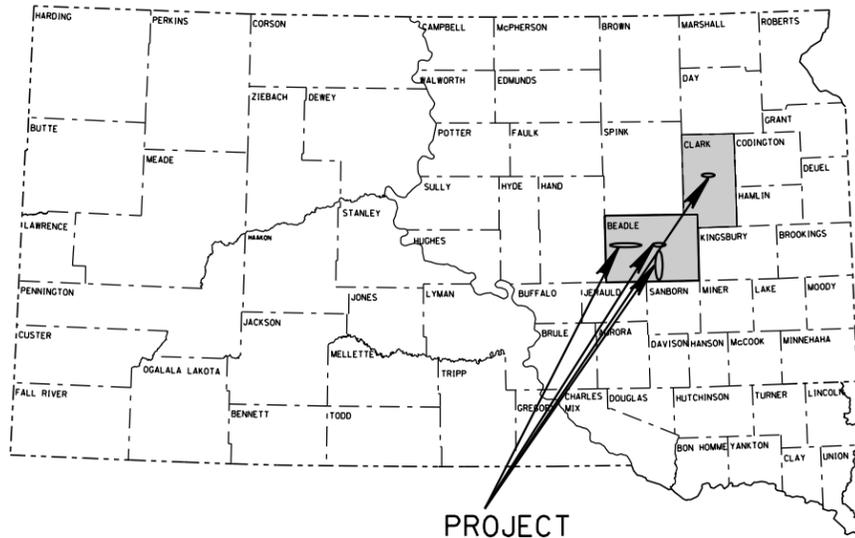


| | | | |
|---------------------------|---------------|-----------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | NH P 0013(34) | 1 | 13 |
| Plotting Date: 02/11/2016 | | | |

REVISED 2-11-16



PLOT SCALE - 1:220

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT NH-P 0013(34) & 411A470
US 14, 14E, 14W, 14EF, & 14WF
SD 37S

INDEX OF SHEETS

| | |
|-------------|--------------------------|
| Sheet 1-5 | TITLE SHEET & LAYOUT MAP |
| Sheet 6-8 | ESTIMATE OF QUANTITIES |
| Sheet 9-13 | PLAN NOTES |
| Sheet 14-20 | TRAFFIC CONTROL |
| Sheet 21-27 | PAVEMENT MARKING DETAILS |

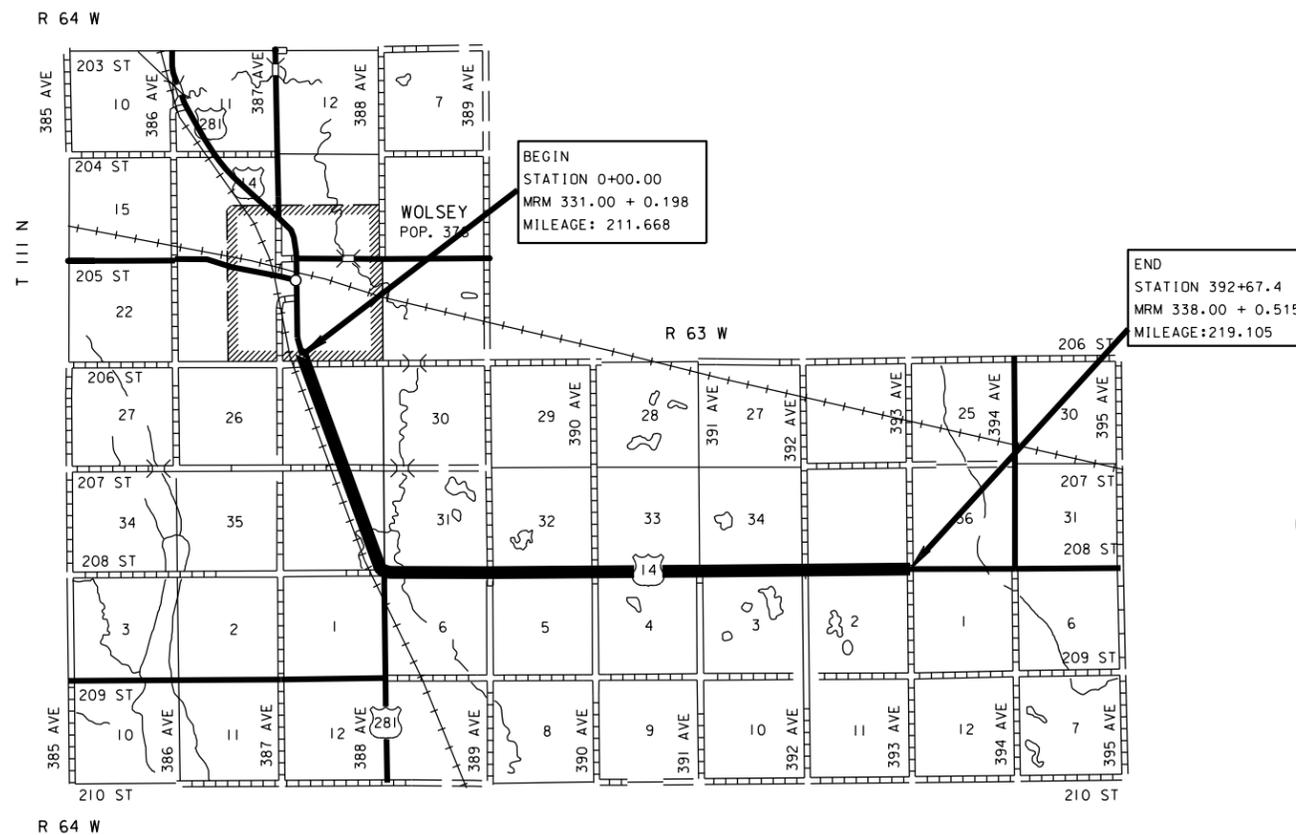
BEADLE & CLARK COUNTIES

ASPHALT SURFACE TREATMENT (CHIP SEAL)

PCN 053E & i45f

SEGMENT #1, US 14
BEADLE COUNTY

STA. 0+00.0 TO 392+67.4
MRM: 331.00+0.198 TO 338.00+0.515
LENGTH: 7.437 MILES



DESIGN DESIGNATION

| | |
|------------|-----------|
| ADT (2015) | 2470 |
| ADT (2035) | 3458 |
| DHV | 403 |
| D | 50% |
| T DHV | 2.5% |
| T*ADT | 14.2% |
| V | 65 M.P.H. |

STORM WATER PERMIT
(None Required)

| TOTAL PROJECT LENGTHS | |
|----------------------------|--------------------------------|
| GROSS LENGTH | = 24.005 MILES |
| TOTAL LENGTH OF EXCEPTIONS | = 3469 = 0.657 MILES |
| NET LENGTH | = 127245.5 FEET = 23.348 MILES |

5

PLOTTED FROM - TRHJUNT05

PLOT NAME - 13

FILE - ... \DESIGN 2\TITLE SHEET.DGN

**US 14E
SEGMENT #2:
STA. 0+00 TO 245+41.4
LENGTH: 4.648 MILES
LENGTH OF EXCEPTIONS = 0.028 MI + 0.090 MI + 0.172MI = 0.290 MILES**

**US 14W
SEGMENT #3:
STA. 0+00 TO 246+15.4
LENGTH: 4.662 MILES
LENGTH OF EXCEPTIONS = 0.028 MI + 0.090 MI + 0.077MI + 0.172MI = 0.367 MILES**

**BEGIN SEGMENT #2
BEGIN SEGMENT #3**

SEGMENT #2 EBL
STA. 0+00.00
MRM 342.00+0.790 to 342.84+0.000
MILEAGE: 223.391 to 223.463
MILEAGE: 6.006, at MRM 342.84+0.000

SEGMENT #3 WBL
STA. 0+00.00
MRM 342.00+0.790 to 342.84+0.000
MILEAGE: 223.391 to 223.463
MILEAGE: 5.805, at MRM 342.84+0.000

SERVICE ROAD
SEGMENT 3I
LENGTH = 1650'

SERVICE ROAD
SEGMENT 3H
LENGTH = 2970'

SERVICE ROAD
SEGMENT 3G
LENGTH = 2210'

SEGMENT 3: EXCEPTION
Str. No. 03-246-180
106'+40' = 0.028 Miles
MRM 346.22

SERVICE ROAD
SEGMENT 3F
LENGTH = 821'

EXCEPTION
Str. No. 03-253-180
326.5'+150' = 0.090 Miles
MRM 346.97

EXCEPTION
Str. No. 03-254-180
254.0'+150' = 0.077 Miles
MRM 347.06

SERVICE ROAD
SEGMENT 3E
LENGTH = 825' + 180' = 1005'

SERVICE ROAD
SEGMENT 3D
LENGTH = 2570'

SERVICE ROAD
SEGMENT 3C
LENGTH = 460'

SERVICE ROAD
SEGMENT 2A
LENGTH = 1520'

SERVICE ROAD
SEGMENT 2B
LENGTH = 1730'

SERVICE ROAD
SEGMENT 2C
LENGTH = 2215'

SEGMENT 2 & 3 Exception
905 FEET AT INTERSECTION OF HWY 37 & 14
905' * 2 SEGMENTS = 1810' = 0.343 MILES

SEGMENT 2: EXCEPTION
Str. No. 03-246-181
106'+40'' = 0.028 Miles
MRM 346.22

**END SEGMENT #2
END SEGMENT #3**

SEGMENT #2 EBL
STA. 241+61.28
MRM 347.65+0.341
MILEAGE: 10.582

SEGMENT #3 WBL
STA. 242+35.2
MRM 348.00+0.002
MILEAGE: 10.395

DESIGN DESIGNATION (SEGMENT #2)

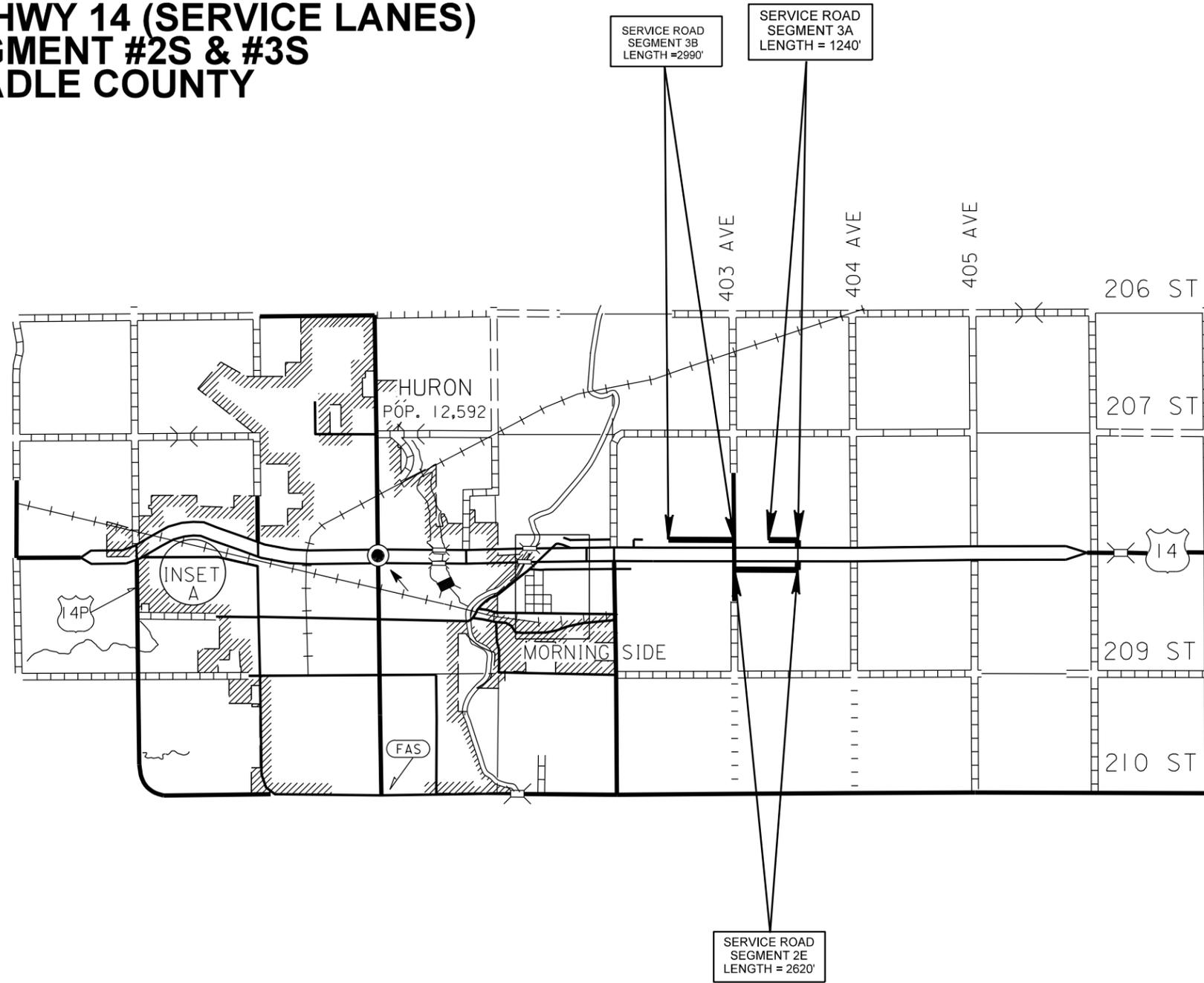
| | |
|------------|-----------|
| ADT (2014) | 2675 |
| ADT (2034) | 3065 |
| DHV | 342 |
| D | 51% |
| T DHV | 1.7% |
| T•ADT | 9.4% |
| V | 45 M.P.H. |

