

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

| | | | |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0281(111)48 | 1 | 35 |

Plotting Date: 02/11/2016

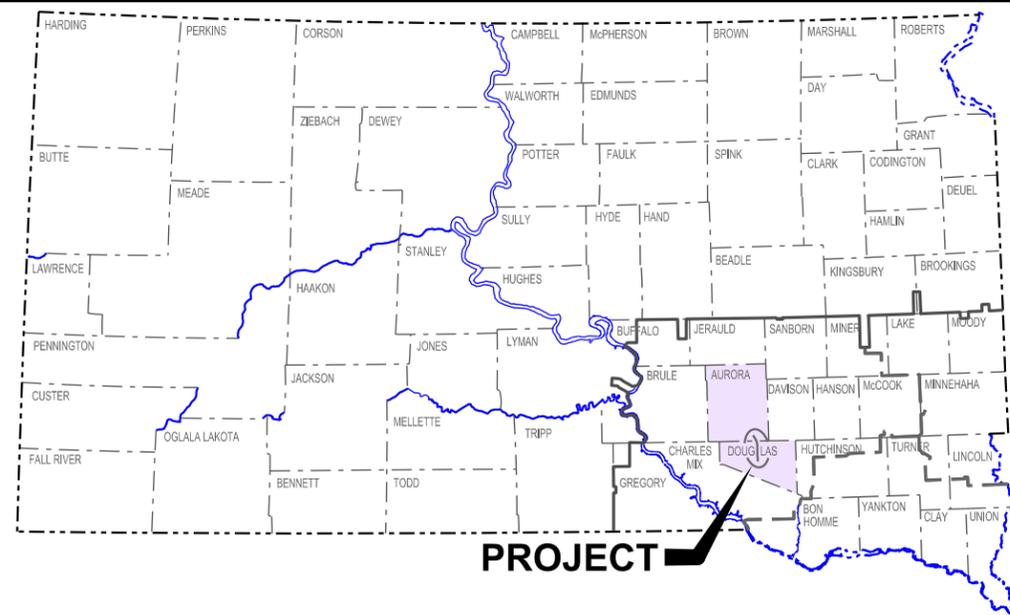
PLANS FOR PROPOSED
PROJECTS NH 0281(111)48
US HIGHWAY 281
DOUGLAS & AURORA
COUNTIES

SPOT COLD MILLING ASPHALT CONCRETE,
PCC PAVEMENT PLANING,
ASPHALT CONCRETE RESURFACING,
& PAVEMENT MARKING
PCN 04WF

INDEX OF SHEETS

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PLOT SCALE - 1" = 7000'



PROJECT

EQUATION
Sta. 116+20.41 Back=
Sta. 10+00 Ahead

EQUATION
Sta. 50+10.17 Back=
Sta. 156+30.58 Ahead

BEGIN PROJECT
STA. 0+00
MRM 48.56 +0.014
MILEAGE 13.577
(12' N of Jct SD44)

END PROJECT
STA. 562+92.3
MRM 59.00 +0.223
MILEAGE 24.238
(At Jct 1/4 Line)

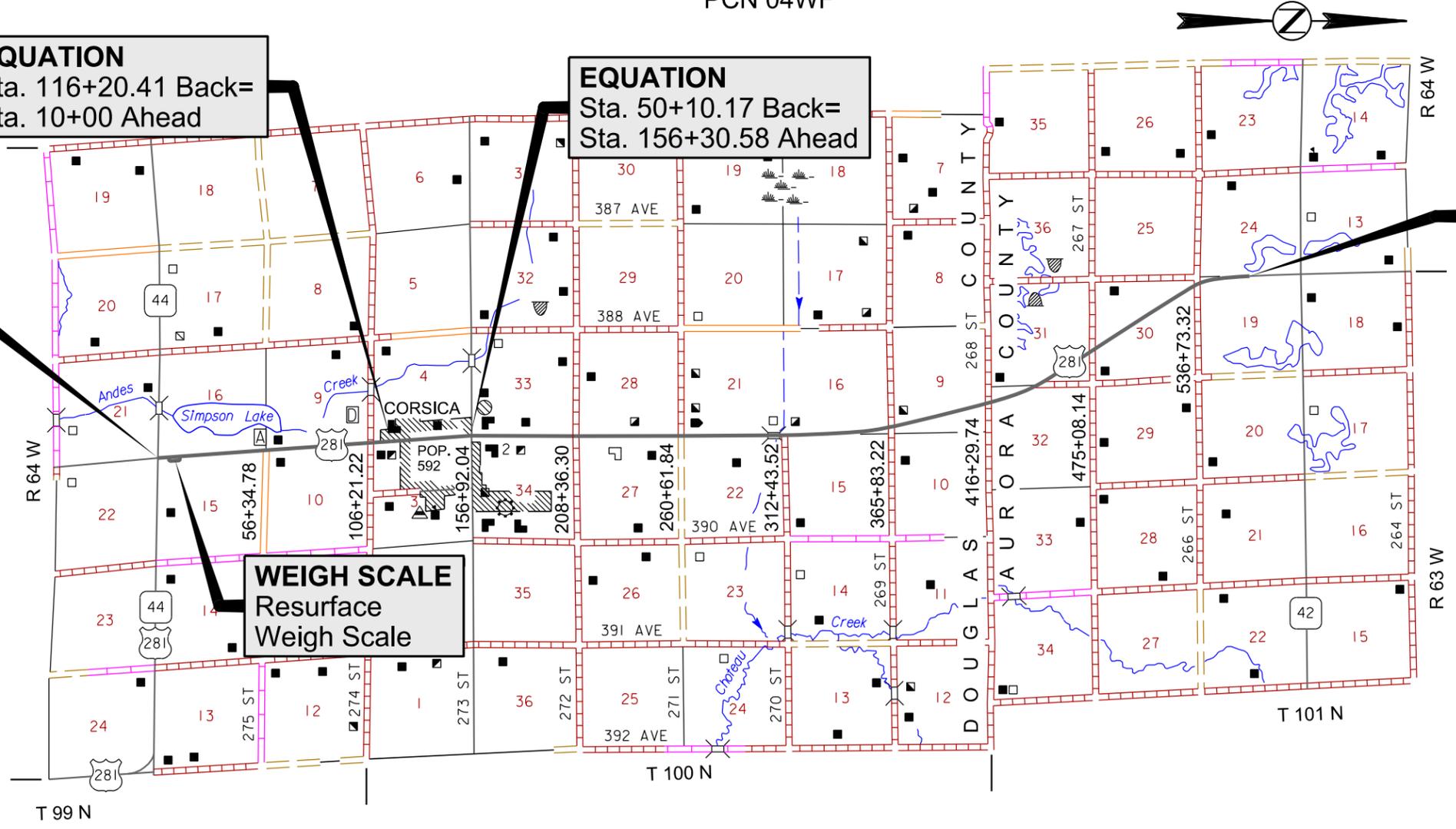
DESIGN DESIGNATION

| | |
|-----------|--------|
| ADT(2014) | 1,383 |
| ADT(2034) | 1,723 |
| DHV | 226 |
| D | 52% |
| T DHV | 9.8% |
| T ADT | 21.4% |
| V | 65 MPH |

WEIGH SCALE
Resurface
Weigh Scale

STORM WATER PERMIT
(None required)

PROJECT LENGTH
Length: 56,292.30' 10.661 Miles



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ESTIMATE OF QUANTITIES

| | | | |
|-----------------------------|---------------------------|------------|-----------------------|
| STATE OF SOUTH DAKOTA | PROJECT NH 0281(111)48 | SHEET 2 | TOTAL SHEETS 35 |
|-----------------------------|---------------------------|------------|-----------------------|

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|--------------------|--|----------|------|
| 009E0010 | Mobilization | Lump Sum | LS |
| 120E0100 | Unclassified Excavation, Digouts | 247 | CuYd |
| 120E6200 | Water for Granular Material | 197.0 | MGal |
| 260E1010 | Base Course | 16,493.0 | Ton |
| 320E0007 | PG 64-28 Asphalt Binder | 2,150.4 | Ton |
| 320E1003 | Class Q3 Hot Mixed Asphalt Concrete | 37,447.0 | Ton |
| 320E4000 | Hydrated Lime | 370.8 | Ton |
| 320E7012 | Grind 12" Rumble Strip or Stripe in Asphalt Concrete | 19.8 | Mile |
| 330E0010 | MC-70 Asphalt for Prime | 117.7 | Ton |
| 330E0100 | SS-1h or CSS-1h Asphalt for Tack | 132.7 | Ton |
| 330E0210 | SS-1h or CSS-1h Asphalt for Flush Seal | 56.9 | Ton |
| 330E2000 | Sand for Flush Seal | 631.6 | Ton |
| 332E0010 | Cold Milling Asphalt Concrete | 1,538 | SqYd |
| 380E5200 | PCC Pavement Partial Depth Patch | 720 | SqFt |
| 380E6500 | Planing PCC Pavement | 2,978.0 | SqYd |
| 600E0300 | Type III Field Laboratory | 1 | Each |
| 632E2520 | Type 2 Object Marker | 34 | Each |
| 633E1300 | Pavement Marking Paint, White | 377 | Gal |
| 633E1305 | Pavement Marking Paint, Yellow | 102 | Gal |
| 634E0010 | Flagging | 380.0 | Hour |
| 634E0020 | Pilot Car | 190.0 | Hour |
| 634E0110 | Traffic Control Signs | 452 | SqFt |
| 634E0120 | Traffic Control, Miscellaneous | Lump Sum | LS |
| 634E0285 | Type 3 Barricade, 8' Double Sided | 2 | Each |
| 634E0630 | Temporary Pavement Marking | 31.3 | Mile |
| 634E0806 | Groove 4" Wide Rumble Strip | 580 | Ft |
| 900E0010 | Refurbish Single Mailbox | 4 | Each |

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

| | | | |
|-----------------------------|----------------|-------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0281(111)48 | 3 | 35 |

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 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.

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 Public ROW.

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

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

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public 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 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 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: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

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

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

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

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

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

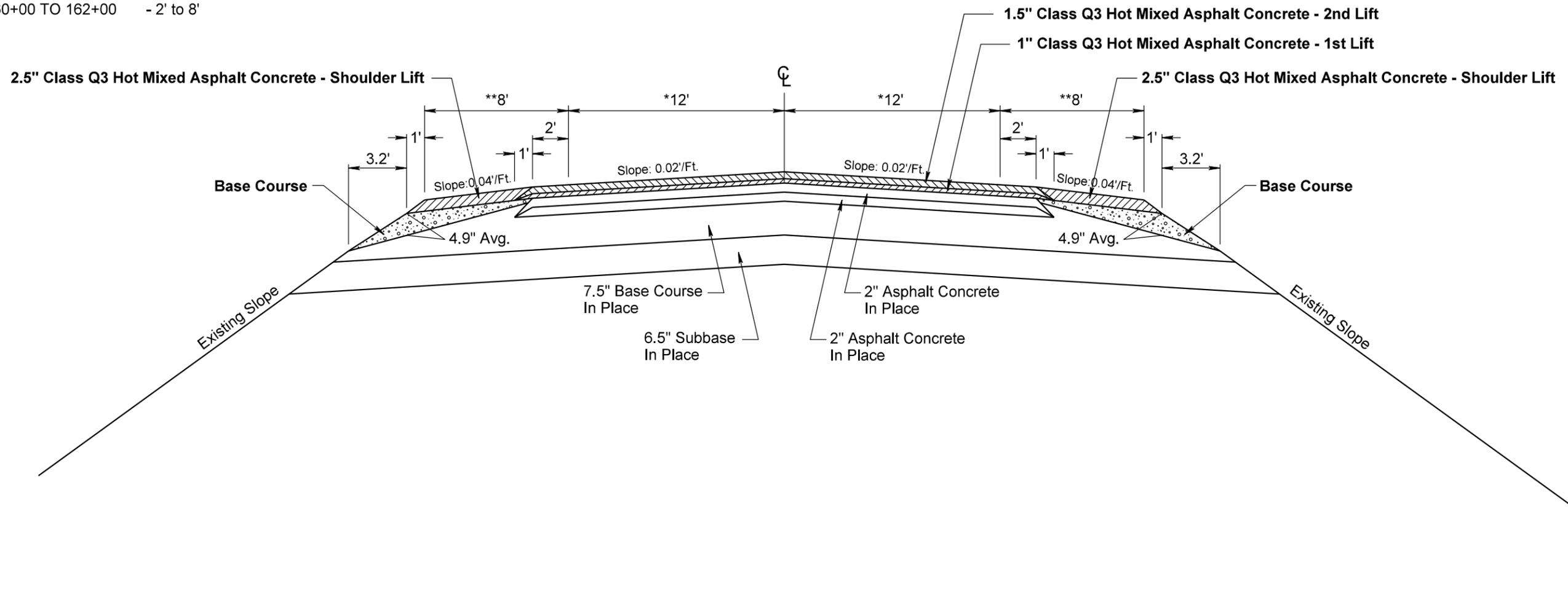
TYPICAL RESURFACING SECTION

SECTION 1

0+95.10 to 116+20.41
 156+30.58 to 338+64.09
 355+54.28 to 417+50
 460+27.47 to 529+61.87
 554+18.44 to 562+92.3

TRANSITIONS

* 156+30.58 TO 160+00 - 18'
 160+00 TO 162+00 - 18' to 12'
 ** 156+30.58 TO 160+00 - 2'
 160+00 TO 162+00 - 2' to 8'



PLOT SCALE - 1:6.25

PLOT NAME - 2

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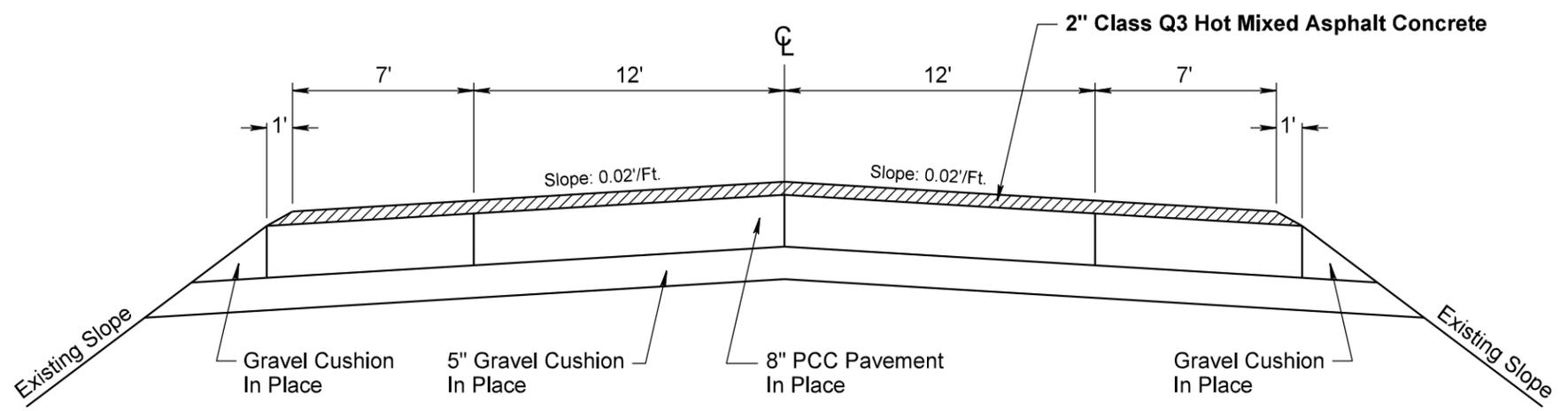
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|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0281(111)48 | 5 | 35 |

Plotting Date: 02/11/2016

TYPICAL RESURFACING SECTION

SECTION 2

10+00 (2nd) to 25+00 (2nd)



PLOT SCALE - 1:6.25

PLOT NAME - 3

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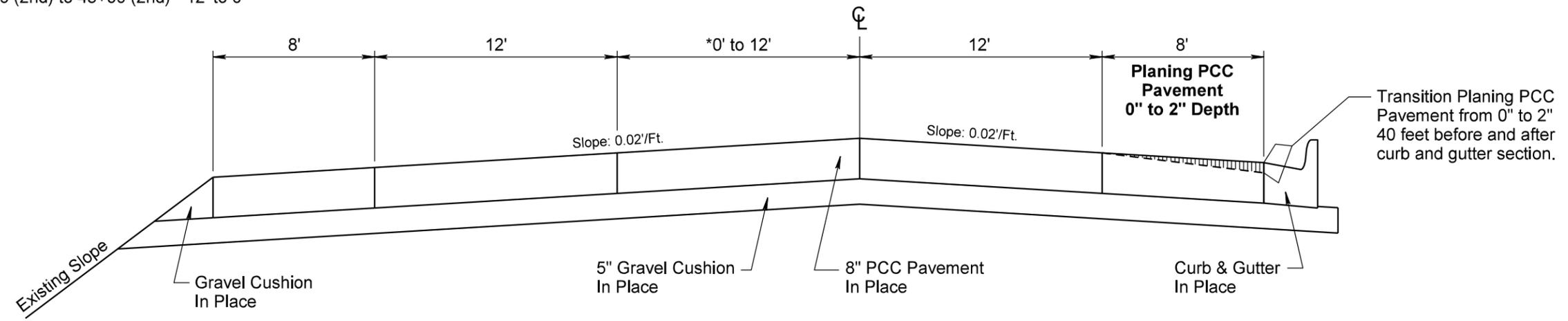
TYPICAL PCC PLANING SECTION

SECTION 3

25+00 (2nd) to 31+40 (2nd)
36+40 (2nd) to 50+10.17 (2nd)

*** TRANSITIONS**

- 25+00 (2nd) to 31+00 (2nd) - 0' to 12'
- 31+00 (2nd) to 31+40 (2nd) - 12'
- 36+40 (2nd) to 37+00 (2nd) - 12'
- 37+00 (2nd) to 43+00 (2nd) - 12' to 0'



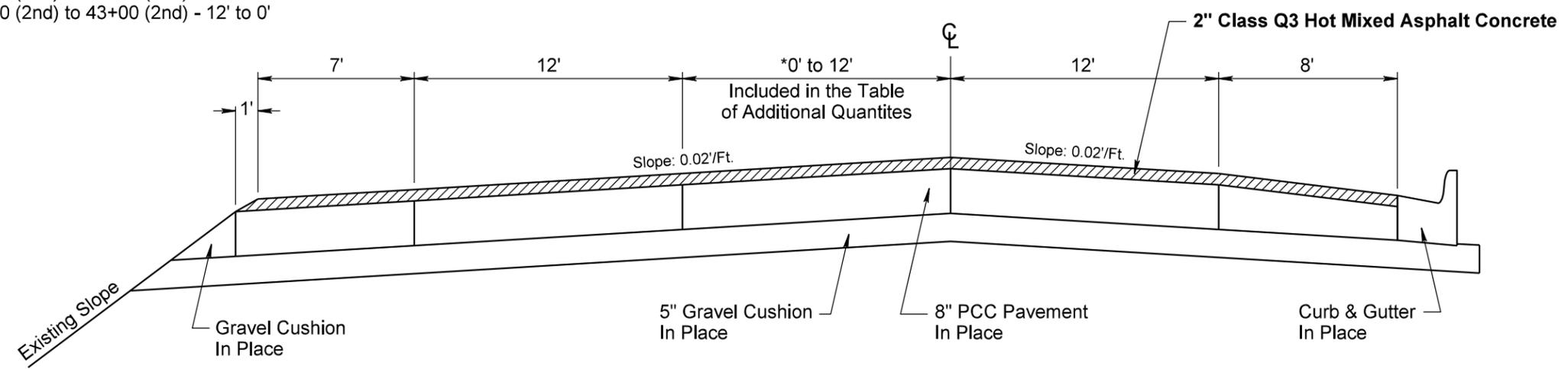
TYPICAL RESURFACING SECTION

SECTION 3

25+00 (2nd) to 31+40 (2nd)
36+40 (2nd) to 50+10.17 (2nd)

