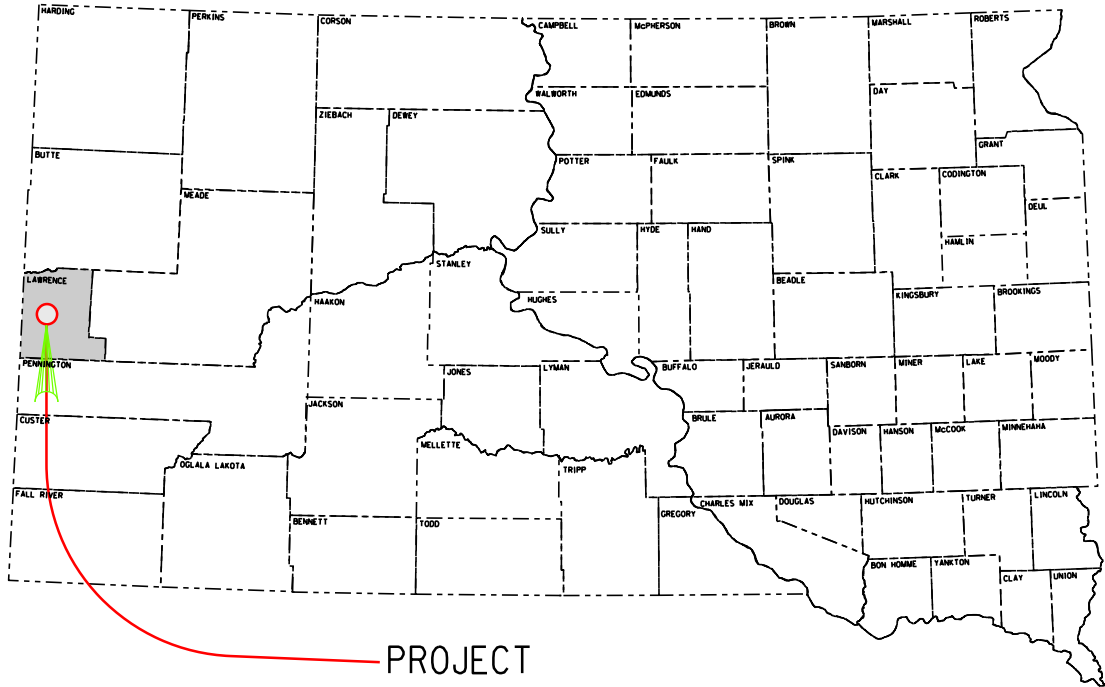


PLOT SCALE - 1:200

PLOTTED FROM - TRRC12608



SD 473 DESIGN DESIGNATION

|            |        |
|------------|--------|
| ADT (2021) | 1388   |
| ADT (2041) | 2011   |
| DHV        | 329    |
| D          | 51%    |
| T DHV      | 4.1%   |
| T ADT      | 9.1%   |
| V          | 40 MPH |

