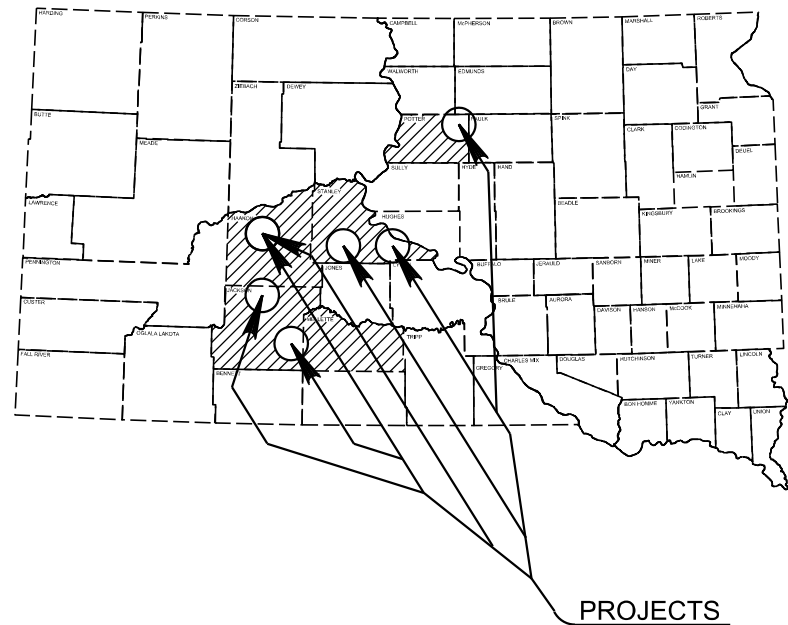
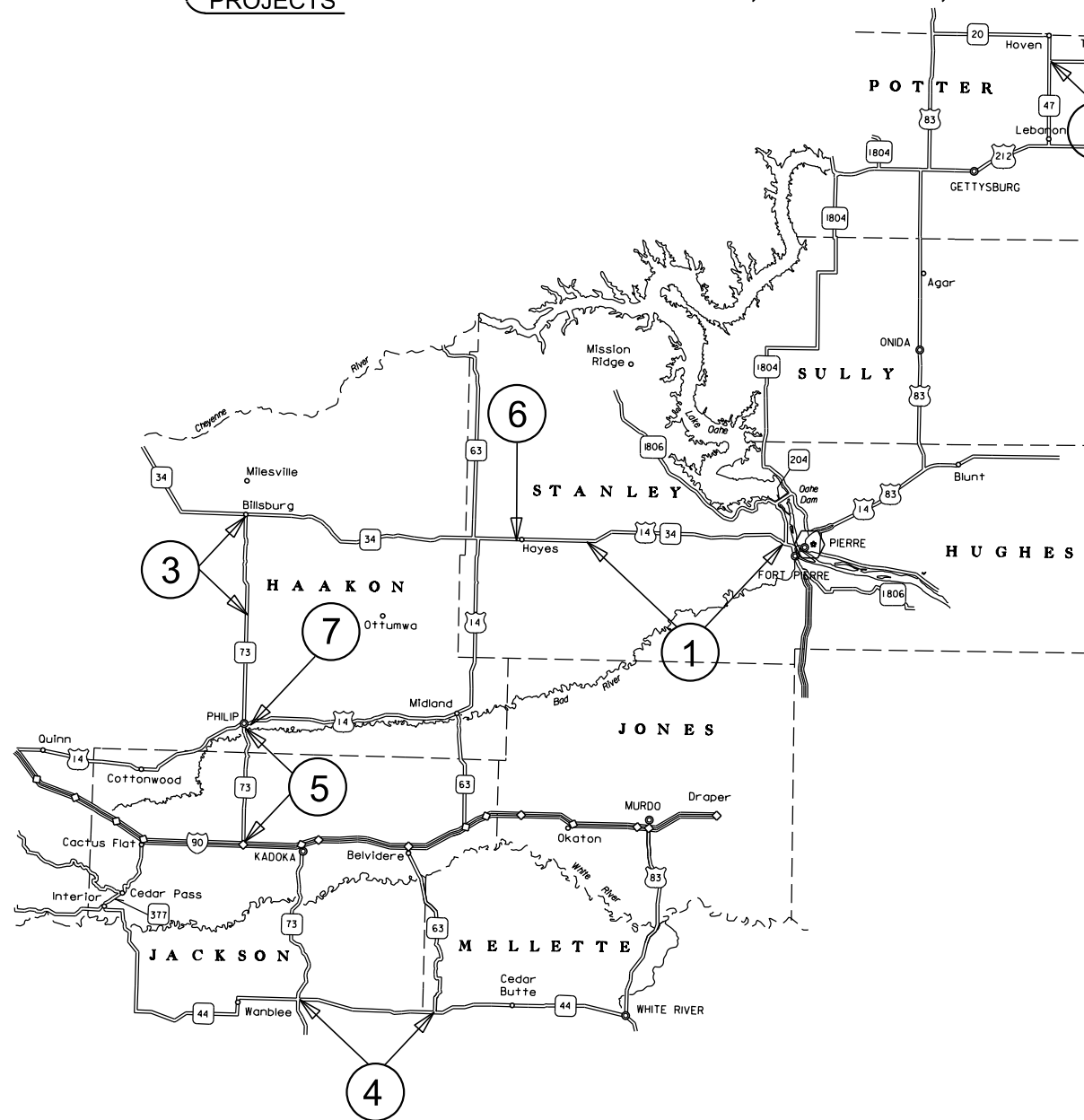


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED
PROJECT NH-P 0031(51) & 073-352
US HIGHWAY 14, SD HIGHWAY 20
SD HIGHWAY 73 & SD HIGHWAY 44
HAAKON, JACKSON, STANLEY
MELLETTTE & POTTER COUNTIES
ASPHALT CONCRETE SURFACE TREATMENT
&
PRIME COAT SHOULDER TREATMENT
PCN 07KQ, PCN I68M, PCN I68R & PCN I68T



INDEX OF SHEETS

- Sheets 1 : Title Sheet
- Sheets 2-8 : Project Layout Maps
- Sheet 9 : Hayes Maintenance Yard Work Limit Map
- Sheet 10 : Philip Maintenance Yard Work Limit Map
- Sheets 11-18 : Environmental Commitments
Estimate of Quantities, Notes,
Rates of Materials, Sign Tabulation
& Permanent Pavement Markings
- Sheets 19-23 : Fixed Location Signs
- Sheets 24-25 : Standard Plates



Asphalt Surface Treatment Projects(PCN 07KQ)

- ① US Hwy14 - MRM 202.00+0.775 to MRM 226.813+0.000
- ② SD Hwy 20 - MRM 257.59+0.065 to MRM 267.52+0.000
- ③ SD Hwy 73 - MRM 106.00+0.146 to MRM 117.60+0.000
- ④ SD Hwy 44 - MRM 155.35+0.000 to MRM 172.54+0.099
- ⑥ Hayes Maintenance Yard(PCN I68R)
- ⑦ Philip Maintenance Yard(PCN I68T)

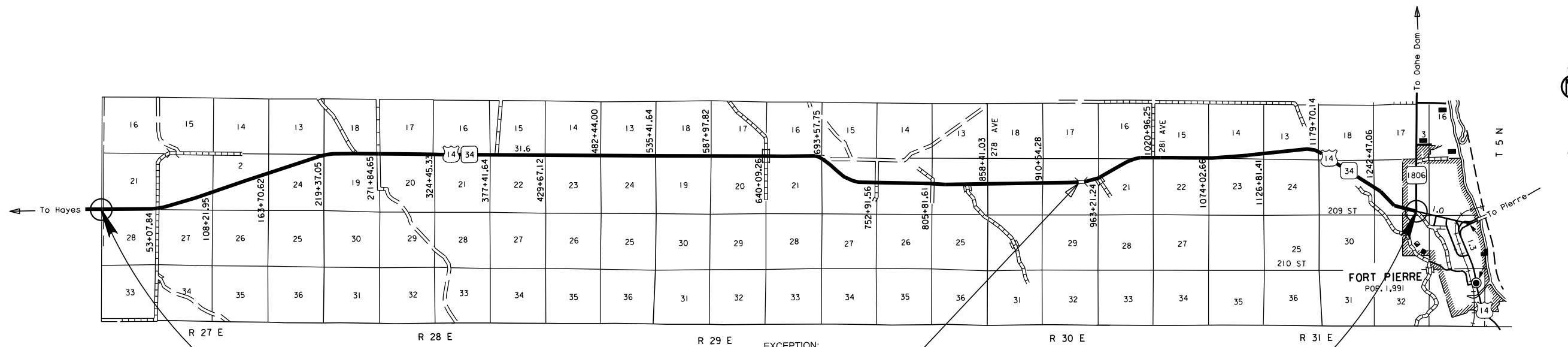
Shoulder Treatment Project(PCN I68M)

- ⑤ SD Hwy 73 - MRM 92.00+0.266 to MRM 78.819+0.086

US HIGHWAY 14

HAAKON COUNTY

ASPHALT SURFACE TREATMENT



BEGIN NH 0031(51)

Station 0+00
MRM 202.00 + 0.775
Mileage = 87.883

EXCEPTION:
Continuous Concrete Bridge
w/Approach Slabs
Sta. 128+95.63 to 130+64.38
168.75 Feet = 0.032 Miles
Str. No. 59-328-274
MRM 220.39

END NH 0031(51)

Station 1266+55.52
MRM 226.813
Mileage = 111.871

DESIGN DESIGNATION

ADT (2020)	1515
ADT (2040)	2291
DHV	365
D	50%
T DHV	6.4%
T ADT	14.1%
V	.65 Mph

STORM WATER PERMIT

(None)

GROSS LENGTH	126,655.52 FEET	23.988 MILES
LENGTH OF EXCEPTIONS	168.75 FEET	0.032 MILES
NET LENGTH	126,486.77 FEET	23.956 MILES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH-P 0031(51)	3	25

SD HIGHWAY 20 POTTER COUNTY ASPHALT SURFACE TREATMENT

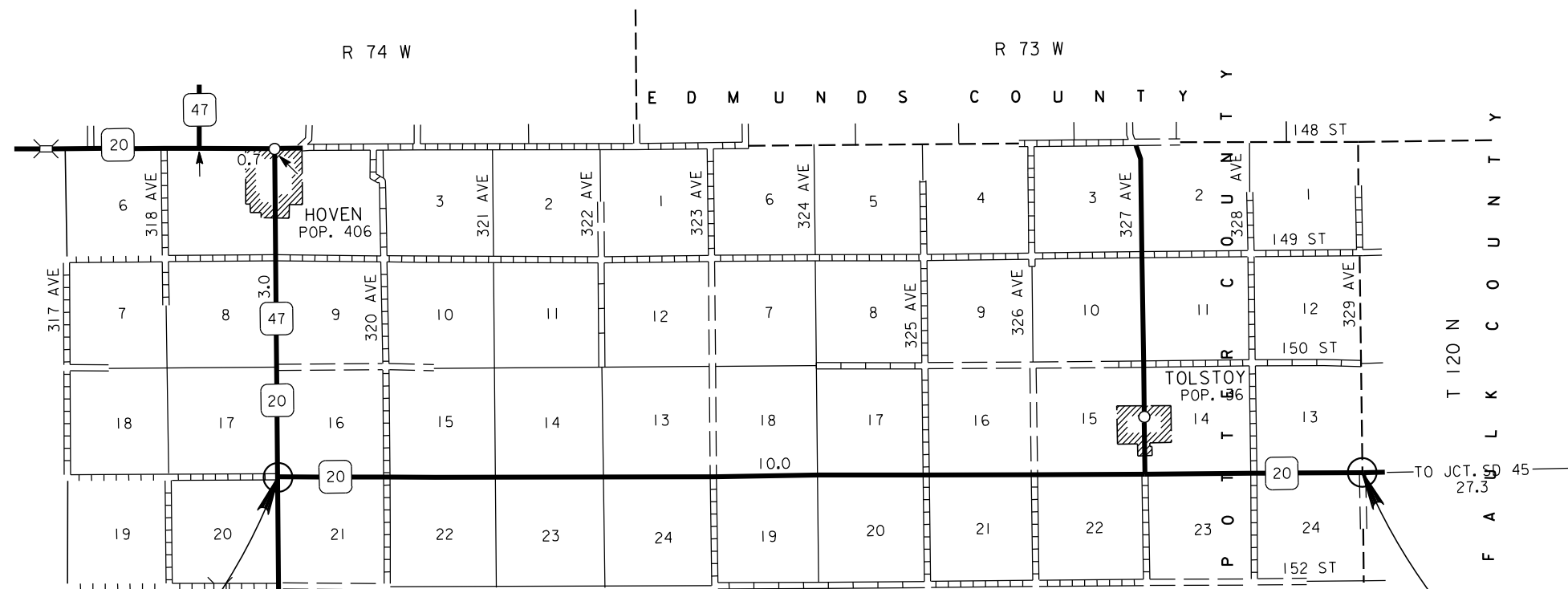
Revised: 01/20/2021 *ETZ*

DESIGN DESIGNATION

ADT (2020)	269
ADT (2040)	274
DHV	36
D	51%
T.DHV	11.7%
T.ADT	25.7%
V	65 Mph

STORM WATER PERMIT

(None)



BEGIN NH 0031(51)