*** TRANSITIONS**

- 25+00 (2nd) to 31+00 (2nd) - 0' to 12'
- 31+00 (2nd) to 31+40 (2nd) - 12'
- 36+40 (2nd) to 37+00 (2nd) - 12'
- 37+00 (2nd) to 43+00 (2nd) - 12' to 0'



PLOT SCALE - 1:6.25

PLOTTED FROM - TRMLINT16

PLOT NAME - 4

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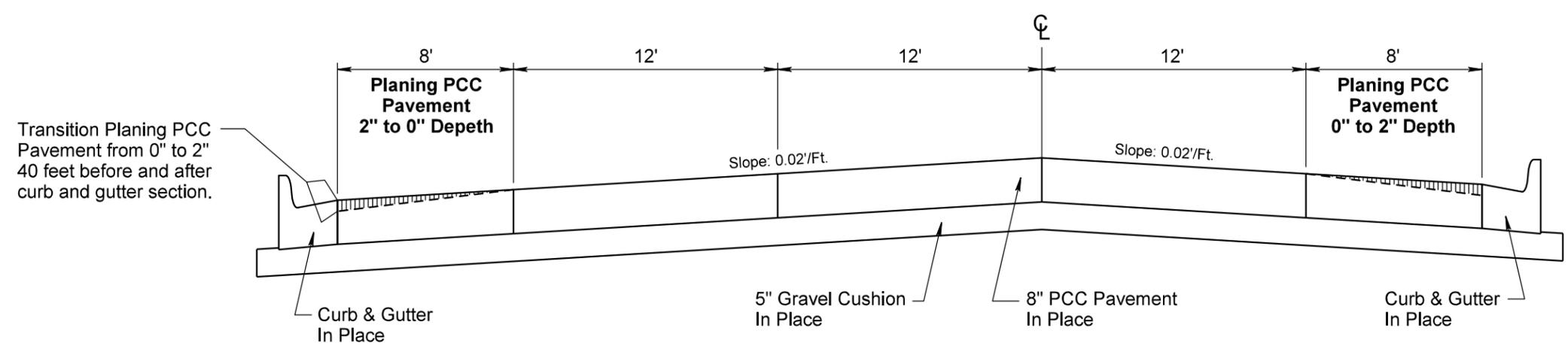
| | | | |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0281(111)48 | 7 | 35 |

Plotting Date: 02/11/2016

TYPICAL PCC PLANING SECTION

SECTION 4

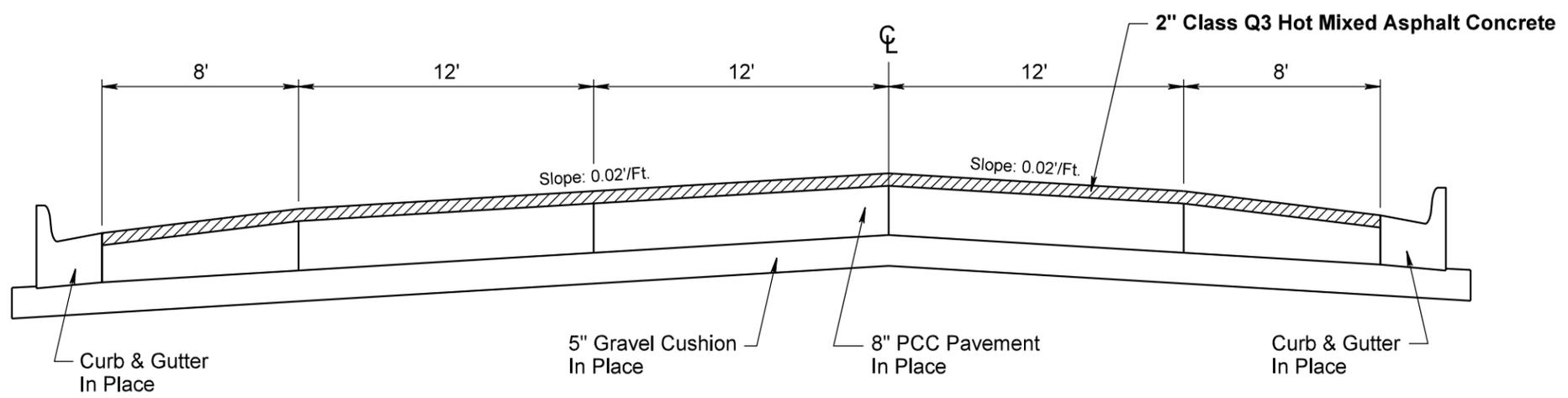
31+40 (2nd) to 36+40 (2nd)



TYPICAL RESURFACING SECTION

SECTION 4

31+40 (2nd) to 36+40 (2nd)



PLOT SCALE - 1:6.25

PLOT NAME - 5

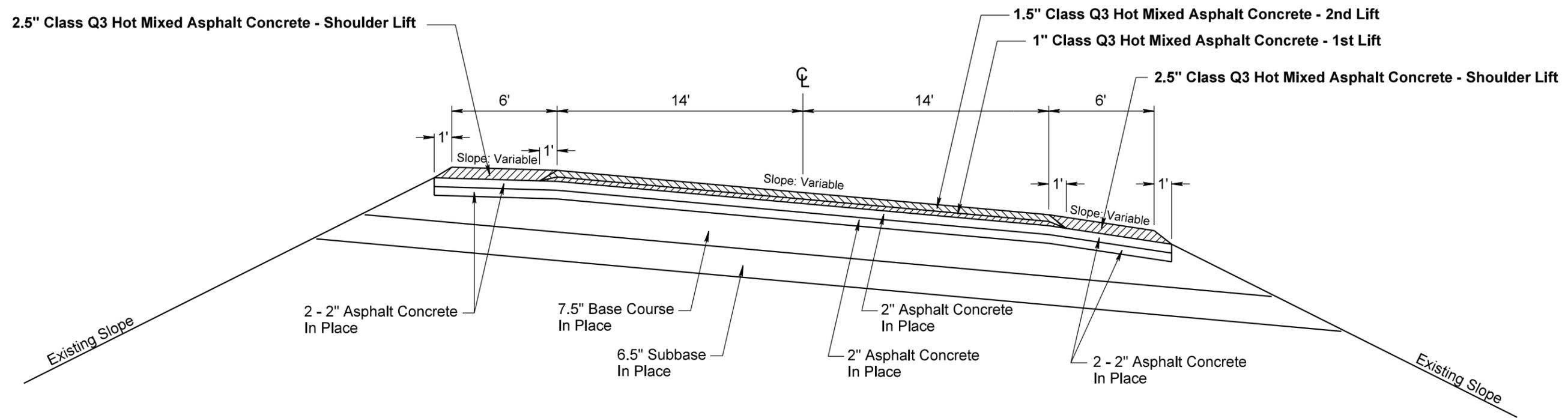
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TYPICAL RESURFACING SECTION

SECTION 5

SUPERELEVATED CURVES
 338+64.09 to 355+54.28
 417+50 to 460+27.47
 529+61.87 to 554+18.44



PLOT SCALE - 1:6.25

PLOT NAME - 6

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RATES OF MATERIALS

Section 1
Rural 2 Lane
0+95.10 to 116+20.41
156+30.58 to 338+64.09
355+54.28 to 417+50.00
460+27.47 to 529+61.87
554+18.44 to 562+92.30

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

BASE COURSE

| | |
|-----------------------------|------------|
| Crushed Aggregate | 1791 Tons |
| Water for Granular Material | 21.5 MGals |

1" CLASS Q3 HOT MIXED ASPHALT CONCRETE 1ST LIFT

| | |
|-------------------------|----------|
| Crushed Aggregate | 889 Tons |
| PG 64-28 Asphalt Binder | 55 Tons |
| TOTAL: 944 Tons | |
| Hydrated Lime | 9 Tons |
| TOTAL: 953 Tons | |

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 7 tons applied 31 feet wide (Rate = 0.09 gallon per square yard).

MC-70 Asphalt for Prime at the rate of 14.2 tons applied 20.4 feet wide (10.2 feet wide each shoulder) (Rate = 0.3 gallon per square yard).

1.5" CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND LIFT

| | |
|-------------------------|-----------|
| Crushed Aggregate | 1334 Tons |
| PG 64-28 Asphalt Binder | 82 Tons |
| TOTAL: 1416 Tons | |
| Hydrated Lime | 14 Tons |
| TOTAL: 1430 Tons | |

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 4.6 tons applied 31 feet wide (Rate = 0.06 gallon per square yard).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 5.2 tons applied 42 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 56 tons applied 24 feet wide (Rate = 8 pounds per square yard).

2.5" CLASS Q3 HOT MIXED ASPHALT CONCRETE

SHOULDER LIFT

| | NB SHOULDER | SB SHOULDER |
|-------------------------|-------------|-----------------|
| Crushed Aggregate | 460 Tons | 460 Tons |
| PG 64-28 Asphalt Binder | 28 Tons | 28 Tons |
| TOTAL: 488 Tons | | 488 Tons |
| Hydrated Lime | 5 Tons | 5 Tons |
| TOTAL: 493 Tons | | 493 Tons |

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

Section 2
Urban 2 Lane
10+00.00 (2nd) to 25+00.00 (2nd)

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

2" CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND LIFT

| | |
|--------------------------|------------|
| Crushed Aggregate | 45.31 Tons |
| PG 64-28 Asphalt Binder | 2.79 Tons |
| TOTAL: 48.1 Tons | |
| Hydrated Lime | 0.48 Ton |
| TOTAL: 48.58 Tons | |

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.12 ton applied 41 feet wide (Rate = 0.06 gallon per square yard).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.09 ton applied 40 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.07 tons applied 24 feet wide (Rate = 8 pounds per square yard).

Section 3
Urban 3 Lane with C&G
25+00.00 (2nd) to 31+40.00 (2nd)
36+40.00 (2nd) to 50+10.17 (2nd)

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

2" CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND LIFT

| | |
|--------------------------|------------|
| Crushed Aggregate | 45.89 Tons |
| PG 64-28 Asphalt Binder | 2.83 Tons |
| TOTAL: 48.72 Tons | |
| Hydrated Lime | 0.49 Ton |
| TOTAL: 49.21 Tons | |

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.12 ton applied 41 feet wide (Rate = 0.06 gallon per square yard).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.09 ton applied 40 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.07 tons applied 24 feet wide (Rate = 8 pounds per square yard).

RATES OF MATERIALS

Section 4
Urban 3 Lane with C&G
31+40.00 (2nd) to 36+40.00 (2nd)

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

2" CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND LIFT

| | |
|-------------------------|--------------------------|
| Crushed Aggregate | 60.41 Tons |
| PG 64-28 Asphalt Binder | 3.72 Tons |
| | TOTAL: 64.13 Tons |
| Hydrated Lime | 0.64 Ton |
| | TOTAL: 64.77 Tons |

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.15 ton applied 53 feet wide (Rate = 0.06 gallon per square yard).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.12 ton applied 52 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.6 tons applied 36 feet wide (Rate = 8 pounds per square yard).

Section 5
Superelevated Curves
338+64.09 to 355+54.28
417+50.00 to 460+27.47
529+61.87 to 554+18.44

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

1" CLASS Q3 HOT MIXED ASPHALT CONCRETE 1ST LIFT

| | |
|-------------------------|------------------------|
| Crushed Aggregate | 889 Tons |
| PG 64-28 Asphalt Binder | 55 Tons |
| | TOTAL: 944 Tons |
| Hydrated Lime | 9 Tons |
| | TOTAL: 953 Tons |

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 7 tons applied 31 feet wide (Rate = 0.09 gallon per square yard).

1.5" CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND LIFT

| | |
|-------------------------|-------------------------|
| Crushed Aggregate | 1334 Tons |
| PG 64-28 Asphalt Binder | 82 Tons |
| | TOTAL: 1416 Tons |
| Hydrated Lime | 14 Tons |
| | TOTAL: 1430 Tons |

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 4.6 tons applied 31 feet wide (Rate = 0.06 gallon per square yard).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 5.2 tons applied 42 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 56 tons applied 24 feet wide (Rate = 8 pounds per square yard).

2.5" CLASS Q3 HOT MIXED ASPHALT CONCRETE

| | SHOULDER LIFT | |
|-------------------------|------------------------|--------------------|
| | NB SHOULDER | SB SHOULDER |
| Crushed Aggregate | 460 Tons | 460 Tons |
| PG 64-28 Asphalt Binder | 28 Tons | 28 Tons |
| | TOTAL: 488 Tons | 488 Tons |
| Hydrated Lime | 5 Tons | 5 Tons |
| | TOTAL: 493 Tons | 493 Tons |

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

SS-1h or CSS-1h Asphalt for Tack at the rate of 3.6 tons applied 16 feet wide (8 feet wide each shoulder) (Rate = 0.09 gallon per square yard).

TABLE OF PROJECT STATIONING

| SECTION | STATION TO | STATION | DESCRIPTION | LENGTH | SECTION LENGTHS | |
|---------------------|-------------------|----------------|-----------------------|-----------|------------------|-------------------|
| 1 | 0+95.10 to | 116+20.41 | Rural 2 Lane | 11525.31' | 43762.80' | |
| | 156+30.58 to | 338+64.09 | | 18233.51' | | |
| | 355+54.28 to | 417+50.00 | | 6195.72' | | |
| | 460+27.47 to | 529+61.87 | | 6934.40' | | |
| | 554+18.44 to | 562+92.30 | | 873.86' | | |
| 2 | 10+00.00 (2nd) to | 25+00.00 (2nd) | Urban 2 Lane | 1500.00' | 1500.00' | |
| 3 | 25+00.00 (2nd) to | 31+40.00 (2nd) | Urban 3 Lane with C&G | 640.00' | 2010.17' | |
| | 36+40.00 (2nd) to | 50+10.17 (2nd) | | 1370.17' | | |
| 4 | 31+40.00 (2nd) to | 36+40.00 (2nd) | Urban 3 Lane with C&G | 500.00' | 500.00' | |
| 5 | 338+64.09 to | 355+54.28 | Superelevated Curves | 1690.19' | 8424.23' | |
| | 417+50.00 to | 460+27.47 | | 4277.47' | | |
| | 529+61.87 to | 554+18.44 | | 2456.57' | | |
| Grand Totals | | | | | 56197.20' | 10.643 mi. |

TABLE OF MATERIALS QUANTITIES

| SECTION | UNCL. EXC. DIG-OUTS | BASE COURSE | WATER FOR GRAN. MATER. | PLANING PCC PAVEMENT | COLD MILLING ASPHALT CONCRETE | CLASS Q3 HOT MIXED ASPHALT | PG 64-28 ASPHALT BINDER | HYDRATED LIME | MC-70 ASPH. FOR PRIME | SS-1h/ CSS-1h ASPH. FOR TACK | SS-1h/ CSS-1h ASPH. FOR FLUSH SEAL | SAND FOR FLUSH SEAL |
|-------------------------------|---------------------|--------------|------------------------|----------------------|-------------------------------|----------------------------|-------------------------|---------------|-----------------------|------------------------------|------------------------------------|---------------------|
| | CuYd | Ton | MGal | SqYd | SqYd | Ton | Ton | Ton | Ton | Ton | Ton | Ton |
| 1 | 207 | 15258 | 183 | - | - | 27922 | 1603.4 | 276.5 | 117.7 | 96.1 | 43.1 | 464 |
| 2 | - | - | - | - | - | 729 | 41.9 | 7.2 | - | 1.8 | 1.4 | 16 |
| 3 | - | - | - | 1787 | - | 989 | 56.8 | 9.8 | - | 2.4 | 1.8 | 22 |
| 4 | - | - | - | 889 | - | 324 | 18.6 | 3.2 | - | 0.8 | 0.6 | 8 |
| 5 | 40 | 80 | 1 | - | - | 5374 | 308.6 | 53.2 | - | 24.2 | 8.3 | 89 |
| Subtotals: | 247 | 15338 | 184 | 2676 | - | 35338 | 2029.3 | 349.9 | 117.7 | 125.3 | 55.2 | 599 |
| Additional Quantities: | - | 1155 | 13 | 302 | 1538 | 2109 | 121.1 | 20.9 | - | 7.4 | 1.7 | 32.6 |
| Totals: | 247 | 16493 | 197 | 2978 | 1538 | 37447 | 2150.4 | 370.8 | 117.7 | 132.7 | 56.9 | 631.6 |

TABLE OF ADDITIONAL QUANTITIES

| LOCATION | Width | Mill Depth | BASE COURSE | WATER FOR GRAN. MATER. | PLANING PCC PAVEMENT | COLD MILLING ASPHALT CONCRETE | CLASS Q3 HOT MIXED ASPHALT CONCRETE 1ST LIFT | PG 64-28 ASPHALT BINDER | HYDRATED LIME | CLASS Q3 HOT MIXED ASPHALT CONCRETE 2ND LIFT | PG 64-28 ASPHALT BINDER | HYDRATED LIME | SS-1h/ CSS-1h ASPH. FOR FLUSH SEAL | SAND FOR FLUSH SEAL |
|---------------------------------------|-----------|------------|-------------|------------------------|----------------------|-------------------------------|--|-------------------------|---------------|--|-------------------------|---------------|------------------------------------|---------------------|
| | | | Ton | MGal | SqYd | SqYd | Ton | Ton | Ton | Ton | Ton | Ton | Ton | Ton |
| Mainline Transitions | | | | | | | | | | | | | | |
| Sec. 1 156+31 to 160+00 | 12' | 0" | - | - | - | - | 28 | 1.6 | 0.3 | 41 | 2.4 | 0.4 | 0.1 | 2 |
| Sec. 1 160+00 to 162+00 | 12' to 0' | 0" | - | - | - | - | 7 | 0.4 | 0.1 | 11 | 0.6 | 0.1 | - | 1 |
| Sec. 3 25+00 to 31+00 | 0' to 12' | 0" | - | - | - | - | - | - | - | 45 | 2.6 | 0.4 | 0.1 | 2 |
| Sec. 3 31+00 to 31+40 | 12' | 0" | - | - | - | - | - | - | - | 6 | 0.3 | 0.1 | - | - |
| Sec. 3 36+40 to 37+00 | 12' | 0" | - | - | - | - | - | - | - | 9 | 0.5 | 0.1 | - | - |
| Sec. 3 37+00 to 43+00 | 12' to 0' | 0" | - | - | - | - | - | - | - | 45 | 2.6 | 0.4 | 0.1 | 2 |
| Begin/End Project | | | - | - | - | 666 | - | - | - | - | - | - | - | - |
| Other (Nondensity) Locations | | | | | | | | | | | | | | |
| Radii at US281 & SD44 (Begin Project) | | | - | - | - | 268 | - | - | - | 38 | 2.2 | 0.4 | 0.1 | 1 |
| Weigh Scale | | | - | - | - | 373 | - | - | - | 230 | 13.2 | 2.3 | 0.4 | 8 |
| Planing Transitions | | | - | - | 302 | - | - | - | - | - | - | - | - | - |
| Resurface to ROW | | | | | | | | | | | | | | |
| 2 Intersecting Roads | | | - | - | - | 72 | - | - | - | 78 | 4.5 | 0.8 | 0.1 | 2 |
| 1 House Entrances | | | - | - | - | 33 | - | - | - | 25 | 1.4 | 0.2 | 0.0 | 0.7 |
| 3 Commercial Entrances | | | - | - | - | 126 | - | - | - | 102 | 5.9 | 1.0 | 0.2 | 2.9 |
| Resurface to End of Radius | | | | | | | | | | | | | | |
| 17 Intersecting Roads | | | 255 | 3 | - | - | - | - | - | 380 | 21.8 | 3.8 | 0.6 | 11 |
| Pads | | | | | | | | | | | | | | |
| 30 Approaches | | | 300 | 4 | - | - | - | - | - | - | - | - | - | - |
| 2 Double Approaches | | | 40 | - | - | - | - | - | - | - | - | - | - | - |
| 15 Commercial Entrances | | | 450 | 5 | - | - | - | - | - | - | - | - | - | - |
| 11 Farm Entrances | | | 110 | 1 | - | - | - | - | - | - | - | - | - | - |
| TOTALS: | | | 1155 | 13 | 302 | 1538 | 35 | 2.0 | 0.4 | 1010 | 58.0 | 10.0 | 1.7 | 32.6 |

NOTES: 3.4 ton(s) of SS-1h or CSS-1h Asphalt for Tack is(are) included in the Estimate of Quantities and shall be applied at the rate shown on the plans as directed by the Engineer.