STORM WATER PERMIT

None Required

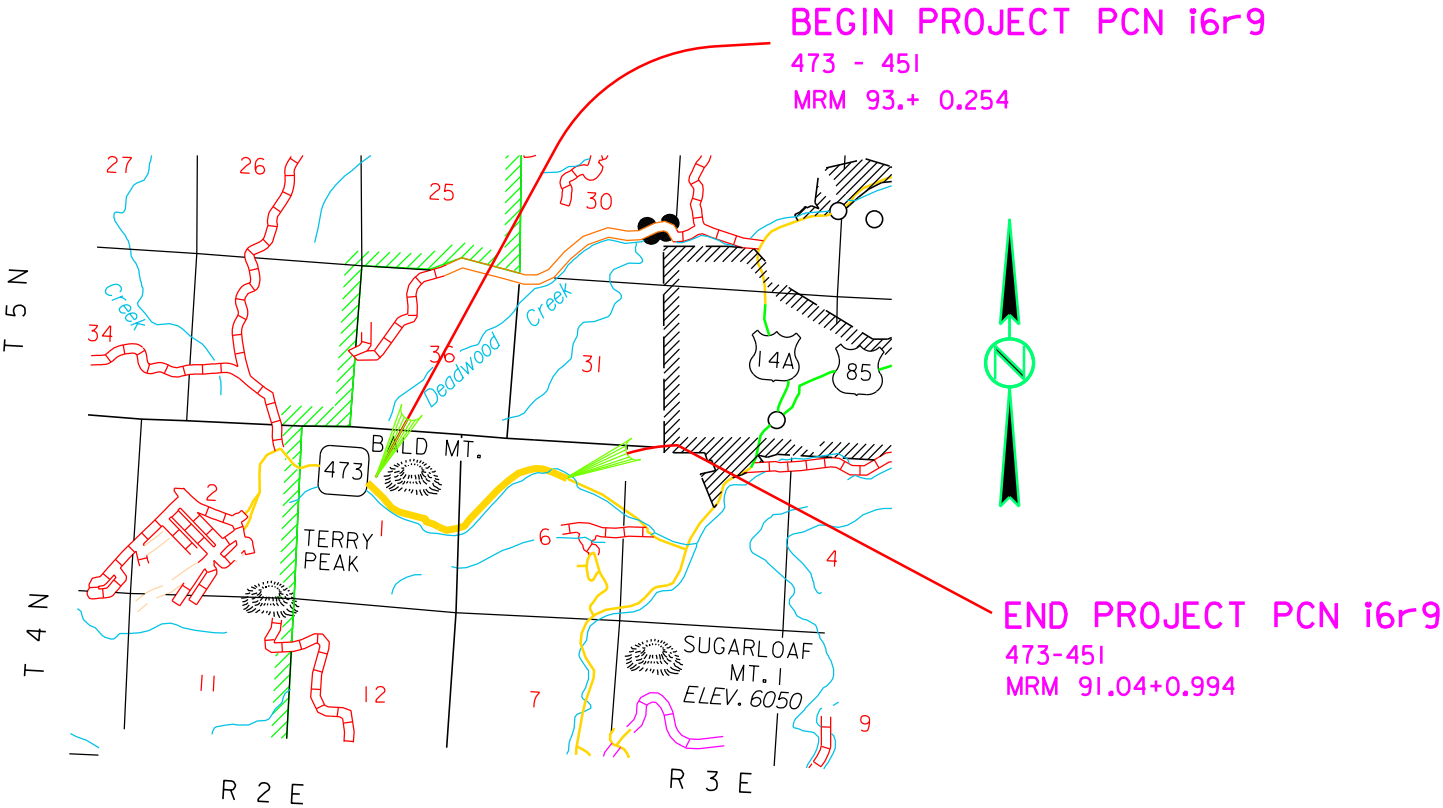
STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION  
PLANS FOR PROPOSED  
PROJECTS 473-451  
SD HWY 473  
LAWRENCE COUNTY  
ASPHALT PAVEMENT REPAIR  
PCN i6r9

| STATE OF<br>SOUTH<br>DAKOTA | PROJECT | SHEET<br>NO. | TOTAL<br>SHEETS |
|-----------------------------|---------|--------------|-----------------|
|                             | 473-451 | 1            | 10              |

Plotting Date: 03/25/2022

INDEX OF SHEETS

|        |                                      |
|--------|--------------------------------------|
| 1      | General Layout W/Index               |
| 2 - 5  | Estimate With General Notes & Tables |
| 6      | Typical Sections                     |
| 7 - 8  | Special Details                      |
| 9 - 10 | Standard Plates                      |



PLOT NAME - 1

FILE - ... \SD473 AC PATCHING\TITLE.DGN

ESTIMATE OF QUANTITIES

| BID ITEM NUMBER | ITEM  | QUANTITY | UNIT |
|-----------------|---|----------|------|
| 009E0010        | Mobilization  | Lump Sum | LS   |
| 320E1200        | Asphalt Concrete Composite                              | 583.6    | Ton  |
| 633E1220        | High Build Waterborne Pavement Marking Paint, 4" White  | 7,780    | Ft   |
| 633E1222        | High Build Waterborne Pavement Marking Paint, 4" Yellow | 5,835    | Ft   |
| 634E0010        | Flagging  | 200.0    | Hour |
| 634E0020        | Pilot Car   | 100.0    | Hour |
| 634E0110        | Traffic Control Signs                                   | 108.1    | SqFt |
| 634E0120        | Traffic Control, Miscellaneous                          | Lump Sum | LS   |
| 634E0640        | Temporary Pavement Marking                              | 7,780    | Ft   |