DESIGN DESIGNATION (SEGMENT #3)

| | |
|------------|-----------|
| ADT (2014) | 2675 |
| ADT (2034) | 3063 |
| DHV | 342 |
| D | 51% |
| T DHV | 1.7% |
| T•ADT | 9.4% |
| V | 45 M.P.H. |

| | | | |
|-----------------------------|---------------|--------------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | NH P 0013(34) | 3 | 13 |
| Plotting Date: 12/22/2015 | | | |

US HWY 14 (SERVICE LANES) SEGMENT #2S & #3S BEADLE COUNTY



PLOT SCALE - 1:200

PLOTTED FROM - TRHWINT05

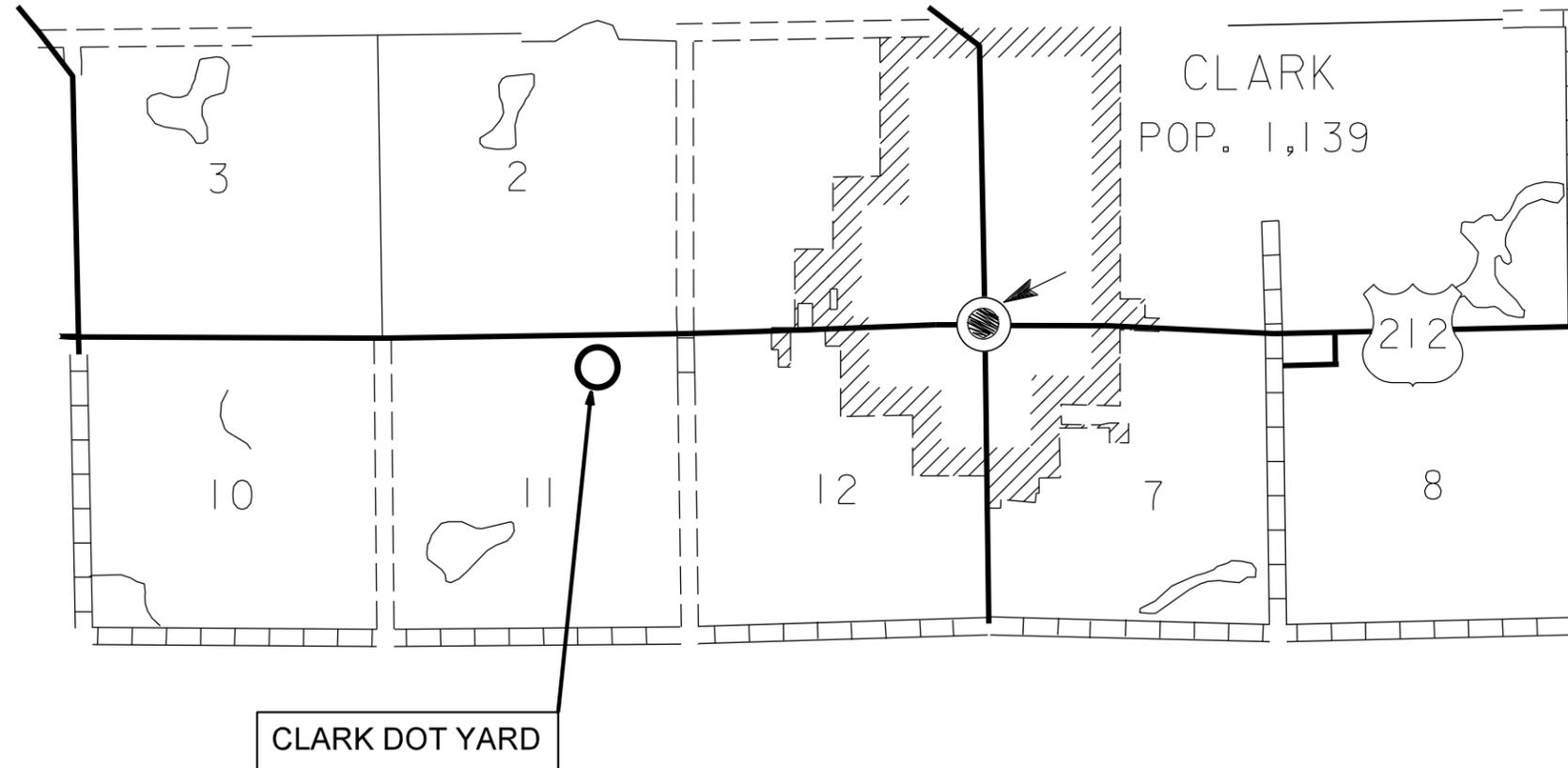
PLOT NAME - 1

FILE - ... \DESIGN 2\TITLE SHEET.DGN

| | | | |
|-----------------------------|----------------|--------------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | NH P 0010(117) | 5 | 13 |
| Plotting Date: 02/11/2016 | | | |

REVISED 2-11-16

**PCN i45f
CLARK DOT MAINTENANCE YARD
1713 US HWY 212
CLARK, SD 57225
CLARK COUNTY**



PLOT SCALE - 1:200

PLOTTED FROM - TRHJINT05

PLOT NAME - 12

FILE - ... \DESIGN 2\TITLE SHEET.DGN

ESTIMATE OF QUANTITIES, PCN 053E

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|---|----------|------|
| * 009E0010 | Mobilization | Lump Sum | LS |
| 009E0010 | Mobilization | Lump Sum | LS |
| * 330E0300 | SS-1h or CSS-1h Asphalt for Fog Seal | 24.7 | Ton |
| 330E0300 | SS-1h or CSS-1h Asphalt for Fog Seal | 70.3 | Ton |
| * 330E3000 | Sand for Fog Seal | 75.0 | Ton |
| 330E3000 | Sand for Fog Seal | 75.0 | Ton |
| * 360E0042 | CRS-2P Asphalt for Surface Treatment | 156.7 | Ton |
| 360E0042 | CRS-2P Asphalt for Surface Treatment | 445.1 | Ton |
| * 360E1010 | Type 1A Cover Aggregate | 1,274.9 | Ton |
| 360E1010 | Type 1A Cover Aggregate | 1,823.8 | Ton |
| 360E1010 | Type 1A Cover Aggregate | 912.6 | Ton |
| 360E1010 | Type 1A Cover Aggregate | 885.5 | Ton |
| 633E0010 | Cold Applied Plastic Pavement Marking, 4" | 848 | Ft |
| 633E0030 | Cold Applied Plastic Pavement Marking, 24" | 240 | Ft |
| 633E0035 | Cold Applied Plastic Pavement Marking, Area | 114 | SqFt |
| 633E0040 | Cold Applied Plastic Pavement Marking, Arrow | 4 | Each |
| 633E0055 | Cold Applied Plastic Pavement Marking, Railroad Crossing | 2 | Each |
| * 633E1300 | Pavement Marking Paint, White | 164 | Gal |
| 633E1300 | Pavement Marking Paint, White | 625 | Gal |
| * 633E1305 | Pavement Marking Paint, Yellow | 66 | Gal |
| 633E1305 | Pavement Marking Paint, Yellow | 291 | Gal |
| * 633E1430 | Pavement Marking Paint, 24" White | 332 | Ft |
| 633E5000 | Grooving for Cold Applied Plastic Pavement Marking, 4" | 848 | Ft |
| 633E5015 | Grooving for Cold Applied Plastic Pavement Marking, 24" | 240 | Ft |
| 633E5020 | Grooving for Cold Applied Plastic Pavement Marking, Area | 114 | SqFt |
| 633E5025 | Grooving for Cold Applied Plastic Pavement Marking, Arrow | 4 | Each |
| 633E5040 | Grooving for Cold Applied Plastic Pavement Marking, Railroad Crossing | 2 | Each |
| 633E6005 | Pavement Marking Masking, 5" | 848 | Ft |
| 633E6020 | Pavement Marking Masking, 25" | 624 | Ft |
| 633E6025 | Pavement Marking Masking, Area | 114 | SqFt |
| 633E6030 | Pavement Marking Masking, Arrow | 23 | Each |
| 633E6045 | Pavement Marking Masking, Railroad Crossing | 8 | Each |
| 634E0010 | Flagging | 286.0 | Hour |
| 634E0020 | Pilot Car | 75.0 | Hour |
| * 634E0110 | Traffic Control Signs | 96 | SqFt |
| 634E0110 | Traffic Control Signs | 822 | SqFt |
| 634E0120 | Traffic Control, Miscellaneous | Lump Sum | LS |
| 634E0420 | Type C Advance Warning Arrow Board | 2 | Each |
| 634E0630 | Temporary Pavement Marking | 46.7 | Mile |
| 998E0100 | Railroad Protective Insurance | 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.

ESTIMATE OF QUANTITIES, CLARK MAINTENANCE YARD, PCN i45f

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|--------------------------------------|----------|------|
| * 009E0010 | Mobilization | Lump Sum | LS |
| * 330E0300 | SS-1h or CSS-1h Asphalt for Fog Seal | 1.8 | Ton |
| * 360E0042 | CRS-2P Asphalt for Surface Treatment | 11.1 | Ton |
| 360E1010 | Type 1A Cover Aggregate | 90.4 | Ton |

* - Denotes Non-Participating

ENVIRONMENTAL COMMITMENTS

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

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

COMMITMENT C: WATER SOURCE

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

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

Action Taken/Required:

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

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

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

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

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

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

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

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

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

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

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

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

TABLE OF QUANTITIES (FOR INFORMATION ONLY)

| ITEM | SEGMENT 1 | SEGMENT 2 | SEGMENT 3 | SEGMENT 2S, NP | SEGMENT 3S, NP | SEGMENT 4S, NP | TOTAL | UNIT |
|---|-----------|-----------|-----------|-----------------|-----------------|-----------------|----------|-------|
| | US 14 | US 14E | US 14W | US 14E, SERVICE | US 14W, SERVICE | SD 37S, SERVICE | | |
| Mobilization | Lump Sum | Lump Sum | Lump Sum | Lump Sum | Lump Sum | Lump Sum | Lump Sum | LS |
| SS-1H or CSS-1H Asphalt for Fog Seal | 35.4 | 17.7 | 17.2 | 8.0 | 10.9 | 5.8 | 95 | Ton |
| Sand for Fog Seal | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 150.0 | Ton |
| CRS-2P Asphalt for Surface Treatment | 224.2 | 112.2 | 108.8 | 51.0 | 68.8 | 36.9 | 601.8 | Ton |
| Type 1A Cover Aggregate | 1823.8 | - | - | - | - | - | 1823.8 | Ton |
| Type 1A Cover Aggregate | - | 912.6 | 885.5 | - | - | - | 1798.1 | Ton |
| Type 1A Cover Aggregate | - | - | - | 414.7 | 560.1 | 300.1 | 1274.9 | Ton |
| Cold Applied Plastic Pavement Marking, 4" | - | 848 | - | - | - | - | 848 | Ft* |
| Cold Applied Plastic Pavement Marking, 24" | 140 | 50 | 50 | - | - | - | 240 | Ft* |
| Cold Applied Plastic Pavement Marking, Area | 100 | 7 | 7 | - | - | - | 114 | SqFt* |
| Cold Applied Plastic Pavement Marking, Arrow | - | 2 | 2 | - | - | - | 4 | Each* |
| Cold Applied Plastic Pavement Marking, Rail Road Crossing | - | 1 | 1 | - | - | - | 2 | Each* |
| Groove Pavement for Pavement Marking, 4" | - | 848 | - | - | - | - | 848 | Ft* |
| Groove Pavement for Pavement Marking, 24" | 140 | 50 | 50 | - | - | - | 240 | Ft* |
| Groove Pavement for Pavement Marking, Area | 100 | 7 | 7 | - | - | - | 114 | SqFt* |
| Groove Pavement for Pavement Marking, Arrow | - | 2 | 2 | - | - | - | 4 | Each* |
| Groove Pavement for Pavement Marking, Rail Road Crossing | - | 1 | 1 | - | - | - | 2 | Each* |
| Pavement Marking Masking, 5" | - | 848 | - | - | - | - | 848 | Ft |
| Pavement Marking Masking, 25" | 140 | 242 | 242 | - | - | - | 624 | Ft |
| Pavement Marking Masking, Area | 100 | 7 | 7 | - | - | - | 114.0 | SqFt |
| Pavement Marking Masking, Arrow | 2 | 14 | 7 | - | - | - | 23 | Each |
| Pavement Marking Masking, Rail Road Crossing | - | 4 | 4 | - | - | - | 8 | Each |
| Pavement Marking Paint, White | 345 | 142 | 139 | 44 | 36 | 84 | 789 | Gal |
| Pavement Marking Paint, Yellow | 78 | 106 | 107 | 31 | 23 | 12 | 357 | Gal |
| Pavement Marking Paint, 24" White | - | - | - | 130 | 202 | - | 332 | Ft |
| Flagging | 91 | 53 | 53 | 29 | 37 | 23 | 286 | Hour |
| Pilot Car | 46 | - | - | 15 | 18 | 11 | 90 | Hour |
| Traffic Control Signs | 192 | 315 | 315 | | 96 | | 918 | SQFT |
| Traffic Control, Miscellaneous | Lump Sum | Lump Sum | Lump Sum | Lump Sum | Lump Sum | Lump Sum | Lump Sum | LS |
| Temporary Pavement Marking | 14.9 | 8.7 | 8.6 | 4.8 | 6.0 | 3.7 | 46.7 | Mile |
| Type C Advance Warning Arrow Board | - | 1 | 1 | - | - | - | 2 | Each |
| Rail Road Protective Insurance | - | Lump Sum | Lump Sum | - | - | - | Lump Sum | LS |

NOTE:

***Segment 1, 2, & 3:** Exact Groove Pavement for Pavement Marking & Cold Applied Plastic Pavement Marking locations will be determined by the engineer. Quantities may vary depending on the condition of the in-place pavement markings. No additional payment will be made for adjustments or the elimination of 'Grooving & Taping' quantities.

