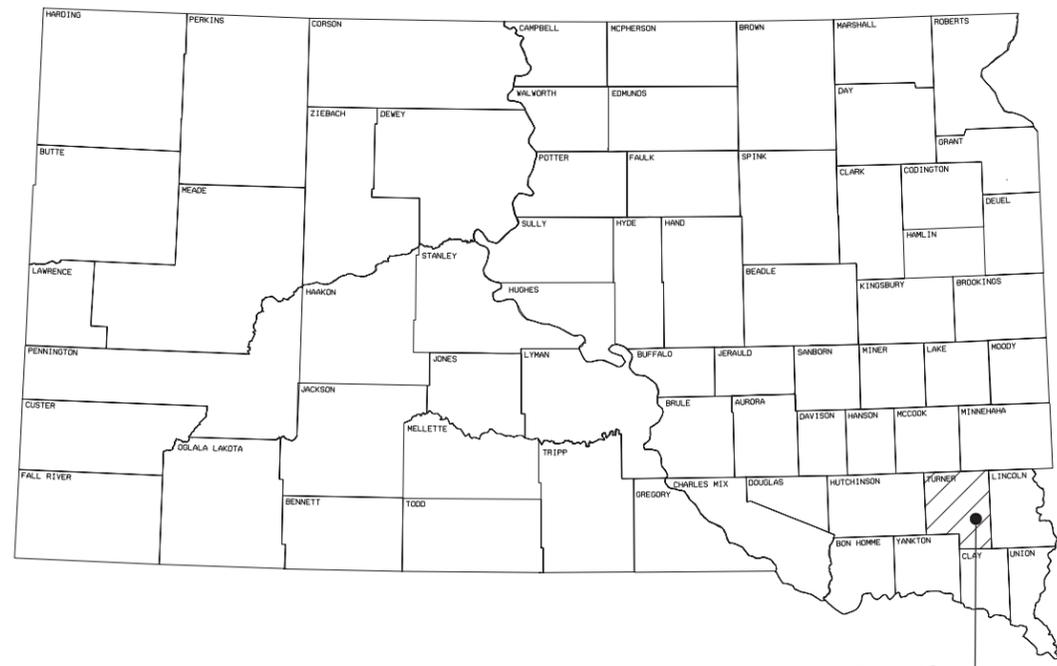


STATE OF SOUTH DAKOTA	PROJECT P 6358(03)	SHEET NO. 1	TOTAL SHEETS 17
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STATE OF SOUTH DAKOTA FOR BIDDING PURPOSES ONLY  
DEPARTMENT OF TRANSPORTATION  
PLANS FOR PROPOSED  
**PROJECT P 6358(03)**  
280TH STREET (CO. HWY. 32)  
TURNER COUNTY  
ASPHALT CONCRETE SURFACING  
PCN 6857



**INDEX OF SECTIONS**

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SHEET 10	TYPICAL SECTIONS
SHEET 11	PAVEMENT MARKING LAYOUT
SHEET 12	TRAFFIC CONTROL PLAN
SHEET 13-17	DETAILS AND STANDARD PLATES

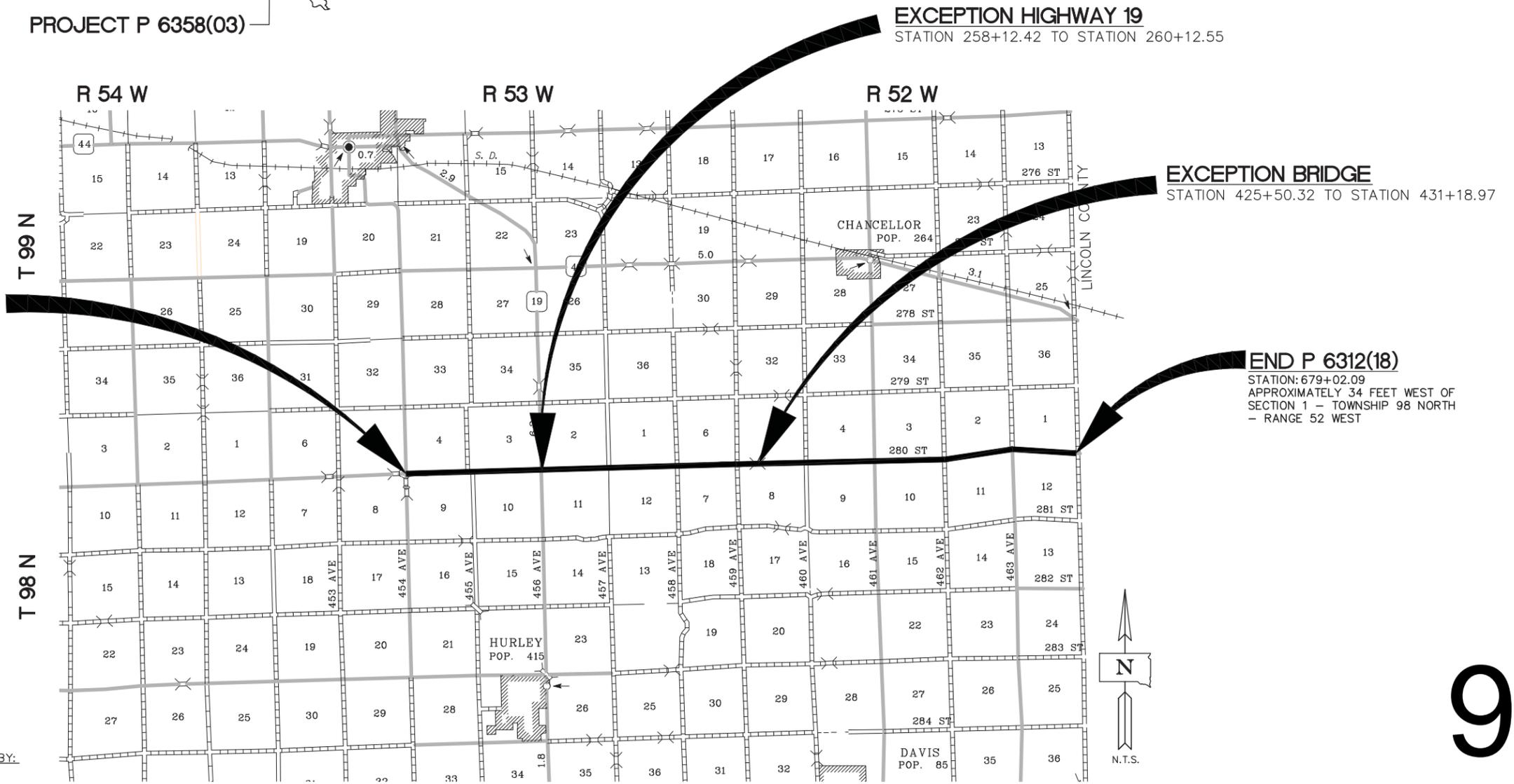
**DESIGN DESIGNATION**

ADT (2012)	545
ADT (2032)	590
DHV	90
D	50%
T DHV	3.6%
T ADT	8.0%
V	55 MPH

**PROJECT P 6358(03)**

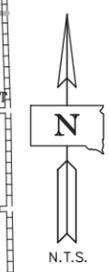
**STORM WATER PERMIT:**  
NONE REQUIRED

**BEGIN P 6312(18)**  
STATION: 153+49.60  
APPROXIMATELY 46 FEET EAST OF SECTION 4 - TOWNSHIP 98 NORTH - RANGE 53 WEST



**PLANS PREPARED BY:**  
PHONE: 605.330.7000  
401 EAST 8TH STREET  
SUITE 309  
SIOUX FALLS, SD 57103-7032  
www.sehinc.com

GROSS LENGTH:	52,552.49 FEET	9.953 MILES
LENGTH OF EXCEPTIONS:	768.78 FEET	0.145 MILES
NET LENGTH:	51,783.71 FEET	9.808 MILES



9

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# ESTIMATE OF QUANTITIES FOR BIDDING PURPOSES ONLY

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BD ITEM NO.	ITEM DESCRIPTION	TOTAL EST. QTY	UNIT
009E0010	Mobilization	LUMP SUM	LS
120E0100	Unclassified Excavation, Digsouts	736	CuYd
260E1010	Base Course	1,990.2	Ton
* 270E0210	Haul and Stockpile Granular Material	132.0	Ton
320E0007	PG 64-28 Asphalt Binder	1,575.5	Ton
320E1050	Class E Asphalt Concrete	25,627.2	Ton
320E3000	Compaction Sample	3	Each
330E0100	SS-1h or CSS-1h Asphalt for Tack	85.9	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	31.6	Ton
330E2000	Sand for Flush Seal	513.5	Ton
332E0010	Cold Milling Asphalt Concrete	1,600.0	SqYd
600E0200	Type II Field Laboratory	1	Each
633E1300	Pavement Marking Paint, White	334	Gal
633E1305	Pavement Marking Paint, Yellow	86	Gal
634E0010	Flagging	400	Hour
634E0020	Pilot Car	200	Hour
634E0110	Traffic Control Signs	629	SqFt
634E0120	Traffic Control, Miscellaneous	LUMP SUM	LS
634E0630	Temporary Pavement Marking	30.0	Mile
634E0806	Groove 4" Wide Rumble Strip	480.0	Ft

**SPECIFICATIONS**

STANDARD SPECIFICATIONS FOR ROADS & BRIDGES, 2015 EDITION AND REQUIRED PROVISIONS, SUPPLEMENTAL SPECIFICATIONS AND/OR SPECIAL PROVISIONS AS INCLUDED IN THE PROPOSAL.