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

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

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

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 pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

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

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

|                       |         |       |              |
|-----------------------|---------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|                       | 473-451 | 2     | 10           |

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with 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 not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06. Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

State Historic Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. 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 if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

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

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. 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.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

The Contractor is responsible for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COMMITMENT S: FIRE PREVENTION IN THE BLACK HILLS AREA

This project is located within the Black Hills Forest Fire Protection Boundary.

Action Taken/Required:

The Contractor will adhere to the “Special Provision for Fire Plan”.

SURFACING THICKNESS DIMENSIONS

The plans shown spread rates 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, the depth/quantity may be varied to achieve the required elevation.

ASPHALT CONCRETE COMPOSITE

Mineral aggregate will be produced from a ledge rock source.

Mineral aggregate for the Asphalt Concrete Composite will conform to the requirements for Class E, Type 2.

A flush seal will not be required.

Asphalt for tack SS-1h or CSS-1h will be applied prior the Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.09 gallons per square yard on the existing asphalt surfacing. The Asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot per side beyond the full width.

All other requirements in the Standard Specifications for Asphalt Concrete Composite will apply.

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work.

GENERAL TRAFFIC CONTROL

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

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

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

Enough traffic control for 1 setup according to Standard Plate 634.23 have been provided.

Traffic control setup can encompass multiple locations so long as flaggers have line of sight.

No uneven lanes allowed or drop offs will be allowed overnight.

All work started on a day must be completed by darkness and all lanes open to traffic by the end of the working day.

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

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

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

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

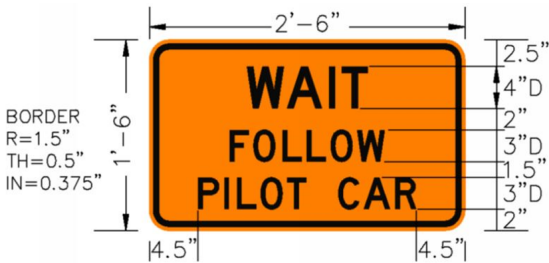
All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

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

FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 10 minutes at the flagger station.

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours. Also included in the Estimate of Quantities are WAIT FOLLOW PILOT CAR signs for use on low volume intersecting roads as determined by the Engineer. WAIT FOLLOW PILOT CAR signs will not block the view of the stop sign.



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

TEMPORARY PAVEMENT MARKING

Temporary Flexible Vertical Markers (Tabs) will be used on the top lift of asphalt surfacing for centerline delineation, lane lines, skips, and as directed by the Engineer. Tabs will be offset 6-inches from the location shown for permanent pavement markings. Centerline will be double yellow lines with tabs spaced at 5’ the entire project length.

No passing zones will be marked in accordance with Specifications.

Covers on the tabs will be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers will be properly disposed of. The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs at no additional cost to the State.

Quantities of Temporary Pavement Markings consist of:

One pass on top of the lift of Asphalt Concrete Composite

No adjustment in the contract unit price for Temporary Pavement Marking will be made because of a variation in quantities.

FLAGGER (W20-7) symbol signs and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights will be positioned on the shoulder in advance of workers for both directions of traffic during the installation and removal of the temporary flexible vertical markers (tabs). The traffic control device used will be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1) sign, a WORKER (W21-1) symbol sign or a BE PREPARED TO STOP (W3-4) sign will be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work must be approved by the Engineer.

Prior to nightfall, tabs will be required to mark centerline on segments of roadway where existing centerline markings have been removed and new markings have not been installed.

