20.0	0.90	0.20	3.8	15.1	-
153rd Street East & West	60	40.0	1.80	0.40	7.6	30.2	-
152nd Street East	30	35.0	1.58	0.35	6.6	26.5	353.0
Acceleration/Deceleration Lanes:							
Sta 204+69 Lt to 223+39 Lt	-	232.0	10.44	2.32	43.8	175.4	461
Sta 206+99 Rt to 226+99 Rt	-	263.0	11.84	2.63	49.7	198.8	446
TOTALS	210	835.0	37.6	8.4	157.8	631.3	3455.0

The tonnage shown in the Table of Additional Quantities for Class Q2R Hot Mixed Asphalt Concrete for Intersecting Roads and Streets is based on an average compacted depth of 2 inches. Included in the Estimate of Quantities are 8.0 tons of Asphalt for Tack SS-1H or CSS-1H for entrances throughout the project, and shall be applied at the rate shown on the plans or as directed by the Engineer. The above quantities are included in the Estimate of Quantities.

SD 45/20 Permanent Sign Installation Table

MRM	Side of Road	Description	Sign Code	Width (Inches)	Height (Inches)	High Intensity (SQFT)	Super or Very High Intensity (SQFT)	2.0"x2.0" Perforated Tube Post 12 ga. (FT)	2.5"x2.5" Perforated Tube Post 10 Ga. (FT)	(N.A.B.I.) Square Tube Anchor Sleeve (Each)	(N.A.B.I.) 48" Winged Slip Base Anchor (Each)	Remove Traffic Sign (Each)	Remove Sign For Reset (Each)	Reset Sign (Each)	Direction Sign Faces	Current Type of Post	Remarks
148.865	Rt.	No Passing Penant	W14-3	48X48X36			5.6	11		1		1			N	U-channel	Place New Sign on New Post
148.866	Lt.	Junction	M2-1	21	15	2.2		10		1		1			N	4"X6" Wood	Place New Sign on New Post
		US 212	M1-4	30	24	5.0					Place New Sign on New Post						
149.028	Rt.	Historic Advance	I10-8A	30	24	5.0		9		1		1			S	U-channel	Place New Sign on New Post
149.133	Lt.	Vehicles Type Excluded	R13-1E	72	60	30.0			26		2	1			N	2 4"X6" Wood	Place New Sign on New Post
149.216	Rt.	Historic	RG-NS1												S	Other	Do Not Disturb
149.253	Rt.	Weigh Station Distance	D8-1	60	48	20.0											Place New Sign on New Post
		Weigh Station Open/Closed (2 Signs)	D8-2	60 (each sign)	18 (each sign)	15.0			26		2	1			N	4"X6" Wood	Place Sign on New Post, Install Horizontal Steps On The Posts So Crew Can Flip Sign
149.309	Lt.	Double Arrow	W1-7	48	24		8.0	10		1		1			W	4"X6" Wood	Place New Sign on New Post
149.311	Rt.	Stop	R1-1	36	36		7.5	10		1		1			E	U-channel	Place New Sign on New Post
149.324	Rt.	North	M3-1	24	12	2.0		10		1		1			S	U-channel	Place New Sign on New Post
		SD 45	M1-5	24	24	4.0					Place New Sign on New Post						
149.381	Lt.	Historic Advance	I10-8A					9		1			1	1	N	U-channel	Reset on New Post
149.459	Rt.	No Passing Penant	W14-3	48X48X36			5.6	11		1		1			N	U-channel	Place New Sign on New Post
151.303	Lt.	Stop	R1-1	36	36		7.5	10		1		1			W	U-channel	Place New Sign on New Post
151.317	Rt.	Stop	R1-1	36	36		7.5	10		1		1			E	4"X6" Wood	Place New Sign on New Post
152.295	Lt.	South	M3-3	24	12	2.0		10		1		1			N	4"X6" Wood	Place New Sign on New Post
		SD 20	M1-5	24	24	4.0					Place New Sign on New Post						
152.312	Lt.	Stop	R1-1	36	36		7.5	10		1		1			W	U-channel	Place New Sign on New Post

SD 45/20 Permanent Sign Installation Table

MRM	Side of Road	Description	Sign Code	Width (Inches)	Height (Inches)	High Intensity (SQFT)	Super or Very High Intensity (SQFT)	2.0"x2.0" Perforated Tube Post 12 ga. (FT)	2.5"x2.5" Perforated Tube Post 10 Ga. (FT)	(N.A.B.I.) Square Tube Anchor Sleeve (Each)	(N.A.B.I.) 48" Winged Slip Base Anchor (Each)	Remove Traffic Sign (Each)	Remove Sign For Reset (Each)	Reset Sign (Each)	Direction Sign Faces	Current Type of Post	Remarks
152.320	Rt.	Stop	R1-1	36	36		7.5	10		1		1			E	U-channel	Place New Sign on New Post
152.345	Rt.	North	M3-1	24	12	2.0		10		1		1			S	4"X6" Wood	Place New Sign on New Post
		SD 45	M1-5	24	24	4.0	Place New Sign on New Post										
153.317	Lt.	Stop	R1-1	36	36		7.5	10		1		1			W	4"X6" Wood	Place New Sign on New Post
153.321	Rt.	Stop	R1-1	36	36		7.5	10		1					E	None	New Sign Installation
154.321	Lt.	Stop	R1-1	36	36		7.5	10		1		1			W	U-channel	Place New Sign on New Post
154.330	Rt.	Stop	R1-1	36	36		7.5	10		1		1			E	U-channel	Place New Sign on New Post
155.328	Lt.	Stop	R1-1	36	36		7.5	10		1		1			W	U-channel	Place New Sign on New Post
155.337	Rt.	Stop	R1-1					11		1			1	1	E	U-channel	Reset on New Post/Reset Street Signs
156.315	Lt.	South	M3-3	24	12	2.0		10		1		1			N	4"X6" Wood	Place New Sign on New Post
		SD 45	M1-5	24	24	4.0	Place New Sign on New Post										
156.327	Lt.	Stop	R1-1	36	36		7.5	10		1		1			W	U-channel	Place New Sign on New Post
157.161	Rt.	Junction	M2-1	21	15	2.2		10		1		1			S	U-channel	Place New Sign on New Post
		SD 20	M1-5	24	24	4.0											
157.167	Lt.	No Passing Penant	W14-3	48X48X36			5.6	11		1		1			S	U-channel	Place New Sign on New Post
157.230	Rt.	Ipswich 20/Cresbard 3	D1-2A	108	36	27.0			22		2	1			S	4"X6" Wood	Place New Sign on New Post
157.286	Lt.	South	M3-3	24	12	2.0		10		1		1			N	U-channel	Place New Sign on New Post
		SD 45	M1-5	24	24	4.0	Place New Sign on New Post										
157.321	Rt.	SD 45	M1-5	24	24	4.0		11		1		1			S	4"X6" Wood	Place New Sign on New Post
		SD 20	M1-5	24	24	4.0											
		Arrow Vertical Single	M6-3	21	15	2.2											
		Right Verticle 90 - Double Arrow	M6-6R	21	15	2.2											

SD 45/20 Permanent Sign Installation Table

MRM	Side of Road	Description	Sign Code	Width (Inches)	Height (Inches)	High Intensity (SQFT)	Super or Very High Intensity (SQFT)	2.0"x2.0" Perforated Tube Post 12 ga. (FT)	2.5"x2.5" Perforated Tube Post 10 Ga. (FT)	(N.A.B.I.) Square Tube Anchor Sleeve (Each)	(N.A.B.I.) 48" Winged Slip Base Anchor (Each)	Remove Traffic Sign (Each)	Remove Sign For Reset (Each)	Reset Sign (Each)	Direction Sign Faces	Current Type of Post	Remarks
157.338	Lt.	Stop	R1-1	36	36		7.5	10		1		1			W	U-channel	Place New Sign on New Post
159.327	Rt.	Stop	R1-1					10		1			1	1	E	U-channel	Reset on New Post
159.340	Lt.	SD 45	M1-5	24	24	4.0		11		1		1			N	4"X6" Wood	Place New Sign on New Post
		SD 20	M1-5	24	24	4.0	Place New Sign on New Post										
		Arrow Vertical Single	M6-3	21	15	2.2	Place New Sign on New Post										
		Arrow Vertical 45 Right Double	M6-7R	21	15	2.2	Place New Sign on New Post										
				Highway 45 TOTAL		165.1	114.8	294.0	74.0	29.0	6.0	28.0	3.0	3.0			
295.013	Lt.	No Passing Penant	W14-3	48X48X36			5.6	11		1		1			S	U-channel	Place New Sign on New Post
295.028	Rt.	SD 20	M1-5	24	24	4.0		11		1		1			S	4"X6" Wood	Place New Sign on New Post
		SD 45	M1-5	24	24	4.0	Place New Sign on New Post										
		Arrow Left vertical 90	M6-6L	21	15	2.2	Place New Sign on New Post										
		Arrow Vertical Single	M6-3	21	15	2.2	Place New Sign on New Post										
295.849	Rt.	West	M3-4	24	12	2.0		11		1		1			S	Wood	Place New Sign on New Post
		North	M3-1	24	12	2.0	Place New Sign on New Post										
		SD 20	M1-5	24	24	4.0	Place New Sign on New Post										
		SD 45	M1-5	24	24	4.0	Place New Sign on New Post										
295.863	Rt.	Stop	R1-1	36	36		7.5	10		1		1		E	U-channel	Place New Sign on New Post	
295.896	Lt.	East	M3-2	24	12	2.0		11		1		1			N	4"X6" Wood	Place New Sign on New Post
		South	M3-3	24	12	2.0	Place New Sign on New Post										
		SD 20	M1-5	24	24	4.0	Place New Sign on New Post										
		SD 45	M1-5	24	24	4.0	Place New Sign on New Post										

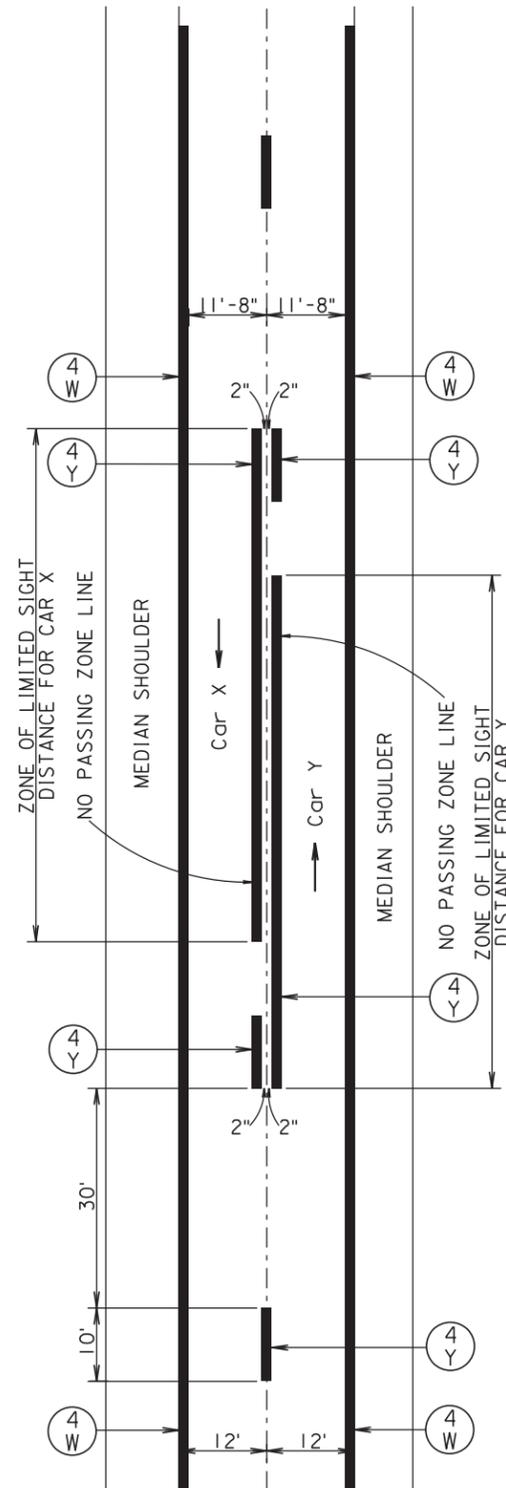
SD 45/20 Permanent Sign Installation Table

MRM	Side of Road	Description	Sign Code	Width (Inches)	Height (Inches)	High Intensity (SQFT)	Super or Very High Intensity (SQFT)	2.0"x2.0" Perforated Tube Post 12 ga. (FT)	2.5"x2.5" Perforated Tube Post 10 Ga. (FT)	(N.A.B.I.) Square Tube Anchor Sleeve (Each)	(N.A.B.I.) 48" Winged Slip Base Anchor (Each)	Remove Traffic Sign (Each)	Remove Sign For Reset (Each)	Reset Sign (Each)	Direction Sign Faces	Current Type of Post	Remarks
296.000	Lt.	SD 45	M1-5	24	24	4.0		11		1		1			E	4"X6" Wood	Place New Sign on New Post
		SD 20	M1-5	24	24	4.0	Place New Sign on New Post										
		Arrow Horizontal Double	M6-4	21	15	2.2	Place New Sign on New Post										
		Arrow Horizontal Single	M6-1	21	15	2.2	Place New Sign on New Post										
296.000	Lt.	SD 20	M1-5	24	24	4.0		11		1		1		N	4"X6" Wood	Place New Sign on New Post	
		SD 45	M1-5	24	24	4.0	Place New Sign on New Post										
		Arrow Horizontal Single	M6-1	21	15	2.2	Place New Sign on New Post										
		Arrow Vertical Single	M6-3	21	15	2.2	Place New Sign on New Post										
296.849	Rt.	West	M3-4	24	12	2.0		11		1		1		S	4"X6" Wood	Place New Sign on New Post	
		North	M3-1	24	12	2.0	Place New Sign on New Post										
		SD 20	M1-5	24	24	4.0	Place New Sign on New Post										
		SD45	M1-5	24	24	4.0	Place New Sign on New Post										
296.000	Rt.	No Passing Penant	W14-3	48x48x36			5.6	11		1		1			N	U-channel	Place New Sign on New Post
296.000	Lt.	SD 20	M1-5	24	24	4.0		11		1		1			N	4"X6" Wood	Place New Sign on New Post
		SD 45	M1-5	24	24	4.0	Place New Sign on New Post										
		Advance Turn Left	M5-1L	21	15	2.2	Place New Sign on New Post										
		Arrow Vertical Single	M6-3	21	15	2.2	Place New Sign on New Post										
296.798	Lt.	Highway 212 9/Cresbard 3	D1-2A	96	42	28.0			22		2	1			N	4"X6" Wood	Place New Sign on New Post
296.889	Lt.	Stop	R1-1												W		Do Not disturb
				Highway 20 TOTAL		113.5	18.7	109.0	22.0	10.0	2.0	11.0	0.0	0.0			
				TOTAL		278.6	133.5	403.0	96.0	39.0	8.0	39.0	3.0	3.0			

Sign Summary SD 45/20

Sign Code	Description	Width (Inches)	Height (Inches)	Sq. Ft.	No.	Flat Aluminum Sign, Nonremovable Copy High Intensity (SQFT)	Flat Aluminum Sign, Nonremovable Copy Super or Very High Intensity (SQFT)	Text / Background
D1-2A	Ipswich 20/Cresbard 3	108	36	27.0	1	27.0		White on Green
D1-2A	Highway 212 9/Cresbard 3	96	42	28.0	1	28.0		White on green
D8-1	Weigh Station Distance	60	48	20.0	1	20.0		White on green
D8-2	Weigh Station Open/Closed	60	18	7.5	2	15.0		White on green
I10-8A	Historic Advance	30	24	5.0	1	5.0		White on Brown
M1-4	US 212	30	24	5.0	1	5.0		White on Green
M1-5	SD 45/SD 20	24	24	4.0	24	96.0		See Standard Plate 632.20
M2-1	Junction	21	15	2.2	2	4.4		Black on White
M3-1	North	24	12	2.0	4	8.0		Black on White/Green Border
M3-2	East	24	12	2.0	1	2.0		Black on White/Green Border
M3-3	South	24	12	2.0	4	8.0		Black on White/Green Border
M3-4	West	24	12	2.0	2	4.0		Black on White/Green Border
M5-1L	Advance Turn left	21	15	2.2	1	2.2		Black on White
M6-1	Arrow Horizontal Single	21	15	2.2	2	4.4		Black on White
M6-3	Arrow Vertical Single	21	15	2.2	5	10.9		Black on White
M6-4	Arrow Horizontal Double	21	15	2.2	1	2.2		Black on White
M6-6L	Arrow Left Vertical 90	21	15	2.2	1	2.2		Black on White
M6-6R	Right Vertical 90 Double	21	15	2.2	1	2.2		Black on White
M6-7R	Vertical 45 Right Double	21	15	2.2	1	2.2		Black on White
R1-1	Stop	36	36	7.5	13		97.5	White On Red
R13-1E	Vehicles Type Excluded	72	60	30.0	1	30.0		White on Green
W14-3	No Passing Penant	48X48X36		5.6	5		28.0	Black on Fluorescent Yellow
W1-7	Double Arrow	48	24	8.0	1		8.0	Black on Fluorescent Yellow
Totals							278.6	133.5

**TWO LANE
UNDIVIDED ROADWAY**



KEY	ITEM
(4W)	4" White
(4Y)	4" Yellow

FURNISHING AND APPLYING PAVEMENT MARKING PAINT

- The pavement marking paint and glass beads will be furnished and applied by the Contractor. Material shall meet the requirements of Section 980 and 981 of the Specifications.
- Construction requirements, methods of measurement, and basis of payment shall conform to the requirements of Section 633 of the Specifications.
- 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 4.60 Gallons/Pass-Mile
White Edgeline 16.90 Gallons/Pass-Mile (Solid Line)	Yellow or White Edgeline 16.90 Gallons/Pass-Mile (Solid Line)
- The typical pavement markings as shown on the following sheet shall be applied throughout the entire length of the project.
- Exact location of the NO PASSING ZONE lines will be determined in the field by the Engineer. A dash of white paint will mark the beginning and end of all no passing zones. NO PASSING ZONE signs and the ending post in fence lines, if present, shall not be used as the beginning and ending NO PASSING ZONE lines.
- 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.

STATE OF SOUTH DAKOTA	PROJECT		SHEET NO.	TOTAL SHEETS
	P 0045 (52) 148	P 0020 (138) 294	15	41

SURFACING THICKNESS DIMENSIONS

Plans tonnage will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

SCOPE OF WORK

Work on this project involves erosion repair, cold milling existing pavement, 2" Asphalt Concrete Pavement, Rumble Strips, signing and pavement markings.

SEQUENCE OF OPERATIONS

The following sequence of operations shall be adhered to. Any changes must be approved in writing by the Area Engineer prior to changes being made.

1. Install fixed location signing prior to start of work.
2. Complete all bank and channel protection/riprap work.
3. Complete cold milling of asphalt.
4. Complete unclassified excavation for ditches and backfill operations.
5. Complete asphalt concrete mainline and auxiliary asphalt paving.
6. Complete gravel placement operations to entrances, intersecting roads and all other areas directed by the engineer.
7. Grind rumble strips.
8. Place flush seal if required.
9. Install permanent pavement markings and signing.
10. Refurbish mailboxes.
11. Blend, haul & stockpile granular material.
12. Remove project signing.
13. Mow project in slopes and complete any remaining project cleanup

GENERAL NOTES

The Contractor shall be required to mow the inslopes with a rotary mower to a height of 6 inches for a distance of 14 feet from the edge of the roadway (or shoulder) for the length of the project. This work will be completed to the satisfaction of the Engineer after all construction activities are completed. All costs associated with this work shall be incidental to the various contract items.

UTILITIES

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor shall contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

TRAFFIC CONTROL

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

Storage of vehicles and equipment shall be as near the right-of-way line 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 to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

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

Work zones for the various construction operations that utilize a pilot car shall not exceed 3 miles in length.

An advisory Speed Plate displaying 30 M.P.H. shall be attached to all "Bump" signs used on the project. Speed plates are included in the Traffic Control Devices Inventory sheet in these plans.

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.

"Grooved Pavement" signs shall be placed at each end of the project until all cold milled areas are covered with asphalt concrete. Additional "Grooved Pavement" signs shall be placed east junction of SD Highway 20 & SD Highway 45 until all cold milled areas are covered with asphalt concrete. Attached to each sign shall be a "Motorcycle Plaque" sign. These signs are included in the Traffic Control Devices Inventory sheet.

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. Portable sign supports may be used as long as the duration is less than 3 days. If the duration is more than 3 days the signs shall be on fixed location, ground mounted, breakaway supports.

The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP Report 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

Traffic Control units, 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.

TYPE III FIELD LABORATORY

The lab shall be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection shall be provided with a multi-port wireless router. The internet connection shall be a minimum speed of 512 Kb unless limited by job location and approved by the DOT. Prior to installing the wireless router the Contractor shall submit the wireless router's technical data to the Area Office to check for compatibility with the state's computer equipment. The internet connection is intended for state personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. These items shall be incidental to the contract unit price per each for TYPE III FIELD LABORATORY.

STORAGE UNIT

The Contractor shall provide a storage unit such as a portable storage container or a semi-trailer meeting the minimum size requirements from the table below:

Project Total Asphalt Concrete Tonnage	Minimum Internal Size (Cu Ft)	Minimum External Size (L x W x H)
Less than 50,000 ton	1,166	20' x 8' x 8.6' std
More than 50,000 ton	2,360	40' x 8' x 8.6' std
All Gyratory Controlled QC/QA Projects	2,360	40' x 8' x 8.6' std

The storage unit is intended for use only by the Engineer for the duration of the project. The QC lab personnel or the Contractor will not be allowed to use the storage container while it is on the project, without permission of the Engineer.

The storage unit shall be on site and operational prior to asphalt concrete production. Upon completion of asphalt concrete production, the Engineer will notify the Contractor when the storage unit can be removed from the project. The storage unit use will not exceed 30 calendar days from the completion of asphalt concrete production. The storage unit will remain the property of the Contractor.