\* DENOTES NON-PARTICIPATING ITEM



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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**ENVIRONMENTAL COMMITMENTS**

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

**COMMITMENT 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.

**Action Taken/Required:**

The DENR and the US Environmental Protection Agency (EPA) have issued separate general permits for the discharge of storm water runoff. The DENR permit applies to discharges on state land and the EPA permit applies to discharges on federal or reservation land. The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

The Contractor shall adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State".

A major component of the storm water construction permits is development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which is a joint effort and responsibility of the SDDOT and the Contractor. Erosion control measures and best management practices will be implemented in accordance with the SWPPP. The SWPPP is a dynamic document and is to be available on-site at all times.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT: <http://www.sddot.com/business/environmental/stormwater/Default.aspx>

DENR: <http://www.denr.sd.gov/des/sw/stormwater.aspx>

EPA: [http://cfpub.epa.gov/npdes/home.cfm?program\\_id=6](http://cfpub.epa.gov/npdes/home.cfm?program_id=6)

**Contractor Certification Form:**

The "Department of Environment and Natural Resources – Contractor Certification Form" (SD EForm – 2110LDV1-ContractorCertification.pdf) shall be completed by the Contractor or their certified Erosion Control Supervisor after the award of the contract. Work may not begin on the project until this form is signed.

The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the Surface Water Discharge General Permit for Storm Water Discharges Associated with Construction Activities for the Project.

The online form can be found at: <http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf>

**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 Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

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

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

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

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

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

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

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



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**COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES**

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

**Action Taken/Required:**

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

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 Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas 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.



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT P 6358(03)	SHEET NO. 5	TOTAL SHEETS 17
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**Rates of Materials**

**Rural Two Lane Roadway**

Sta. 153+49.60 to 258+12.42  
Sta. 260+12.55 to 425+50.32  
Sta. 431+18.97 to 679+02.09

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

**1 1/2" Levelling Course**

**CLASS E ASPHALT CONCRETE**

Crushed Aggregate .....	1,092 Tons / mi
PG 64-28 Asphalt Binder .....	70 Tons / mi
<hr/>	
TOTAL:	1,162 Tons / mi

The exact proportions of these material will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 5.28 tons per mile applied 24 feet wide (Rate = 0.09 gallons per square yard).

**1 1/2" Wear Course w/ Asphalt Wedge**

**CLASS E ASPHALT CONCRETE**

Crushed Aggregate .....	1,183 Tons / mi
PG 64-28 Asphalt Binder .....	76 Tons / mi
<hr/>	
TOTAL:	1,258 Tons / mi

The exact proportions of these material will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 2.93 tons per mile applied 24 feet wide (Rate = 0.05 gallons per square yard).

**FLUSH SEAL**

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 3.18 tons per mile applied 26 feet wide (Rate = 0.05 gallons per square yard).  
Sand for Flush Seal at the rate of 51.63 tons per mile applied 22 feet wide (Rate = 8 pounds per square yard).



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FOR BIDDING PURPOSES ONLY

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**TABLE OF ADDITIONAL QUANTITIES**

	Base Course <b>TON</b>	SS-1h or CSS-1h Asphalt for Tack <b>TON</b>	Class E Asphalt Concrete <b>TON</b>	PG 64-28 Asphalt Binder <b>TON</b>	SS-1h or CSS-1h Asphalt for Flush Seal <b>TON</b>	Sand for Flush Seal <b>TON</b>	Cold Milling Asphalt Concrete <b>SQ YD</b>
<b>Resurface to End of Radius</b>							
9 Intersecting Roads							
(Sta. 201+25)	5	0.03	22.7	1.5	0.03	0.6	----
(Sta. 206+00)	5	0.01	9	0.6	0.01	0.2	----
(Sta. 311+60)	5	0.02	11.5	0.7	0.02	0.3	----
(Sta. 364+50)	10	0.05	36.7	2.3	0.05	1	----
(Sta. 412+00)	10	0.06	44.4	2.8	0.06	1.2	----
(Sta. 465+05)	10	0.05	33.7	2.7	0.05	0.9	----
(Sta. 519+05)	10	0.08	53.9	3.5	0.08	1.4	----
(Sta. 573+15)	10	0.04	22	1.4	0.04	0.7	----
(Sta. 627+60)	10	0.05	23.7	1.5	0.05	0.9	----
<b>Cold Milling Asphalt</b>							
(Sta. 153+49.60 to 154+49.60)	----	----	----	----	----	----	266.7
(Sta. 257+12.42 to 258+12.42)	----	----	----	----	----	----	266.7
(Sta. 260+12.55 to 261+12.55)	----	----	----	----	----	----	266.7
(Sta. 424+50.32 to 425+50.32)	----	----	----	----	----	----	266.7
(Sta. 431+18.97 to 432+18.97)	----	----	----	----	----	----	266.7
(Sta. 678+02.09 to 679+02.09)	----	----	----	----	----	----	266.7
<b>Pads</b>							
15 Farm Entrances	294.0	----	104.1	6.2	----	----	----
42 Field Entrances	150.0	----	60.2	3.6	----	----	----
<b>TOTAL</b>	<b>519</b>	<b>0.39</b>	<b>421.8</b>	<b>26.9</b>	<b>0.39</b>	<b>7.2</b>	<b>1600</b>

**SUMMARY OF ASPHALT CONCRETE**

LOCATION	Class E Asphalt Concrete <b>TON</b>	PG 64-28 Asphalt Binder <b>TON</b>
24' Wide Mainline (Sta. 153+49.60 to 258+12.42)	4,795.5	287.7
24' Wide Mainline (Sta. 260+12.55 to 425+50.32)	7,579.8	454.8
24' Wide Mainline (Sta. 431+18.97 to 679+02.09)	11,358.9	681.5
Table of Additional Quantities	421.8	26.9
Spot leveling, strengthening, and repair of existing surface	1,471.2	124.6
<b>TOTAL</b>	<b>= 25,627.2</b>	<b>1,575.5</b>

(Spot Repair Totals based on 150 Tons/mile of Asphalt, 9 tons/mile for PG 64-28 Binder)



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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**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 placement of an asphalt concrete pavement overlay and permanent pavement markings.

**SEQUENCE OF OPERATIONS**

The following sequence of operations shall be adhered to and performed by the Contractor unless otherwise noted. Any changes must be approved in writing by the Area Engineer prior to changes being made.

1. Mow inslopes and remove vegetation adjacent to existing surfacing edge (by Turner County Staff.)
2. Install traffic control.
3. Complete Unclassified Excavation, Digouts and Backfill Operations
4. Complete all Asphalt Concrete Strengthening and Levelling.
5. Complete Asphalt Concrete Mainline Paving.
6. Complete Asphalt Concrete paving at Entrances and Intersecting Roads.
7. Place Flush Seal.
8. Install Permanent Pavement Markings.
9. Remove Traffic Control.

**GENERAL NOTES**

All waste and excess material generated from the various construction activities which will adversely affect Turner County maintenance operations shall be removed from the ROW as determined by the Engineer.

**TRAFFIC CONTROL**

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

Work limits for asphalt paving operation and pilot car operation shall not exceed 3 miles in length.

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

**TYPE II 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.

The Contractor shall submit a copy of each monthly bill for calls charged to this phone at the end of each month. The Project Engineer will then audit the bills to ensure all calls are legitimate and then initiate a Construction Change

Order (CCO) to reimburse the Contractor for the actual phone calls made including local and long distance calls. Reimbursement will not be made for fees associated with the purchase, installation, disconnection, monthly line charges, and incidentals involved in the installation, maintenance, and disconnection of the phone (including attachments). These items shall be incidental to the contract unit price per each for Type II Field Laboratory.

The Type II Field Laboratory may be placed at the Turner County gravel pit (located 2 miles east of SD Hwy 19). There is currently no electrical service at this location. The Contractor may contact Southeastern Electric Cooperative, Inc. to coordinate the installation of a temporary electric service. All costs and fees for the installation of a temporary electrical service shall be incidental to the contract unit price for "Type II Field Laboratory."

**SHOULDER PREPARATION WORK BY TURNER COUNTY**

Turner County shall remove the vegetation and accumulated materials from the shoulders prior to starting work. Once construction operations are completed, this material is to be placed back on the inslopes by the County.

The Contractor shall notify the County three weeks prior to starting construction to allow sufficient time for county staff to perform this work.

