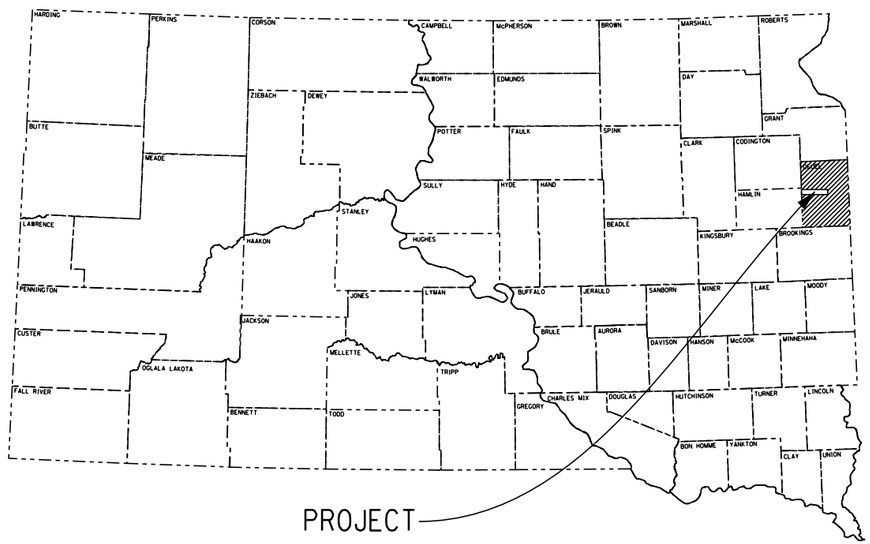
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 1 | 53 |

# STATE OF SOUTH DAKOTA
# DEPARTMENT OF TRANSPORTATION
## PLANS FOR PROPOSED

# PROJECT P 0022(70)360
# SD HIGHWAY 22
# DEUEL COUNTY

Cold Milling Asphalt Concrete,
Asphalt Concrete Resurfacing,
Pipework, & Intersection Improvements

PCN 069C

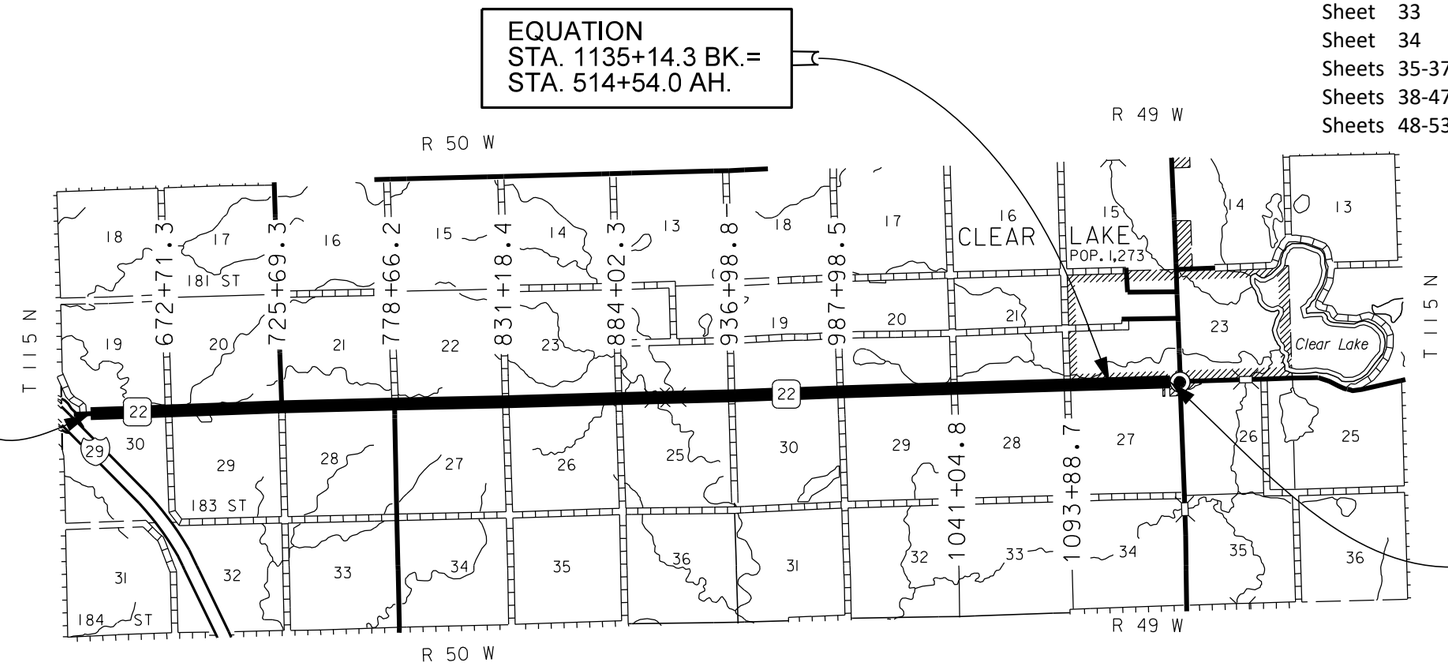



**INDEX OF SHEETS**



EQUATION
STA. 1135+14.3 BK.=
STA. 514+54.0 AH.

**BEGIN PROJECT**
STA. 636+31.2
MRM 360.71 + 0.199




**END PROJECT**
STA 526+05.1
MRM 370.00+ 0.551

DESIGN DESIGNATION

| | |
|---|---|
| AADT (2020) | 1707 |
| AADT (2040) | 2057 |
| DHV | 11.23 |
| D | 50 |
| DHV T% | 13.2 |
| AADT T% | 6.0 |
| V | 65 |

STORM WATER PERMIT

Major Stream: Hidewood Creek

Area Disturbed: 2.6 Acres

Project Area: 176 acres

Approx. Lat 44.746501 / Long -96.879339

| | | | |
|---|---|---|---|
| GROSS LENGTH | 51,034.2 | FEET | 9.666 MILES |
| LENGTH OF EXCEPTIONS | 0 | FEET | 0 MILES |
| NET LENGTH | 51,034.2 | FEET | 9.666 MILES |

4

April 6, 2022

PLOTTED FROM - TRAB17882

# ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
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Revised 1-27-22 MAW

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|---|---|---|---|
| 009E0010 | Mobilization | Lump Sum | LS |
| 110E0130 | Remove Traffic Sign | 1 | Each |
| 110E1010 | Remove Asphalt Concrete Pavement | 5,516.6 | SqYd |
| 110E1700 | Remove Silt Fence | 500 | Ft |
| 110E7150 | Remove Sign for Reset | 6 | Each |
| 110E7500 | Remove Pipe for Reset | 36 | Ft |
| 110E7510 | Remove Pipe End Section for Reset | 16 | Each |
| 120E0010 | Unclassified Excavation | 4,604 | CuYd |
| 120E0100 | Unclassified Excavation, Digouts | 483 | CuYd |
| 120E0600 | Contractor Furnished Borrow Excavation | 5,000 | CuYd |
| 120E1000 | Muck Excavation | 250 | CuYd |
| 120E2000 | Undercutting | 2,530 | CuYd |
| 260E1010 | Base Course | 7,096.6 | Ton |
| 320E0005 | PG 58-34 Asphalt Binder | 1,334.4 | Ton |
| 320E1203 | Class Q3R Hot Mixed Asphalt Concrete | 26,834.6 | Ton |
| 320E1800 | Asphalt Concrete Blade Laid | 1,449.8 | Ton |
| 320E4000 | Hydrated Lime | 272.6 | Ton |
| 320E5020 | Saw Joint in Asphalt Concrete | 4,066 | Ft |
| 320E7008 | Grind 8" Rumble Strip or Stripe in Asphalt Concrete | 18.5 | Mile |
| 320E7030 | Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete | 9.3 | Mile |
| 320E7035 | Grind Sinusoidal Transverse Rumble Strip in Asphalt Concrete | 392.0 | SqFt |
| 330E0100 | SS-1h or CSS-1h Asphalt for Tack | 117.6 | Ton |
| 330E0210 | SS-1h or CSS-1h Asphalt for Flush Seal | 50.1 | Ton |
| 330E2000 | Sand for Flush Seal | 528.8 | Ton |
| 332E0010 | Cold Milling Asphalt Concrete | 167,455 | SqYd |
| 450E9000 | Reset Pipe | 36 | Ft |
| 450E9001 | Reset Pipe End Section | 16 | Each |
| 600E0300 | Type III Field Laboratory | 1 | Each |
| 632E3500 | Reset Sign | 6 | Each |
| 633E0225 | Preformed Thermoplastic Pavement Marking, 24" | 298 | Ft |
| 633E0235 | Preformed Thermoplastic Pavement Marking, Arrow | 4 | Each |
| 633E1200 | High Build Waterborne Pavement Marking Paint, White | 435 | Gal |
| 633E1205 | High Build Waterborne Pavement Marking Paint, Yellow | 200 | Gal |
| 633E5015 | Grooving for Cold Applied Plastic Pavement Marking, 24" | 298 | Ft |
| 633E5025 | Grooving for Cold Applied Plastic Pavement Marking, Arrow | 4 | Each |
| 634E0010 | Flagging | 500.0 | Hour |
| 634E0020 | Pilot Car | 250.0 | Hour |
| 634E0110 | Traffic Control Signs | 592.8 | SqFt |
| 634E0120 | Traffic Control, Miscellaneous | Lump Sum | LS |
| 634E0275 | Type 3 Barricade | 3 | Each |
| 634E0630 | Temporary Pavement Marking | 48.3 | Mile |
| 734E0010 | Erosion Control | Lump Sum | LS |
| 734E0154 | 12" Diameter Erosion Control Wattle | 50 | Ft |
| 734E0604 | High Flow Silt Fence | 500 | Ft |
| 734E0610 | Mucking Silt Fence | 10 | CuYd |
| 900E0010 | Refurbish Single Mailbox | 14 | Each |
| 900E1980 | Storage Unit | 1 | 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

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 C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment will be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

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

**Action Taken/Required:**

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at:
< http://sdleastwanted.com/maps/default.aspx >

< South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species: https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04 >

## COMMITMENT D: WATER QUALITY STANDARDS

## COMMITMENT D1: SURFACE WATER QUALITY

This project may be in the vicinity of multiple streams and wetlands. These waters are considered waters of the state and are protected under Administrative Rules of South Dakota (ARSD) Chapter 74:51. Special construction measures may have to be taken to ensure that this water body is not impacted.

**Action Taken/Required:**

The Contractor is advised that the South Dakota Surface Water Quality Standards, administered by the South Dakota Department of Agriculture and Natural Resources (DANR), apply to this project. Special construction measures will be taken to ensure the above standard(s) of the surface waters are maintained and protected.

## COMMITMENT D2: SURFACE WATER DISCHARGE

The DANR General Permit for Temporary Discharge is required for temporary dewatering and discharges to waters of the state. The effluent limit for total suspended solids will be 90 mg/L 30-day average. The effluent limit applies to discharges to all waters of the state except discharges to waters classified as cold water permanent fish life propagation waters according to the ARSD 74:51:01:45. For discharges to waters of the state classified as cold water permanent fish life propagation waters, the effluent limit for total suspended solids will be 53 mg/L daily maximum.

The permittee has the option of completing effluent testing or implementing a pollution prevention plan for compliance with this permit. If the permittee develops a pollution prevention plan instead of total suspended solids sampling, the plan must be developed and implemented prior to discontinuing total suspended solids sampling. Refer to Section 4.0 of the permit. If any pollutants are suspected of being discharged, a sample must be taken for those parameters listed in Section 3.4 of the permit.

Refer to Commitment D1: Surface Water Quality for stream classification.

# ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

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**COMMITMENT D: WATER QUALITY STANDARDS (CONT.)**

**COMMITMENT D2: SURFACE WATER DISCHARGE (CONT.)**

**Action Taken/Required:**

If construction dewatering is required and this project is currently covered under a General Permit for Stormwater Discharges Associated with Construction Activities, the contractor will need to submit the dewatering information to the SDDANR using the following form:
<https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_AddTempInfoFillable.pdf>

The Contractor will provide a copy of the approved permit or the submitted dewatering information to the Project Engineer prior to proceeding with any dewatering activities. The approved permit or submitted dewatering information must be kept on-site and as part of the project records.

Effluent monitoring, as a result of dewatering activities, will be summarized for each month and recorded on a separate Discharge Monitoring Report (DMR) and submitted to DANR monthly. Additional information can be found at:
<http://denr.sd.gov/des/sw/WhatisaDMR.aspx >

**COMMITMENT E: STORM WATER**

Construction activities constitute 1 acre or more of earth disturbance and/or work in a waterway.

**Action Taken/Required:**

The DANR General Permit for Stormwater Discharges Associated with Construction Activities is required for construction activity disturbing one or more acres of earth and work in a waterway. The SDDOT is the owner of this permit and will submit the NOI to DANR 15 days prior to project start in order to obtain coverage under the General Permit. Work can begin once the DANR letter of approval is received.

The Contractor must adhere to the “Special Provision Regarding Storm Water Discharges to Waters of the State.”

The Contractor will complete the DANR Contractor Certification Form prior to the pre-construction meeting. The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the permit for this project. Work may not begin on this project until this form is signed and submitted to DANR.
The form can be found at:
<https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_CGPAppendixCCA2018Fillable.pdf >

The Contractor is advised that permit coverage may also be required for off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

**Storm Water Pollution Prevention Plan**

The Storm Water Pollution Prevention Plan (SWPPP) will be developed prior to the submittal of the NOI and will be implemented for all construction activities for compliance with the permit. The SWPPP must be kept on-site and updated as site conditions change. Erosion control measures and best management practices will be implemented in accordance with the SWPPP.

The DOT 298 Form will be used for site inspections and to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents and retained for a minimum of three years.

The inspection will include disturbed areas of the construction site that have not been finally stabilized, areas used for storage materials, structural control measures, and locations where vehicles enter or exit the site. These areas will be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP will be observed to ensure that they are operating correctly, and sediment is not tracked off the site.

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

SDDOT: < https://dot.sd.gov/doing-business/environmental/stormwater >
DANR:<https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/default.aspx>
EPA: < https://www.epa.gov/npdes >

**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.

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**

The SDDOT has obtained concurrence with the State Historic 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 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.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will 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.

# SURFACING SECTION

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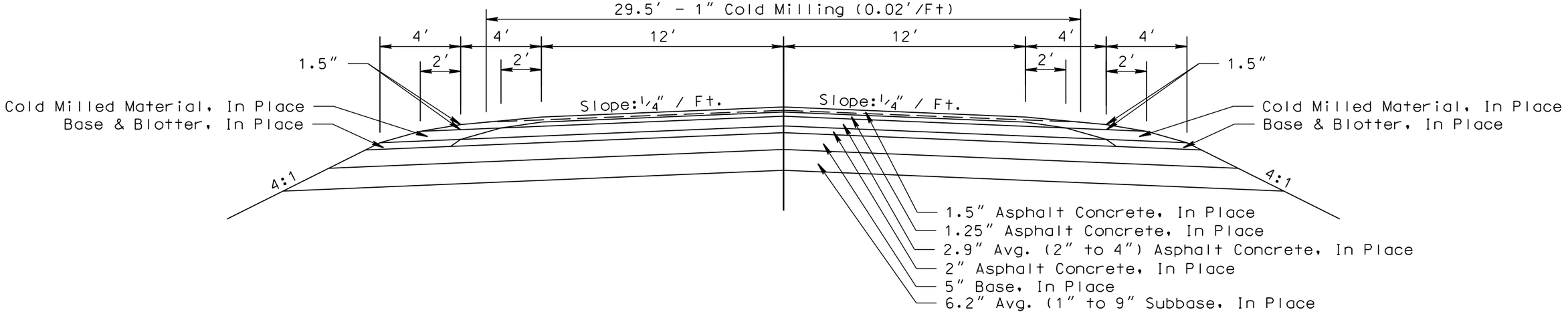
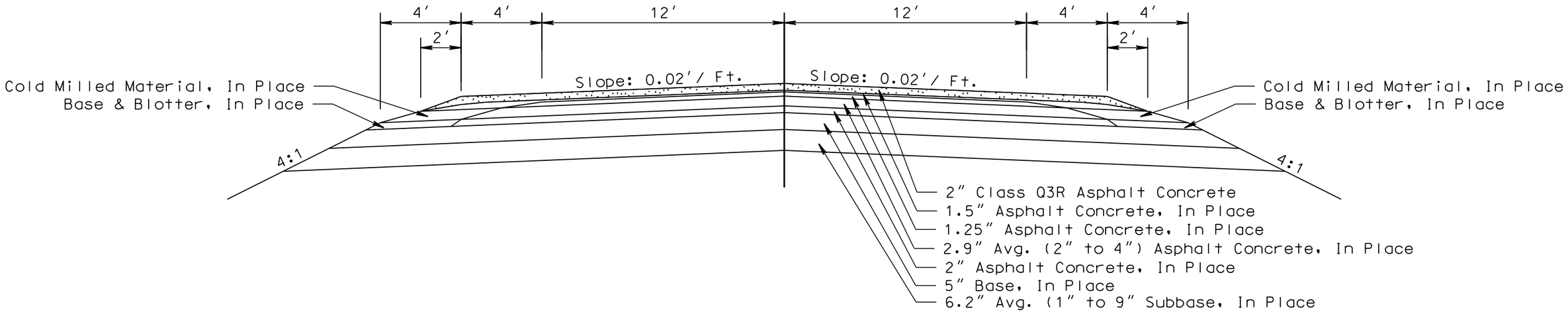
Section 1
Sta. 636+31.2 to 716+00
Sta. 736+00 to Sta. 526+05.1 (Thru Equation)
In Place & Cold Milling Section




Section 1
Sta. 636+31.2 to 716+00
Sta. 736+00 to Sta. 526+05.1 (Thru Equation)
Resurfacing Section