The storage unit shall be weather proof and shall be set in a level position. The storage unit shall be able to be locked with a padlock.

The storage unit shall be placed adjacent to the QA lab, as approved by the Engineer.

The following shall apply when the storage unit provided on the project is a portable storage container:

1. The portable storage container shall be constructed of steel.
2. The portable storage container shall be set such that it is raised above the surrounding ground level to keep water from ponding under or around the storage container.

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STORAGE UNIT CONTINUED.

The following shall apply when the storage unit provided on the project is a semi-trailer:

1. A set of steps and hand railings shall be provided at the exterior door.
2. If the floor of the semi-trailer is 18 inches or more above the ground, a landing shall be constructed at the exterior door. The minimum dimensions for the landing shall be 4 feet by 5 feet. The top of the landing shall be level with the threshold or opening of the doorway.
3. The semi-trailer may be connected to the QA lab by a stable elevated walkway. The walkway shall be a minimum of 48 inches wide and contain handrails installed at 32 inches above the deck of the walkway. The walkway shall be constructed such that it is stable and the deck does not deform during use and allows for proper door operation. Walkway construction shall be approved by the Engineer.

All cost for furnishing, maintaining, and removing the storage unit including labor, equipment, and materials including any necessary walkways, landings, stairways, and handrails shall be included in the contract unit price per each for "Storage Unit".

BANK AND CHANNEL PROTECTION GABBION

Located at MRM 155.988 is a 42" RCP. The east side of the pipe has been undermined and eroded. The contractor is to remove and reset the pipe end and place 10 CY of Gabion Baskets at this location. Refer to standard Plates 720.01 & 720.03

CLASS B RIPRAP

Located at MRM 155.01 is a 96" RCP. Both sides have been eroded. The contractor is to place Class B Riprap on each side to stabilize the pipe ends.

The West side of the pipe is to be excavated and replaced with Class B Riprap according to the drawing for 96" RCP at MRM 155.01 West Side of Hwy 45 provided in the plans.

The East side has been reinforced with gabion baskets already. The contractor is to fill in the eroded area with Class B Riprap to the satisfaction of the Engineer.

SHOULDER PREPARATION

Vegetation and accumulated material adjacent to the existing surface edge shall be removed to the satisfaction of the Engineer prior to placement of mainline surfacing. Any remaining windrow of accumulated material shall be re-spread evenly on the inslope adjacent to the asphalt shoulder to the satisfaction of the Engineer prior to the application of the flush seal.

Any vegetation damaged outside of the asphalt concrete limits shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

This shoulder work shall be incidental to other contract items. Separate measurement and payment will not be made.

INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances shall be satisfactorily cleared of vegetation, shaped, and compacted prior to placement of mainline surfacing. This work will be considered incidental to other contract items. Separate measurement and payment will not be made.

COLD MILLING ASPHALT CONCRETE

All cold milling of the asphalt shall be accomplished on one-half of the roadway at a time. The Contractor shall schedule the cold milling of the asphalt operations so that there are no drop-offs or windrows of the milled material remaining overnight.

The placement of asphalt concrete shall begin within 5 working days after completion of cold milling of mainline asphalt concrete.

Cold Milling Asphalt shall be done according to the typical section. In areas where maintenance patches have raised and/or widened the road, additional asphalt concrete shall be milled to provide a uniform typical section from centerline to the edge of the finished shoulder. These areas also include farm, residential, field entrances and intersecting roads. Milling shall be daylighted to the outside edge of the roadway. Any additional costs associated with this additional cold milling shall be incidental to the contract unit price per square yard for COLD MILLING ASPHALT CONCRETE.

TABLE OF MAINTENANCE PATCHES

MRM	to	MRM	Length
295.1		295.147	.047
295.419		295.503	.084
157.315		157.34	.025
TOTAL			.156

Cold Milling of Asphalt shall consist of removing the in place asphalt to an average depth of 1". This material is to be removed at a constant slope of **0.02 FT/FT**. from the in place shoulder elevation to centerline of the roadway. The width to be milled is approximately **15.1'** from centerline of roadway to the shoulder.

The milled asphalt concrete material shall be hauled, weighed and stockpiled at a site located in the SDDOT Maintenance Yard located in Faulkton, SD. Exact stockpile location to be determined by the Engineer. The Contractor shall be responsible for stockpile site preparation costs. Site preparation may include such items as stripping topsoil and shaping the stockpile site.

The bid item COLD MILLING ASPHALT CONCRETE shall include all cost to cold mill, haul the milled material to the stockpile site, and weigh the material. The Contractor shall supply a scale and operator as specified in section 9.1 of the specifications to weigh the material before it is blended with the gravel surfacing material.

The Los Angeles Abrasion Loss value on the aggregate used for the in place asphalt concrete was 23 percent. These values were obtained from testing during construction of the in place asphalt concrete.

Cold milling asphalt is estimated to produce 9992.7 tons of salvaged asphalt concrete material. An estimated 5656.2 tons of salvaged asphalt concrete will be used on this project in the Class Q2R Asphalt Concrete mixture. An estimated 1170 tons of asphalt salvaged asphalt concrete will be used as Base Course, Salvaged Asphalt Mix in approaches and intersecting roads. An additional 1000 tons is to be used as fill along the shoulder of areas that have a steep sluff prior to and after mainline paving is finished. These areas will be determined by the Engineer. All work associated with this shall be covered under the bid item for Base Course, Salvaged Asphalt Mix. The Contractor is responsible to assure enough asphalt concrete salvage is available for the Class Q2R Asphalt Concrete. If additional salvaged asphalt concrete is needed to complete the granular work, the salvaged asphalt concrete will be substituted with Base Course. Any remaining salvaged asphalt concrete will be Blended, Hauled & Stockpiled at SDDOT Faulkton Maintenance Yard.

Daylighting shall be performed prior to restoring traffic to the milled surface.

At the end of the day the Contractor shall place cold milled asphalt material to provide a temporary ramp as a transition onto or off of the milled surface at the project limits and intersecting roads. The resultant transition shall be of sufficient length to provide a slope no steeper than 20:1. All costs associated with this work shall be incidental to the contract unit price per square yard for COLD MILLING ASPHALT CONCRETE.

Cold Milling Asphalt Concrete will be paid for at the contract unit price per square yard, inclusive of all costs for cold milling existing asphalt concrete (including areas that may require additional effort). Plans quantity will be the basis of payment for COLD MILLING ASPHALT CONCRETE and no further measurement will be made.

Cold Milling Asphalt Concrete shall conform to section 332.2 of the specifications. Any material over the 1 1/2" specification shall be subject to crushing.

BLEND, HAUL AND STOCKPILE GRANULAR MATERIAL

Excess salvage asphalt mix material estimated at **2166.5 tons** (for information purposes only) shall be blended with **1444.3 tons** GRANULAR MATERIAL, FURNISH, and shall be hauled, blended, and stockpiled at the SDDOT Maintenance Yard in the City of Faulkton, SD Legal Description is T 118N R 69 W SW 1/4 of Section 14. A computerized scale along with a scale operator shall be provided by the Contractor at the stockpile site to weigh the salvaged material prior to blending.

Asphalt mix material shall be blended with GRANULAR MATERIAL, FURNISH at a rate of 60% salvaged asphalt mix material and 40% GRANULAR MATERIAL, FURNISH Material to obtain stockpile material. Prior to incorporation into stockpile, cold milled asphalt material shall be run over a 1-1/2" screen to remove large chunks. No further testing of the material will be required. The use of a pugmill to blend the materials will be accepted.

Calibrated conveyor(s) shall be used to provide a uniform blending of the materials. Material shall be blended prior to incorporation into the pile.

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BLEND, HAUL AND STOCKPILE GRANULAR MATERIAL CONTINUED

All other costs for hauling, stockpiling, and blending salvage asphalt mix material and Granular Material, Furnish Material shall be incidental to the contract unit price per ton for "Blend, Haul & Stockpile Granular Material". **Contact Kevin Pavilicek at (605)216-5954 one week prior to hauling to the Stockpile Site.**

GRANULAR MATERIAL, FURNISH

Granular Material shall be furnished by the Contractor for use in blending with the salvaged asphalt mix material from this project.

The Granular Material shall be Base Course meeting the requirements of Section 882.

EXCAVATION OF UNSTABLE MATERIAL

Included in the Estimate of Quantities are **50** Cubic Yards of Unclassified Excavation, Dugouts per mile for the necessary removal of unstable material.

Backfill shall be Base Course paid for at the contract unit price per ton.

The digout shall be extended to the shoulder and the granular material backfill shall daylight to the inslope to allow water to escape the subgrade.

A copy of the surfacing/subgrade investigation for this project is available from the Aberdeen Area and the Aberdeen Region offices.

BASE COURSE

Aggregate for Base Course shall conform to the Specifications, except that the compaction shall be to the satisfaction of the Engineer.

Included in the Estimate of Quantities are **100** tons of Base Course per mile for backfill of Unclassified Excavation, Dugouts.

BASE COURSE, SALVAGED ASPHALT MIX

Base Course, Salvaged Asphalt Mix shall be obtained from the cold millings produced on this project and may be used without further testing.

All other requirements of the specifications for Base Course shall apply.

WATER FOR COMPACTION OF GRANULAR MATERIALS

Cost of water for compaction of the granular material shall be incidental to the contract unit price for the various contract items. Six percent, plus or minus, moisture will be required at the time of compaction unless otherwise directed by the Engineer.

ASPHALT FOR TACK

Included in the Estimate of Quantities are **31.5** tons of SS-1h or CSS-1h Asphalt for Tack for use prior to the application of the Blade Laid lift. (Rate = 0.05 Gal./ Sq.Yd.).

Included in the Estimate of Quantities are **8** tons of SS-1h or CSS-1h Asphalt for Tack for surface repair, strengthening, and spot leveling areas throughout the project. (Rate = 0.05 Gal./ Sq.Yd.).

ASPHALT CONCRETE BLADE LAID

Included in the Estimate of Surfacing Quantities are **150** tons of Asphalt Concrete Blade Laid, **1.5** tons of Hydrated Lime, and **11.3** tons of PG **58-34** Asphalt Binder per mile and shall be tight bladed on the existing surface 24 feet wide prior to the overlay. A sufficient amount of material shall be kept in front of the blade to fill and level all joints, cracks and other surface irregularities.

The blade used to tight blade the material shall be equipped with gates, wings or other devices approved by the Engineer to prevent the material from windrowing at the edges of the blade.

A paver may be used to place the material provided it is equipped with a solid screed bar plate measuring a minimum of 12' wide by 1 1/2" thick that forces mixture into the joints and cracks to adequately level and fill them while not exceeding the application rate set up in the plans.

Mineral Aggregate for tight bladed material shall use only the fine aggregate components combined in the same proportions as the Class Q2R Hot Mixed Asphalt Concrete mix. No quality testing will be done on any of the coarse aggregate (+No. 4 sieve) in this mix.

The Asphalt Concrete Blade Laid Lift shall be designed using a Ndesign Gyrotory Compactive Effort of 65. The asphalt binder content shall be determined so that the air voids of Asphalt Concrete Blade Laid Lift are between 3.0% and 5.0%

The tight bladed material shall be compacted by at least 2 complete coverages with pneumatic tired rollers.

All loose existing joint material shall be removed and the surface shall be thoroughly swept with a rotary broom to remove all loose asphalt concrete and joint material from cracks and spall areas prior to placing the Blade Laid Mix. Cost for removing the material and brooming shall be included in the contract unit price per ton Asphalt Concrete Blade Laid.

Asphalt Concrete Blade Laid shall be completed prior to Class Q2R Hot Mixed Asphalt Concrete paving operations beginning.

CLASS Q2R HOT MIXED ASPHALT CONCRETE

Asphalt concrete aggregates shall consist of salvaged asphalt concrete mix material (RAP) and virgin aggregate.

Virgin mineral aggregate shall be furnished by the Contractor.

Virgin mineral aggregate for Class Q2R Hot Mixed Asphalt Concrete shall conform to the requirements of the Special Provision for Gyrotory Controlled Quality Control/Quality Assurance Hot Mixed Asphalt Concrete Pavement for a Class Q2 except for the following:

Mix Design Criteria:
Gyrotory Compactive Effort:

	N _{initial}	N _{design}	N _{maximum}
Class Q2R	6	50	75

Salvaged asphalt concrete material shall be obtained from the material produced by cold milling on this project and may be used without further testing. The salvaged asphalt concrete mix material shall be crushed so that the maximum particle size in the cold feed will not exceed 1-1/2 inches.

Screening or scalping of the RAP stockpile(s) will not be allowed.

The Class Q2R Asphalt Concrete shall include 20 percent salvaged asphalt concrete (RAP) in the mixture. Job mix formula tolerances for the RAP shall be ± 5 % from the target value.

All remaining requirements of the Special Provision for Class Q2 Hot Mixed Asphalt Concrete shall apply.

The asphalt concrete on the shoulders will not be compacted to a specified density. The shoulders shall be compacted using the same rolling pattern used on

ADDITIONAL QUANTITIES:

Included in the Estimate of Quantities are **100** tons of Class **Q2R** Asphalt Concrete and, **1** tons of Hydrated Lime of Asphalt concrete and **4.5** tons of PG **58-34** Asphalt Binder, per mile for spot leveling, strengthening, and repair of the existing surface. This material shall be placed where and as directed by the Engineer.

FLUSH SEAL

Application of Flush Seal shall be completed within 10 working days following completion of the asphalt concrete surfacing.

For each working day that the Flush Seal remains uncompleted after the 10 working day limitation, the Contractor will be assessed liquidated damages at the rate of \$250.00 per day.

The liquidated damages shall apply only up to the Contract Completion Date, as extended. After the Contract Completion Date, liquidated damages will be assessed in accordance with the schedule set forth in section 8.7 of the specifications.

Application of Flush Seal may be eliminated by the Engineer. If the paved surface remains tight, the Engineer shall notify the Contractor as soon as possible that the Flush Seal is unnecessary.

SAND FOR FLUSH SEAL

The sand application shall be placed 11' wide in each lane, leaving 12" on center line and 6" on each edge line free of sand.

Aggregate for Flush Seal shall conform to the requirements of section 879 of the Specifications.

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REFURBISH MAILBOXES

Existing mailboxes shall be removed, turnouts constructed, and mailboxes reset on new posts with the necessary support hardware for single or double mailbox assemblies (See Standard Plate No's. 900.01, 900.02 and 900.03). The local Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor shall coordinate with the Engineer on the proper postal representative to contact.

TABLE OF REFURBISH MAILBOXES

Location		SINGLE MAILBOX EACH	DOUBLE MAILBOX EACH
<u>MRM</u>	<u>SIDE</u>		
149.427	East	1	
150.475	East	1	
151.322	East		1
153.900	West	1	
156.973	West	1	
TOTALS		4	1

If large mailboxes are located at double mailbox installations, a single post may need to be used for the large mailbox.

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware shall be incidental to the contract unit price per each for REFURBISH SINGLE MAILBOX or REFURBISH DOUBLE MAILBOX.

RUMBLE STRIPS

Rumble Strip installation shall be completed prior to application of the Flush Seal and Permanent Pavement Markings. Rumble Strips shall not be installed on the bridge decks. In the event the Flush Seal is eliminated from the contract, the Contractor will still be required to apply a Flush Seal to the newly installed 12" Rumble Stripes at a width of 1.5' and at the same rate as specified in this plan set. No adjustment in the contract unit price will be made and SS-1h or CSS-1h will be paid at the contract unit price per ton.

The Contractor shall be required to remove loose material from the driving surface and/or asphalt shoulders of the roadway. Loose material may be broomed to the edge of shoulders and it shall be the Contractor's responsibility to ensure the loose material does not enter any vegetated areas and/or waterways.

All costs associated with the work shall be incidental to the contract unit price per mile for installing Rumble Strips.

TABLE OF 12" RUMBLE STRIPS

Station to Station	Length (Ft)	Length (Miles)
234+49 to 313+13	15728	9.979
330+93 to 763+68	86550	16.392
Total	99278	19.371

TEMPORARY AND PERMANENT PAVEMENT MARKINGS

Maintaining size, shape, and dimension of existing pavement markings shall be the responsibility of the Contractor for both temporary and permanent pavement marking applications.

Temporary road markers shall be used to mark dashed centerline, No Passing Zones and applicable lane lines. **Paint will not be allowed for Temporary Pavement Marking on the Asphalt Concrete Class Q2R Hot Mixed Asphalt Concrete wear course or after application of the Flush Seal.**

TEMPORARY PAVEMENT MARKINGS

The total length of no passing zone on this project is estimated to be 0.71 miles.

Quantities of Temporary Pavement Markings consist of:
 One pass on top of the Cold Milled Surface.
 One pass on top of the Blade Laid Asphalt Concrete.
 One pass on top of the 1st Lift of Asphalt Concrete.
 One pass on top of the Flush Seal.

If the Flush Seal is eliminated, the application of the Temporary Pavement Marking on top of the Flush Seal will be eliminated. No adjustment in the contract unit price for Temporary Pavement Marking will be made because of a variation in quantities.

Temporary Road Markers (tabs) may be used as detailed in the specifications. Covers on the tabs shall be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers shall be properly disposed of. The Contractor shall remove and properly dispose of the tabs after Permanent Pavement Marking is applied. Method of removal shall be nondestructive to the road surface and shall be accomplished within one week of completion of the Permanent Pavement Marking.

Any tabs with covers removed before the flush seal shall be replaced prior to Flush Seal application.

Cost for furnishing, applying, removing and disposing of the Temporary Road Markers shall be included in 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 Workers symbol sign (W21-1) 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.

PERMANENT PAVEMENT MARKING

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.

All materials shall be applied as per manufacturer's recommendations.

Glass beads shall be applied on the wet paint line at a minimum of eight pounds of glass beads per gallon of paint.

The Contractor shall advise the Engineer a minimum of 2 weeks prior to the application of the permanent pavement marking to allow the State to check and mark the location of no passing zones. All materials shall be applied as per manufacturer's recommendations.

The application of Permanent Pavement Marking paint may not begin until 7 calendar days following completion of final surfacing (including Flush Seal if applied) and shall be completed within 14 calendar days following completion of the final surfacing.

For each working day the application of permanent pavement marking paint remains uncompleted beyond the time limits described in the preceding paragraph, the Contractor will be assessed liquidated damages at the rate of \$250.00 per day.

The liquidated damages shall apply up to the Contract Completion Date, as extended. After the completion date, liquidated damages will be assessed in accordance with section 8.7 of the specifications, until the permanent pavement marking is completed, even though the project may be open to traffic.

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.

There shall be no adjustment in the contract unit prices should cold weather formulated paint be required.

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. for white: 41.5 and yellow: 41.5 when tested in accordance with FTMS 141c (method 4051.1)

SAWING IN EXISTING SURFACING

Where new Asphalt Concrete Pavement is placed adjacent to existing asphalt concrete the existing asphalt concrete shall be sawed full depth to a true line with a vertical face. No separate payment shall be made for sawing.

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GENERAL PERMANENT SIGNING NOTES

Permanent sign locations shall be staked in the field by the Contractor and checked by the Engineer. The Contractor shall give the Engineer a minimum of one week to check staked locations prior to sign/post installation.

The Contractor shall be responsible for contacting South Dakota One Call to locate the utilities at the staked sign installation locations.

Prior to ordering sign posts, the Contractor shall verify post lengths.

REMOVE EXISTING SIGNS

Existing signs within the project limits are summarized in the Sign Table. This table provides the approximate MRM location for each sign. Existing signs in the table are indicated to be removed and not reused.

All existing signs and hardware listed to be removed shall become the property of the Contractor.

Holes remaining from the removal of 4"x6" wood posts shall be backfilled and compacted with material placed in layers not to exceed 6 inches in depth.

All costs associated with the removal of existing signs, posts, hardware, and backfilled holes shall be incidental to the contract unit price per each for REMOVE TRAFFIC SIGN.

All existing sign posts and or sign bases shall be removed in their entirety.

DATE DECALS

The Contractor shall furnish and affix a date decal to each new sign installed. Date decals shall be self-adhesive weather resistant stickers with removable paper backing, approximately 2" X 2" in size. The date decal shall display the last two digits of the year the sign was manufactured with black numerals on a white background.

One decal shall be placed in the extreme lower left corner of the front of each extruded aluminum panel sign, or the extreme lower left corner of the back of each flat aluminum sign.

Sign supports or other obstructions shall not block the view of the date decal upon completion of the sign installation.

All costs to furnish and install date decals on new signs shall be incidental to the contract unit price per square foot for, FLAT ALUMINUM SIGN, NONREMOVEABLE COPY HIGH INTENSITY, or FLAT ALUMINUM SIGN, NONREMOVABLE COPY SUPER/VERY HIGH INTENSITY.

NEW PERMANENT SIGNING

New signs for installation are summarized in the Sign Table.

Sign Design

Signs shall be constructed as required per the Manual on Uniform Traffic Control Devices (MUTCD), the latest edition of "Standard Highway Signs", and as specified on the Special Sign Design sheets.

All sign material shall comply with Section 982 of the Specifications.

All upper/lower case letters and numerals shall be as required per the MUTCD, the latest edition of "Standard Highway Signs", and as illustrated on the Special Sign Design sheets

The Contractor shall furnish the Aberdeen Region Traffic Engineer (P.O. Box 1767; Aberdeen, SD 57402) with a detailed sign layout sheet for each sign shown. These detailed sign layout shall be approved by the Region Traffic Engineer prior to ordering the signs.

Sign Sheeting

Signs shall be constructed using High Intensity (ASTM D4956 Type IV) or Super/Very High Intensity (ASTM D4956 Type XI) reflective sheeting as summarized in the SD 45/20 Permanent Sign Installation Tables.

All signs shall be manufactured in accordance with the sheeting manufacturer's recommendations utilizing a matched component system, including inks, electronic cuttable films, and protective overlay films. Digitally printed signs will not be accepted.

All black legend and borders shall be nonreflectorized (unless otherwise specified in these plans).