**INTERSECTING ROADS AND ENTRANCE WORK BY TURNER COUNTY**

Intersecting roads and entrances shall be satisfactorily cleared of vegetation, shaped, and compacted by Turner County staff prior to placement of mainline surfacing.

**EXCAVATION OF UNSTABLE MATERIAL**

Included in the Estimate of Quantities are **75** Cubic Yards of Unclassified Excavation, Digouts per mile for the necessary removal of unstable material.

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

If it is determined that Unclassified Excavation, Digouts are required in a particular area of the roadway, the roadway shall section excavated to a minimum of 11 inches from the surfacing, to provide sufficient depth for 3 inches of asphalt pavement and 8 inches of Base Course.

When digouts are made, the Contractor shall construct the excavation so that granular material will daylight to the inslope to allow water within the Base Course material to escape the subgrade.

**BASE COURSE**

Base Course shall conform to the Specifications, except that the density shall be to the satisfaction of the Engineer.

Included in the Estimate of Quantities are **150** tons of Base Course per mile for backfill of Unclassified Excavation, Digouts.

**WATER FOR COMPACTION OF GRANULAR MATERIAL**

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.

**FOR BIDDING PURPOSES ONLY**

**COLD MILLING ASPHALT CONCRETE**

Cold Milling Asphalt Concrete operations ahead of asphalt concrete laydown will be limited by particular job conditions and will be subject to approval of the Engineer. In no case shall cold milling operations ahead of asphalt concrete laydown operations exceed seven calendar days.

If resurfacing as per the typical section cannot be placed immediately after cold milling at project ends, bridge approaches, and ramp terminals adjacent to ramp concrete, etc., then temporary asphalt mix ramps shall be placed as directed by the Engineer. Cost for placing and removing the temporary ramps shall be incidental to the contract unit prices for the various items.

Asphalt concrete intersecting roads and entrances shall be milled back for approximately ten feet at the right of way line so that additional surfacing may be placed at these locations.

All millings acquired shall remain property of Turner County. The Contractor shall deliver the millings to the County gravel pit located 2 miles east of SD Hwy 19. Delivery and stockpiling of the millings shall be paid for under the contract unit price per ton for "Haul and Stockpile Granular Material."



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**COLD MILLING TAPERS**

In order to construct the new surfacing flush with the asphalt concrete, it will be necessary to taper the depth of milling according to the details for Cold Milling Tapers.

The surface shall be milled full roadway width.

Cost for this work shall be included in the contract unit price per square yard for Cold Milling Asphalt Concrete.

Cold milling quantities are tabulated in the Additional Quantities sheet.

All millings acquired shall remain property of Turner County. The Contractor shall deliver the millings to the County gravel pit located 2 miles east of SD Hwy 19.

**CLASS E ASPHALT CONCRETE**

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Specifications for Class E, Type 1.

All other requirements in the Specifications for Asphalt Concrete Class E shall apply except that the leveling course shall be compacted by the specified roller coverage method.

**ADDITIONAL QUANTITIES**

Included in the Estimate of Quantities are 1471.2 tons of Class E Asphalt Concrete and 124.6 tons of PG 64-28 Asphalt Binder per mile for spot leveling, strengthening and repair of the existing surface.

Included in the Estimate of Quantities are 5 tons of SS-1h or CSS-1h Asphalt for Tack for surface repair and leveling areas throughout the project. (Rate = 0.05 gallon per square yard).

**SS-1 OR CSS-1h ASHALT FOR TACK**

SS-1h or CSS-1h Asphalt for Tack shall conform to the requirements of Section 330 of the Specifications.

Before each lift of asphalt, SS-1h or CSS-1h Asphalt for Tack shall be applied to the existing asphalt pavement.

Certified weight tickets for the distributor shall be received prior and subsequent to any use of SS-1h or CSS-1h on the project. If the Contractor fails to provide the Engineer with tickets, the amount of tack used on the project will be determined by the Engineer via shot records.

**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 Sec. 8.8 of the Specifications.

Application of Flush Seal may be eliminated by the Engineer. If the 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.

**IN-LANE RUMBLE STRIPS AT STOP SIGN INTERSECTIONS**

In-lane rumble strips installation shall be completed prior to the application of the flush seal and permanent pavement markings. In the event that the flush seal is eliminated from the contract, the Contractor will still be required to apply a Flush Seal to the newly installed 4" Rumble Strips 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 Asphalt for Flush Seal" will be paid at the contract unit price per ton.

Payment for the rumble strips will be at the contract unit price per foot for "Groove 4" Wide Rumble Strip." For details refer to the layout for "Rural Intersection Pavement Markings with Stop Sign and Rumble Strips."

In-lane rumble strips are proposed at the following locations:

- Turner Co. Hwy 32 at SD Hwy 19 intersection (Approx. Sta. 251+50 & 266+20)

**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 Flexible Vertical markers (tabs) 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 wear course or after application of the Flush Seal.**

**FOR BIDDING PURPOSES ONLY**

**TEMPORARY PAVEMENT MARKINGS**

The total length of no passing zone on this project is estimated to be 2.3 miles

Quantities of Temporary Pavement Markings consist of:

- One pass on top of the 1st Lift of Asphalt Concrete.
- One pass on top of the 2nd Lift of Asphalt Concrete.
- One pass on top of the Flush Seal.

If a 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 Flexible Vertical 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. If used, 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.

Cost for furnishing, applying, removing and disposing of the Temporary Flexible Vertical markers (tabs) 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 Flexible Vertical markers (tabs). The traffic control device used shall be moved to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1), a Workers symbol sign (W21-1) or a BE PREPARED TO STOP (W3-4) warning sign shall be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work shall be approved by the Engineer.



**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 County 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 2 calendar days following completion of flush seal and shall be completed within 12 calendar days following completion of the flush seal. If the Flush Seal is eliminated, the Contractor shall complete the application of Permanent Pavement Marking paint within 10 calendar days following completion of final surfacing.

For each working day the application of permanent pavement marking paint remains uncompleted after the 10 calendar days, 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 Sec. 8.8 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 - Resin Binder shall be Fastrack XSR manufactured by Dow, or approved equal.

980.1A - 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 NIST 141c (method 4051.1).

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P6358(03)	9	17

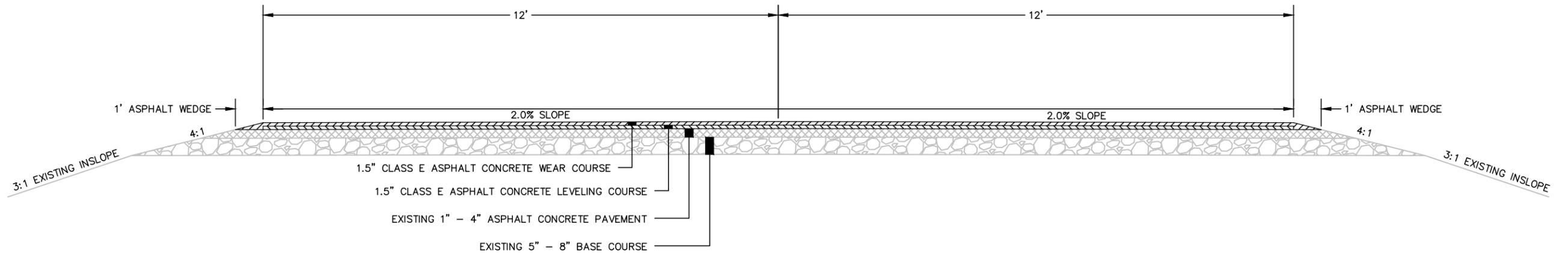


# TYPICAL SECTIONS FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6358(03)	10	17

## RESURFACING TYPICAL SECTION 1 (99' R.O.W.)

STATION 153+49.60 TO STATION 258+12.42  
 STATION 260+12.55 TO STATION 425+50.32  
 STATION 4+31+18.97 TO STATION 679+02.09

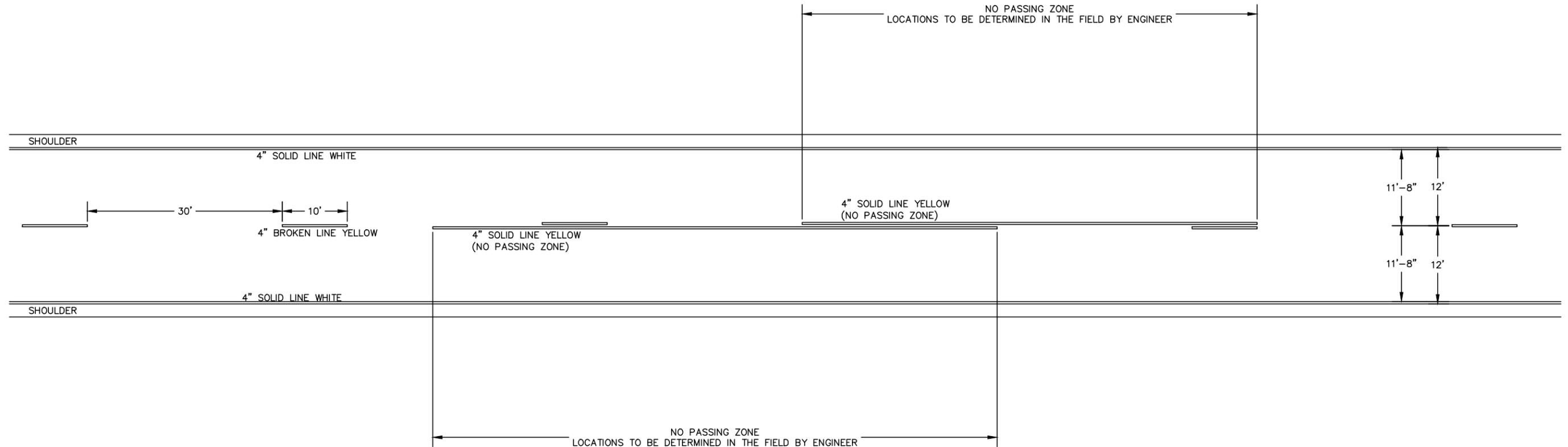


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PLANS PREPARED BY:  
 SEH  
 PHONE: 605.330.7000  
 401 EAST 8TH STREET  
 SUITE 309  
 SIOUX FALLS, SD 57103-7032  
 www.sehinc.com