ITEMIZED LIST OF TRAFFIC CONTROL DEVICES

| SIGN<br>CODE | SIGN DESCRIPTION      | CONVENTIONAL ROAD   |           |                  |      |
|--------------|-----------------------|---|-----------|------------------|------|
|              |                       | NUMBER  | SIGN SIZE | SQFT<br>PER SIGN | SQFT |
| W20-1        | ROAD WORK AHEAD       | 2   | 48" x 48" | 16.0             | 32.0 |
| W20-4        | ONE LANE ROAD AHEAD   | 2   | 48" x 48" | 16.0             | 32.0 |
| W20-7        | FLAGGER (symbol)      | 2   | 48" x 48" | 16.0             | 32.0 |
| G20-2        | END ROAD WORK         | 1   | 36" x 18" | 4.5              | 4.5  |
| SPECIAL      | WAIT FOLLOW PILOT CAR | 2   | 30" x 18" | 3.8              | 7.6  |
|              |                       | CONVENTIONAL ROAD<br>DETOUR AND RESTRICTION<br>SIGNING SQFT |           |                  |      |
|              |                       | 108.1   |           |                  |      |

PAVEMENT MARKING PAINT

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

The application of permanent pavement marking will begin no sooner than 7 calendar days following completion of the final surfacing. Application of permanent pavement marking will be completed within 14 calendar days following completion of the final surfacing.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

All materials will be applied as per manufacturer’s recommendations. High build waterborne pavement marking paint will conform to the supplemental specifications for Section 980.1 B.

Reflective media will consist of glass beads.

High Build Waterborne Pavement Marking Paint applied after October 15 must be formulated as cold-weather waterborne paint. Cold weather waterborne paint will meet the requirements of Section 980.1 B.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4” line = 22.5 Gals/Mile  
Dashed 4” line = 6.2 Gal/Mile  
Glass Beads = 8 Lbs/Gal.

All cost for materials, labor and equipment necessary to furnish and install the pavement markings will be incidental to the contract unit price for the respective High Build Waterborne Pavement Marking Paint items.

| Table of Material Quantities |       |       |        |       |       |                                  |                                  |  |   |                       |
|------------------------------|-------|-------|--------|-------|-------|----------------------------------|----------------------------------|--|---|-----------------------|
|                              |       |       | Length | Width |       | Asphalt<br>Concrete<br>Composite | Temporary<br>Pavement<br>Marking | High Build<br>Waterborne<br>Pavement<br>Marking<br>Paint, 4"<br>Yellow | High Build<br>Waterborne<br>Pavement<br>Marking<br>Paint, 4"<br>White |                       |
| Highway                      | MRM   | Disp. | (ft)   | (ft)  | SqFt  | (Ton)                            | (Ft)                             | (Ft)   | (Ft)  | Comments              |
| SD 473                       | 93    | 0.254 | 155    | 24    | 3720  | 23.3                             | 310.0                            | 232.5  | 310   | 1" full width overlay |
| SD 473                       | 93    | 0.203 | 130    | 24    | 3120  | 19.5                             | 260.0                            | 195  | 260   | 1" full width overlay |
| SD 473                       | 93    | 0.161 | 350    | 24    | 8400  | 52.5                             | 700.0                            | 525  | 700   | 1" full width overlay |
| SD 473                       | 93    | 0.088 | 200    | 24    | 4800  | 30.0                             | 400.0                            | 300  | 400   | 1" full width overlay |
| SD 473                       | 93    | 0.033 | 490    | 24    | 11760 | 73.5                             | 980.0                            | 735  | 980   | 1" full width overlay |
| SD 473                       | 92    | 0.797 | 850    | 24    | 20400 | 127.5                            | 1700.0                           | 1275   | 1700  | 1" full width overlay |
| SD 473                       | 92    | 0.394 | 700    | 24    | 16800 | 105.0                            | 1400.0                           | 1050   | 1400  | 1" full width overlay |
| SD 473                       | 92    | 0.255 | 120    | 24    | 2880  | 18.0                             | 240.0                            | 180  | 240   | 1" full width overlay |
| SD 473                       | 92    | 0.492 | 130    | 24    | 3120  | 19.5                             | 260.0                            | 195  | 260   | 1" full width overlay |
| SD 473                       | 92    | 0.184 | 385    | 24    | 9240  | 57.8                             | 770.0                            | 577.5  | 770   | 1" full width overlay |
| SD 473                       | 92    | 0.052 | 100    | 24    | 2400  | 15.0                             | 200.0                            | 150  | 200   | 1" full width overlay |
| SD 473                       | 91.04 | 0.994 | 280    | 24    | 6720  | 42.0                             | 560.0                            | 420  | 560   | 1" full width overlay |
|                              |       |       |        |       | Total | 583.6                            | 7780.0                           | 5835.0   | 7780.0  |                       |