Sign Installation Hardware

Aluminum U-Channel stiffeners shall be used on all standard highway signs greater than 36 inches in width and shall conform to Alloy 6063-T6 or 6061-T6. The U-Channel shall be 2 inches in width and free of holes. The U-Channel stiffeners shall also be used to connect various signs together so that an entire sign assembly can be erected on a single installation.

Stiffeners may be fastened to signs by use of ¼ inch diameter drive rivets.

Refer to the Breakaway Sign Supports diagram for typical sign and stiffener details.

The Contractor shall use 3/8 inch diameter rust proof machine sign bolts, flat metal washers, neoprene washers (against the sign sheeting), lock washers, and nuts to fasten the sign to the channel aluminum and posts. A minimum of two bolts shall extend through each post.

All costs associated with furnishing and installing the new permanent signs, furnishing and installing stiffeners and hardware shall be incidental to the contract unit price per square foot for FLAT ALUMINUM SIGN, NONREMOVEABLE COPY HIGH INTENSITY, or FLAT ALUMINUM SIGN, NONREMOVABLE COPY SUPER/VERY HIGH INTENSITY.

SQUARE TUBE ANCHOR SLEEVE

The Contractor shall furnish and install new square tube anchor sleeve as follows:

2.5" x 18", 12 Gauge square tube anchor sleeve, (or equivalent components as approved by the Engineer).

A 2.25" x 2.25" x 4' perforated tube post (12 Gauge) shall be used as the anchor post for installation with the square tube anchor sleeve.

SQUARE TUBE POST SLEEVE

All 2.5"x2.5" perforated tube post (10 Gauge) shall be sleeved with a 2 3/16"x2 3/16"x4' perforated tube post (10 Gauge).

WINGED SLIP BASE ANCHOR

The Contractor shall furnish and install new winged anchor as required per the plans.

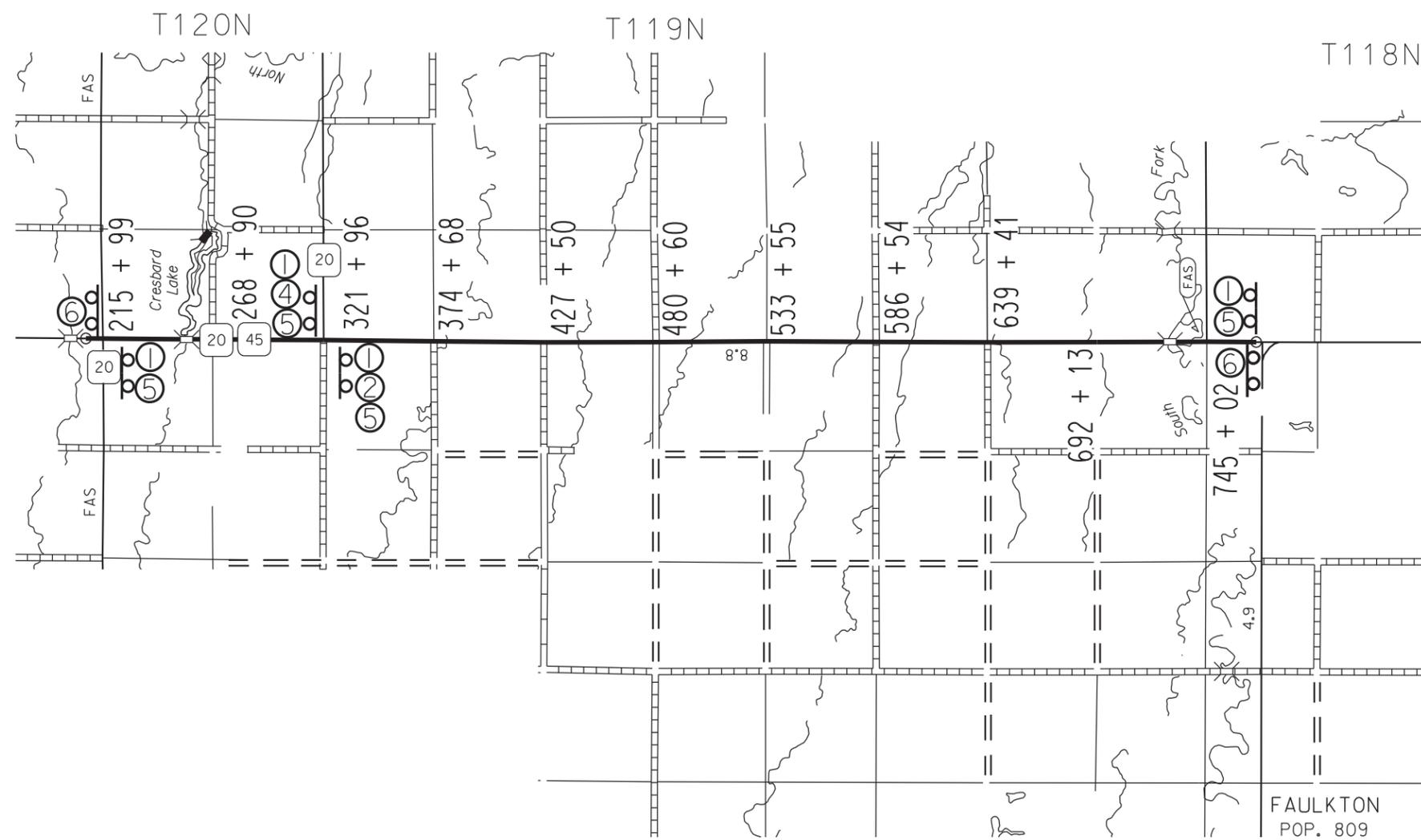
Winged anchor shall be installed using direct drive method.

Winged anchor shall consist of a slip base (upper), 48 inch long winged anchor (lower), and hardware kit.

MILEAGE REFERENCE MARKERS

MRMs (Mileage Reference Markers) are not to be disturbed. If an MRM is attached to a sign listed for replacement it shall be salvaged and reattached to the new sign in the same location. Payment for this work shall be incidental to the various signing contract items.

FIXED LOCATION SIGN (GROUND MOUNT BREAKAWAY SUPPORTS)



5

WB-15P

W7-3aP

6

W20-1ROAD 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.

- 1

ROAD WORK
NEXT 11 MILES

G20-1

- 2

ROAD WORK
NEXT 9 MILES

G20-1

- 3

ROAD WORK
NEXT 8 MILES

G20-1

- 4

ROAD WORK
NEXT 2 MILES

G20-1

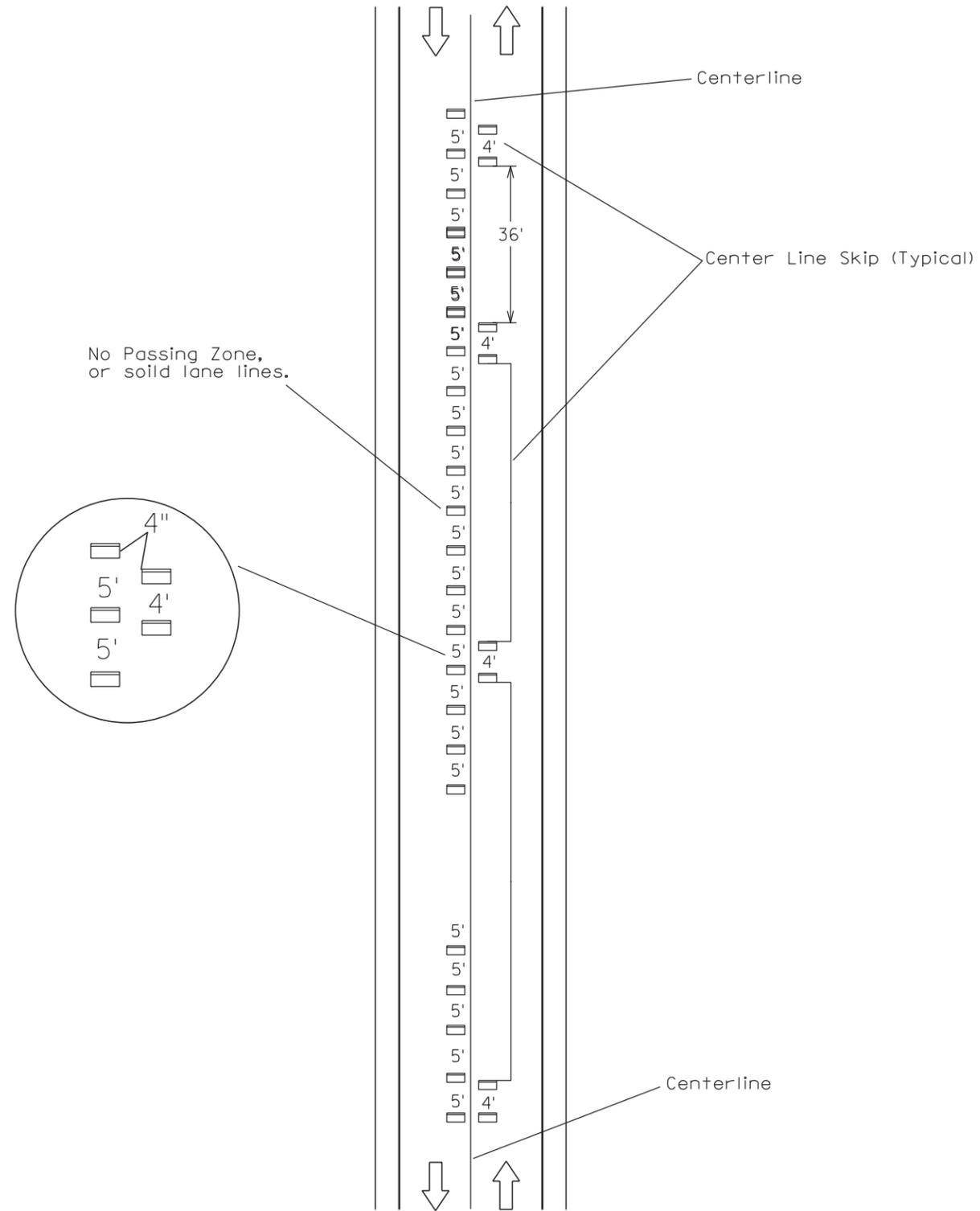
PLOT SCALE - 1:6400

PLOTTED FROM - TRAB18004

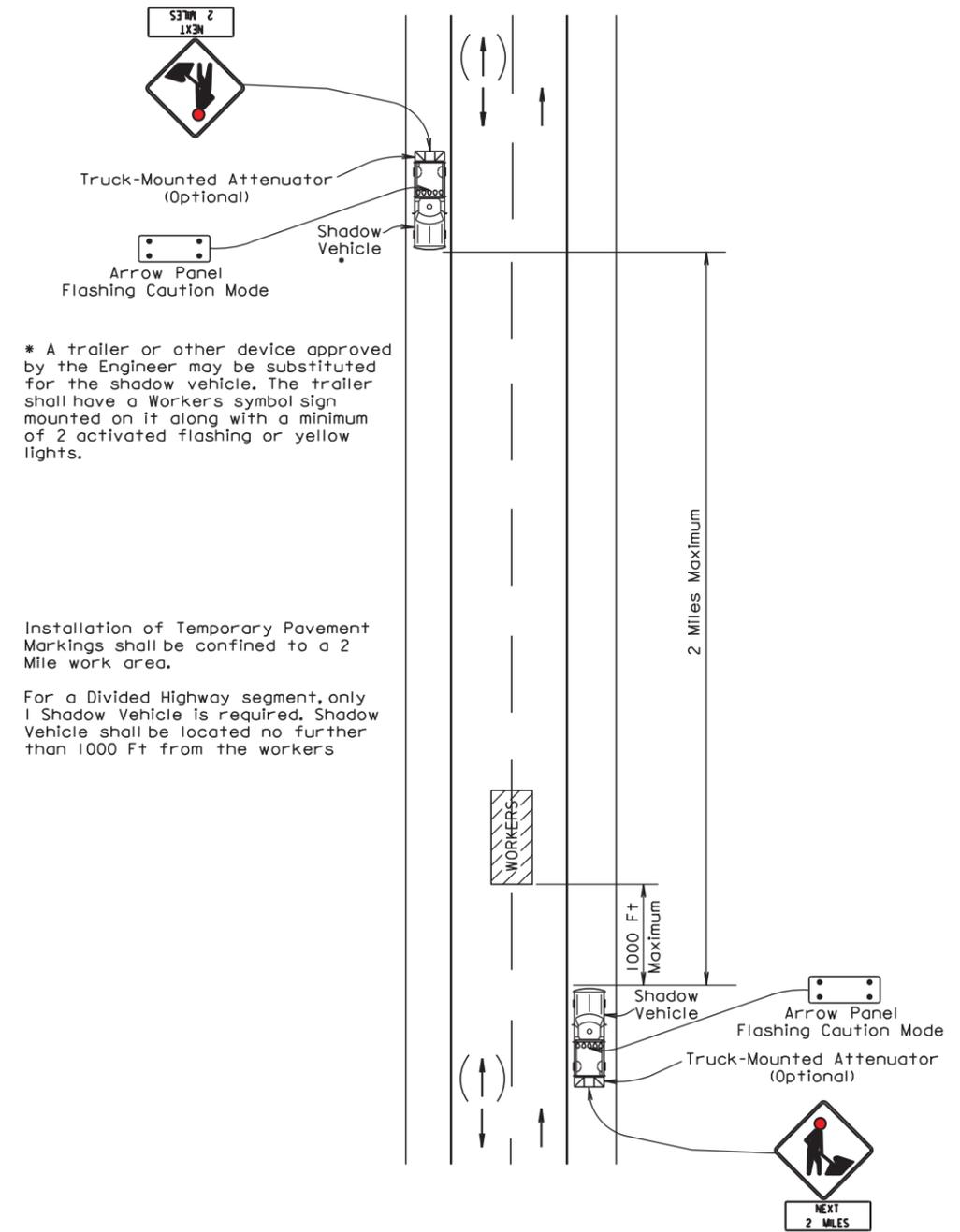
PLOT NAME - 3

FILE - ... \04EK-TITLE-SHEET.DGN

GUIDES FOR TRAFFIC CONTROL DEVICES TEMPORARY ROAD MARKER INSTALLATION



GUIDES FOR TRAFFIC CONTROL DEVICES APPLICATION OF TEMPORARY PAVEMENT MARKING TABS



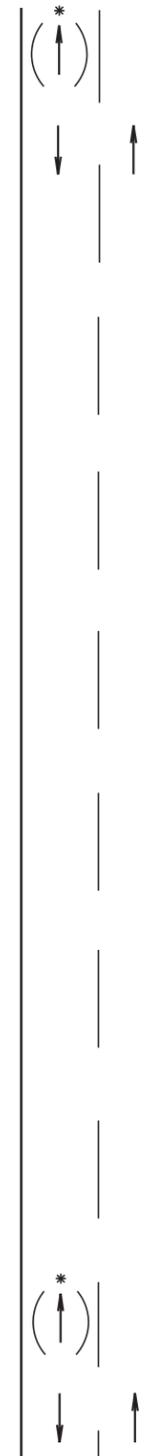
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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.

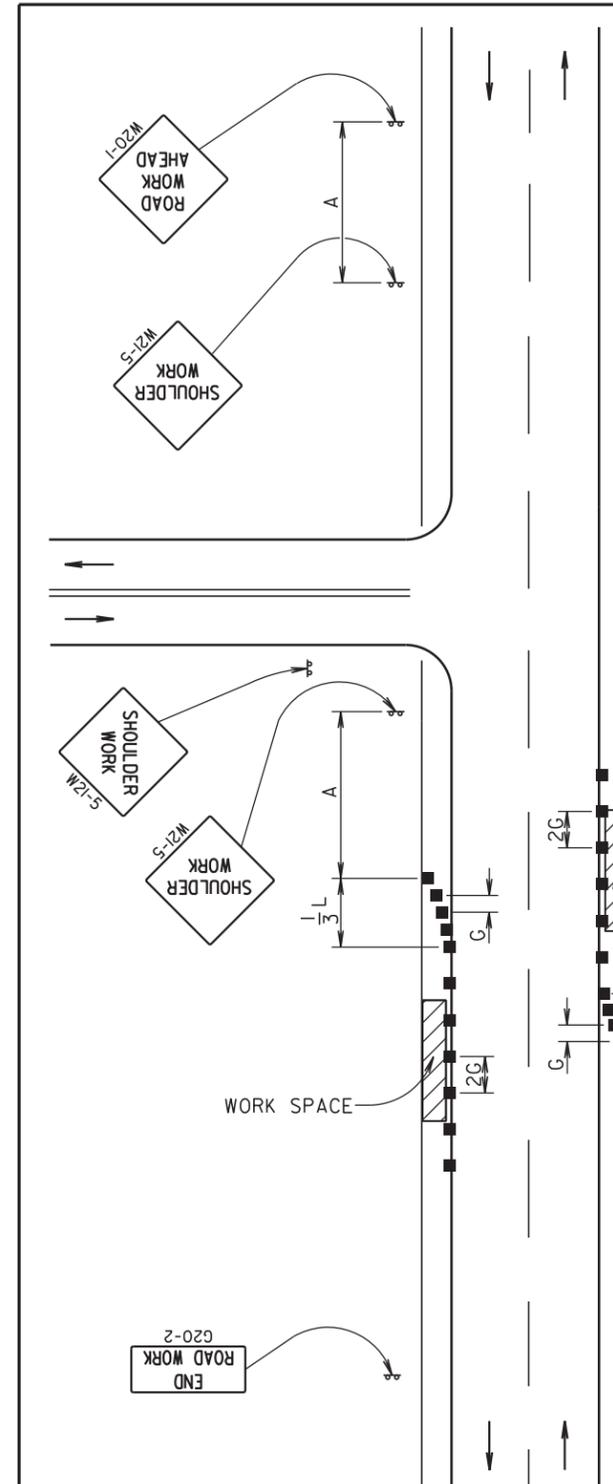
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



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 - 75	1000



July 1, 2005



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	100 - 200	180	25
35 - 40	350	320	25
45 - 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 or longer.

For short duration operations (1 hour or less) all signs and 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.

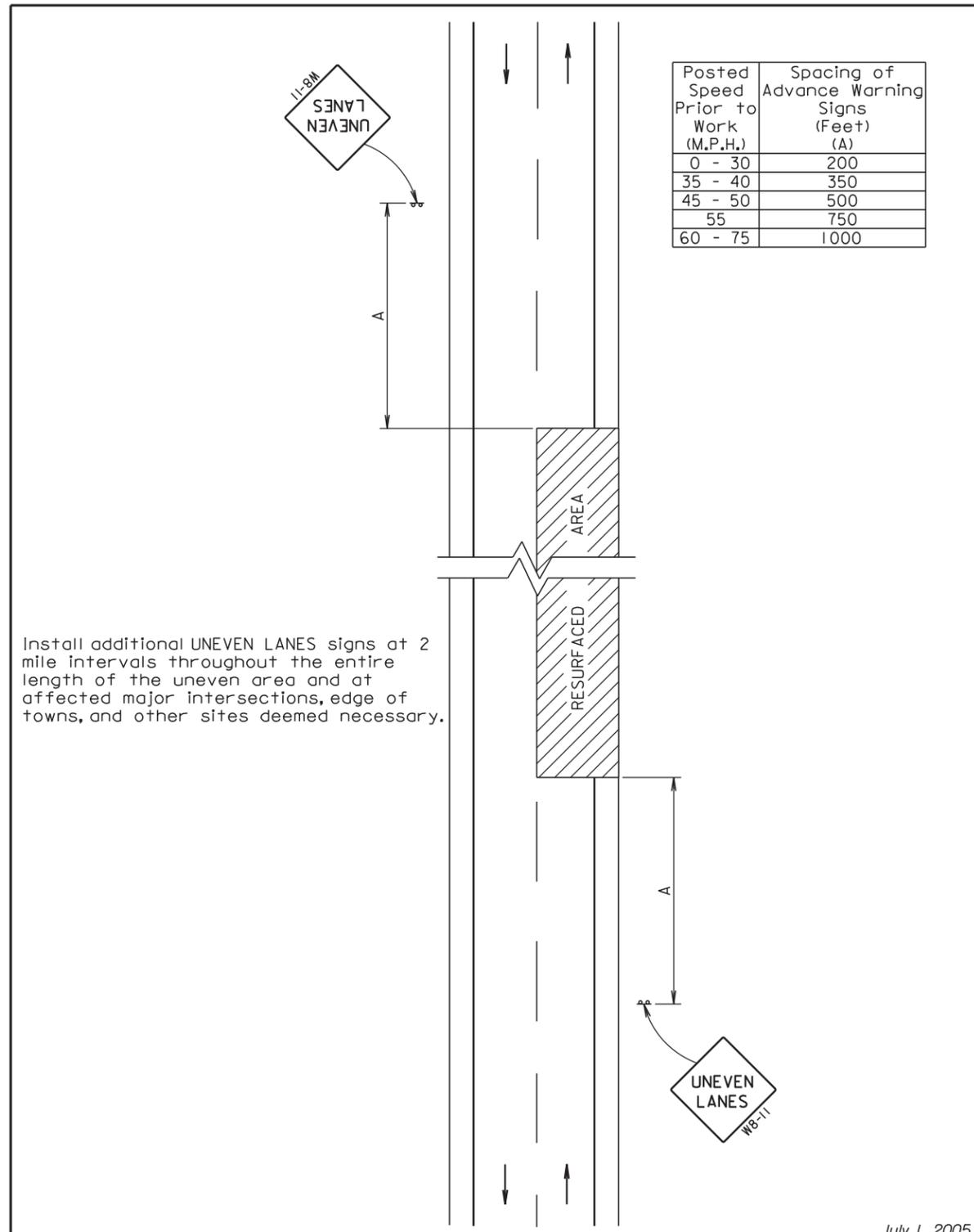
The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

WORK SPACE



February 14, 2011

PLOTTED FROM - TRAB10100



Install additional UNEVEN LANS 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

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (C)
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.