The tonnage shown above for Base Course is based on a compacted depth of 2.5 inches.

The tonnage shown above for Asphalt Concrete Leveling Lift is based on a compacted depth of 1 inch.

The tonnage shown above for Class Q3 Hot Mixed Asphalt Concrete is based on a compacted depth of 1.5 inches for Mainline Transitions; 2 inches for the Weigh Scale; 2.5 inches for Intersecting Roads and Entrances

The above quantities are included in the Estimate of Quantities.

SUMMARY OF ASPHALT CONCRETE

| | CLASS Q3 HOT MIXED ASPHALT CONCRETE WITHOUT SPECIFIED DENSITY COMPACTION TONS | CLASS Q3 HOT MIXED ASPHALT CONCRETE WITH SPECIFIED DENSITY COMPACTION TONS | CLASS Q3 HOT MIXED ASPHALT CONCRETE WITHOUT SPECIFIED DENSITY COMPACTION TONS |
|---|---|--|---|
| Finished Roadway Surface | 7795 | 12894 | - |
| Shoulders | 1624 | 75 | 12949 |
| Sects 1-5 Totals: | 9419 | 12969 | 12949 |
| Additional Quantities for spot leveling and/or tight blading | - | - | 1064 |
| Table of Additional Quantities | | | |
| Mainline Transitions | 35 | 157 | - |
| Table of Additional Quantities except items listed above | - | - | 854 |
| Additional Totals: | 35 | 157 | 854 |
| Project No. 1 Totals: | 9454 | 13126 | 14867 |

| |
|---|
| 13126 TONS ASPHALT CONCRETE WITH SPECIFIED DENSITY COMPACTION |
| <u>24321</u> TONS ASPHALT CONCRETE WITHOUT SPECIFIED DENSITY COMPACTION |
| 37447 TONS TOTAL |

UTILITIES

The Contractor shall contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It shall be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area, the Contractor shall contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

SURFACING/SUBGRADE INVESTIGATION

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

SURFACING THICKNESS DIMENSIONS

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

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

FLEXIBLE PAVEMENT SMOOTHNESS SPECIAL PROVISION

The Special Provision for Flexible Pavement Smoothness will be followed with the following exception; the existing curb and gutter sections will be profiled.

TYPE III FIELD LABORATORY

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

The Contractor shall submit a copy of each monthly bill for calls charged to this phone at the end of each month. The Project Engineer will then audit the bills to ensure all calls are legitimate and then initiate a Construction Change Order (CCO) to reimburse the Contractor for the actual phone calls made, including local and long distance calls. Reimbursement will not be made for fees associated with the purchase, installation, disconnection, monthly line charges, and incidentals involved in the installation, maintenance, and disconnection of the phone (including attachments). These items shall be incidental to the contract unit price per each for Type III Field Laboratory.

INTERSECTING ROADS AND ENTRANCES

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

SHOULDER WORK

Prior to construction, Department of Transportation Maintenance Forces will spray the shoulders to kill existing vegetation. It is the Contractor's responsibility to notify the State a minimum of thirty days prior to starting work on the surface 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 shall be removed to the satisfaction of the Engineer prior to asphalt concrete resurfacing. Any remaining windrow of accumulated material shall be spread evenly on the inslope adjacent to the asphalt shoulder, to the satisfaction of the Engineer, following application of the flush seal.

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

EXCAVATION OF UNSTABLE MATERIAL

Included in the Estimate of Quantities are 25 cubic yards per mile of Unclassified Excavation, Digouts for the necessary removal of unstable material.

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

PCC PAVEMENT PARTIAL DEPTH PATCH

PCC Pavement Partial Depth Patch work shall consist of removing existing deteriorated asphalt concrete, broken or loose concrete and any loose joint material. The exposed surface shall be cleaned with compressed air. The repair area shall be tacked and filled with Asphalt Concrete Composite.

Included in the Estimate of Quantities are 720 square feet of PCC Pavement Partial Depth Patch at locations to be staked by the Engineer. The minimum size shall be two foot by two foot by two inches deep.

PCC Pavement Partial Depth Patch will be paid for at the contract unit price per square foot measured for payment. Payment shall be full compensation for all labor, equipment, material and incidentals necessary for removing, disposing of removed material, cleaning, tacking, furnishing and placing fill material.

BASE COURSE

Base Course placed on the shoulders shall be compacted according to 260.3.D.

Included in the Estimate of Quantities are 50 tons per mile of Base Course and 0.6 Mgal per mile of Water for Granular Material for backfill of the Unclassified Excavation, Digouts.

To ensure water can drain from the digout, the Base Course shall be placed so that it is daylighted to the inslope. If the material cannot be daylighted to the inslope, a drain tube shall be placed at the bottom of the digout and an outlet provided to the closest available point. Cost for the drain tube and associated work shall be incidental to the contract unit price per ton for Base Course.

WATER FOR COMPACTION

The moisture content for compaction of the Base Course shall be approximately optimum moisture of the material. The quantity for Water for Granular Material is based on 5% of the quantity of Base Course.

PLANING PCC PAVEMENT

Planing PCC Pavement shall be done as per the Typical Sections and Planing Details.

Planing PCC Pavement operations ahead of asphalt concrete laydown will be limited by particular job conditions and will be subject to approval of the Engineer.

If resurfacing as per the typical section cannot be placed immediately after PCC Planing at intersections or entrances, then temporary asphalt mix ramps shall be placed as directed by the Engineer. Cost for placing and removing the temporary ramps shall be incidental to the contract unit prices for the various items.

The basis of payment for Planing PCC Pavement will be plans quantity. No separate measurements will be taken.

COLD MILLING ASPHALT CONCRETE

Cold Milling Asphalt Concrete operations ahead of asphalt concrete laydown will be limited by particular job conditions and be subject to approval of the Engineer.

The requirement for a traveling stringline shall be waived.

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

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

Cold Milling will be required at the Weigh Scale as shown on the sheet Details for Resurfacing Weigh Scale.

Milled material not reused on the project (estimated at 96 tons) shall become the property of the Contractor for disposal.

COLD MILLING TAPERS

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

The surface shall be milled full roadway width.

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

Taper depth of Cold Milling at locations shown below:

| <u>STATION</u> | <u>LOCATION</u> | <u>SIZE</u> |
|----------------|-----------------|----------------------|
| 0+00 | Begin Project | 100' long X 30' wide |
| 562+92.3 | End Project | 100' long X 30' wide |

CLASS Q3 HOT MIXED ASPHALT CONCRETE

Mineral aggregate for Class Q3 Hot Mixed Asphalt Concrete shall conform to the requirements of Class Q3.

FLUSH SEAL

Application of the flush seal shall be completed within 10 working days following completion of the asphalt concrete resurfacing.

ADDITIONAL QUANTITIES

Included in the Estimate of Quantities are 100 tons of Class Q3 Hot Mixed Asphalt Concrete, 5.7 tons of PG 64-28 Asphalt Binder and 1.0 tons of Hydrated Lime per mile for spot leveling, strengthening and repair of the existing surface and shoulders.

Included in the Estimate of Quantities are 4 tons of SS-1h or CSS-1h Asphalt for Tack for surface repair and leveling areas throughout the project. (Rate = 0.09 gallon per square yard).

RUMBLE STRIPS

INSTALLATION:

Rumble strips shall be constructed according to the details of Standard Plate 320.24.

Rumble strips shall be installed in rural areas with posted speeds greater than 50 mph and are not required in urban areas. The rumble strips shall begin at the location of the Speed Limit 65 sign as traffic is departing the built up area of a community, unless otherwise specified in the plans. The Engineer shall provide the exact start and stop locations.

Rumble strips shall not be installed on bridge decks, through curb & gutter sections, through mailbox turnouts, through intersecting roads or through approaches. They also shall not be placed within 50 feet of any railroad crossing.

Gaps for rumble strips installation as detailed on the standard plates are included with the measurement and payment.

Cost for asphalt concrete rumble strips shall be included in the contract unit price per mile for Grind 12" Rumble Strip or Stripe in Asphalt Concrete.

ROADWAY CLEANING:

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

Cost for this work shall be incidental to the contract unit price per mile for Grind 12" Rumble Strip or Stripe in Asphalt Concrete.

RESURFACING WIDTH ON SUPERELEVATED CURVES

The surfacing on the high and low side of superelevated curves, from begin superelevation runoff to end superelevation runoff shall be asphalt concrete. Asphalt concrete in superelevated curves shall be placed according to Typical Section 5.

TABLE OF SUPERELEVATION

| STATION TO STATION | REMARKS |
|------------------------|--|
| 0+00 to 116+20.41 | Normal Crown |
| 116+20.41 to 156+30.58 | City of Corsica |
| 156+30.58 to 338+64.09 | Normal Crown |
| 338+64.09 to 341+34.09 | Superelevation Runoff |
| 341+34.09 to 352+84.28 | 1° 00' Curve Lt. 0.033 Superelevation Rate Point of Rotation 12' Lt. |
| 352+84.28 to 355+54.28 | Superelevation Runoff |
| 355+54.28 to 418+12.47 | Normal Crown |
| 418+12.47 to 420+82.47 | Superelevation Runoff |
| 420+82.47 to 457+57.47 | 0° 30' Curve Lt. 0.020 Superelevation Rate Point of Rotation 12' Lt. |
| 457+57.47 to 460+27.47 | Superelevation Runoff |
| 460+27.47 to 529+61.87 | Normal Crown |
| 529+61.87 to 532+31.87 | Superelevation Runoff |
| 532+31.87 to 551+48.44 | 1° 30' Curve Rt. 0.046 Superelevation Rate Point of Rotation 12' Rt. |
| 551+48.44 to 554+18.44 | Superelevation Runoff |
| 554+18.44 to 562+92.30 | Normal Crown |

Also, the rollover rate on the high side of superelevated curves, which is the algebraic difference between the superelevation rate on the driving lane and the surfacing edge taper slope cannot exceed 0.07.

RESETTING AND REFURBISH SINGLE MAILBOXES

Existing mailboxes shall be removed, turnouts constructed and mailboxes reset using existing posts and hardware or on new posts with the necessary support hardware for single or double mailbox assemblies. The table below shows which locations shall be reset or refurbished. The local Postmaster will determine the recommended mounting height of the mailboxes. The Contractor shall coordinate with the Engineer on the proper postal representative to contact.

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

| STATION | REFURBISH SINGLE MAILBOX EACH | REMOVE & RESET MAILBOX EACH |
|---------------------------|--|--------------------------------------|
| 34+05 L | 1 | |
| 50+10 L | - | 1 |
| 56+90 L | - | - |
| 114+80 L | - | 1 |
| 20+56(2 nd) L | 1 | - |
| 171+00 R | - | 1 |
| 182+00 R | - | 1 |
| 236+00 R | - | 1 |
| 247+00 R | - | 1 |
| 286+40 R | 1 | - |
| 312+55 L | - | - |
| 369+60 L | 1 | - |
| TOTALS: | 4 | 6 |

RESETTING AND REFURBISH SINGLE MAILBOXES (CONTINUED)

The Contractor will be responsible for maintaining a temporary mailbox assembly until the reset/refurbished mailbox assembly is complete in place.

Cost for removing existing mailboxes, providing temporary mailbox assemblies, and resetting mailboxes with new posts and necessary support hardware shall be incidental to the contract unit price per each for Refurbish Single Mailbox.

Cost for removing existing mailboxes, providing temporary mailbox assemblies, and resetting mailboxes with existing posts and hardware shall be incidental to the contract unit prices for the various items.

INSTALLATION OF TYPE 2 OBJECT MARKERS AT ROADSIDE OBSTACLES

Type 2 Object Markers and posts shall be furnished and installed by the Contractor at the locations shown in the table below:

| Station | CULVERT | TYPE 2 OBJECT MARKER (SINGLE) |
|----------------|--|----------------------------------|
| | | EACH |
| 27+00 | TRIPLE 30" x 72' RCP, 6 Sloped Ends | 4 |
| 42+10 | 8' x 7' x 110'-6 3/8" RC Box Culvert | 4 |
| 79+20 | 128' x 6' x 107'-9 5/8" RC Box Culvert | 4 |
| 160+41 | TWIN 30" x 84' RCP 4 Sloped Ends | 4 |
| 309+52 | 2-9' x 9' x 129'-5" RC Box Culvert | 4 |
| 407+32 | 2-9' x 4' x 98'-5 5/8" RC Box Culvert | 4 |
| 458+00 | 36" x 96' RCP 2 Flared Ends | 2 |
| 479+00 | 54" x 78' RCP 2 Flared Ends | 2 |
| 510+00 | 36" x 90' RCP 2 Flared Ends | 2 |
| 525+20 | 60" x 84' RCP 2 Flared Ends w/Headw alls | 2 |
| 549+00 | 42" x 122' RCP 2 Flared Ends | 2 |
| TOTALS: | | 34 |

At locations where culvert end marker posts are in place, the Contractor shall remove the culvert end marker posts and they shall become the property of the Contractor.

Costs for removing the existing end markers shall be incidental to the contract unit price per each for Type 2 Object Marker Back to Back or Type 2 Object Marker.

MAINTENANCE OF TRAFFIC

Unless otherwise stated in these plans, no work will be allowed during hours of darkness. Traffic shall be returned to normal travel lanes at the end of each work day.

Sufficient traffic control devices have been included in these plans to sign one workspace. If the Contractor elects to work on additional sites simultaneously, the cost for additional traffic control devices shall be incidental to the contract unit price per square foot for Traffic Control.

W8-15 Grooved Pavement signs with W8-15P Motorcycle supplemental plates are required in advance of areas that have been cold-milled and are not resurfaced the same day. The Grooved Pavement sign assemblies shall be installed a minimum 1000 ft. in advance of cold milled sections and remain in place until the sections have been resurfaced.

Flaggers and a pilot car shall be required when traffic must be routed out of the normal travel lane for a distance greater than the two flaggers are able to communicate with each other.

A mobile work operation will be allowed provided the rumble strip or rumble stripe grooving, flush sealing, and pavement marking can be completed satisfactorily by a continuously moving work operation. A mobile work operation will require approval by the Engineer.

Cost for a mobile workspace shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

Work area lane closure length shall closely correspond to the anticipated pavement length to be completed for the day. Work area lane closure lengths shall not exceed 3 miles.

Routing traffic onto the shoulders during any phase of the construction will not be allowed.

REFLECTORIZED SHEETING REQUIREMENTS FOR TEMPORARY TRAFFIC CONTROL DEVICES

Delete the first paragraph of Section 984.1 and replace with the following:

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

TEMPORARY PAVEMENT MARKING

The total length of no passing zone on this project is estimated to be 0.8 mile.

It is estimated that 3 DO NOT PASS and 2 PASS WITH CARE signs will be required to mark the no passing zones, should the Contractor elect to use these signs.

Temporary Flexible Vertical Markers (tabs) shall be required on the top lift of asphalt surfacing.

Three applications in the rural sections and two applications in the urban sections of temporary pavement marking are included in the estimate of quantities for completion of the asphalt lifts and uncovering the temporary flexible vertical markers (tabs) after application of the seal.

The Contractor shall remove and dispose of temporary flexible vertical markers (tabs) after Permanent Pavement Marking is applied. Removal shall 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 shall 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 shall be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1), Workers symbols 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.

Cost for the traffic control to install and remove the temporary flexible vertical markers (tabs) shall be incidental to the contract unit price per mile for Temporary Pavement Marking.

PAVEMENT MARKING PAINT

The Contractor shall 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 2 calendar days following completion of the flush seal and shall be completed within 14 calendar days following completion of the flush seal. If the flush seal is eliminated, the Contractor shall complete the application of permanent pavement marking paint no sooner than two calendar days, but within 14 calendar days following completion of final surfacing.

Left Arrows, in sets of two, spaced 16' arrow tip to arrow tip, (when two are required) shall be positioned in the center turn lane at a frequency of one set of arrows per block or as detailed in the plans.

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: Resin Binder shall be Fastrack™ XSR manufactured by Dow, or approved equal.

980.1 A. Quantitative Requirements:

Pigment, percent by weight: 60.0 – 63.0 for white and 58.5 – 61.5 for yellow.

Pigment, percent by weight; tested in accordance with ASTM D3723: 60.0 – 63.0 for white and 56.1 – 59.2 for yellow.

Non-volatile Vehicle, percent by weight; tested in accordance with NIST 141C (Method 4051.1): 41.5 minimum for white and 51.5 minimum for yellow.