# PAVEMENT MARKING LAYOUT FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6358(03)	11	17



## PAVEMENT MARKINGS

TYPICAL PAVEMENT MARKINGS AS SHOWN ON THIS SHEET SHALL BE APPLIED THROUGHOUT THE ENTIRE LENGTH OF THE TWO LANE ROADWAY.

A QUANTITY OF 1 GALLON(S) OF "PAVEMENT MARKING PAINT, WHITE" HAS BEEN INCLUDED IN THE ESTIMATED QUANTITIES FOR PAINT REQUIRED FOR STOP BARS TO BE INSTALLED AT THE SD HWY 19 INTERSECTION.

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.

APPLICATION RATES FOR ESTIMATING PURPOSES WERE AS FOLLOWS:

TWO LANE ROAD WAY (RATES FOR ONE LINE)
4" BROKEN LINE YELLOW (CENTERLINE) RATE=4.6 GALS./PASS-MILE
4" SOLID LINE YELLOW (CENTERLINE) RATE=17.0 GALS./PASS-MILE
4" SOLID LINE WHITE (EDGE LINE) RATE=17.0 GALS./PASS-MILE
24" SOLID LINE WHITE (STOP BARS) RATE=102.0 GALS./PASS-MILE (0.019 GALS./PASS-FT)
GLASS BEADS = 8LBS/GAL



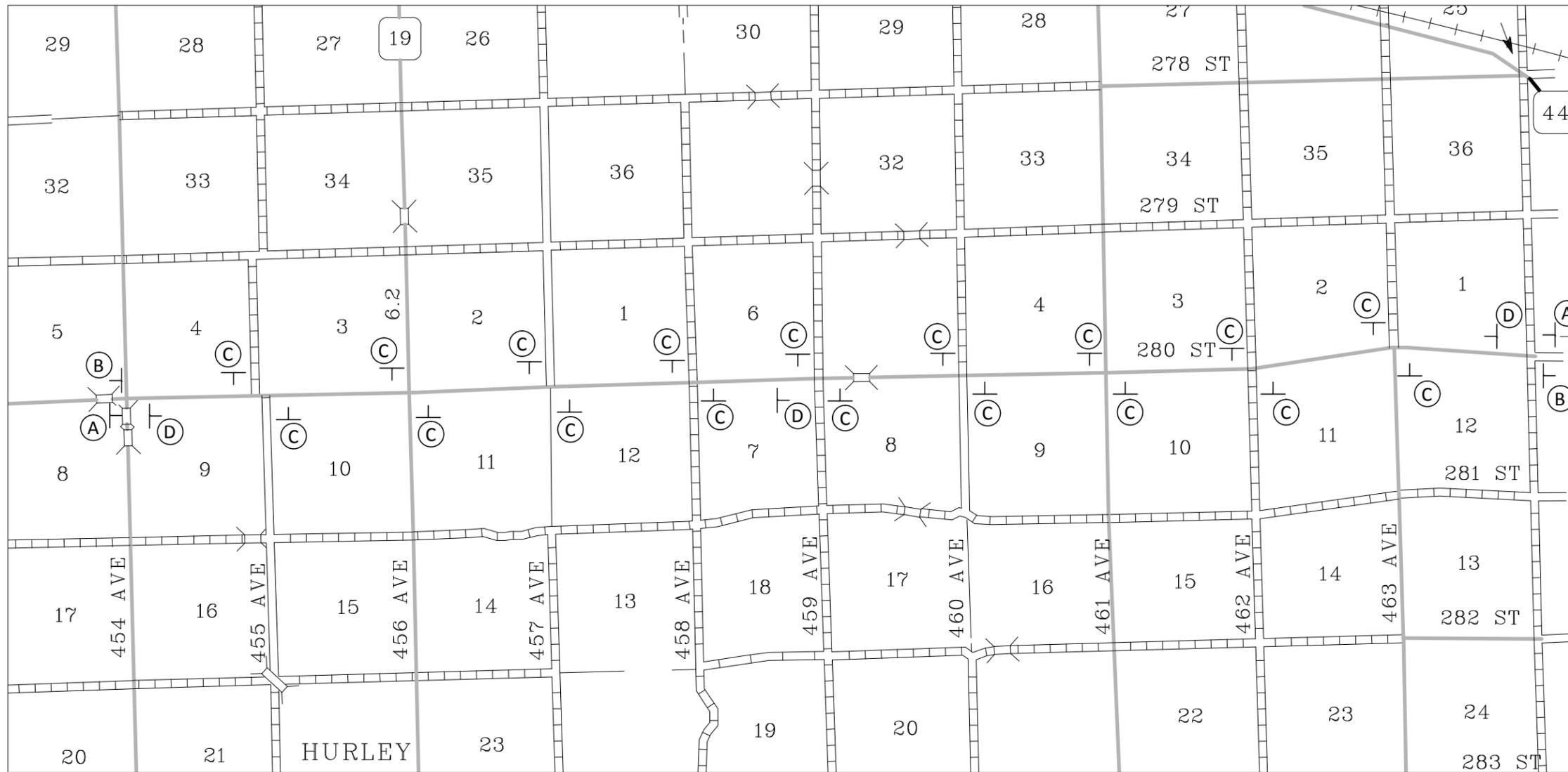
PLANS PREPARED BY:  

 PHONE: 605.330.7000  
 401 EAST 8TH STREET  
 SUITE 309  
 SIOUX FALLS, SD 57103-7032  
 www.sehinc.com

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# TRAFFIC CONTROL LAYOUT FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT P 6358(03)	SHEET NO. 12	TOTAL SHEETS 17
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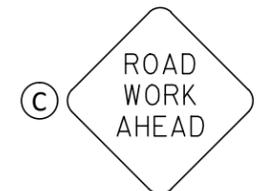


(A) ROAD WORK  
NEXT 10 MILES

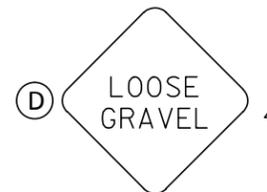
G20-1  
48" x 24"

(B) END  
ROAD WORK

G20-2a  
36" x 18"



W20-1  
48" x 48"



W8-7  
48" x 48"

40  
M.P.H.

W13-1P  
30" x 30"

### ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	2	48" x 48"	16.0	32.0
W8-1	BUMP	4	48" x 48"	16.0	64.0
W8-7	LOOSE GRAVEL	3	48" x 48"	16.0	48.0
W8-11	UNEVEN LANES	2	48" x 48"	16.0	32.0
W13-1P	ADVISORY SPEED (plaque)	3	30" x 30"	6.3	18.9
W20-1	ROAD WORK AHEAD	18	48" x 48"	16.0	288.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-1	ROAD WORK NEXT 10 MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
<b>CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT</b>					<b>628.9</b>



**PLANS PREPARED BY:**  
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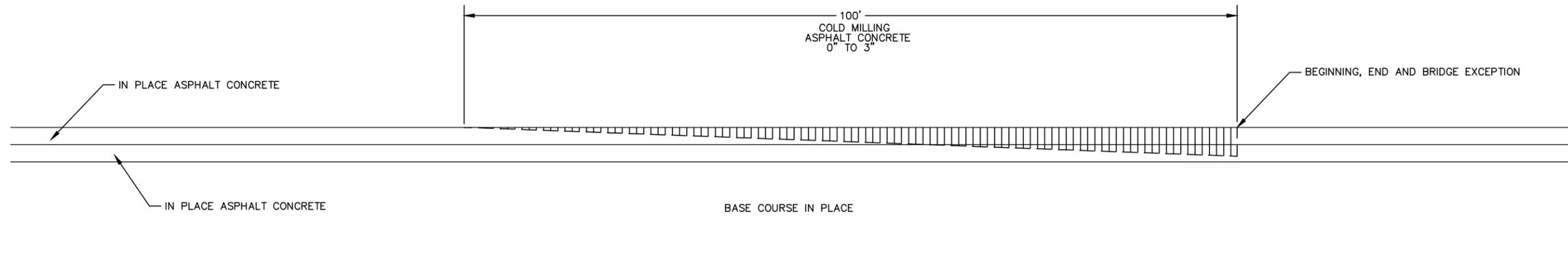
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STATE OF SOUTH DAKOTA	PROJECT P 6358(03)	SHEET NO. 13	TOTAL SHEETS 17
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# DETAIL FOR COLD MILLING TAPERS