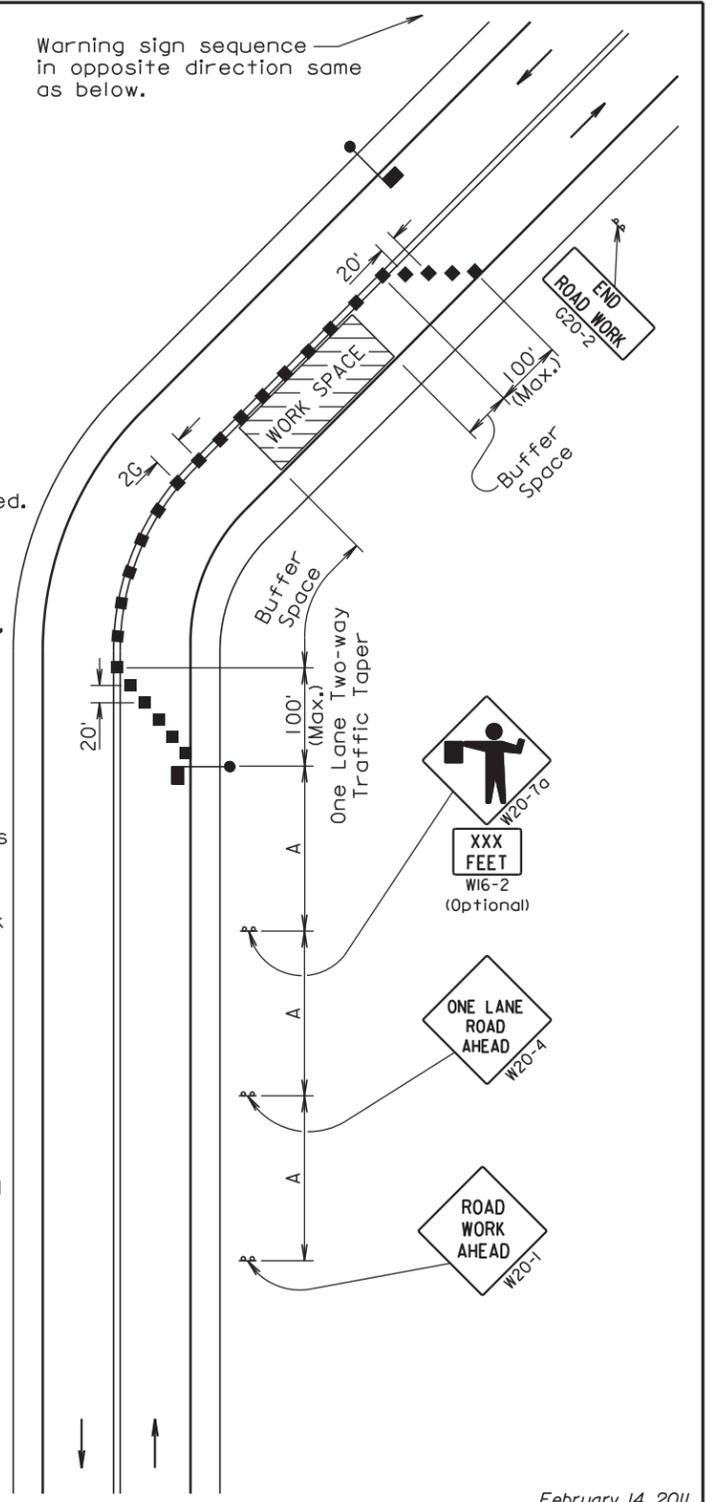
Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

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.

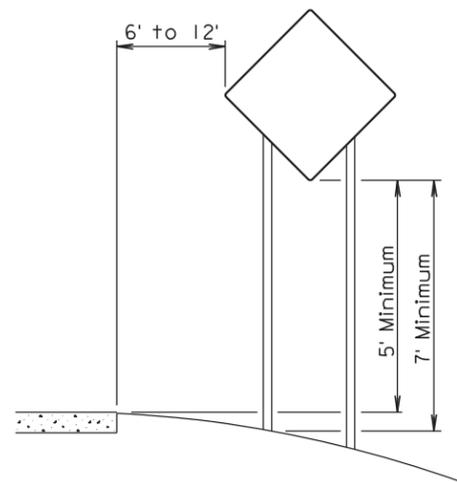
The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.



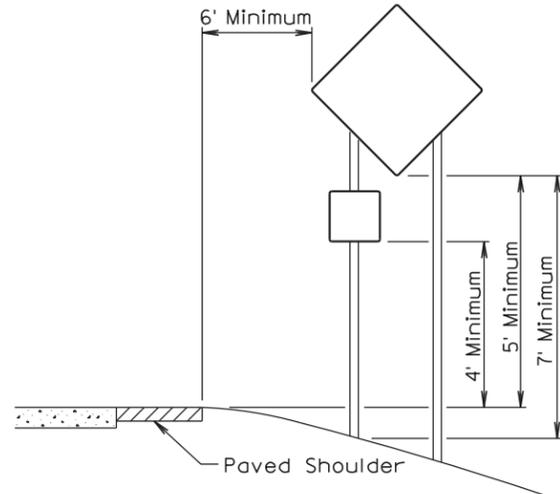
Warning sign sequence in opposite direction same as below.

February 14, 2011

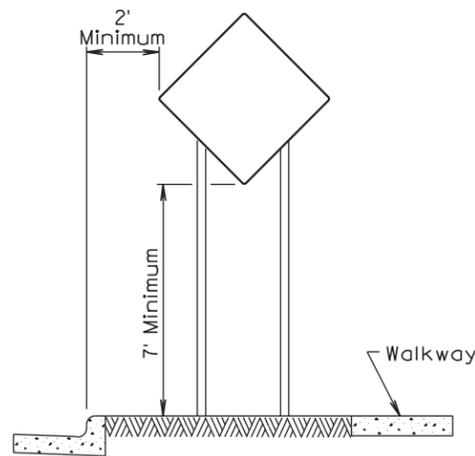
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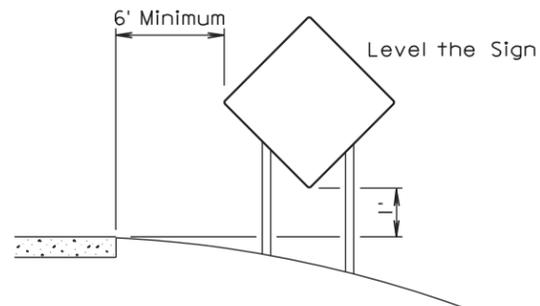
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



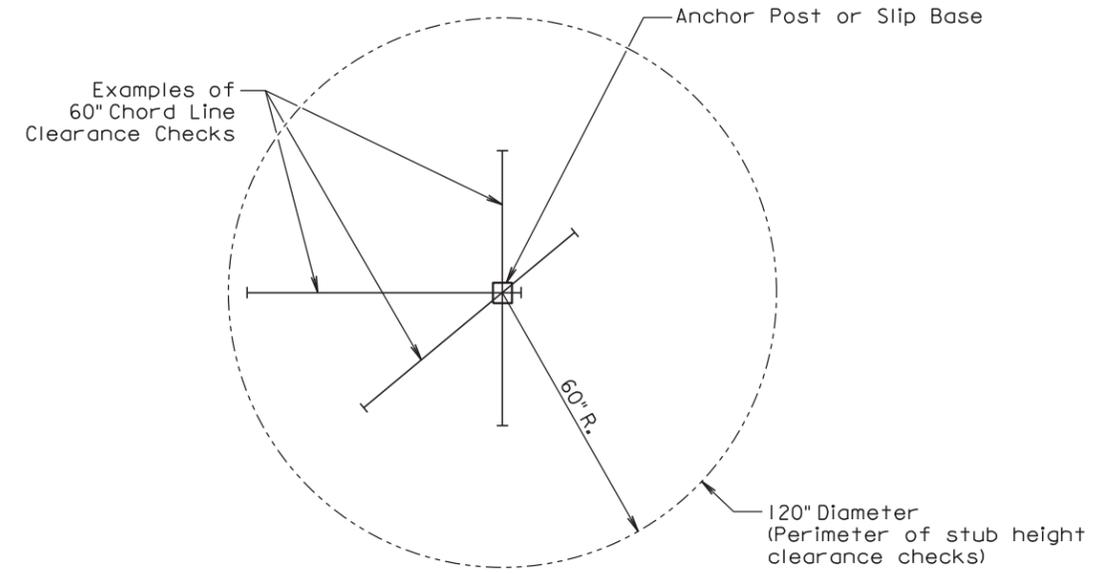
URBAN DISTRICT



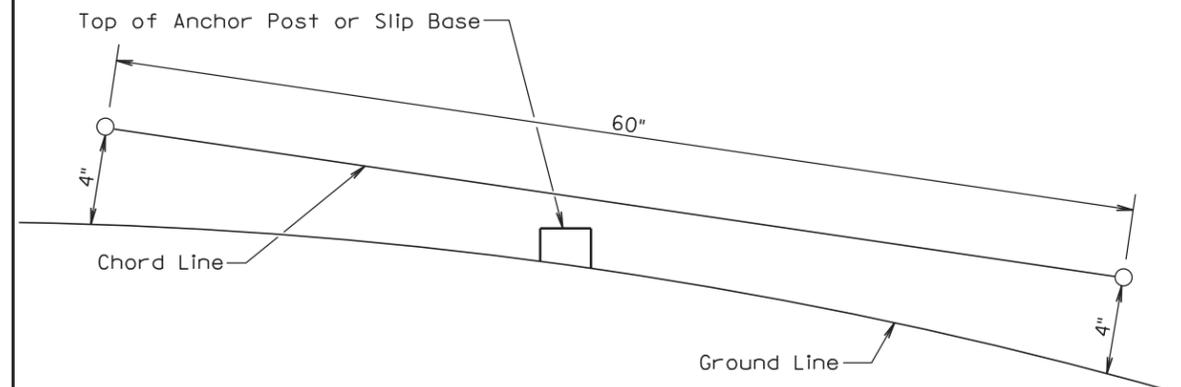
RURAL DISTRICT
3 DAY MAXIMUM

February 14, 2011

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

ITEMIZED LIST FOR TRAFFIC CONTROL

SIGN CODE	DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	UNITS PER SIGN	UNITS
W3-4	BE PREPARED TO STOP	2	48" x 48"	34	68
W7-3aP	NEXT ___ MILES (plaque)	4	36" x 30"	23	92
W8-1	BUMP	8	48" x 48"	34	272
W8-6	TRUCK CROSSING	2	48" x 48"	34	68
W8-11	UNEVEN LANES	2	48" x 48"	34	68
W8-15	GROOVED PAVEMENT	4	48" x 48"	34	136
W13-1P	ADVISORY SPEED (plaque)	8	30" x 30"	21	168
W20-1	ROAD WORK AHEAD	4	48" x 48"	34	136
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	34	68
W20-7	FLAGGER (symbol)	2	48" x 48"	34	68
G20-1	ROAD WORK NEXT ___ MILES	4	36" x 18"	17	68
G20-2	END ROAD WORK	2	36" x 18"	17	34
W8-15P	MOTORCYCLE (plaque)	4	24" x 18"	15	60
TOTAL UNITS					1306

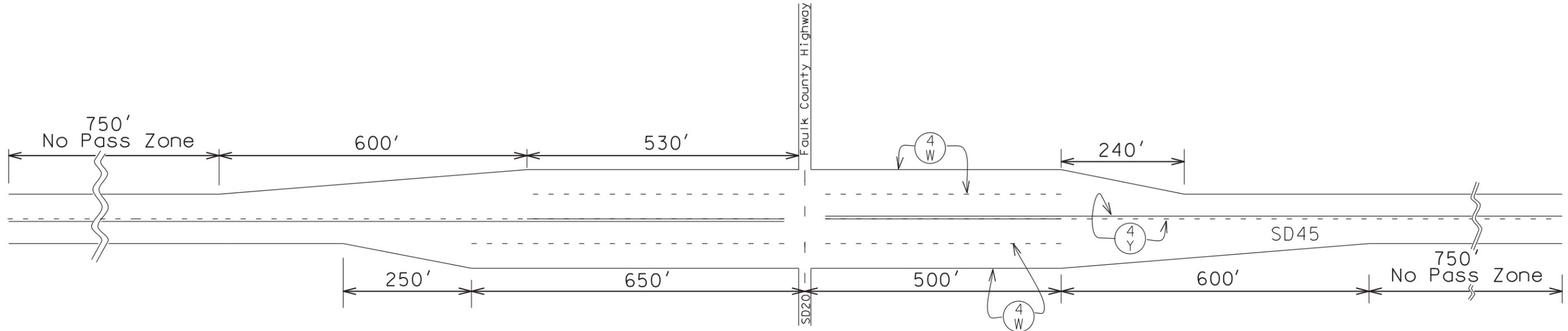
If a sign is required on a project and not listed in the above inventory the units per sign will be determined as follows:
Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:
If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.
If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(52)148 P 0020(138)294	26	41
Plotting Date: 11/13/2014			

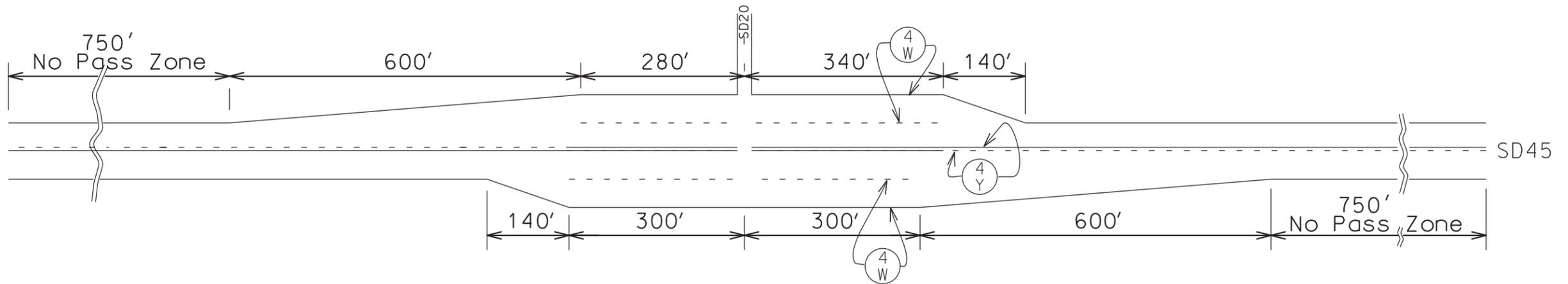
PAVEMENT MARKING LAYOUT



North Jct SD45 & SD20



South Jct SD45 & SD20



PLOT SCALE - 1:200

PLOTTED FROM - TRAB18004

PLOT NAME - 1

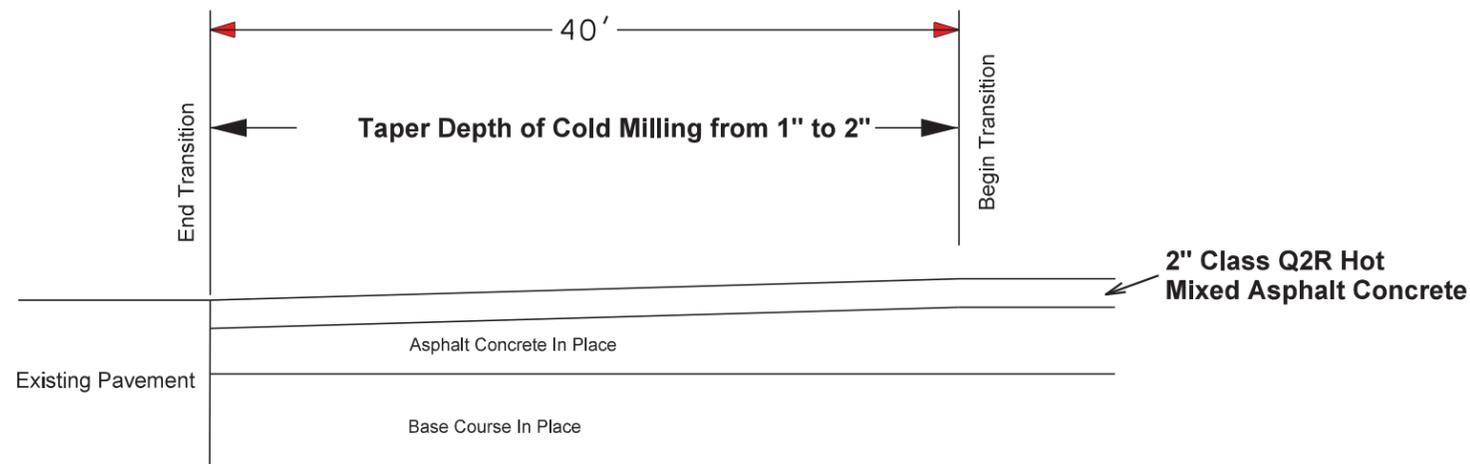
FILE - ... \SD45&SD20 JCT.DGN

TRANSITION SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(52)148 P 0020(138)294	27	41
Plotting Date: 11/14/2014			

TRANSITION SECTION

Begin / End of Project

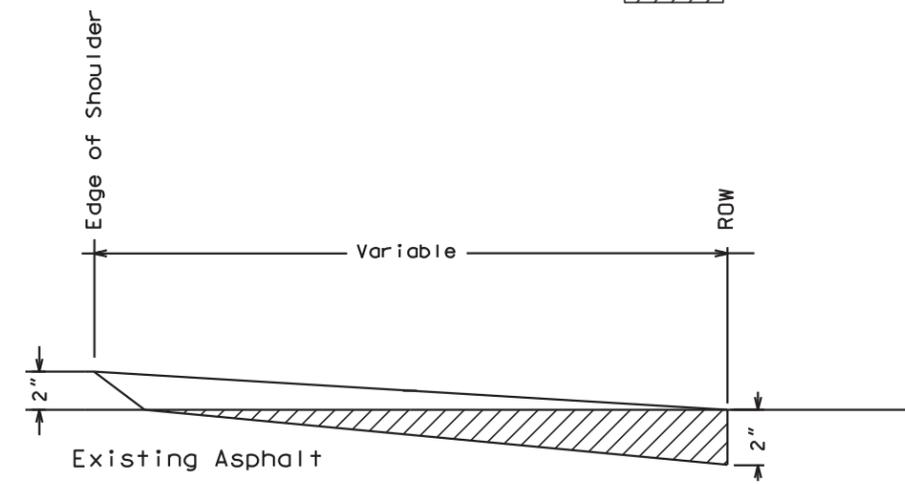


Note: Width of Cold Milling Asphalt Concrete at Beginning of Project shall match adjacent surfacing width.

Cost for tapering the width and depth of cold milling shall be incidental to the contract unit price per square yard for Cold Milling Asphalt Concrete.

TRANSITION SECTION

Intersecting Roads
152nd St
SD 20 W Jct.
SD 20 E Jct.
Faulk County Hwy 10

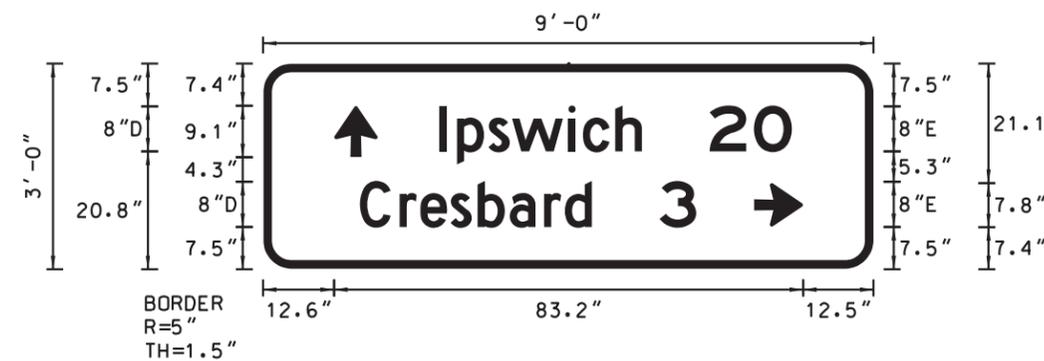
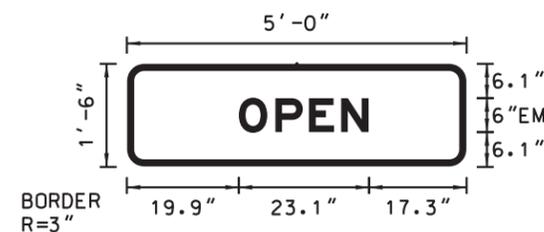
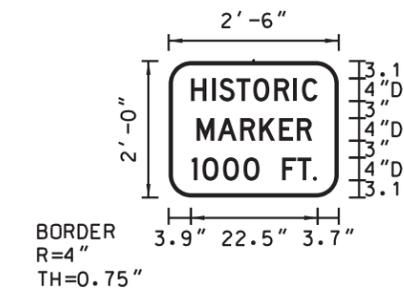
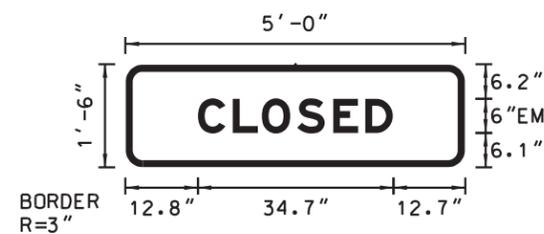
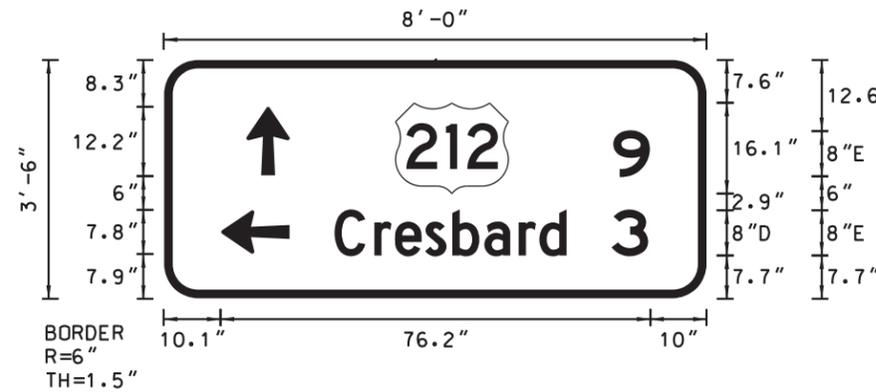
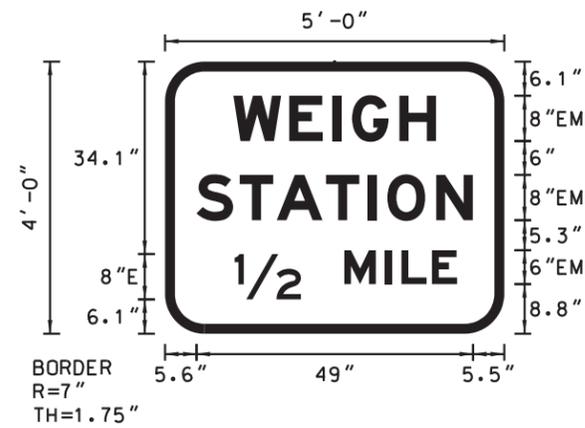


152nd Street
Approximate Width 26 Feet
Distance from edge of shoulder to ROW = 76 ft
Included in the Estimate of Quantities for 152nd Street
are 353 sq. yds. of additional Cold Milling Asphalt Concrete.