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

| SIGN CODE | SIGN DESCRIPTION | CONVENTIONAL ROAD | | | |
|-----------|--|---|-----------|---------------|------------|
| | | NUMBER | SIGN SIZE | SQFT PER SIGN | SQFT |
| R1-1 | STOP | | 30" x 30" | 6 | |
| R1-2 | YIELD | | 36" x 36" | 9 | |
| R2-1 | SPEED LIMIT ___ | | 24" x 30" | 5 | |
| R2-6aP | FINES DOUBLE (plaque) | | 24" x 18" | 3 | |
| R4-7 | KEEP RIGHT (symbol) | | 24" x 30" | 5 | |
| R5-1 | DO NOT ENTER | | 30" x 30" | 6 | |
| R5-1a | WRONG WAY | | 36" x 24" | 6 | |
| R10-6 | STOP HERE ON RED | | 24" x 36" | 6 | |
| R11-2 | ROAD CLOSED | | 48" x 30" | 10 | |
| R11-3a | ROAD CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY | | 60" x 30" | 13 | |
| R11-4 | ROAD CLOSED TO THRU TRAFFIC | | 60" x 30" | 13 | |
| W1-1 | LEFT or RIGHT TURN ARROW | | 48" x 48" | 16 | |
| W1-2 | LEFT or RIGHT CURVE ARROW | | 48" x 48" | 16 | |
| W1-3 | REVERSE TURN (L or R) | | 48" x 48" | 16 | |
| W1-4 | REVERSE CURVE (L or R) | | 48" x 48" | 16 | |
| W3-1 | STOP AHEAD (symbol) | | 48" x 48" | 16 | |
| W3-2 | YIELD AHEAD (symbol) | | 48" x 48" | 16 | |
| W3-3 | SIGNAL AHEAD (symbol) | | 48" x 48" | 16 | |
| W3-4 | BE PREPARED TO STOP | | 48" x 48" | 16 | |
| W3-5 | SPEED REDUCTION AHEAD (___ MPH) | | 48" x 48" | 16 | |
| W4-1 | MERGE (symbol) | | 48" x 48" | 16 | |
| W4-2 | LEFT or RIGHT LANE ENDS (symbol) | | 48" x 48" | 16 | |
| W4-3 | ADDED LANE (symbol) | | 48" x 48" | 16 | |
| W5-3 | ONE LANE BRIDGE | | 48" x 48" | 16 | |
| W7-3aP | NEXT ___ MILES (plaque) | | 36" x 30" | 8 | |
| W8-1 | BUMP | 2 | 48" x 48" | 16 | 32 |
| W8-6 | TRUCK CROSSING | 2 | 48" x 48" | 16 | 32 |
| W8-7 | LOOSE GRAVEL | | 48" x 48" | 16 | |
| W8-11 | UNEVEN LANES | 2 | 48" x 48" | 16 | 32 |
| W8-15 | GROOVED PAVEMENT | 2 | 48" x 48" | 16 | 32 |
| W8-15P | MOTORCYCLE (plaque) | 2 | 24" x 18" | 3 | 6 |
| W8-17 | SHOULDER DROP-OFF (symbol) | | 48" x 48" | 16 | |
| W9-3 | CENTER LANE CLOSED AHEAD | 2 | 48" x 48" | 16 | 32 |
| W13-1P | ADVISORY SPEED (plaque) | | 30" x 30" | 6 | |
| W20-1 | ROAD WORK AHEAD | 4 | 48" x 48" | 16 | 64 |
| W20-2 | DETOUR AHEAD | | 48" x 48" | 16 | |
| W20-3 | CENTER LANE AHEAD | 2 | 48" x 48" | 16 | 32 |
| W20-4 | ONE LANE ROAD AHEAD | 2 | 48" x 48" | 16 | 32 |
| W20-5 | CENTER LANE CLOSED XX FT | 2 | 48" x 48" | 16 | 32 |
| W20-7 | FLAGGER (symbol) | 2 | 48" x 48" | 16 | 32 |
| W21-1 | WORKERS (symbol) | | 48" x 48" | 16 | |
| W21-2 | FRESH OIL | 2 | 48" x 48" | 16 | 32 |
| W21-3 | ROAD MACHINERY AHEAD | | 48" x 48" | 16 | |
| W21-5 | SHOULDER WORK | 2 | 48" x 48" | 16 | 32 |
| W21-5a | LEFT or RIGHT SHOULDER CLOSED | | 48" x 48" | 16 | |
| W21-5b | LEFT or RIGHT SHOULDER CLOSED AHEAD | | 48" x 48" | 16 | |
| G20-1 | ROAD WORK NEXT 11 MILES | 2 | 36" x 18" | 5 | 10 |
| G20-1 | ROAD WORK NEXT 8 MILES | 1 | 36" x 18" | 5 | 5 |
| G20-1 | ROAD WORK NEXT 3 MILES | 1 | 36" x 18" | 5 | 5 |
| G20-2 | END ROAD WORK | 2 | 36" x 18" | 5 | 10 |
| G20-5aP | WORK ZONE (plaque) | | 24" x 18" | 3 | |
| - | TYPE 3 OBJECT MARKER | | 12" x 36" | 3 | |
| | | CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT | | | 452 |

TYPE 3 BARRICADES

| ITEM DESCRIPTION | QUANTITY |
|-----------------------------------|----------|
| Type 3 Barricade, 8' Double Sided | 2 Each |

PLOT SCALE - \$\$SCALE\$\$

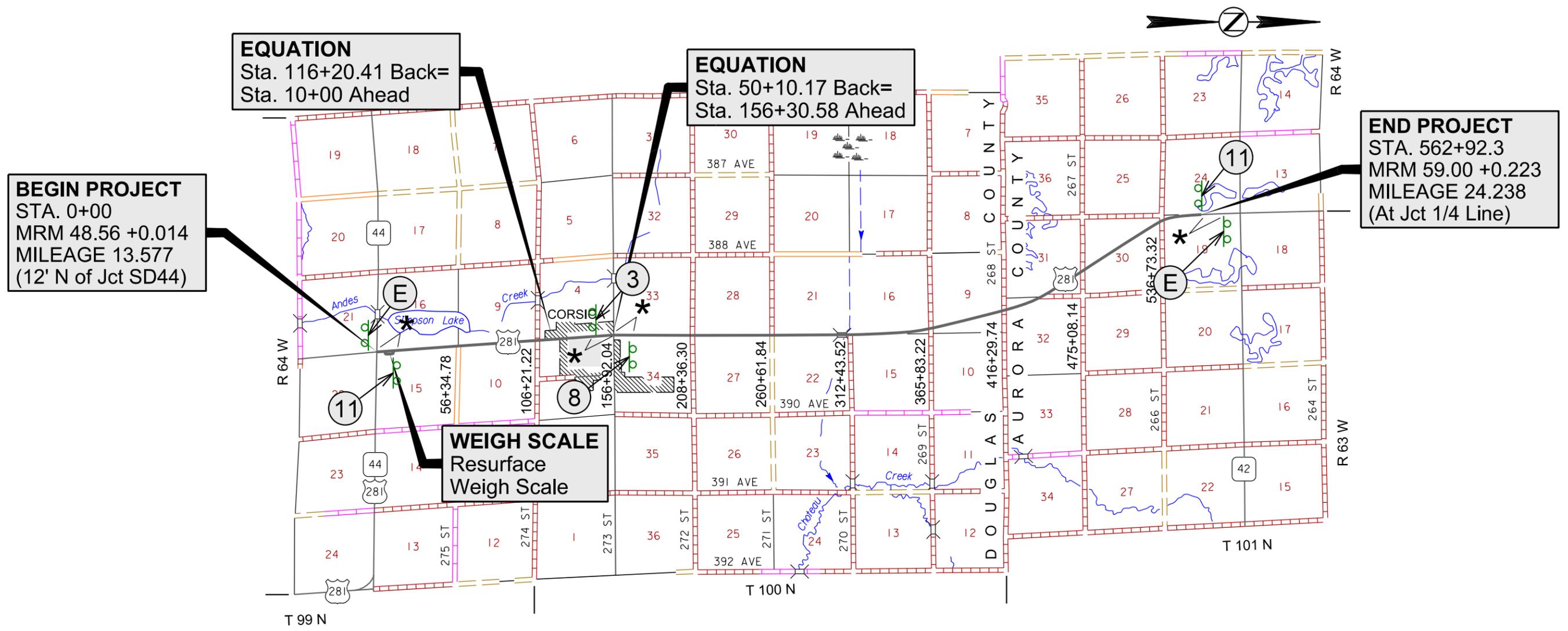
PLOTTED FROM - \$\$USERNAME\$\$

PLOT NAME - \$\$PLOTNAME\$\$

FILE - \$\$FILENAME\$\$

TRAFFIC CONTROL

FIXED LOCATION SIGNING



BEGIN PROJECT
 STA. 0+00
 MRM 48.56 +0.014
 MILEAGE 13.577
 (12' N of Jct SD44)

EQUATION
 Sta. 116+20.41 Back=
 Sta. 10+00 Ahead

EQUATION
 Sta. 50+10.17 Back=
 Sta. 156+30.58 Ahead

END PROJECT
 STA. 562+92.3
 MRM 59.00 +0.223
 MILEAGE 24.238
 (At Jct 1/4 Line)

WEIGH SCALE
 Resurface
 Weigh Scale

NOTES :

All Ground Mounted Support signs shall remain in place until permanent pavement marking is complete.

Construction signs shall not block the view of existing signs.

Fixed Location signs shall be installed a minimum of 100' from any existing sign.

* - 25' to 200'



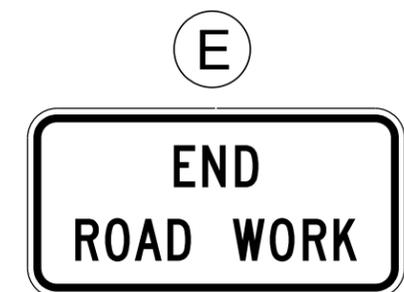
G20-1



G20-1



G20-1



G20-2

PLOT SCALE - \$\$SCALE\$\$

PLOTTED FROM - \$\$USERNAME\$\$

PLOT NAME - \$\$PLOTNAME\$\$

FILE - \$\$FILENAME\$\$

MOBILE OPERATIONS ON TWO-LANE ROAD (TYPICAL)

Notes for Mobile Operations on Two-lane Road (Typical)

Standard:

1. Vehicle-mounted signs shall be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs shall be covered or turned from view when work is not in progress.
2. Shadow and work vehicles shall display high-intensity rotating, flashing, oscillating, or strobe lights.
3. If an arrow board is used, it shall be used in the caution mode.

Guidance:

4. Where practical and when needed, the work and shadow vehicles should pull over periodically to allow vehicular traffic to pass.
5. Whenever adequate stopping sight distance exists to the rear, the shadow vehicle should maintain the minimum distance from the work vehicle and proceed at the same speed. The shadow vehicle should slow down in advance of vertical or horizontal curves that restrict sight distance.
6. The shadow vehicles should also be equipped with two high-intensity flashing lights mounted on the rear, adjacent to the sign.

Option:

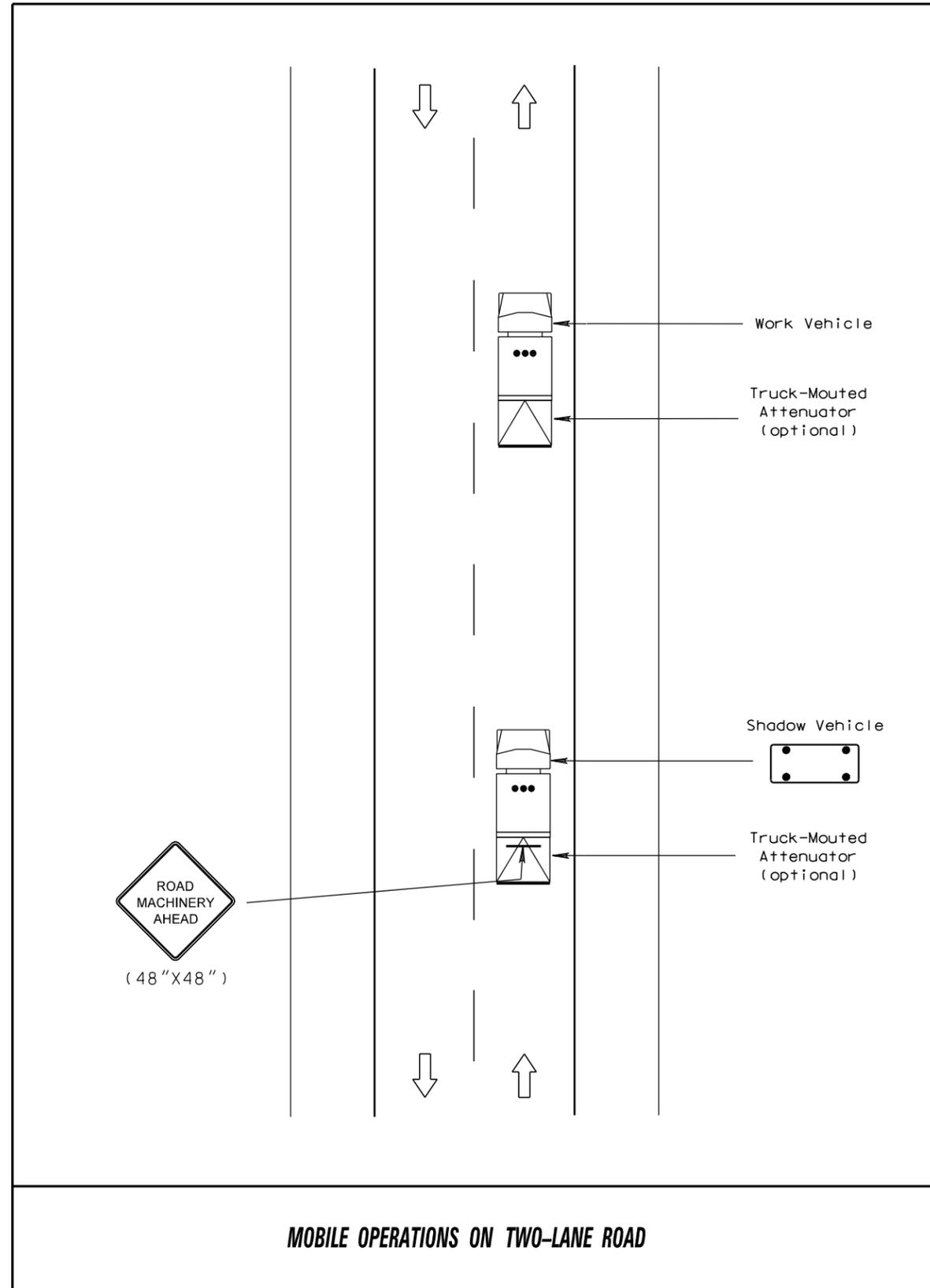
7. The distance between the work and shadow vehicles may vary according to terrain, paint drying time, and other factors.
8. Additional shadow vehicles to warn and reduce the speed of oncoming or opposing vehicular traffic may be used. Law enforcement vehicles may be used for this purpose.
9. A truck-mounted attenuator may be used on the shadow vehicle or on the work vehicle.
10. If the work and shadow vehicles cannot pull over to allow vehicular traffic to pass frequently, a DO NOT PASS sign may be placed on the rear of the vehicle blocking the lane.

Support:

11. Shadow vehicles are used to warn motor vehicle traffic of the operation ahead.

Standard:

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



PLOT SCALE - \$\$SCALE\$\$

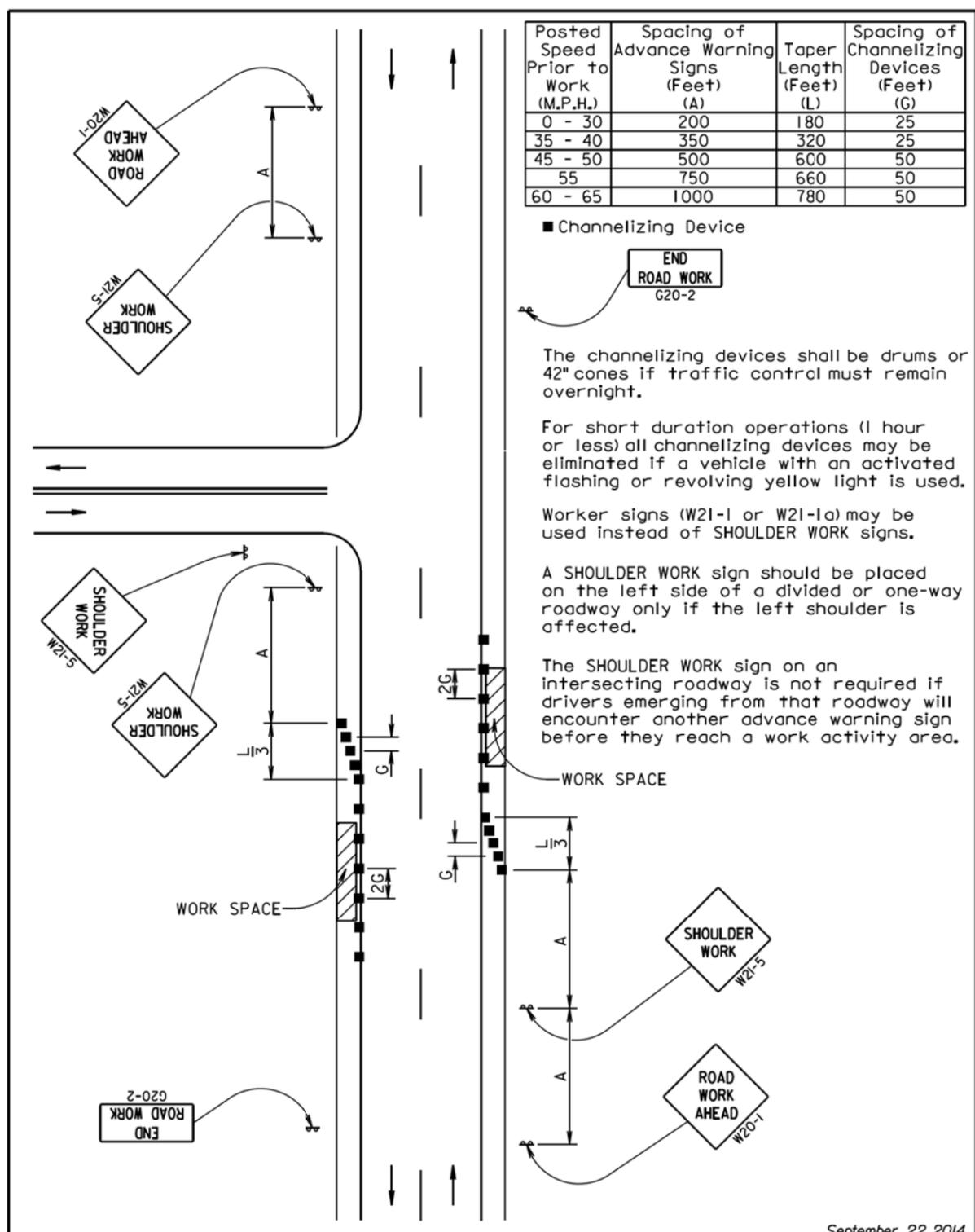
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PLOT NAME - \$\$PLOTNAME\$\$

FILE - \$\$FILENAME\$\$

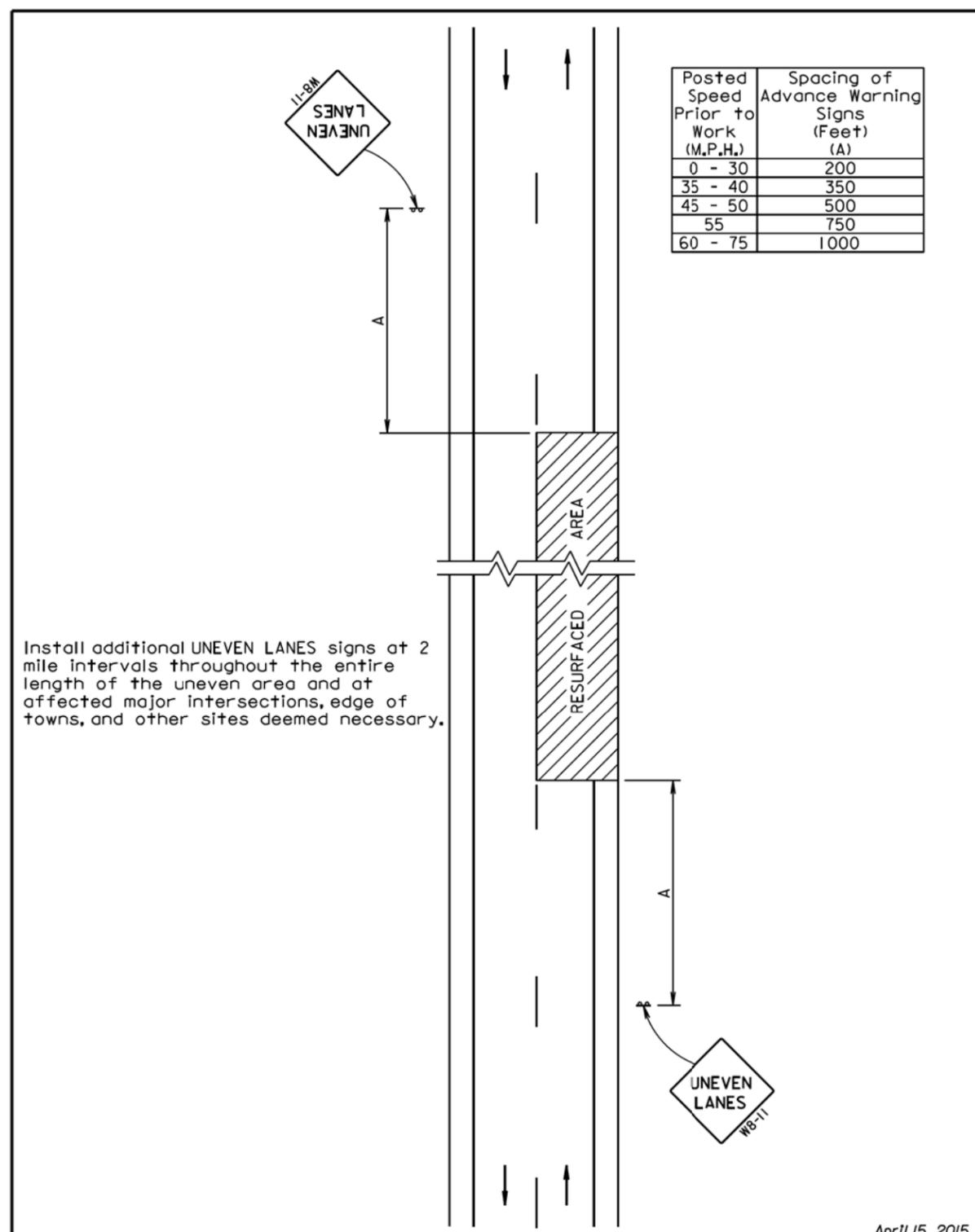
Plotting Date: mmm-ddd-yyy

Plotted From: \\susername\$\$ Plot Scale: \\scales\$\$ File: \\sfilename\$\$



September 22, 2014

| | | |
|----------------------------------|---|------------------------|
| S D D O T | GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS | PLATE NUMBER 634.03 |
| | Published Date: 1st Qtr. 2016 | Sheet 1 of 1 |



April 15, 2015

| | | |
|----------------------------------|---|------------------------|
| S D D O T | GUIDES FOR TRAFFIC CONTROL DEVICES UNEVEN ROAD SURFACE | PLATE NUMBER 634.22 |
| | Published Date: 1st Qtr. 2016 | Sheet 1 of 1 |

Plotting Date: mmm-ddd-yyy

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

- Flagger
- Channelizing Device

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

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

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

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

The channelizing devices shall be drums or 42" cones.