Station 0+00
MRM 257.59 + 0.065
Mileage = 205.565

GROSS LENGTH	51,870.72 FEET	9.824 MILES
LENGTH OF EXCEPTIONS	0.00 FEET	0.000 MILES
NET LENGTH	51,870.72 FEET	9.824 MILES

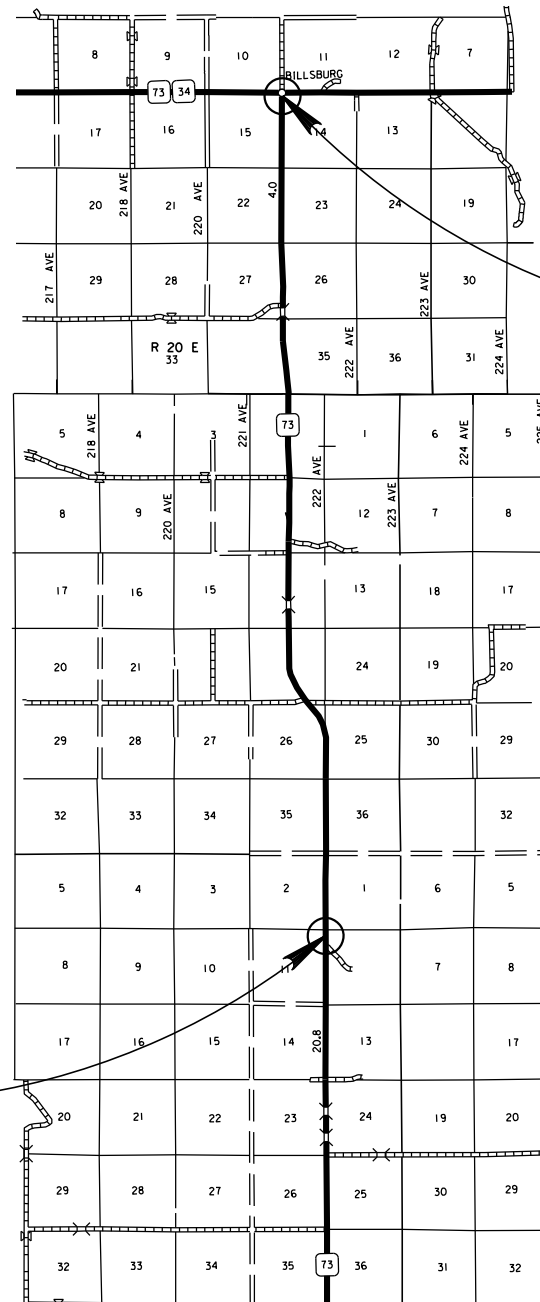
END NH 0031(51)

Station 518+70.72
MRM 267.52 +0.000
Mileage = 215.389

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH-P 0031 (51)	4	25

SD HIGHWAY 73 HAAKON COUNTY ASPHALT SURFACE TREATMENT

Revised: 01/20/2021 *EFF*



END NH 0031(51)
Station 604+98.24
MRM 117.60 +0.000
Mileage = 97.803

BEGIN NH 0031(51)
Station 0+00
MRM 106.00 + 0.146
Mileage = 86.199

DESIGN DESIGNATION

ADT (2020)	457
ADT (2040)	521
DHV	83
D	50%
T DHV	12.0%
T ADT	26.3%
V	65 Mph

STORM WATER PERMIT

(None)

GROSS LENGTH	60,498.24 FEET	11.458 MILES
LENGTH OF EXCEPTIONS	0.00 FEET	0.000 MILES
NET LENGTH	60,498.24 FEET	11.458 MILES

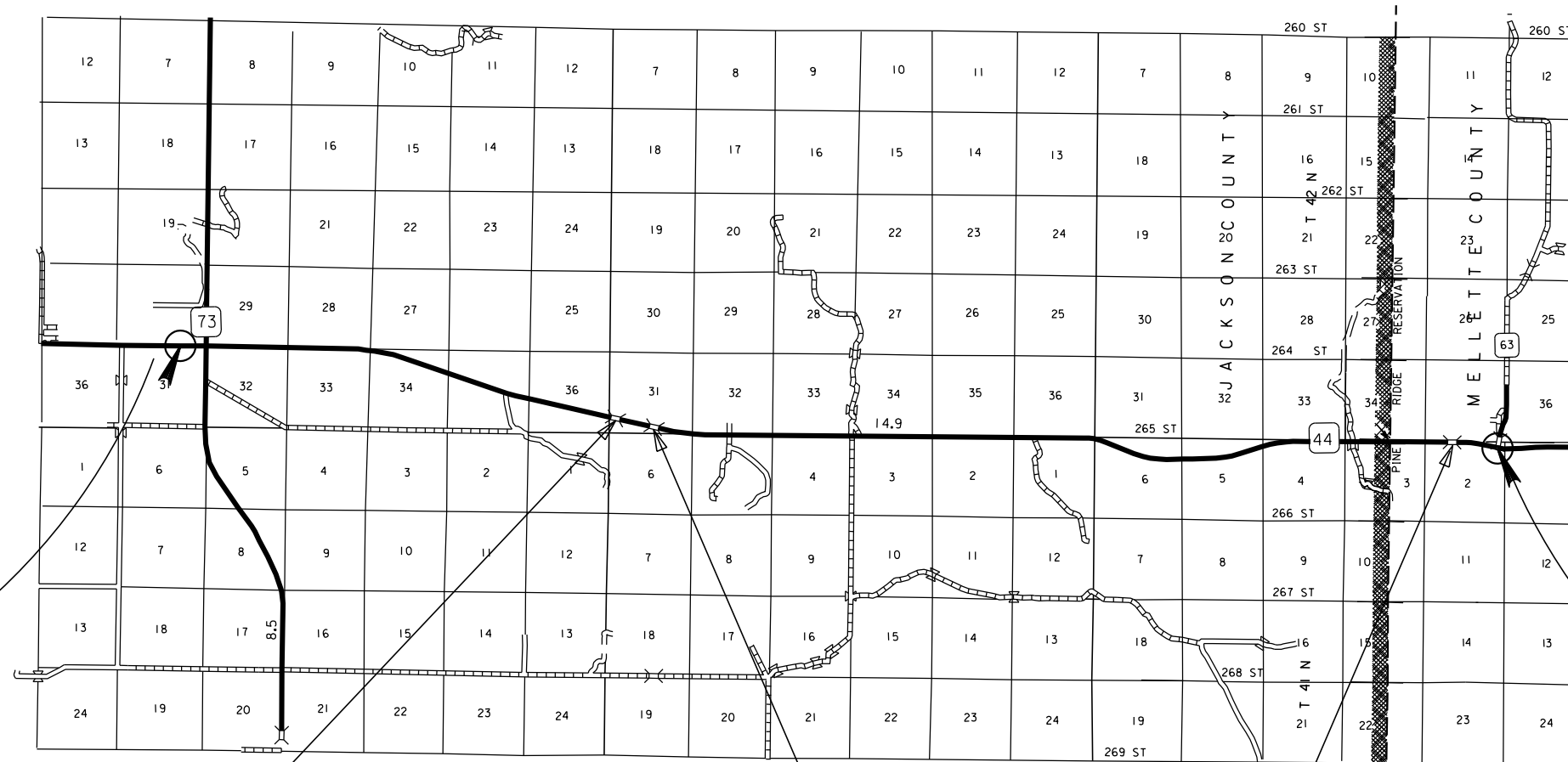
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH-P 0031(51)	5	25

SD HIGHWAY 44

JACKSON & MELLETTE COUNTIES

ASPHALT SURFACE TREATMENT

Revised: 01/20/2021 *ETG*



BEGIN NH 0031(51)

Station 0+00
MRM 155.35 + 0.000
Mileage = 121.926

END NH 0031(51)

Station 86+11.52
MRM 172.54 + 0.099
Mileage = 138.136

EXCEPTION:
Continuous Concrete Bridge
w/Approach Slabs
241.00 Feet = 0.046 Miles
Str. No. 36-361-298
MRM 160.52

EXCEPTION:
Continuous Concrete Bridge
w/Approach Slabs
187.00 Feet = 0.035 Miles
Str. No. 36-366-300
MRM 161.05

EXCEPTION:
Continuous Concrete Bridge
w/Approach Slabs
318.00 Feet = 0.060 Miles
Str. No. 48-013-210
MRM 171.99

DESIGN DESIGNATION

ADT (2020)	500
ADT (2040)	561
DHV	66
D	50%
T DHV	5.3%
T ADT	11.6%
V	65 Mph

STORM WATER PERMIT

(None)

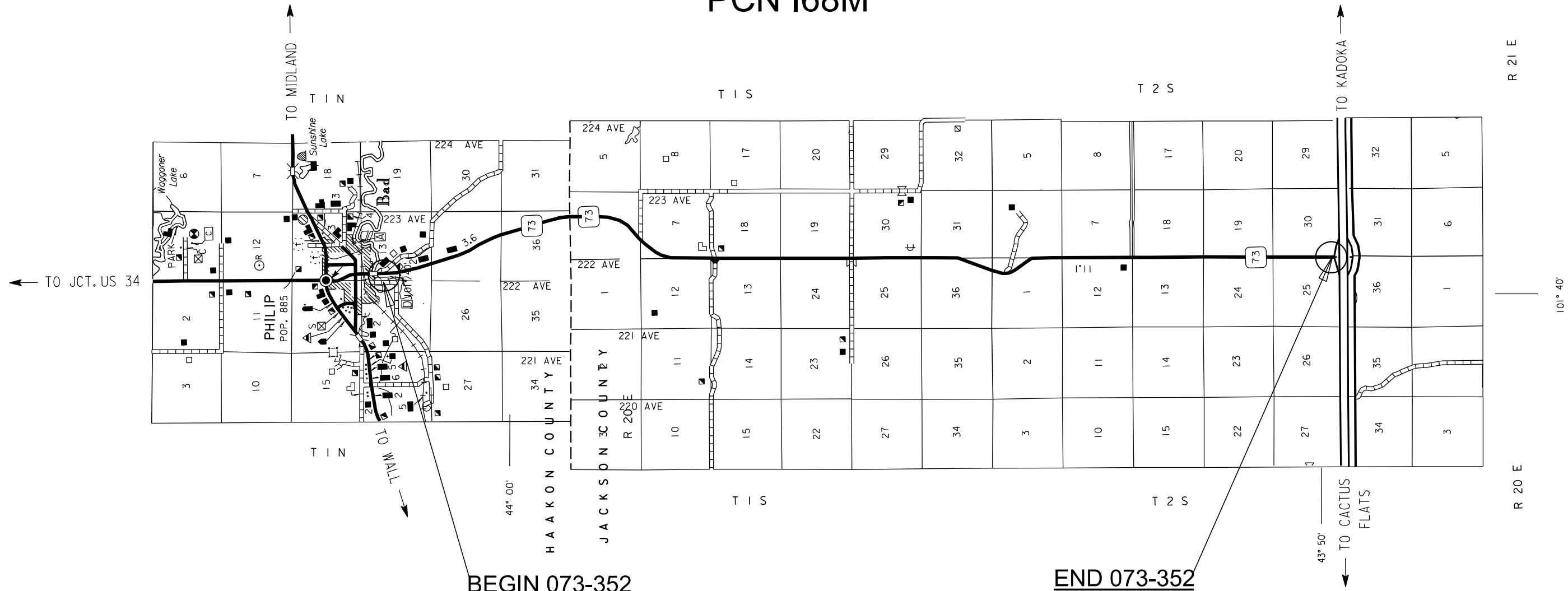
GROSS LENGTH	86,111.52 FEET	16.309 MILES
LENGTH OF EXCEPTIONS	746.0 FEET	0.141 MILES
NET LENGTH	85,365.52 FEET	16.168 MILES