# TYPICAL GRADING & SURFACING SECTION

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
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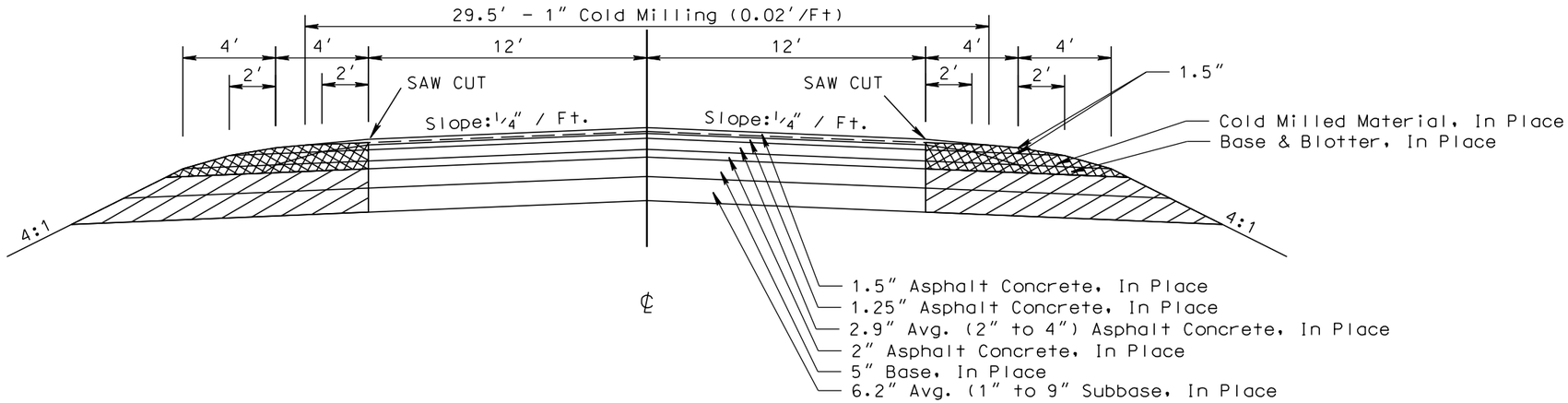
Remove Asphalt Concrete Pavement

Unclassified Excavation

Section 2
SD 22 & County Rd 312 (Turn Lane)
Sta. 716+00 to 736+00
In Place Section



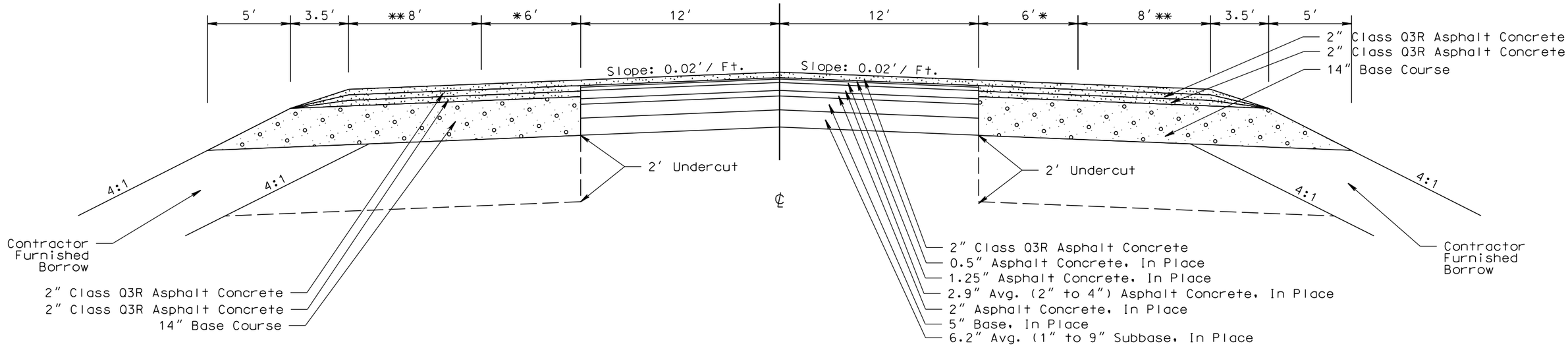

WIDENED SECTIONS - The elevation of the subgrade under the widened sections will be at or below subgrade elevation under existing adjacent mainline pavement that is to remain in place.

Transitions:

* 0' to 6' & ** 4' to 8'
Sta. 716+36.76 to 719+06.84

* 6' to 0' & ** 8' to 4'
Sta. 732+42.30 to 735+12.40

Section 2
SD 22 & County Rd 312 (Turn Lane)
Sta. 716+00 to 736+00
Resurfacing Section




PLOTTED FROM - TRAB17882

## RATES OF MATERIALS

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

**SECTION 1**
Sta. 636+31.20 to Sta. 716+00.00
Sta. 736+00.00 thru Equation to Sta. 526+05.10

**CLASS Q3R HOT MIXED ASPHALT CONCRETE – 2" LIFT**

| | |
|---|---|
| Crushed Aggregate..... | 1721 Tons |
| Salvaged Asphalt Concrete ..... | 430 Tons |
| PG 58-34 Asphalt Binder..... | 106 Tons |
| **Total without Lime** | **2257 Tons** |
| Hydrated Lime..... | 23 Tons |
| **Total with Lime** | **2280 Tons** |

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

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **5.6** tons applied **25** feet wide prior to Asphalt Concrete Blade Laid.
(Rate = 0.09 gal./sq.yd.)

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **5.5** tons applied **37** feet wide.
(Rate = 0.06 Gal./Sq.Yd.)

**FLUSH SEAL**

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of **4.5** tons applied **36** feet wide.
(Rate = 0.05 Gal./Sq.Yd.).

Sand for Flush Seal at the rate of **52** tons applied **22** feet wide. (Rate = 8 Lb./Sq.Yd.).

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

## MAINLINE – TURNING LANE SECTION

**SECTION 2** (One Side)

**Sta.** 716+00.00 to Sta. 736+00.00

Base Course for the Turning Lanes will be at the rate of **163.33** tons/sta for each side.

**SECTION 2** (2" 1st and 2nd Lift per side)
**Sta.** 716+00.00 to Sta. 736+00.00

**CLASS Q3R HOT MIXED ASPHALT CONCRETE – 2" LIFT**

| | |
|---|---|
| Crushed Aggregate..... | 14.81 Tons/Sta |
| Salvaged Asphalt Concrete ..... | 3.70 Tons/Sta |
| PG 58-34 Asphalt Binder..... | 0.91 Tons/Sta |
| Total without Lime | 19.42 Tons/Sta |
| Hydrated Lime..... | 0.19 Tons/Sta |
| **Total with Lime** | **19.61 Tons/Sta** |

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

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **0.05** tons applied **18** feet per side Prior to the 1st and 2nd Lifts.
(Rate = 0.06 Gal./Sq.Yd.)

**SECTION 2** (2" Top Lift)
**Sta.** 716+00.00 to Sta. 736+00.00

**CLASS Q3R HOT MIXED ASPHALT CONCRETE – 2" LIFT**
**(Both Sides)**

| | |
|---|---|
| Crushed Aggregate..... | 52.20 Tons/Sta |
| Salvaged Asphalt Concrete ..... | 13.05 Tons/Sta |
| PG 58-34 Asphalt Binder..... | 3.22 Tons/Sta |
| Total without Lime | 68.47 Tons/Sta |
| Hydrated Lime..... | 0.68 Tons/Sta |
| **Total with Lime** | **69.15 Tons/Sta** |

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

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **0.11** tons applied **25** feet wide prior to Asphalt Concrete Blade Laid.
(Rate = 0.09 gal./sq.yd.)

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **0.17** tons applied **60** feet wide.
(Rate = 0.06 Gal./Sq.Yd.)

**FLUSH SEAL**

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of **0.14** tons applied **59** feet wide.
(Rate = 0.05 Gal./Sq.Yd.).

Sand for Flush Seal at the rate of **1.5** tons applied **33** feet wide. (Rate = 8 Lb./Sq.Yd.).

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**SD 22 - PCN 069C - TABLE OF PROJECT STATIONING**

| SECTION | STATION | TO | STATION | LENGTH (Ft) | GROSS SECTION LENGTH (Ft) | GROSS SECTION LENGTH (Miles) |
|---|---|---|---|---|---|---|
| 1 | 636+31.20 | to | 716+00.00 | 7968.8 | 7968.80 | 1.509 |
| 2 | 716+00.00 | to | 736+00.00 | 2000.0 | 2000.00 | 0.379 |
| 1 | 736+00.00 | to | 1135+14.30 | 39914.3 | 39914.30 | 7.560 |
| 1 | 514+54.00 | to | 526+05.10 | 1151.1 | 1151.10 | 0.218 |
| TOTAL: | | | | | 51034.20 | 9.666 |

**SD 22 - PCN 069C - TABLE OF MATERIAL QUANTITIES**

| | COLD MILLING ASPHALT CONCRETE | UNCLASSIFIED EXCAVATION, DIGOUTS | BASE COURSE | CLASS Q3R HOT MIXED ASPHALT CONCRETE | HYDRATED LIME | PG 58-34 ASPHALT BINDER | SALVAGED ASPHALT CONCRETE (RAP) (NABI.) | VIRG. AGGR. (NABI.) | ASPHALT CONCRETE BLADE LAID | HYDRATED LIME | PG 58-34 ASPHALT BINDER | VIRG. AGGR. (NABI.) | CLASS Q3R HOT MIXED ASPHALT CONCRETE | PG 58-34 ASPHALT BINDER | HYDRATED LIME | SALVAGED ASPHALT CONCRETE (RAP) (NABI.) | VIRG. AGGR. (NABI.) | SS-1h/ CSS-1h ASPH. FOR TACK | SS-1h/ CSS-1h ASPH. FOR FLUSH SEAL | SAND FOR FLUSH SEAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | <----------Spot Leveling----------> | | | | | <----------Blaid Laid----------> | | | | <----------Main Line----------> | | | | | | | |
| **SECTION** | SqYd | CuYd | Ton | Ton | Ton | Ton | Ton | Ton | Ton | Ton | Ton | Ton | Ton | Ton | Ton | Ton | Ton | Ton | Ton | Ton |
| **1** | 26120.0 | 75.5 | 150.9 | 150.9 | 1.5 | 7.1 | 28.5 | 113.9 | 226.4 | 2.3 | 16.8 | 207.4 | 3440.5 | 160.0 | 34.7 | 649.2 | 2596.6 | 16.8 | 6.8 | 77.9 |
| **2** | 6555.6 | 18.9 | 37.9 | 37.9 | 0.4 | 1.8 | 7.1 | 28.6 | 56.8 | 0.6 | 4.2 | 52.0 | 2617.3 | 157.0 | 26.2 | 486.8 | 1947.3 | 9.6 | 2.8 | 29.3 |
| **1** | 130830.2 | 378.0 | 756.0 | 756.0 | 7.6 | 35.5 | 142.6 | 570.3 | 1133.9 | 11.3 | 83.9 | 1038.7 | 17236.8 | 801.4 | 173.9 | 3252.3 | 13009.2 | 84.4 | 34.0 | 390.3 |
| **1** | 3773.0 | 10.9 | 21.8 | 21.8 | 0.2 | 1.0 | 4.1 | 16.4 | 32.7 | 0.3 | 2.4 | 30.0 | 497.0 | 23.1 | 5.0 | 93.8 | 375.1 | 2.4 | 1.0 | 11.3 |
| **Sub totals** | 167278.8 | 483.3 | 966.6 | 966.6 | 9.7 | 45.4 | 182.3 | 729.2 | 1449.8 | 14.5 | 107.3 | 1328.0 | 23791.6 | 1141.5 | 239.8 | 4482.1 | 17928.2 | 113.2 | 44.5 | 508.8 |
| **Additional Quantities** | 176.0 | - | 6130.0 | - | - | - | - | - | - | - | - | - | 868.4 | 40.2 | 8.6 | 173.7 | 690.9 | 4.4 | 5.6 | 20.0 |
| **Totals** | 167454.8 | 483.3 | 7096.6 | 966.6 | 9.7 | 45.4 | 182.3 | 729.2 | 1449.8 | 14.5 | 107.3 | 1328.0 | 24660.0 | 1181.7 | 248.4 | 4655.7 | 18619.1 | 117.6 | 50.1 | 528.8 |

Note:

The Main Line quantities shown above for Section 2 have been adjusted to account for the transitions at the beginning and end of Section 2.

Base Course quantity above is partially represented by the 910 tons from the Table of Additional Quantities and 5060 tons of Base Course for the shoulders of Section 2, taking into account the transition tapers.

## SUMMARY OF ASPHALT CONCRETE

| LOCATIONS: | Class Q3R Hot Mixed Asphalt Concrete with Specified Density Compaction TONS | Class Q3R Hot Mixed Asphalt Concrete without Specified Density Compaction TONS | Asphalt Concrete Blade Laid without Specified Density Compaction TONS |
|---|---|---|---|
| Section 1 - Mainline lift (24' wide) Shoulder (Sta 636+31.2 to Sta 716+00.0) | 2384.7 | 1206.7 | - |
| Section 2 - Mainline lift (24' wide) Shoulder (Sta 716+00.0 to Sta 736+00.0) | 2655.2 | - | - |
| Section 1 - Mainline lift (24' wide) Shoulder (Sta 736+00.0 to Sta 1135+14.3) | 11944.7 | 6048.0 | - |
| Section 1 - Mainline lift (24' wide) Shoulder (Sta 514+54.0 to Sta 526+05.1) | 344.5 | 174.3 | - |
| Spot leveling, strengthening, and repair of existing surface | - | 966.6 | - |
| Backfilling Unclassified Excavation, Digouts (25 tons / mile) | - | 241.5 | |
| Table of Additional Quantities | - | 868.4 | - |
| Asphalt Concrete Blade Laid | - | - | 1449.8 |
| | | | |
| **TOTAL** | **17329.1** | **9505.5** | **1449.8** |

***Total Class Q3R Hot Mixed Asphalt Concrete:*** **26834.6** ***Tons***

PLOTTED FROM - TRAB17882

# TABLE OF ADDITIONAL QUANTITIES

| LOCATIONS: SD 22, PCN 069C | BASE COURSE TON | CLASS Q3R HOT MIXED ASPHALT CONCRETE TON | PG 58-34 ASPHALT BINDER TON | HYDRATED LIME TON | SALVAGE ASPHALT CONCRETE (RAP) N.A.B.I TON | VIRGIN AGGREGATE N.A.B.I. TON | COLD MILLING ASPHALT CONCRETE SQYD |
|---|---|---|---|---|---|---|---|
| End Project at Clear Lake Intersection (Cold Mill as detailed elsewhere in these plans) | - | 20.0 | 0.93 | 0.2 | 4.0 | 16.0 | 86.0 |
| 2 Intersecting Roads and Entrances Surfaced to ROW with Asphalt (Cold Mill as detailed elsewhere in these plans) *Only applies to MRM 362.60 Left | 130.0 | 100.0 | 4.65 | 1.0 | 20.0 | 80.0 | 90.0 |
| 19 Intersecting Road and Entrance Surfaced to Radius Point with Asphalt *Only applies to MRM 362.60 Right | 250.0 | 472.4 | 21.98 | 4.7 | 94.5 | 377.9 | - |
| 48 Farm / Residential / Unimproved Section Line Road / Field Entrances Surfaced with new 5' wide pad (see standard plate 320.04, paved in one lift at 2" thick) | 700.0 | 176.0 | 8.19 | 1.8 | 35.2 | 140.8 | - |
| 5 Mailbox Pull Outs (As shown in Mailbox Table) | 50.0 | 100.0 | 4.70 | 1.0 | 20.0 | 80.0 | - |
| **TOTALS (SD 22)** | **1130.0** | **868.4** | **40.5** | **8.7** | **173.7** | **694.7** | **176.0** |

The tonnage shown in the Table of Additional Quantities for Class Q3R Hot Mix Asphalt Concrete is based on an average compacted thickness of 2 inches.

Included in the Estimate of Quantities are 2.5 tons of SS-1h or CSS-1h Asphalt for Flush Seal and 20 tons of Sand for Flush Seal for the intersections, intersecting roads, and other areas throughout the project on SD 22.

Included in the Estimate of Quantities are 2.0 tons of Asphalt for Tack SS-1H or CSS-1H for the intersecting roads and other areas throughout the project on SD 22.

*Quantities include complete reconstruction of the intersections. 12" Base Course & 5" of Q3R Asphalt Concrete w/o specified density requirement.

Application will be at the rate shown on the plans or as directed by the Engineer.

The above quantities are included in the Estimate of Quantities.