PLOT SCALE - 1:40

PLOTTED FROM - TRRC12608

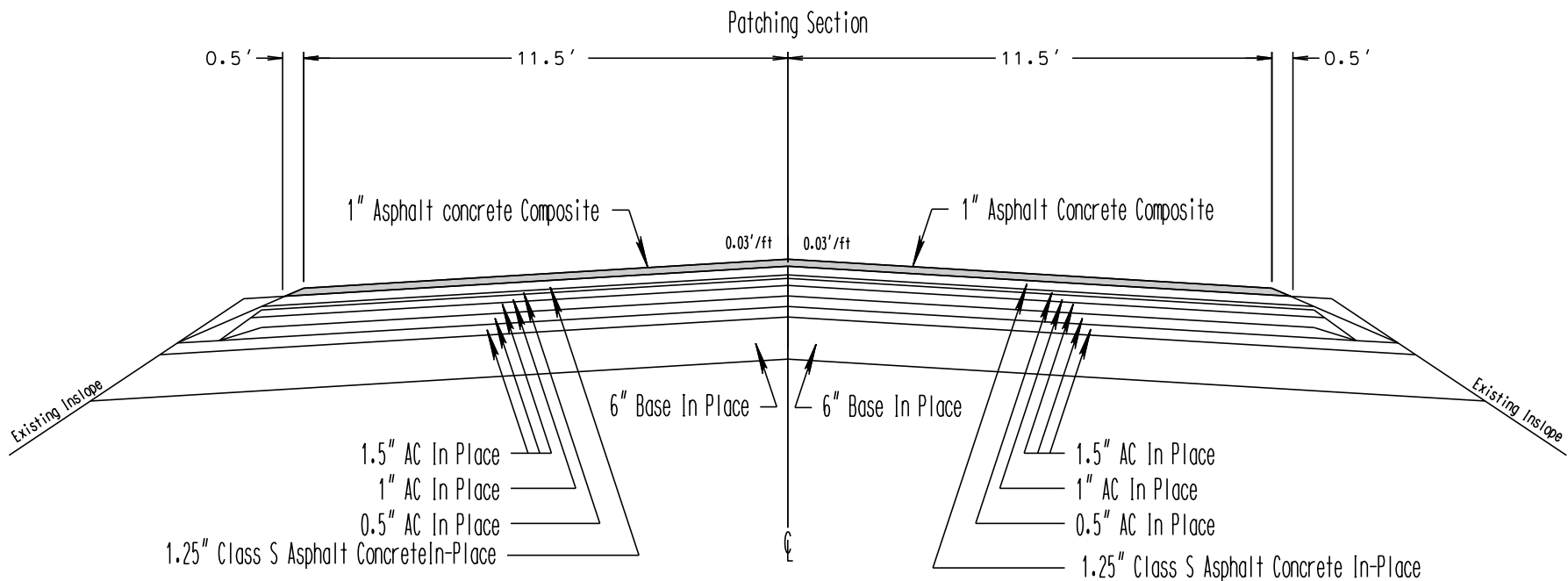
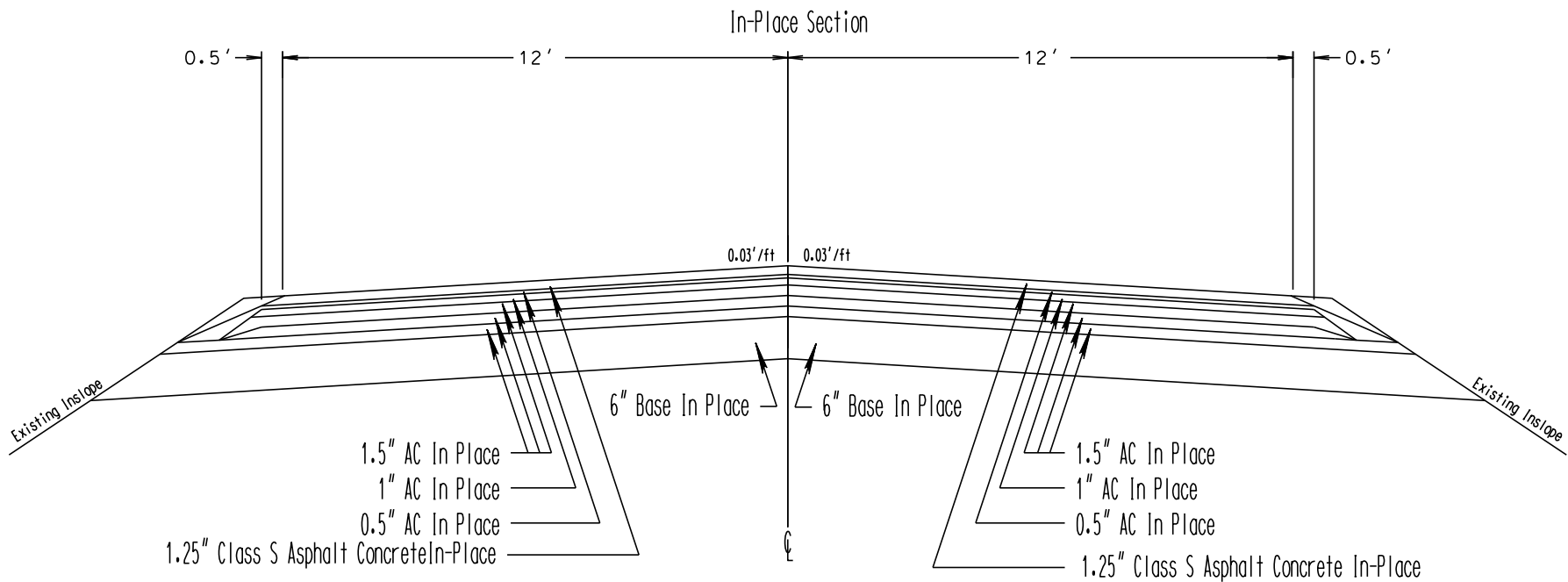
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|-----------------------------|---------|--------------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT | SHEET<br>NO. | TOTAL<br>SHEETS |
|                             | 473-451 | 6            | 10              |