***(NP):** denotes Non-Participating Segments, for Segments 2S, 3S, and 4S

RATES OF MATERIALS

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

ASPHALT SURFACE TREATMENT:

| Segment | ROUTE | Station | | Station |
|---------|-----------|---------|----|----------|
| 1 | SD HWY 14 | 0+00 | to | 392.67.4 |

CRS-2P Asphalt for Surface Treatment at the rate of 23.8 tons applied 38 feet wide.
(Rate = 0.32 Gal./S.Y.).

Type 1A Cover Aggregate at the rate of 245.2 tons applied 38 feet wide.
(Rate= 22 Lbs./S.Y.).

CSS-1H or SS-1H for Fog Seal at the rate of 3.8 tons applied 38 feet wide.
(Rate = 0.05 Gal./S.Y.)

| Segment | ROUTE | Station | | Station |
|---------|------------|---------|----|----------|
| 2 | US HWY 14E | 0+00 | to | 245+41.4 |

CRS-2P Asphalt for Surface Treatment at the rate of 23.4 tons applied 29.5 feet wide.
(Rate = 0.32 Gal./S.Y.).

Type 1A Cover Aggregate at the rate of 190.4 tons applied 29.5 feet wide.
(Rate= 22 Lbs./S.Y.).

CSS-1H or SS-1H for Fog Seal at the rate of 3.7 tons applied 29.5 feet wide.
(Rate = 0.05 Gal./S.Y.)

| Segment | ROUTE | Station | | Station |
|---------|------------|---------|----|----------|
| 3 | US HWY 14W | 0+00 | to | 246+15.4 |

CRS-2P Asphalt for Surface Treatment at the rate of 23.4 tons applied 29.5 feet wide.
(Rate = 0.32 Gal./S.Y.).

Type 1A Cover Aggregate at the rate of 190.4 tons applied 29.5 feet wide.
(Rate= 22 Lbs./S.Y.).

CSS-1H or SS-1H for Fog Seal at the rate of 3.7 tons applied 29.5 feet wide.
(Rate = 0.05 Gal./S.Y.)

| Segment | ROUTE |
|---------|----------------------|
| 2S | US 14E SERVICE ROADS |

CRS-2P Asphalt for Surface Treatment at the rate of 0.32 Gal./S.Y. (Variable Widths)

Type 1A Cover Aggregate at the rate of 22 Lbs./S.Y. (Variable Widths)

CSS-1H or SS-1H for Fog Seal at the rate of 0.05 Gal./S.Y. (Variable Widths)

| SERVICE ROADS | LENGTH (ft.) | WIDTH (ft.) |
|---------------|--------------|-------------|
| 2A | 1520 | 30 |
| 2B | 1730 | 30 |
| 2C | 2215 | 30 |
| 2D | 4500 | 25 |
| 2E | 2620 | 24 |

| Segment | ROUTE |
|---------|----------------------|
| 3S | US 14W SERVICE ROADS |

CRS-2P Asphalt for Surface Treatment at the rate of 0.32 Gal./S.Y. (Variable Widths)

Type 1A Cover Aggregate at the rate of 22 Lbs./S.Y. (Variable Widths)

CSS-1H or SS-1H for Fog Seal at the rate of 0.05 Gal./S.Y. (Variable Widths)

| SERVICE ROADS | LENGTH (ft.) | WIDTH (ft.) |
|---------------|--------------|-------------|
| 3A | 1240 | 30 |
| 3B | 2990 | 30 |
| 3C | 460 | 23 |
| 3D | 2570 | 27 |
| 3E | 1005 | 27 |
| 3F | 821 | 22 |
| 3G | 2210 | 30 |
| 3H | 2970 | 30 |
| 3I | 1650 | 30 |

| Segment | ROUTE |
|---------|----------------------|
| 4S | SD 37S SERVICE ROADS |

CRS-2P Asphalt for Surface Treatment at the rate of 19.8 tons applied 25 feet wide.
(Rate = 0.32 Gal./S.Y.).

Type 1A Cover Aggregate at the rate of 161.3 tons applied 25 feet wide.
(Rate= 22 Lbs./S.Y.).

CSS-1H or SS-1H for Fog Seal at the rate of 3.1 tons applied 25 feet wide.
(Rate = 0.05 Gal./S.Y.)

| SERVICE ROADS | LENGTH (ft.) | WIDTH (ft.) |
|---------------|--------------|-------------|
| 4A | 1890 | 25 |
| 4B | 7610 | 25 |
| 4C | 320 | 25 |

SEQUENCE OF OPERATIONS

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

1. Install Construction Signing
2. Install Cold Applied Plastic Pavement Markings
3. Install Pavement Marking Masking
4. Install Temporary Pavement Markings
5. Apply Asphalt Surface Treatment
6. Apply Fog Seal
7. Apply Permanent Pavement Markings
8. Project Cleanup and Removal of Construction Signing

TRAFFIC CONTROL

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

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

"ROAD WORK NEXT ___ MILES", "LOOSE GRAVEL", and "END ROAD WORK" signs are the only signs that need to be mounted on Fixed Location Breakaway Sign Supports. "ROAD WORK AHEAD", "FLAGGER", "ONE LANE ROAD AHEAD" and any other signs may be mounted on portable supports. The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas, and one foot above the pavement in rural areas. The signs mounted on portable supports shall be moved as necessary to keep current with the work activities.

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

The Contractor shall furnish, install and maintain "LOOSE GRAVEL" signs with "40 MPH" advisory speed plate signs upon start of surface treatment operations at each end of the project. In addition, "LOOSE GRAVEL" signs with "40 MPH" advisory speed plates shall be installed at 3 mile intervals throughout each project and at other location(s) determined in the field by the Engineer. The aforementioned signs shall be removed after the final brooming has been completed.

Until initial brooming, additional flagger(s) and FLAGGER symbol sign(s) shall be provided to alert the traveling public entering completed portions of the project to the potential of airborne chips.

The flagger(s) shall provide each motorist with a printed notice on the Contractor's letterhead similar to the one shown. Cost of the notice shall be incidental to other contract bid items.

TRAFFIC CONTROL(CONTINUED)

"CONTRACTORS LETTERHEAD"

THIS HIGHWAY IS BEING RESURFACED WITH A 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 SEAL COAT APPLICATION AREA.

THANK YOU.

The Contractor shall have enough printed notices on hand to allow one for every vehicle (ADT 2014: 2675).

Delete the first paragraph of Section 984.1 and replace with the following: Temporary traffic control devices, including signs, drums, cones, tubular markers, barricades, vertical panels, and direction indicator barricades shall be reflectorized with sheeting applied to a satisfactory backing. Flat surfaced temporary traffic control devices including, but not limited to; signs, barricades, vertical panels, and direction indicator barricades shall be reflectorized with super/very high intensity reflectorized sheeting meeting the standards of Type XI as defined by AASHTO M 268 (ASTM D4956). Round surfaced temporary traffic control devices including, but not limited to; drums, cones, and tubular markers shall be reflectorized with high intensity reflectorized sheeting meeting the standards of Type IV as defined by AASHTO M 268 (ASTM D4956). All orange colored material shall be fluorescent.

TYPE 1A COVER AGGREGATE (SEGMENT 1 THRU 4S)

Quality tests on the Cover Aggregate are required by specification. The Contractor shall notify the Area Office prior to sampling, and a representative from the Area Office shall witness all sampling of aggregates to be submitted to the Central Testing Laboratory.

After the aggregate stockpile has been produced, a sample shall be submitted 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 from the Asphalt Supplier shall be submitted to the Engineer and Bituminous Engineer prior to starting the surface treatment.

Cover Aggregate shall be screened over a 1-inch screen immediately prior to application.

Application of the Type 1A Cover Aggregate shall be maintained within 500 feet or have a time limit of 1 minute between the application of the CRS-2P for Asphalt Surface Treatment and the application of the cover aggregate, whichever amounts to the shorter period of time.

The Contractor shall 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 shall not allow the chip spreader, trucks, 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.

TYPE 1A COVER AGGREGATE (SEGMENT 1 THRU 4S)(CONTINUED)

All passes of the rollers shall be completed within 8 minutes of application of the CRS-2P Asphalt for Surface Treatment.

A cover aggregate gradation failure on the #200 sieve will cause all operations to cease immediately and the Engineer will determine correction action(s), if necessary, prior to restarting operations.

PROJECT BROOMING

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

No material shall 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 shall be disposed of in a manner satisfactory to the Engineer.

Material that is broomed onto the roadway inslopes shall not be left in piles or windrows. The material shall 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.

PROJECT BROOMING (CONTINUED)

In lieu of the requirements of Sec. 360.3 I, paragraph 5 of the Specifications, loose material at the following locations in the table below shall be removed by the Contractor by means of a pickup broom having integral mounted self-contained storage using water to control dust and shall be removed during the cool period of early morning of the day following application or as directed by the Engineer. Removed material shall be disposed of at sites provided by the Contractor and approved by the Engineer.

| Segment | Route | Description |
|---------|--------|--|
| 2 | US 14E | City Limits of Huron |
| 3 | US 14W | City Limits of Huron |
| 2S | US 14E | City Limits of Huron & Residential Curb & Gutter |
| 3S | US 14W | City Limits of Huron & Residential Curb & Gutter |
| 4S | SD 37 | Residential Area |

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

At no time before, during, or after placement of Asphalt Surface Treatment will a broom without working integral mounted self-contained storage using water (in working condition) be used.

Brooming will be incidental to the various contract items for the Asphalt Surface Treatment.

FOG SEAL

The fog seal shall be placed following the completion of the chip seal and prior to the placement of the permanent pavement marking. Application of the fog seal shall begin no earlier than the morning following application of the chip seal but no later than three days after the application of each day's chip seal.

The application of the fog seal will be permitted only when the ambient air and surface temperature on the project are both at least 60° F in the shade and conditions are dry.

Immediately prior to the application of the fog seal the Contractor will be required to broom the entire width of the chip seal. A CSS-1h or SS-1h emulsion shall be used for the fog seal application. A water-to-emulsion rate of 1:1 should be used for the binder application.

Bill of Ladings showing both the CSS-1h or SS-1h and water will be required.

The Contractor shall avoid placing the Fog Seal over the newly placed Cold Applied Permanent Pavement Markings. The Contractor shall be responsible for removing any CSS-1h or SS-1h that is on the markings. All costs associated with cleaning the pavement markings shall be incidental to the contract unit price per ton for CSS-1h or SS-1h Asphalt for Fog Seal.

Blotting Sand for Fog Seal shall conform to the Specifications Section 879.1 B except for the following requirements:

| | |
|--------------------------|---------|
| Passing a 3/8 Inch Sieve | 100% |
| Passing a No. 4 Sieve | 85-100% |
| Passing a No. 8 Sieve | 60-95% |
| Passing a No. 40 Sieve | 5-45% |
| Passing a No. 200 Sieve | 0-10.0% |

The Plasticity Index shall not exceed three (3).

The shale content or other particles of low specific gravity (less than 1.95) passing the No. 4 sieve shall not exceed 4.5%

Prior to hauling, Blotting Sand shall be screened to minimize segregation, eliminate oversize and effectively breakup or discard material bonded into chunks.

The Contractor shall maintain traffic control on the fog sealing area until the fog seal is cured enough to prevent pickup on vehicles. Any areas where vehicles are allowed to drive and pickup will be considered unacceptable and the quantities will be deducted. Sand shall be applied at intersections or other locations as directed by the Engineer.

BRIDGES, APPROACH SLABS, SLEEPER SLABS, STRIP SEALS, RAILROAD CROSSINGS, MANHOLES, WATER VALVES AND CONCRETE

Asphalt Surface Treatment shall not be placed on any of the bridges, approach slabs, sleeper slabs, strip seals, railroad crossings, manholes, water valves or any type of concrete on these projects.

All areas listed shall be protected with proper masking prior to application of the Asphalt Surface Treatment. Any areas not properly protected shall be cleaned to the satisfaction of the Engineer at the Contractor's expense.

HAUL ROAD

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

TEMPORARY PAVEMENT MARKINGS

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

The temporary flexible vertical markers shall have secure covers. The Contractor will be required to remove the covers manually and properly dispose the covers. Any markers that are non-reflective will be cleaned. Cleaning of flexible vertical markers will be incidental to the contract unit price per mile for Temporary Pavement Markings. Petroleum products shall not be used to clean markers.

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

The Contractor is allowed to use DO NOT PASS and PASS WITH CARE signs for a period of 2 weeks to mark no passing zones on roads with an average daily traffic of 2500 vehicles or less. It is estimated that the following amounts of DO NOT PASS and PASS WITH CARE signs will be required to mark the no passing zones, should the Contractor elect to use these signs.

Table: Estimated DO NOT PASS and PASS WITH CARE signs per segment

| Segment | Location | DO NOT PASS | PASS WITH CARE |
|---------|-----------|-------------|----------------|
| 1 | US HWY 14 | 6 | 5 |

Cost for furnishing, installing and removing the DO NOT PASS and PASS WITH CARE signs shall be incidental to the contract unit price per mile for Temporary Pavement Marking.

TEMPORARY PAVEMENT MARKINGS (CONTINUED)

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

The total length of no passing zone on this project is estimated to be **0.92** miles.