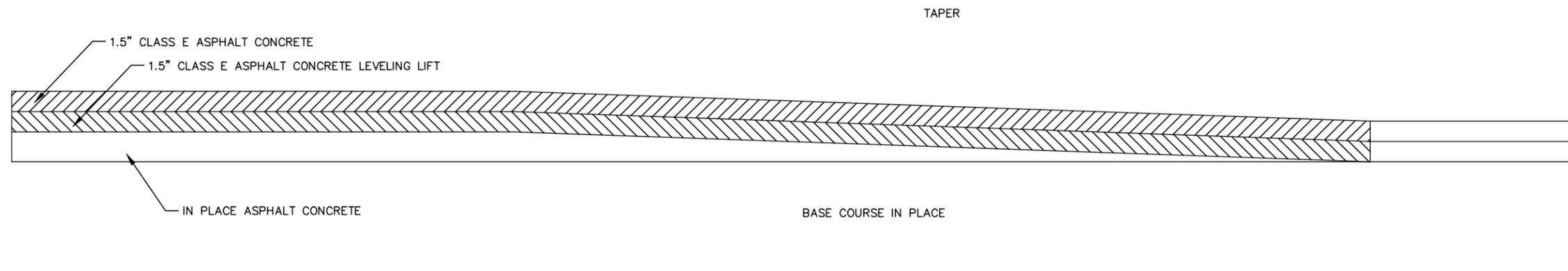
FOR BIDDING PURPOSES ONLY

AT BEGINNING PROJECT, SD HWY 19, BRIDGE EXCEPTION AND END PROJECT  
P 6358 (03)



# DETAIL FOR RESURFACING TAPERS

AT BEGINNING PROJECT, SD HWY 19, BRIDGE EXCEPTION AND END PROJECT  
P 6358 (03)

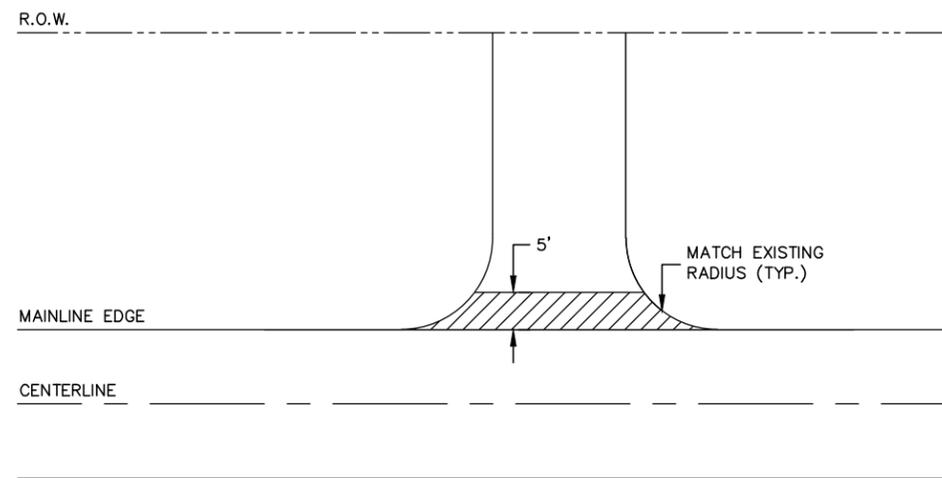


PLANS PREPARED BY:  
SEH  
PHONE: 605.330.7000  
401 EAST 8TH STREET  
SUITE 309  
SIOUX FALLS, SD 57103-7032  
www.sehinc.com

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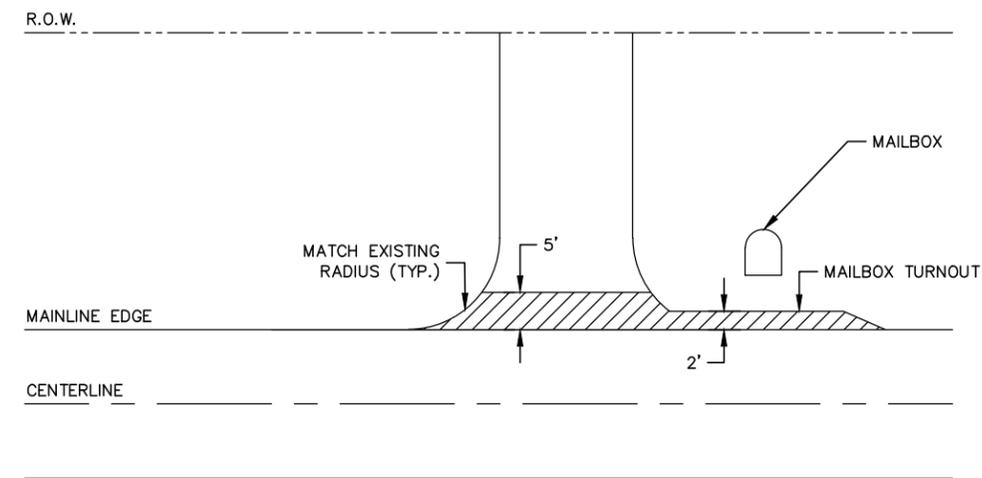
# SURFACING DETAILS