SD 20 E Junction
Approximate Width 32 Feet
SD 20 W Junction
Approximate Width 55 Feet
Distance from edge of shoulder to ROW = 76 ft
Included in the Estimate of Quantities for SD20 E and W Junctions
are 10843 sq. yds. of additional Cold Milling Asphalt Concrete.

Faulk County Highway 10
Approximate Width 26 Feet
Distance from edge of shoulder to ROW = 85 ft
Included in the Estimate of Quantities for Faulk County Hwy 10
are 468 sq. yds. of additional Cold Milling Asphalt Concrete.

SPECIAL SIGN DESIGN



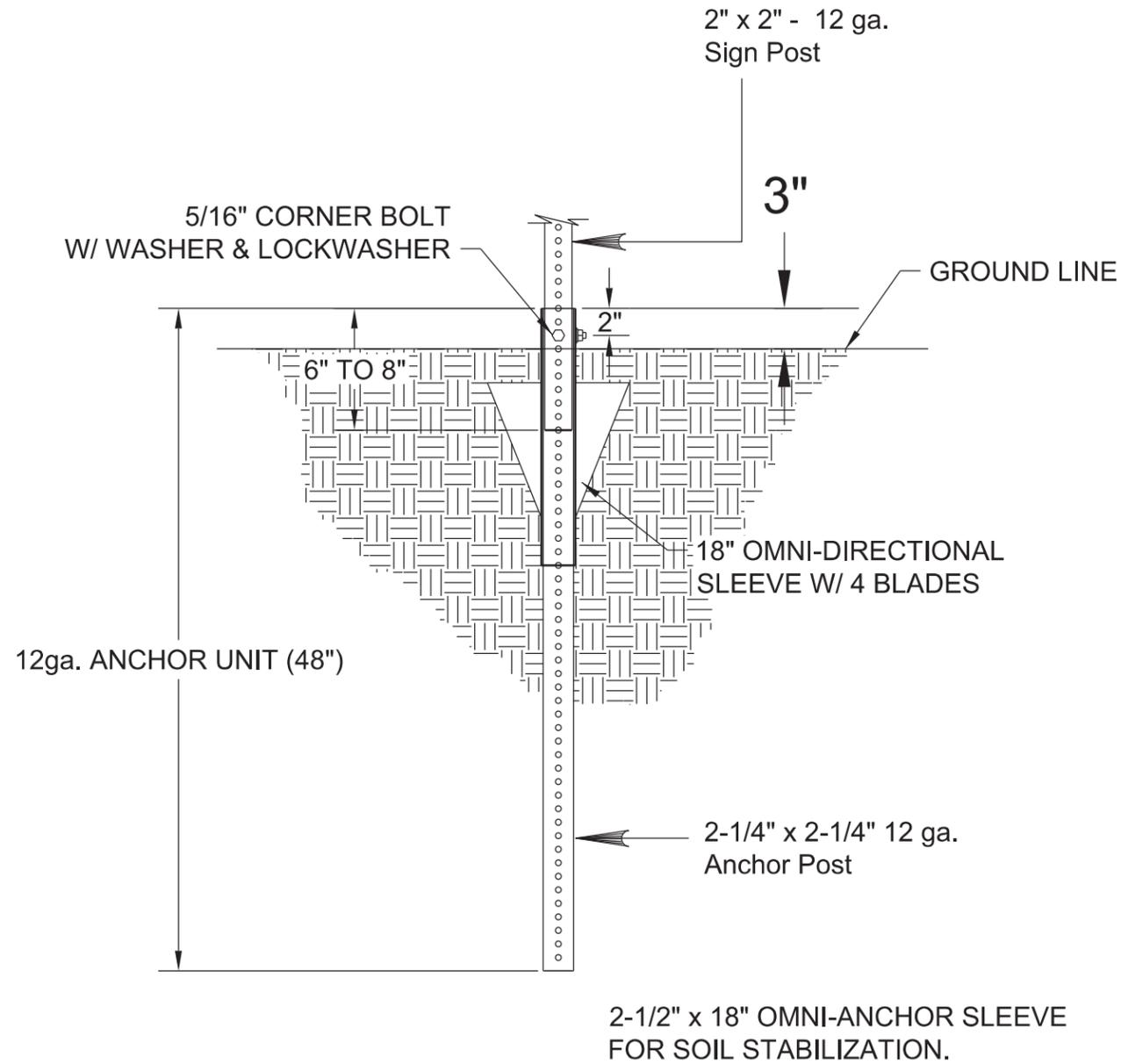
The open and closed sign above should be a flip sign.

The above sign shall have a brown background with white legend and white border

The above signs shall have a green background with white legend and white border

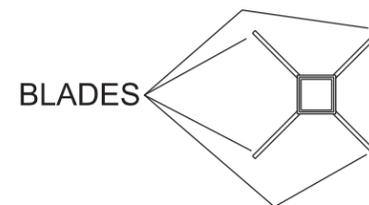
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(52)148 P 0020(138)294	29	41
Plotting Date: 06/16/2014			

SQUARE TUBE 4 BLADE ANCHOR DETAIL



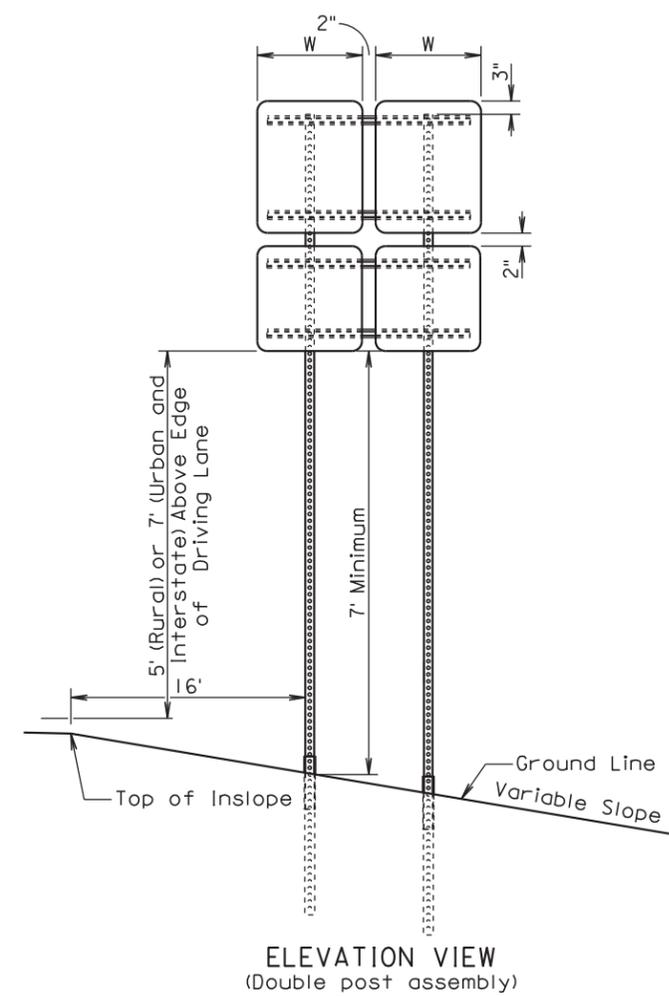
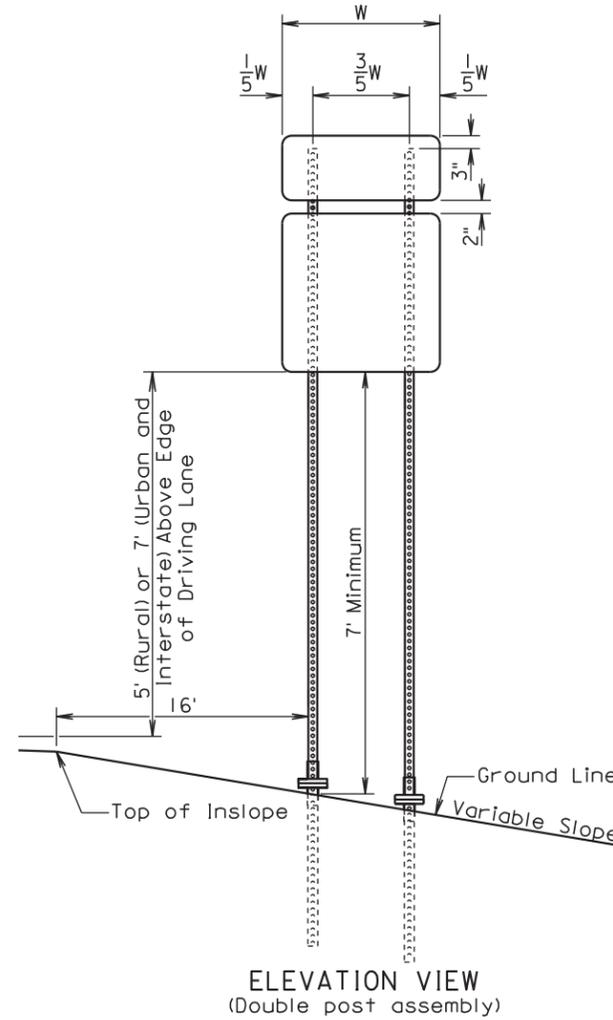
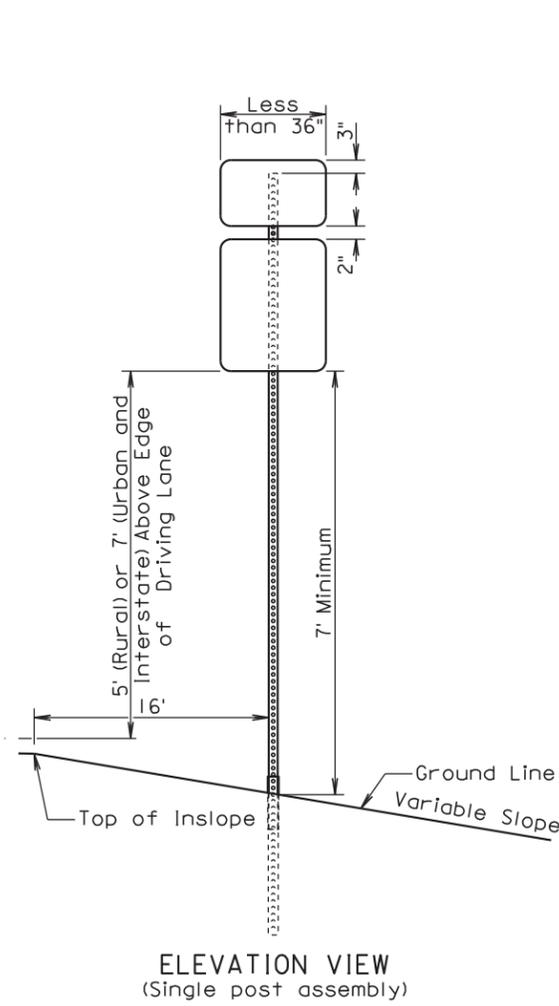
ANCHOR SLEEVE
TOP VIEW

2-1/2" x 18" 12 ga. Omni-Sleeve



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(52)148 P 0020(138)294	30	41
Plotting Date: 06/16/2014			

INSTALLATION DETAILS FOR MULTIPLE SIGN ASSEMBLIES

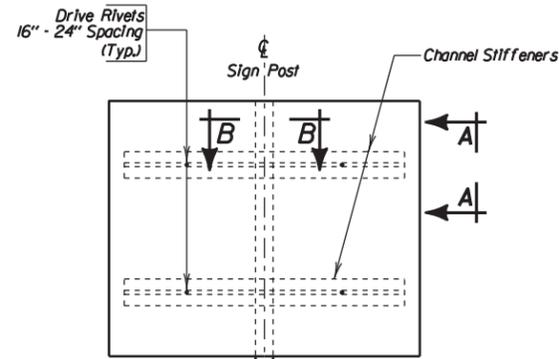


GENERAL NOTES:

The sign posts and bases shown are for illustrative purpose. The post type required shall be the type specified in the plans.

All breakaway sign supports shall comply with NCHRP 350 or MASH crash testing requirements and FHWA requirements. The Contractor shall provide post installation details at the preconstruction meeting for all breakaway sign support assemblies.

ONE POST BREAKAWAY SIGN SUPPORTS

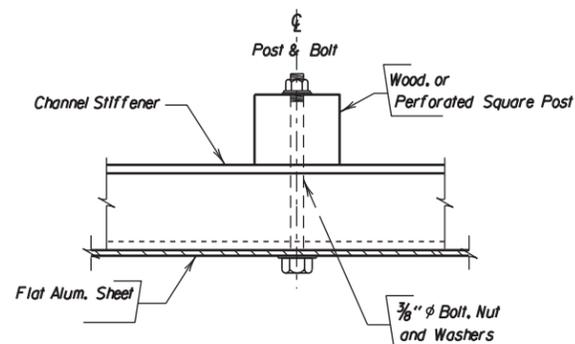
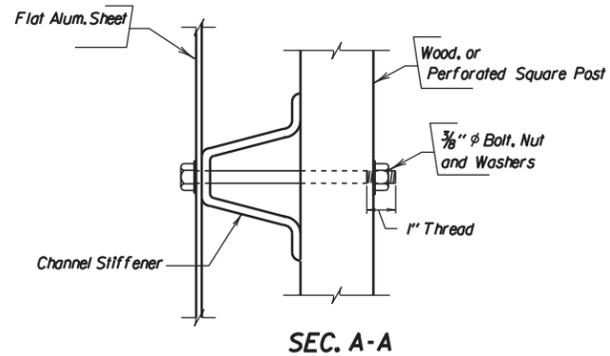
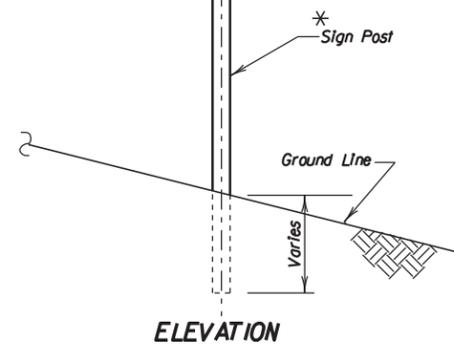


∅ A plastic washer, as recommended by the sheeting manufacturer, shall be installed between the sign face and the metal washer shown.

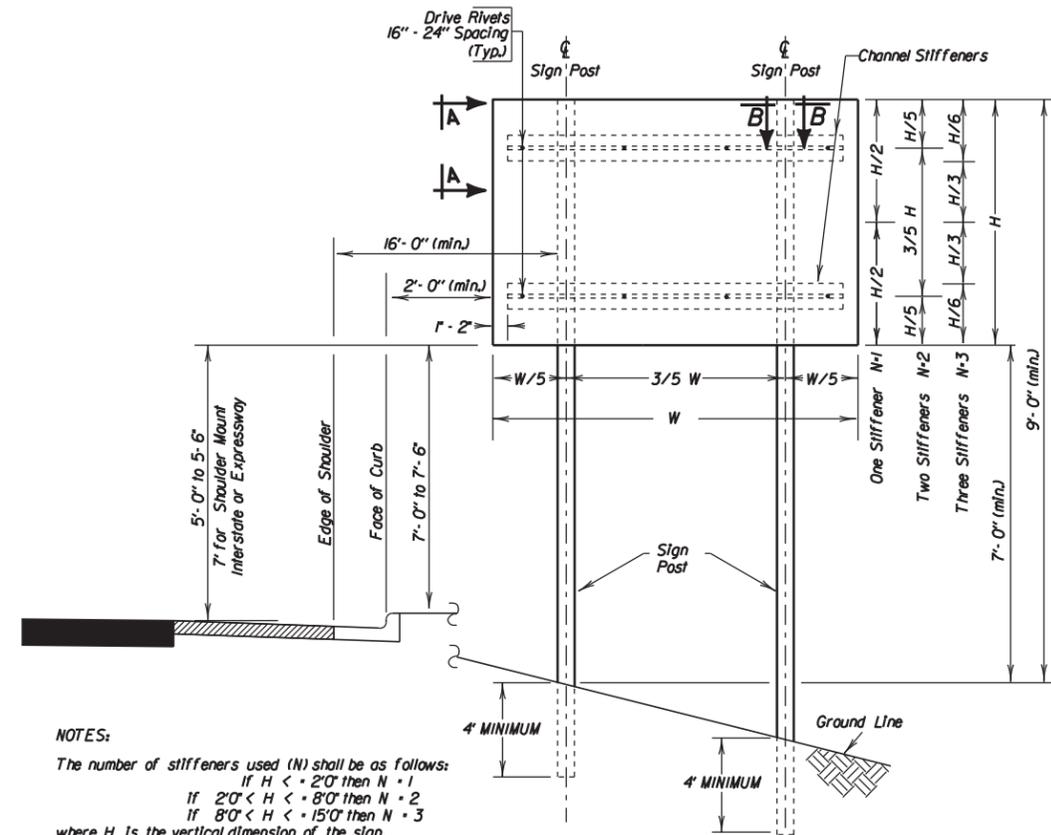
Height and lateral distance as recommended by latest edition of MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

* Single post installation shown. (See applicable Details or Standard Plates shown in these plans for multiple post spacing requirements.)

(Typical Sign and Stiffener Details)



TWO POST BREAKAWAY SIGN SUPPORTS



NOTES:

The number of stiffeners used (N) shall be as follows:

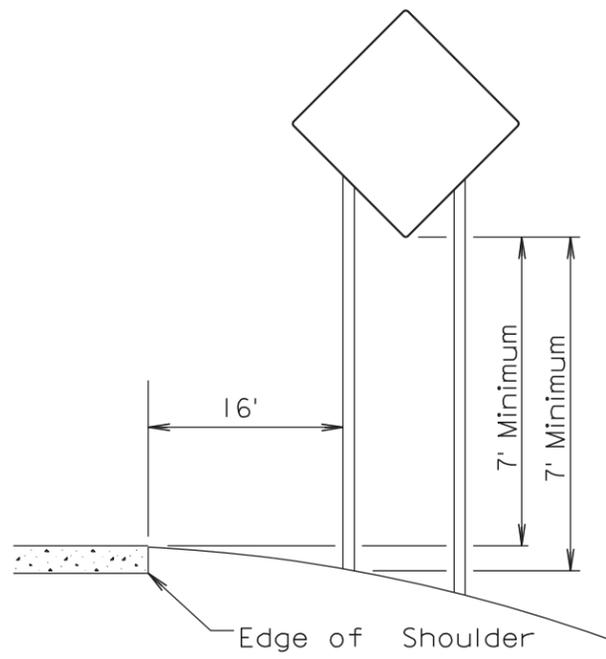
- If $H < 2'0"$ then $N = 1$
- If $2'0" < H < 8'0"$ then $N = 2$
- If $8'0" < H < 15'0"$ then $N = 3$

where H is the vertical dimension of the sign.