US HIGHWAY 14

HAAKON & JACKSON COUNTIES

SHOULDER TREATMENT

PCN I68M



DESIGN DESIGNATION

ADT (2019)	735
ADT (2039)	827
DHV	132
D	50%
T DHV	9.4%
T ADT	20.6%
V	65 MPH

BEGIN 073-352

Station 738+73.40
MRM 92.00+0.266
Mileage =

END 073-352

Station 0+00
MRM 78.19 +0.086
Mileage = 58.473

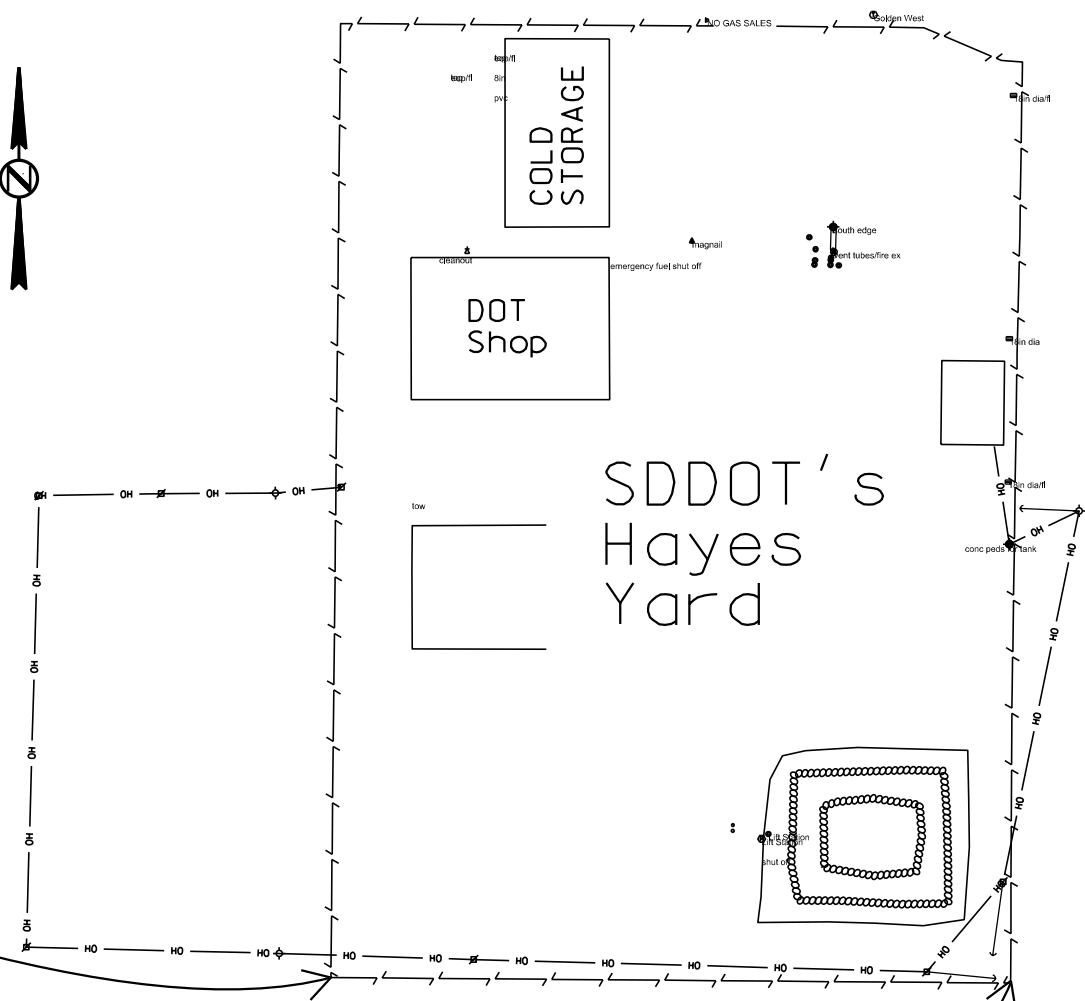
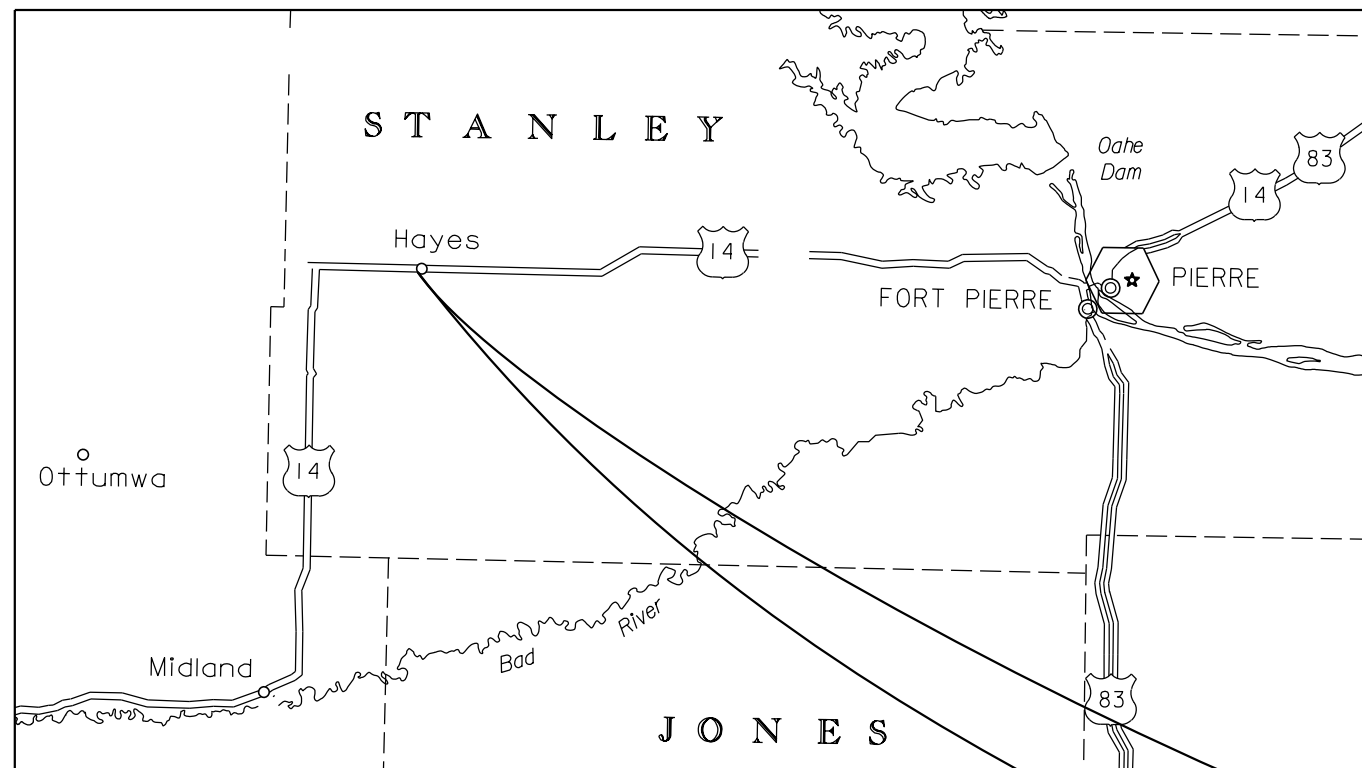
GROSS LENGTH	73,873.400 FEET	13.991 MILES
LENGTH OF EXCEPTIONS	0.000 FEET	0.000 MILES
NET LENGTH	73,873.400 FEET	13.991 MILES

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH-P 0031 (51)	7	25

HAYES MAINTENANCE YARD

STANLEY COUNTY

ASPALT SURFACE TREATMENT PCN I68R



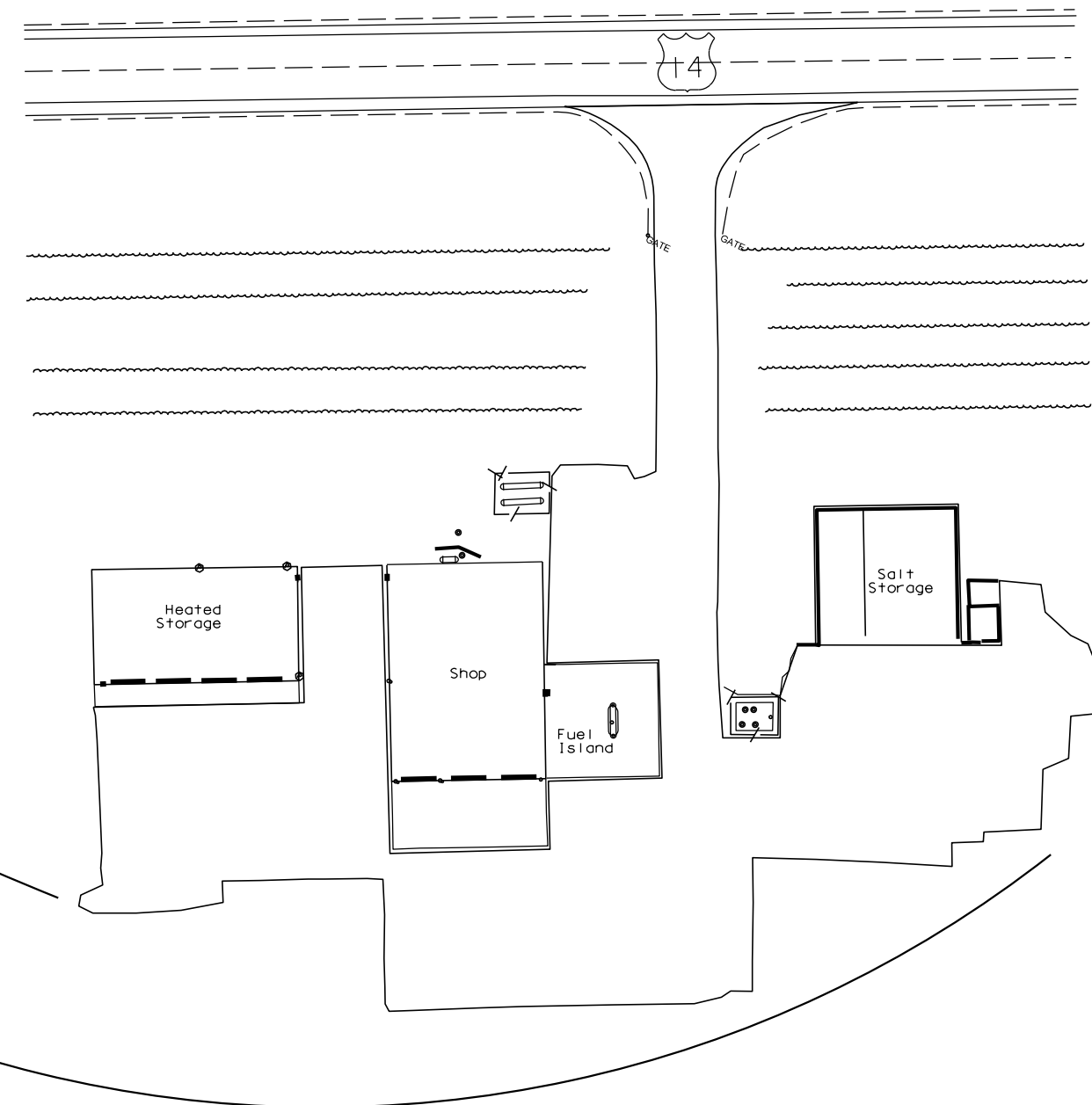
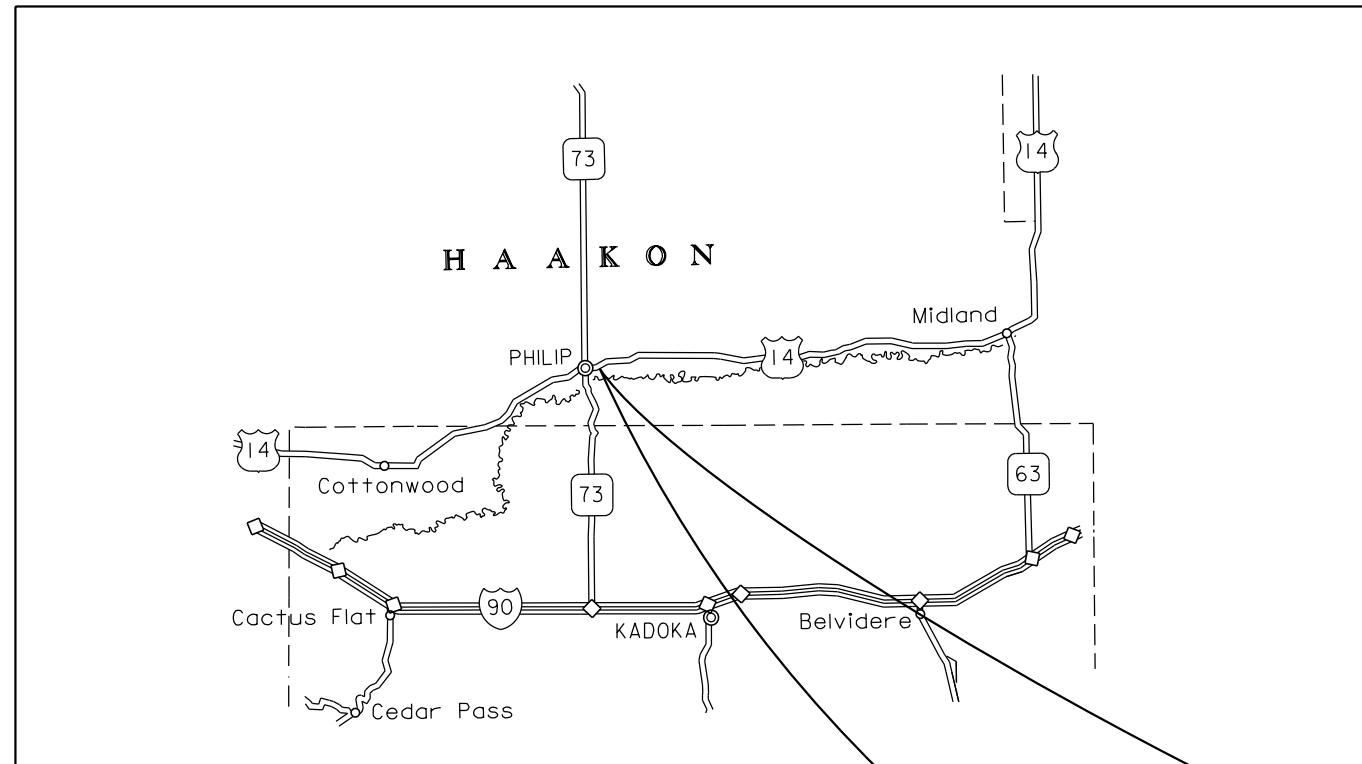
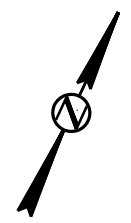
STORM WATER PERMIT
None Required

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH-P 0031(51)	8	25

PHILIP MAINTENANCE YARD

HAAKON COUNTY

ASPALT SURFACE TREATMENT PCN I68T



STORM WATER PERMIT
None Required

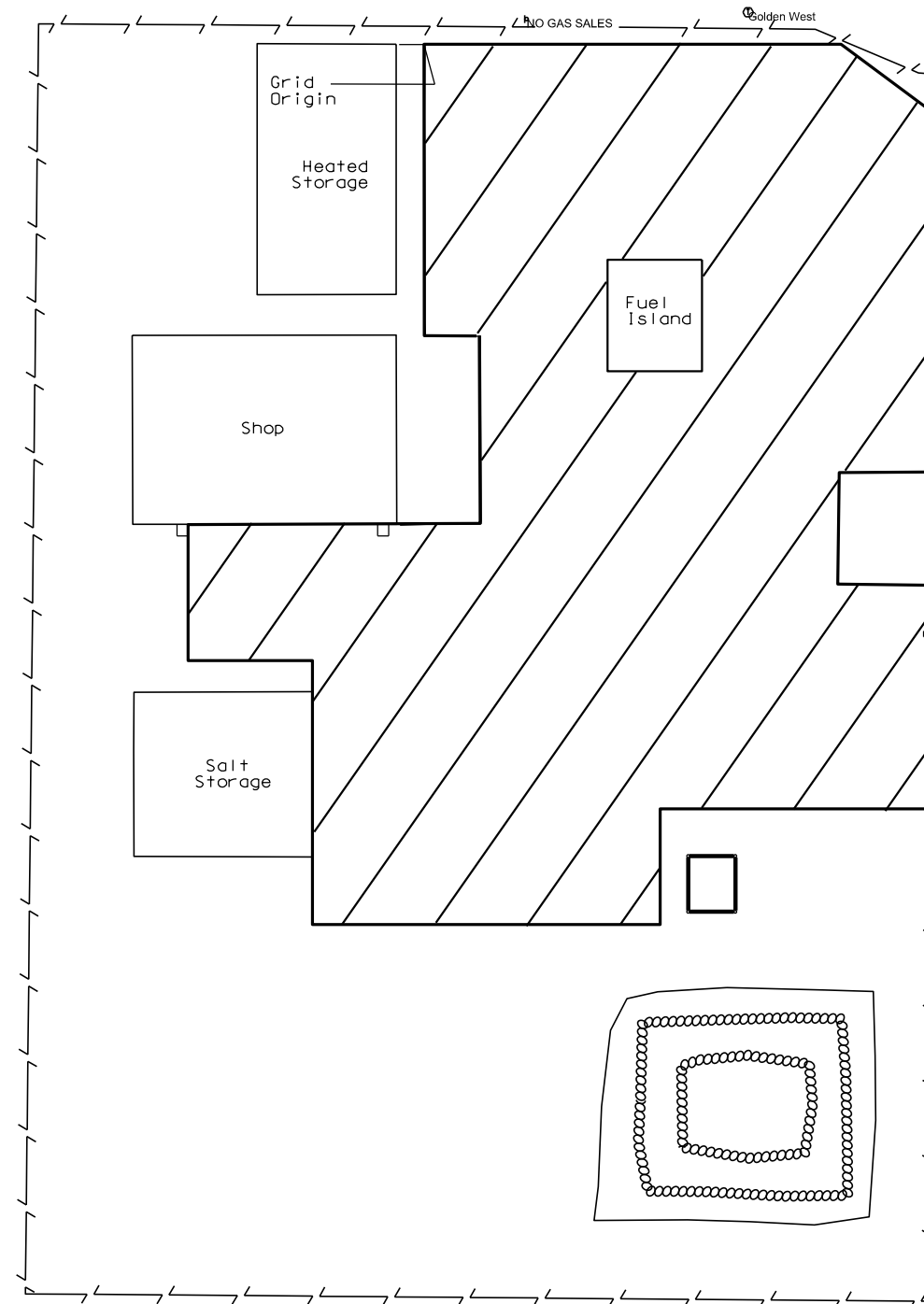
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH-P 0031(5I)	9	25