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

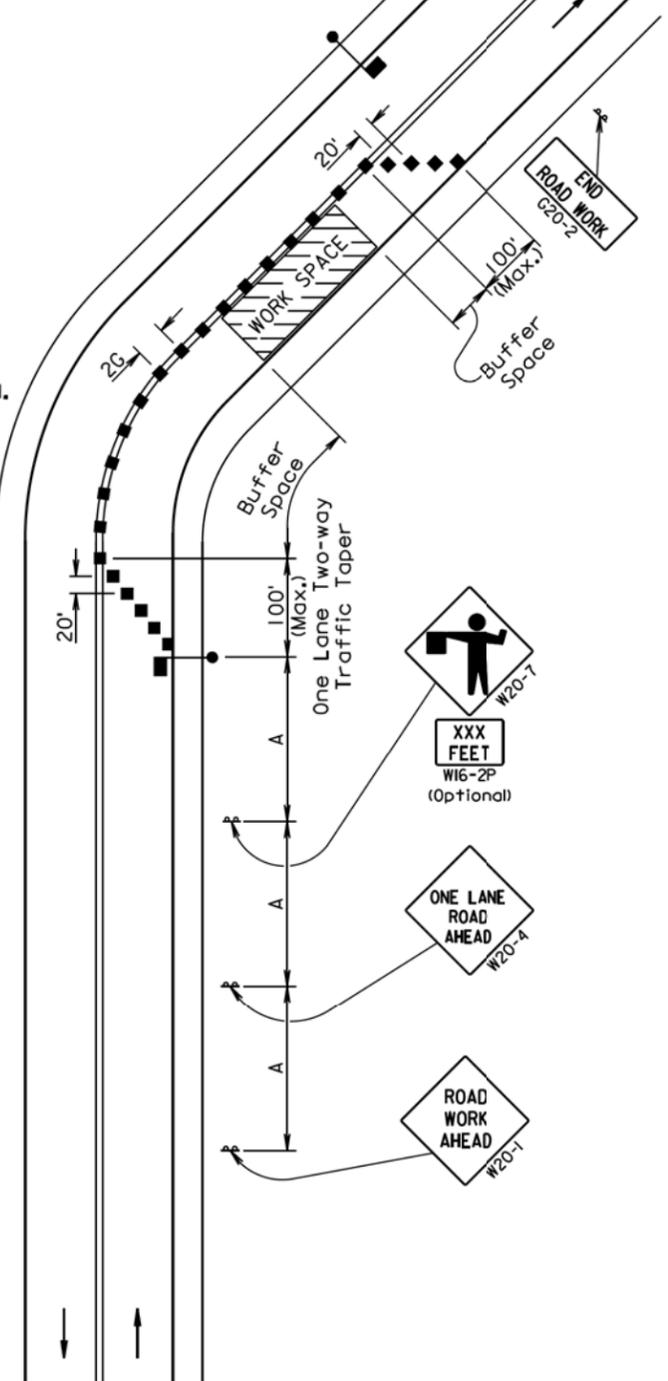
END ROAD WORK G20-2

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

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

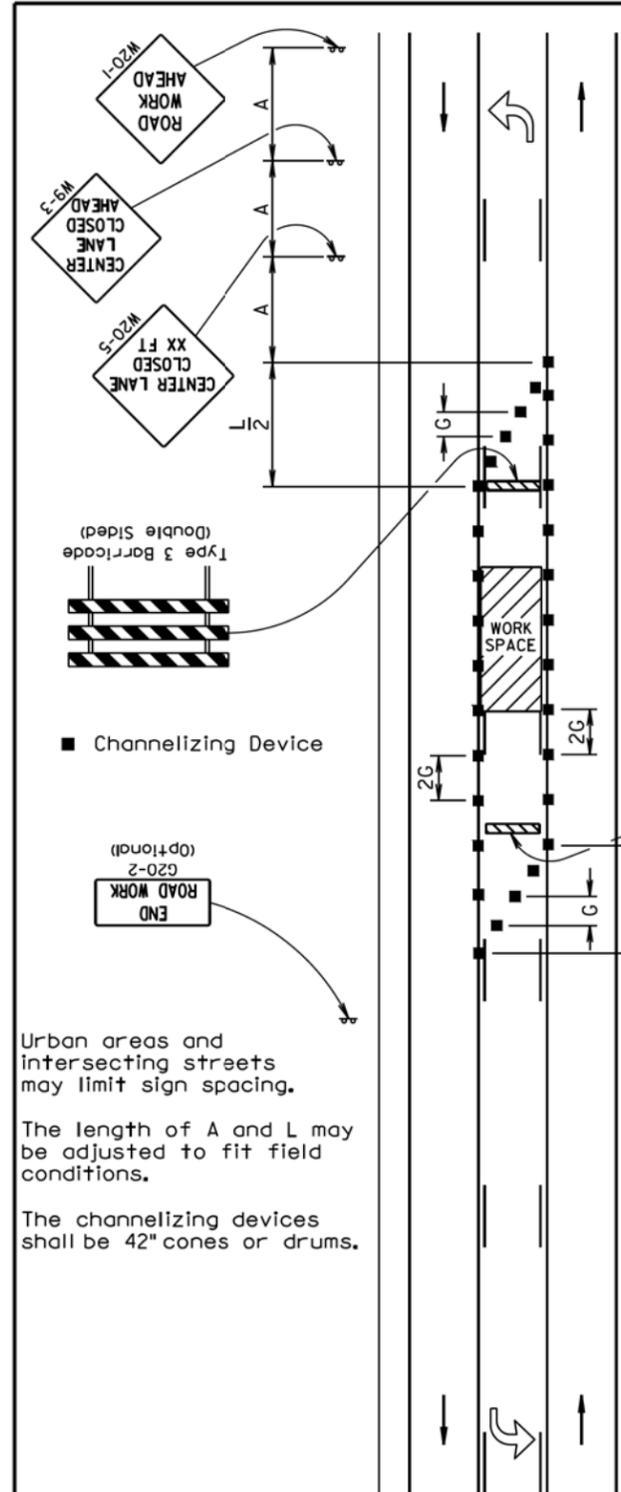
The length of A may be adjusted to fit field conditions.

Warning sign sequence in opposite direction same as below.



September 22, 2014

| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED | PLATE NUMBER 634.23 |
| | Published Date: 1st Qtr. 2016 | Sheet 1 of 1 |



Urban areas and intersecting streets may limit sign spacing.
The length of A and L may be adjusted to fit field conditions.
The channelizing devices shall be 42" cones or drums.

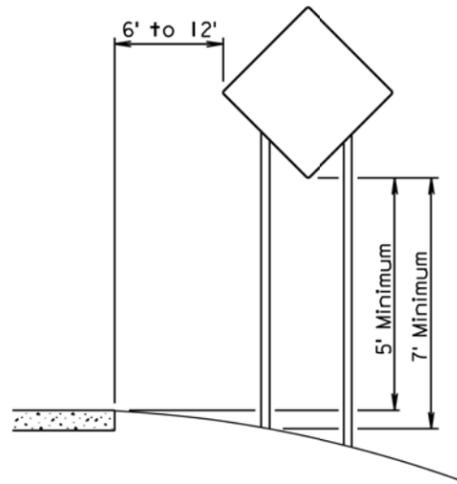
| Posted Speed Prior to Work (M.P.H.) | Spacing of Advance Warning Signs (Feet) (A) | Taper Length (Feet) (L) | Spacing of Channelizing Devices (Feet) (G) |
|-------------------------------------|---|-------------------------|--|
| 0 - 30 | 200 | 180 | 25 |
| 35 - 40 | 350 | 320 | 25 |
| 45 - 50 | 500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

END ROAD WORK G20-2 (Optional)

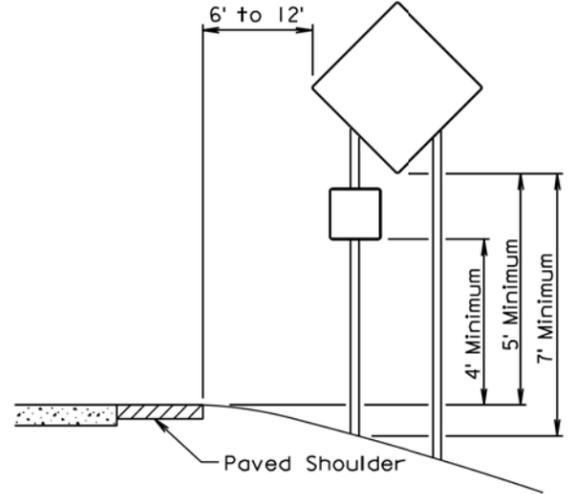
Type 3 Barricade (Double Sided)

September 22, 2014

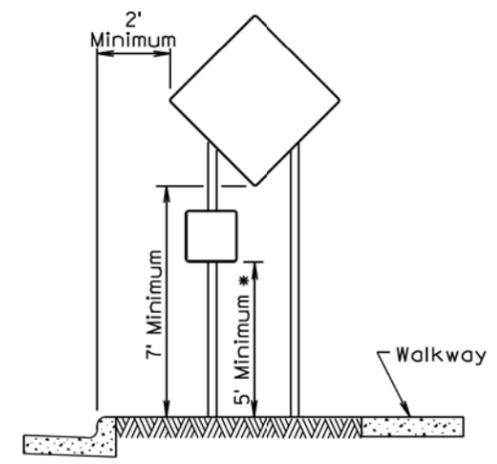
| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | GUIDES FOR TRAFFIC CONTROL DEVICES 3-LANE, CENTER LANE CLOSED | PLATE NUMBER 634.52 |
| | Published Date: 1st Qtr. 2016 | Sheet 1 of 1 |



RURAL DISTRICT

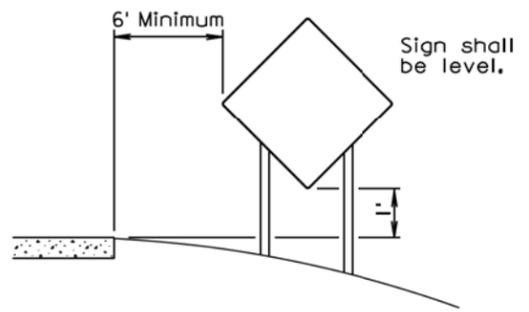


RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



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.

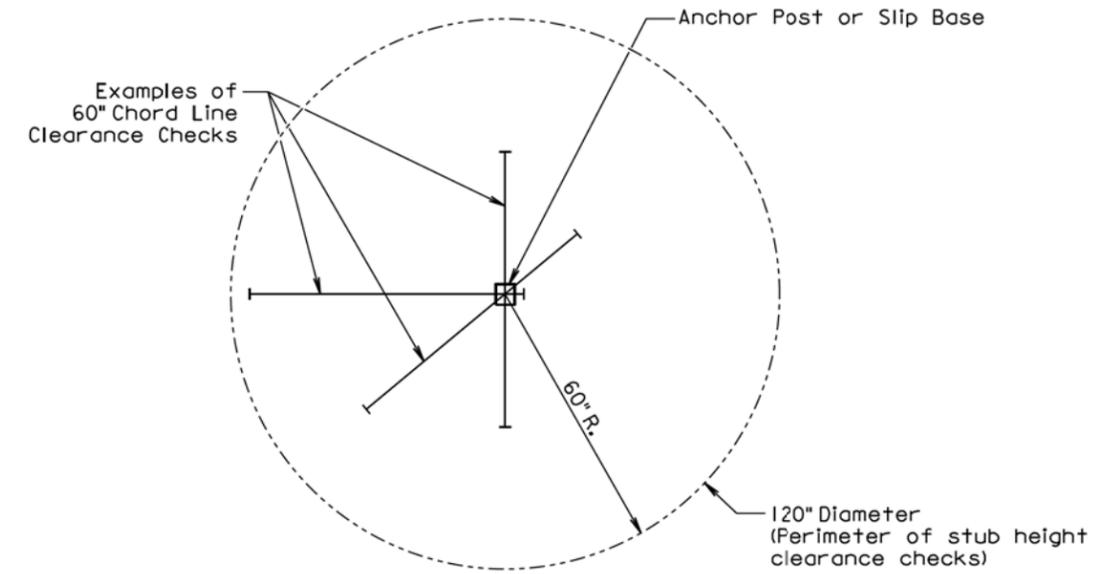


RURAL DISTRICT
3 DAY MAXIMUM

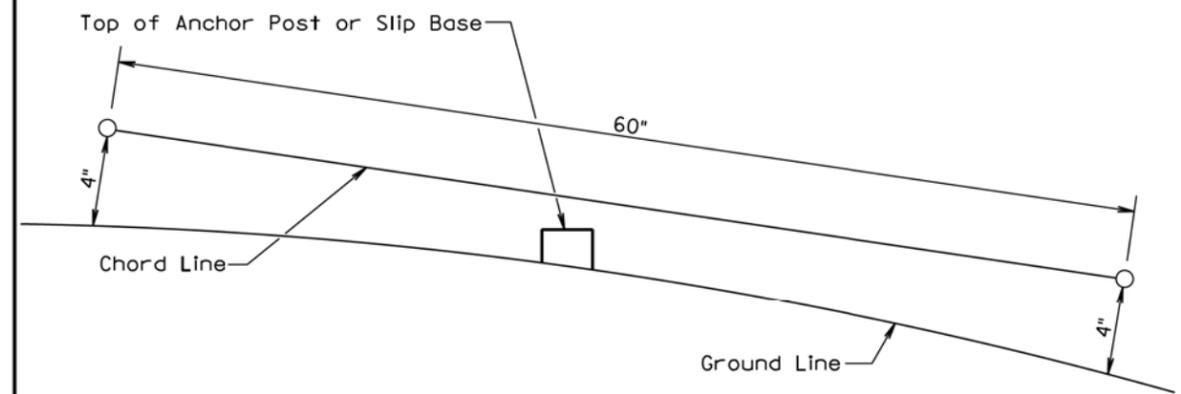
(Not applicable to regulatory signs)

September 22, 2014

| | | | |
|-------------------------------|-----------------------|---|------------------------|
| Published Date: 1st Qtr. 2016 | 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

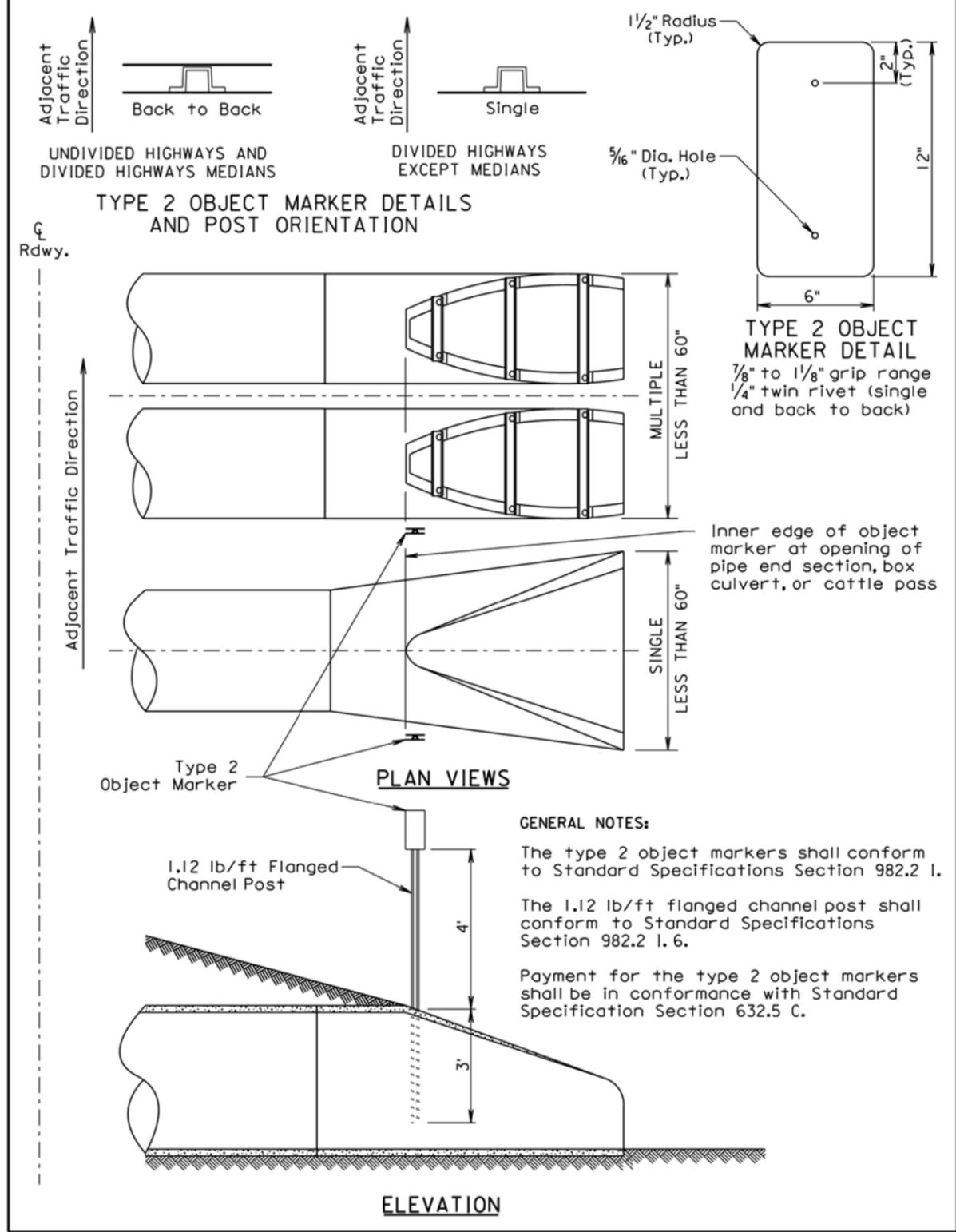
GENERAL NOTES:

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.