Table: Estimated Total No Pass Zones per Segment

| Segment | Location | Miles |
|---------|------------|--------|
| 1 | US HWY 14 | 0.92 |
| 2 | US HWY 14E | 0.00* |
| 3 | US HWY 14W | 0.00* |
| 2S | US HWY 14E | 0.00** |
| 3S | US HWY 14W | 0.00** |
| 4S | SD HWY 37 | 0.00** |

* This is a 4 lane section of road way thru Huron

**This is a 2 lane section for the service roads through and near Huron

Quantities of Temporary Pavement Markings consist of:
One pass on top of the Seal Coat and one pass on Fog Seal.

PERMANENT PAVEMENT MARKINGS

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.

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

The Contractor will be required to repaint all existing pavement marking including centerline, edge line, lane lines, pedestrian crossings, etc. This list is approximate. 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. Additional quantities are included in the estimate of quantities to paint the additional pavement marking. The cost of the tabs shall be incidental to the contract unit prices for the various items.

Permanent pavement markings shall be furnished and applied by the Contractor in accordance with section 633 of the specifications and the details in these plans.

The application of permanent pavement marking paint shall not begin until 7 calendar days following completion of final surfacing and shall be completed within 21 calendar days following completion of final surfacing when temporary road markers are used to mark No Passing Zones.

The application of permanent pavement marking paint shall not begin until 7 calendar days following completion of final surfacing and shall be completed within 14 calendar days following completion of final surfacing when DO NOT PASS and PASS WITH CARE signs are used to mark No Passing Zones.

For each working day the application of permanent pavement marking paint remains uncompleted after the previously stated time requirements, the Contractor will be assessed liquidated damages at the rate of \$250.00 per day.

The liquidated damages shall apply up to the Contract Completion Date, as extended. After the completion date, liquidated damages will be assessed in accordance with section 8.8 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.

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

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

980.1.1 Quantitative Requirements:

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

The Pigment, Percent By Weight when tested in accordance with ASTM D3723 for white: 60.0-63.0 and for yellow: 56.1-59.2.

The Non-volatile Vehicle, percent by weight; min. white: 41.5 and yellow: 41.5 when tested in accordance with FTMS 141c (method 4051.1)

COLD APPLIED PLASTIC PAVEMENT MARKING

Cold Applied Plastic Pavement Marking shall be placed prior to asphalt surface treatment on all projects as noted in the plans and as directed by the Engineer.

Cold Applied Plastic Pavement Marking shall be placed in the same location as existing markings, unless otherwise directed by the Engineer. Existing pavement markings shall be completely removed by grinding prior to installing the new Cold Applied Plastic Pavement Marking.

It shall be the Contractor's responsibility to visit the project site to determine what type of material(s) are present and the extent of the work required to remove the existing pavement markings. Cost for removing existing pavement marking shall be incidental to the various contract unit prices for pavement marking.

Once work starts on this portion of the project it shall be pursued in a continuous manner until the project is completed. Cold Applied Plastic Pavement Markings shall be installed as follows

Table: Estimated Cold Applied Plastic Pavement Markings per segment

| Segment | ITEM | LOCATION | QUANTITY |
|---------|--------------------------------|----------------------------|----------|
| 1 | LEFT-TURN ARROWS | US 14/US 281 | 2 |
| 1 | GORE AREAS, 24" YELLOW | US 14/US 281 | 140 |
| 1 | BULLET NOSE AREA | US 14/US 281 | 100 SqFt |
| 1 | GORE AREAS STOP BAR, 24" WHITE | US 14/US 281 | 12' |
| 2 & 3 | GORE AREAS, 24" YELLOW | WEST PARK/LINCOLN/WEST END | 242' |
| 2 & 3 | BULLET NOSE AREA | WEST PARK/LINCOLN | 14 SqFt |
| 2 & 3 | RIGHT-TURN ARROWS | WEST PARK/LINCOLN/ARIZONA | 7 |
| 2 & 3 | LEFT-TURN ARROWS | WEST PARK/LINCOLN/ARIZONA | 13 |
| 2 & 3 | RR CROSSING | US 14 | 2 |
| 2 | STRAIGHT ARROWS | WEST PARK | 1 |
| 2 | GORE AREAS, 4" YELLOW | WEST PARK | 848' |

New pavement markings shall be provided and applied by the Contractor.

PAVEMENT MARKING MASKING

Immediately prior to sealing, durable markings shall be covered with an approved pavement marking masking. All cost for furnishing, installing, removing, and disposing of masking shall be incidental to the various contract unit prices for Pavement Marking Masking. Pavement Marking Masking shall be paid only once for each location on the project.

The following items shall be masked:

Table: Estimated pavement marking Masking per segment

| Segment | ITEM | LOCATION | QUANTITY |
|---------|--------------------------------------|-------------------------------|----------|
| 1 | LEFT-TURN ARROWS | US 14/US 281 | 2 |
| 1 | GORE AREAS, 25" | US 14/US 281 | 140 |
| 1 | BULLET NOSE AREA | US 14/US 281 | 100 SqFt |
| 1 | GORE AREAS STOP BAR, 25" WHITE | US 14/US 281 | 12' |
| 2 & 3 | GORE AREAS, 25" YELLOW | WEST PARK/LINCOLN/WEST END | 242' |
| 2 & 3 | BULLET NOSE AREA | WEST PARK/LINCOLN | 14 SqFt |
| 2 & 3 | RIGHT-TURN ARROWS | WEST PARK/LINCOLN/ARIZONA | 7 |
| 2 & 3 | LEFT-TURN ARROWS | WEST PARK/LINCOLN/ARIZONA | 13 |
| 2 & 3 | RR CROSSING | US 14 | 8 |
| 2 | STRAIGHT ARROWS | WEST PARK | 1 |
| 2 | GORE AREAS, 5" YELLOW | WEST PARK | 848' |

EXISTING PAVEMENT CONDITIONS & TRAFFIC VOLUMES

The existing pavement conditions have been checked for each project and factored into the rates of materials. Actual rates will be adjusted in the field during construction by the Engineer.

The descriptions used were from the McLeod procedure for seal coat design.

The traffic volumes are shown on the title sheets.

FIXED LOCATION SIGNS GROUND MOUNTED BREAKAWAY SUPPORT

**SEGMENT #1, US 14
BEADLE COUNTY**

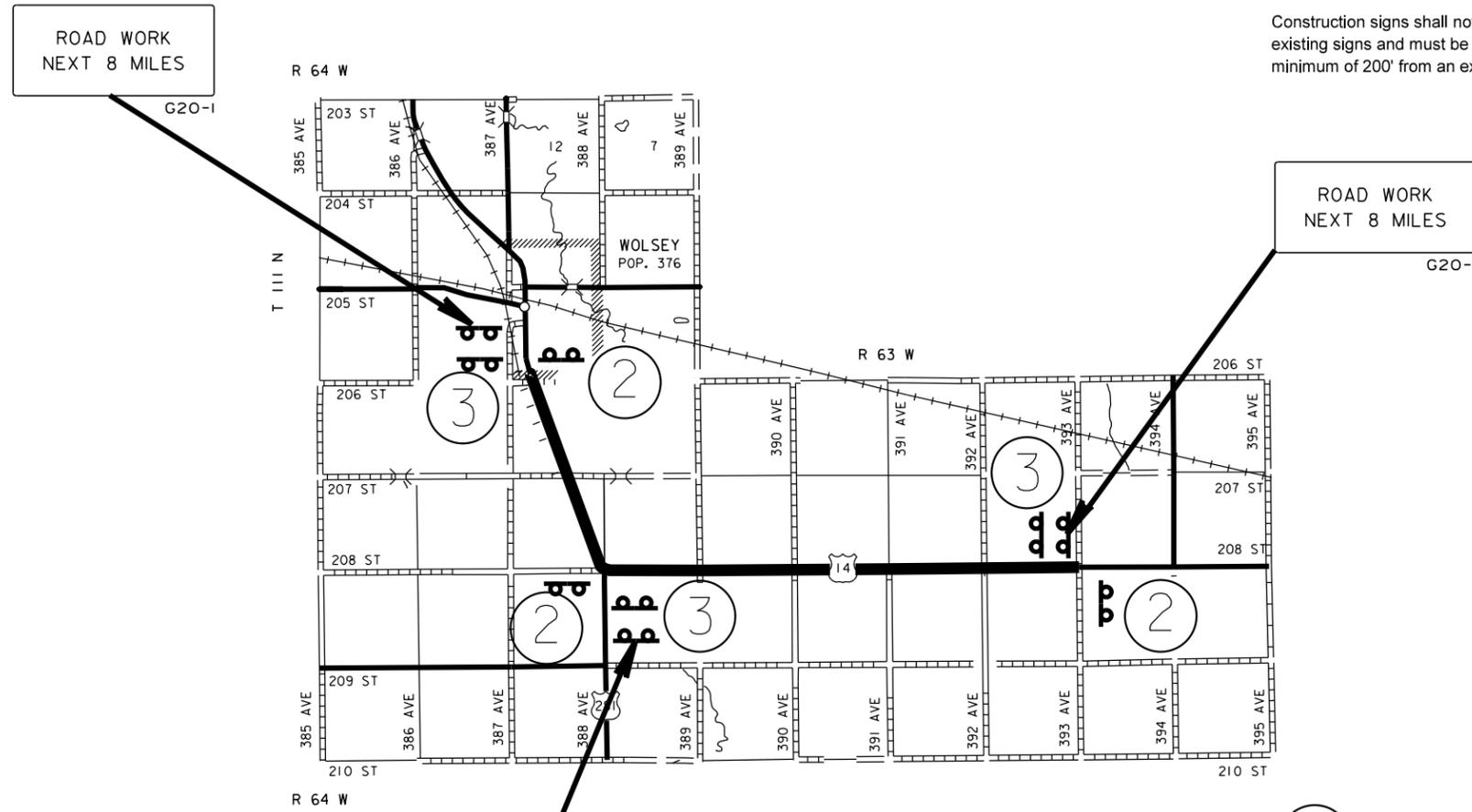
NOTES:

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

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

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

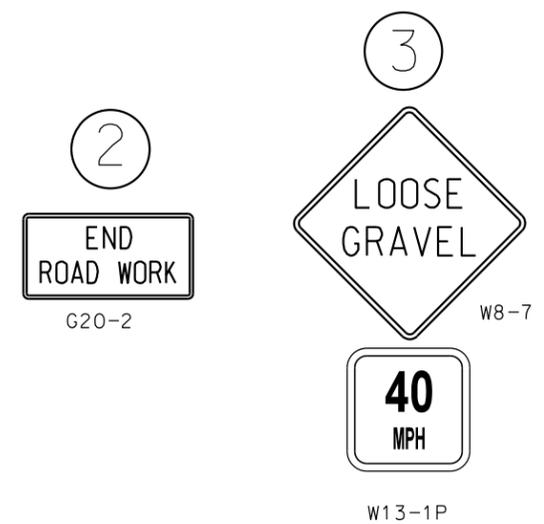
| Posted Speed Prior to Work (M.P.H.) | Spacing of Advance Warning Signs (FEET) |
|-------------------------------------|---|
| 0 - 30 | 200 |
| 35 - 40 | 350 |
| 45 - 50 | 500 |
| 55 | 750 |
| 60 - 65 | 1000 |
| 75 | 1000 |



ROAD WORK
NEXT 8 MILES
G20-1

ROAD WORK
NEXT 8 MILES
G20-1

ROAD WORK
NEXT 5 MILES
G20-1



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

FIXED LOCATION SIGNS GROUND MOUNTED BREAKAWAY SUPPORT

US HWY 14 - DIVIDED HWY SEGMENT #2 & #3

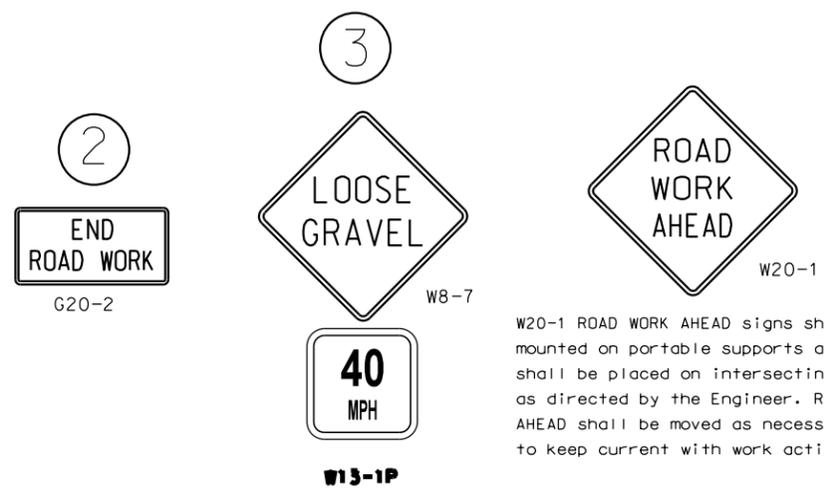
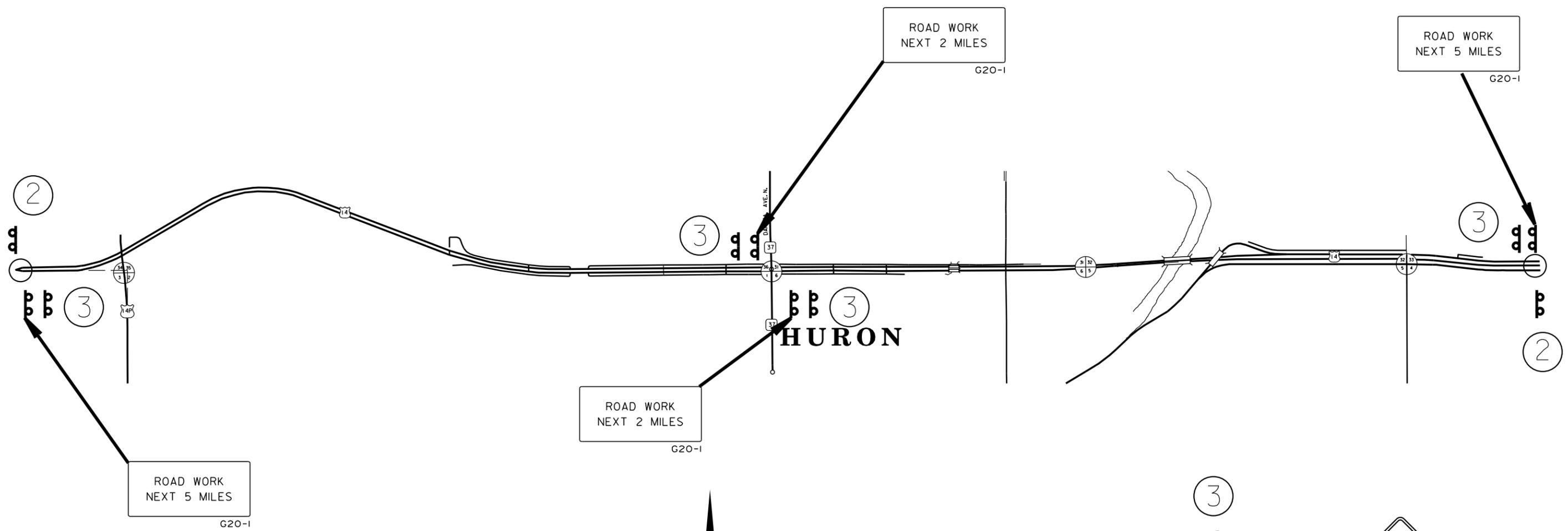
NOTES:

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

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

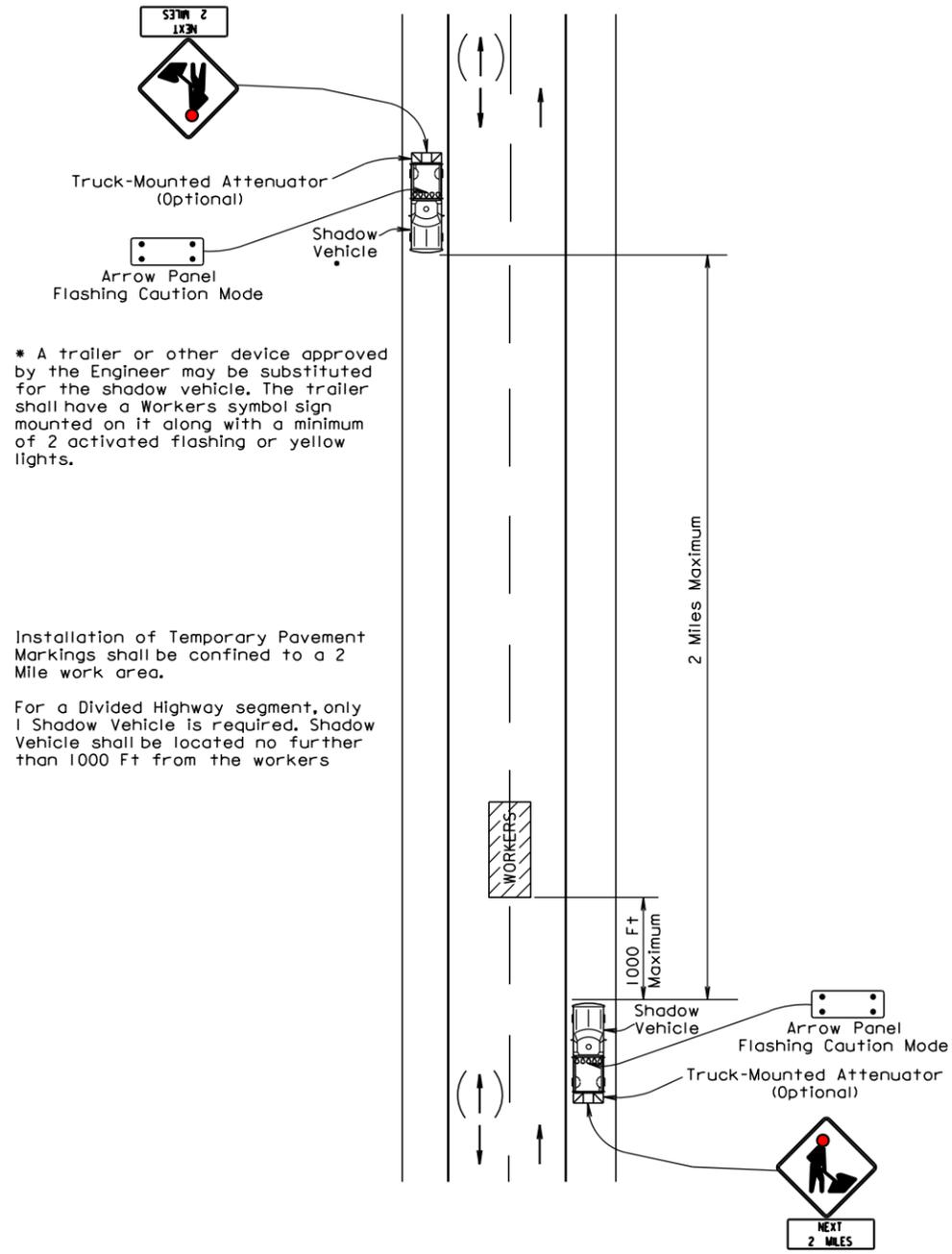
Construction signs shall not obscure existing signs and must be installed a minimum of 200' from an existing sign.

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



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

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

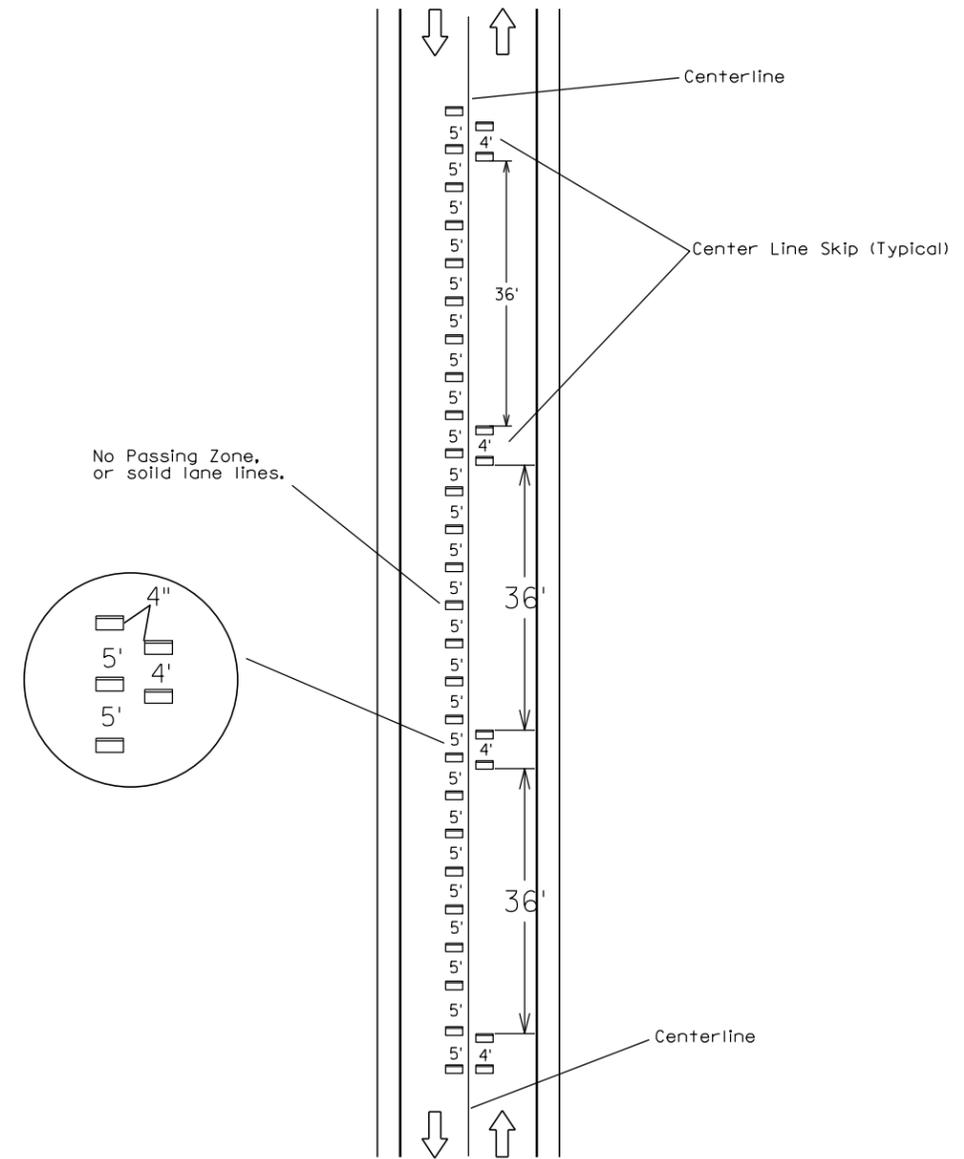


* A trailer or other device approved by the Engineer may be substituted for the shadow vehicle. The trailer shall have a Workers symbol sign mounted on it along with a minimum of 2 activated flashing or yellow lights.

Installation of Temporary Pavement Markings shall be confined to a 2 Mile work area.

For a Divided Highway segment, only 1 Shadow Vehicle is required. Shadow Vehicle shall be located no further than 1000 Ft from the workers

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



PLOT SCALE - 1:200

| 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.

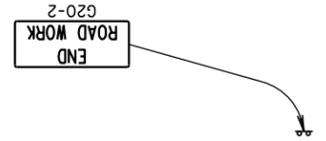
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

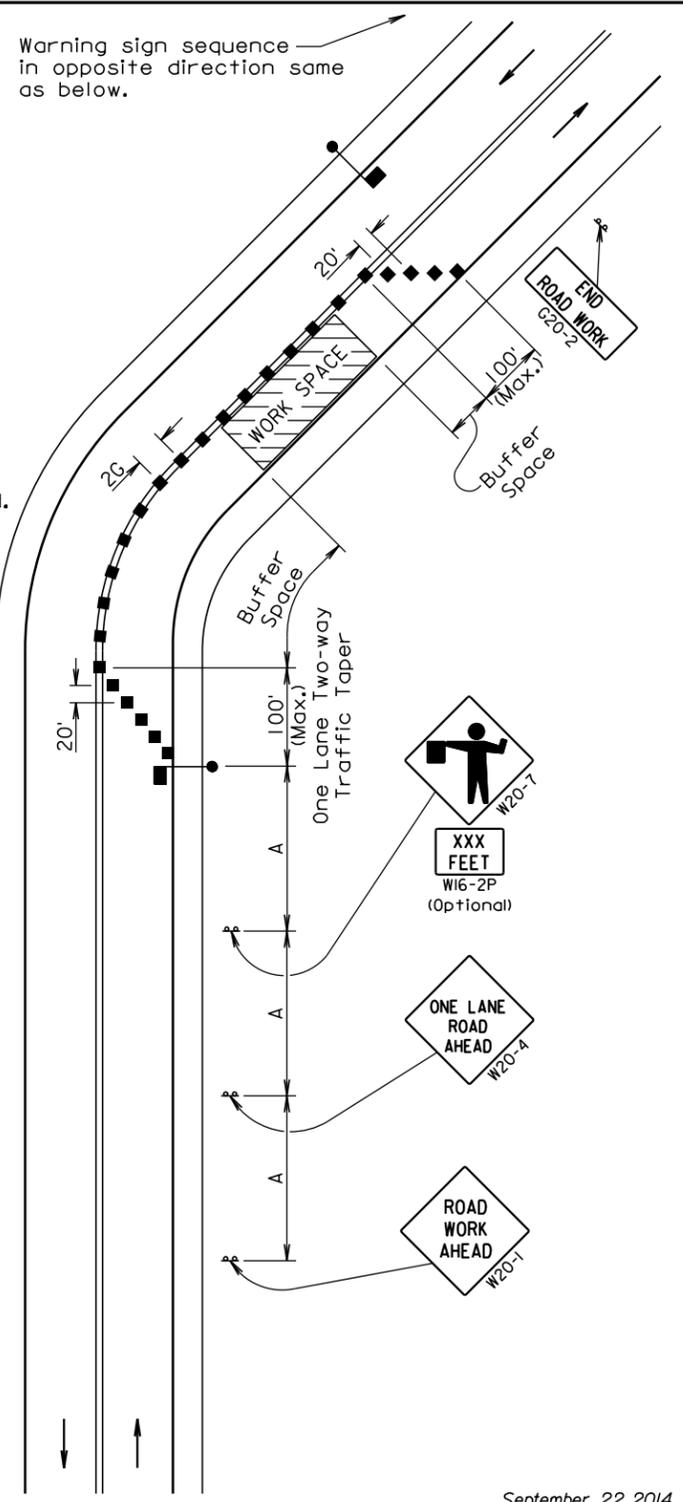
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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.