HAYES MAINTENANCE YARD

ASPHALT SURFACING TREATMENT LIMITS

Revised: 01/20/2021 *EFF*

PCN I68R



6,397 Sq. Yds.
of
Asphalt Surface Treatment

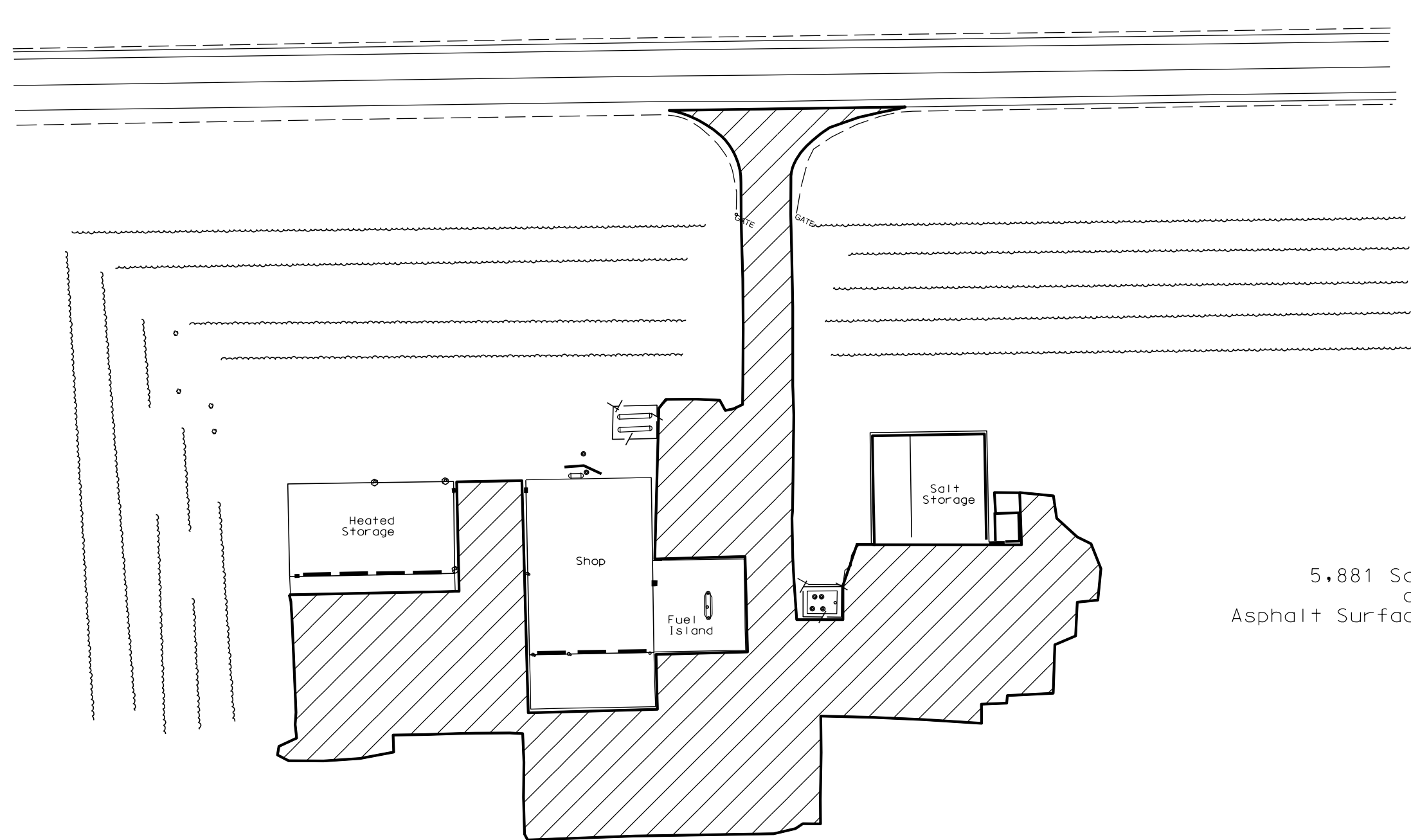
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH-P 0031 (51)	10	25

PHILIP MAINTENANCE YARD

Revised: 01/20/2021 *EFF*

ASPHALT SURFACING TREATMENT LIMITS

PCN I68T



5,881 Sq. Yds.
of
Asphalt Surface Treatment

ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0031(51)	11	25

Revised: 01/20/2021 *EFF*

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Section A Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified 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.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Office at 605-773-3098 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

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 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 will 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 Public ROW.

The waste disposal site(s) will 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) will 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 will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public 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 will 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) will be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all

department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

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

The Contractor will 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 will 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 will 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 will cease and the Project Engineer will 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 will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

ESTIMATE OF QUANTITIES

The quantities of asphalt for surface treatment and cover aggregate are based on the rates shown in the Rates of Materials. This is only an estimate. The actual application rates of materials will be determined by mix design as stated in these plans. The mix design rates may vary from the estimated rates stated in the Rates of Materials depending on the aggregate source and the variation in gradation and flakiness index. The application rates may also be adjusted in the field due to results of gradations, flakiness index, and differing surface conditions. Pay quantities will be those actually used even though they may vary significantly from plans estimates.

PCN 07KQ

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	273.6	Ton
330E3000	Sand for Fog Seal	80.0	Ton
360E0020	AE150S Asphalt for Surface Treatment	1,215.3	Ton
360E1020	Type 1B Cover Aggregate	1,700.7	Ton
360E1020	Type 1B Cover Aggregate	2,420.7	Ton
360E1020	Type 1B Cover Aggregate	5,256.3	Ton
360E1020	Type 1B Cover Aggregate	1,458.1	Ton
633E1200	High Build Waterborne Pavement Marking Paint, White	3,424	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	1,092	Gal
634E0010	Flagging	700.0	Hour
634E0020	Pilot Car	350.0	Hour
634E0110	Traffic Control Signs	1,624.4	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	123.1	Mile

PCN I68M *

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
330E0010	MC-70 Asphalt for Prime	122.6	Ton
634E0010	Flagging	50.0	Hour
634E0020	Pilot Car	25.0	Hour
634E0110	Traffic Control Signs	287.8	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

PCN I68R *

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	1.4	Ton
360E0020	AE150S Asphalt for Surface Treatment	8.1	Ton
360E1020	Type 1B Cover Aggregate	70.4	Ton
634E0110	Traffic Control Signs	64.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

PCN I68T *

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	1.3	Ton
360E0020	AE150S Asphalt for Surface Treatment	7.4	Ton
360E1020	Type 1B Cover Aggregate	64.7	Ton
634E0110	Traffic Control Signs	64.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

* Denotes Non-Participating

SPECIFICATIONS

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

ENGINEER NOTIFICATION

The Contractor is required to notify the Pierre Area Engineer (Dean VanDeWiele (605)773-5294) at least 10 days prior to beginning asphalt surface treatment operations.

SEQUENCE OF OPERATIONS

Contractor requests to deviate from the sequence of operations will be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence will be submitted for review a minimum of one week prior to potential implementation.

The following sequence is provided, and is intended as a guide only, to the Contractor to aid in planning their sequence of operations and is not inclusive of all work activities.

1. Install fixed location ground mounted traffic control devices.
2. Place temporary pavement marking not more than 24 hours prior to chip seal.
3. Apply asphalt surface treatment. The application of the asphalt and aggregate will cease at least one hour prior to sunset each day. Once it is verified that the appropriate cover on tabs are in place work will begin in a given lane each day, the Contractor will stay in that lane and will not be allowed to place asphalt surface treatment in the adjacent lane unless preapproved by the Engineer.
4. Remove top plastic covers only from temporary flexible vertical markers (tabs) after application of the chip seal and prior to nightfall.
5. Broom chip sealed areas each morning following chip seal application.
6. Apply fog seal.
7. Remove plastic covers from temporary flexible vertical markers (tabs) after application of the fog seal and prior to nightfall.

8. Immediately prior to application of the permanent pavement marking, the areas to be painted will be broomed or blown off with high pressure compressed air. (If a high pressure air device is used to clean the pavement surface, it will be capable of sustaining continuous high pressure for the duration of the pavement marking process.)
9. Complete the pavement marking.
10. Remove temporary flexible vertical markers (tabs) within the seven day time period specified in the Temporary Pavement Marking section of the plans.
11. Remove traffic control devices.

BRIDGE ENDS AND APPROACH SLABS

Asphalt surface treatment and Fog Seal will not be placed on any bridge and/or bridge approach slabs. Any emulsion or cover aggregate found to be on bridges or approach slabs after final brooming will be removed by the Contractor as directed by the Engineer at no cost to the Department.

Material used to cover and protect these areas will be removed and disposed of properly after the application of the asphalt surface treatment. When the material is removed, the asphalt surface treatment that does not stay adhered to the material will be removed from the road surface.

All joints at bridge ends including asphalt plug joints, membrane sealant, and strip seal glands along the project will be masked and/or protected the entire length prior to Asphalt Surface Treatment operations. This protection will remain in place until completion of the fog seal and any final brooming operations. The protection will then be removed and any loose material cleaned out of each of the gland areas. Any damage to the glands caused by the asphalt surface treatment operations will be repaired at no expense to the State. All costs related to this work will be incidental to the various contract items.

The anticipated bridge locations are listed in the table below.

Structure No. 59-328-274	US 14 MRM 220.39
Structure No. 36-361-298	SD 44 MRM 160.52
Structure No. 36-366-300	SD 44 MRM 161.05
Structure No. 48-013-210	SD 44 MRM 171.99

SHOULDER WORK

Prior to construction, Department of Transportation Maintenance Forces will spray the shoulders to kill existing vegetation. It will be the Contractor's responsibility to notify the State a minimum of thirty days prior to starting work on the shoulders of the highway. The State assumes no responsibility for the effectiveness of the herbicide applied.

Vegetation and accumulated material on or adjacent to the existing roadway edge will be removed to the satisfaction of the Engineer prior to asphalt surface treatment.

Shoulder work will be incidental to other contract items. Separate measurement and payment will not be made.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH-P0031(51)	13	25

BROOMING

All material will be broomed off of bridges and curb & gutter areas adjacent to the bridges. No material will be broomed under the guardrail, including the 3 cable guardrail or into the drop inlets. Material from the curb & gutter areas of the bridges, from guardrail areas of the bridges, and from drop inlets will be disposed of in a manner satisfactory to the Engineer.

No material will be broomed into the ditches or on the boulevards in residential and commercial areas where the adjacent landowner conducts the mowing of the right-of-way. This material will be disposed of in a manner satisfactory to the Engineer.

Material that is broomed onto the roadway inslopes will not be left in piles or windrows. The material will be evenly distributed at a height that will not hinder mowing operations or cause dispersion of the material into the traveled roadway when passed over with a mower.

This list may not be complete. Additional areas may need attention as directed by the Engineer.

ASPHALT FOR SURFACE TREATMENT

AE-150S Asphalt for Surface Treatment will be used for US 14, SD 20, SD 73 and SD 44.

MC-70 Asphalt for Prime will be used for shoulder treatment on SD 73 Route #5.

The asphalt for surface treatment that is delivered for use on this contract will be used in the order it is received. Storage of asphalt for surface treatment will only be allowed at the end of the work day. The material that is placed in storage will be the first material used the following day.

Asphalt Surface Treatment will not be applied to Rumble Bar areas prior to Stop Signs, however these areas will be fog sealed.

Application of the asphalt surface treatment will be applied to the widths specified in the plans. The Contractor will have to consider the width of overlap at centerline to obtain the total width specified. A gap at centerline between surface treatment passes will not be allowed.

COVER AGGREGATE

Cover Aggregate will conform to the requirements of the Specifications for Type 1B and will be furnished by the Contractor.

Type 1B Cover Aggregate will be used for US 14, SD 20, SD 73 and SD 44.

After the aggregate stockpile has been produced, the Contractor will submit an aggregate sample to the asphalt supplier a minimum of 14 days prior to starting the project to allow time to evaluate the compatibility and design of the surface treatment. A copy of the test results will be submitted to the Engineer and Bituminous Engineer for approval prior to starting the asphalt surface treatment work.

The Contractor will continue chip spreader progress, forward, thru the asphalt application at any end where work will be temporarily shut down for a time greater than 5 minutes, to allow for satisfactory uniform rolling of the

placed aggregate. The Contractor will not allow the chip spreader, trucks, rollers or other equipment to lie dormant on the aggregate while transitioning between asphalt distributor loads and or any other temporary shutdown of production, before uniform rolling is complete.

Quality tests on the Cover Aggregate for abrasion and soundness are required by specification. The Contractor will notify the Pierre Area Office prior to sampling and a representative from the Pierre Area Office will witness all sampling of aggregates to be submitted to the Central Testing Laboratory for quality testing. Satisfactory test results for the Cover Aggregate will be obtained prior to its use on the project.