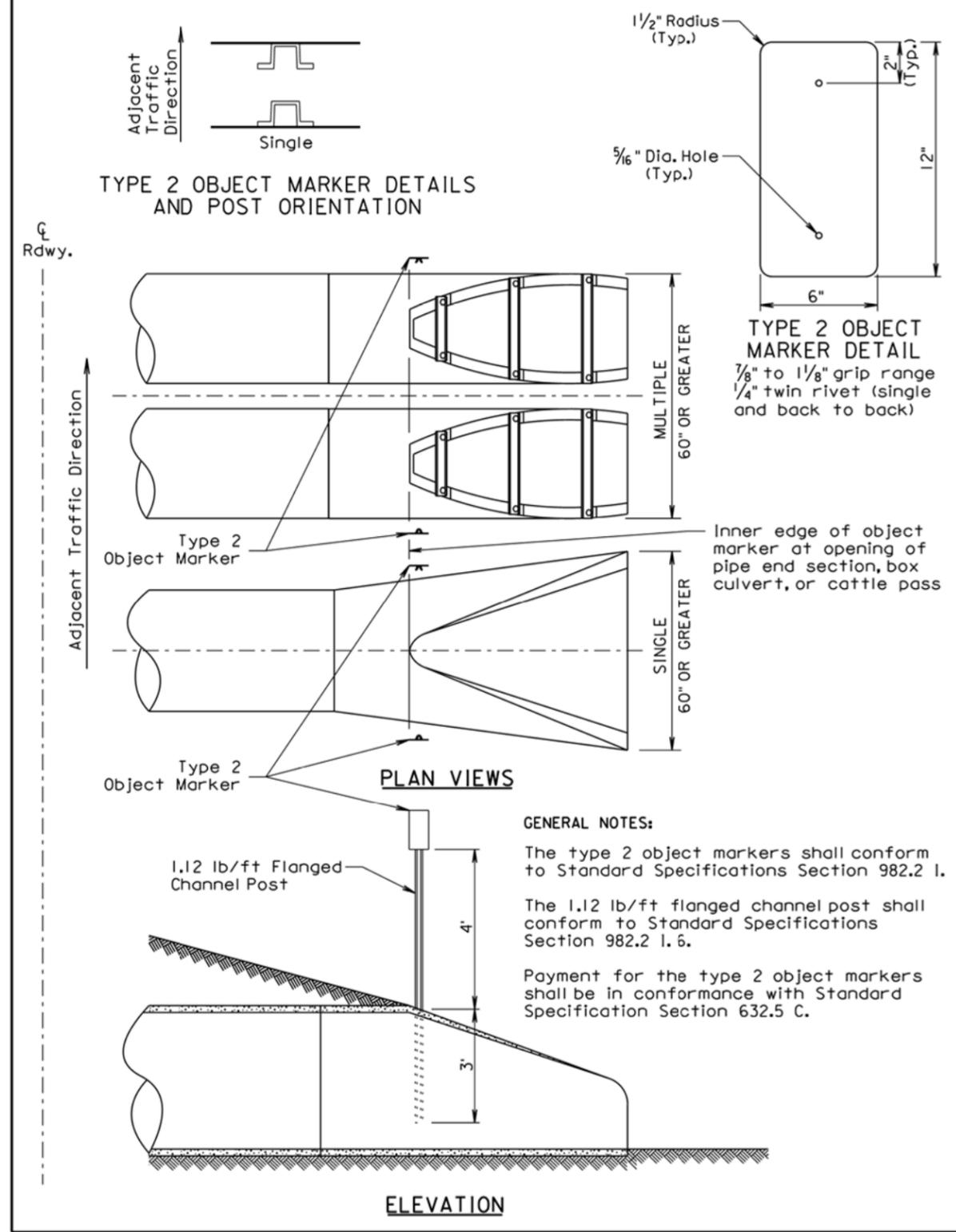
July 1, 2005

| | | | |
|-------------------------------|-----------------------|----------------------------------|------------------------|
| Published Date: 1st Qtr. 2016 | S D D O T | BREAKAWAY SUPPORT STUB CLEARANCE | PLATE NUMBER 634.99 |
| | | | Sheet 1 of 1 |

TYPE 2 OBJECT MARKER INSTALLATION AT PIPE CULVERTS, BOX CULVERTS, & CATTLE PASSES – LESS THAN 60" WIDTH

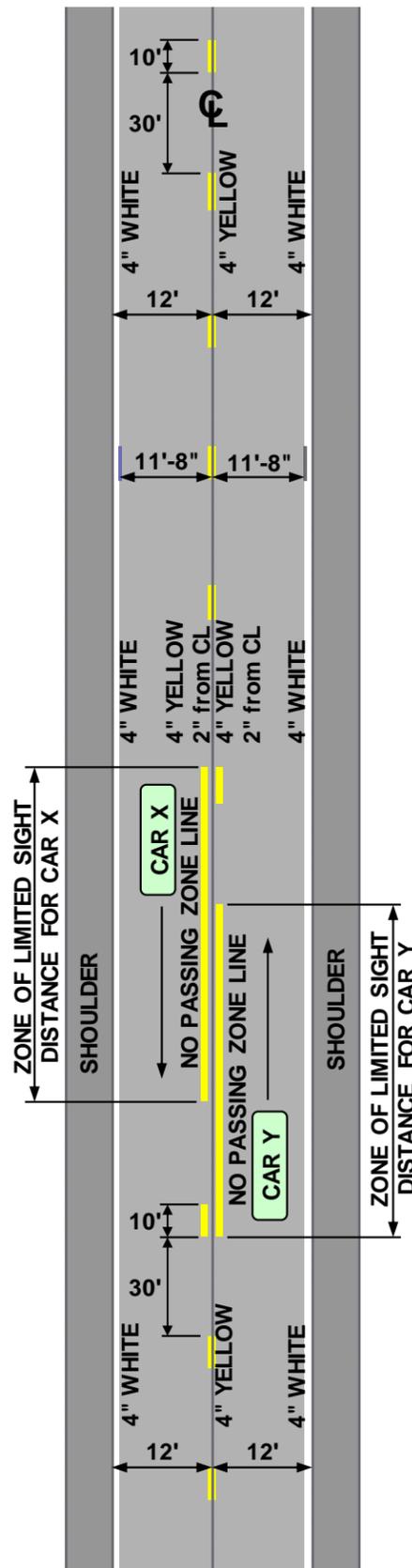


TYPE 2 OBJECT MARKER INSTALLATION AT PIPE CULVERTS, BOX CULVERTS, & CATTLE PASSES – 60" OR GREATER WIDTH



PAINTED PAVEMENT MARKING

TWO LANE ROADWAY



Typical pavement marking as shown on this sheet shall be applied throughout the entire length of two lane roadway.

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

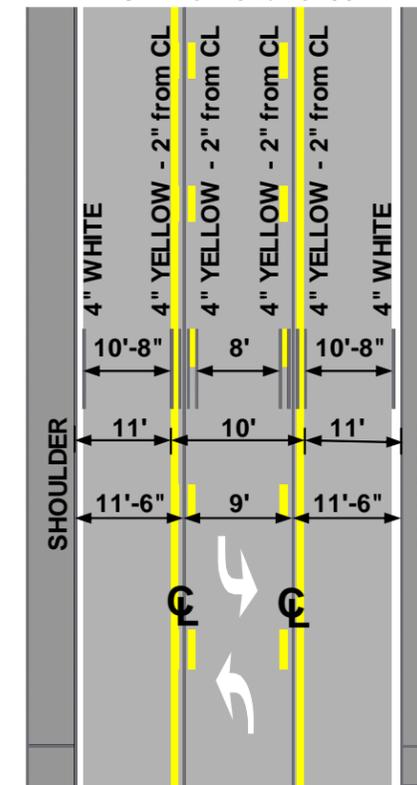
Application rates shall be as follows:

| Two Lane Roadway (Rates for one line) | |
|--|-----------------------------|
| Dashed Yellow Centerline | Rate = 4.6 Gals./Pass-Mile |
| Solid Yellow Centerline | Rate = 16.9 Gals./Pass-Mile |
| Solid White Edgeline | Rate = 16.9 Gals./Pass-Mile |
| Glass Beads | = 8 Lbs./Gal. |

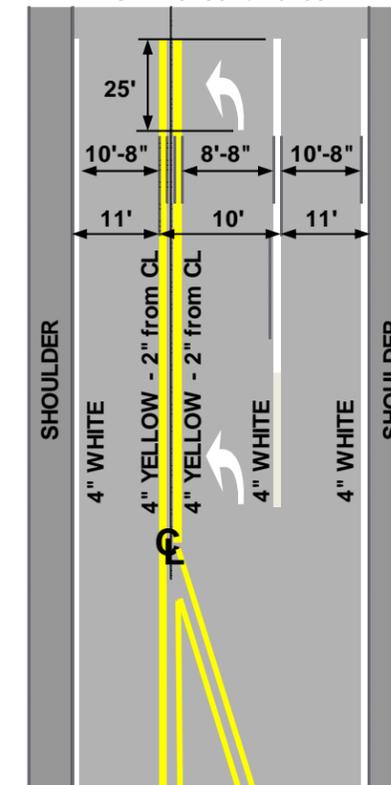
| ESTIMATED QUANTITIES | |
|----------------------|-------------|
| PAINT | QUANTITY |
| WHITE | 377 GALLONS |
| YELLOW | 102 GALLONS |

| Included in the above quantities are: | | | |
|---------------------------------------|----------|--|---------|
| Additional White | | Additional Yellow | |
| Description | Gallons | Description | Gallons |
| 4" Lines | 150' 1 | Transitions 2 Ea | 6 |
| 8" Lines | 0' 0 | 4" Skip Lines 0' | 0 |
| 12" Gore Lines | 0' 0 | 8" Lines 0' | 0 |
| Crosswalks | 0 Ea 0 | 12" Lines 0' | 0 |
| 24" Stop Line | 18' 1 | 24" Hatches 144' | 6 |
| 24" Hatches | 0' 0 | Solid Areas 100sf | 3 |
| Solid Areas | 0sf 0 | Additional Yellow: | 15 |
| Arrows | | | |
| Left Arrows | 28 Ea 15 | Additional Quantities | |
| Right Arrows | 0 Ea 0 | <u>Rates of Coverage: SqFt/Gal</u> | |
| Straight Arrows | 0 Ea 0 | 4", 8" and 12" Lines - 80 | |
| Combo Arrows | 0 Ea 0 | 24" Lines and Bars - 50 | |
| Lane Drop Arrows | 0 Ea 0 | Arrows, Messages and Solid Areas - 30 | |
| <u>Messages</u> | | | |
| STOP | 0 Ea 0 | NOTE: Pavement marking dimensions are based on 12' driving lanes, unless otherwise specified. | |
| STOP AHEAD | 0 Ea 0 | | |
| R X R with Bars | 0 Ea 0 | | |
| SCHOOL X-ING | 0 Ea 0 | | |
| Additional White: | 17 | | |

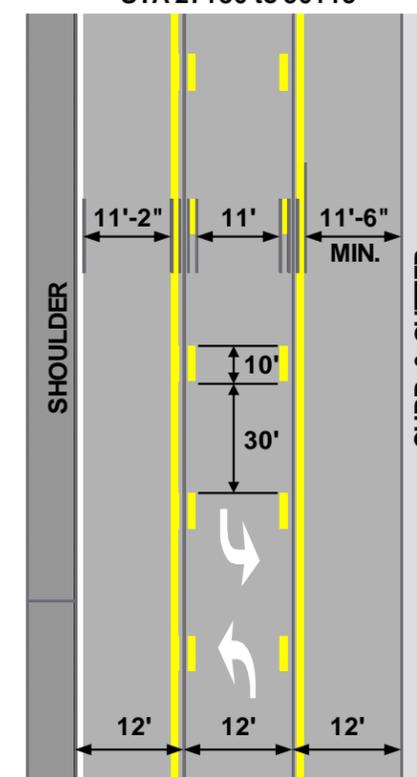
TWO LANE ROADWAY WITH CENTER TURN LANE STA 16+70 to 25+00



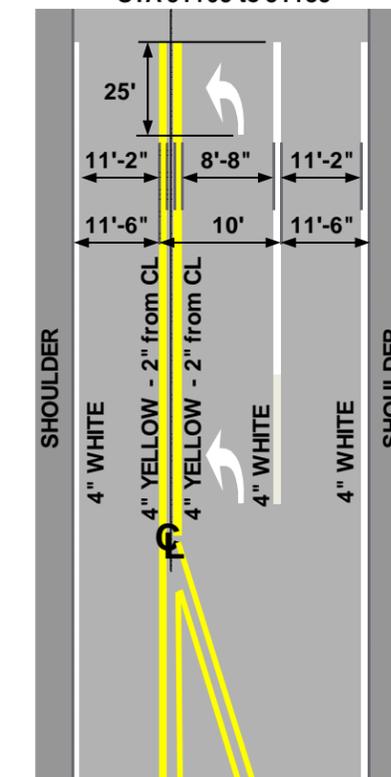
TWO LANE ROADWAY WITH LEFT TURN LANE STA 15+30 to 16+05



TWO LANE ROADWAY WITH CENTER TURN LANE STA 27+80 to 50+15



TWO LANE ROADWAY WITH LEFT TURN LANE STA 51+05 to 51+85

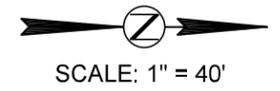


PAVEMENT MARKING

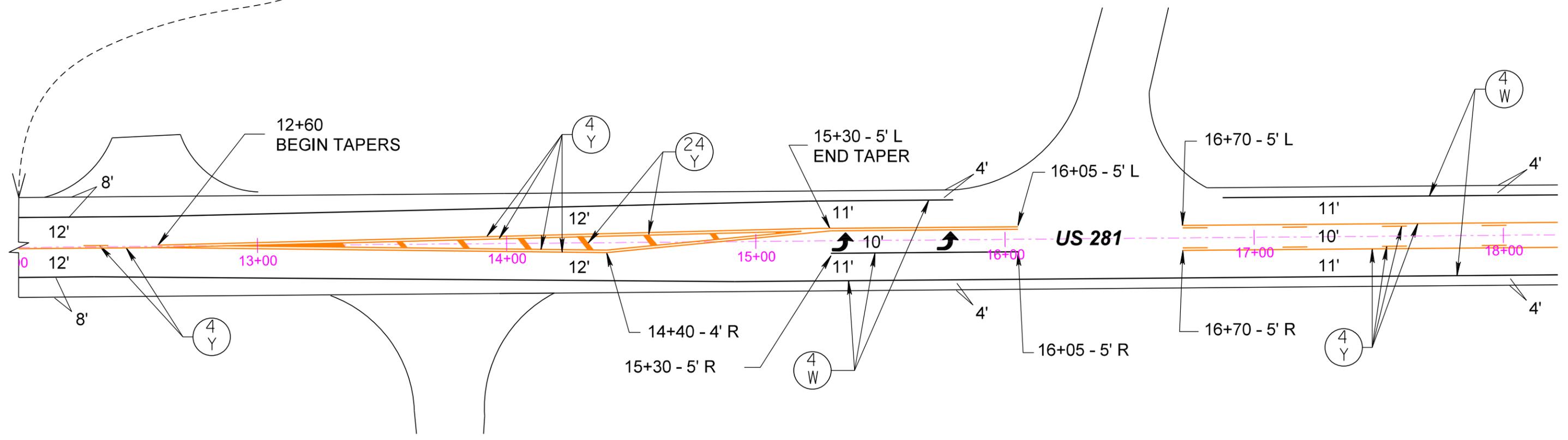
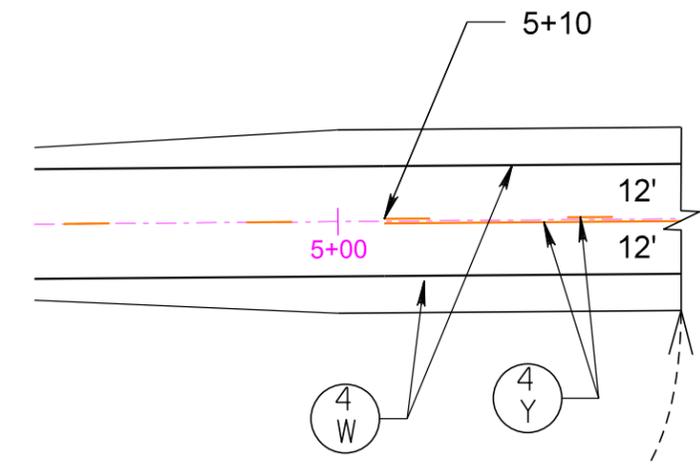
US 281 - CORSICA

| | | | |
|-----------------------|---------------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT NH 0281(111)48 | SHEET 26 | TOTAL SHEETS 35 |
|-----------------------|---------------------------|-------------|--------------------|

Plotting Date: mmm-ddd-yyy



| ESTIMATE OF QUANTITIES | | | |
|------------------------|---|-----------|------|
| KEY | ITEM | EST QUANT | UNIT |
| (4 W) | PAINTED PAVEMENT MARKING, 4" WHITE | 376 | GAL |
| (24 W) | PAINTED PAVEMENT MARKING, 24" WHITE | 1 | GAL |
| (4 Y) | PAINTED PAVEMENT MARKING, 4" YELLOW | 96 | GAL |
| (24 Y) | PAINTED PAVEMENT MARKING, 24" YELLOW | 6 | GAL |
| ↩ | PAINTED PAVEMENT MARKING, ARROW LEFT - 28 | 28 | EACH |



Plotted From: \\susername\$\$ Plot Scale: \\scale\$\$ File: \\filename\$\$

PAVEMENT MARKING

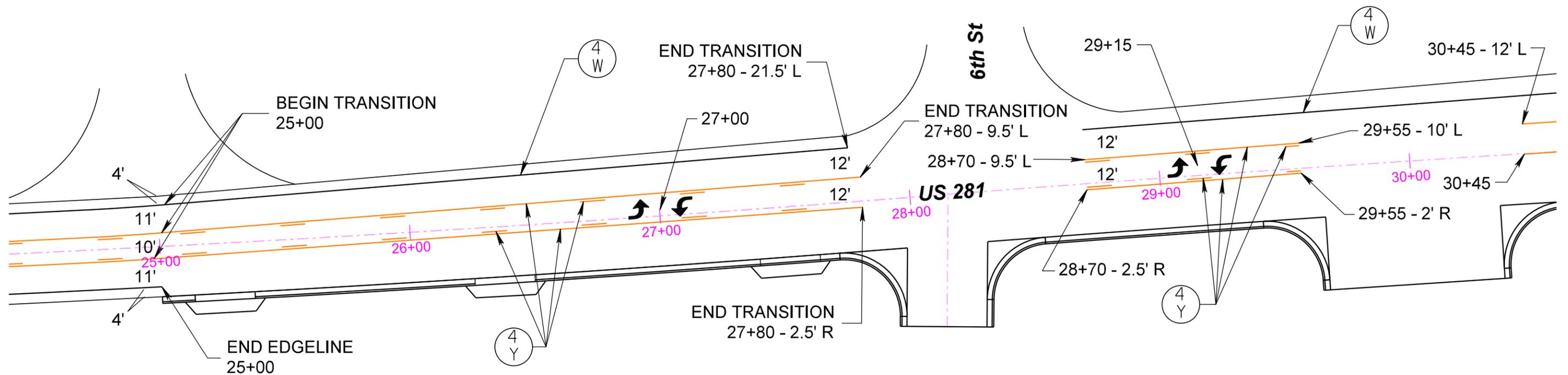
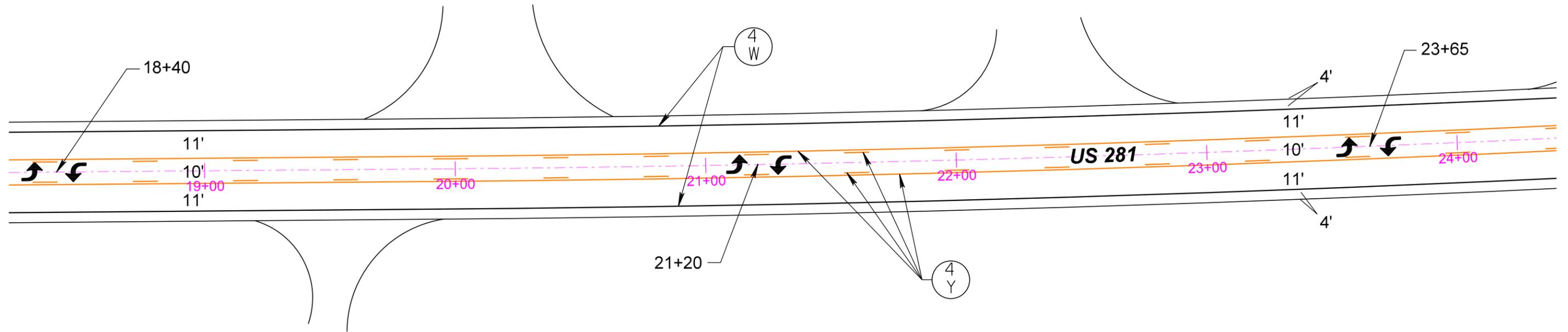
US 281 - CORSICA