FOR BIDDING PURPOSES ONLY



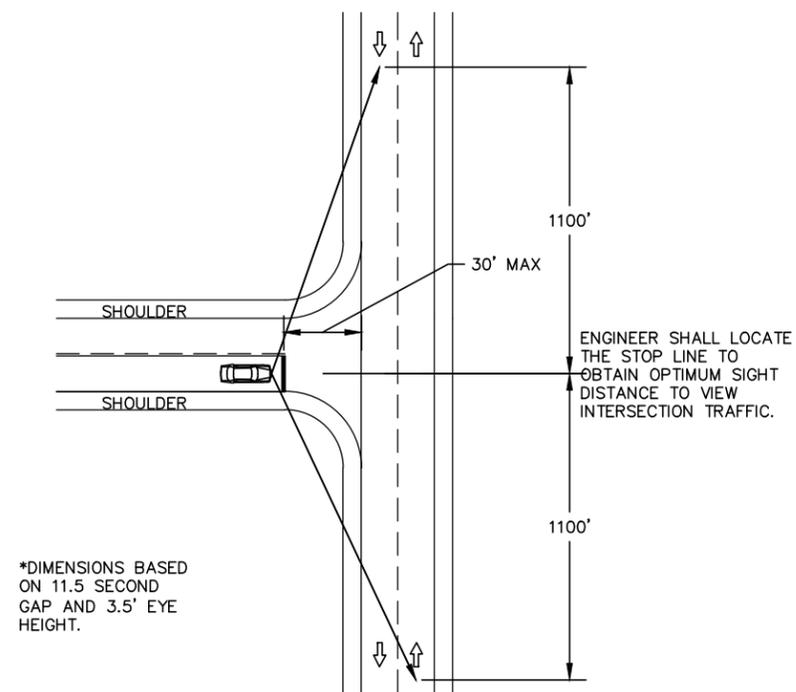
## DRIVEWAY OR FIELD ENTRANCE

5' FROM EDGE OF MAINLINE  
MATCH EXISTING ENTRANCE WIDTH



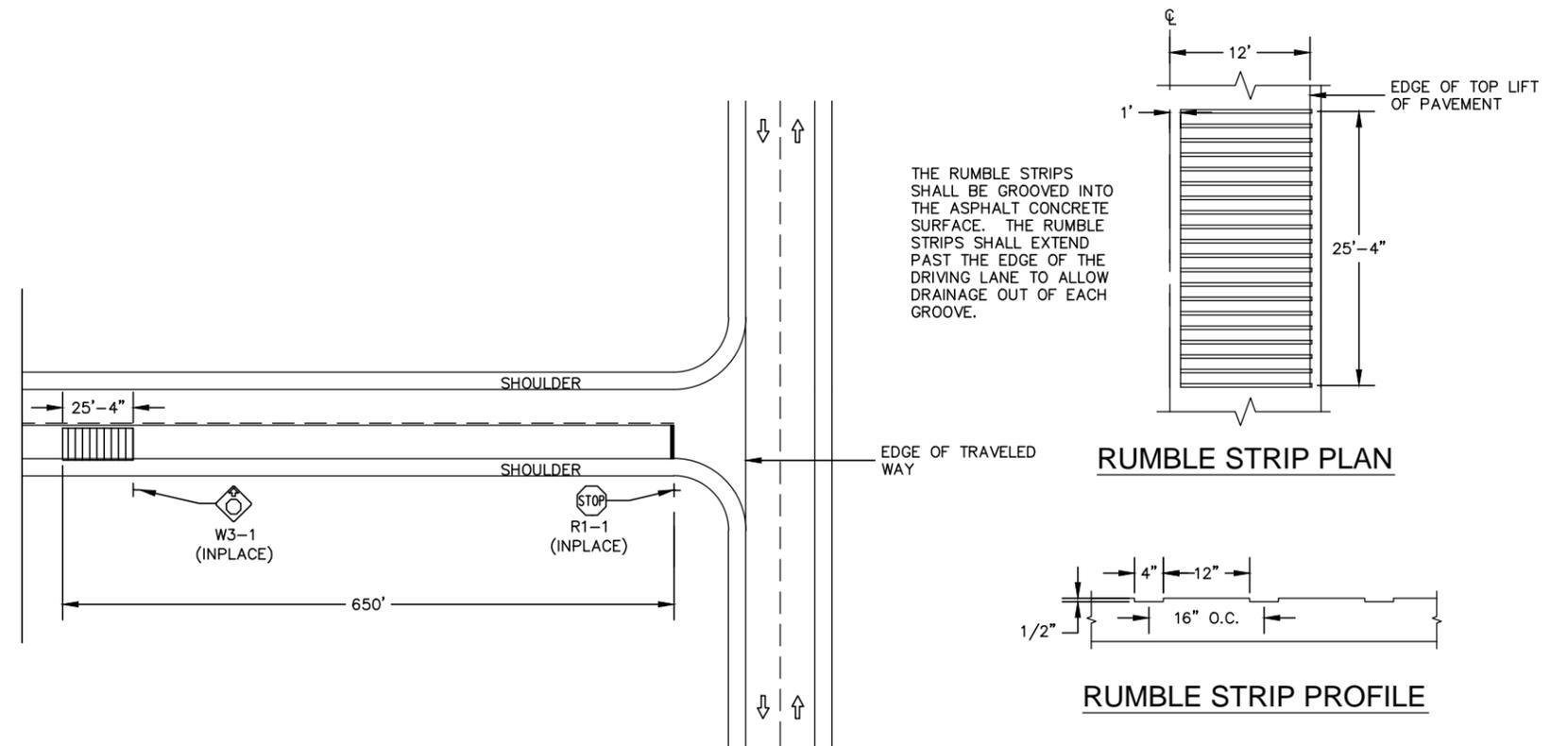
## DRIVEWAY ENTRANCE W/ MAILBOX

5' FROM EDGE OF MAINLINE  
MATCH EXISTING ENTRANCE WIDTH  
PAVE MAILBOX TURNOUT ONLY IF EXISTING TURNOUT IS PRESENT.



\*DIMENSIONS BASED ON 11.5 SECOND GAP AND 3.5' EYE HEIGHT.