FOG SEAL

The fog seal will be placed following the completion of the asphalt surface treatment. Prior to the application of the fog seal, the Contractor will be required to broom the asphalt surface treatment. A CSS-1h or SS-1h emulsion will be used for the fog seal application. A water-to-emulsion rate of 1:1 should be used for the Fog Seal application.

The Contractor will fog seal the entire asphalt surface treatment surface including the sluff.

SAND FOR FOG SEAL

The Contractor will plan the fog seal operation to allow adequate cure time for the fog seal and to minimize/eliminate the need to apply Sand for Fog Seal.

If adequate cure time for the Fog Seal is not available, to facilitate traffic, the Contractor will be allowed to place a minimum sufficient amount of blotting sand on the fog seal to allow traffic to cross the uncured portion of the fog seal, as permitted by the Engineer.

Sand for Fog Seal is only intended to be placed for accesses to businesses, intersection crossings, and as determined by the Engineer to facilitate traffic movements. Sand for Fog Seal will not be placed to accelerate the Contractor's schedule.

Sand that is applied will be broomed off the surface of the roadway once the fog seal has sufficiently cured as determined by the Engineer.

Sand for Fog Seal will conform to Section 879.1.B.

Prior to hauling, Sand for Fog Seal will be screened to minimize segregation, eliminate oversize, and effectively breakup or discard material bonded into chunks. All costs for supplying, hauling, placing, and brooming the blotting sand will be incidental to the contract unit price per ton for "Sand for Fog Seal".

MC-70 PRIME

MC-70 Asphalt for Prime at the rate of 4.4 ton/mile applied 7 feet wide on the shoulder (Rate = 0.25 gallon per square yard).

GENERAL TRAFFIC CONTROL

Traffic will be maintained in the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment will be repaired at no expense to the State..

Revised: 01/20/2021 ~~8770~~

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

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

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

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

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

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

Traffic will be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment will be repaired at no expense to the Department.

TRAFFIC CONTROL SIGNS

Sufficient traffic control signs have been included in these plans to sign one workspace on each route. If the Contractor elects to work on additional locations simultaneously, the cost for additional traffic control signs will be incidental to the contract unit price per square foot for "Traffic Control Signs".

FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours. Also included in the Estimate of Quantities are 6 ONE LANE ROAD WAIT FOR PILOT CAR signs for use on intersecting roads. These signs will be mounted on a Type 3 Barricade and placed at the stop sign. This assembly will not block the view of the stop sign.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH-P0031(51)	14	25

Revised: 01/20/2021 ~~8770~~

FLAGGING(Continued)

It is required that the flaggers and pilot car operators be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for "Flagging".

Sufficient traffic control devices have been included in these plans to sign one workspace per route. No additional payment will be made if the Contractor elects to work on additional sites simultaneously.

TRAFFIC CONTROL FOR ASPHALT SURFACE TREATMENT

All traffic control sign fixed locations will be marked in the field by the Contractor and verified by the Engineer prior to installation.

Work activities will be conducted during daylight hours only.

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

The Contractor will furnish, install, maintain, and remove TRUCK CROSSING signs daily. The TRUCK CROSSING signs will be displayed at all times when haul vehicles are hauling material. When hauling conditions no longer exist, the signs will be covered or removed from view. The exact number and location will be determined on construction. Payment for additional signs will be based on the contract unit price per square foot for Traffic Control Signs.

The Contractor will furnish, install, and maintain LOOSE GRAVEL signs with 40 MPH advisory speed plaques upon start of surface treatment operations at each end of the segment and on either side of intersecting asphalt roads and major intersections as determined by the Engineer. In addition, LOOSE GRAVEL signs with 40 MPH advisory speed plaques will be installed at no more than 4 mile intervals throughout each segment. The 40 MPH advisory speed plaque should not be installed with LOOSE GRAVEL signs in areas where the posted speed limit is less than 40 MPH. LOOSE GRAVEL sign and 40 MPH advisory speed plaques will be covered or removed from view when they are not applicable.

ROAD WORK NEXT XX MILES, LOOSE GRAVEL, and END ROAD WORK signs are the only signs that need to be mounted on fixed location breakaway sign supports, as shown on the plan layout. ROAD WORK AHEAD,

FLAGGER, ONE LANE ROAD AHEAD, and TRUCK CROSSING signs may be mounted on portable supports. Any other signs used may be mounted on portable supports as long as the duration is not more than 3 calendar days. If

the duration is more than 3 calendar days, the signs will be mounted on fixed location breakaway sign supports. The bottom of signs on portable supports will not be less than 7 feet above the pavement in urban areas, and 1 foot

above the pavement in rural areas. Signs mounted on portable supports will be moved as necessary to keep current with the work activities.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

Sign locations must be approved by the Engineer.

Until the end of each day's chip seal operations, at the discretion of the Contractor, additional flaggers and FLAGGER symbol signs will be provided to alert the traveling public entering completed portions of the project to the potential of airborne chips.

The flagger will provide each motorist with a printed notice on the Contractor's letterhead similar to the one shown. Costs of the notice will be incidental to other contract items

"CONTRACTOR'S LETTERHEAD"
 THIS HIGHWAY IS BEING RESURFACED WITH A ROCK CHIP SEAL COAT. THIS TYPE OF CONSTRUCTION HAS THE POTENTIAL OF CAUSING VEHICLE DAMAGE SUCH AS CHIPPED WINDSHIELDS AND BROKEN HEADLIGHTS DUE TO ROCKS BEING THROWN BY HIGH SPEED ONCOMING OR PASSING TRAFFIC. YOU MAY WISH TO CONSIDER TAKING AN ALTERNATE ROUTE. IF YOU PROCEED, KEEP TO THE RIGHT AND DRIVE 40 MPH OR LESS. ANOTHER FLAGGER AND A PILOT CAR WILL BE ESCORTING YOU AROUND THE OIL SEAL COAT APPLICATION AREA. THANK YOU.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

TEMPORARY PAVEMENT MARKING

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

Temporary pavement marking will be measured once for the asphalt surface treatment and one for the fog seal on each route, for a total of two applications.

The temporary flexible vertical markers (tabs) will have secure covers. The Contractor will be required to remove the covers manually and properly

disposed of the covers. Any flexible vertical markers (tabs) that are nonreflective will be cleaned. Cleaning of flexible vertical markers (tabs) will be incidental to the contract unit price per mile for TEMPORARY PAVEMENT MARKING. Petroleum products will not be used to clean markers. All costs associated with furnishing, installing, removing covers and cleaning of the flexible vertical markers (tabs) used on this project will be incidental to the contract unit price per mile for Temporary Pavement Marking.

Any temporary flexible vertical markers (tabs) with covers removed before the flush seal will be replaced prior to application of the flush seal. Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs at no additional cost to the State.

Prior to asphalt surface treatment the Contractor will mark, with appropriately colored temporary flexible vertical markers (tabs), the location of all existing pavement marking, except edgelines. However, the Contractor will place temporary flexible vertical markers (tabs) on the edgeline of all transition areas such as turn lanes and climbing lanes and on all dashed edgelines. Prior to installation of the permanent pavement marking, the Engineer is to be notified. The Contractor will give the Engineer ample notification to verify and check the placement of the temporary flexible vertical markers (tabs) that are to be used for placement of the permanent pavement marking.

If the Contractor uses the DO NOT PASS and PASS WITH CARE signs, the beginning and ending of no passing zones will be marked with temporary flexible vertical markers (tabs).

The total length of no passing zones on this contract is estimated to be 30.622 miles.

For locations where the annual average daily traffic (ADT) is 2500 or less, it is estimated that 121 DO NOT PASS and 118 PASS WITH CARE signs will be required to mark the no passing zones, should the Contractor elect to use these signs.

The Contractor will remove and dispose of temporary flexible vertical markers (tabs) after Permanent Pavement Marking is applied. Method of removal will be nondestructive to the road surface. Removal will be accomplished within one week of completion of the Permanent Pavement Marking.

In the absence of a signed lane closure or pilot car operation, Flagger symbol signs (W20-7) and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights will be positioned on the shoulder in advance of workers for both directions of traffic during the installation and removal of temporary flexible vertical markers (tabs). The traffic control device used will be moved intermittently 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 will be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work will be approved by the Engineer.

TEMPORARY PAVEMENT MARKING(Continued)

TABLE OF DO NOT PASS AND PASS WITH CARE SIGNS

Route	DO NOT PASS	PASS WITH CARE	LENGTH OF NO PASSING ZONES
US HWY 14	43	43	11.429
SD HWY 20	25	24	4.316
SD HWY 73	26	25	5.593
SD HWY 44	27	26	9.284
TOTAL	121	118	30.622

PERMANENT PAVEMENT MARKING PAINT

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

The Contractor will advise the Engineer a minimum of 3 weeks prior to the application of the permanent pavement marking to allow the State to check and mark the location of no passing zones.

The application of permanent pavement marking paint may not begin until 7 calendar days following completion of fog seal and will be completed within 14 days following completion of fog seal.

The Contractor will be required to inventory and mark, with appropriate colored tabs, the extent and location of the existing word messages, turn arrows, stop bars, railroad crossings, pedestrian crossings, etc. before the markings are obliterated. The Engineer will be provided a copy of the pavement marking inventory.

TABLES OF PERMANENT PAVEMENT MARKING

US 14	White	Yellow
4" Yellow Dashed Centerline - 12.559 Miles @ 7.6 Gal/Mile	-	95.4
4" Solid Yellow Centerline - 11.429 Miles @ 27.8 Gal/Mile	-	317.8
4" Solid White Edgeline - 47.976 Miles @ 27.8 Gal/Mile	1333.7	-
Total Gallons	1333.7	413.2

SD 20	White	Yellow
4" Yellow Dashed Centerline - 5.508 Miles @ 7.6 Gal/Mile	-	41.9
4" Solid Yellow Centerline - 4.316 Miles @ 27.8 Gal/Mile	-	120.0
4" Solid White Edgeline - 19.648 Miles @ 27.8 Gal/Mile	546.2	-
Total Gallons	546.2	161.9

SD 73	White	Yellow
4" Yellow Dashed Centerline - 5.593 Miles @ 7.6 Gal/Mile	-	42.5
4" Solid Yellow Centerline - 5.865 Miles @ 27.8 Gal/Mile	-	163.0
4" Solid White Edgeline - 22.916 Miles @ 27.8 Gal/Mile	637.1	-
Total Gallons	637.1	205.5

SD 44	White	Yellow
4" Yellow Dashed Centerline - 7.025 Miles @ 7.6 Gal/Mile	-	53.4
4" Solid Yellow Centerline - 9.284 Miles @ 27.8 Gal/Mile	-	258.1
4" Solid White Edgeline - 32.618 Miles @ 27.8 Gal/Mile	906.8	-
Total Gallons	906.8	311.5

RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

The Department may take retroreflectivity readings on the pavement marking lines after 2 days and within 30 days of the line application using either a portable or mobile retroreflectometer that conforms to a 30-meter geometry. If the Department chooses to take retroreflectivity readings three retroreflectivity readings will be taken on each line at each test location.

If the Department chooses to take retroreflectivity readings, the three readings will be averaged and become the reading for that test location. The readings will be taken on the edge lines and lane lines in the direction of application. For combination solid yellow and skip yellow lines for turn lanes and for centerline markings on two-way roadways, three readings will be taken in one direction, the reflectometer will be turned 180 degrees and three more readings will be taken. The six readings for the centerline markings will be averaged and become the test reading for that test location.

If the Department chooses to take retroreflectivity readings, the minimum retroreflectivity values will be 230 mc/m²/lux for white and 140 mc/m²/lux for yellow.

EXISTING PAVEMENT CONDITIONS

The existing pavement conditions for each highway segment are listed in the table below.

ROUTE	EXISTING PAVEMENT CONDITION
US14 – MRM 128.68+0.180 to MRM 151.00+0.123	Slightly pocked and good condition
SD20 – MRM 257.59+0.065 to MRM 267.52+0.000	Porous and oxidized
SD73 – MRM 106.00+0.146 to MRM 117.60+0.000	Porous and oxidized
SD44 – MRM 155.35+0.000 to MRM 172.54+0.099	Slightly pocked and good condition

The traffic volumes are shown on the project layout sheet for each highway segment.

STOCKPILE SITE RELEASES

Upon completion of the contract, the Contractor will supply the Engineer a copy of all stockpile site releases to place in the Department's file.

RATES OF MATERIALS

Revised: 01/20/2021 *EFF*

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

Route 1 – US 14 MRM 202.00 + 0.775 TO 226.83 + 0.000 (Station 0+00 to 1266+56.64 = 23.988 miles)

Exceptions = 0.032 miles, total Net miles = 23.956 miles:

- **Surface Treatment and Fog Seal from 0+00 to 1266+56.64 (23.988 miles) –**

AE-150S Asphalt for Surface Treatment at the rate of 23.7 tons applied 34 feet wide (Rate = 0.28 gallon per square yard).

Type 1B Cover Aggregate at the rate of 219.4 tons applied 34 feet wide (Rate = 22 pounds per square yard).

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 4.7 tons applied 38 feet wide (Rate = 0.05 gallon per square yard). The oil applied will be dependent on the type of aggregate used.

Route 2 – SD 20 MRM 257.59 + 0.065 TO 267.52 + 0.000 (Station 0+00 to 518+70.72 = 9.824 miles)

Exceptions = 0.000 miles, total Net miles = 9.824 miles:

- **Surface Treatment and Fog Seal from 0+00 to 518+70.72 (9.824 miles) –**

AE-150S Asphalt for Surface Treatment at the rate of 17.2 tons applied 23 feet wide (Rate = 0.30 gallon per square yard).

Type 1B Cover Aggregate at the rate of 148.4 tons applied 23 feet wide (Rate = 22 pounds per square yard).

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 3.7 tons applied 30 feet wide (Rate = 0.05 gallon per square yard). The oil applied will be dependent on the type of aggregate used.

Route 3 – SD 73 MRM 106.00 + 0.146 TO 117.60 + 0.000 (Station 0+00 to 604+98.24 = 11.458 miles)

Exceptions = 0.000 miles, total Net miles = 11.458 miles:

- **Surface Treatment and Fog Seal from 0+00 to 518+70.72 (9.824 miles) –**

AE-150S Asphalt for Surface Treatment at the rate of 17.2 tons applied 23 feet wide (Rate = 0.30 gallon per square yard).