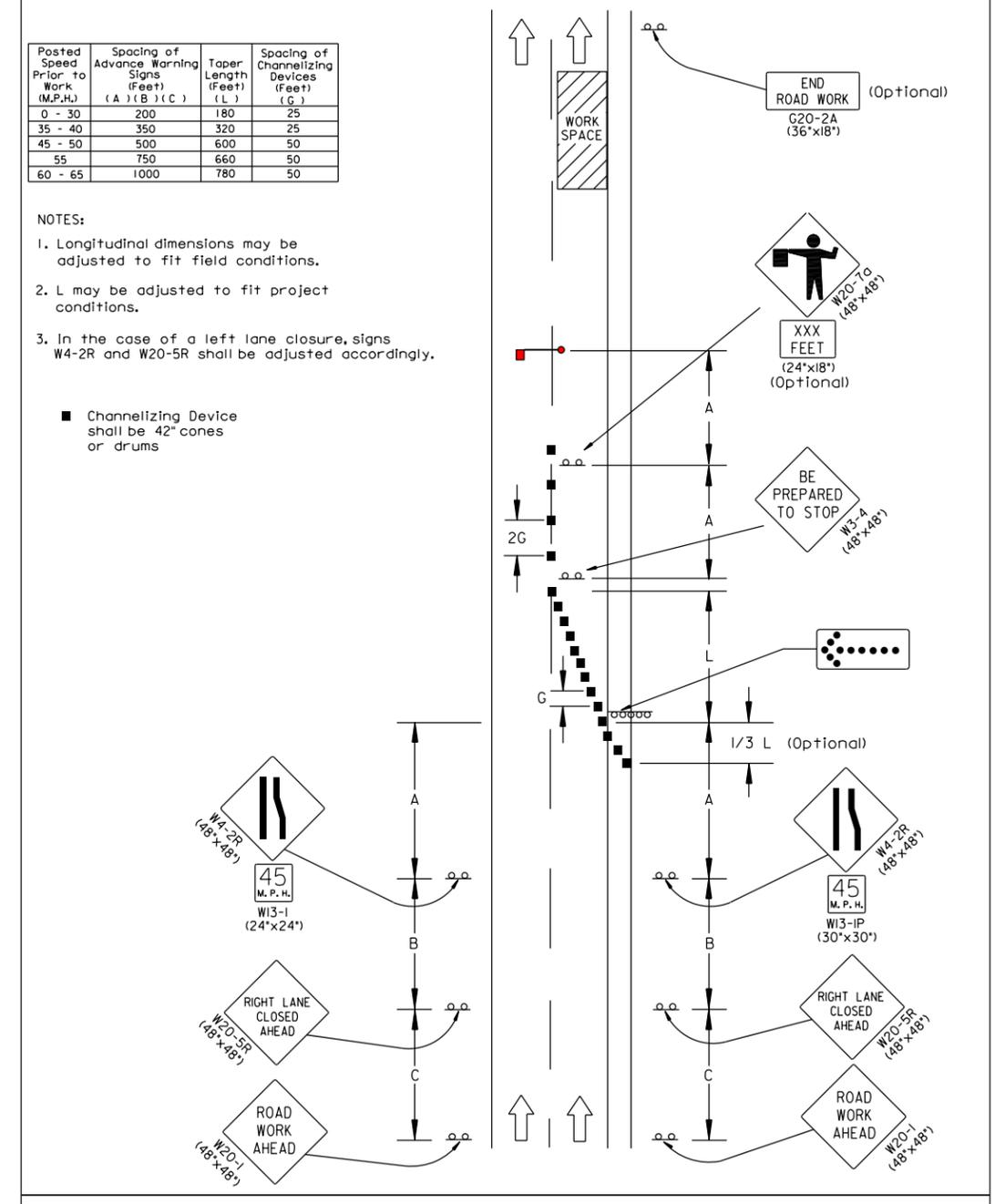
September 22, 2014

| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED | PLATE NUMBER 634.23 |
| | Published Date: 4th Qtr. 2014 | Sheet 1 of 1 |
| | | |

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

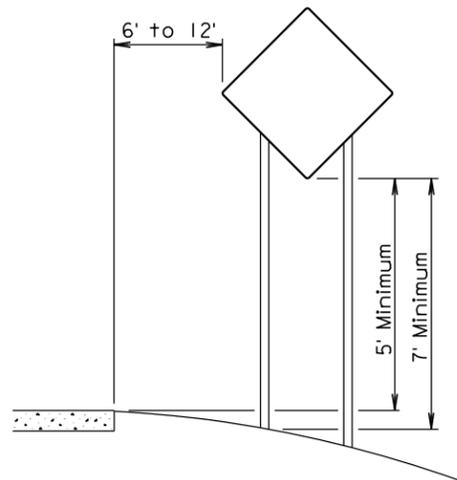
- NOTES:
- Longitudinal dimensions may be adjusted to fit field conditions.
 - L may be adjusted to fit project conditions.
 - In the case of a left lane closure, signs W4-2R and W20-5R shall be adjusted accordingly.

■ Channelizing Device shall be 42" cones or drums

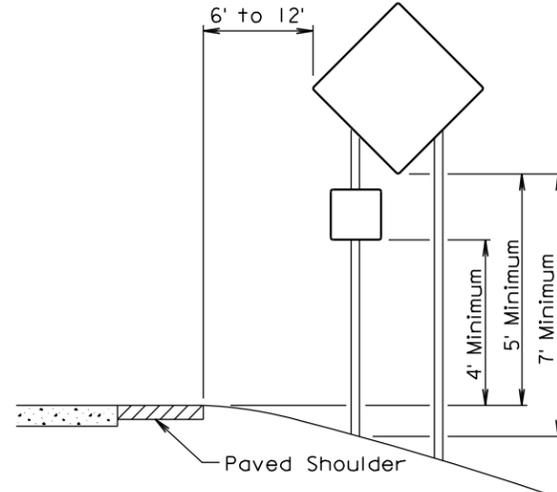


GUIDES FOR TRAFFIC CONTROL DEVICES 4-LANE DIVIDED, RIGHT LANE CLOSED

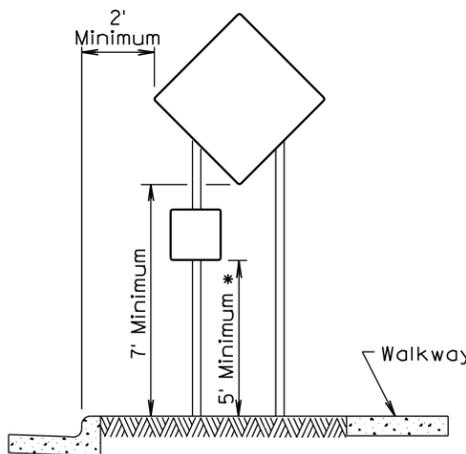
PLOT NAME - 12
FILE - ... \DESIGN 2\TITLE SHEET.DGN



RURAL DISTRICT

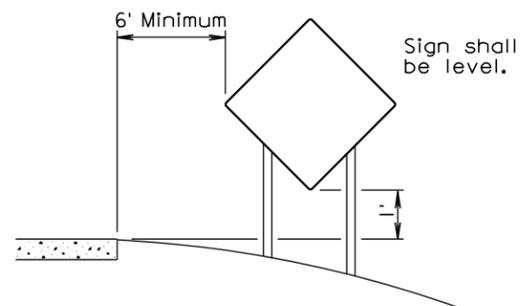


RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



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

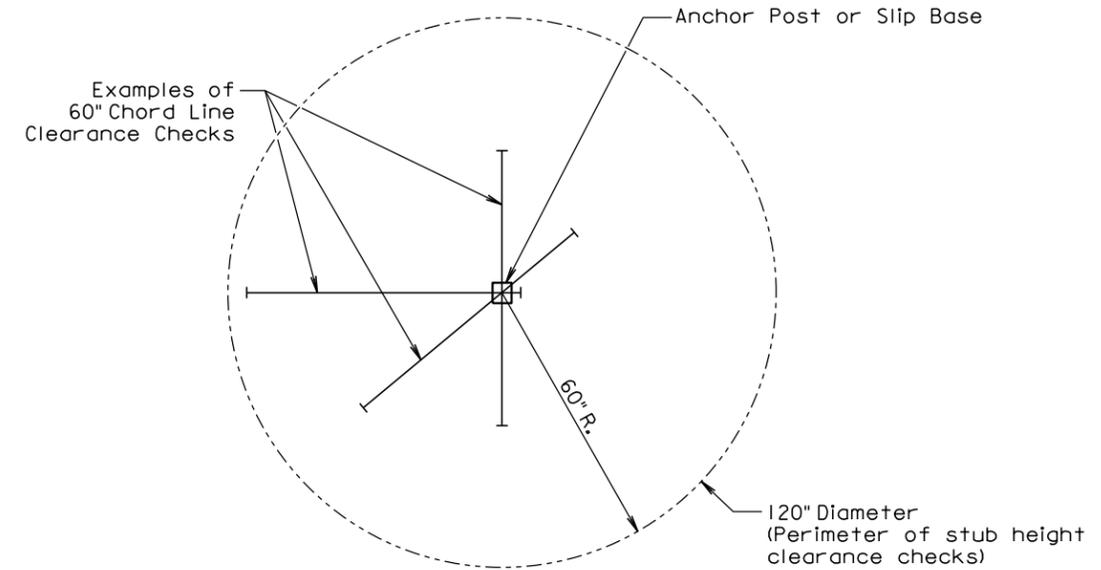
Published Date: 4th Qtr. 2014

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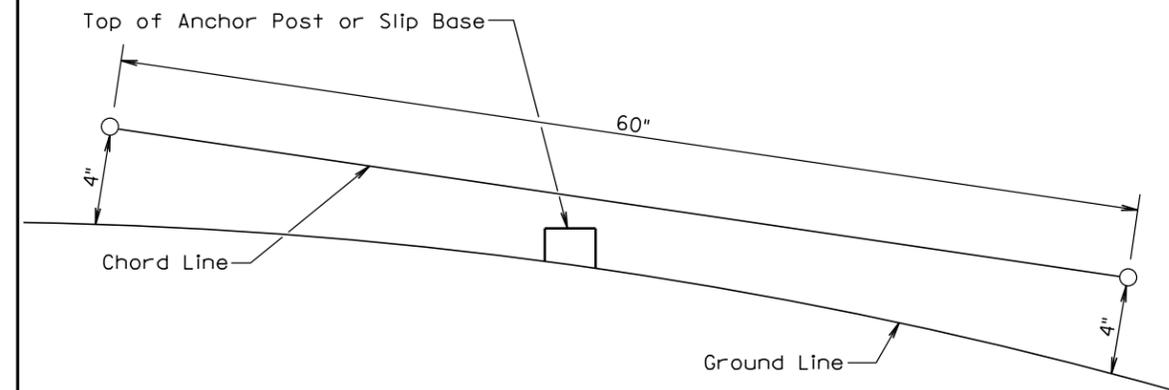
CRASHWORTHY SIGN SUPPORTS
(Typical Construction Signing)

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. 2014

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BREAKAWAY SUPPORT STUB CLEARANCE

PLATE NUMBER
634.99

Sheet 1 of 1

SEGMENT #1

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

| SIGN CODE | SIGN DESCRIPTION | CONVENTIONAL ROAD | | | |
|---|--------------------------|-------------------|-----------|---------------|------------|
| | | NUMBER | SIGN SIZE | SQFT PER SIGN | SQFT |
| W8-7 | LOOSE GRAVEL | 3 | 48" x 48" | 16 | 48 |
| W13-1P | ADVISORY SPEED (plaque) | 3 | 30" x 30" | 6 | 18 |
| W20-1 | ROAD WORK AHEAD | 2 | 48" x 48" | 16 | 32 |
| W20-4 | ONE LANE ROAD AHEAD | 2 | 48" x 48" | 16 | 32 |
| W20-7 | FLAGGER (symbol) | 2 | 48" x 48" | 16 | 32 |
| G20-1 | ROAD WORK NEXT ___ MILES | 3 | 36" x 18" | 5 | 15 |
| G20-2 | END ROAD WORK | 3 | 36" x 18" | 5 | 15 |
| CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT | | | | | 192 |

SEGMENT #2 & #3

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

| SIGN CODE | SIGN DESCRIPTION | CONVENTIONAL ROAD | | | |
|---|----------------------------------|-------------------|-----------|---------------|------------|
| | | NUMBER | SIGN SIZE | SQFT PER SIGN | SQFT |
| W4-2 | LEFT or RIGHT LANE ENDS (symbol) | 2 | 48" x 48" | 16 | 32 |
| W8-7 | LOOSE GRAVEL | 2 | 48" x 48" | 16 | 32 |
| W13-1P | ADVISORY SPEED (plaque) | 2 | 30" x 30" | 6 | 12 |
| W20-1 | ROAD WORK AHEAD | 4 | 48" x 48" | 16 | 64 |
| W20-4 | ONE LANE ROAD AHEAD | 2 | 48" x 48" | 16 | 32 |
| W20-5 | LEFT or RIGHT LANE CLOSED AHEAD | 2 | 48" x 48" | 16 | 32 |
| W20-7 | FLAGGER (symbol) | 6 | 48" x 48" | 16 | 96 |
| G20-1 | ROAD WORK NEXT ___ MILES | 2 | 36" x 18" | 5 | 10 |
| G20-2 | END ROAD WORK | 1 | 36" x 18" | 5 | 5 |
| CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT | | | | | 315 |

SEGMENT #2S, #3S, & #4S

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

| SIGN CODE | SIGN DESCRIPTION | CONVENTIONAL ROAD | | | | SQFT |
|---|---------------------|-------------------|--------------|---------------------|-----------|------|
| | | NUMBER | SIGN SIZE | SQFT PER SIGN | | |
| W20-1 | ROAD WORK AHEAD | 2 | 48" x 48" | 16 | 32 | |
| W20-4 | ONE LANE ROAD AHEAD | 2 | 48" x 48" | 16 | 32 | |
| W20-7 | FLAGGER (symbol) | 2 | 48" x 48" | 16 | 32 | |
| CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT | | | | | 96 | |