## STOP BAR PAVEMENT MARKING INSTALLATION

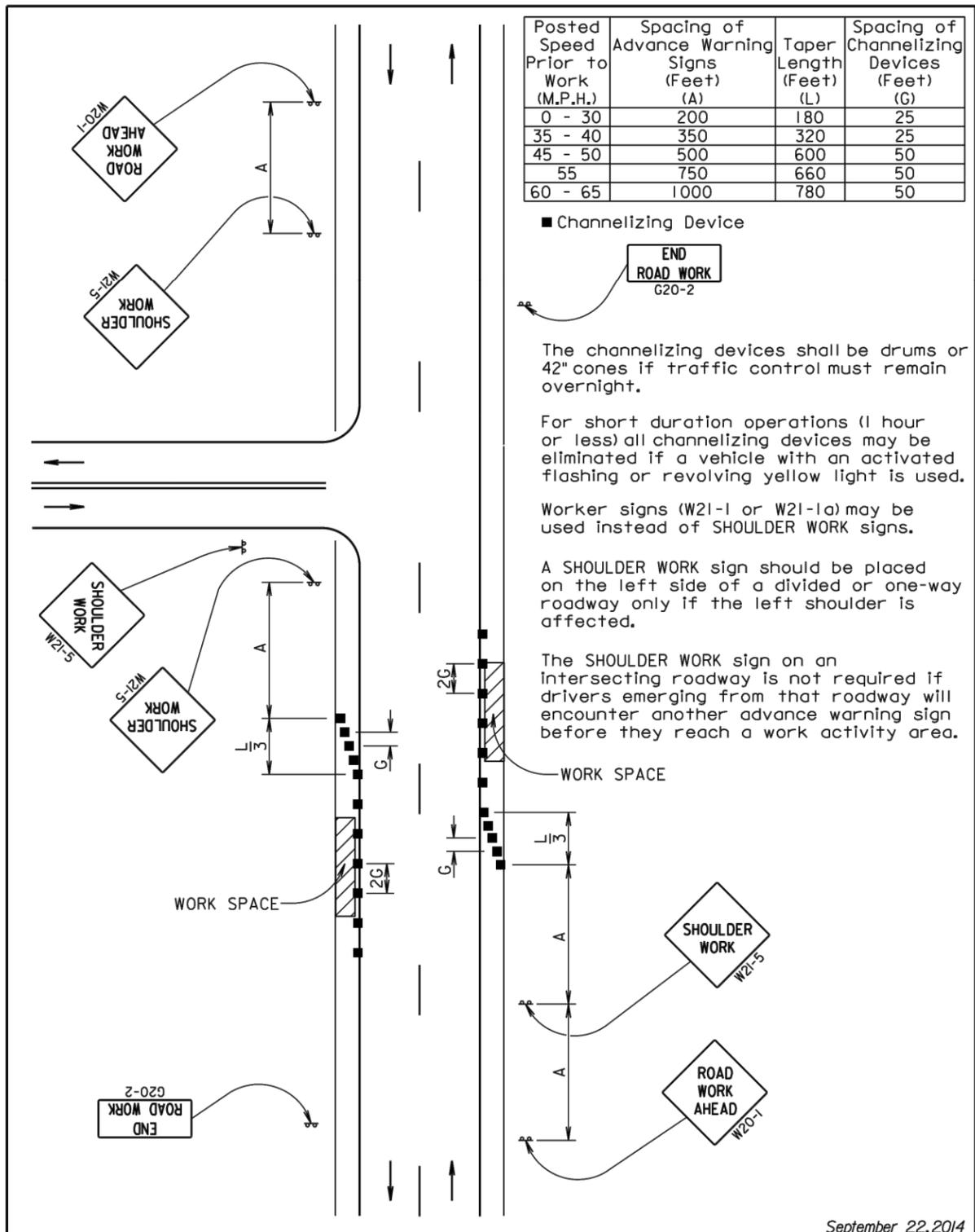


### RUMBLE STRIP PLAN

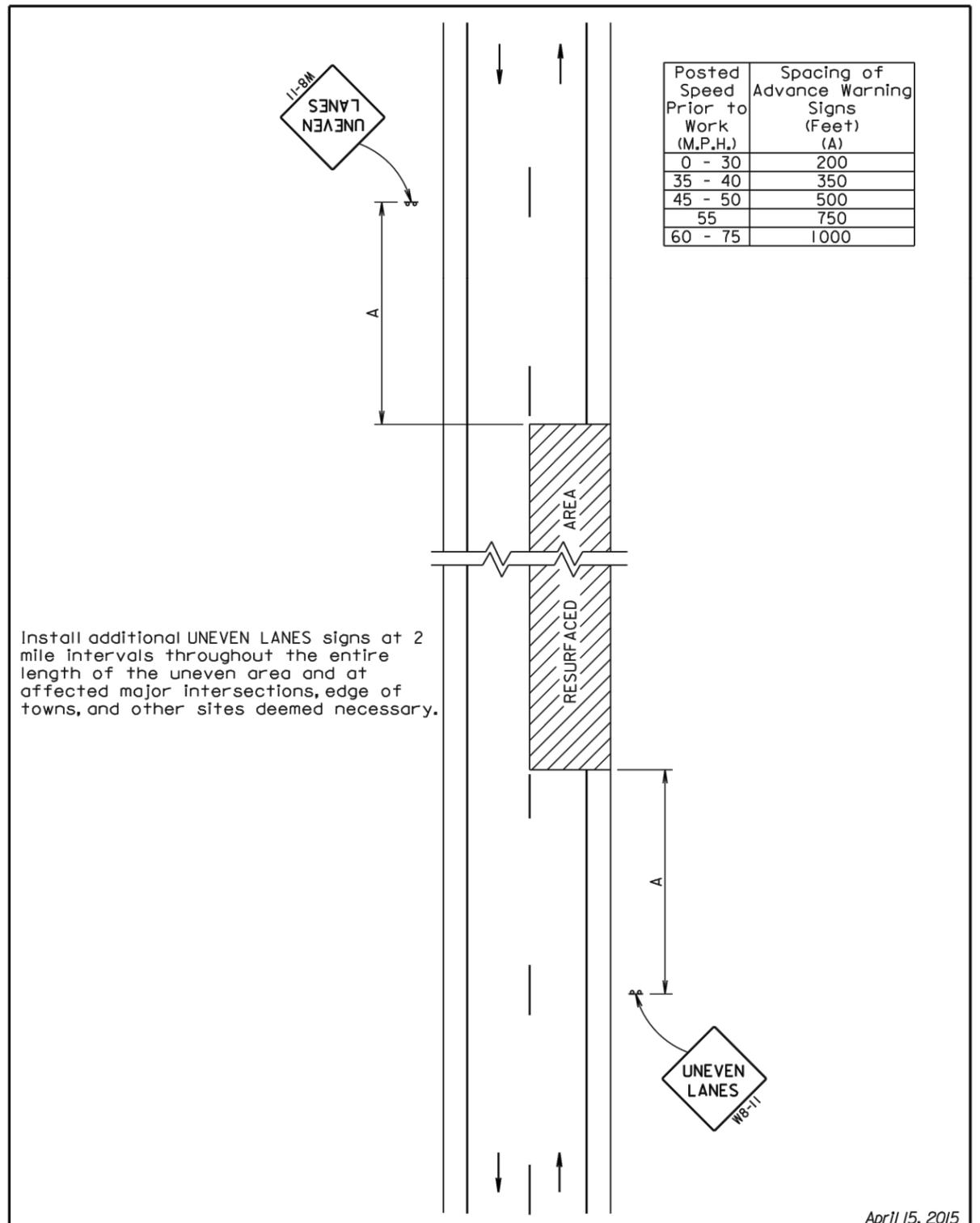
### RUMBLE STRIP PROFILE

## RURAL INTERSECTION PAVEMENT MARKINGS WITH STOP SIGN AND RUMBLE STRIPS

FOR BIDDING PURPOSES ONLY



Published Date: 4th Qtr. 2015	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
			Sheet 1 of 1



Published Date: 4th Qtr. 2015	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES UNEVEN ROAD SURFACE	PLATE NUMBER 634.22
			Sheet 1 of 1

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

- Flagger
- Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

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

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

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

The channelizing devices shall be drums or 42" cones.

Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

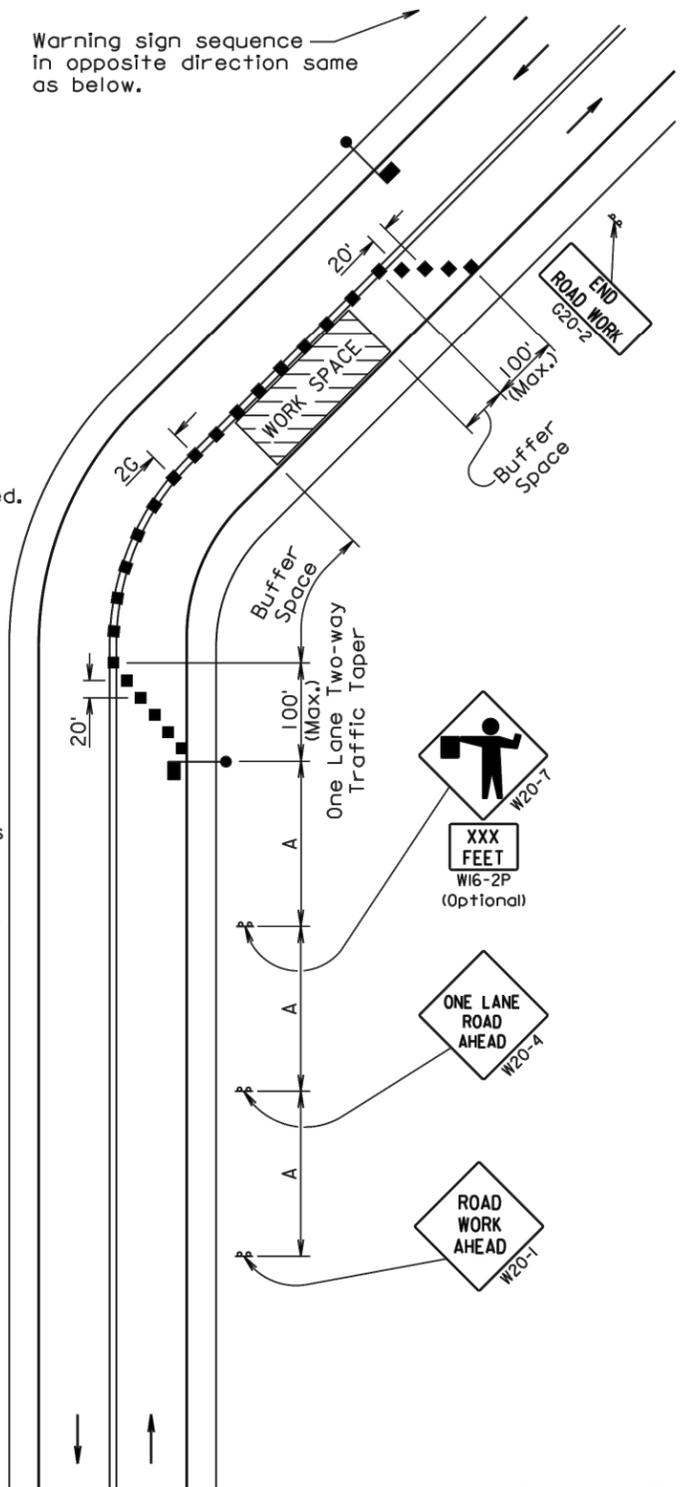
END ROAD WORK G20-2

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

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

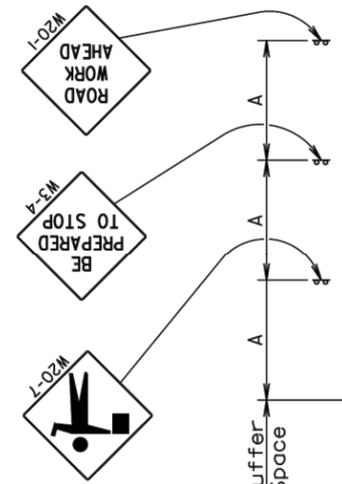
The length of A may be adjusted to fit field conditions.

Warning sign sequence in opposite direction same as below.



September 22, 2014

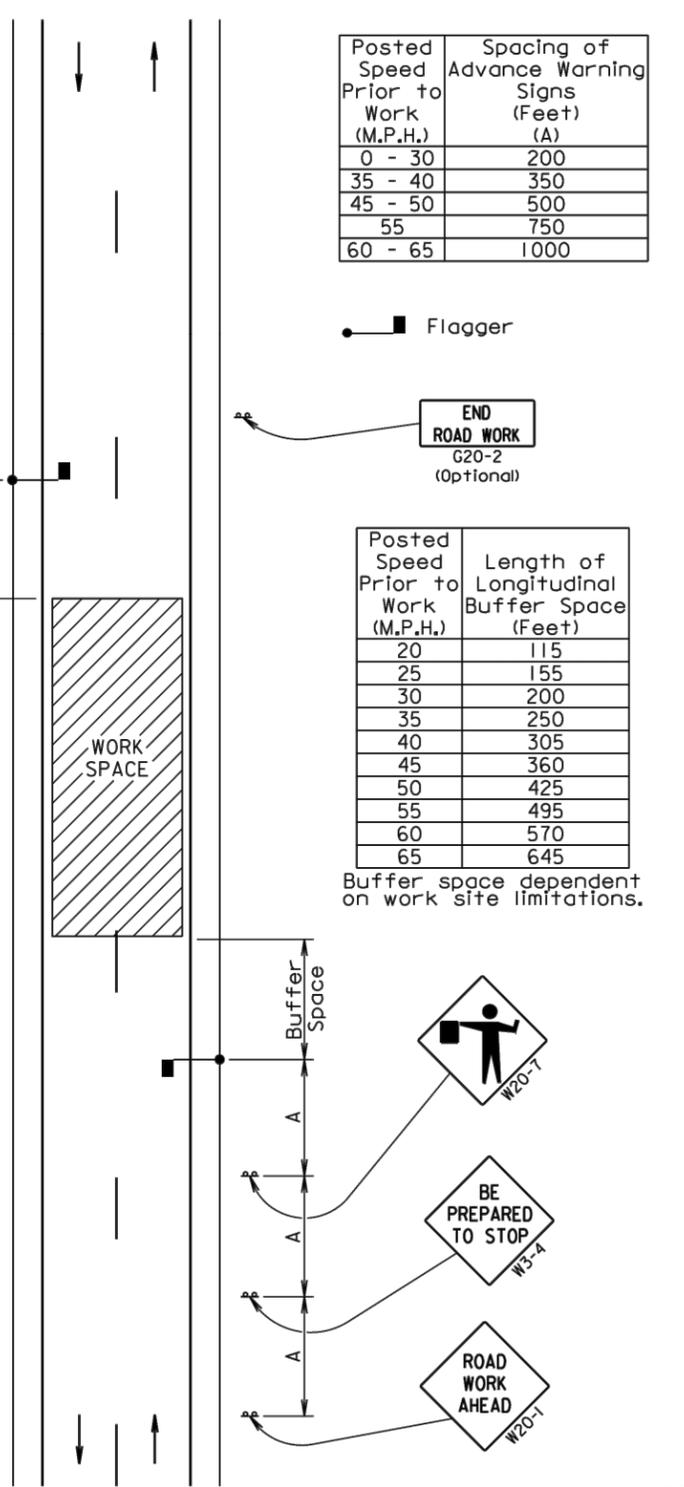
<b>S D D O T</b>	<b>GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED</b>	PLATE NUMBER <b>634.23</b>
	Published Date: 4th Qtr. 2015	Sheet 1 of 1



Conditions represented are for work that requires closings during daytime hours only.