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 9 | 53 |

# SD 22 TABLE OF MAINLINE CULVERT WORK

| | | | | | Per Original Plans | | | | | | Remove Pipe | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Culvert # | MRM | + Disp | Station | Side | In Place Culvert Size and Type | | Culvert Length (Ft) | Culvert End Type | Direction of Flow | Drain-age Area Acre | for Reset (Ft) | End Section for Reset (Each) | Reset Pipe (Ft) | Reset Pipe End Section (Each) | Repair Comments |
| 2897 | 361.00 | 0.17 | 650+69 | L | 36" | RCP | 86 | Flared | N | 59 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | 1 | | 1 | Reset Flared End. |
| 2898 | 361.00 | 0.40 | 662+90 | L | 36" | RCP | 80 | Flared | N | 43 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2899 | 361.00 | 0.51 | 669+00 | L | 36" | RCP | 84 | Flared | N | 69 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | 1 | | 1 | Reset Flared End. |
| 2900 | 361.00 | 0.75 | 681+35 | L | 10' x 6' | RCBC | 62 | Sloped | N | 1139 | | | | | No Work Required. |
| | | | | R | | | | Sloped | | | | | | | |
| 2901 | 361.00 | 1.02 | 695+60 | L | 10' x 5' | RCBC | 50 | Sloped | S | 287 | | | | | No Work Required. |
| | | | | R | | | | Sloped | | | | | | | |
| 2902 | 362.00 | 0.38 | 715+86 | L | 30" | RCP | 68 | Flared | N | 27 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2903 | 362.00 | 0.74 | 734+82 | L | 36" | RCP | 56 | Flared | N | 80 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2904 | 363.00 | 0.48 | 772+42 | L | 36" | RCP | 66 | Flared | N | 84 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2905 | 363.00 | 0.74 | 786+49 | L | 24" | RCP | 56 | Flared | N | 25 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2906 | 363.00 | 0.98 | 799+29 | L | 36" | RCP | 52 | Flared | N | 98 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2907 | 364.00 | 0.60 | 830+60 | L | 30" | RCP | 52 | Flared | | 40 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2908 | 364.00 | 0.82 | 842+87 | L | 30" | RCP | 52 | Sloped | N | 40 | | | | | No Work Required. |
| | | | | R | | | | Sloped | | | | | | | |
| 2909 | 365.00 | 0.68 | 885+79 | L | 72" | RCP | 72 | Flared | N | 274 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2910 | 365.94 | 0.00 | 901+89 | L | TWIN 10' X 9' | RCBC | 69 | Sloped | S | 1041 | | | | | No Work Required. Structure Length Culvert |
| | | | | R | | | | Sloped | | | | | | | |
| 2911 | 366.08 | 0.00 | 909+24 | L | TWIN 10' X 9' | RCBC | 50 | Sloped | S | 3391 | | | | | No Work Required. Structure Length Culvert |
| | | | | R | | | | Sloped | | | | | | | |
| 2913 | 36.08 | 0.37 | 928+72 | L | 24" | RCP | 74 | Flared | S | 35 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2912 | 366.08 | 0.50 | 935+11 | L | 24" | RCP | 66 | Flared | S | 40 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | 1 | | 1 | Reset Flared End. |

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 10 | 53 |

# SD 22 TABLE OF MAINLINE CULVERT WORK

| | | | | | Per Original Plans | | | | | | | Remove Pipe | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Culvert # | MRM | + Disp | Station | Side | In Place Culvert Size and Type | | Culvert Length (Ft) | Culvert End Type | Direction of Flow | Drain-age Area Acre | for Reset (Ft) | End Section for Reset (Each) | Reset Pipe (Ft) | Reset Pipe End Section (Each) | Repair Comments |
| 2914 | 366.08 | 0.74 | 948+40 | L | 24" | RCP | 76 | Flared | S | 20 | 6 | 1 | 6 | 1 | Reset Flared End and 1 section of pipe. |
| | | | | R | | | | Flared | | | 6 | 1 | 6 | 1 | Reset Flared End and 1 section of pipe. |
| 2917 | 0.67 | 0.01 | 958+70 | L | 24" Arch | RCP | 76 | Flared | S | 25 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | 1 | | 1 | Reset Flared End. |
| 2918 | 367.00 | 0.07 | 962+71 | L | 24" | RCP | 78 | Flared | S | 8 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | 1 | | 1 | Reset Flared End. |
| 2919 | 367.00 | 0.44 | 981+94 | L | 54" | RCP | 90 | Flared | N | 148 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2920 | 367.00 | 0.64 | 992+68 | L | 18" | RCP | 70 | Flared | S | 3 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2921 | 368.00 | 0.08 | 1016+00 | L | 24" | RCP | 58 | Flared | S | 16 | 12 | 1 | 12 | 1 | Reset Flared End and 2 sections of pipe. |
| | | | | R | | | | Flared | | | | 1 | | 1 | Reset Flared End. |
| 2922 | 368.00 | 0.39 | 1032+68 | L | 60" Arch | RCP | 60 | Flared | N | 231 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | 1 | | 1 | Reset Flared End. |
| 2923 | 368.00 | 0.56 | 1041+65 | L | 18" | RCP | 52 | Flared | N | | 6 | 1 | 6 | 1 | Reset Flared End and 1 section of pipe. |
| | | | | R | | | | Flared | | | | 1 | | 1 | Reset Flared End. |
| 2924 | 368.00 | 0.87 | 1058+08 | L | 36" | RCP | 54 | Flared | N | 75 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2925 | 369.00 | 0.35 | 1085+00 | L | 48" | RCP | 64 | Flared | N | 140 | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2926 | 369.00 | 0.51 | 1093+30 | L | 18" | RCP | 56 | Flared | N | | | | | | No Work Required. |
| | | | | R | | | | Flared | | | | | | | |
| 2927 | 369.00 | 0.70 | 1103+80 | L | 72" | RCP | 96 | Flared | N | 560 | | | | | No Work Required.Culvert Joints recently sealed. |
| | | | | R | | | | Flared | | | | | | | |
| 2928 | 369.00 | 0.91 | 1115+00 | L | 18" | RCP | 72 | Flared | N | 16 | | 1 | | 1 | Reset Flared End. |
| | | | | R | | | | Flared | | | | | | | No Work Required. |
| 2929 | 370.00 | 0.15 | 1124+60 | L | 18" | RCP | 90 | Flared | N | 14 | 6 | 1 | 6 | 1 | Reset Flared End and 1 section of pipe. |
| | | | | R | | | | Flared | | | | | | | No Work Required. |
| 2930 | 370.00 | 0.23 | 1128+75 | L | 18" | RCP | 70 | Flared | N | 11 | | 1 | | 1 | Reset Flared End. |
| | | | | R | | | | Flared | | | | 1 | | 1 | Reset Flared End. |
| | | | | | | | | | **TOTAL** | | **36** | **16** | **36** | **16** | |

Left and Right based upon project station, thus Left is North side and Right is South side.

Culvert type and size obtained from a combination of visual inspection and original construction plans. Additional repair may be required at time of construction.

In place Culvert Markers will be removed and reset when performing Culvert Work. Cost to remove and reset Culvert Markers will be incidental to the various culvert contract items.

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 11 | 53 |

**TABLE OF APPROACHES, ENTRANCES, AND INTERSECTING ROADS**

| MRM | SIDE | Description | Surfacing Comments | COLD MILLING ASPHALT CONCRETE (SQYD) | BASE COURSE (TON) | CLASS Q3R HOT MIXED ASPHALT CONCRETE (TON) |
|---|---|---|---|---|---|---|
| 360.96 | L | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 361.02 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |
| 361.20 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |
| 361.33 | L | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 361.50 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 361.59 | L/R | Intersection | Asphalt to Radius, Place Base Course to ROW | | 20 | 40.0 |
| 361.94 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 361.96 | L | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 362.05 | R | Asphalt Driveway | Asphalt to Radius, Place Base Course to ROW | | 10 | 2.4 |
| 362.09 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 362.10 | L | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 362.23 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 362.60 | L | Intersection | Gravel to ROW | | 10 | 2.4 |
| 362.60 | R | Intersection | Asphalt to ROW | | 130 | 60.0 |
| 362.72 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |
| 363.10 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |
| 363.31 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 363.38 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |
| 363.61 | L | Intersection | Gravel to ROW | | 10 | 2.4 |
| 363.61 | R | Intersection | Asphalt to ROW, Cold mill 0" to 2" | 90 | 20 | 40.0 |
| 363.63 | L | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 363.67 | L | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 363.68 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 363.93 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |
| 364.06 | L | Gravel Driveway | Gravel to ROW | | 10 | 2.4 |
| 364.10 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 364.24 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |

**TABLE OF APPROACHES, ENTRANCES, AND INTERSECTING ROADS**

| MRM | SIDE | Description | Surfacing Comments | COLD MILLING ASPHALT CONCRETE (SQYD) | BASE COURSE (TON) | CLASS Q3R HOT MIXED ASPHALT CONCRETE (TON) |
|---|---|---|---|---|---|---|
| 364.61 | L/R | Intersection | Asphalt to Radius, Place Base Course to ROW | | 20 | 40.0 |
| 364.81 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |
| 365.15 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |
| 365.49 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 365.65 | L/R | Intersection | Asphalt to Radius, Place Base Course to ROW | | 20 | 40.0 |
| 365.72 | L | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 365.77 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 365.95 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 365.95 | L | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 366.14 | R | Asphalt Driveway | Asphalt to Radius, Place Base Course to ROW | | 10 | 20.0 |
| 366.35 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |
| 366.43 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |
| 366.64 | L/R | Intersection | Asphalt to Radius, Place Base Course to ROW | | 20 | 40.0 |
| 366.81 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |
| 366.94 | L | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 367.14 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |
| 367.41 | L | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 367.57 | L/R | Intersection | Asphalt to Radius, Place Base Course to ROW | | 20 | 40.0 |
| 367.98 | R | Gravel Driveway | Asphalt to Radius, Place Base Course to ROW | | 10 | 10.0 |
| 368.55 | L/R | Intersection | Asphalt to Radius, Place Base Course to ROW | | 20 | 40.0 |
| 368.70 | L/R | Gravel Approach | Gravel to ROW | | 20 | 4.8 |
| 369.06 | L | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 369.07 | R | Business | Gravel to ROW | | 10 | 2.4 |
| 369.20 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 369.48 | L | Business | Asphalt to Radius, Place Base Course to ROW | | 10 | 20.0 |
| 369.51 | L | Business | Asphalt to Radius, Place Base Course to ROW | | 10 | 20.0 |
| 369.51 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 369.55 | L/R | Intersection | Asphalt to Radius, Place Base Course to ROW | | 20 | 40.0 |

**TABLE OF APPROACHES, ENTRANCES, AND INTERSECTING ROADS**

| MRM | SIDE | Description | Surfacing Comments | COLD MILLING ASPHALT CONCRETE (SQYD) | BASE COURSE (TON) | CLASS Q3R HOT MIXED ASPHALT CONCRETE (TON) |
|---|---|---|---|---|---|---|
| 369.66 | R | Asphalt Driveway | Asphalt to Radius, Place Base Course to ROW | | 10 | 20.0 |
| 369.80 | L | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 369.90 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 370.06 | L/R | Gravel Approach | Gravel to ROW | | 20 | 2.4 |
| 370.18 | R | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 370.25 | R | Gravel Driveway | Gravel to ROW | | 10 | 2.4 |
| 370.27 | R | Gravel Driveway | Gravel to ROW | | 10 | 2.4 |
| 370.30 | L/R | Asphalt Driveway | Gravel to ROW | | 20 | 4.8 |
| 370.32 | R | Concrete Driveway | Gravel to ROW | | 10 | 2.4 |
| 370.35 | L/R | Asphalt Driveway | Asphalt to Radius, Place Base Course to ROW | | 20 | 40.0 |
| 370.37 | L | Asphalt Driveway | Asphalt to Radius, Place Base Course to ROW | | 10 | 20.0 |
| 370.41 | R | Asphalt Driveway | Asphalt to Radius, Place Base Course to ROW | | 10 | 20.0 |
| 370.44 | R | Business | Asphalt to Radius, Place Base Course to ROW | | 10 | 20.0 |
| 370.45 | L | Gravel Approach | Gravel to ROW | | 10 | 2.4 |
| 370.47 | R | Business | Asphalt to Radius, Place Base Course to ROW | | 10 | 20.0 |
| 370.50 | L | Business | Asphalt to Radius, Place Base Course to ROW | | 10 | 20.0 |
| **TOTALS** | | | | **90** | **1080** | **768.4** |

## SURFACING THICKNESS DIMENSIONS

The plans shown spread rates will be applied even though the thickness may vary from that shown in 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.

## SCOPE OF WORK

Work on this project involves cold milling asphalt concrete, placement of 2" asphalt concrete pavement, culvert repair, turning lane construction, rumble strips, and pavement markings.

## SEQUENCE OF OPERATIONS

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

1. Install fixed location signing prior to start of work.
2. Install erosion control devices.
3. Clean and repair culverts
4. Complete grading required on turning lanes
5. Complete erosion control.
6. Complete cold milling operations.
7. Excavate digouts and complete backfill operations.
8. Complete asphalt paving operations.
9. Complete rumble stripe installation.
10. Complete pavement marking installation.
11. Complete all remaining project items.

All culvert repairs will be completed prior to the placement of the Class Q3R Hot Mixed Asphalt Concrete.

For the work required at the intersection widening, all grading and granular surfacing will be in place on one side of the roadway prior to commencing work on the other side of the roadway.

## GENERAL NOTES

The Contractor will be required to mow the inslopes with a rotary mower to a height of 6 inches for a distance of 14 feet from the edge of the roadway (or shoulder) for the length of the project. This work will be completed to the satisfaction of the Engineer after all construction activities are completed. All costs associated with this work will be incidental to the various contract items.

The Contractor will be required to begin placement of asphalt and base course for work on intersections and entrances within 5 working days of the completion of final mainline surfacing and this work will be pursued in a continuous manner.

A preliminary project cleanup will be completed within 5 working days of the completion of intersection and entrance work at the discretion of the Engineer.

## UTILITIES

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor will contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

## 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 temporary speed limit signs will have a minimum mounting height of 5 feet in rural locations, even when mounted on portable supports.

Portable sign supports will not be located on sidewalks, bicycle facilities, or other areas designated for pedestrian or bicycle traffic.

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

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

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

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.

At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 4:1 within 30 feet of the traveled way.

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.

The Contractor will furnish, install, maintain, and remove TRUCK CROSSING (W8-6) signs daily. The TRUCK CROSSING signs will be displayed always when haul vehicles are hauling material. When hauling conditions no longer exist, the signs will be covered or removed from view. The exact number and location will be determined during construction. Payment for additional signs will be based on the contract unit price per square foot for "Traffic Control Signs".

GROOVED PAVEMENT (W8-15) signs with MOTORCYCLE (W8-15P) plaques are required in advance of areas that have been cold milled and are not resurfaced the same day. The GROOVED PAVEMENT sign assemblies will be installed a minimum of 1000 feet in advance of cold milled sections and remain in place until the sections have been resurfaced.

The Contractor will notify businesses/homeowners a minimum of two weeks prior to construction to inform them of upcoming construction and again a minimum of 48 hours prior to any blocked access to make appropriate arrangements.

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.

If inappropriate or conflicting pavement markings exist, the markings will be removed and replaced with applicable temporary pavement markings when the work duration is more than 3 days. When the work duration is less than 3 days, the channelizing devices in the area where the pavement markings conflict will be placed at one-half of the normal channelizing device spacing. Pavement marking removals will be incidental to the contract unit price per foot for "Remove Pavement Marking, 4" or equivalent". Temporary pavement marking will be paid for at the contract unit price per mile/foot for "Temporary Pavement Marking". The additional channelizing devices will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

Traffic Control for culvert repair work outside of the shoulder will be as follows:

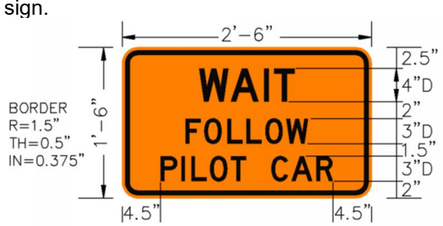
For signing purposes, a work area will be no longer than two miles for culvert repair operations.

Flaggers and FLAGGER symbol signs will be in place when hauling material from one side of the roadway to the other. These will also be provided when work activities or equipment present a hazard to workers and/or through traffic, or encroaches into driving lanes open to traffic.

## FLAGGING

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

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours. Also included in the Estimate of Quantities are 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".

## TYPE III FIELD LABORATORY

The lab will be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection will be provided with a multi-port wireless router. The internet connection will be a minimum speed of 5 Mbps unless limited by job location and approved by the DOT. Prior to installing the wireless router the Contractor will 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. These items will be incidental to the contract unit price per each for TYPE III FIELD LABORATORY.

## STORAGE UNIT

The Contractor will provide a storage unit such as a portable storage container or a semi-trailer meeting the minimum size requirements from the table below:

| Project Total Asphalt Concrete Tonnage | Minimum Internal Size (Cu Ft) | Minimum External Size (L x W x H) |
|---|---|---|
| Less than 50,000 ton | 1,166 | 20' x 8' x 8.6' std |
| More than 50,000 ton | 2,360 | 40' x 8' x 8.6' std |
| All Gyratory Controlled QC/QA Projects | 2,360 | 40' x 8' x 8.6' std |

The storage unit is intended for use only by the Engineer for the duration of the project. The QC lab personnel or the Contractor will not be allowed to use the storage container while it is on the project, without permission of the Engineer.

The storage unit will be on site and operational prior to asphalt concrete production. Upon completion of asphalt concrete production, the Engineer will notify the Contractor when the storage unit can be removed from the project. The storage unit use will not exceed 30 calendar days from the completion of asphalt concrete production. The storage unit will remain the property of the Contractor.

The storage unit will be weather proof and will be set in a level position. The storage unit will be able to be locked with a padlock.

The storage unit will be placed adjacent to the QA lab, as approved by the Engineer.

The following will apply when the storage unit provided on the project is a portable storage container:

1. The portable storage container will be constructed of steel.
2. The portable storage container will be set such that it is raised above the surrounding ground level to keep water from ponding under or around the storage container.

The following will apply when the storage unit provided on the project is a semi-trailer:

1. A set of steps and hand railings will be provided at the exterior door.
2. If the floor of the semi-trailer is 18 inches or more above the ground, a landing will be constructed at the exterior door. The minimum dimensions for the landing will be 4 feet by 5 feet. The top of the landing will be level with the threshold or opening of the doorway.
3. The semi-trailer may be connected to the QA lab by a stable elevated walkway. The walkway will be a minimum of 48 inches wide and contain handrails installed at 32 inches above the deck of the walkway. The walkway will be constructed such that it is stable and the deck does not deform during use and allows for proper door operation. Walkway construction will be approved by the Engineer.

All cost for furnishing, maintaining, and removing the storage unit including labor, equipment, and materials including any necessary walkways, landings, stairways, and handrails will be included in the contract unit price per each for STORAGE UNIT.

## CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor will provide a suitable site for Contractor furnished borrow excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material will be approved by the Engineer.

Restoration of the Contractor furnished borrow excavation site will be the responsibility of the Contractor.

The Contractor furnished borrow excavation material will be uniform in texture and free from organic material. The liquid limit will not exceed 45 and the plastic index will not exceed 25.