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|-----------------------|----------------|-------|--------------|
| | NH 0281(111)48 | 27 | 35 |

Plotting Date: mmm-ddd-yyy



SCALE: 1" = 40'



Plot Scale -

Plotted From -

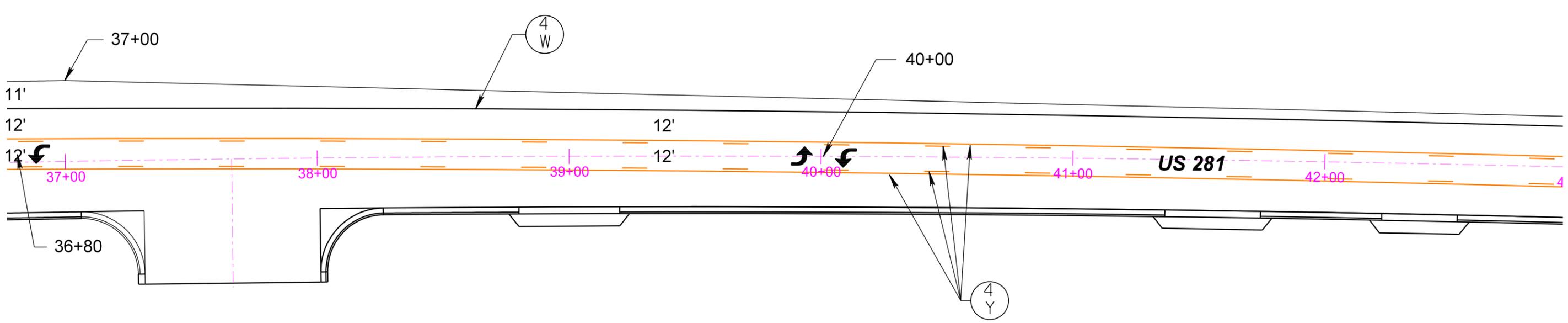
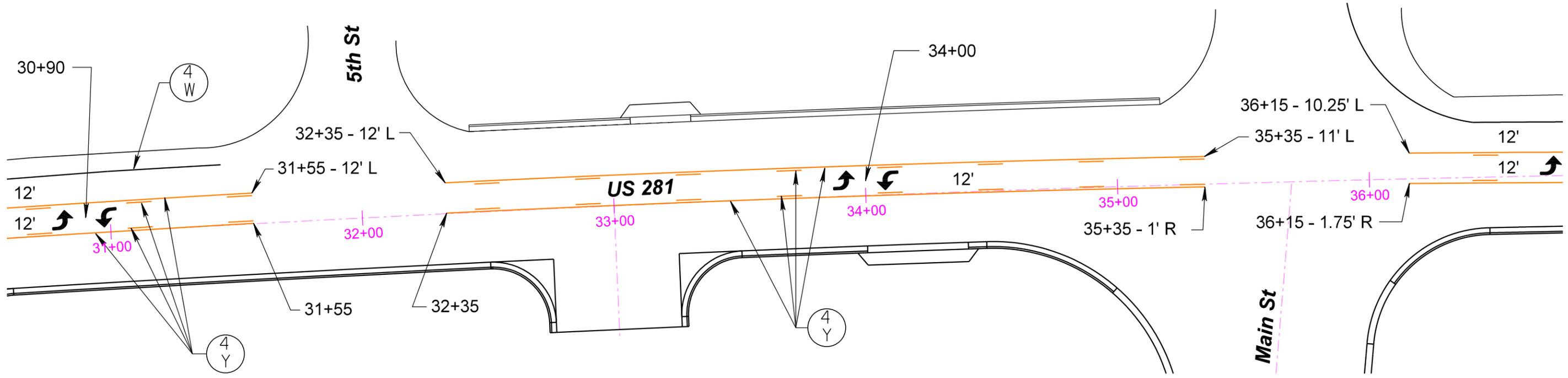
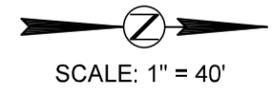
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PAVEMENT MARKING

US 281 - CORSICA

| | | | |
|-----------------------|---------------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT NH 0281(111)48 | SHEET 28 | TOTAL SHEETS 35 |
|-----------------------|---------------------------|-------------|--------------------|

Plotting Date: mmm-ddd-yyy



Plot Scale - \$\$\$scale\$\$\$

Plotted From - \$\$\$user\$\$\$

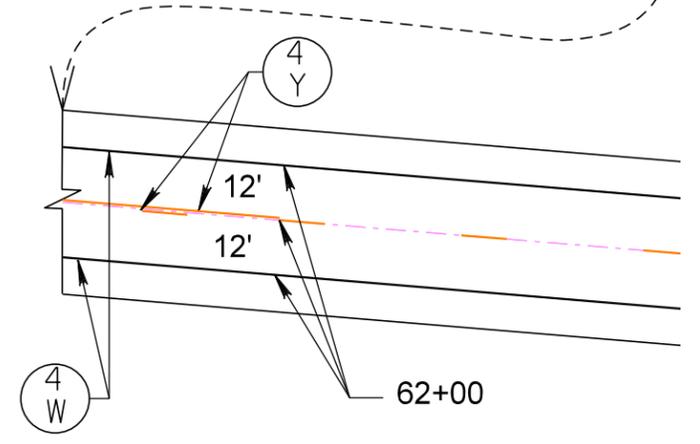
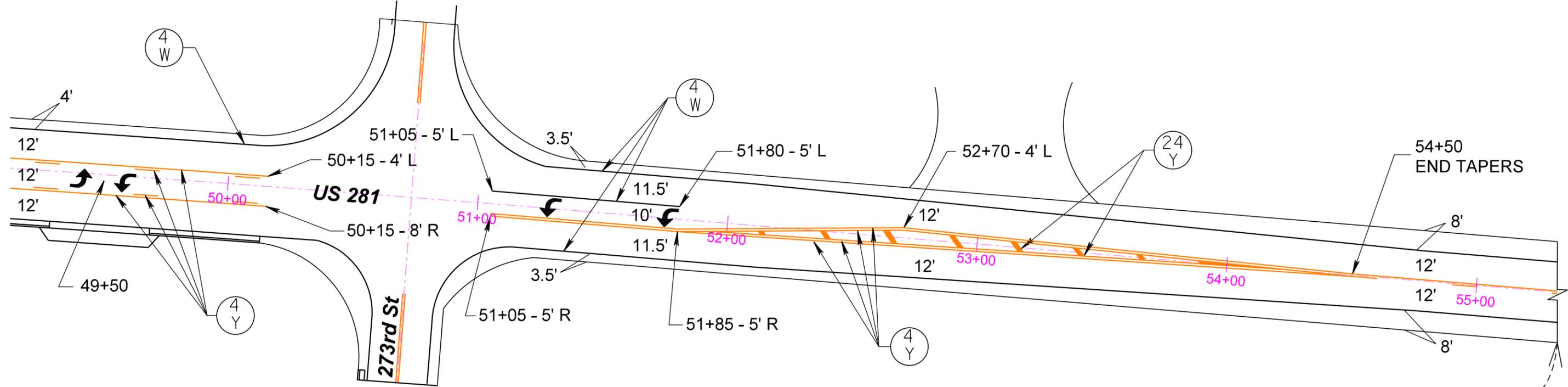
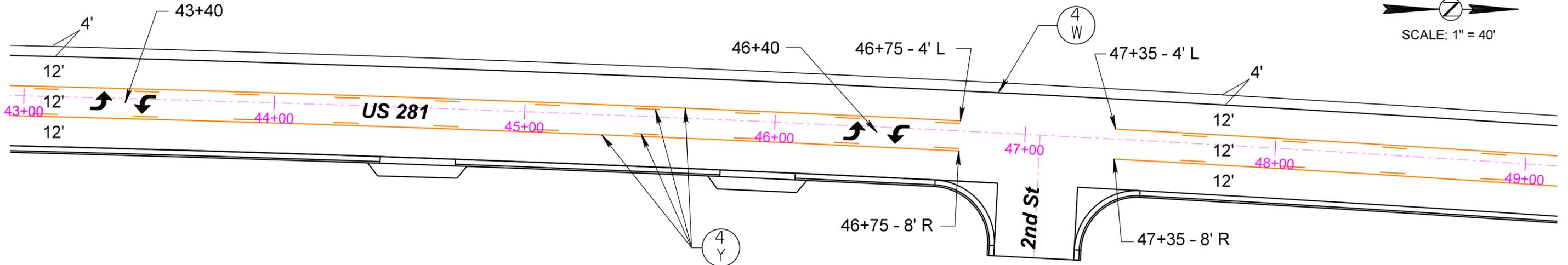
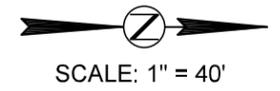
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PAVEMENT MARKING

US 281 - CORSICA

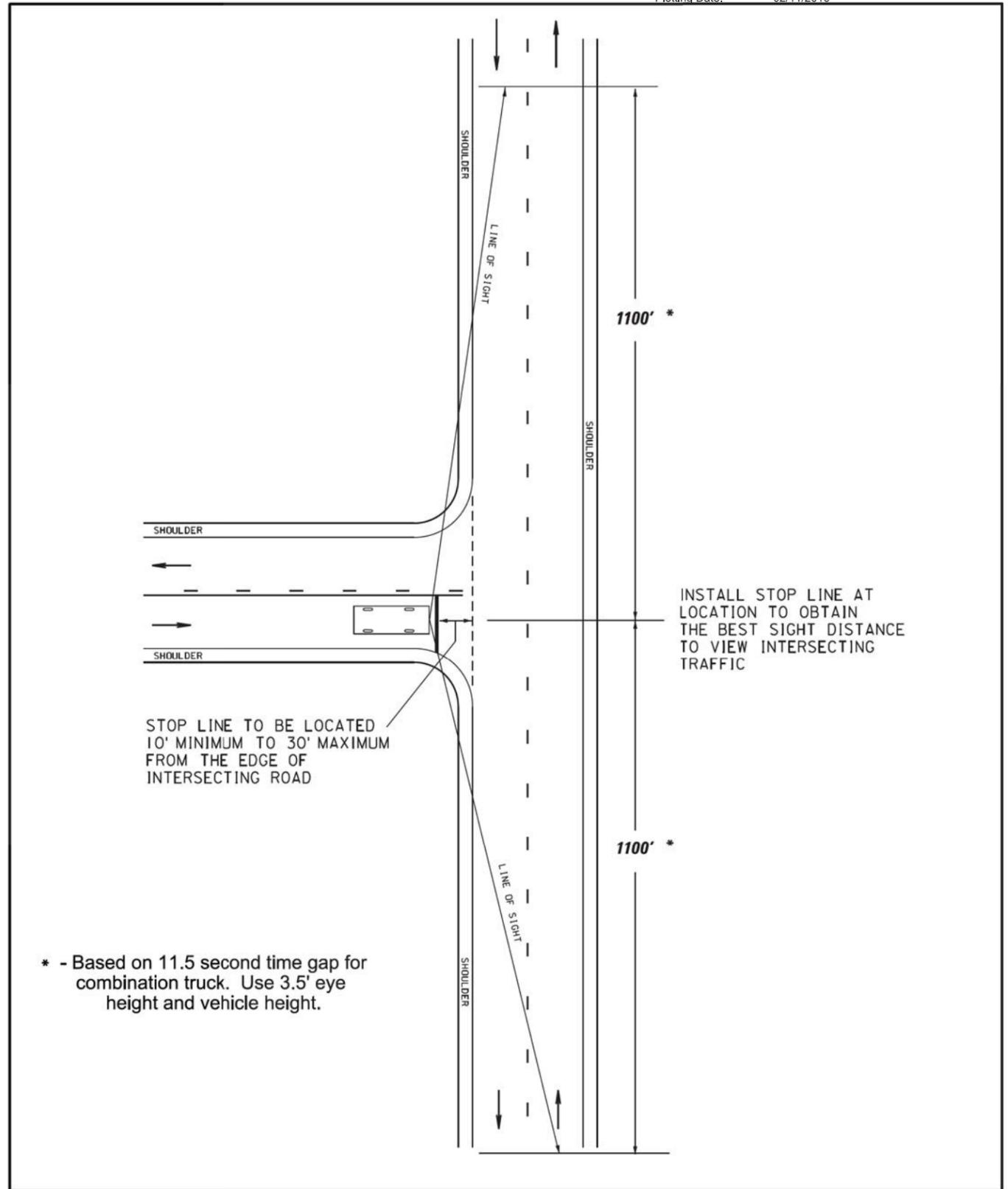
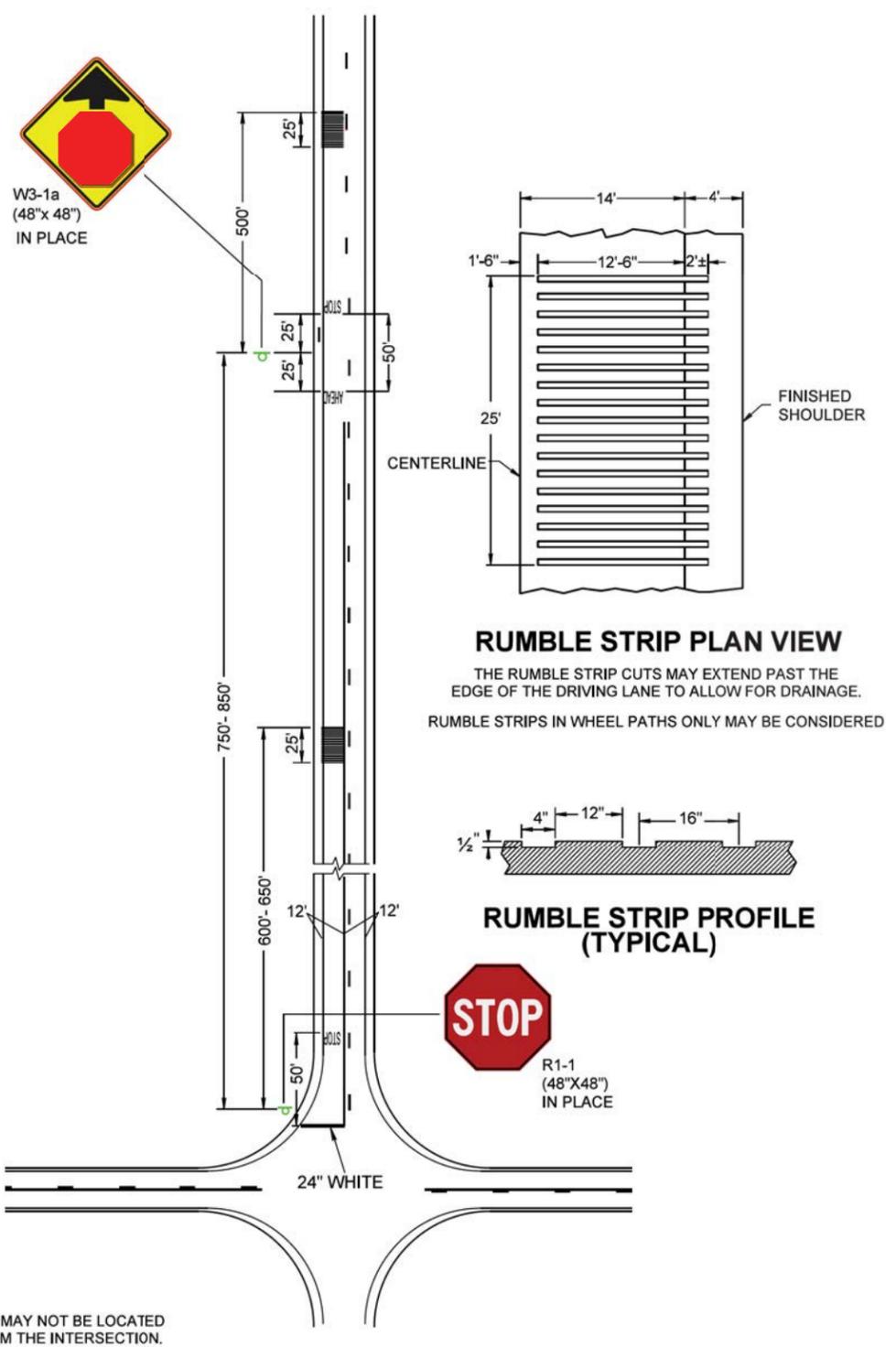
| | | | |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0281(111)48 | 29 | 35 |

Plotting Date: mmm-ddd-yyy



Plotted From: \$\$\$username\$\$\$ Plot Scale: \$\$\$scale\$\$\$ File: \$\$\$filename\$\$\$

SIGNING AND STOP PAVEMENT MARKING LAYOUT WITH RUMBLE STRIPS (Typical)



* - Based on 11.5 second time gap for combination truck. Use 3.5' eye height and vehicle height.