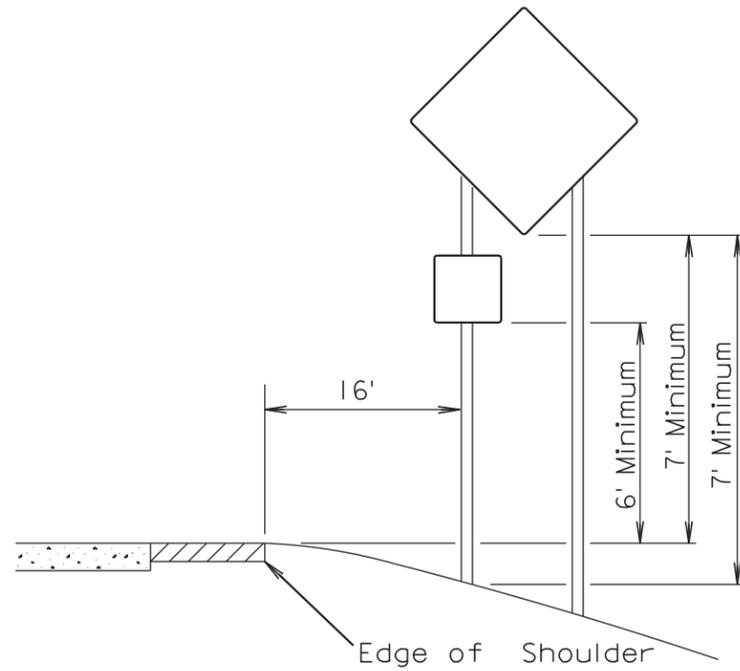
A minimum of two bolts shall be required to fasten the sign to each post.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(52)148 P 0020(138)294	32	41
Plotting Date: 06/16/2014			

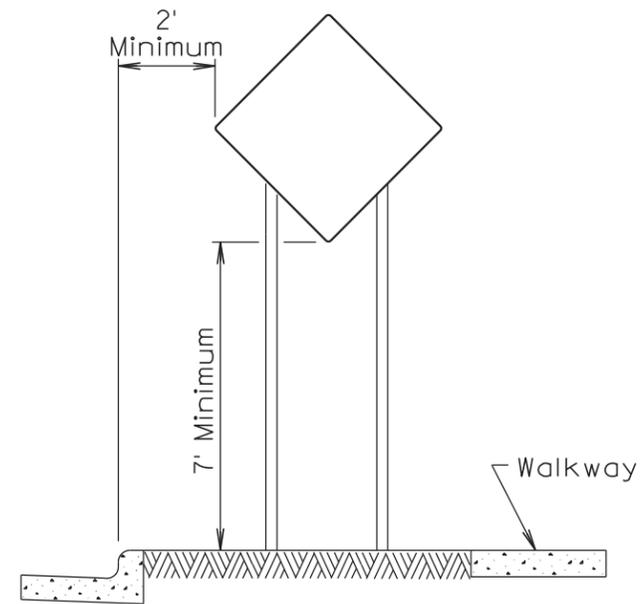
SIGN SUPPORTS (Lateral Off-Sets)



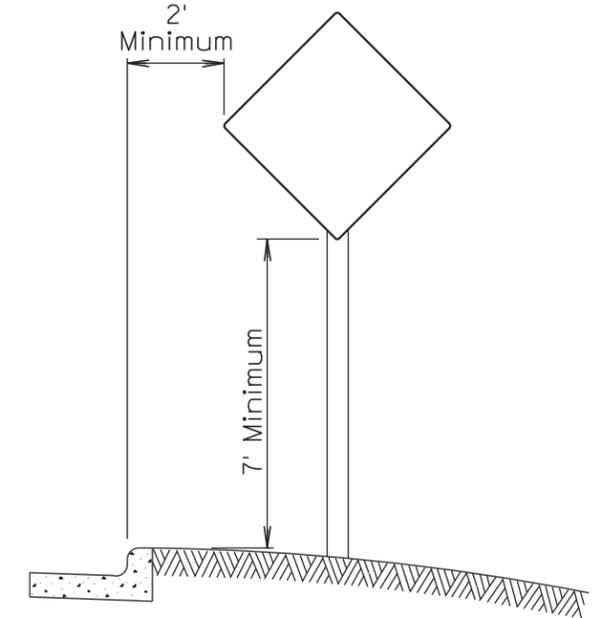
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT

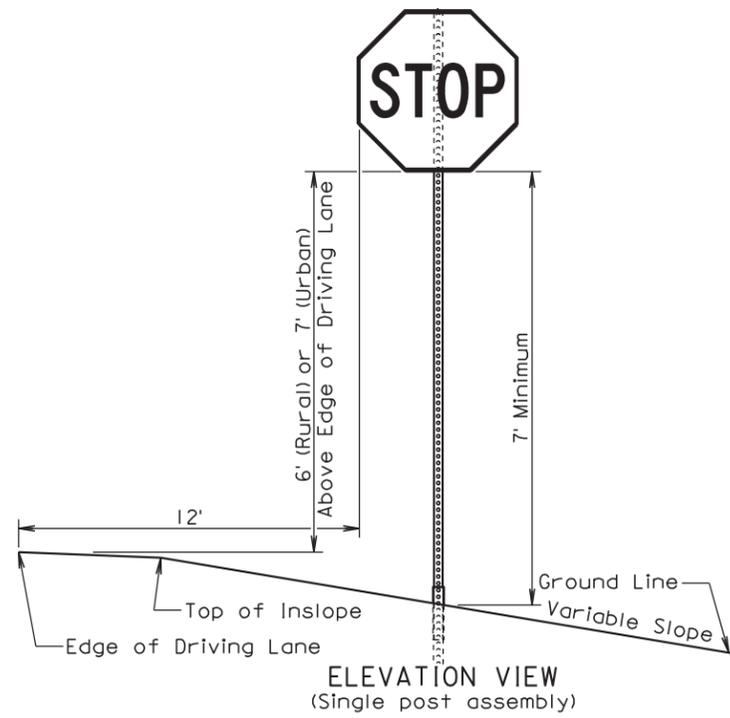


URBAN DISTRICT

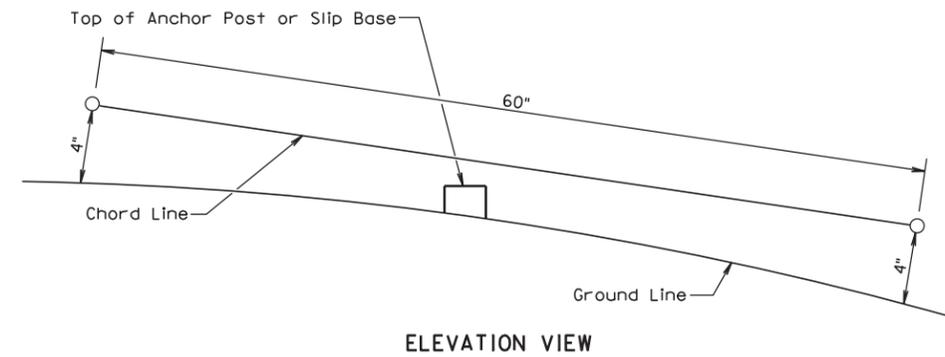
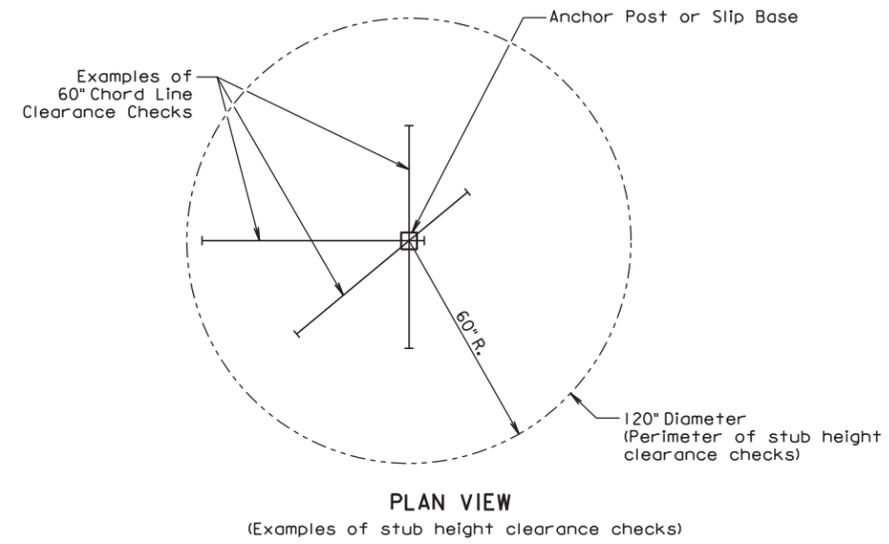
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(52)148 P 0020(138)294	33	41
Plotting Date: 06/16/2014			

PLOT SCALE - 1:200

INSTALLATION DETAILS FOR STOP SIGNS



BREAKAWAY SUPPORT STUB CLEARANCE



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.

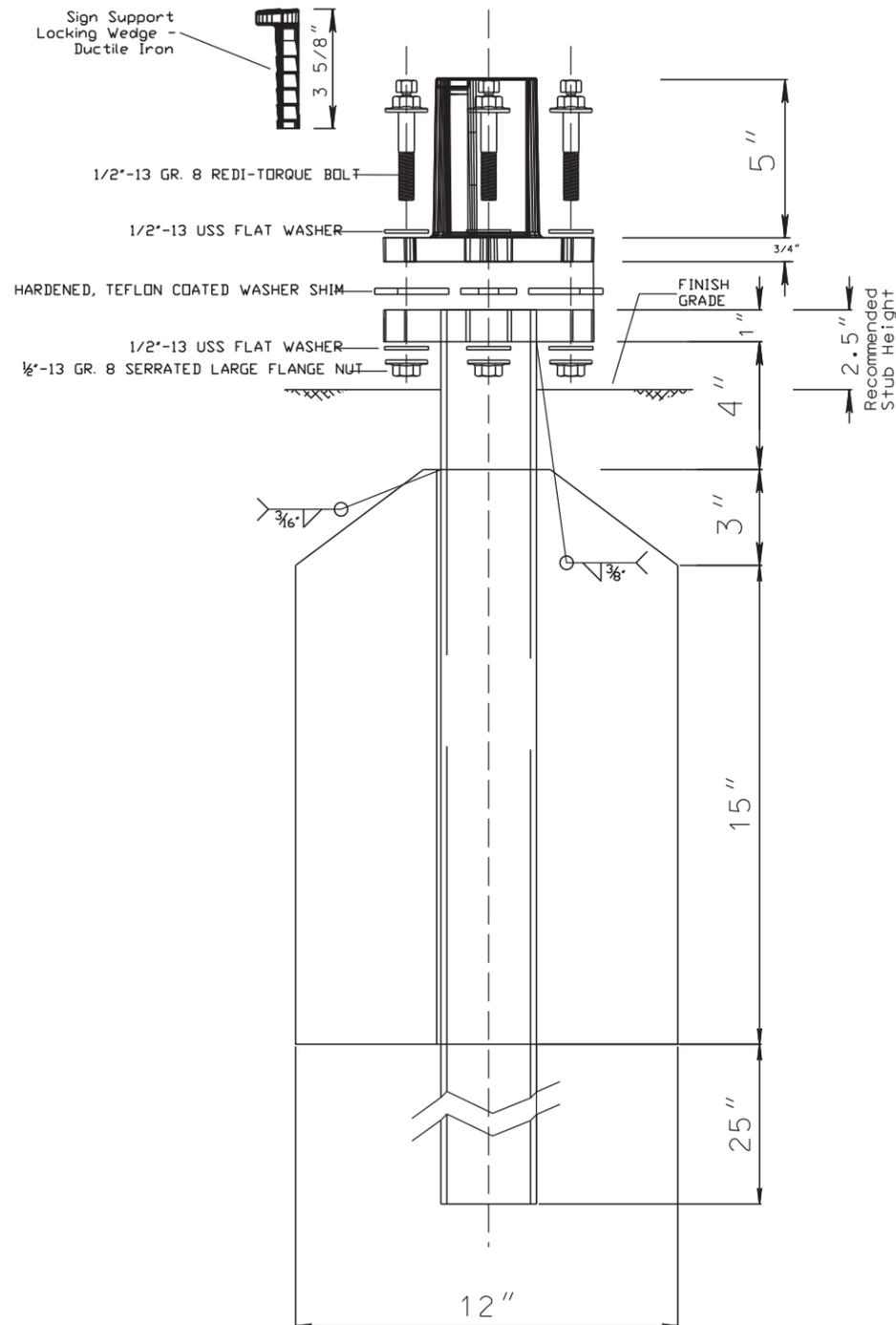
At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

PLOTTED FROM - TRAB10100

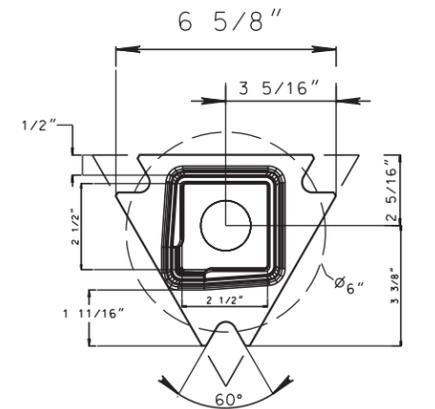
PLOT NAME - 5

FILE - ... \SIGN POST INSTALL DETAILS.DGN

48" WINGED ANCHOR SLIP BASE

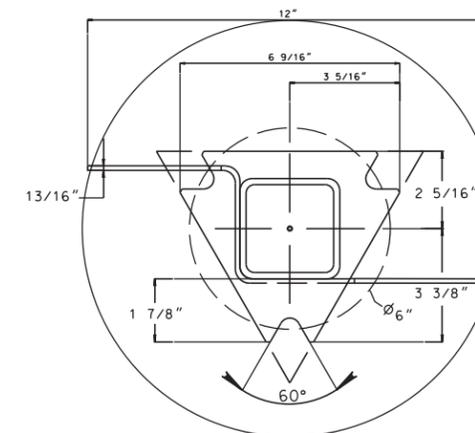


TOP POST RECEIVER
for 2-1/2" SQUARE POST



MATERIAL:
DUCTILE IRON CASTING, CLASS 65-45-12

BOTTOM UNIBASE
SOIL STUB

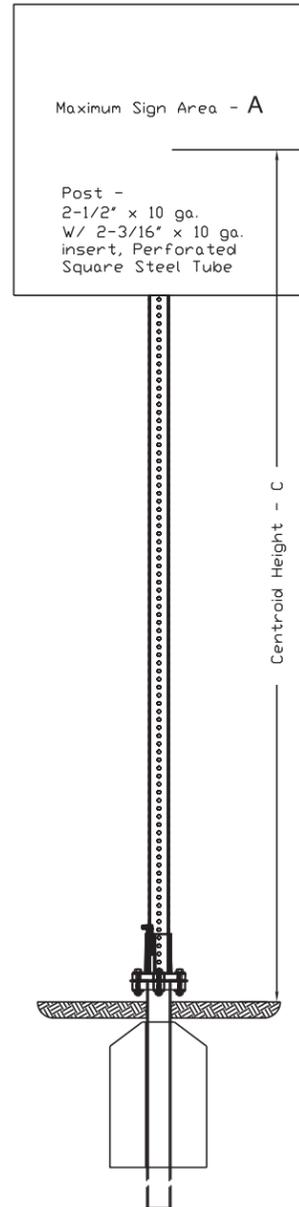


MATERIALS:
Tube - 3" x 3" x 7 ga. ASTM A500 Grade B tube
Stabilizing Wing - 7 ga. H.R.P.D. ASTM A 569
Plate - ASTM A572 grade 50

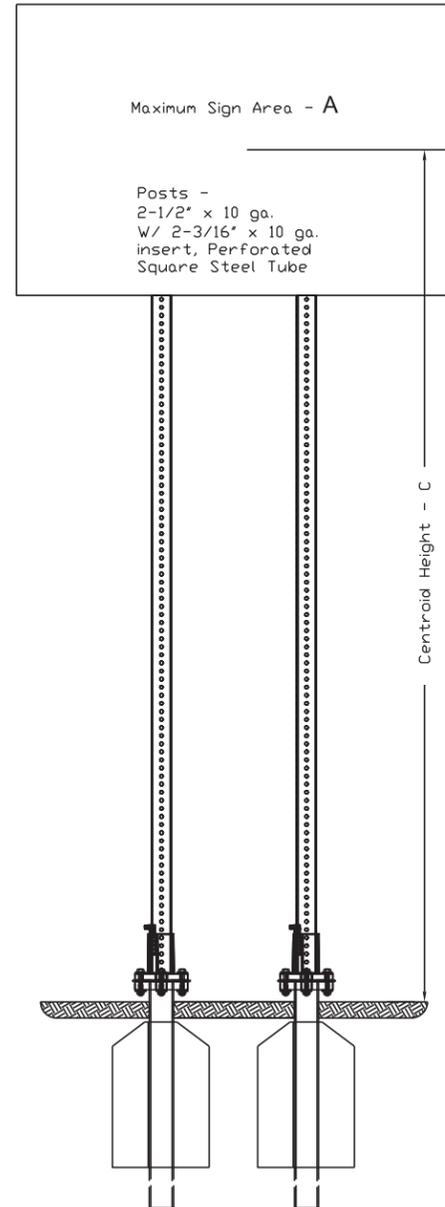


48" WINGED SLIP BASE

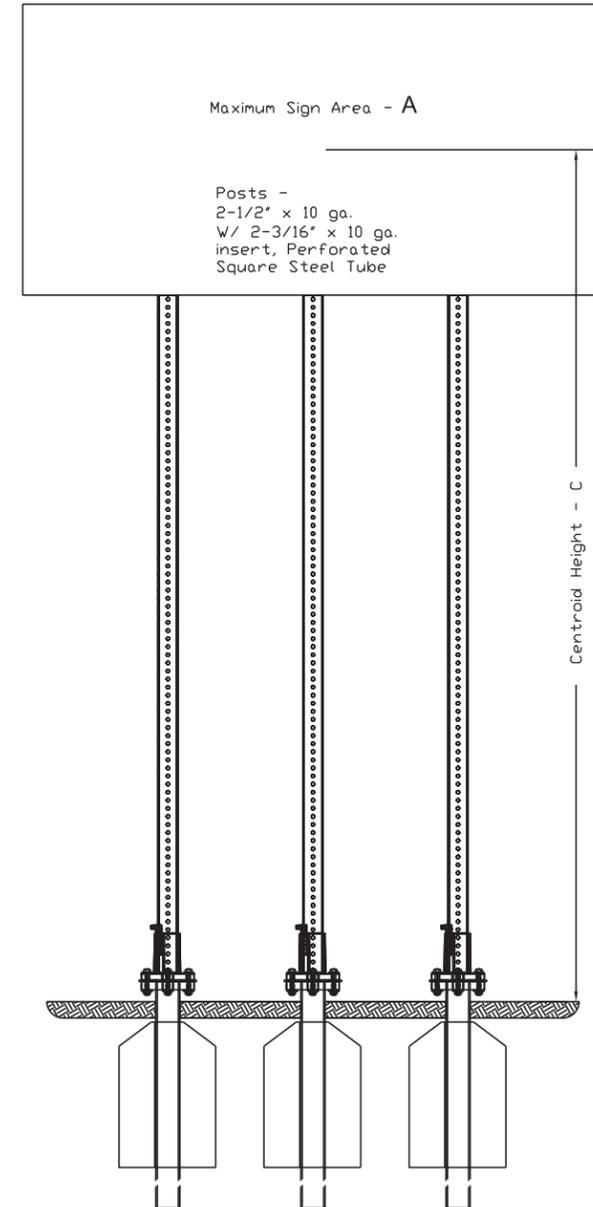
Post and Wind Load Information



centroid - C	Maximum Sign Area - A
8 ft.	42 ft ²
9 ft.	38 ft ²
10 ft.	34 ft ²
11 ft.	30 ft ²
12 ft.	28 ft ²
13 ft.	26 ft ²
14 ft.	24 ft ²
15 ft.	22 ft ²
16 ft.	20 ft ²



centroid - C	Maximum Sign Area - A
8 ft.	84 ft ²
9 ft.	76 ft ²
10 ft.	68 ft ²
11 ft.	60 ft ²
12 ft.	56 ft ²
13 ft.	52 ft ²
14 ft.	48 ft ²
15 ft.	44 ft ²
16 ft.	40 ft ²