The Contractor will be responsible for the following minimum testing prior to use of each borrow site:

A minimum of one test for liquid limit and plastic index and a 4 point for each location and soil type, with samples obtained according to SD201.

The Department will be responsible for the following minimum testing:

A minimum of one test for liquid limit and plastic index and a 4 point for every 100,000 cubic yards or a major change in soil type. Independent Assurance testing will not be required.

Restoration of the Contractor furnished borrow excavation site will be the responsibility of the Contractor.

A quantity of **5000 CuYd** of Contractor Furnished Borrow Excavation is being established for the installation of the turning lane with the anticipation that some of the subgrade material excavated may not be suitable for reuse in completing this project.

## UNSTABLE MATERIAL EXCAVATION

The areas of unstable material excavation are drawn on the cross sections with a normal depth of 2 feet. The estimated quantity of 135 cubic yards of unstable material excavation will be paid for at the contract unit price per cubic yard for "Unclassified Excavation".

All areas designated as Unstable will be excavated. The unstable material excavated on this project will be placed outside the subgrade shoulder in fill sections or stockpiled and used as topsoil.

Field measurement of unstable material excavation will not be made. However, if there are additional areas of unstable material excavation other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

## TABLE OF UNSTABLE MATERIAL EXCAVATION

| Station | to | Station | L/R | Depth (Ft) | Quantity (CuYd) |
|---|---|---|---|---|---|
| 732+75 | | 734+75 | L | 2 | 135 |
| | | | | Total: | **135** |

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## MUCK EXCAVATION

The areas of muck excavation are drawn on the cross sections with a normal depth of 3 feet. The estimated quantity of 250 cubic yards of muck excavation will be paid for at the contract unit price per cubic yard for “Muck Excavation”.

Muck excavation consists of the removal of highly organic and/or highly saturated material from the designated areas shown on the cross sections. Highly organic muck material will not be used in the embankment but may be used as topsoil. Non-organic muck material may be used as embankment outside of the fill subgrade shoulder if it is properly handled and dried prior to placement in the embankment.

Field measurement of muck excavation will not be made unless the Engineer orders additional excavation, or when the Engineer determines, in accordance with Section 120.3 A.1 of the Specifications, that the classification of excavation be changed.

If the areas designated as muck excavation can be removed with similar equipment and procedures as used for unclassified excavation, the material will be measured and paid for as “MUCK EXCAVATION”.

## TABLE OF MUCK EXCAVATION

| Station | to | Station | L/R | Depth (Ft) | Quantity (CuYd) |
|---|---|---|---|---|---|
| 716+00 | | 718+00 | R | 3 | 250 |
| | | | | Total: | **250** |

## REMOVE AND REPLACE TOPSOIL

Topsoil will be salvaged and stockpiled prior to constructing the turn lane. Limits of this work, depth of salvage, and stockpile location will be directed by the Engineer. Following completion of construction, topsoil will be spread evenly over the disturbed areas.

All costs associated with removing and replacing the topsoil will be incidental to the contract lump sum price for REMOVE AND REPLACE TOPSOIL.

**SHRINKAGE FACTOR:** Embankment +50%

## TABLE OF EXCAVATION QUANTITIES BY BALANCES

| Station | to | Station | Excavation (CuYd) | * Undercut (CuYd) | * Muck Exc. (CuYd) | * Contractor Furnished Borrow Exc. (CuYd) |
|---|---|---|---|---|---|---|
| 716+00 | | 736+00 | 2,074.07 | 2,529.63 | 250.00 | 5,000 |
| | | Totals: | 2,074.07 | 2,529.63 | 250.00 | 5,000 |

* The quantities for these items are in the Estimate of Quantities under their respective contract items.
** The quantities for these items are for information only.

## TABLE OF UNCLASSIFIED EXCAVATION

| | (CuYd) |
|---|---|
| Excavation | 2074.07 |
| Undercut | 2529.63 |
| Total | 4603.70 |

## REMOVAL OF EXISTING ASPHALT CONCRETE PAVEMENT STA. 716+00.00 to STA. 736+00.00

Existing asphalt concrete and/or existing asphalt concrete patch work is included in the quantity for REMOVE ASPHALT CONCRETE PAVEMENT. The Contractor will dispose of the asphalt concrete at a site approved by the Engineer.

## TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

| Station | to | Station | L/R | Quantity (SqYd) |
|---|---|---|---|---|
| 716+00 | | 736+00 | L | 2733.33 |
| 716+00 | | 736+00 | R | 2058.33 |

## SAW JOINT IN ASPHALT CONCRETE

Prior to the removal of in place asphalt concrete, the existing pavement will be sawed full depth to a true line with a vertical face. See typical sections. If approved by the Engineer, the Contractor may elect to use a different method to create this vertical face. All costs to saw joint will be incidental to the contract unit price per foot for “SAW JOINT IN ASPHALT CONCRETE”

## JOINT SAWING TABLE

| Station | | Station | Asphalt Concrete Joint (feet) |
|---|---|---|---|
| Rt. Shoulder | | | |
| 716+00 | to | 736+00 | 2,000 |
| Cross-cut at each end of removal limits (8’ at each end) | | | 16 |
| Transverse cut on county road | | | 34 |
| Lt. Shoulder | | | |
| 716+00 | to | 736+00 | 2,000 |
| Cross-cut at each end of removal limits (8’ at each end) | | | 16 |
| | | Total = | 4,066 |

## UNDERCUTTING

The existing embankment will be undercut in a manner that allows 2 feet of new embankment to be constructed below the finished subgrade top. The remaining new embankment will be benched in to the existing inslope as per Section 120.3 B.2 of the Specifications.

The plan shown quantity will be the basis of payment. However, if there are additional areas of undercut other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

## RCP AND CMP CULVERTS

The Contractor is encouraged to thoroughly investigate the culvert repair sites prior to bidding. Prior to working on the sites that are inundated with water, a complete dewatering plan will be submitted for approval to the Engineer. No separate payment for dewatering will be made.

All pipe and end treatments designated for removal will become the property of the Contractor for his disposal.

Tie bolts will be installed at all joint locations where existing pipe sections and end treatments are being reset or installed new. This may require drilling holes into the existing pipe sections and end treatments. Tie bolts will be installed in accordance with Standard Plate No. 450.18. New RCP culvert installations will have all the joint locations tied together with tie bolts.

When necessary to remove end sections of CMP culverts, they may be cut with a torch. If the culvert is cut the damaged area will be painted with a galvanizing paint approved by the Engineer. All costs associated with cutting and painting will be incidental to the various contract items.

The Contractor is advised of the risk of lead exposure when cutting galvanized paint. The Contractor should plan his/her operations accordingly, and inform employees of hazards of lead exposure.

Prior to culvert repair work the Contractor will remove and stockpile all of the in place topsoil from the construction areas. On completion of construction operations this salvaged topsoil will be spread evenly over the newly constructed embankment inslopes. Removal and replacement of topsoil will be incidental to the various culvert contract items.

Culvert barrel and culvert end treatments that are to be removed and reset will be cleaned prior to resetting.

The gauge of the corrugated metal ends will be 16 gauge steel.

## COLD MILLING ASPHALT CONCRETE

The placement of asphalt concrete will begin within **5** working days after completion of cold milling of mainline asphalt concrete.

The Los Angeles Abrasion Loss value on the aggregate used for the in place asphalt concrete is 23. This value was obtained from testing during construction of the in place asphalt concrete.

Cold milling asphalt is estimated to produce **9,232** tons of cold milled asphalt concrete material. An estimated **4,748** tons of cold milled asphalt concrete material will be used on this project as RAP in the Class Q3R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure enough asphalt concrete salvage is available for the Class Q3R Hot Mixed Asphalt Concrete.

The remainder of the salvaged asphalt concrete material will become the property of the Contractor.

Cold Milling Asphalt will be done according to the typical section. In areas where maintenance patches have raised and/or widened the road, additional asphalt concrete will be milled to provide a uniform typical section from centerline to the edge of the finished shoulder. These areas also include farm, residential, field entrances and intersecting roads. Milling will be daylighted to the outside edge of the roadway. Any additional costs associated with this additional cold milling will be incidental to the contract unit price per square yard for COLD MILLING ASPHALT CONCRETE.

## SHOULDER PREPARATION

Vegetation and accumulated material adjacent to the existing surface edge will be removed to the satisfaction of the Engineer prior to placement of mainline surfacing. Any remaining windrow of accumulated material will be re-spread evenly on the inslope adjacent to the asphalt shoulder to the satisfaction of the Engineer prior to the application of the flush seal.

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

Prior to construction, State Maintenance Forces will spray the shoulders to kill existing vegetation. It will be the Contractor's responsibility to notify the State at least 30 days in advance of when he plans to begin work on the surface of the highway. The State assumes no responsibility for the effectiveness of the herbicide applied.

## INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances will 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.

## BASE COURSE (FOR DIGOUTS)

Aggregate for Base Course will conform to the specifications, and must be compacted as per Section 260 of the Specifications.

## UNCLASSIFIED EXCAVATION, DIGOUTS

The locations and extent of digout areas will be determined in the field by the Engineer. The backfilling material for the digouts will be Class Q3R Asphalt Concrete and Base Course. The depth of asphalt will match the in-place thickness.

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts and 75 square yards of Remove Asphalt Concrete Pavement per mile for the removal of asphalt and unstable material throughout the project.

Included in the Estimate of Quantities are 100 tons of Base Course and 25 tons of Class Q3R Asphalt Concrete per mile for backfill of Unclassified Excavation, Digouts.

The digouts will be extended to the shoulder and backfilled with granular material that will daylight to the inslope to allow water to escape the subsurface.

A copy of the surfacing/subgrade investigation for this project is available from the Aberdeen Region and Watertown Area offices.

## WATER FOR COMPACTION OF GRANULAR MATERIALS

Cost of water for compaction of the granular material will be incidental to the contract unit price for the various contract items. Six percent, plus or minus, moisture will be required at the time of compaction unless otherwise directed by the Engineer.

## ASPHALT FOR TACK

Included in the Estimate of Quantities are **2.4** tons of SS-1h or CSS-1h Asphalt for Tack for surface repair, strengthening, and spot leveling areas throughout the project. (Rate = 0.06 Gal./ Sq.Yd.).

## ASPHALT CONCRETE BLADE LAID

Included in the Estimate of Surfacing Quantities are **150** tons of Asphalt Concrete Blade Laid, **1.5** tons of Hydrated Lime, and **11.1** tons of PG 58-34 Asphalt Binder per mile and will be tight bladed on the existing surface **24** feet wide prior to the overlay.

Mineral Aggregate for tight bladed material will use only the fine aggregate components combined in the same proportions as the Class Q3R Hot Mixed Asphalt Concrete mix. Quality testing is not required on the coarse aggregate (+No. 4 sieve) in this mixture.

A sufficient amount of material will be kept in front of the blade to fill and level all joints, cracks and other surface irregularities. The actual rate per mile may vary from that indicated.

The Asphalt Concrete Blade Laid Lift will be designed using an $N_{design}$ Gyratory Compactive Effort of 65. The asphalt binder content will be determined so that the air voids of Asphalt Concrete Blade Laid Lift are between 3.0% and 5.0%.

Cost for removing loose material and brooming will be included in the contract unit price per ton Asphalt Concrete Blade Laid.

Asphalt Concrete Blade Laid will be completed prior to Class Q3R Hot Mixed Asphalt Concrete paving operations beginning.

## FLEXIBLE PAVEMENT SMOOTHNESS SPECIAL PROVISION

All sections, not excluded by the Special Provision for Flexible Pavement Smoothness, will be evaluated as 2 opportunities.

## CLASS Q3R HOT MIXED ASPHALT CONCRETE

Mineral Aggregate:
Asphalt concrete aggregates will consist of reclaimed asphalt pavement (RAP) and virgin aggregate.

Virgin mineral aggregate for Class Q3R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q3.

The Class Q3R Hot Mixed Asphalt Concrete will include 20 percent RAP in the mixture. RAP will be obtained from the material produced by cold milling on this project.

Mix Design Criteria:
Gyratory Controlled QC/QA Mix Design requirements for the Class Q3R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q3 except as modified by the following:

Gyratory Compactive Effort:

| | $N_{initial}$ | $N_{design}$ | $N_{maximum}$ |
|---|---|---|---|
| Class Q3R | 6 | 50 | 75 |

All remaining requirements for Class Q3 will apply.

**ADDITIONAL QUANTITIES:**

Included in the Estimate of Quantities are **100** tons of Class **Q3R** Asphalt Concrete and, **1.0** tons of Hydrated Lime of Asphalt concrete and **4.7** tons of PG 58-34 Asphalt Binder, per mile for spot leveling, strengthening, and repair of the existing surface. This material will be placed where and as directed by the Engineer.

## FLUSH SEAL

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

The liquidated damages will apply up to the expiration of the contract time requirement in which the flush seal is required to be completed, including any formally approved time extensions. Following the expiration of the contract time requirement in which the flush seal is required to be completed, including any formally approved time extensions, liquidated damages will be assessed in accordance with Section 8.8 of the specifications.

Application of flush seal may be eliminated by the Engineer. If the paved surface remains tight, the Engineer will notify the Contractor as soon as possible that the flush seal is unnecessary.

## SAND FOR FLUSH SEAL

The sand application will be placed 11' wide in each lane, leaving 12" on center line and 6" on each edge line free of sand.

## REFURBISH MAILBOXES

Existing mailboxes will be removed, turnouts constructed, and mailboxes reset on new posts with the necessary support hardware for single or double mailbox assemblies (See Standard Plate No's. 900.02 and 900.03). The local Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor will coordinate with the Engineer on the proper postal representative to contact.

**TABLE OF REFURBISH MAILBOXES**

| MAILBOXES | | |
|---|---|---|
| Mailboxes | Refurbished Single Mailbox | Turnouts (N.A.B.I.) |
| 362.05 R | 1 | |
| 263.39 R | 1 | |
| 263.39 R | 1 | |
| 364.24 L | 1 | |
| 365.77 R | 1 | x |
| 365.95 R | 1 | x |
| 366.14 R | 1 | x |
| 366.43 R | 1 | x |
| 367.98 R | 1 | |
| 369.07 R | 1 | |
| 369.48 L | 1 | |
| 370.25 R | 1 | |
| 370.27 R | 1 | x |
| 370.37 L | 1 | |
| TOTAL | 14 | 5 |

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts, newspaper tubes and necessary support hardware will be incidental to the contract unit price per each for REFURBISH SINGLE MAILBOX

## RUMBLE STRIPES

Rumble Stripe installation will be completed prior to application of the Flush Seal and Permanent Pavement Markings. Rumble Stripes will not be installed on the bridge decks. In the event the Flush Seal is eliminated from the contract, the Contractor will still be required to apply a Flush Seal to the newly installed 8" Rumble Stripes at a width of 1.0' and at the same rate as specified in this plan set. No adjustment in the contract unit price will be made and SS-1h or CSS-1h will be paid at the contract unit price per ton.

## TABLE OF 8" CENTER AND EDGELINE RUMBLE STRIPES

| Station to Station | Length (Ft) | Length (Miles) |
|---|---|---|
| 636+31.20 to 716+00.00 | 7968.80 | 1.509 |
| 716+00.00 to 736+00.00 | 2000.00 | 0.379 |
| 736+00.00 to 1125+14.30 | 38914.30 | 7.370 |
| Total | 48,883.10 | 9.258 |

## CENTERLINE RUMBLE STRIPES – FLUSH SEAL

Asphalt for Flush Seal will be applied after the centerline rumble stripes have been installed. The application width should extend 1 ft beyond the centerline of the roadway in each direction to create a total application rate of 0.10 gal./sq.yd on the centerline rumble stripes.

## GRIND SINUSOIDAL TRANSVERSE RUMBLE STRIPS IN ASPHALT

Advance intersection warning Sinusoidal Transverse Asphalt Rumble Strips will be constructed on the mainline pavement, as detailed on Standard Plate 320.46 at the SD15/SD22 Jct. It is estimated that 392 square feet of asphalt sinusoidal transverse rumble strips will be required.

Sinusoidal Transverse Rumble Strips will be completed prior to application of the Flush Seal and Permanent Pavement Markings. In the event the Flush Seal is eliminated from the contract, the Contractor will still be required to apply a Flush Seal to the newly installed Sinusoidal Transverse Rumble Strips at the same rate as specified in this plan set.

## RUMBLE STRIPE/STRIP ROADWAY CLEANING

The Contractor will be required to remove loose material from the driving surface and/or asphalt shoulders. Loose material may be broomed to the edge of shoulders and it will be the Contractor's responsibility to ensure the loose material does not enter any vegetated areas and/or waterways. A pick-up broom will not be required.

All costs associated with this work will be incidental to the contract unit price per mile for and/or GRIND 8" RUMBLE STRIP OR STRIPE IN ASPHALT CONCRETE or GRIND SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

## TEMPORARY AND PERMANENT PAVEMENT MARKINGS

Maintaining size, shape, and dimension of existing pavement markings will be the responsibility of the Contractor for both temporary and permanent pavement marking applications.

Temporary Flexible Vertical Markers (Tabs) will be used to mark dashed centerline, No Passing Zones and applicable lane lines on the wear course or after application of the Flush Seal. Paint will not be allowed for Temporary Pavement Marking on the Asphalt Concrete Class Q3R Hot Mixed Asphalt Concrete wear course or after application of the Flush Seal.

## TEMPORARY PAVEMENT MARKINGS

The total length of no passing zone on this project is estimated to be **6.2** miles.

There are 17 EBL and 17 WBL No Passing Zones on this project.

Quantities of Temporary Pavement Markings consist of:
- One pass on top of the Cold Milled Surface.
- One pass on top of the Blade Laid Asphalt Concrete.
- One pass on top of the Q3R Lift of Hot Mixed Asphalt Concrete.
- One pass on top of the Centerline Rumble Strip Installation.
- One pass on top of the Flush Seal.