This application is intended for a planned temporary closing not to exceed 15 to 20 minutes.

END ROAD WORK G20-2 (Optional)



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

- Flagger

END ROAD WORK G20-2 (Optional)

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

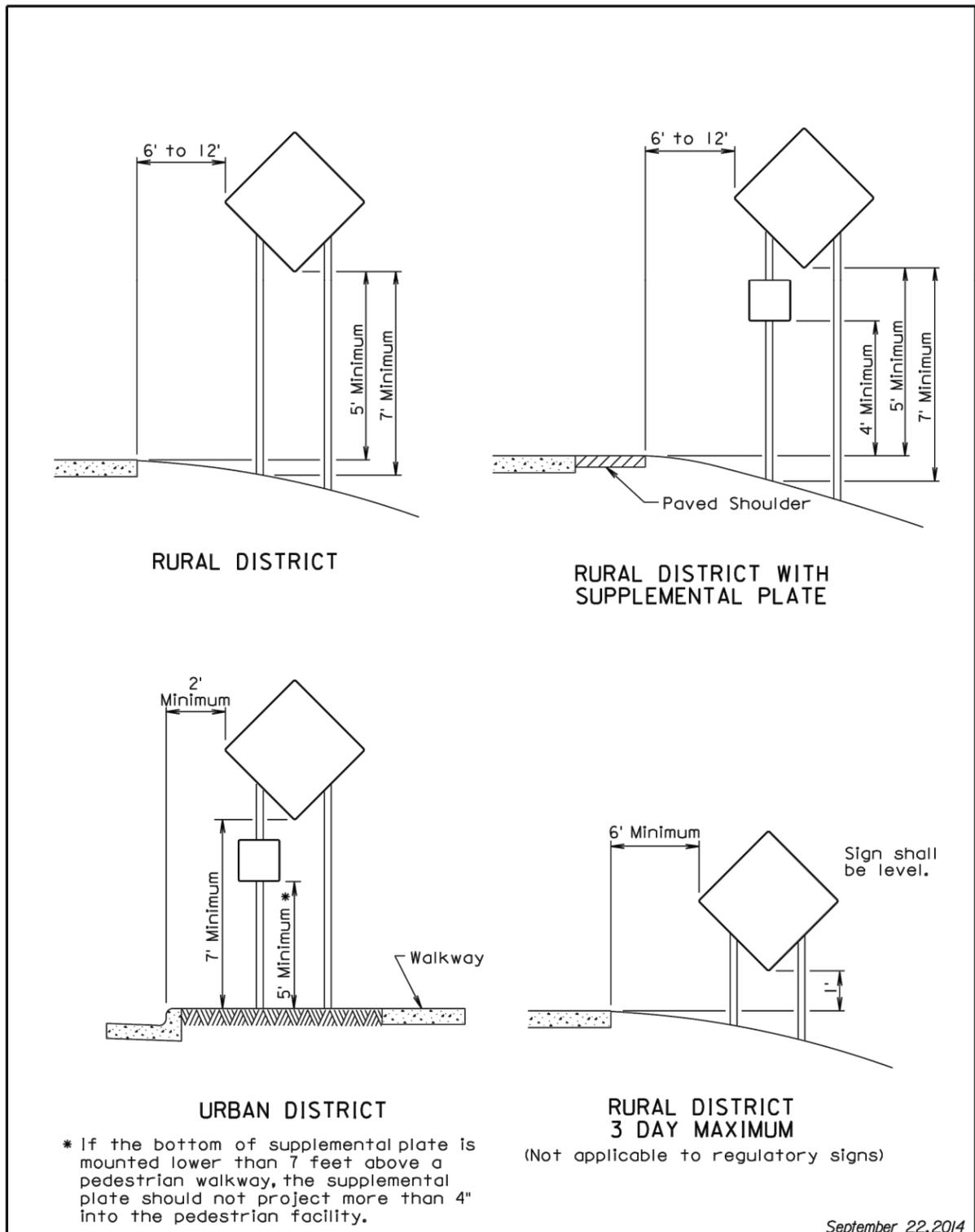
Buffer space dependent on work site limitations.

September 6, 2015

<b>S D D O T</b>	<b>GUIDES FOR TRAFFIC CONTROL DEVICES TEMPORARY ROAD WORK</b>	PLATE NUMBER <b>634.30</b>
	Published Date: 4th Qtr. 2015	Sheet 1 of 1

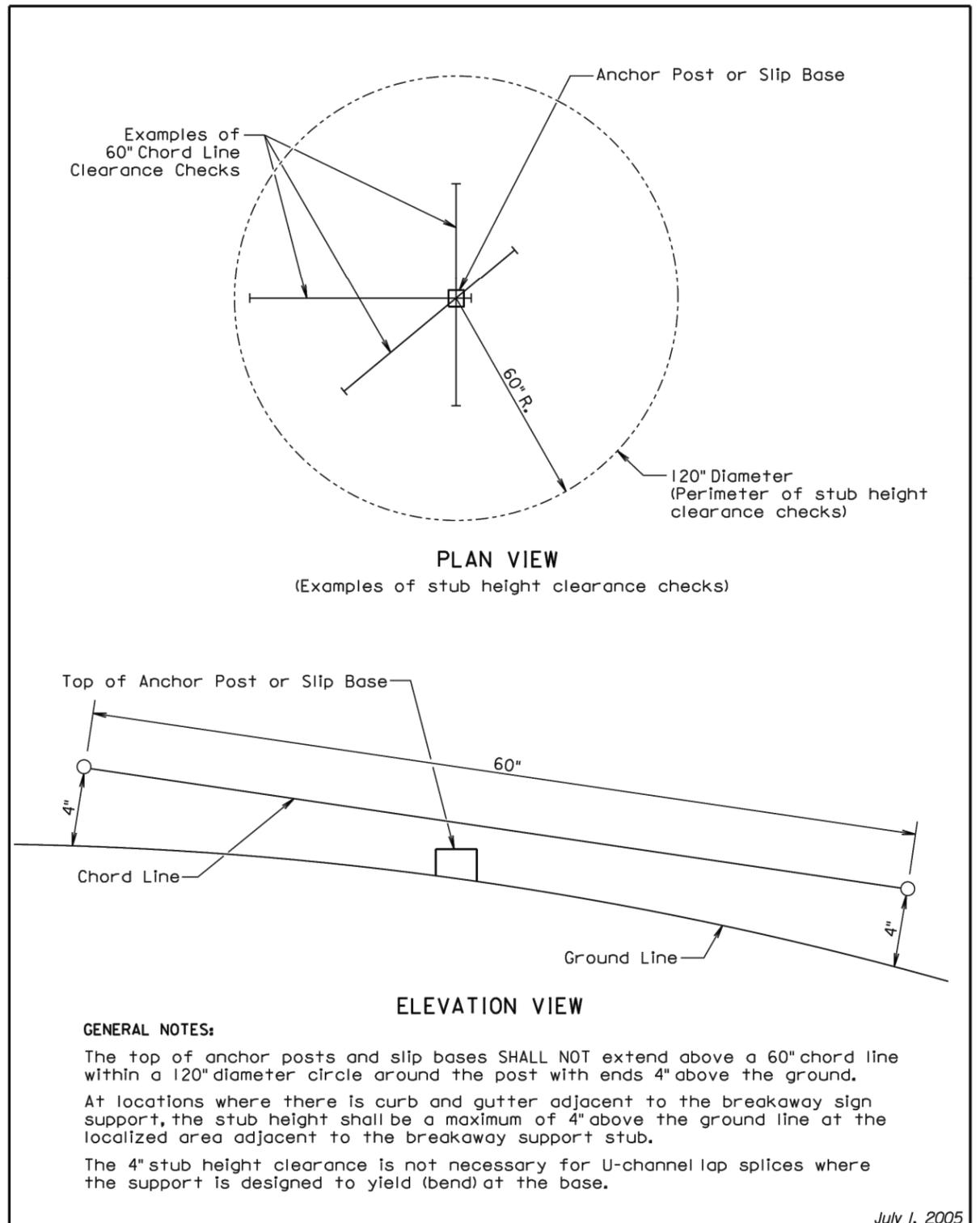
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FOR BIDDING PURPOSES ONLY



September 22, 2014

Published Date: 4th Qtr. 2015	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



July 1, 2005

Published Date: 4th Qtr. 2015	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

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