Type 1B Cover Aggregate at the rate of 148.4 tons applied 23 feet wide (Rate = 22 pounds per square yard).

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 4.7 tons applied 38 feet wide (Rate = 0.05 gallon per square yard). The oil applied will be dependent on the type of aggregate used.

RATES OF MATERIALS(Continued)

Route 4 – SD 44 MRM 155.35 + 0.000 TO 172.54 + 0.099 (Station 0+00 to 861+11.52 = 16.309 miles)

Exceptions = 0.141 miles, total Net miles = 16.168 miles:

- **Surface Treatment and Fog Seal from 0+00 to 518+70.72 (9.824 miles) –**

AE-150S Asphalt for Surface Treatment at the rate of 17.2 tons applied 23 feet wide (Rate = 0.30 gallon per square yard).

Type 1B Cover Aggregate at the rate of 148.4 tons applied 23 feet wide (Rate = 22 pounds per square yard).

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 4.2 tons applied 34 feet wide (Rate = 0.05 gallon per square yard). The oil applied will be dependent on the type of aggregate used.

Route 5 – SD 73 MRM 78.19 + 0.086 TO 92.00 + 0.266 (Station 0+00 to 741+84.00 = 14.050 miles) No Exceptions = Net miles = 14.050 miles:

- **Shoulder Treatment from 0+00 to 741+84.00 (14.050 miles) –**

MC-70 Asphalt for Surface Treatment at the rate of 4.4 tons applied 7.5 feet wide (Rate = 0.25 gallon per square yard).

Route 6 – Hayes Maintenance Yard

- **Surface Treatment and Fog Seal – 6,397.0SY**

AE-150S Asphalt for Surface Treatment at the rate of 0.30 gallon per square yard.

Type 1B Cover Aggregate at the rate of 22 pounds per square yard.

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 0.05 gallon per square yard. The oil applied will be dependent on the type of aggregate used.

Route 7 – Philip Maintenance Yard

- **Surface Treatment and Fog Seal – 5,881.0SY**

AE-150S Asphalt for Surface Treatment at the rate of 0.30 gallon per square yard.

Type 1B Cover Aggregate at the rate of 22 pounds per square yard.

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 0.05 gallon per square yard. The oil applied will be dependent on the type of aggregate used.

ITEMIZED TRAFFIC CONTROL

US14

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	12	48" x 48"	16.0	192.0
W13-1P	ADVISORY SPEED (plaque)	12	30" x 30"	6.3	75.6
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
SPECIAL	STOP FOLLOW PILOT CAR WHEN GOING YOUR WAY	6	48" x 36"	12.0	72.0
G20-1	ROAD WORK NEXT _24_ MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					517.6

SD20

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	6	48" x 48"	16.0	96.0
W13-1P	ADVISORY SPEED (plaque)	6	30" x 30"	6.3	37.8
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
SPECIAL	STOP FOLLOW PILOT CAR WHEN GOING YOUR WAY	6	48" x 36"	12.0	72.0
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
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					383.8

SD73

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	4	48" x 48"	16.0	64.0
W13-1P	ADVISORY SPEED (plaque)	4	30" x 30"	6.3	25.2
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
SPECIAL	STOP FOLLOW PILOT CAR WHEN GOING YOUR WAY	6	48" x 36"	12.0	72.0
G20-1	ROAD WORK NEXT _12_ MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					339.2

SD44

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	6	48" x 48"	16.0	96.0
W13-1P	ADVISORY SPEED (plaque)	6	30" x 30"	6.3	37.8
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
SPECIAL	STOP FOLLOW PILOT CAR WHEN GOING YOUR WAY	6	48" x 36"	12.0	72.0
G20-1	ROAD WORK NEXT _17_ MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					383.8

SD73(Shoulder Work)

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W13-1P	ADVISORY SPEED (plaque)	6	30" x 30"	6.3	37.8
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
SPECIAL	STOP FOLLOW PILOT CAR WHEN GOING YOUR WAY	6	48" x 36"	12.0	72.0
G20-1	ROAD WORK NEXT _14_ MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					287.8

Hayes Maint. Yard

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					64.0

Philip Maint. Yard

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					64.0

TABLE OF QUANTITIES BY ROUTE(FOR INFORMATION ONLY)

BID ITEM NUMBER	ITEM	US14	SD20	SD73	SD44	(Shoulders) SD73*	Hayes* Maint. Yard	Philip* Maint. Yard	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	Lump Sum	Lump Sum	Lump Sum	Lump Sum	Lump Sum	Lump Sum	LUMP SUM	LS
330E0010	MC-70 Asphalt for Prime	-	-	-	-	122.6*	-	-	122.6	Ton
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	113.5	36.7	54.3	69.1	-	1.4*	1.3*	276.3	Ton
330E3000	Sand for Fog Seal	50.0	10.0	10.0	10.0	-	-	-	100.0	Ton
360E0020	AE150S Asphalt for Surface Treatment	568.6	169.0	197.1	280.6	-	8.1*	7.4*	1230.8	Ton
360E1020	Type 1B Cover Aggregate	5256.3	-	-	-	-	-	-	5,256.3	Ton
360E1020	Type 1B Cover Aggregate	-	1458.1	-	-	-	-	-	1,458.1	Ton
360E1020	Type 1B Cover Aggregate	-	-	1700.7	-	-	-	-	1700.7	Ton
360E1020	Type 1B Cover Aggregate	-	-	-	2420.7	-	-	-	2420.7	Ton
360E1020	Type 1B Cover Aggregate	-	-	-	-	-	70.4*	-	70.4	Ton
360E1020	Type 1B Cover Aggregate	-	-	-	-	-	-	64.7*		Ton
633E1200	Waterborne Pavement Marking Paint with High Grade Polymer, White	1333.7	546.2	637.1	906.8	-	-	-	3423.8	Gal
633E1205	Waterborne Pavement Marking Paint with High Grade Polymer, Yellow	413.2	161.9	205.5	311.5	-	-	-	1092.4	Gal
634E0010	Flagging	300.0	100.0	100.0	200.0	50.0*	-	-	750.0	Hour
634E0020	Pilot Car	150.0	50.0	50.0	100.0	25.0*	-	-	375.0	Hour
634E0110	Traffic Control Signs	517.6	383.8	339.2	383.8	287.8*	64.0*	64.0*	2040.2	Sq. Ft.
634E0120	Traffic Control, Miscellaneous	Lump Sum	Lump Sum	Lump Sum	Lump Sum	Lump Sum*	Lump Sum*	Lump Sum*	LUMP SUM	LS
634E0630	Temporary Pavement Marking	47.912	19.648	22.916	32.618	-	-	-	123.094	Mile

* Denotes Non-Participating Bid Items

PERMANENT PAVEMENT MARKING PAINT & SPECIAL SIGN

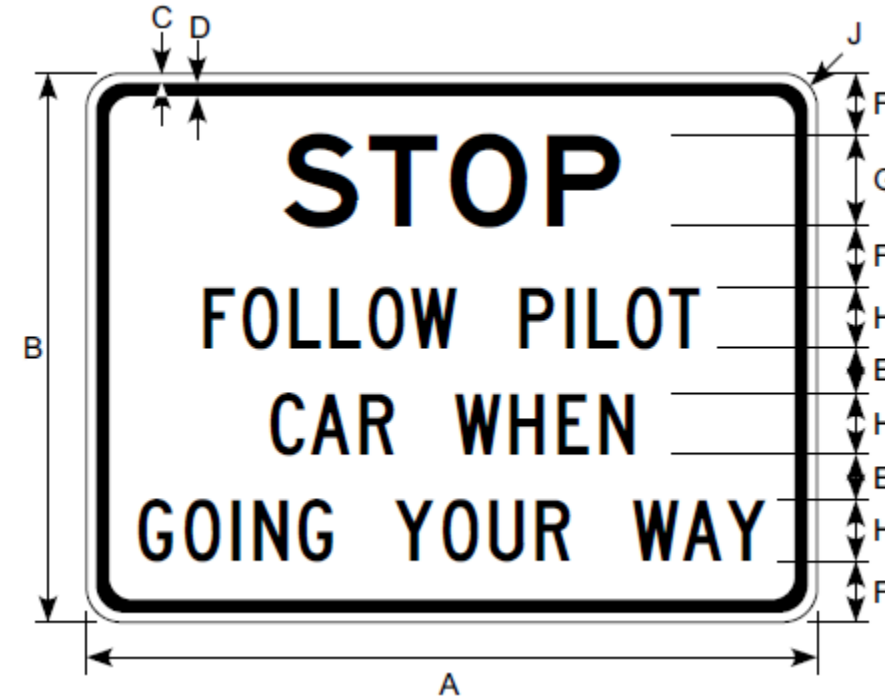
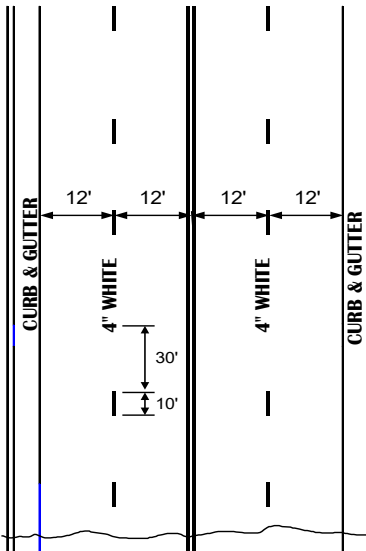
FURNISHING AND APPLYING PAVEMENT MARKING PAINT

UNDIVIDED ROADWAY

1. Approximate paint application rates will be as follows:

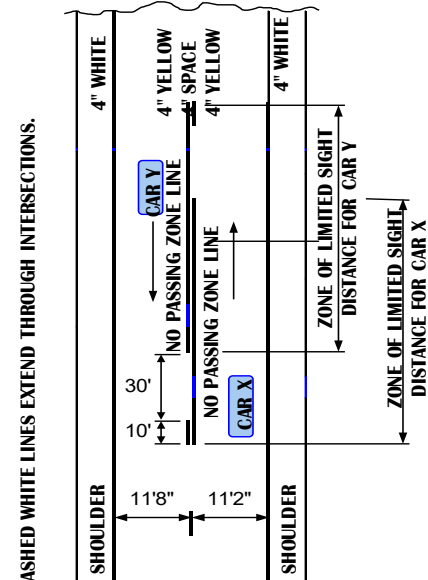
Four Lane Roadway (Rates for one line)	Two Lane Roadway
Solid Yellow Centerline Rate = 27.8 Gals./Pass-Mile	Yellow Centerline (Includes No Passing Zones) Rate = 15± Gals./Pass-Mile
Dashed White Laneline Rate = 7.6 Gals./Pass-Mile	Solid White Edgeline (Rate for one line)
Solid White Edgeline (Not applicable in curb & gutter section) Rate = 27.8 Gals./Pass-Mile	Rate = 27.8 Gals./Pass-Mile

2. Typical pavement marking as shown on this sheet shall be applied throughout the entire length of undivided roadway.
3. Exact location of 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, will not be used as the beginning and ending of NO PASSING ZONE lines.
4. Traffic Control will be incidental to the cost of application. The striping and advance or trailing warning vehicle will be equipped with flashing amber lights or advance warning arrow board.



Border and Legend: Black
Background: Orange

ESTIMATED QUANTITIES		
PAVEMENT MARKING PAINT	PCN	
	07KQ	
WHITE	3423.8	Gal.
YELLOW	1092.4	Gal.
TOTAL	4516.2	Gal.



NOTE: ONLY DASHED WHITE LINES EXTEND THROUGH INTERSECTIONS.

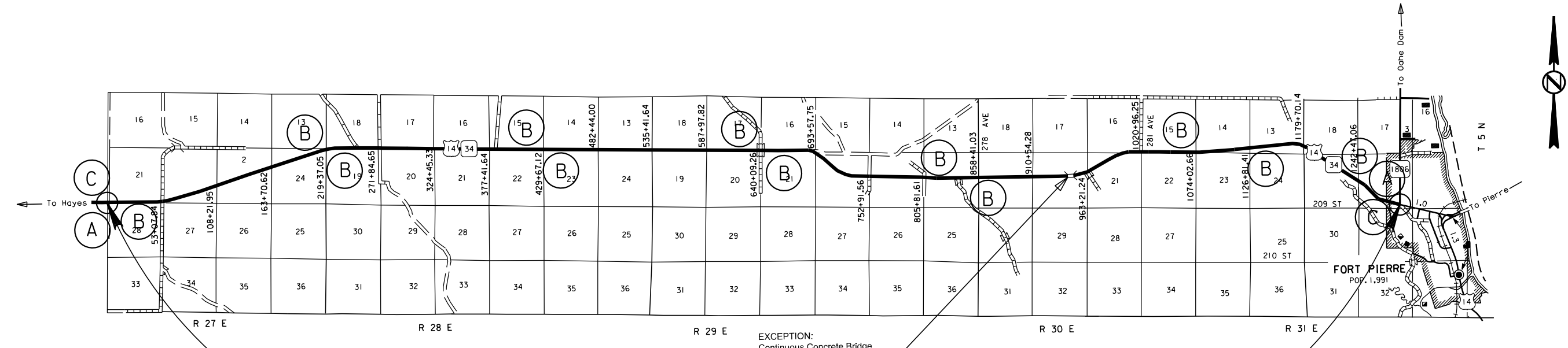
4" Yellow Skip Centerline (when not adjacent to a 4" Yellow No Passing Zone) will be placed consistently to the south or east side of centerline.