If the Flush Seal is eliminated, the application of the Temporary Pavement Marking on top of the Flush Seal will be eliminated. No adjustment in the contract unit price per mile for Temporary Pavement Marking will be made because of a variation in quantities.

Temporary Flexible Vertical Markers (Tabs) may be used as detailed in the specifications. Covers on the tabs will be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers will be properly disposed. 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.

Any Temporary Flexible Vertical Markers (Tabs) with covers removed before the flush seal will be replaced prior to Flush Seal application. 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.

Cost for furnishing, applying, removing and disposing of the Temporary Flexible Vertical Markers (Tabs) will be included in the contract unit price per mile for TEMPORARY PAVEMENT MARKING.

Temporary flexible vertical markers (tabs) will be installed on one side of the centerline rumble for the temporary pavement marking. No passing zones will be marked in accordance with Specifications. DO NOT PASS (R4-1) and PASS WITH CARE (R4-2) signs will also be used in addition to the temporary flexible vertical markers (tabs) placed per Specifications to mark no passing zones.

Flagger symbol signs (W20-7) and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights will be positioned on the roadway shoulder in advance of workers for both directions of traffic during the installation of Temporary Flexible Vertical Markers (Tabs). The traffic control device used will be moved to provide proper warning of the work operation. A Workers symbol sign (W21-1) will be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work will be approved by the Engineer.

## REMOVE TRAFFIC SIGN

Existing signs that are shown as being removed in the Permanent Signing Table will become the property of the Contractor. Existing signposts and bases will be removed in their entirety. All existing signs, posts, and/or hardware removed will not be reused. Holes remaining from the removal of wood posts will be backfilled and compacted with material placed in layers not to exceed 6 inches in depth.

All costs associated with the removal of existing signs, posts, hardware, and backfilled holes will be incidental to the contract unit price per each for "Remove Traffic Sign". Quantities will be per assembly at the contract unit price per each.

## REMOVE SIGN FOR RESET AND RESET SIGN

Signs that are scheduled for reset will be dismantled and reassembled to the extent needed by the Contractor to properly reset the sign. Signs will be handled with care so that the existing signs, posts, and bases are not damaged during the relocation process. The Contractor will replace and pay for any reset signs damaged in their care. The Contractor will remove and dispose of any existing posts for all reset signs that require use of new posts as shown in the Table of Permanent Signing.

All costs for removing, dismantling, and disposing of any existing posts will be incidental to the contract unit price per each for “Remove Sign for Reset”. All costs for resetting the existing signs will be incidental to the contract unit price per each for “Reset Sign”. All quantities for Remove Sign for Reset and Reset Sign will be per assembly at the contract unit price per each.

## TABLE OF PERMANENT SIGNING

| EXISTING STA. | DESCRIPTION | NEW STA. | NOTES |
|---|---|---|---|
| 716+07.5 L | No Passing Zone (Eastbound) | 708+50.0 L | Move to beginning of NPZ prior to Turn Lane |
| 717+25.5 R | No Passing Zone (Westbound) | N/A | Sign can be removed due to new No Passing Zone for Turn Lane |
| 721+33.6 R | <- Bemis 6<br><- Goodwin 9 | 721+33.6 R | Increase offset to accommodate Turn Lane |
| 724+40.1 L | SD 22 | 724+40.1 L | Increase offset to accommodate Turn Lane |
| 727+82.4 L | Adopt-a-Highway | 727+82.4 L | Increase offset to accommodate Turn Lane |
| 729+56.0 L | Bemis 6 -> Goodwin 9 -> | 729+56.0 L | Increase offset to accommodate Turn Lane |
| 735+20.0 R | No Passing Zone (Westbound) | 763+50.0 R | Move to beginning of NPZ prior to Turn Lane |

## GROOVING FOR PREFORMED THERMOPLASTIC PAVEMENT MARKING

The Contractor will establish a positive means for the removal of the grinding and/or grooving residue. Residue from dry grooving will be vacuumed. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. The Contractor will conduct this work to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owners. Residue from wet grooving will not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, will be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state.

The requirements for grooving for preformed thermoplastic pavement marking will comply with the Specifications for grooving for cold applied plastic pavement marking.

All costs for removal of grinding and/or grooving residue will be included in the contract unit price per each & foot for GROOVING FOR COLD APPLIED PLASTIC PAVEMENT MARKING contract item.

## PREFORMED THERMOPLASTIC PAVEMENT MARKING

**General**

- Made of prefabricated retroreflective, resilient thermoplastic material;
- Contains glass beads uniformly distributed through the entire cross-sectional area;
- Capable of being affixed to bituminous or concrete pavement by heating;
- Resistant to deterioration due to exposure to sunlight, water, salt, and adverse weather conditions;
- Under traffic wear, shows no appreciable fading in accordance with the color requirements, lifting, or shrinkage throughout the life of the marking;
- Capable of conforming to pavement contours, breaks, and faults through the action of traffic at normal pavement temperatures;
- Possesses resealing characteristics, such that it is capable of fusing with itself and previous thermoplastic markings when heated; and
- Protected during shipment and in storage.

Apply the preformed thermoplastic pavement marking as recommended by the manufacturer to provide a neat, durable marking that will not flow, distort, or crack due to temperature if the pavement surface remains stable. Use equipment and application methods specified by the manufacturer. Primer as required by the manufacturer will be provided with the material.

Application of the markings will include the use of any manufacturer recommended sealers. Sealers may be required on concrete pavements, inside grooves, or on older asphalt pavements. Prior to placing any markings on new concrete, the Contractor will remove any curing compounds. Removal will be by sandblasting or other standard industry methods.

Any required primers or sealers will be included in the contract unit price for the various preformed thermoplastic pavement marking items.

Provide precut messages and symbols meeting the requirements of the MUTCD and the Standard Signs Manual in custom kits. Use separate pieces or segments to form individual letters or symbols only to the extent supplied by the manufacturer. Provide shapes, sizes, and colors as required by the contract.

**Color**

- Will meet the color specification limits and luminance factors for Cold Applied Plastic Pavement Marking and Legends (Section 983.2 D, Tables 1 and 2).

**Glass Beads**

- Ensure the preformed thermoplastic pavement marking contains a minimum 30% intermixed glass beads by weight and a minimum 80% true spheres.
- Ensure preformed thermoplastic pavement markings contain only clear beads.

**Skid Resistance**

- Ensure the surface of the preformed thermoplastic pavement marking provides a skid resistance value of at least 45 British Pendulum Number (BPN) when tested in accordance with ASTM E303.

**Retroreflectivity**

- Provide preformed thermoplastic pavement marking meeting the minimum initial pavement marking retroreflectivity values using 30 m geometry and meeting the testing procedures of ASTM E1710:

| Minimum Initial Pavement Marking Retroreflectivity | | |
|---|---|---|
| | White | Yellow |
| Thermoplastic | 400 mcd/sq. ft./ft. | 250 mcd/sq. ft./ft. |
| Thermoplastic, enhanced skid resistance (ESR) | 250 d/sq. ft./ft. | 150 d/sq. ft./ft. |

**Thickness**

- A longitudinal marking is a minimum 90 mils thick at the edges, and a maximum 125 mils thick at the center of the stripe.
- Transverse markings and symbols are a minimum 125 mils thick at the edges, and a maximum 160 mils thick at the center.

**Sample**

- Prior to application, the Contractor will provide a sample of the preformed thermoplastic pavement marking to be used on the project to the Region Traffic Engineer for inspection and approval.
- Do not begin application of the preformed thermoplastic pavement marking prior to obtaining the Region Traffic Engineer’s approval of the preformed thermoplastic pavement marking material. The Region
- Traffic Engineer’s approval of the preformed thermoplastic pavement marking does not void other preformed thermoplastic pavement marking requirements specified.

## PERMANENT PAVEMENT MARKING

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

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 may not begin until 7 calendar days following completion of the Flush Seal on the rumble strips and 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.

This material will consist of a durable high build, low VOC, fast drying, waterborne traffic paint with a 100% acrylic polymer (Arkema DT-400, Dow HD-21A, or equivalent). The Contractor will provide certification that the material is one of the following products or an equivalent as approved by the Operations Traffic Engineer:

Diamond Vogel's Waterborne High Build Polymer Marking Paint
Ennis-Flint's High Build Polymer Marking Paint

No further testing of this material will be required. Reflective media consisting 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.

## RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

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

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

If the Department chooses to take readings, the minimum retroreflectivity values will be 275 mc/m$^2$/lux for white and 170 mc/m$^2$/lux for yellow.

## EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment will be installed at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor will provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles will remain on the project to decompose.

The erosion control wattle provided will be from the approved product list. The approved product list for erosion control wattle may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx

## HIGH FLOW SILT FENCE

The high flow silt fence fabric provided will be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx

High flow silt fence will be placed at the locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

An additional quantity of high flow silt fence has been added to the Estimate of Quantities for temporary sediment control.

## EROSION CONTROL

The estimated area requiring erosion control is 2.6 Acres. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, and mulching will be incidental to the contract lump sum price for "Erosion Control".

**The limits of erosion control work will be determined by the Engineer during construction.**

## Mycorrhizal Incoculum

Mycorrhizal inoculum will consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier will provide certification of the fungal species claimed and the live propagule count. The inoculum will include the following fungal species:

25% *Glomus intraradices*
25% *Glomus aggregatum or deserticola*
25% *Glomus mosseae*
25% *Glomus etunicatum*

All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed will be incidental to the contract lump sum price for Erosion Control.

The mycorrhizal inoculum will be as shown below or an approved equal:

| Product | Manufacturer |
|---|---|
| MycoApply | Mycorrhizal Applications, Inc.<br>Grants Pass, OR<br>Phone: 1-866-476-7800<br>www.mycorrhizae.com |
| AM 120 Multi Species Blend | Reforestation Technologies Int.<br>Gilroy, CA<br>Phone: 1-800-784-4769<br>www.reforest.com |

## Fertilizer

Application of fertilizer will not be required on this project.

## Permanent Seed

The areas to be seeded consist of all disturbed areas within the project limits except for the top of roadways.

Type C Permanent Seed Mixture will consist of the following:

| Grass Species | Variety | Pure Live Seed (PLS) (Pounds/Acre) |
|---|---|---|
| Western Wheatgrass | Arriba, Flintlock, Rodan, Rosana, Walsh | 16 |
| Canada Wildrye | Mandan | 2 |
| | Total: | 18 |

## Fiber Mulch

Fiber mulch will be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier will be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier will be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier will be synthetic.

The Contractor will allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

The fiber mulch provided will be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 21 | 53 |

## STORMWATER POLLUTION PREVENTION PLAN CHECKLIST

*(The numbers left of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES (Stormwater Permit))*

### 5.3 (2): STAFF TRAINING/SWPPP IMPLEMENTATION

To promote stormwater management awareness specific for this project, the Contractor's Erosion Control Supervisor should provide correspondence of how the SWPPP will be implemented. The Contractor's Erosion Control Supervisor is responsible for providing this information at the preconstruction meeting, and subsequently completing an attendance log, which should identify site-specific implementation of the SWPPP and the names of the personnel who attended the preconstruction meeting. Documentation of the preconstruction meeting will be filed with the SWPPP documents.

### 5.3 (3): DESCRIPTION OF CONSTRUCTION ACTIVITIES

- **5.3 (3a): Project Limits** (See Title Sheet)
- **5.3 (3a): Project Description** (See Title Sheet)
- **5.3 (4): Site Map(s)** (See Title Sheet and Plans)
- **Major Soil Disturbing Activities** (check all that apply)
  - ☐ Clearing and grubbing
  - ☐ Excavation/borrow
  - ☒ Grading and shaping
  - ☒ Filling
  - ☐ Other (describe):
- **5.3 (3b): Total Project Area** 176 Acres
- **5.3 (3b): Total Area to be Disturbed** 3 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time** 3 Acres
- **5.3 (3d): Existing Vegetative Cover (%)** 70%
- **5.3 (3d): Description of Vegetative Cover** Typical East River Native and introduced roadside vegetation.
- **5.3 (3e): Soil Properties:** AASHTO Soil or USDA-NRCS Soil Series Classification A-7-6, A-6
- **5.3 (3f): Name of Receiving Water Body/Bodies** Hidewood Creek
- **5.3 (3g): Location of Construction Support Activity Areas**

### 5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

- **Special sequencing requirements (**see Sequence of Operations)

**The Contractor will enter the Estimated Start Date.**

| Description | Estimated Start Date |
|---|---|
| Install stabilized construction entrance(s). | |
| Install perimeter protection where runoff may exit site. | |
| Install perimeter protection around stockpiles. | |
| Install channel and ditch bottom protection. | |
| Clearing and grubbing. | |
| Remove and stockpile topsoil. | |
| Stabilize disturbed areas. | |
| Install utilities, storm sewers, curb and gutter. | |
| Install inlet and culvert protection after completing storm drainage and other utility installations. | |
| Final grading. | |
| Final paving. | |
| Removal of protection devices. | |
| Reseed areas disturbed by removal activities. | |

### 5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report. Include the technical reasoning for selecting each control. (check all that apply)

**Perimeter Controls (See Detail Plan Sheets)**

| Description | Estimated Start Date |
|---|---|
| ☐ Natural Buffers (within 50 ft of Waters of State) | |
| ☒ Silt Fence | |
| ☒ Erosion Control Wattles | |
| ☐ Temporary Berm / Windrow | |
| ☐ Floating Silt Curtain | |
| ☐ Stabilized Construction Entrances | |
| ☐ Entrance/Exit Equipment Tire Wash | |
| ☐ Other: | |

**Structural Erosion and Sediment Controls**

| Description | Estimated Start Date |
|---|---|
| ☒ Silt Fence | |
| ☐ Temporary Berm/Windrow | |
| ☒ Erosion Control Wattles | |
| ☐ Temporary Sediment Barriers | |
| ☐ Erosion Bales | |
| ☐ Temporary Slope Drain | |
| ☐ Turf Reinforcement Mat | |
| ☐ Riprap | |
| ☐ Gabions | |
| ☐ Rock Check Dams | |
| ☐ Sediment Traps/Basins | |
| ☒ Culvert Inlet Protection | |
| ☐ Transition Mats | |
| ☐ Median/Area Drain Inlet Protection | |
| ☐ Curb Inlet Protection | |
| ☐ Interceptor Ditch | |
| ☐ Concrete Washout Facility | |
| ☐ Work Platform | |
| ☐ Temporary Water Barrier | |
| ☐ Temporary Water Crossing | |
| ☐ Permanent Stormwater Ponds | |
| ☐ Permanent Open Vegetated Swales | |
| ☐ Natural Depressions to allow for Infiltration | |
| ☐ Sequential Systems that combine several practices | |
| ☐ Other: | |

**Dust Controls**

| Description | Estimated Start Date |
|---|---|
| ☐ Tarps & Wind impervious fabrics | |
| ☐ Watering | |
| ☐ Stockpile location/orientation | |
| ☐ Dust Control Chlorides | |
| ☐ Other | |

**Dewatering BMPs**

| Description | Estimated Start Date |
|---|---|
| ☐ Sediment Basins | |
| ☐ Dewatering bags | |
| ☐ Weir tanks | |
| ☐ Temporary Diversion Channel | |
| ☐ Other: | |

**Stabilization Practices (See Detail Plan Sheets)**

(Stabilization measures will begin the following work day whenever earth disturbing activity on any portion of the site has temporarily or permanently ceased. Temporary stabilization will be completed as soon as practicable but no later than 14 days after initiating soil stabilization activities (**3.18**))

| Description | Estimated Start Date |
|---|---|
| ☐ Vegetation Buffer Strips | |
| ☐ Temporary Seeding (Cover Crop Seeding) | |
| ☒ Permanent Seeding | |
| ☐ Sodding | |
| ☐ Planting (Woody Vegetation for Soil Stabilization) | |
| ☐ Mulching (Grass Hay or Straw) | |
| ☒ Fiber Mulching (Wood Fiber Mulch) | |
| ☐ Soil Stabilizer | |
| ☐ Bonded Fiber Matrix | |
| ☐ Fiber Reinforced Matrix | |
| ☐ Erosion Control Blankets | |
| ☐ Surface Roughening (e.g. tracking) | |
| ☐ Other: | |

**Wetland Avoidance**

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☐ No ☒ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

**5.3 (6): PROCEDURES FOR INSPECTIONS**

- Inspections will be conducted at least once every 7 days.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance and repair activities are the responsibility of the Contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

**5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT**

Stormwater management will be handled by temporary controls outlined in "DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES" above, and any permanent controls needed to meet permanent stormwater management needs in the post construction period will be shown in the plans and noted as permanent.

**5.3 (8): POLLUTION PREVENTION PROCEDURES**

**5.3 (8a): Spill Prevention and Response Procedures**

➢ **Material Management**

- Housekeeping
  - Only needed products will be stored on-site by the Contractor.
  - Except for bulk materials the contractor will store all materials under cover and/or in appropriate containers.
  - Products must be stored in original containers and labeled.
  - Material mixing will be conducted in accordance with the manufacturer's recommendations.
  - When possible, all products will be completely used before properly disposing of the container off-site.
  - The manufacturer's directions for disposal of materials and containers will be followed.
  - The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
  - Dust generated will be controlled in an environmentally safe manner.

- Hazardous Materials
  - Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
  - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
  - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
  - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
  - Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any stormwater system or stormwater treatment system.
  - Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of stormwater runoff.

➢ **Spill Control Practices**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill cleanup will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The Contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator.

➢ **Spill Response**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into stormwater runoff and conveyance systems. If the release has impacted on-site stormwater, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens stormwater or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The Contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SDDANR.
- Personnel with primary responsibility for spill response and cleanup will receive training by the Contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

**5.3 (8b): WASTE MANAGEMENT PROCEDURES**

➢ **Waste Disposal**

- All liquid waste materials will be collected and stored in approved sealed containers. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal and notices stating proper practices will be posted. The Contractor is responsible for ensuring waste disposal procedures are followed.