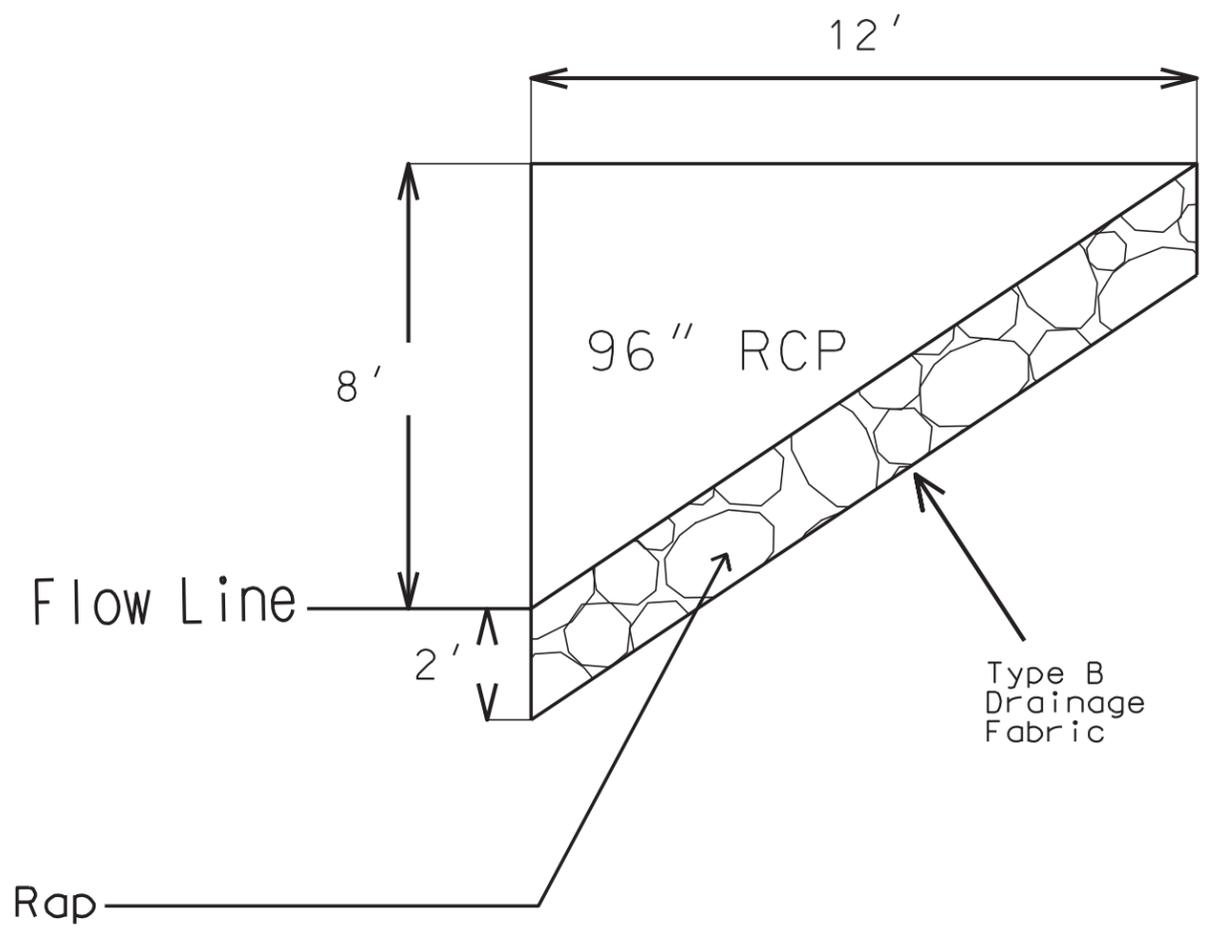
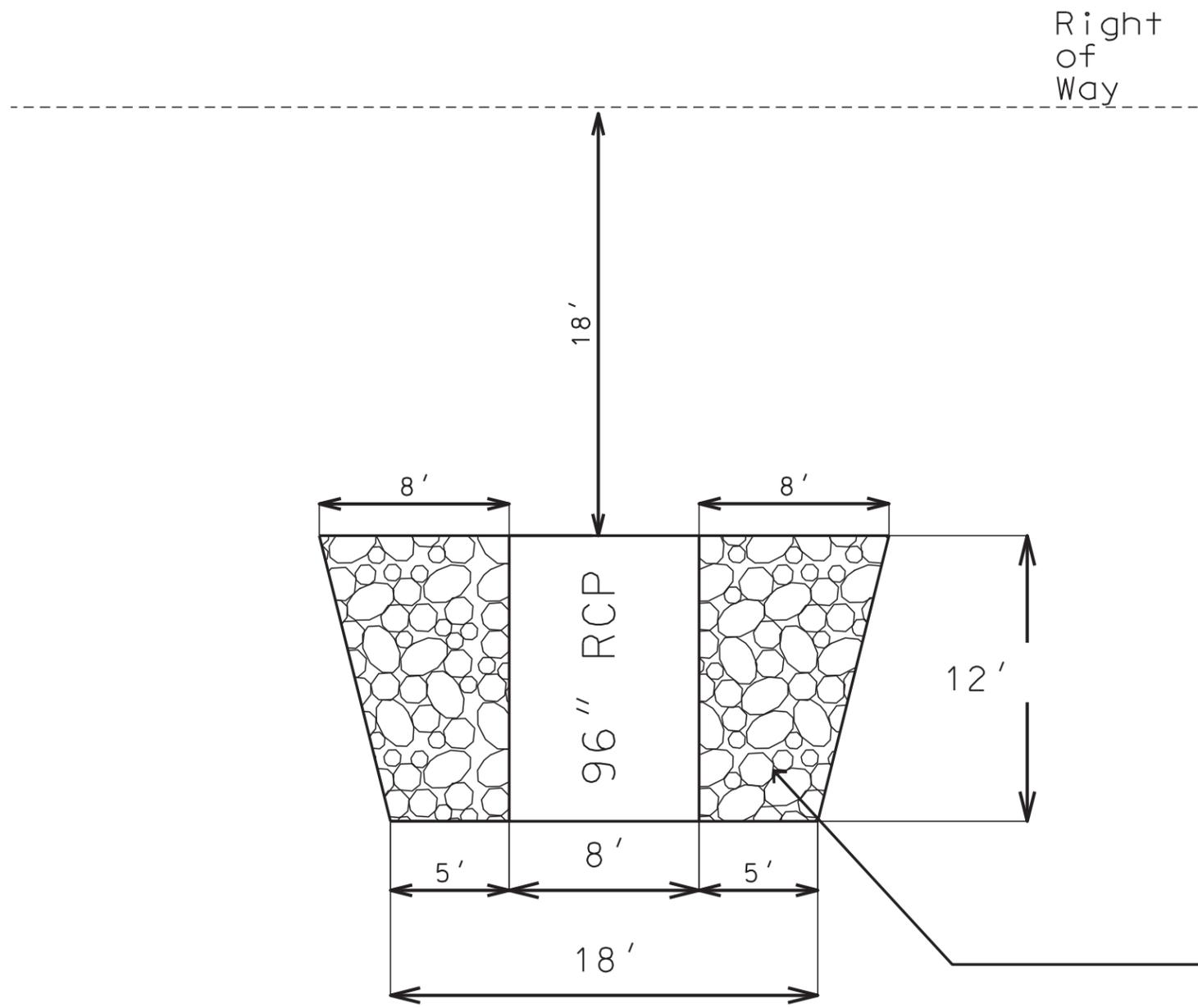
centroid - C	Maximum Sign Area - A
8 ft.	126 ft ²
9 ft.	114 ft ²
10 ft.	102 ft ²
11 ft.	90 ft ²
12 ft.	84 ft ²
13 ft.	78 ft ²
14 ft.	72 ft ²
15 ft.	66 ft ²
16 ft.	60 ft ²

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(52)148 P 0020(138)294	36	41
Plotting Date:			

96" RCP at MRM 155.001
West side of Hwy 45

Plan View

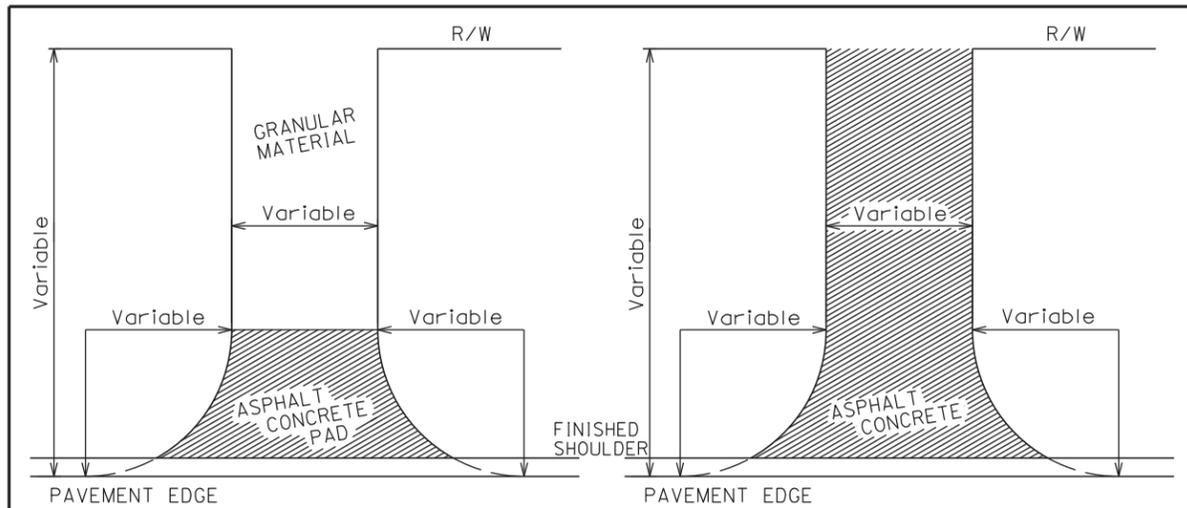
Profile View



PLOT SCALE - 1:9470.28

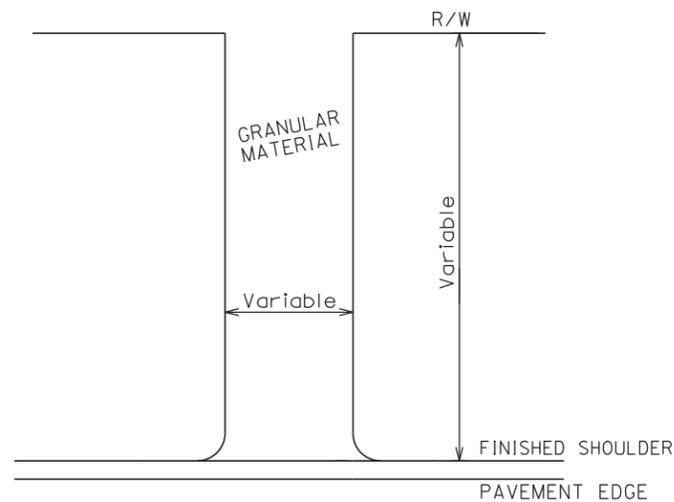
PLOT NAME - 2

FILE - ... \04EK-TITLE-SHEET.DGN



INTERSECTING ROAD
NO ASPHALT CONCRETE SURFACING
BEYOND R/W

INTERSECTING ROAD
ASPHALT CONCRETE SURFACING
BEYOND R/W



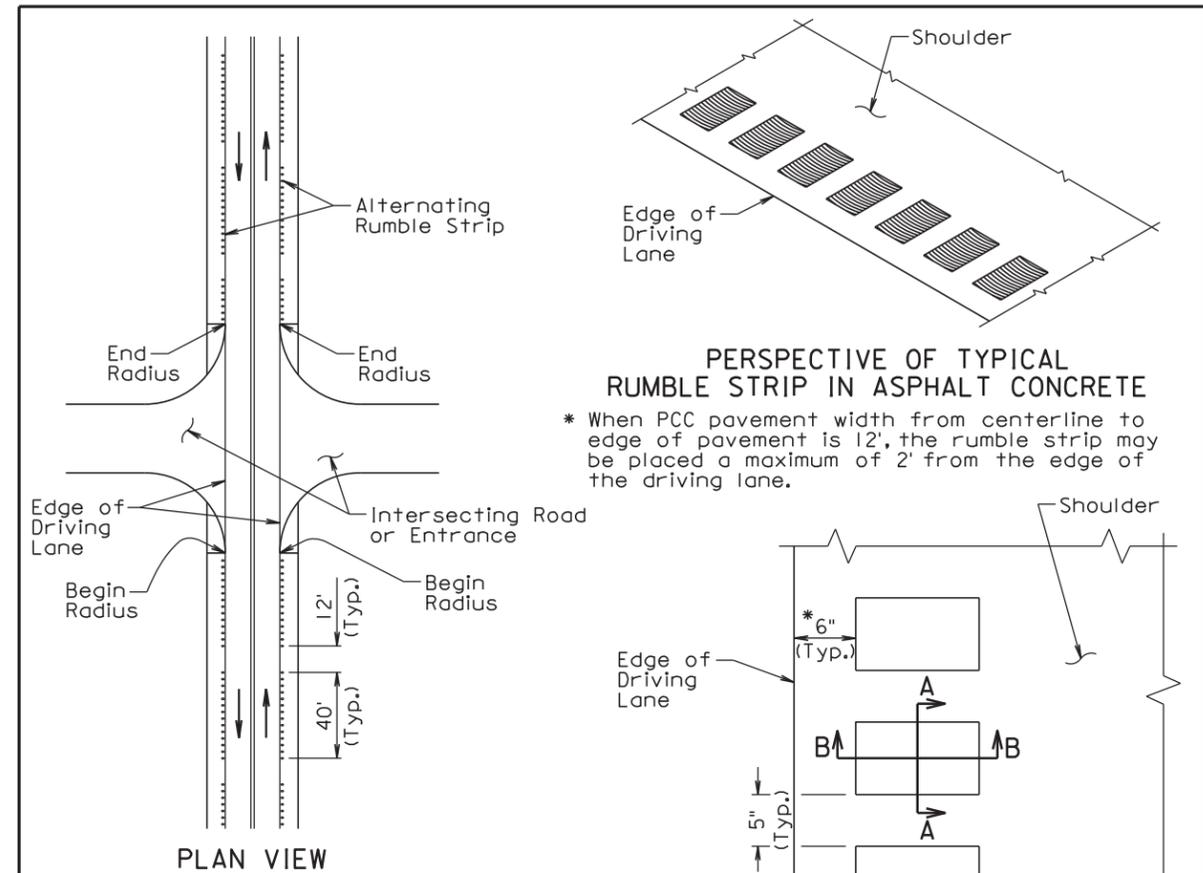
ENTRANCE

The surfacing details shown on this sheet are provided as a guide for surfacing these facilities. The precise construction limits for situations other than the standards shown will be determined by the Engineer, at the time of construction.

ROADWAY WITH SHOULDER

March 31, 2000

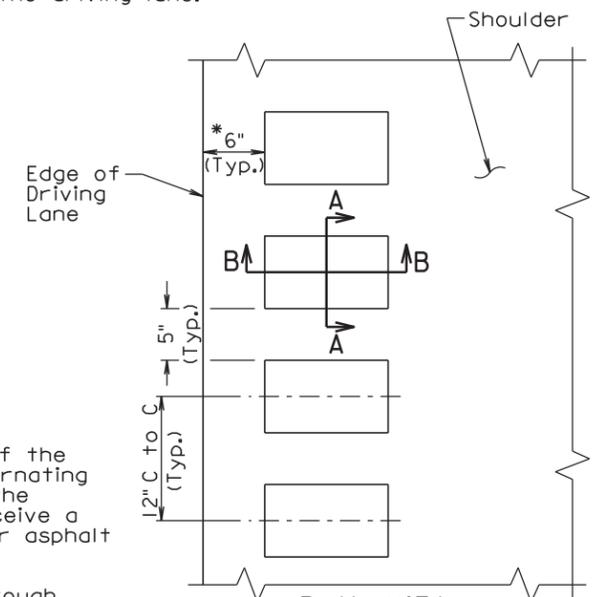
Published Date: 3rd Qtr. 2014	S D D O T	RESURFACING OF INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 320.11
			Sheet 1 of 1



PLAN VIEW

PERSPECTIVE OF TYPICAL
RUMBLE STRIP IN ASPHALT CONCRETE

* When PCC pavement width from centerline to edge of pavement is 12', the rumble strip may be placed a maximum of 2' from the edge of the driving lane.



PLAN VIEW
TYPICAL RUMBLE STRIP
IN ASPHALT CONCRETE

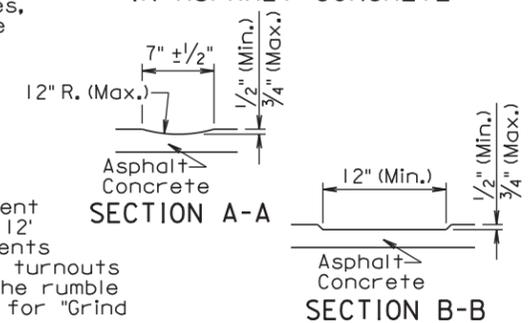
GENERAL NOTES:

A rumble strip shall be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble strip shall receive a flush seal with the shoulder flush sealing or asphalt surface treatment.

A rumble strip shall not be constructed through intersecting roads, entrances, and turnouts. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble strip adjacent to the intersecting roads, entrances, and turnouts shall be adjusted as approved by the Engineer.

Prior to constructing the rumble strip the Contractor shall submit to the Engineer, for approval, the proposed method of constructing the rumble strip.

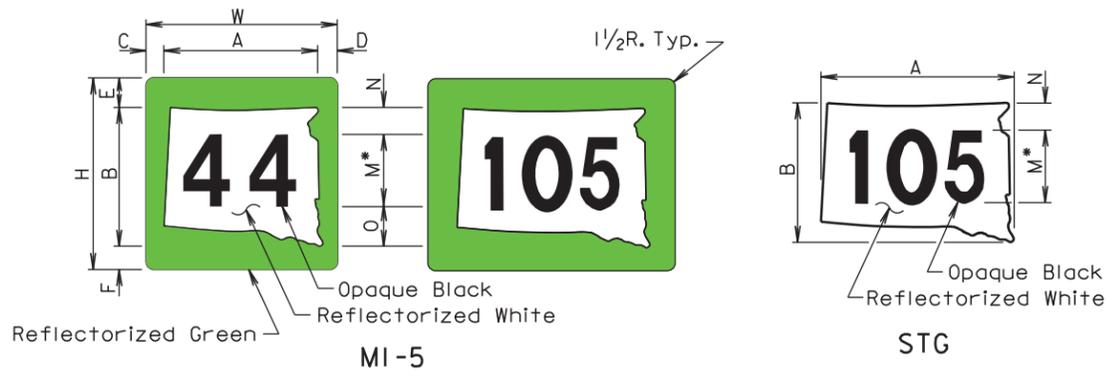
Measurement of the rumble strip shall be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble strip shall include the 12' long segments without rumble strips and the segments adjacent to the intersecting roads, entrances, and turnouts without rumble strips. Payment for constructing the rumble strip shall be at the contract unit price per mile for "Grind 12" Rumble Strip or Stripe in Asphalt Concrete".



June 26, 2011

Published Date: 3rd Qtr. 2014	S D D O T	12" RUMBLE STRIP IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.24
			Sheet 1 of 1

PLOTTED FROM - TRAB10100

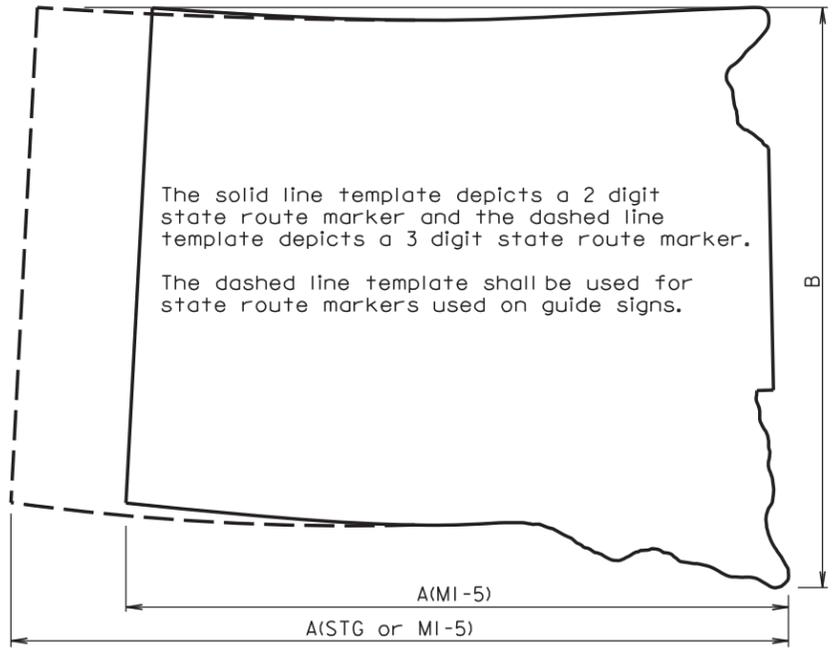


SIGN CODE	WxH	A	B	C	D	E	F	M*	N	O
MI-5	24x24	20 1/2	18	2	1 1/2	3 1/2	2 1/2	12D	2	4
MI-5**	30x24	24	18	2 1/4	1 3/4	3 1/2	2 1/2	12D	2	4
MI-5	30x30	25 5/8	22 1/2	2 1/2	1 7/8	4 3/8	3 1/8	15D	2 1/2	5
MI-5	36x36	30 3/4	27	3	2 1/4	5 1/4	3 3/4	18D	3	6

SIGN CODE	AxB	M*	N
STG-24	24x18	10D	4
STG-32	32x24	12D	4 3/4
STG-48	48x36	18D	7
STG-64	64x48	24D	9 1/2

*In the few cases where there is not enough space for the numerals, the standard "D" series font may be replaced with "C" series font if approved by the Engineer.

** 3 Digits



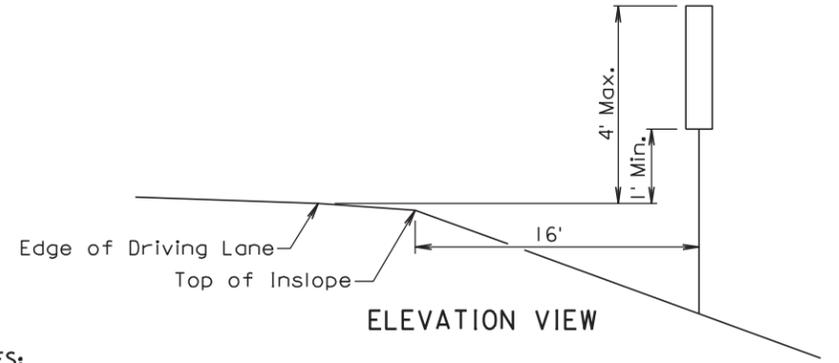
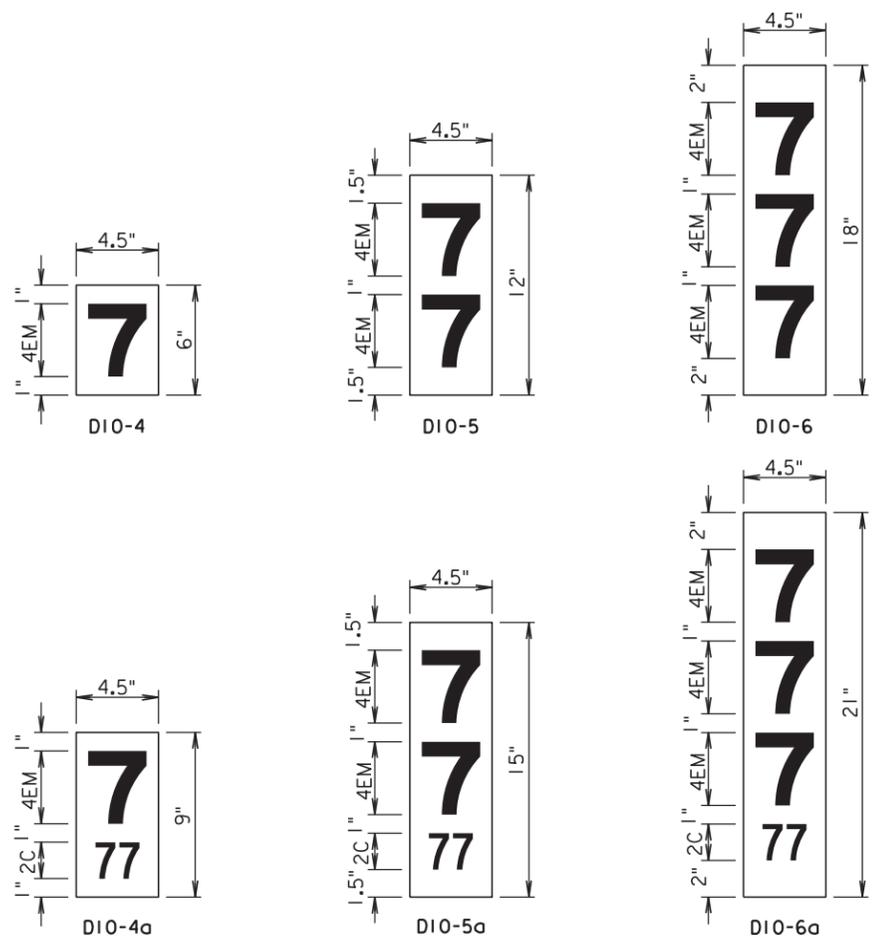
TEMPLATE FOR STATE ROUTE MARKER

GENERAL NOTES:

The unit for all dimensions shown is inches.
Numerals shall be "D" series font for all state route markers except as noted above.