Road Class	Dimensions (inches)								
	A	B	C	D	E	F	G	H	J
All	48	36	0.63	0.88	3	4	6E	4C	2.25

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH-P 0031(51)	19	25

FIXED LOCATION SIGN LAYOUT US HIGHWAY 14 STANLEY COUNTY

Revised: 01/20/2021 *E779*



BEGIN NH 0031(51)

Station 0+00
MRM 202.00 + 0.775
Mileage = 87.883

EXCEPTION:
Continuous Concrete Bridge
w/Approach Slabs
Sta. 128+95.63 to 130+64.38
168.75 Feet = 0.032 Miles
Str. No. 59-328-274
MRM 220.39

END NH 0031(51)

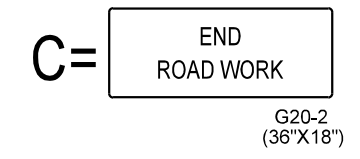
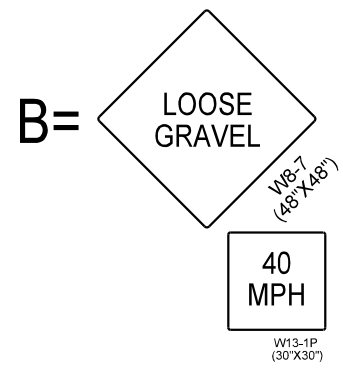
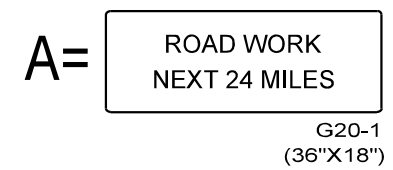
Station 126+55.52
MRM 226.83
Mileage = 111.871

NOTES:

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

The exact location and spacing of the signs shown will be marked in the field by the Contractor, and verified by the Engineer prior to installation.

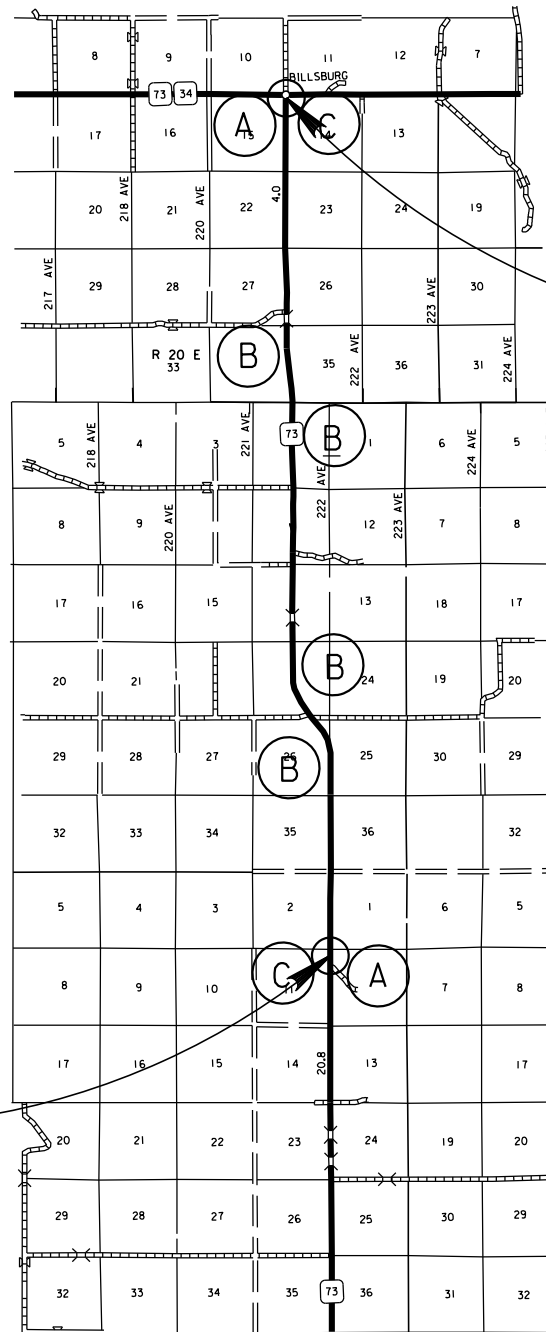
Construction signs will not obscure existing signs. Signs will be installed 200' to 300' from any intersections and 200' from any existing signs.



STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH-P 0031(51)	21	25

FIXED LOCATION SIGN LAYOUT SD HIGHWAY 73 HAAKON COUNTY

Revised: 01/20/2021 *E779.*



END NH 0031(51)

Station 604+98.24
MRM 117.60 +0.000
Mileage = 97.803

BEGIN NH 0031(51)

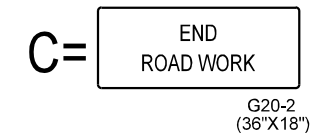
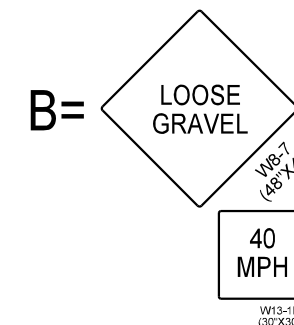
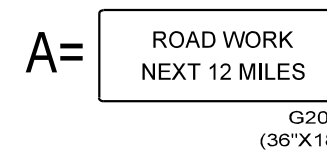
Station 0+00
MRM 106.00 + 0.146
Mileage = 86.199

NOTES:

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

The exact location and spacing of the signs shown will be marked in the field by the Contractor; and verified by the Engineer prior to installation.

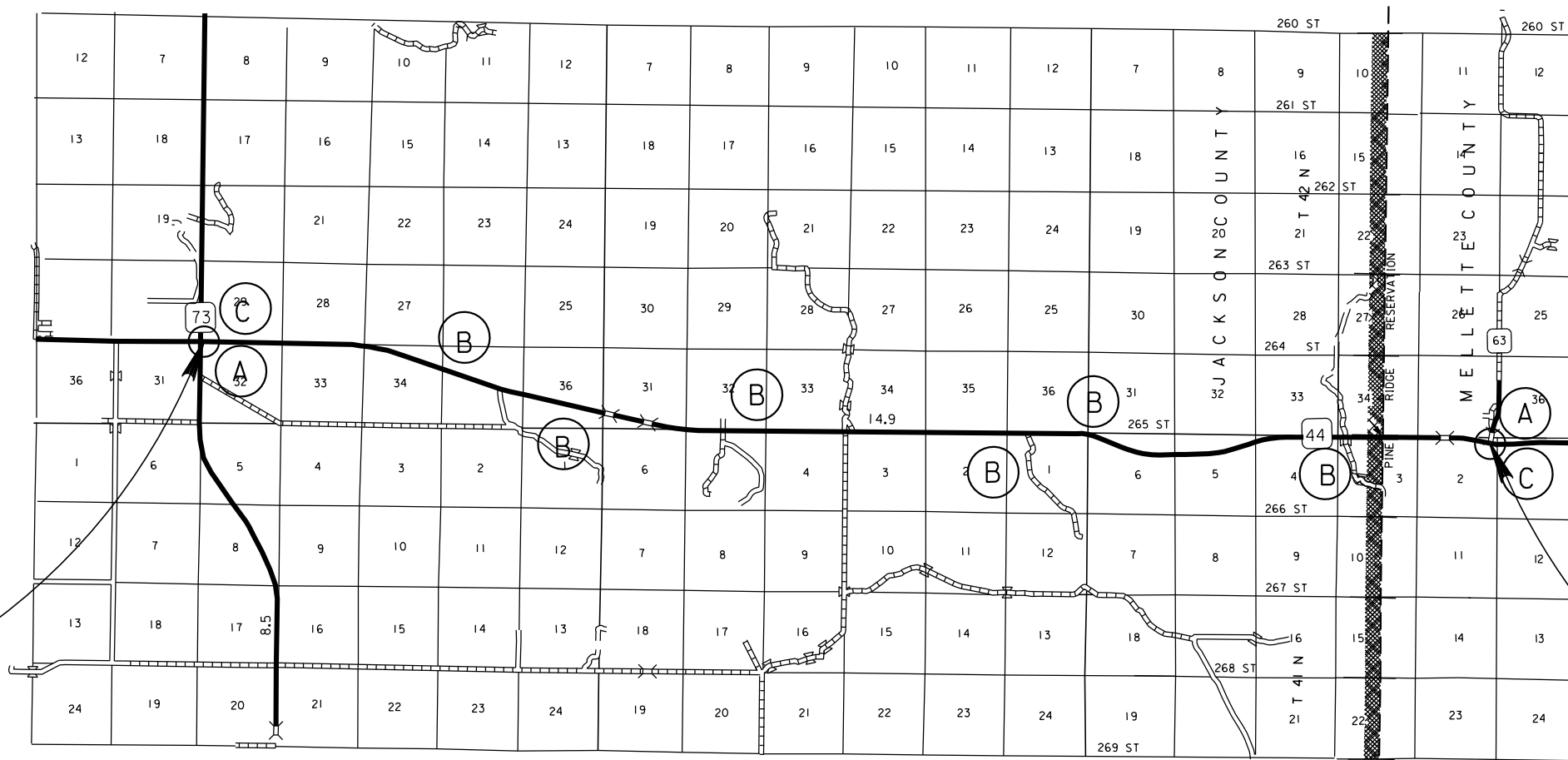
Construction signs will not obscure existing signs. Signs will be installed 200' to 300' from any intersections and 200' from any existing signs.



STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH-P 0031 (51)	22	25

FIXED LOCATION SIGN LAYOUT SD HIGHWAY 44 JACKSON & MELLETTE COUNTIES

Revised: 01/20/2021 *EFF*



BEGIN NH 0031(51)

Station 0+00
MRM 155.35 + 0.000
Mileage = 121.926

END NH 0031(51)

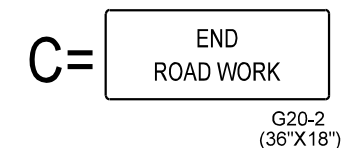
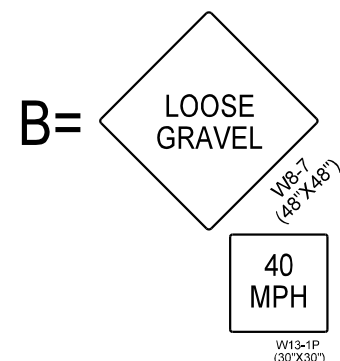
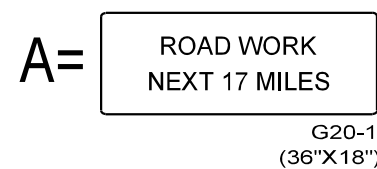
Station 861+11.52
MRM 172.54 +0.099
Mileage = 138.136

NOTES:

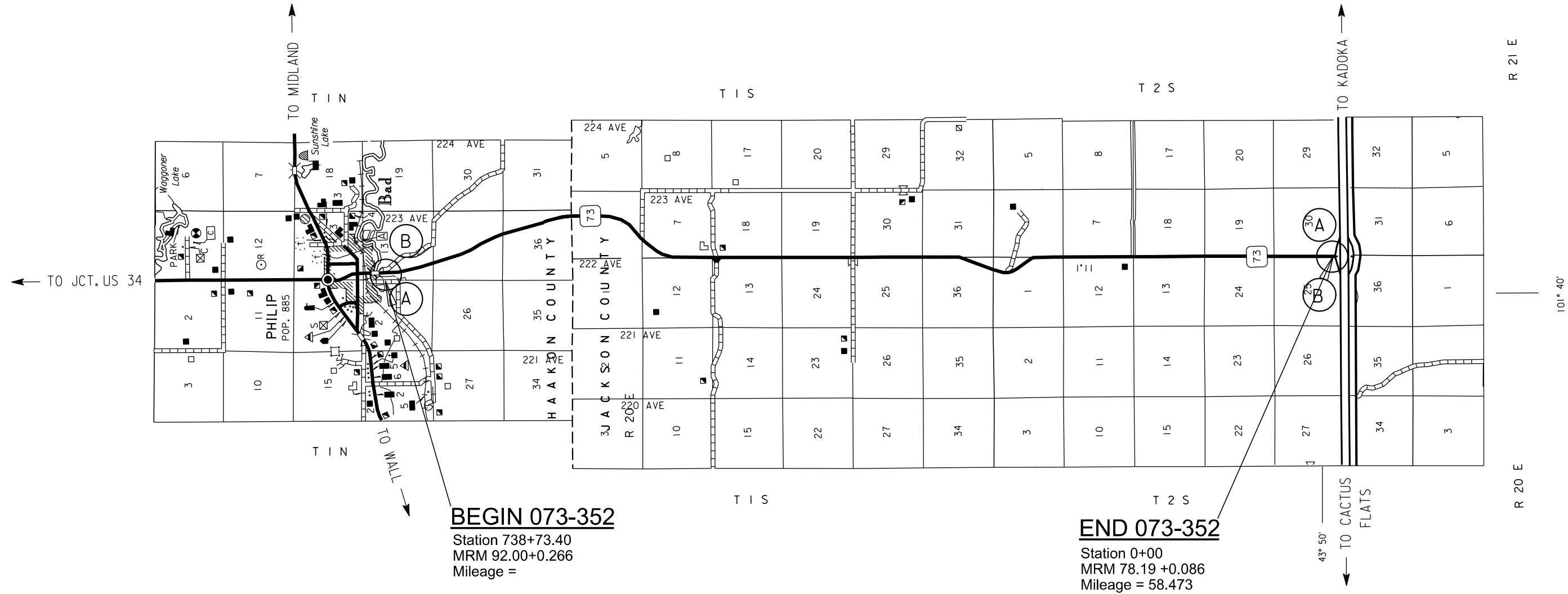
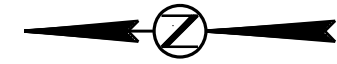
All Fixed Location signs will remain in place until the permanent pavement marking is complete.

The exact location and spacing of the signs shown will be marked in the field by the Contractor, and verified by the Engineer prior to installation.

Construction signs will not obscure existing signs. Signs will be installed 200' to 300' from any intersections and 200' from any existing signs.



FIXED LOCATION SIGN LAYOUT SD HIGHWAY 73 HAAKON & JACKSON COUNTIES



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

The exact location and spacing of the signs shown will be marked in the field by the Contractor, and verified by the Engineer prior to installation.

Construction signs will not obscure existing signs. Signs will be installed 200' from any intersections and 200' from any existing signs.

A= ROAD WORK
NEXT 14 MILES

G20-1
(36"X18")

B= END
ROAD WORK

G20-2
(36"X18")

* Messages on signs will vary depending on the operation being conducted.

Vehicle-mounted signs will be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs will be covered or turned from view when work is not in progress.