➢ **Hazardous Waste**

- All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the Contractor will be responsible for seeing that these practices are followed.

➢ **Sanitary Waste**

- Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units which must be secured to prevent tipping and serviced in a timely manner by a licensed waste management Contractor or as required by any local regulations.

## 5.3 (9): CONSTRUCTION SITE POLLUTANTS

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the heading “POLLUTION PREVENTION PROCEDURES” (check all that apply).

- ☐ Concrete and Portland Cement
- ☐ Detergents
- ☐ Paints
- ☐ Metals
- ☒ Bituminous Materials
- ☒ Petroleum Based Products
- ☒ Diesel Exhaust Fluid
- ☐ Cleaning Solvents
- ☐ Wood
- ☐ Cure
- ☐ Texture
- ☐ Chemical Fertilizers
- ☐ Other:

**Product Specific Practices**

- **Petroleum Products**
  All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

- **Fertilizers**
  Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to stormwater. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

- **Paints**
  All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer’s instructions and any applicable state and local regulations.

- **Concrete Trucks**
  Contractors will provide designated truck washout facilities on the site. These areas must be self-contained and not connected to any stormwater outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.

## 5.3 (10): NON-STORMWATER DISCHARGES

The following non-stormwater discharges are anticipated during the course of this project (check all that apply).

- ☐ Discharges from water line flushing.
- ☐ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☒ Uncontaminated ground water associated with dewatering activities.

## 5.3 (11): INFEASIBILITY DOCUMENTATION

If it is determined to be infeasible to comply with any of the requirements of the Stormwater Permit, the infeasibility determination must be thoroughly documented in the SWPPP.

## 7.0: SPILL NOTIFICATION

In the event of a spill, the Contractor’s site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to SDDANR immediately **if any one of the following** conditions exists:
  - The release or spill threatens or is able to threaten waters of the state (surface water or ground water)
  - The release or spill causes an immediate danger to human health or safety
  - The release or spill exceeds 25 gallons
  - The release or spill causes a sheen on surface water
  - The release or spill of any substance that exceeds the ground water quality standards of ARSD Chapter 74:54:01
  - The release or spill of any substance that exceeds the surface water quality standards of ARSD Chapter 74:51:01
  - The release or spill of any substance that harms or threatens to harm wildlife or aquatic life
  - The release or spill is required to be reported according to Superfund Amendments and Reauthorization Act (SARA) Title III List of Lists, Consolidated List of Chemicals Subject to Reporting Under the Emergency Planning and Community Right to Know Act, US Environmental Protection Agency.

- To report a release or spill, call SDDANR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central Standard Time). To report the release after hours, on weekends or holidays, call South Dakota Emergency Management at 605-773-3231. Reporting the release to SDDANR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, you must also contact local authorities to determine the local reporting requirements for releases. A written report of the unauthorized release of any regulated substance, including quantity discharged, and the location of the discharge will be sent to SDDANR within 14 days of the discharge.

## 5.4: SWPPP CERTIFICATIONS

➢ **Certification of Compliance with Federal, State, and Local Regulations**

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➢ **South Dakota Department of Transportation**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____

Authorized Signature (See the General Permit, Section 7.4 (1))

➢ **Prime Contractor**

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____

Authorized Signature

## CONTACT INFORMATION

The following personnel are duly authorized representatives and have signatory authority for modifications made to the SWPPP:

➢ **Contractor Information**:

- Prime Contractor Name: _____
- Contractor Contact Name: _____
- Address: _____
- _____
- City: _____State: _____Zip: _____
- Office Phone: _____Field: _____
- Cell Phone: _____Fax: _____

➢ **Erosion Control Supervisor**

- Name: _____
- Address: _____
- _____
- City: _____State: _____Zip: _____
- Office Phone: _____Field: _____
- Cell Phone: _____Fax: _____

➢ **SDDOT Project Engineer**

- Name: _____
- Business Address: _____
- Job Office Location: _____
- City: _____State: _____Zip: _____
- Office Phone: _____Field: _____
- Cell Phone: _____Fax: _____

➢ **SDDANR Contact Spill Reporting**
- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➢ **SDDANR Contact for Hazardous Materials.**
- (605) 773-3153

➢ **National Response Center Hotline**
- (800) 424-8802.

➢ **SDDANR Stormwater Contact Information**
- SDDANR Stormwater (800) 737-8676
- Surface Water Quality Program (605) 773-3351

## 5.5: REQUIRED SWPPP MODIFICATIONS

➢ **5.5 (1): Conditions Requiring SWPPP Modification**

The SWPPP must be modified, including the site map(s), in response to any of the following conditions:

- When a new operator responsible for implementation of any part the SWPPP begins work on the site.
- When changes to the construction plans, sediment and erosion control measures, or any best management practices on site that are no longer accurately reflected in the SWPPP. This includes changes made in response to corrective actions triggered by inspections.
- To reflect areas on the site map where operational control has been transferred (including the date of the transfer) or has been covered under a new permit since initiating coverage under this general permit.
- If inspections by site staff, local officials, SDDANR, or U.S. EPA determine that SWPPP modifications are necessary for compliance with the Stormwater Permit.
- To reflect any revisions to applicable federal, state, or local requirements that affect the control measures implemented at the site.
- If approved by the Secretary, to reflect any changes in chemical water treatment systems or controls, including the use of a different water treatment chemical, age rates, different areas, or methods of application.

➢ **5.5 (2): Deadlines for SWPPP Modification**

Any required revisions to the SWPPP must be completed within 7 calendar days following any of the items listed above.

➢ **5.5 (3): Documentation of Modifications to the Plan**

All SWPPP modification records are required to be maintained showing the dates of when the modification occurred. The records must include the name of the person authorizing each change and a brief summary of all changes.

➢ **5.5 (4): Certification Requirements**

All modifications made to the SWPPP must be signed and certified as required in Section 7.4.

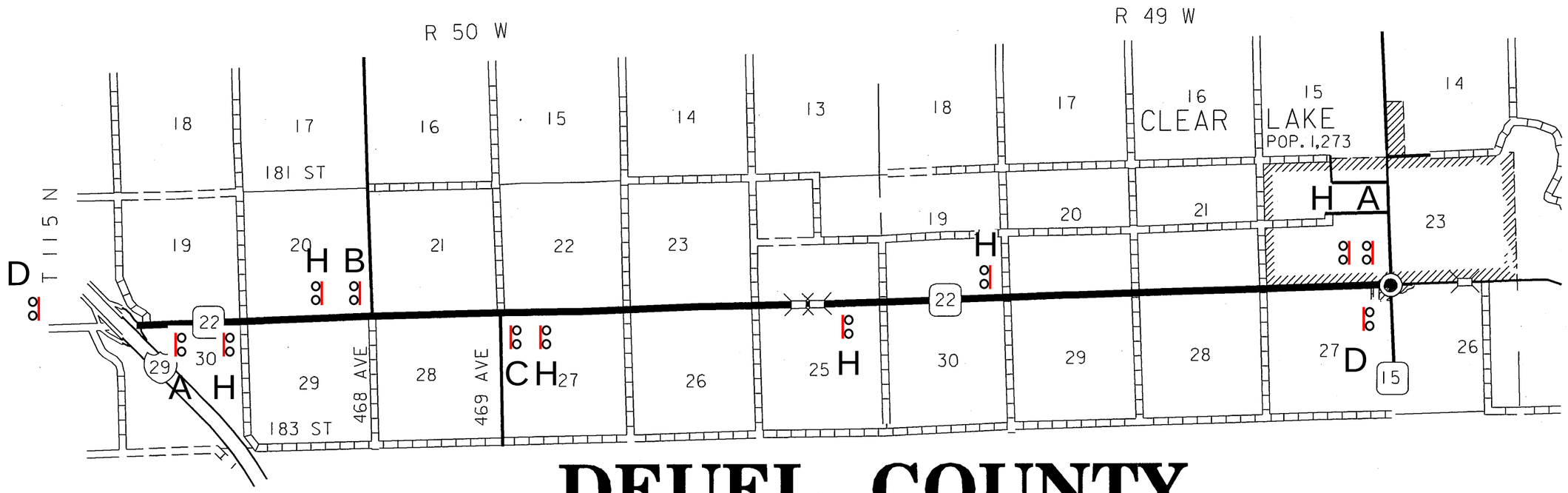
➢ **5.5 (5): Required Notice to Other Operators**

If there are multiple operators at the site, the Contractor's Erosion Control Supervisor must notify each operator that may be impacted by the change to the SWPPP within 24 hours.

When modifications as described above occur, the SWPPP will be modified to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP using the DOT 298 form and drawings on the plan will be modified to reflect the needed changes. Copies of the DOT 298 forms and the SWPPP will be retained on site in a designated place for review throughout the course of the project. A copy of the DOT 298 form will be given to the Contractor Erosion Control Supervisor and a copy will be emailed to the SDDOT Environmental Section in accordance with the DOT 298 Form.

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 25 | 53 |

# FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS




# DEUEL COUNTY

A

ROAD WORK
NEXT 10 MILES

G20-1

B

ROAD WORK
NEXT 2 MILES

G20-1

C

ROAD WORK
NEXT 3 MILES

G20-1

H

GROOVED
PAVEMENT *

W8-15P

Next
Miles

W7-3aP

D

END
ROAD WORK

G20-2

* GROOVED PAVEMENT signs will only be visible when the condition exists. Signs will be covered or removed when the grooved road condition is not present.

ROAD
WORK
AHEAD

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

PLOTTED FROM - TRAB17882

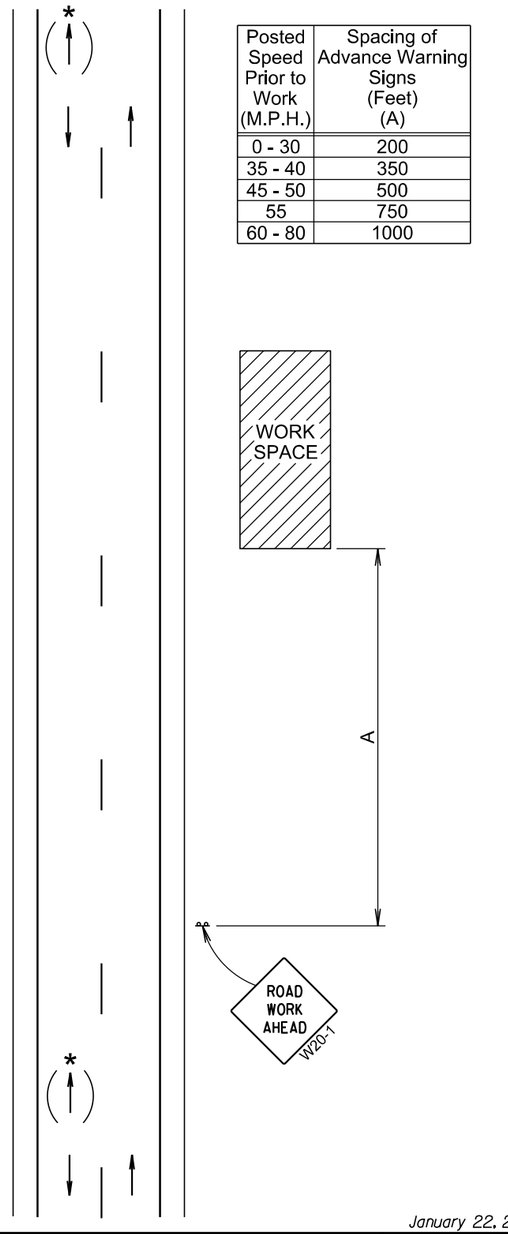
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

The signs illustrated will be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.




| Posted Speed Prior to Work (M.P.H.) | Spacing of Advance Warning Signs (Feet) (A) |
|---|---|
| 0 - 30 | 200 |
| 35 - 40 | 350 |
| 45 - 50 | 500 |
| 55 | 750 |
| 60 - 80 | 1000 |

January 22, 2021

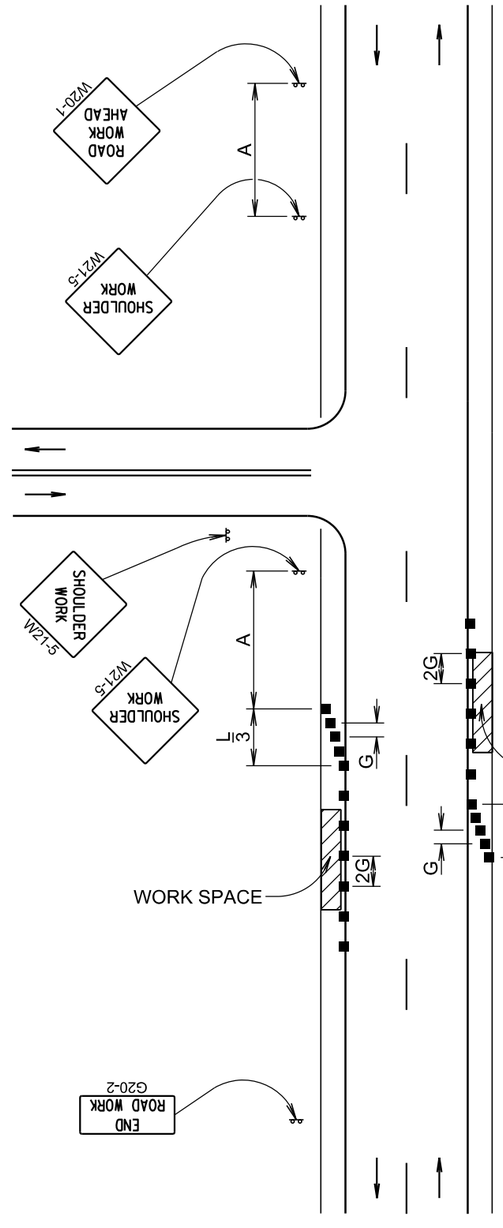
Published Date: 4th Qtr. 2021

SDDOT

WORK BEYOND THE SHOULDER

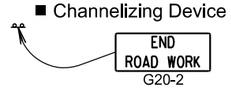
PLATE NUMBER 634.01

Sheet 1 of 1




| 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 | 500 | 600 | 25 |
| 50 | 500 | 600 | 50 |
| 55 | 750 | 660 | 50 |
| 60 - 65 | 1000 | 780 | 50 |

■ Channelizing Device




The channelizing devices will be drums or 42" cones if traffic control must remain overnight.

For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

January 22, 2021

Published Date: 4th Qtr. 2021

SDDOT

WORK ON SHOULDERS

PLATE NUMBER 634.03

Sheet 1 of 1

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(070)360 | 27 | 53 |

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

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

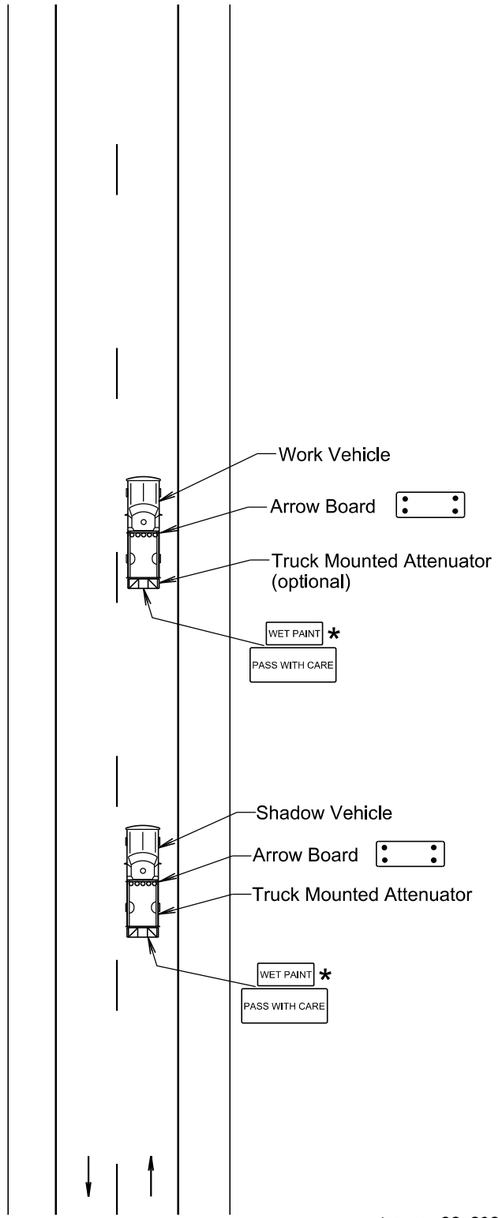
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

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

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

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

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

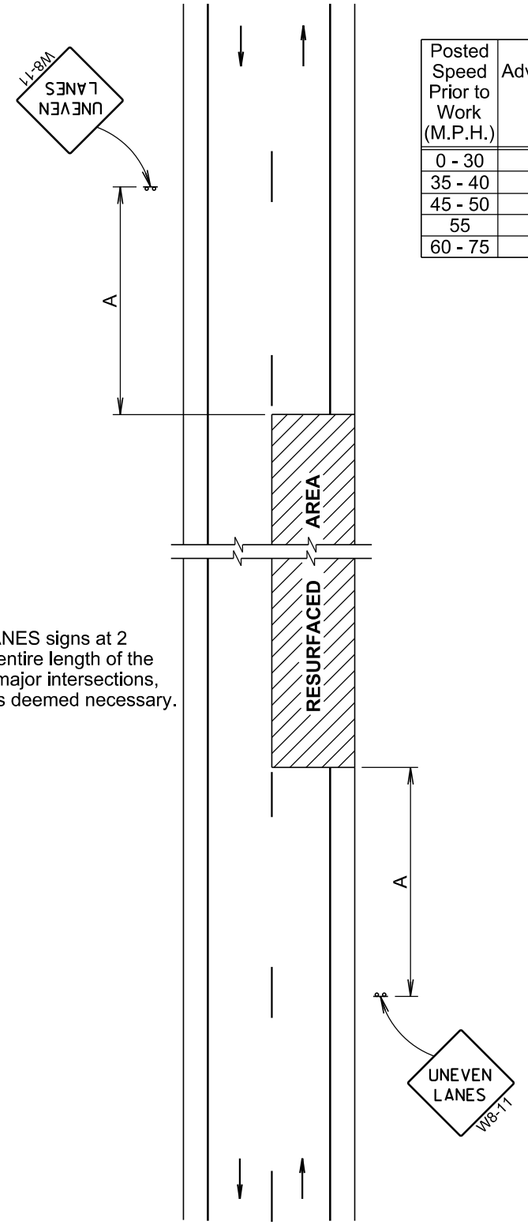



January 22, 2021

| Published Date: 4th Qtr. 2021 | SDDOT | MOBILE OPERATIONS ON 2-LANE ROAD | PLATE NUMBER 634.06 |
|---|---|---|---|
| | | | Sheet 1 of 1 |

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

Install additional UNEVEN LANES signs at 2 mile intervals throughout the entire length of the uneven area and at affected major intersections, edge of towns, and other sites deemed necessary.