Plotting Date: 03/25/2022

PLOT NAME - 2

FILE - ... \SD473 AC PATCHING\TYP.DGN

# TYPICAL SECTIONS



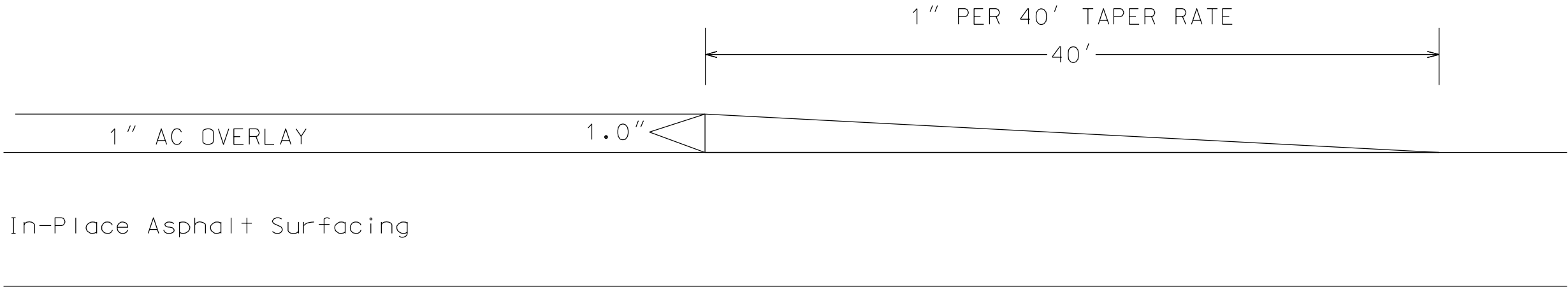
PLOT SCALE - 1:200

PLOTTED FROM - TRRC12608

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|-----------------------------|---------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT | SHEET | TOTAL<br>SHEETS |
|                             | 473-451 | 7     | 10              |