STOP LINE PAVEMENT MARKING INSTALLATION

Plot Scale - 1:200

Plotted From - trm11126

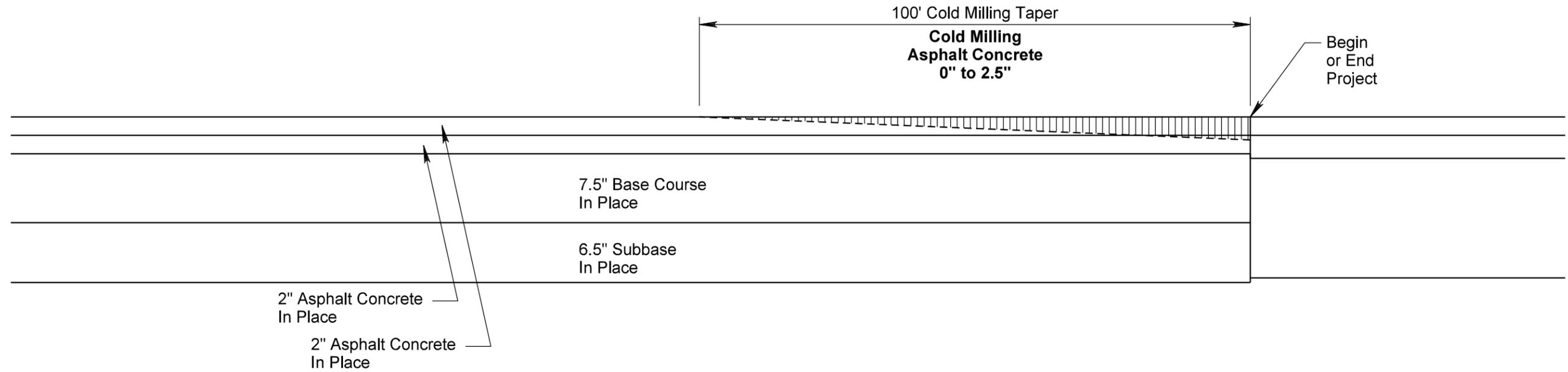
File - ...Adoug04WF\1c04WF_SldPlate.dgn

| | | | |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0281(111)48 | 31 | 35 |

Plotting Date: 02/11/2016

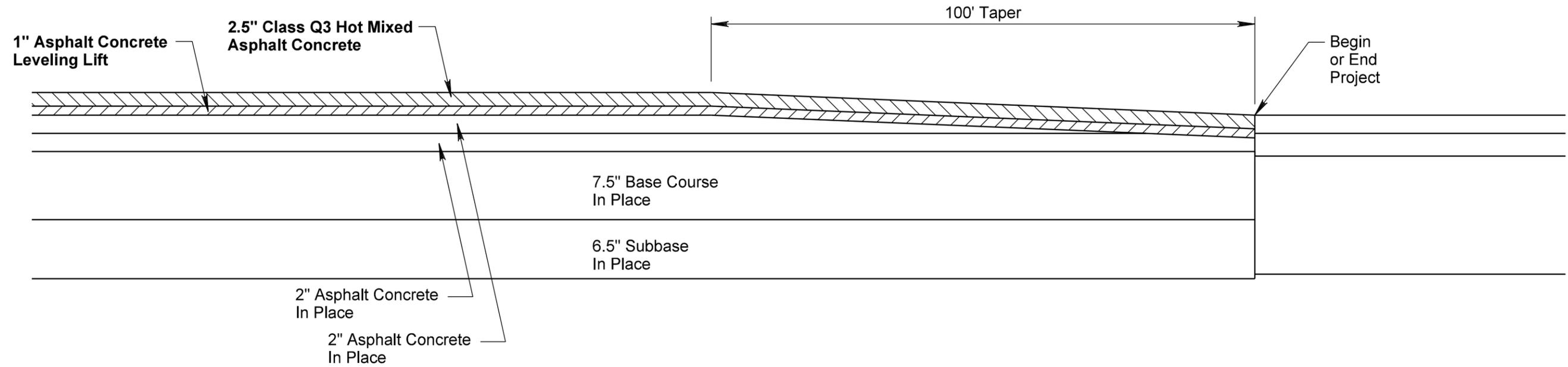
LAYOUT FOR COLD MILLING TAPERS

AT BEGIN AND END PROJECT



LAYOUT FOR RESURFACING TAPERS

AT BEGIN AND END PROJECT



PLOT SCALE - 1:1

PLOT NAME - 7

FILE - ... \PRJ2016\DOUG04WF\MILL04WF.DGN

PLOTTED FROM - TRMLINT16

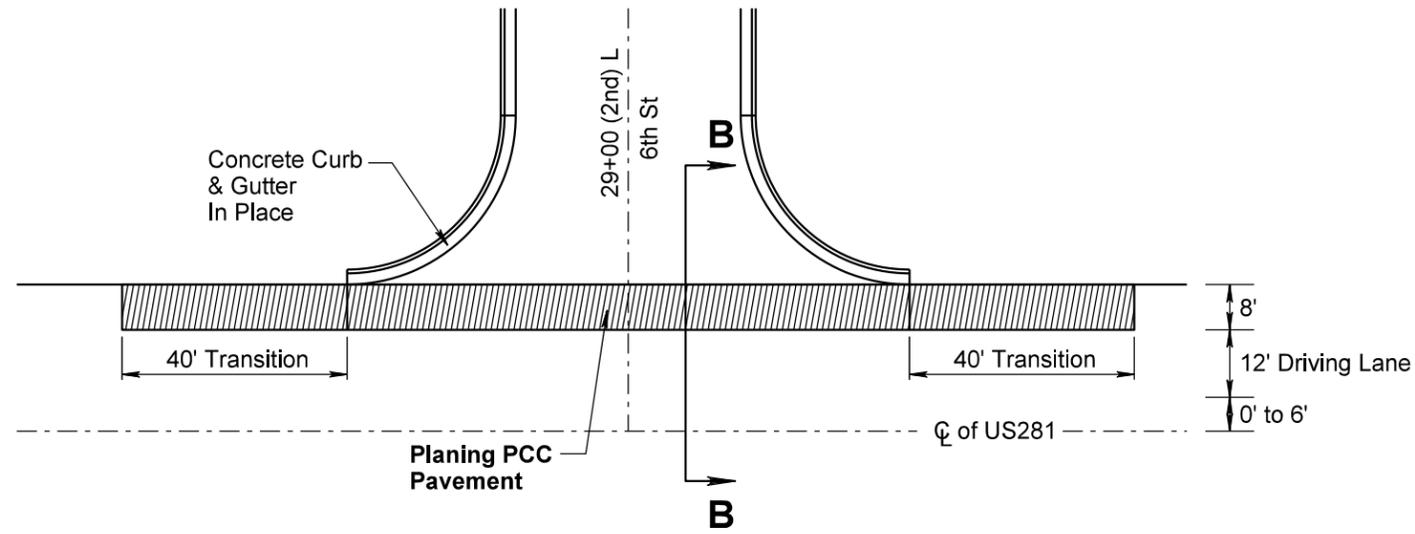
| | | | |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0281(111)48 | 32 | 35 |

Plotting Date: 02/11/2016

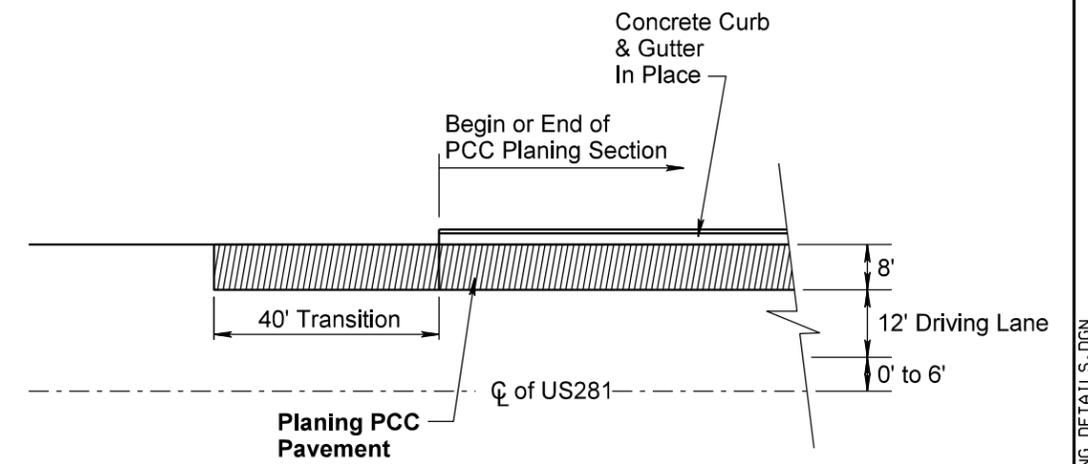
PLANING DETAILS

Intersection at 29+00 (2nd) Left and Begin or End Planing Sections

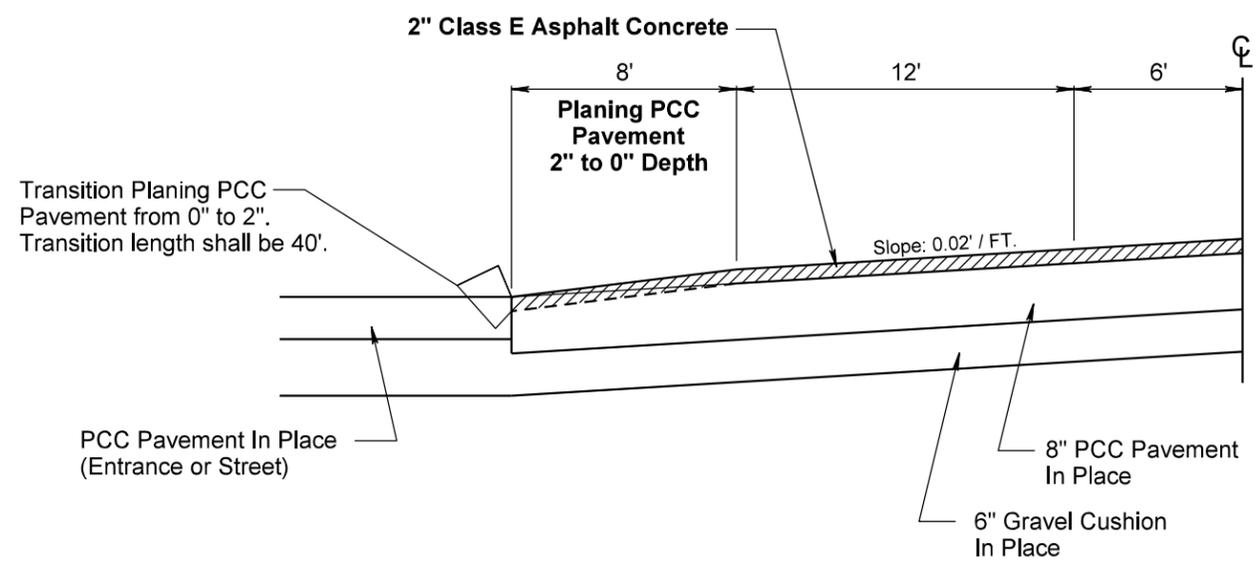
29+00 (2nd) L STREET WITH PCC PAVEMENT ADJACENT



TRANSITION AT BEGIN OR END PCC PLANING SECTION



SECTION B-B



PLOT SCALE - 1+6.5

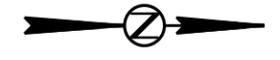
PLOTTED FROM - TRMLINT16

PLOT NAME - 8

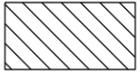
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| | | | |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | NH 0281(111)48 | 33 | 35 |

Plotting Date: 02/11/2016

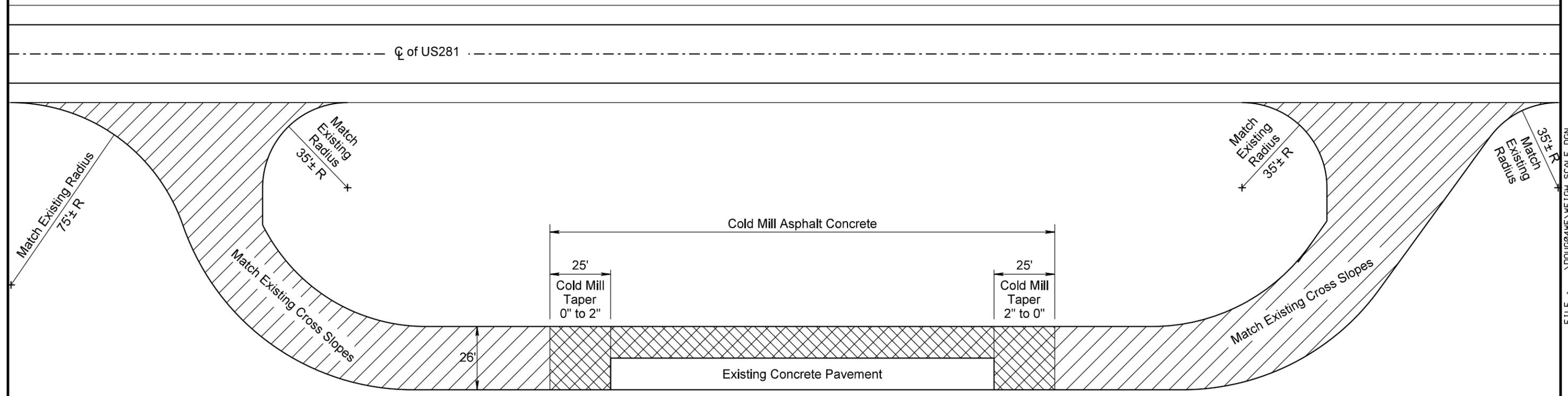


DETAILS FOR RESURFACING WEIGH SCALE

-  2" Class Q3 Hot Mixed Asphalt Concrete
-  Cold Milling Asphalt Concrete

PLOT SCALE - 1:40

PLOT NAME - 9

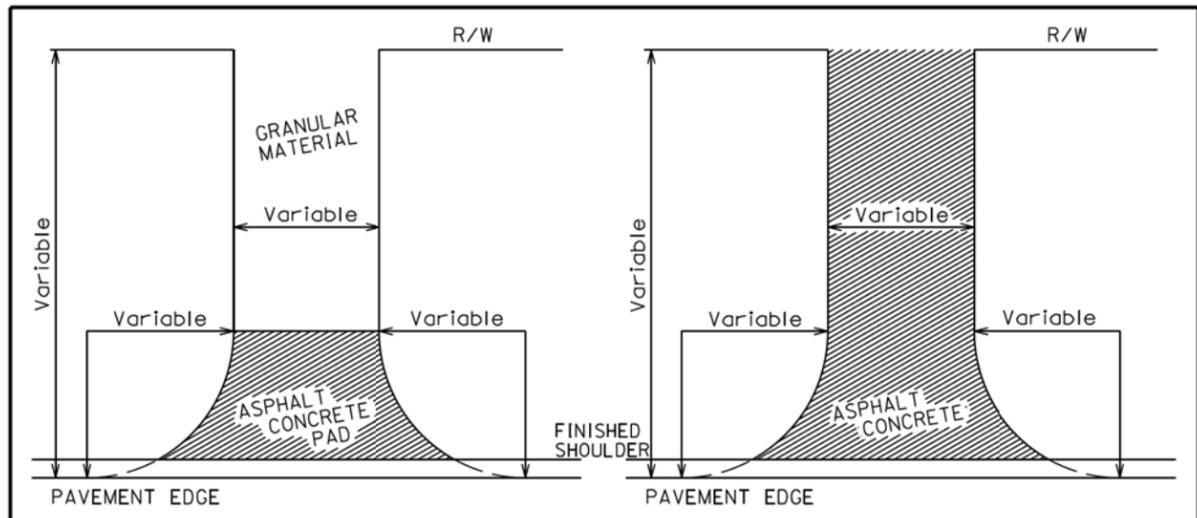


PLOTTED FROM - TRMLINT16

FILE - ... \DOUG04WF\WEIGH_SCALE.DGN

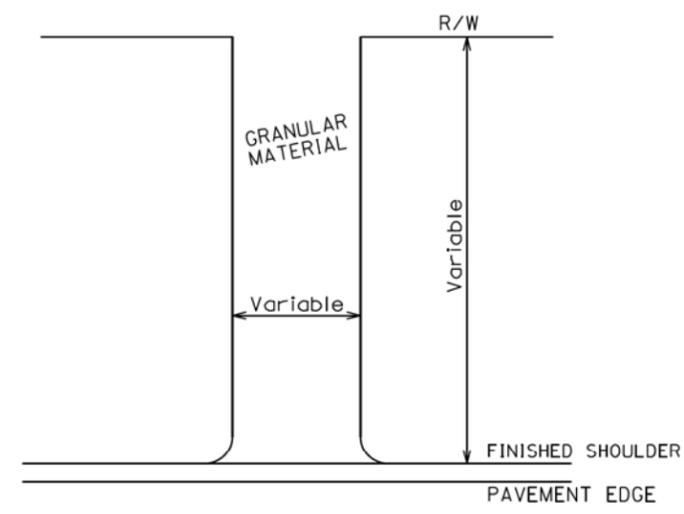
Sec 15 T99N-R64W

Plotting Date: 02/11/2016



INTERSECTING ROAD NO ASPHALT CONCRETE SURFACING BEYOND R/W

INTERSECTING ROAD ASPHALT CONCRETE SURFACING BEYOND R/W



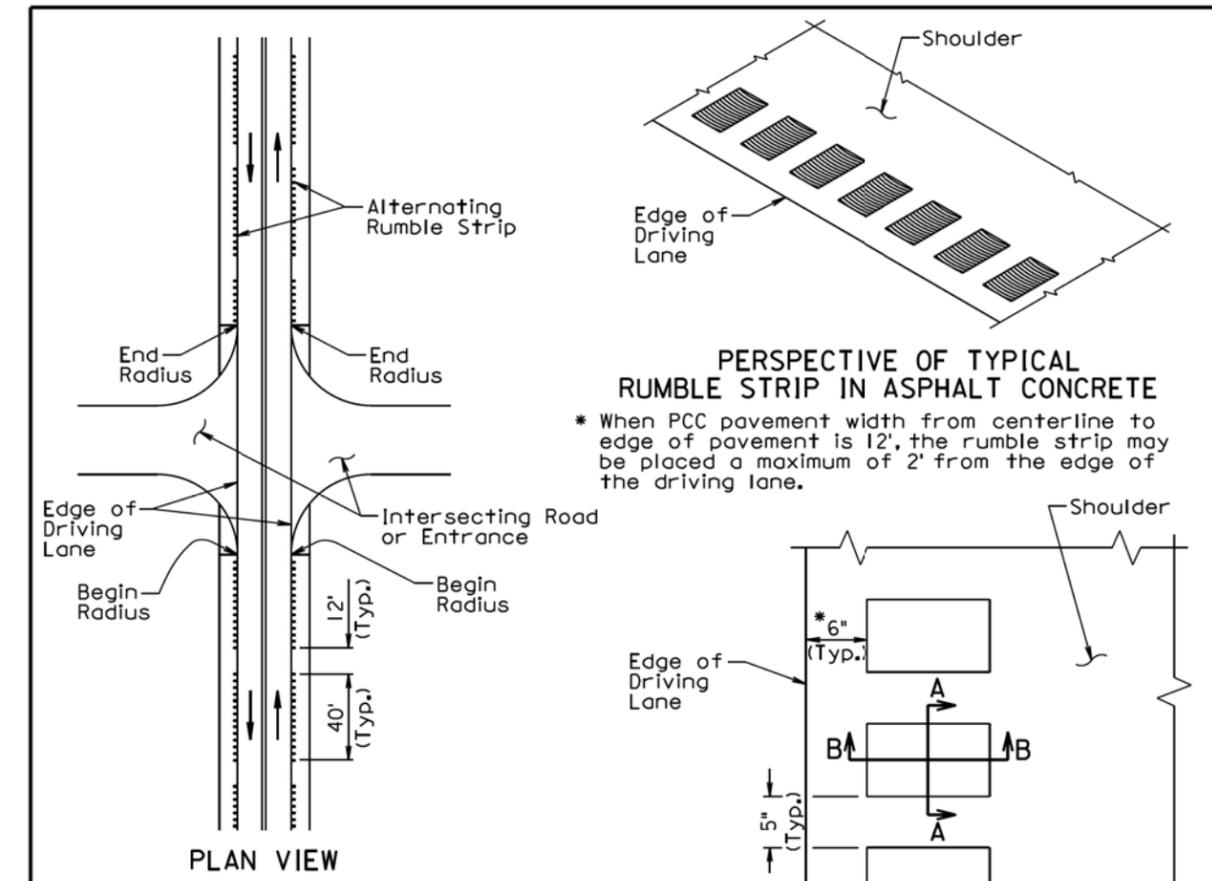
ENTRANCE

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

ROADWAY WITH SHOULDER

March 31, 2000

| | | | |
|-------------------------------|-----------------------|---|------------------------|
| Published Date: 1st Qtr. 2016 | S D D O T | RESURFACING OF INTERSECTING ROADS AND ENTRANCES | PLATE NUMBER 320.11 |
| | | | Sheet 1 of 1 |



PERSPECTIVE OF TYPICAL RUMBLE STRIP IN ASPHALT CONCRETE

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

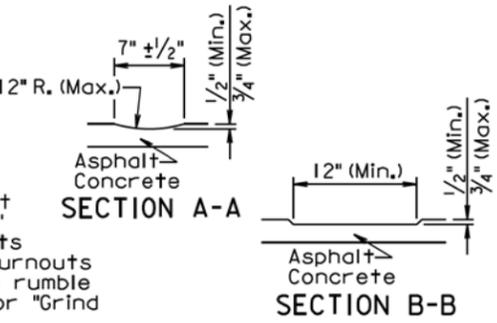
GENERAL NOTES:

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

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

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

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



PLAN VIEW TYPICAL RUMBLE STRIP IN ASPHALT CONCRETE

June 26, 2011

| | | | |
|-------------------------------|-----------------------|--|------------------------|
| Published Date: 1st Qtr. 2016 | S D D O T | 12" RUMBLE STRIP IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS | PLATE NUMBER 320.24 |
| | | | Sheet 1 of 1 |

PLOT SCALE - 1:200

PLOTTED FROM - TRMLINT16

PLOT NAME - 10

FILE - ... \STANDARDPLATES_04WF.DGN