January 22, 2021

| Published Date: 4th Qtr. 2021 | SDDOT | UNEVEN ROAD SURFACE | PLATE NUMBER 634.22 |
|---|---|---|---|
| | | | Sheet 1 of 1 |

PLOTTED FROM - TRAB17882

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(070)360 | 28 | 53 |

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

Flagger

Channelizing Device

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

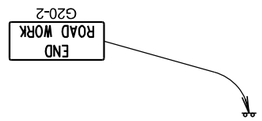
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) will 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 will be drums or 42" cones.

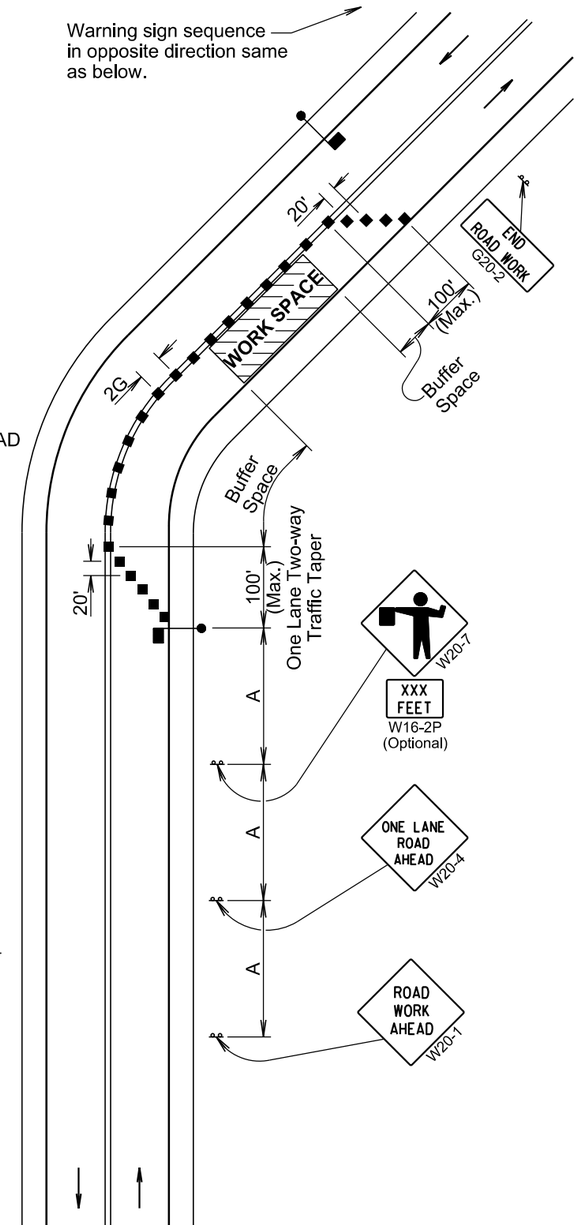
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.




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

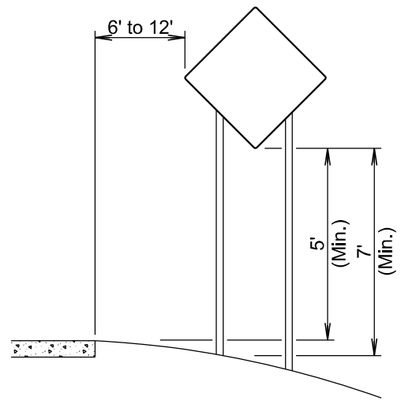
The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

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

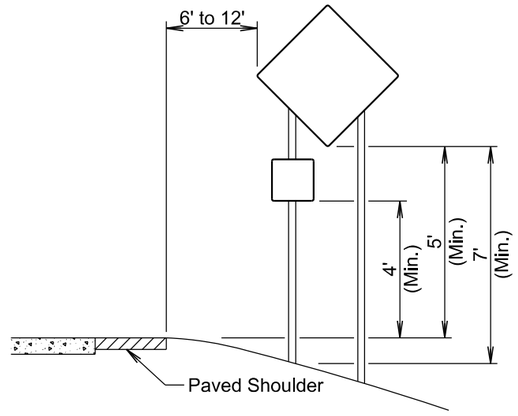



January 22, 2021

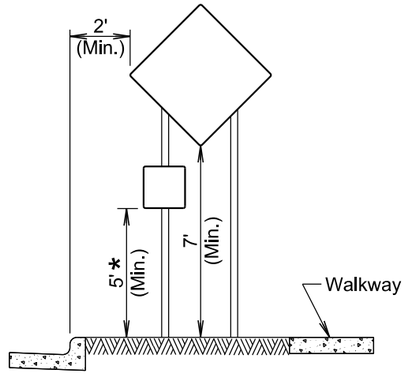
| Published Date: 4th Qtr. 2021 | SDDOT | LANE CLOSURE WITH FLAGGER PROVIDED | PLATE NUMBER 634.23 |
|---|---|---|---|
| | | | Sheet 1 of 1 |



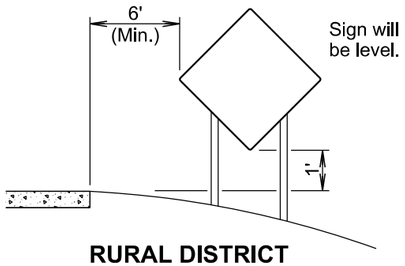

**RURAL DISTRICT**




**RURAL DISTRICT WITH SUPPLEMENTAL PLATE**




**URBAN DISTRICT**



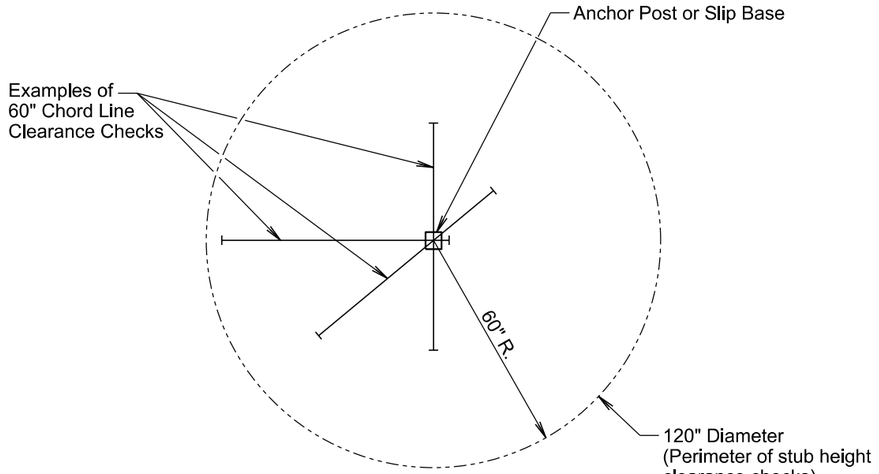

**RURAL DISTRICT**
**3 DAY MAXIMUM**
(Not applicable to regulatory signs)

* 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.

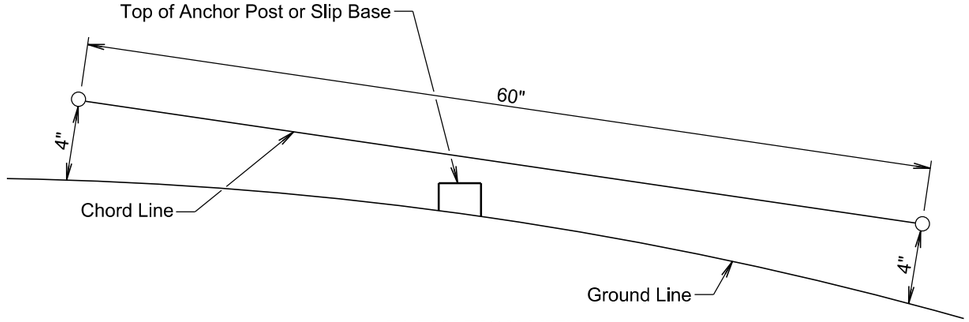
January 22, 2021

| Published Date: 4th Qtr. 2021 | SDDOT | CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing) | PLATE NUMBER 634.85 |
|---|---|---|---|
| | | | Sheet 1 of 1 |

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(070)360 | 29 | 53 |




**PLAN VIEW**
(Examples of stub height clearance checks)




**ELEVATION VIEW**

**GENERAL NOTES:**

The top of anchor posts and slip bases WILL 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 will 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.

January 22, 2021

| | | | |
|---|---|---|---|
| Published Date: 4th Qtr. 2021 | SDDOT | BREAKAWAY SUPPORT STUB CLEARANCE | PLATE NUMBER 634.99<br>Sheet 1 of 1 |

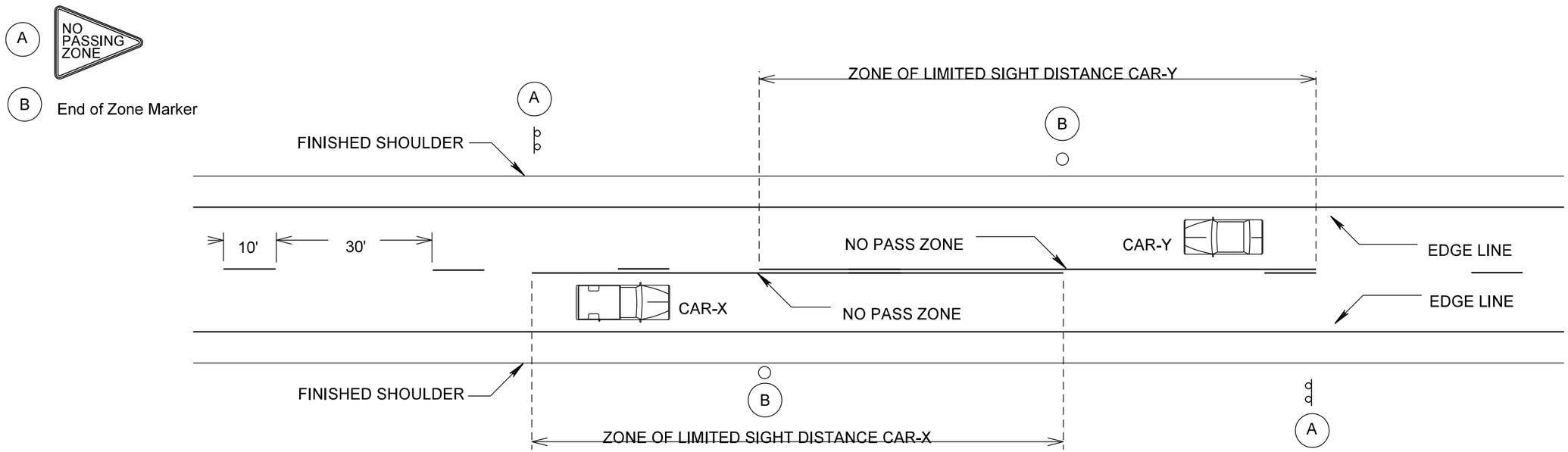
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(070)360 | 30 | 53 |

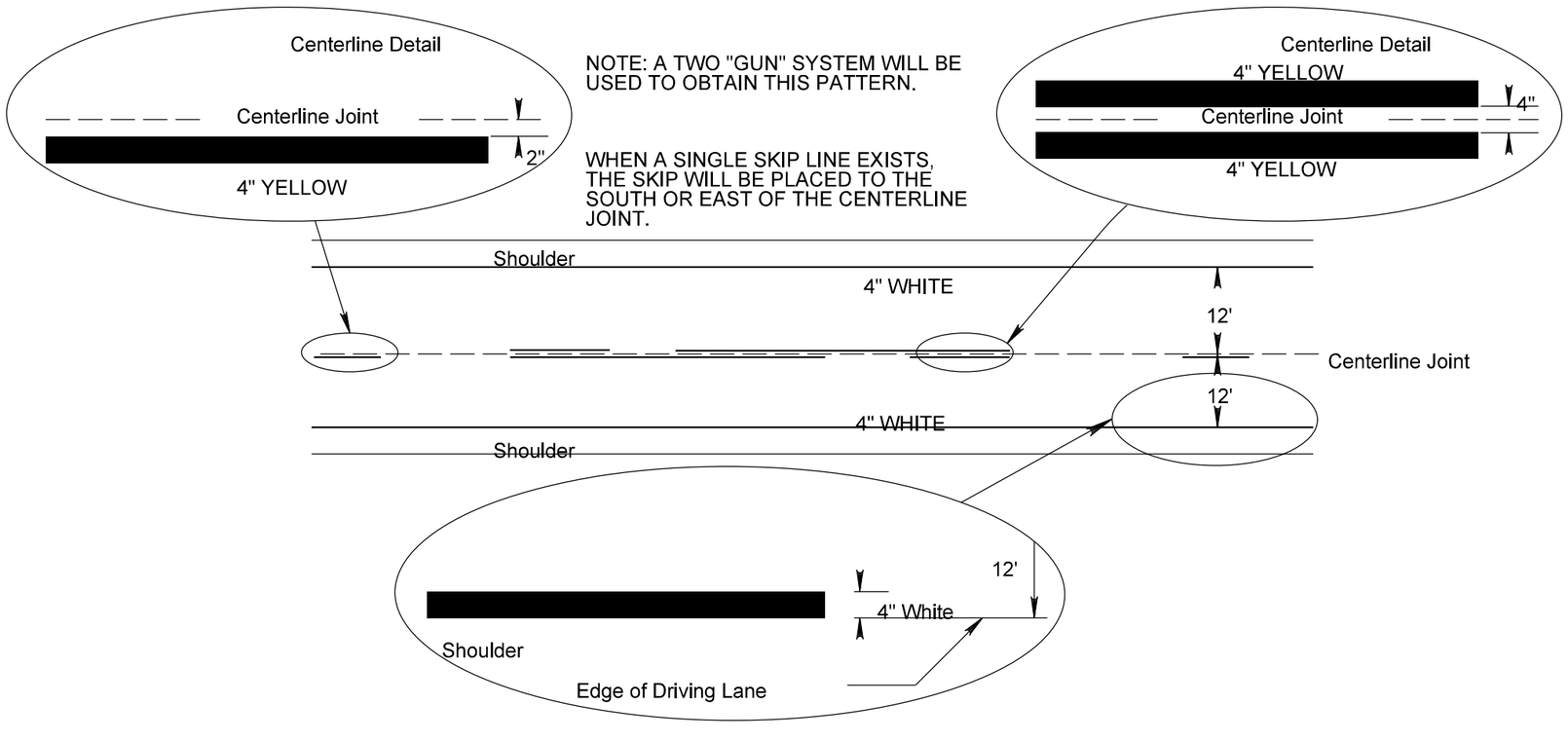
| | | CONVENTIONAL ROAD | | | |
|---|---|---|---|---|---|
| SIGN CODE | SIGN DESCRIPTION | NUMBER | SIGN SIZE | SQFT PER SIGN | SQFT |
| W7-3aP | NEXT __ MILES (plaque) | 6 | 36" x 30" | 7.5 | 45.0 |
| W8-1 | BUMP | 4 | 48" x 48" | 16.0 | 64.0 |
| W8-6 | TRUCK CROSSING | 2 | 48" x 48" | 16.0 | 32.0 |
| W8-11 | UNEVEN LANES | 2 | 48" x 48" | 16.0 | 32.0 |
| W8-15 | GROOVED PAVEMENT | 6 | 48" x 48" | 16.0 | 96.0 |
| W8-15P | MOTORCYCLE (plaque) | 6 | 24" x 18" | 3.0 | 18.0 |
| W20-1 | ROAD WORK AHEAD | 6 | 48" x 48" | 16.0 | 96.0 |
| W20-4 | ONE LANE ROAD AHEAD | 2 | 48" x 48" | 16.0 | 32.0 |
| W20-7 | FLAGGER (symbol) | 4 | 48" x 48" | 16.0 | 64.0 |
| W21-2 | FRESH OIL | 2 | 48" x 48" | 16.0 | 32.0 |
| W21-5 | SHOULDER WORK | 2 | 48" x 48" | 16.0 | 32.0 |
| SPECIAL | WAIT FOLLOW PILOT CAR | 6 | 18" x 30" | 3.8 | 22.8 |
| G20-1 | ROAD WORK NEXT _10_ MILES | 2 | 36" x 18" | 4.5 | 9.0 |
| G20-1 | ROAD WORK NEXT _2_ MILES | 1 | 36" x 18" | 4.5 | 4.5 |
| G20-1 | ROAD WORK NEXT _3_ MILES | 1 | 36" x 18" | 4.5 | 4.5 |
| G20-2 | END ROAD WORK | 2 | 36" x 18" | 4.5 | 9.0 |
| | | CONVENTIONAL ROAD DETOUR AND RESTRICTION SIGNING SQFT | | | 592.8 |