PAVEMENT MARKING LAYOUT

Cold Applied Plastic Pavement Marking & Waterborne Paint
US Highway 14 and Lincoln Avenue

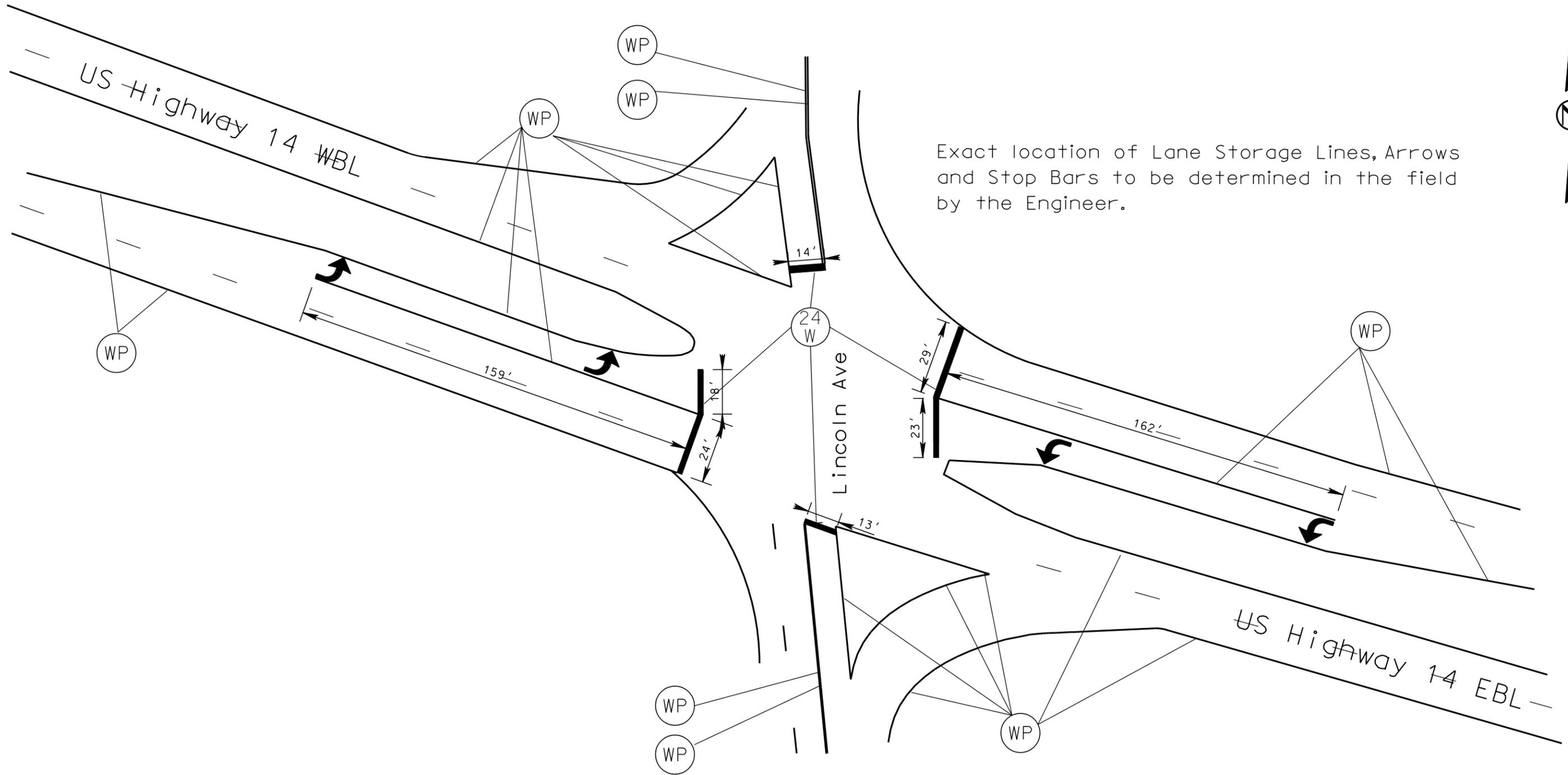
| | | | |
|-----------------------------|---------------|--------------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | NH-P 0013(34) | 21 | 27 |
| Plotting Date: 01/05/2016 | | | |

REVISED: 01-05-16

PLOT SCALE - 1:40

PLOT NAME - 1

FILE - ... WESTPARK AND LINCOLN.DGN



PLOTTED FROM - TRHJINT05

PAVEMENT MARKING LAYOUT

Cold Applied Plastic Pavement Marking & Waterborne Paint
US Highway 14 and West Park Avenue

| | | | |
|---------------------------|--------------------------|-----------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT NH-P 0013(34) | SHEET NO. 22 | TOTAL SHEETS 27 |
| Plotting Date: 01/05/2016 | | | |

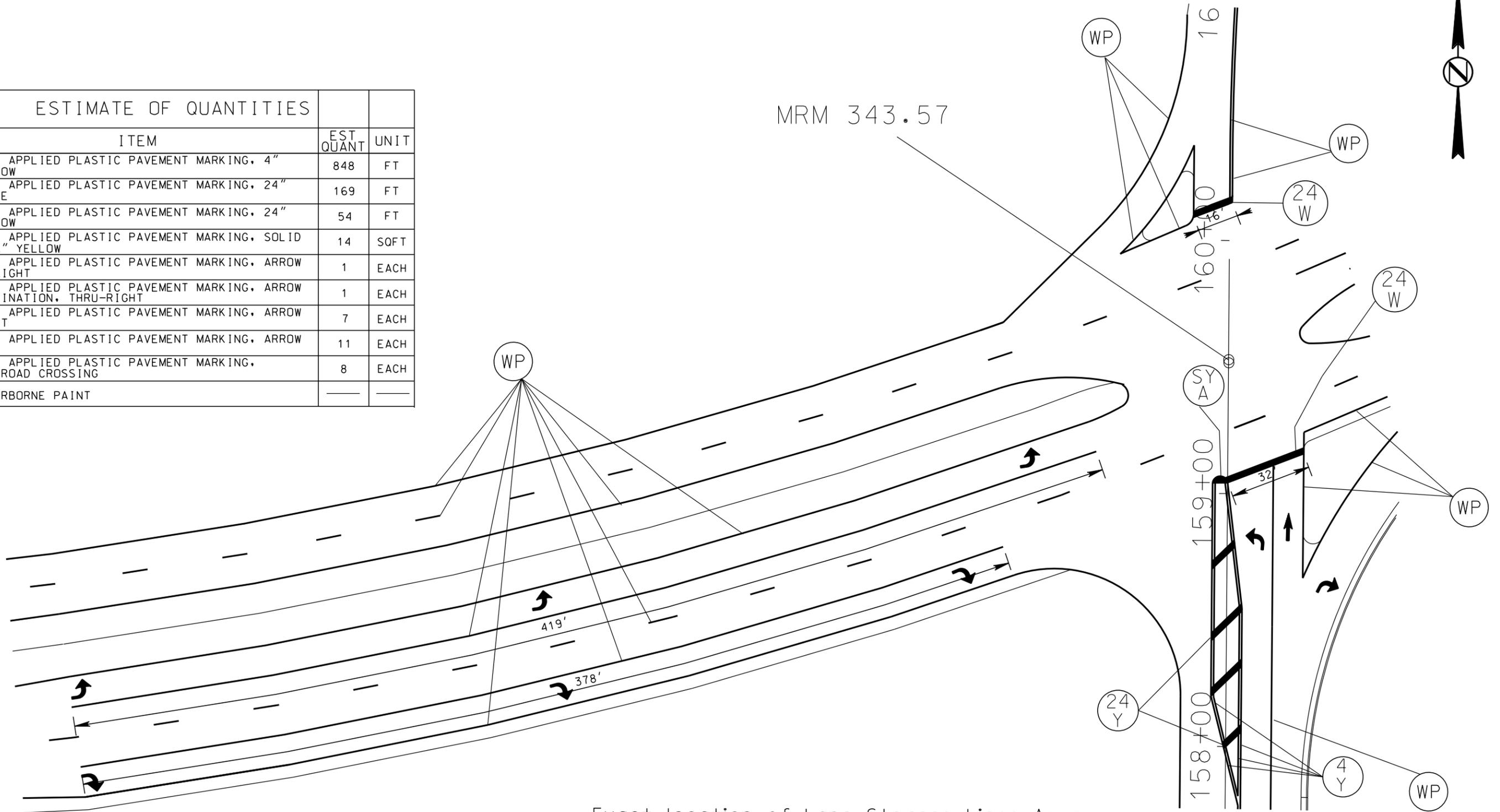
REVISED: 01-05-16

PLOT SCALE - 1:40

PLOT NAME - 2

FILE - ... WESTPARK AND LINCOLN.DGN

| ESTIMATE OF QUANTITIES | | | |
|------------------------|--|-----------|------|
| KEY | ITEM | EST QUANT | UNIT |
| ④ Y | COLD APPLIED PLASTIC PAVEMENT MARKING, 4" YELLOW | 848 | FT |
| ②④ W | COLD APPLIED PLASTIC PAVEMENT MARKING, 24" WHITE | 169 | FT |
| ②④ Y | COLD APPLIED PLASTIC PAVEMENT MARKING, 24" YELLOW | 54 | FT |
| SY A | COLD APPLIED PLASTIC PAVEMENT MARKING, SOLID AREA" YELLOW | 14 | SQFT |
| ↓ | COLD APPLIED PLASTIC PAVEMENT MARKING, ARROW STRAIGHT | 1 | EACH |
| ↘ | COLD APPLIED PLASTIC PAVEMENT MARKING, ARROW COMBINATION, THRU-RIGHT | 1 | EACH |
| ↘ | COLD APPLIED PLASTIC PAVEMENT MARKING, ARROW RIGHT | 7 | EACH |
| ↙ | COLD APPLIED PLASTIC PAVEMENT MARKING, ARROW LEFT | 11 | EACH |
| ✕ | COLD APPLIED PLASTIC PAVEMENT MARKING, RAILROAD CROSSING | 8 | EACH |
| WP | WATERBORNE PAINT | | |



Exact location of Lane Storage Lines, Arrows and Stop Bars to be determined in the field by the Engineer.

PLOTTED FROM - TRHJUNT05

PAVEMENT MARKING LAYOUT

Cold Applied Plastic Pavement Marking & Waterborne Paint

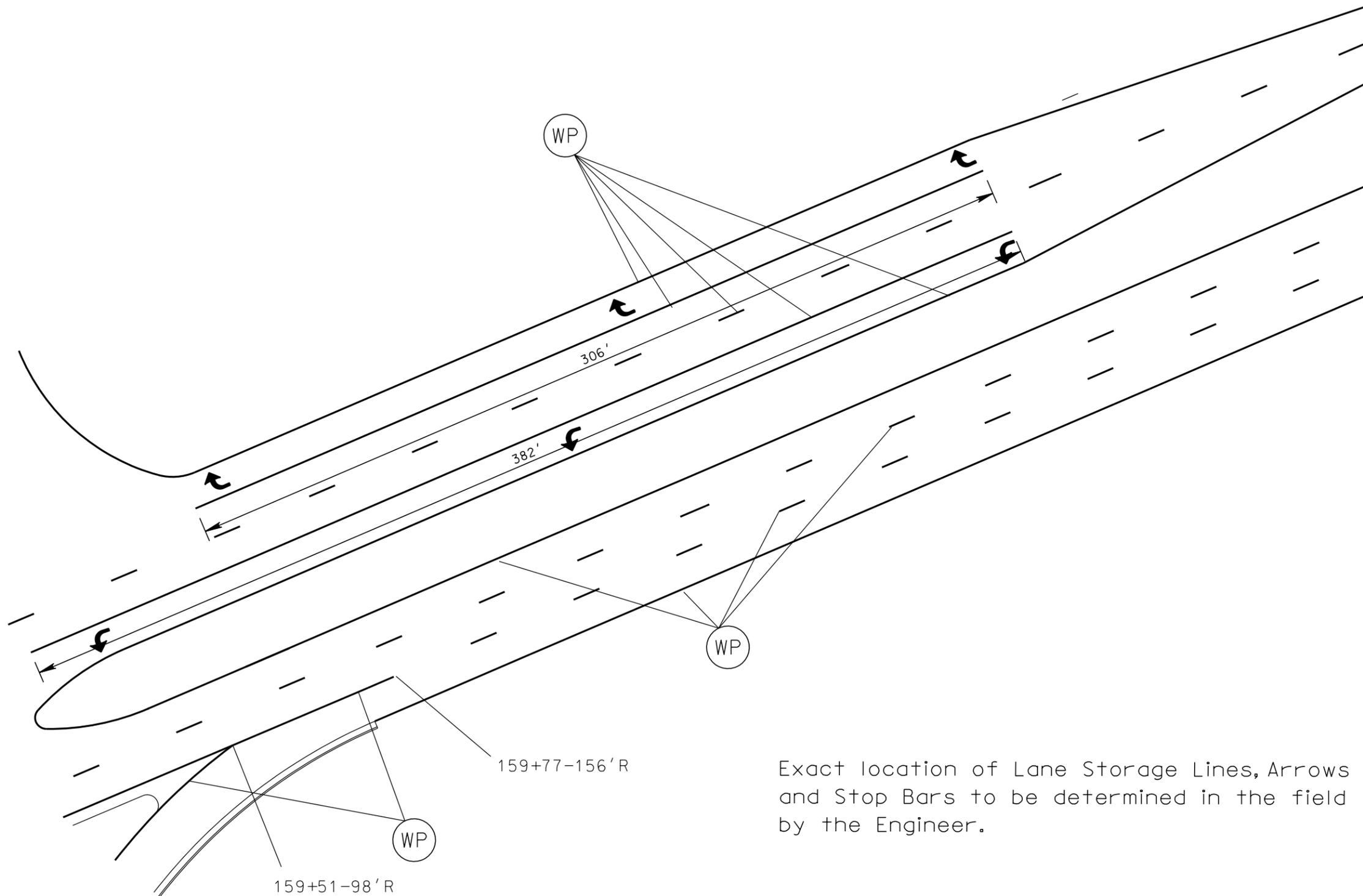
US Highway 14 and West Park Avenue

| | | | |
|-----------------------------|---------------|--------------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | NH P 0013(34) | 23 | 27 |
| Plotting Date: 12/22/2015 | | | |

PLOT SCALE - 1:40

PLOT NAME - 3

FILE - ... \DESIGN 2\064PM.DGN



Exact location of Lane Storage Lines, Arrows and Stop Bars to be determined in the field by the Engineer.