Plotting Date: 03/25/2022

# ASPHALT CONCRETE PROFILE AT BEGIN AND END OF REPAIR



PLOT NAME - 3

FILE - ... \AC TAPERS AT ENDS.DGN

# TYPICAL PAVEMENT MARKING LAYOUT

|                             |         |              |                 |
|-----------------------------|---------|--------------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT | SHEET<br>NO. | TOTAL<br>SHEETS |
|                             | 473-451 | 8            | 10              |

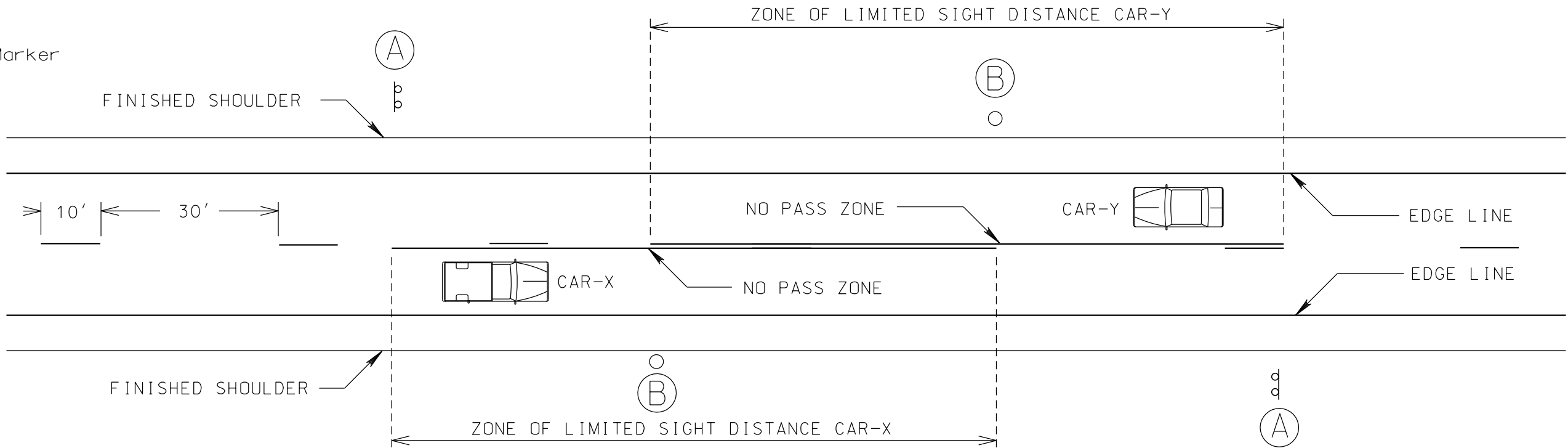