December 23, 2003

Published Date: 3rd Qtr. 2014	S D D O T	STATE ROUTE MARKERS	PLATE NUMBER 632.20
			Sheet 1 of 1



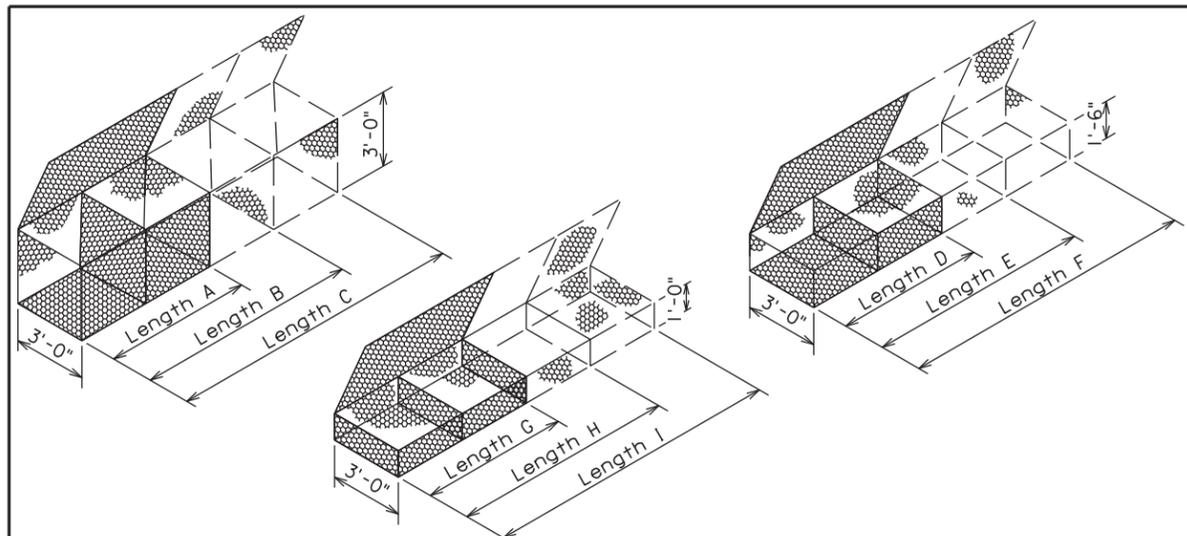
GENERAL NOTES:

Background shall be high intensity green.
Legend shall be high intensity white.
Signs shall have squared corners with no border.
Sign locations shall be staked by the Engineer.

December 23, 2003

Published Date: 4th Qtr. 2014	S D D O T	NON-INTERSTATE MILEAGE REFERENCE MARKERS	PLATE NUMBER 632.30
			Sheet 1 of 1

PLOTTED FROM - TRAB10100



**GABION DETAILS
STANDARD SIZES**

SIZE	LENGTH	WIDTH	HEIGHT	NUMBER OF CELLS	CAPACITY, Cu. Yd.
A	6'-0"	3'-0"	3'-0"	2	2.0
B	9'-0"	3'-0"	3'-0"	3	3.0
C	12'-0"	3'-0"	3'-0"	4	4.0
D	6'-0"	3'-0"	1'-6"	2	1.0
E	9'-0"	3'-0"	1'-6"	3	1.5
F	12'-0"	3'-0"	1'-6"	4	2.0
G	6'-0"	3'-0"	1'-0"	2	0.7
H	9'-0"	3'-0"	1'-0"	3	1.0
I	12'-0"	3'-0"	1'-0"	4	1.3

Above Dimensions subject to mill tolerances.

GENERAL NOTES:

Lacing and internal connecting wire shall be 0.0866 inch diameter steel wire ASTM A641 Class 3 soft temper measured after galvanizing and for PVC coated gabions shall be 0.0866 inch diameter steel wire measured after galvanizing but before PVC coating.

The lacing procedure is as follows:

1. Cut a length of lacing wire approximately 1 1/2 times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

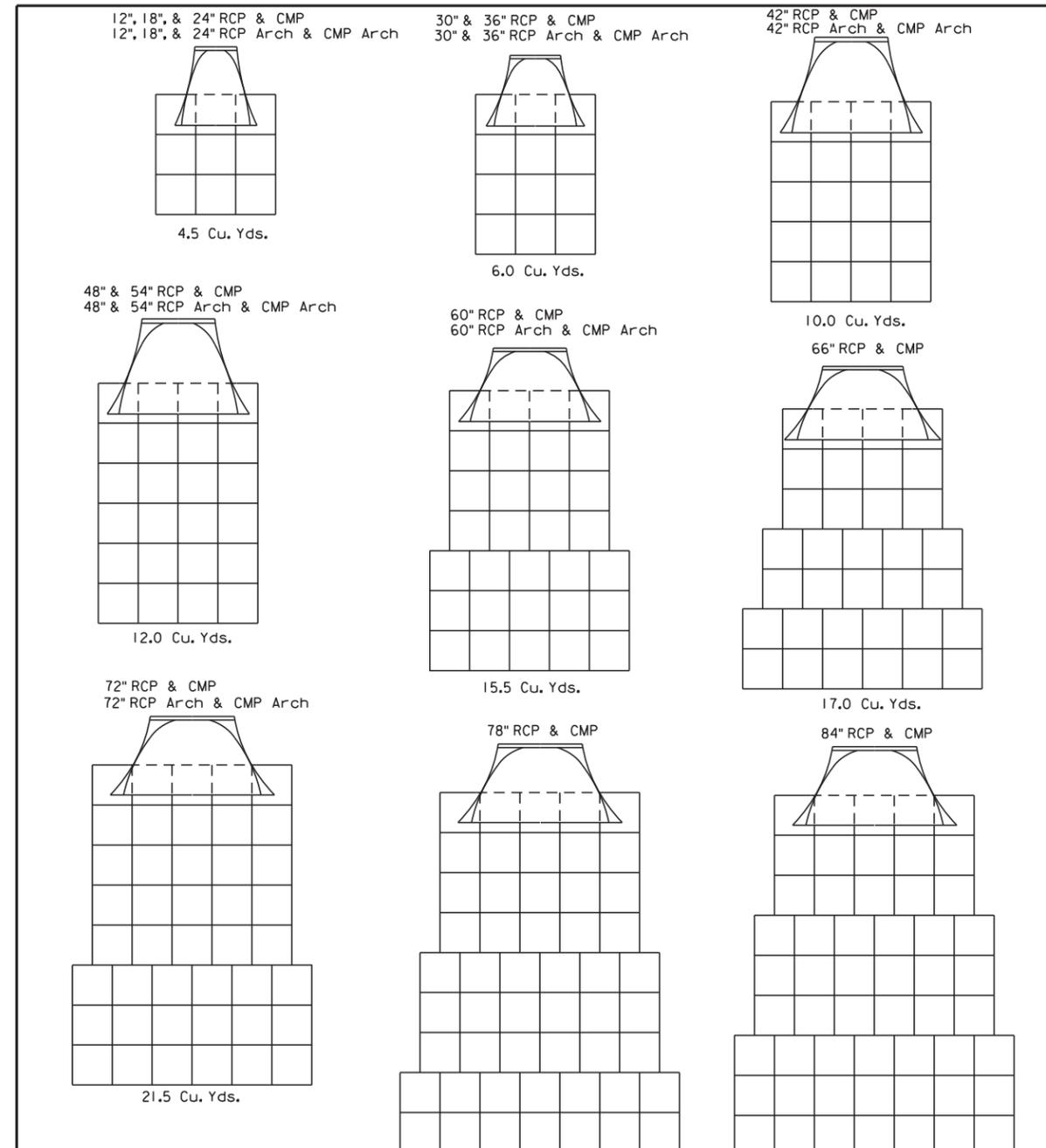
Wire lacing or interlocking type fasteners shall be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions shall be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing shall conform to ASTM A641-92 Class 3 coating. Fasteners shall also be in accordance with ASTM A764, Class II, Type III.

Interlocking fasteners for PVC coated gabions shall be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class I. The spacing of the interlocking fasteners during all phases of assembly and construction shall not exceed 6 inches.

All fasteners shall be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

June 26, 2001

Published Date: 3rd Qtr. 2014	S D D O T	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01
			Sheet 1 of 1



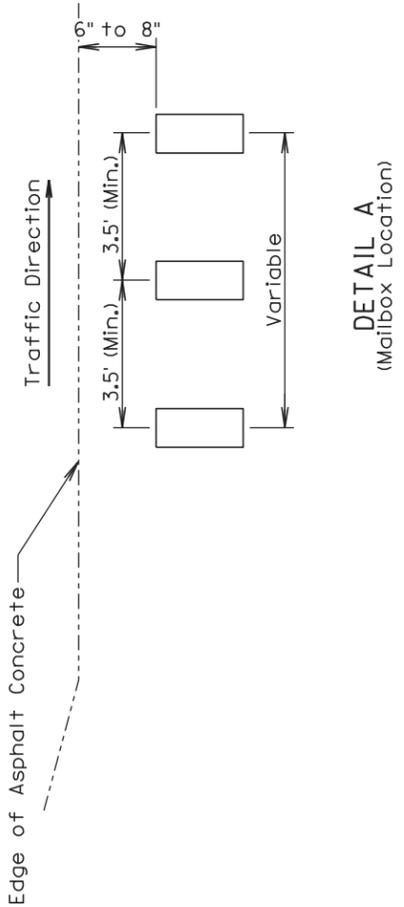
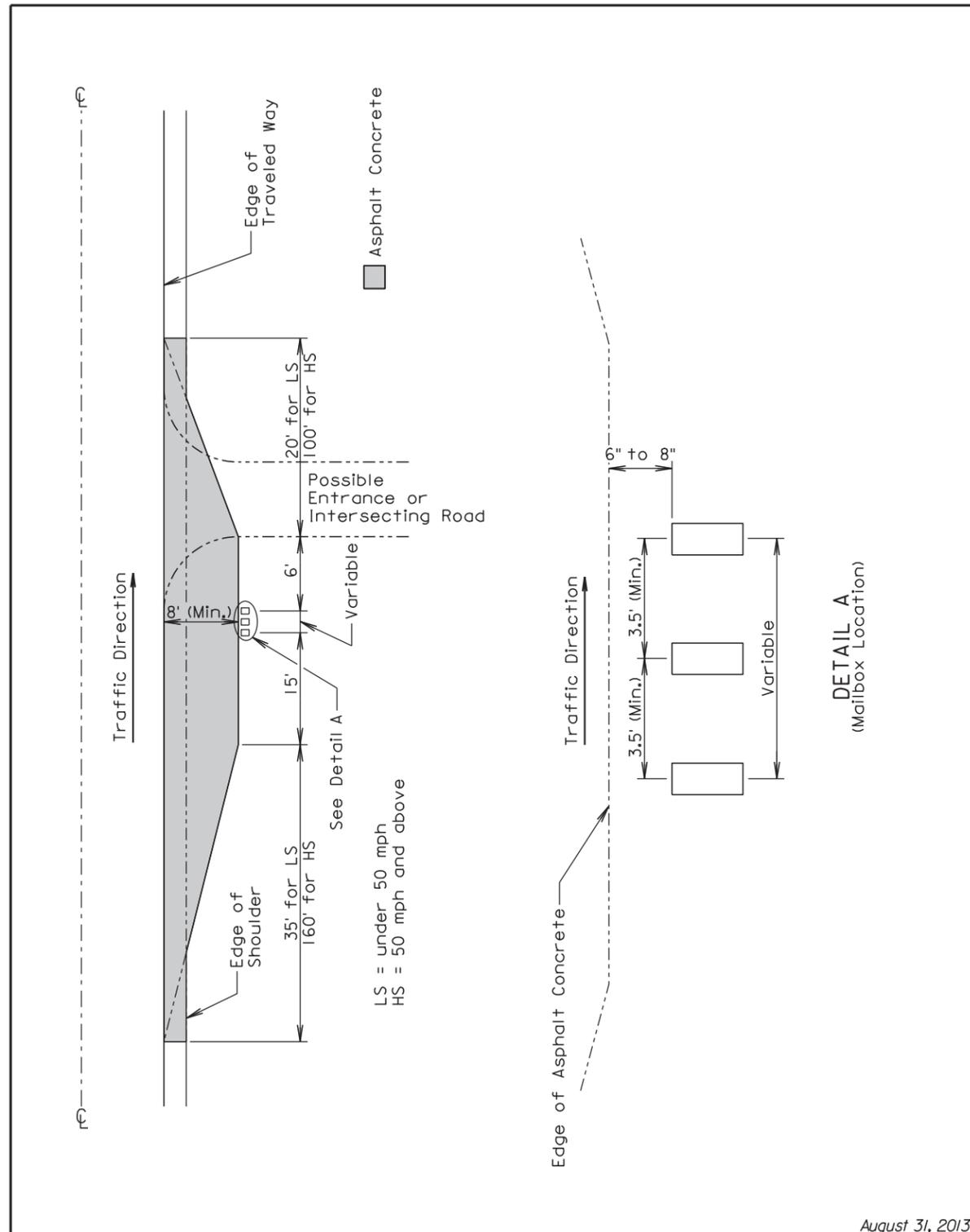
GENERAL NOTES:

Gabions at outlets of C.M. pipe and R.C. pipe shall be placed under the end section a distance of 2' from the outlet end of the section. For C.M. pipe end section installations, the upper fabric of the gabions shall be modified to accommodate the metal end section in a manner approved by the Engineer.

Quantities shown on this standard plate are based on standard gabion sizes D, E, and F (See Standard Plate 720.01).

June 26, 2001

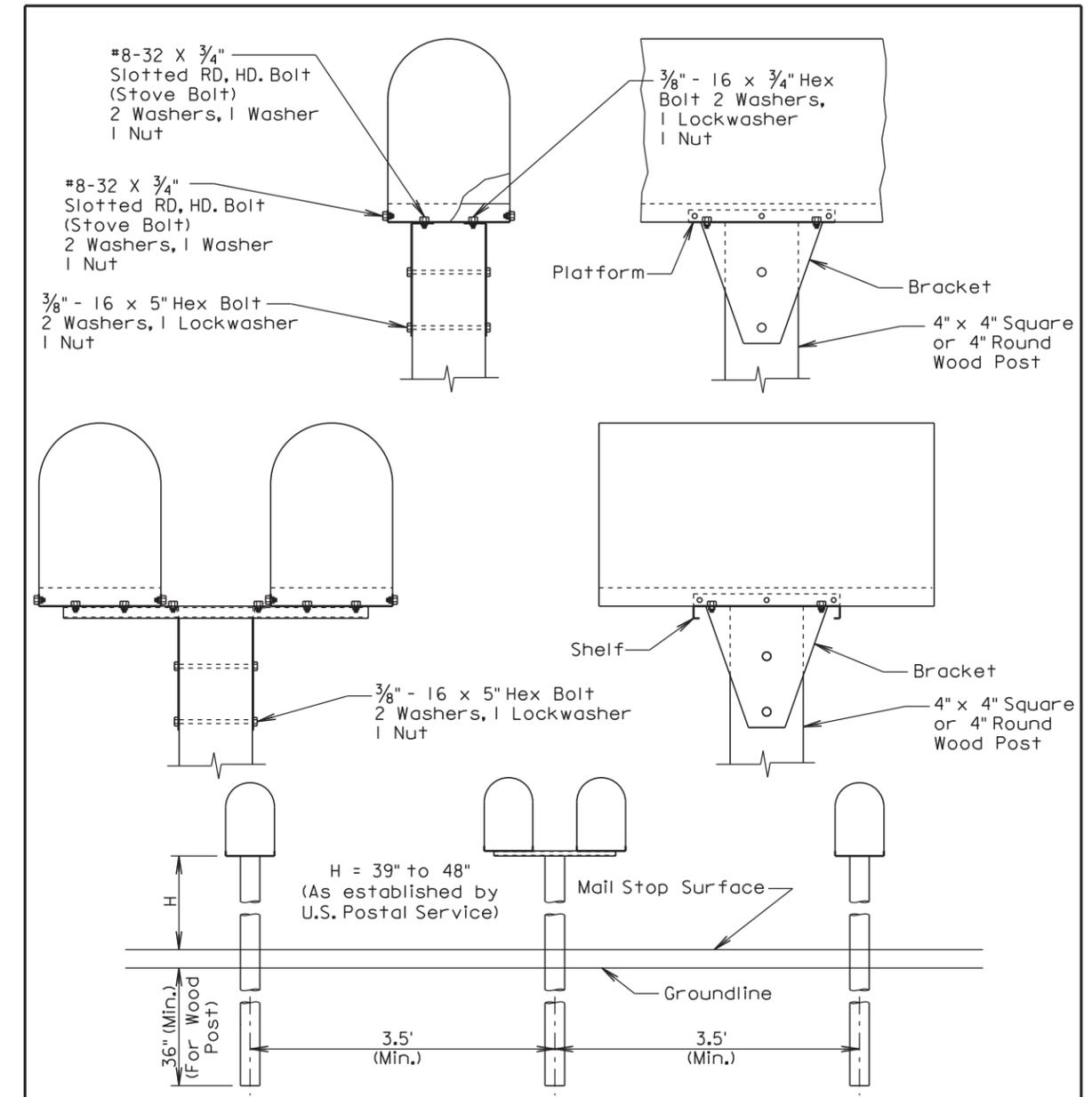
Published Date: 3rd Qtr. 2014	S D D O T	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03
			Sheet 1 of 1



DETAIL A
(Mailbox Location)

August 31, 2013

Published Date: 3rd Qtr. 2014	S D D O T	MAILBOX TURNOUT	PLATE NUMBER 900.01
			Sheet 1 of 1



GENERAL NOTES: SPACING FOR MULTIPLE POST INSTALLATION

The post support assemblies provided should be consistent throughout the project. Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

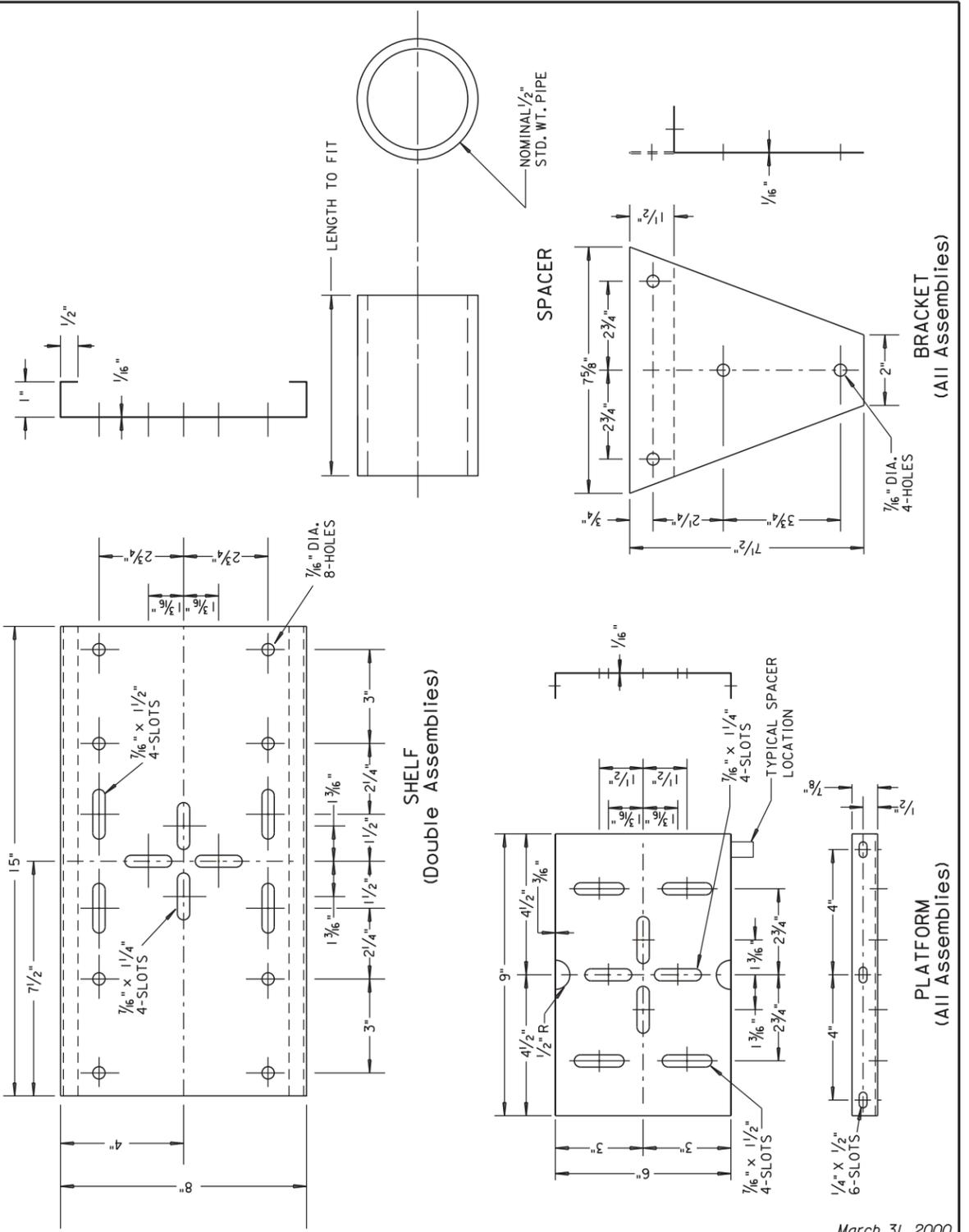
Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

September 6, 2013

Published Date: 3rd Qtr. 2014	S D D O T	SINGLE AND DOUBLE MAILBOX ASSEMBLIES	PLATE NUMBER 900.02
			Sheet 1 of 1

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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(52)148 P 0020(138)294	41	41



SHELF
(Double Assemblies)

SPACER

BRACKET
(All Assemblies)

PLATFORM
(All Assemblies)

March 31, 2000

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SDDOT

MAILBOX SUPPORT HARDWARE

PLATE NUMBER
900.03

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