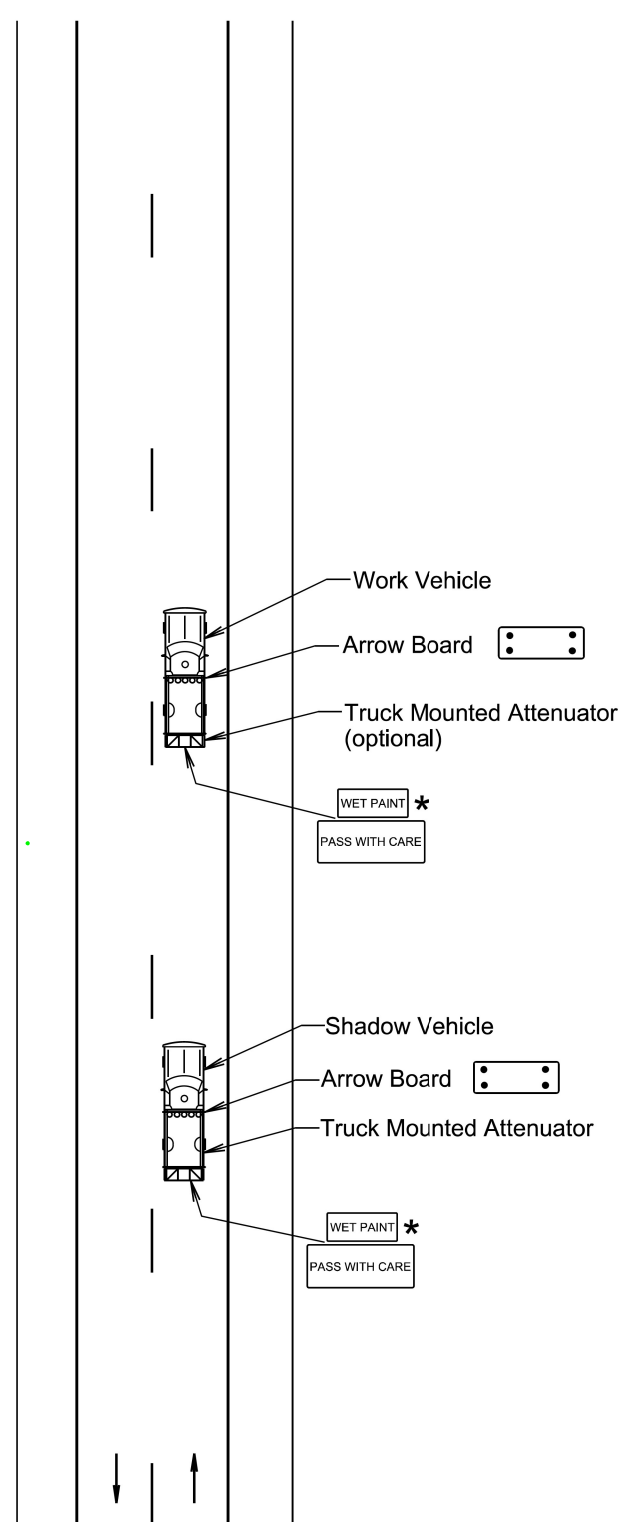
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

Vehicle hazard warning signals will not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

When an arrow board is used, it will be used in the caution mode. Marching Diamonds are acceptable.

Arrow boards will, as a minimum, be Type B, with a size of 60" x 30".

All costs associated with the traffic control for mobile operation including signs, arrow boards and equipment will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".



May 9, 2020

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

- Flagger
- Channelizing Device

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

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

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

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

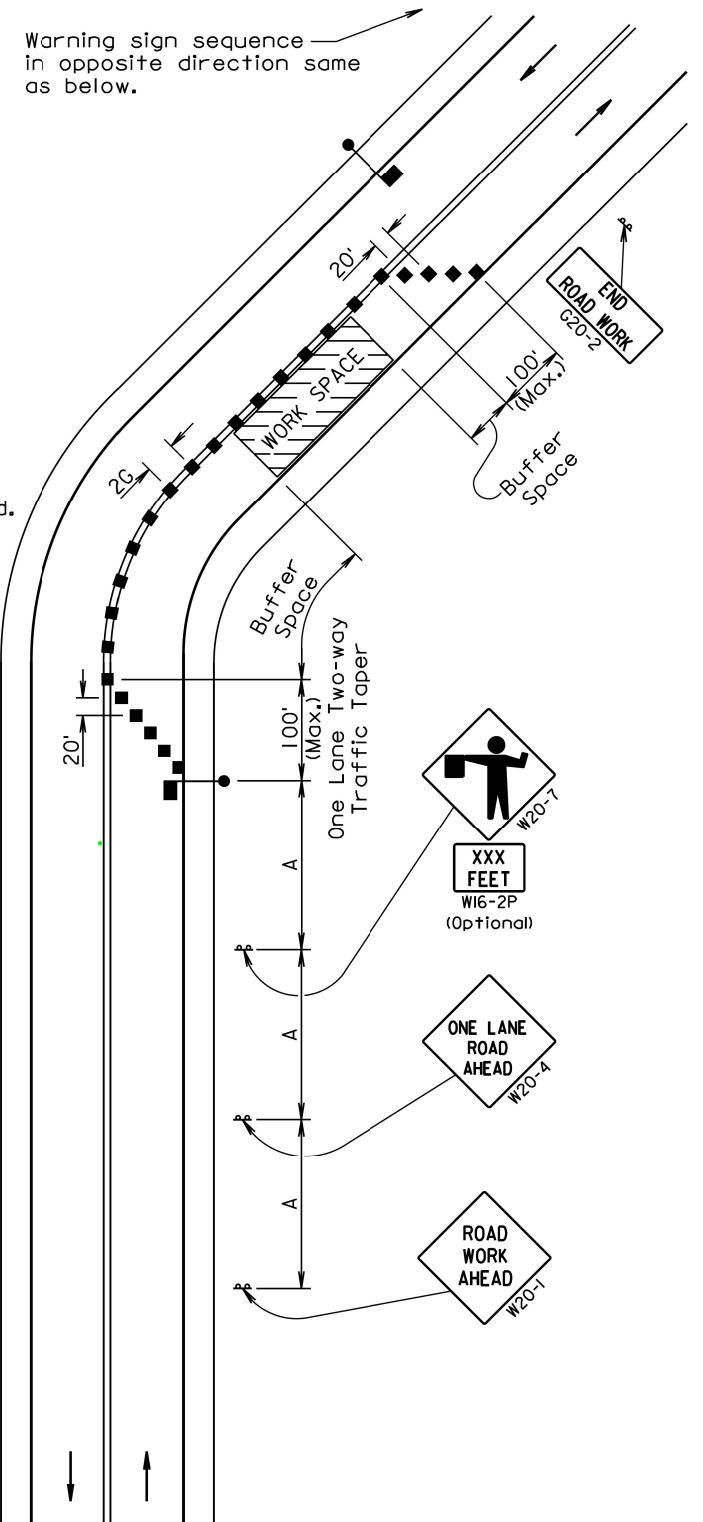
The channelizing devices shall be drums or 42" cones.

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

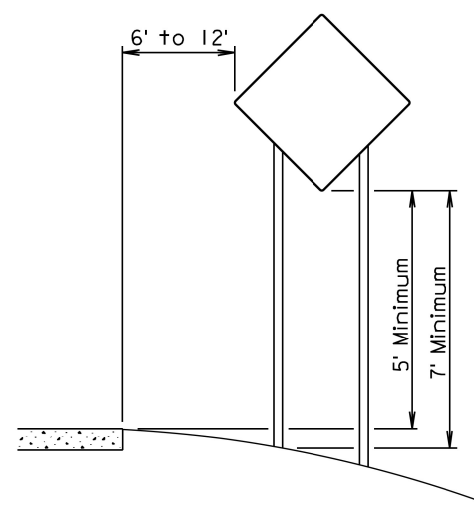
Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

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

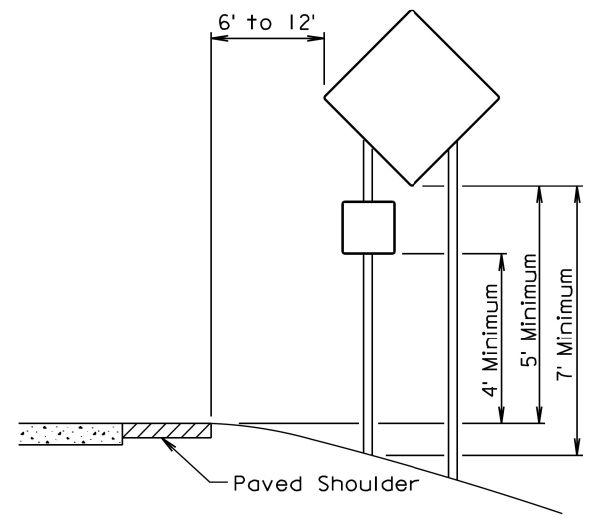
The length of A may be adjusted to fit field conditions.



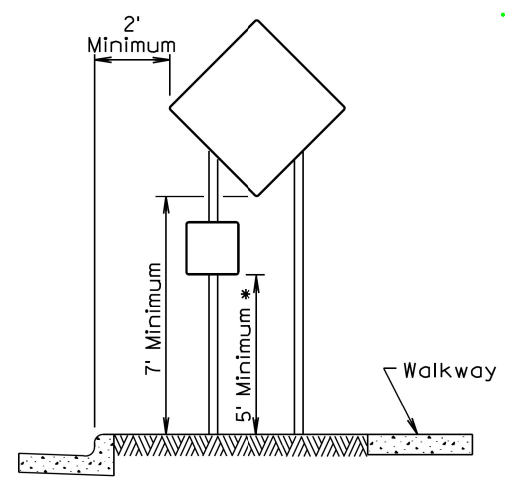
June 3, 2016



RURAL DISTRICT

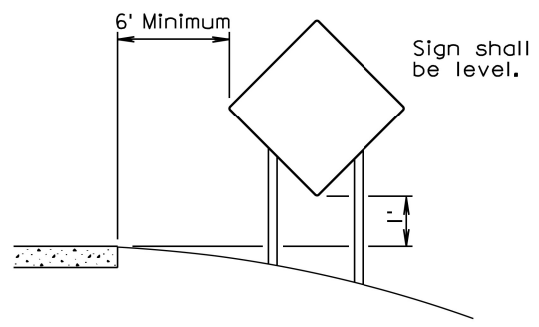


RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT

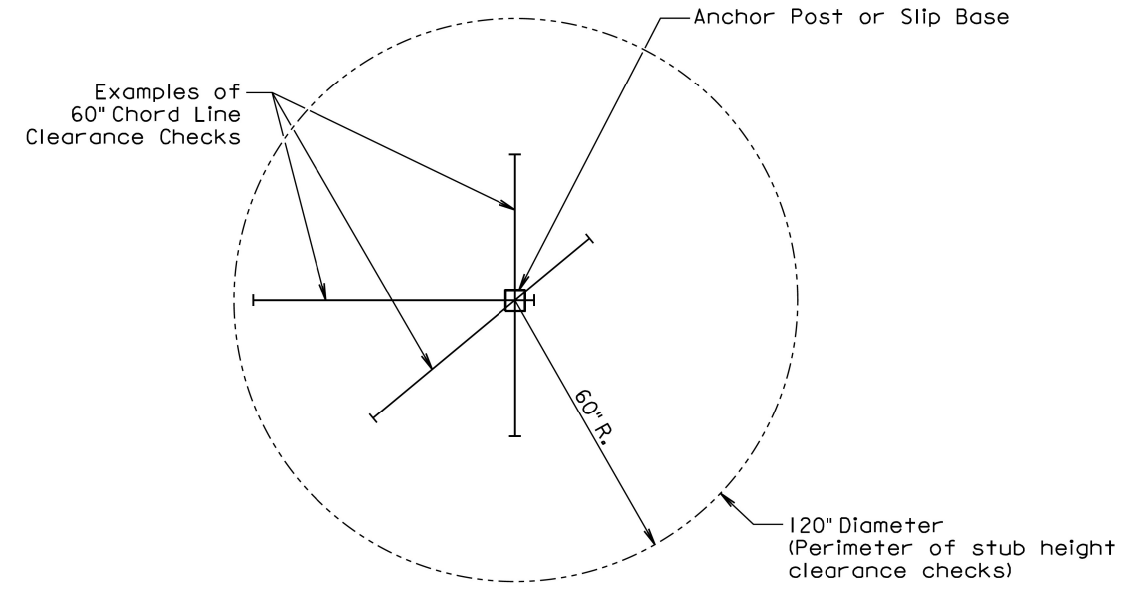
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



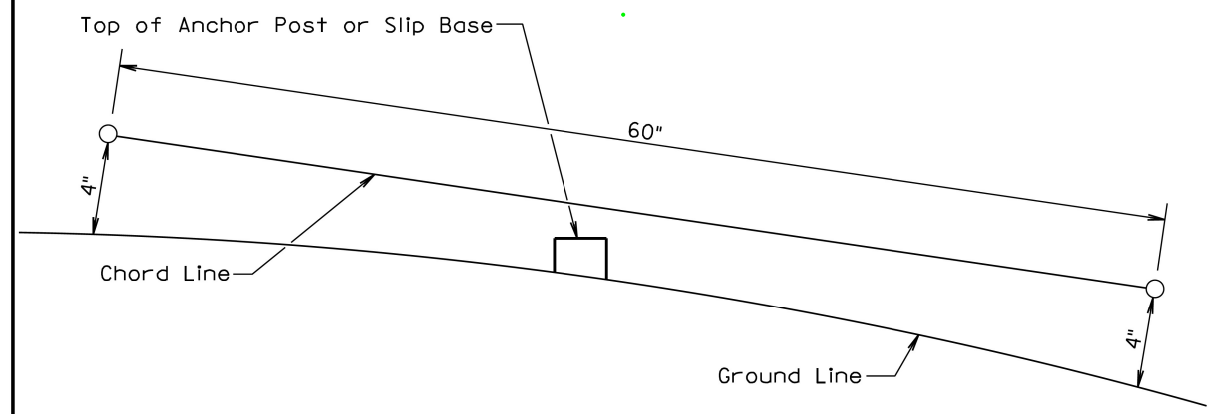
RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 4th Qtr. 2020	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: 4th Qtr. 2020	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1