PLOTTED FROM - TRHJUNT05

PAVEMENT MARKING LAYOUT

Cold Applied Plastic Pavement Marking & Waterborne Paint
US Highway 14 and West Park Avenue

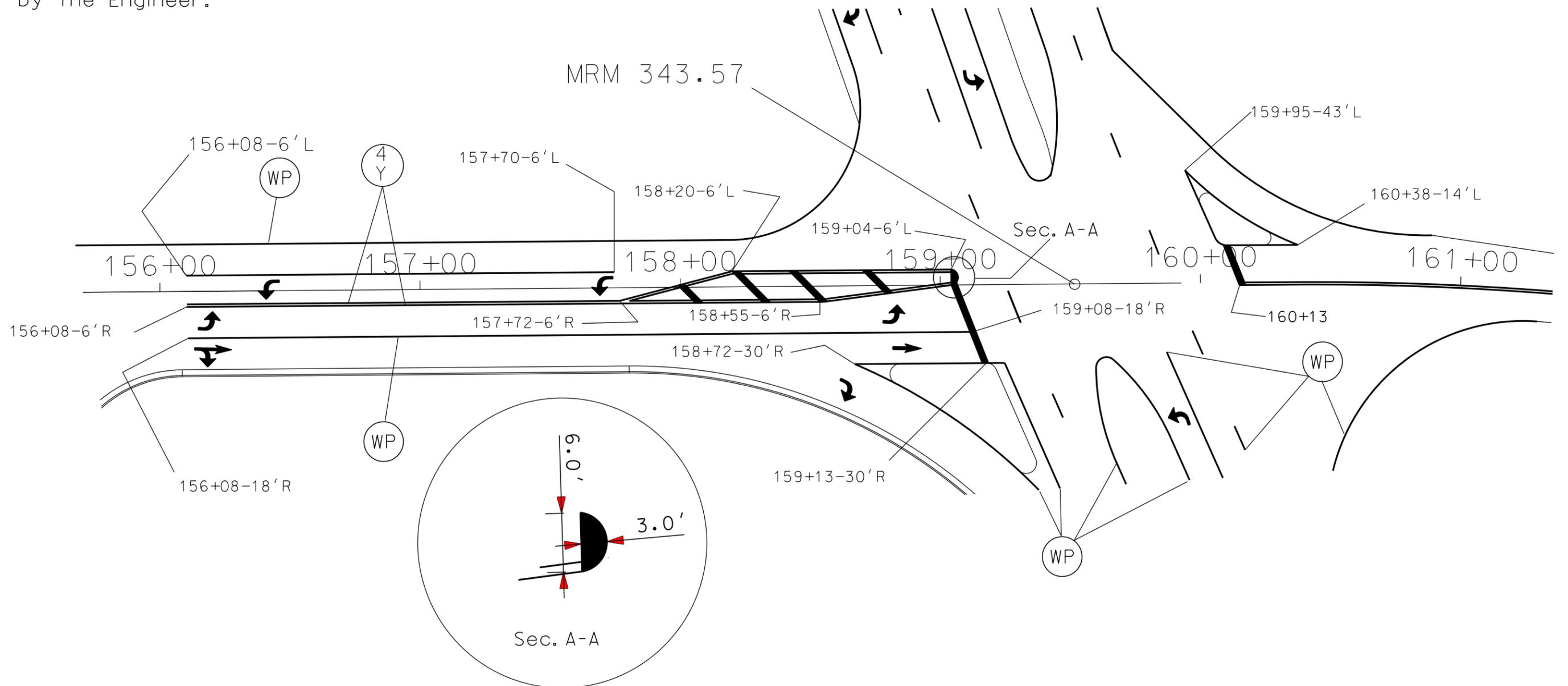
| | | | |
|-----------------------------|---------------|--------------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | NH P 0013(34) | 24 | 27 |
| Plotting Date: 12/22/2015 | | | |

PLOT SCALE - 1"=40'

PLOT NAME - 4



Exact location of Lane Storage Lines, Arrows and Stop Bars to be determined in the field by the Engineer.

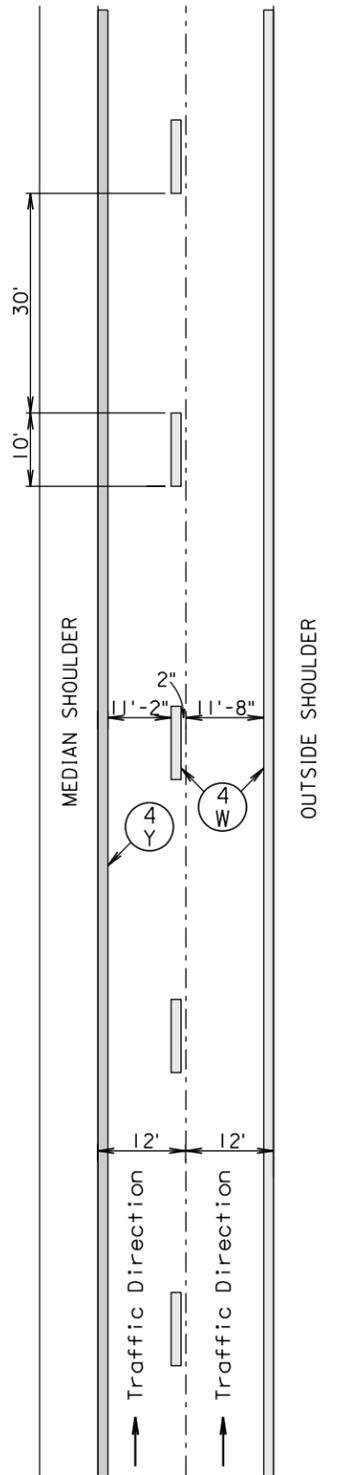


PLOTTED FROM - TRHJINT05

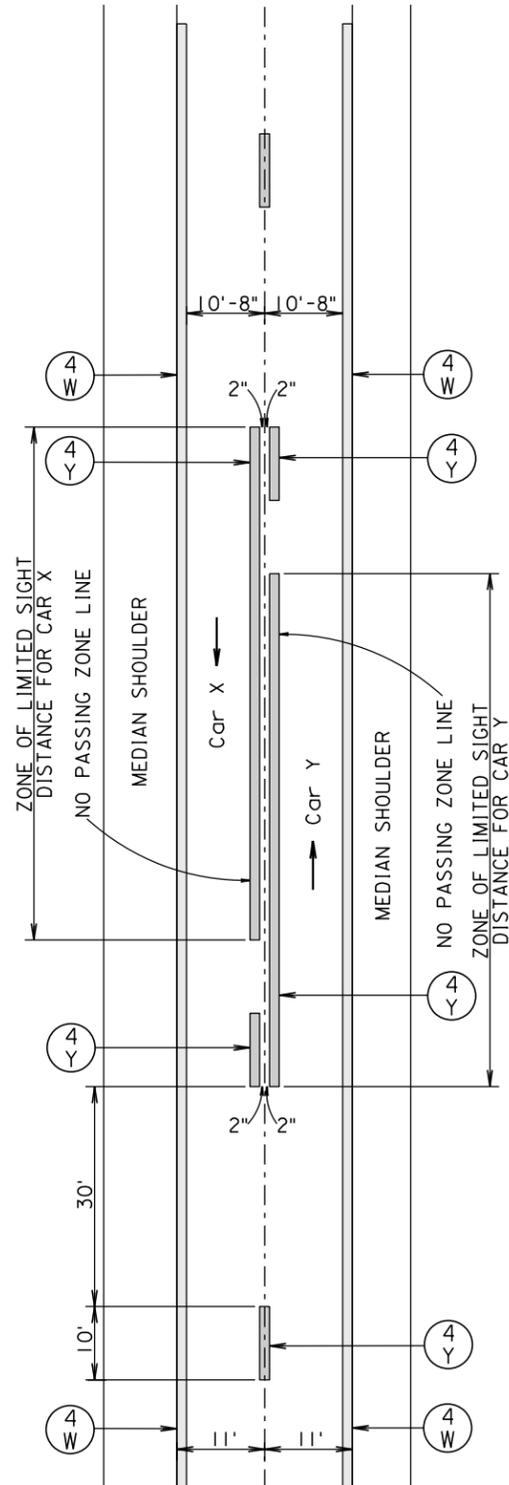
FILE - ... \DESIGN 2\064PM.DGN

PAVEMENT MARKING DETAIL

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



**TWO LANE
UNDIVIDED ROADWAY
(SERVICE ROAD)**



FURNISHING AND APPLYING PAVEMENT MARKING PAINT

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

| Undivided Roadway | Divided Roadway |
|---|---|
| Yellow Centerline 12+ Gallons/Pass-Mile (Includes No-passing lines) | White Centerline 6.20 Gallons/Pass-Mile |
| White Edgeline 22.50 Gallons/Pass-Mile (Solid Line) | Yellow or White Edgeline 22.50 Gallons/Pass-Mile (Solid Line) |

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

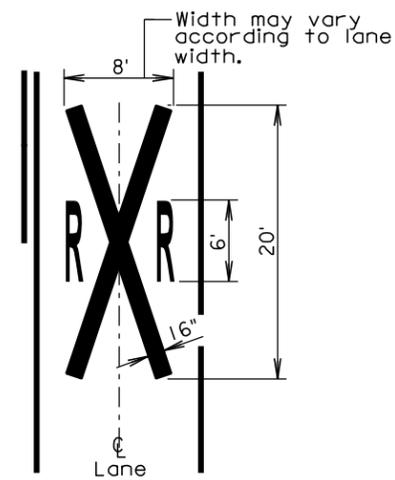
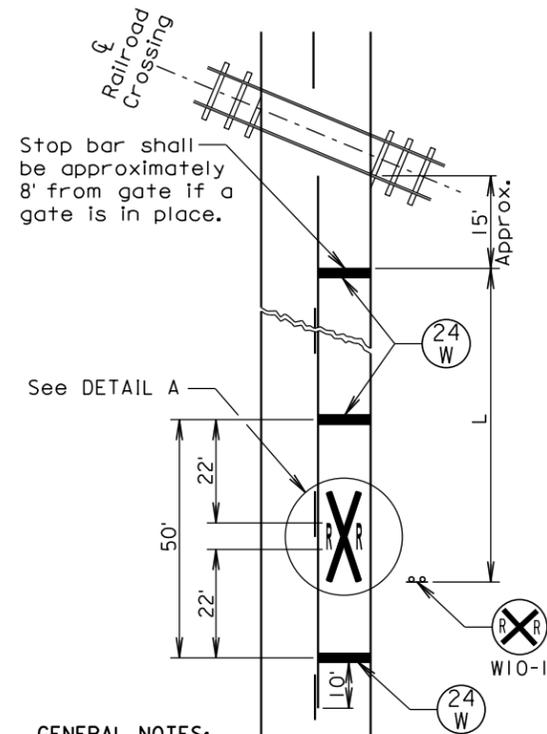
3. Exact location of the NO PASSING ZONE lines will be determined in the field by the Engineer. A dash of white paint will mark the beginning and end of all no passing zones. NO PASSING ZONE signs and the ending post in fence lines, if present, shall not be used as the beginning and ending NO PASSING ZONE lines.

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

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

| KEY | ITEM |
|---|-----------|
|  | 24" White |
|  | White |

| Posted Speed Limit (M.P.H.) | L (Ft.) |
|--------------------------------|------------|
| ≤ 30 | 100 |
| 35 | 100 |
| 40 | 125 |
| 45 | 175 |
| 50 | 250 |
| 55 | 325 |
| 60 | 400 |
| 65 | 475 |
| 70 | 550 |



DETAIL A

GENERAL NOTES:

The railroad crossing pavement markings shall be placed symmetrically about the centerline of the railroad crossing.

When pavement markings are used, a portion of the RXR symbol shall be placed directly opposite of the advance warning sign W10-1.

On multi-lane roads the transverse bands shall extend across all approach lanes and individual RXR symbols shall be placed in each approach lane.

The railroad crossing pavement markings shall consist of all the transverse bands, stop bars, and RXR symbols.

When pavement marking paint is used for marking the railroad crossing, all costs for furnishing and painting the markings, materials, labor, and necessary equipment shall be incidental to the contract unit price per gallon for "Pavement Marking Paint, White".

When pavement marking tape is used for marking the railroad crossing, all costs for furnishing and placing the markings, materials, labor, and necessary equipment shall be incidental to the contract unit price per each for "Cold Applied Plastic Pavement Marking, Railroad Crossing".

June 26, 2013

Published Date: 4th Qtr. 2015

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PAVEMENT MARKINGS AT RAILROAD CROSSING

PLATE NUMBER
633.10

Sheet 1 of 1