Plotting Date: 03/25/2022

Plot Scale - 1:20

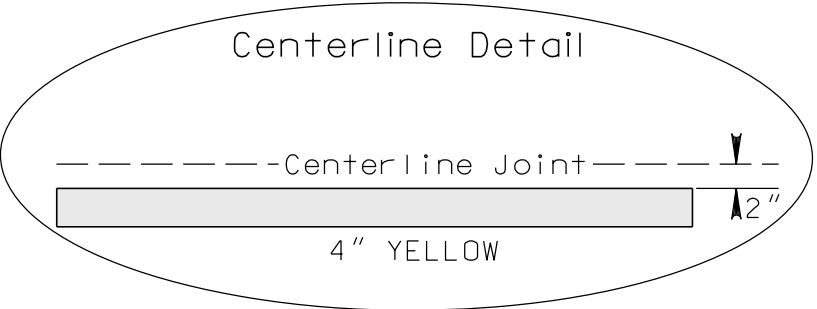
Plotted From - TRRC12608



(B) End of Zone Marker



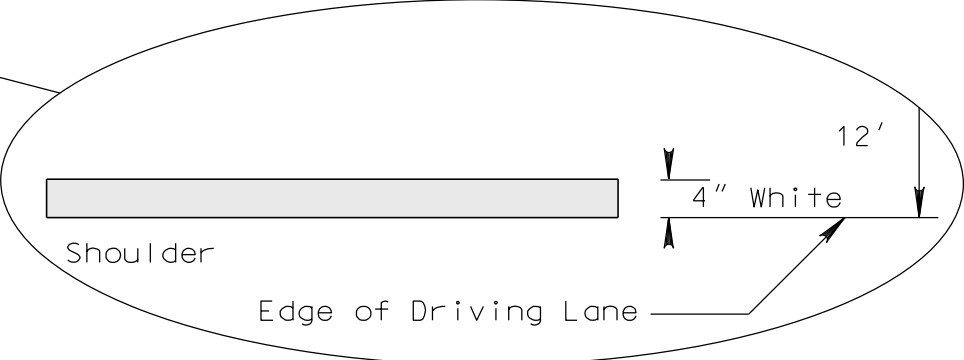
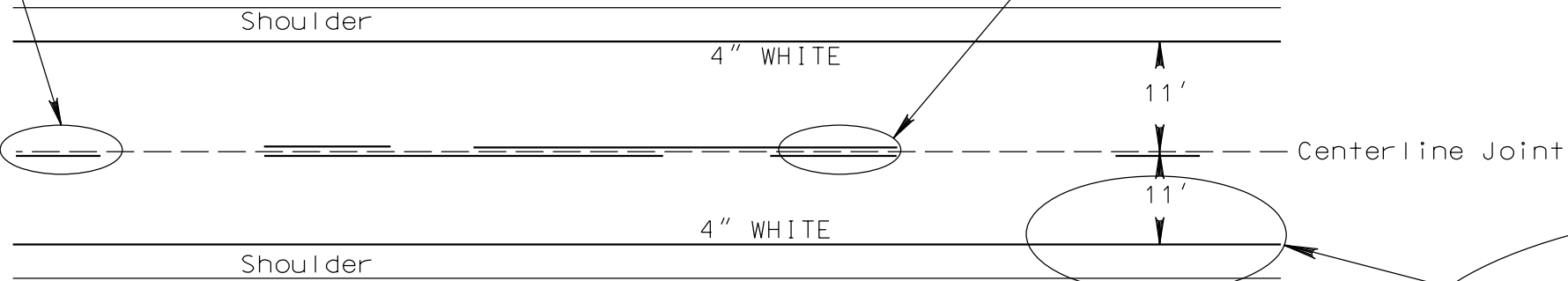
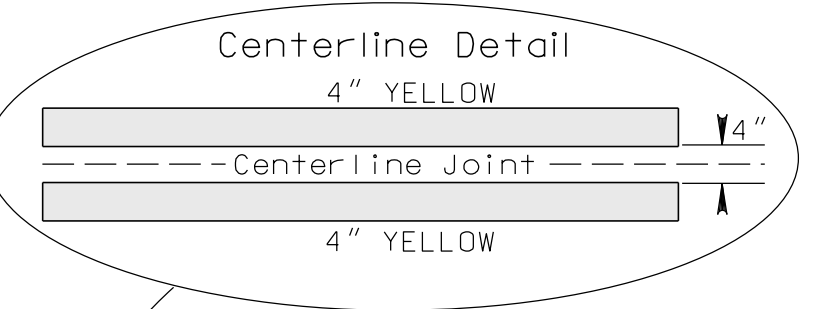
Centerline Detail



NOTE: A TWO "GUN" SYSTEM WILL BE USED TO OBTAIN THIS PATTERN.

WHEN A SINGLE SKIP LINE EXISTS, THE SKIP WILL BE PLACED TO THE SOUTH OR EAST OF THE CENTERLINE JOINT.

Centerline Detail



File - ...PavementMarkingDetails.dgn