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 31 | 53 |

Plotting Date: 02/17/2021

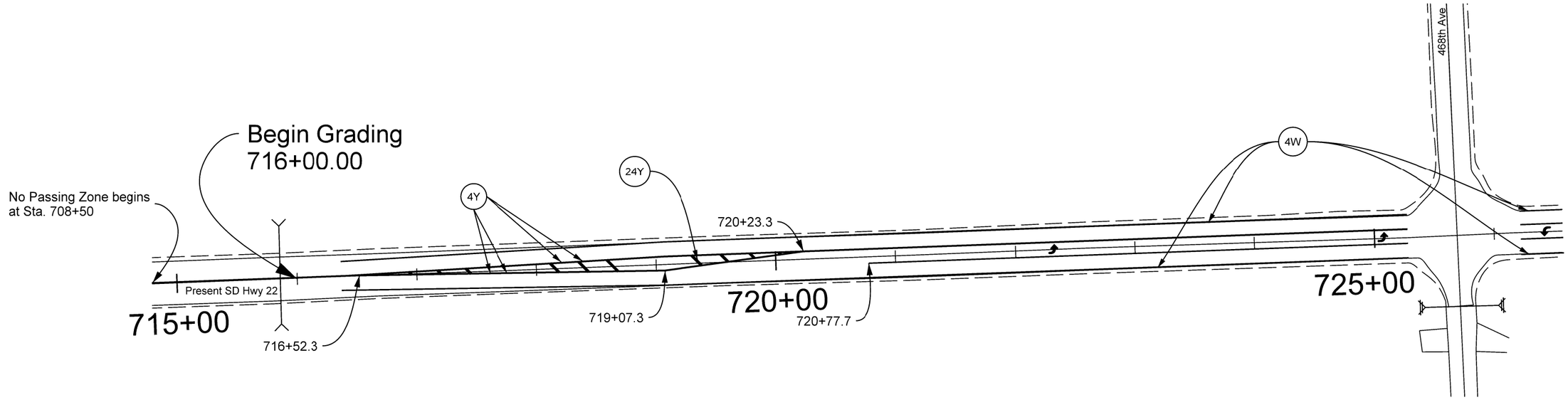
# TYPICAL PAVEMENT MARKING LAYOUT

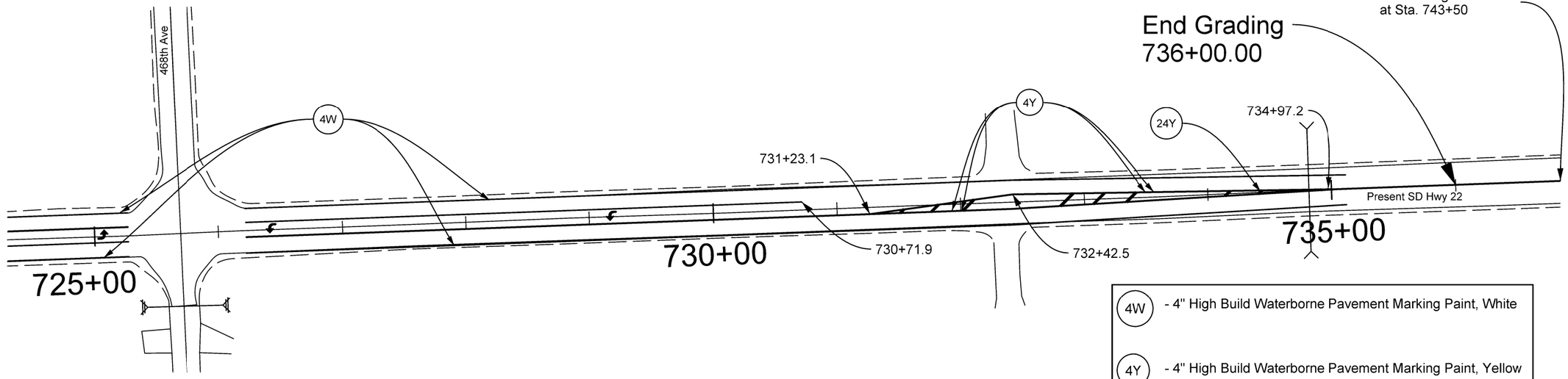


| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 32 | 53 |
| Plotting Date: 01/14/2022 | | | |

# TURN LANE PAVEMENT MARKING LAYOUT




| | |
|---|---|
| 4W | - 4" High Build Waterborne Pavement Marking Paint, White |
| 4Y | - 4" High Build Waterborne Pavement Marking Paint, Yellow |
| 24Y | - 24" Preformed Thermoplastic Pavement Marking, Yellow |
| | - Preformed Thermoplastic Pavement Marking, Arrow |

PLOT SCALE - 1:90

PLOTTED FROM - TRAB10200

PLOT NAME - 1

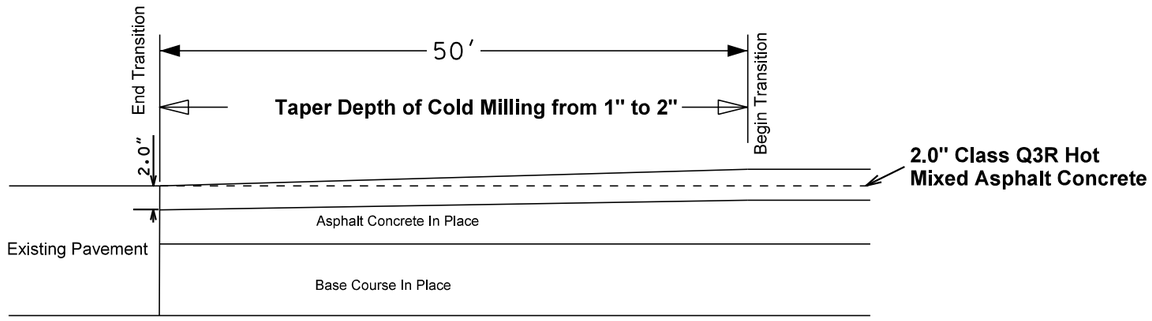
FILE - ...\TURNLANEPAVEMENTMARKINGLAYOUT.DGN

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 33 | 53 |

# TRANSITION DETAILS FOR PROJECT LIMITS, INTERSECTING ROADS, & ENTRANCES

## TRANSITION SECTIONS

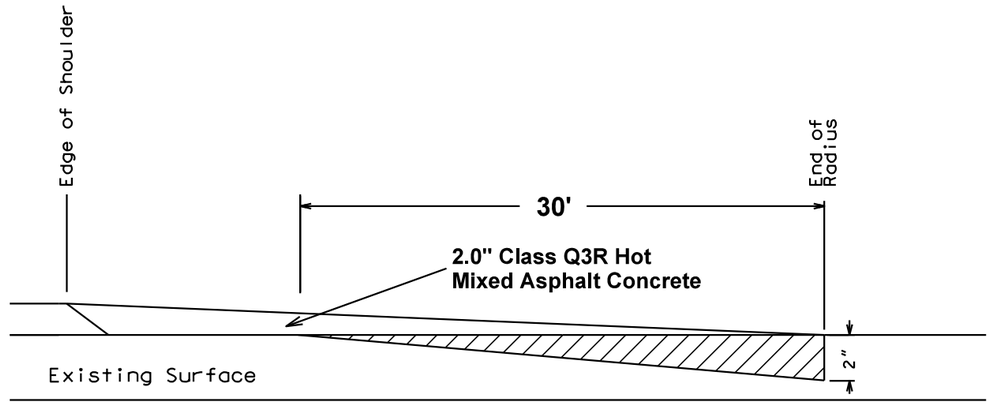
**Begin & End Resurfacing Project**
**Sta. 636+31.2**
**Sta. 526+05.1**




Note: Width of Cold Milling Asphalt Concrete at beginning and end of the project will match adjacent surfacing width.

## TRANSITION SECTIONS

**MRM 363.59 R**




Cold Milling Asphalt Concrete

Note: Width of Cold Milling Asphalt Concrete will match adjacent surfacing width.

Included in the Table of Additional Quantities for these Intersecting Roads & Entrances is 90 sq. yds. of Cold Milling Asphalt Concrete. Basis of payment will be plans quantity regardless of width of the Intersecting Roads.

PLOTTED FROM - TRAB17882

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 34 | 53 |

# HORIZONTAL ALIGNMENT & CONTROL DATA

## MAINLINE

| Type | Station | | Northing | Easting |
|---|---|---|---|---|
| POB | 711+75.24 | | 348854.271 | 2786702.140 |
| | | TL= 2995.87 N 87°51'09" E | | |
| POE | 741+71.11 | | 348966.531 | 2789695.905 |

| HORIZONTAL AND VERTICAL CONTROL POINTS | | | | | | |
|---|---|---|---|---|---|---|
| POINT | STATION | OFFSET | DESCRIPTION | NORTHING | EASTING | ELEVATION |
| PR 1098 | | | Federal Base Network Control Station | 338387.3100 | 2785610.4000 | 1886.79 |

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System.  North Zone (NAD 83/11); epoch 2010; Geoid 2012a; SF = 0.99999999

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 35 | 53 |

Revised 1-27-22 MAW

# LEGEND

- Anchor
- Antenna
- Approach
- Assumed Corner
- Azimuth Marker
- BBQ Grill/ Fireplace
- Bearing Tree
- Bench Mark
- Box Culvert
- Bridge
- Brush
- Buildings
- Bulk Tank
- Cattle Guard
- Cemetery
- Centerline
- Cistern
- Clothes Line
- Commercial Sign Double Face
- Commercial Sign One Post
- Commercial Sign Overhead
- Commercial Sign Two Post
- Concrete Symbol
- Control Point
- Creek Edge
- Curb/Gutter
- Curb
- Dam Grade/Dike/Levee
- Deck Edge
- Ditch Block
- Doorway Threshold
- Drainage Profile
- Drop Inlet
- Edge Of Asphalt
- Edge Of Concrete
- Edge Of Gravel
- Edge Of Other
- Edge Of Shoulder
- Electric Transformer/Power Junction Box
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Miscellaneous
- Fence Rock
- Fence Snow
- Fence Wood
- Fence Woven
- Fire Hydrant
- Flag Pole
- Flower Bed
- Gas Valve Or Meter
- Gas Pump Island
- Grain Bin
- Guardrail
- Guide Sign One Post
- Guide Sign Two Post
- Gutter
- Guy Pole
- Haystack
- Hedge
- Highway ROW Marker
- Interstate Close Gate
- Iron Pin
- Irrigation Ditch
- Lake Edge
- Lawn Sprinkler
- Mailbox
- Manhole Electric
- Manhole Gas
- Manhole Miscellaneous
- Manhole Sanitary Sewer
- Manhole Storm Sewer
- Manhole Telephone
- Manhole Water
- Merry-Go-Round
- Microwave Radio Tower
- Miscellaneous Line
- Miscellaneous Property Corner
- Miscellaneous Post
- Overhang Or Encroachment
- Overhead Utility Line — OH —
- Parking Meter
- Pedestrian Push Button Pole
- Pipe With End Section
- Pipe With Headwall
- Pipe Without End Section
- Playground Slide
- Playground Swing
- Power And Light Pole
- Power And Telephone Pole
- Power Meter
- Power Pole
- Power Pole And Transformer
- Power Tower Structure
- Propane Tank
- Property Pipe
- Property Pipe With Cap
- Property Stone
- Public Telephone
- Railroad Crossing Signal
- Railroad Milepost Marker
- Railroad Profile
- Railroad ROW Marker
- Railroad Signs
- Railroad Switch
- Railroad Track
- Railroad Trestle
- Rebar
- Rebar With Cap
- Reference Mark
- Regulatory Sign One Post
- Regulatory Sign Two Post
- Retaining Wall
- Riprap
- River Edge
- Rock And Wire Baskets
- Rockpiles
- Satellite Dish
- Septic Tank
- Shrub Tree
- Sidewalk
- Sign Face
- Sign Post
- Slough Or Marsh
- Spring
- Stream Gauge
- Street Marker
- Subsurface Utility Exploration Test Hole
- Telephone Fiber Optics — T/F —
- Telephone Junction Box
- Telephone Pole
- Television Cable Jct Box
- Television Tower
- Test Wells/Bore Holes
- Traffic Signal
- Trash Barrel
- Tree Belt
- Tree Coniferous
- Tree Deciduous
- Tree Stumps
- Triangulation Station
- Underground Electric Line — P —
- Underground Gas Line — G —
- Underground High Pressure Gas Line — HG —
- Underground Sanitary Sewer — S —
- Underground Storm Sewer — S —
- Underground Tank
- Underground Telephone Line — T —
- Underground Television Cable — TV —
- Underground Water Line — W —
- Warning Sign One Post
- Warning Sign Two Post
- Water Fountain
- Water Hydrant
- Water Meter
- Water Tower
- Water Valve
- Water Well
- Weir Rock
- Windmill
- Wingwall
- Witness Corner

- State and National Line
- County Line
- Section Line
- Quarter Line
- Sixteenth Line
- Property Line
- Construction Line
- ROW Line
- New ROW Line
- Cut and Fill Limits
- Control of Access
- New Control of Access
- Proposed ROW (After Property Disposal)

- Drainage Arrow

- Remove Concrete Pavement
- Remove Concrete Driveway Pavement
- Remove Asphalt Concrete Pavement
- Remove Concrete Sidewalk
- Remove Concrete Median Pavement
- Remove Concrete Curb and/or Gutter

- Detectable Warning Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope

PLOTTED FROM - TRAB17882

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022( 70)360 | 36 | 53 |
| Plotting Date: 01/14/2022 | | | |

715+89.52
Do Not Disturb
In-Place Culvert

732+35.65 L & R
Retain Entrance

734+81.45
Do Not Disturb
In-Place Culvert

## Sec. 20 - T115N - R50W

Lamont V. & Owen K. Peterson

SE1/4 of Section 20 - Township 115 North - Range 50 West of the 5th P.M., less Lots 1, 2, & 3 of Reynolds Addition to the County of Deuel, and less SD Hwy 22 Right of Way

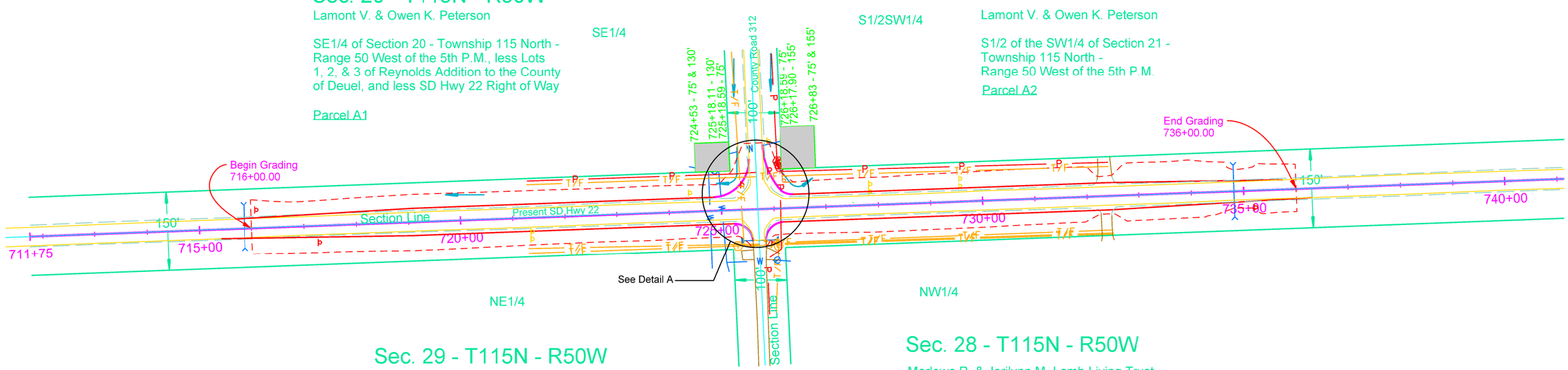
Parcel A1

## Sec. 21 - T115N - R50W

Lamont V. & Owen K. Peterson

S1/2 of the SW1/4 of Section 21 - Township 115 North - Range 50 West of the 5th P.M.

Parcel A2




## Sec. 29 - T115N - R50W

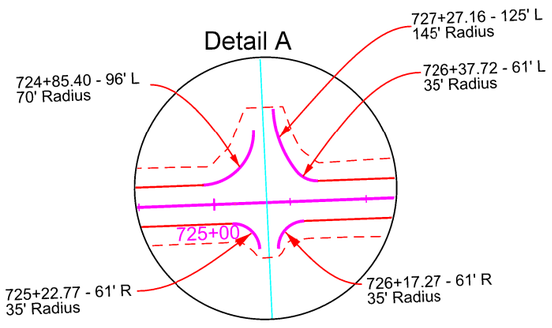
Kevin G. Ruesink
(INFORMATION ONLY)

Parcel A1
Station 724+53 to Station 725+18.59 L
Temporary Easement containing
0.1 acres, more or less

## Sec. 28 - T115N - R50W

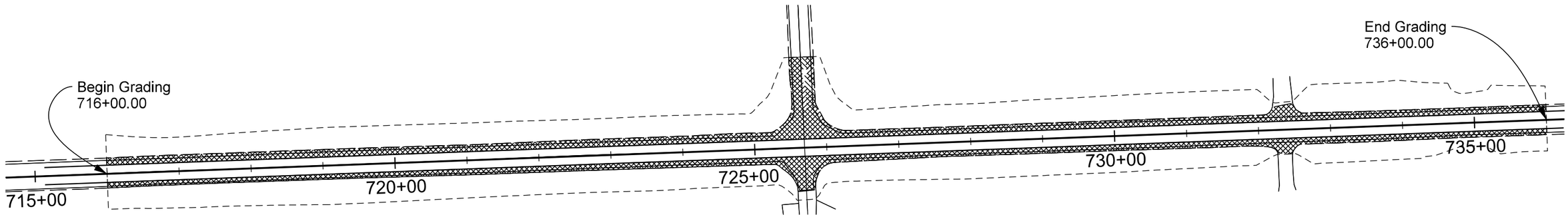
Marlowe R. & Jerilynn M. Lamb Living Trust
(INFORMATION ONLY)

Parcel A2
Station 726+17.90 to Station 726+83 L
Temporary Easement containing
0.1 acres, more or less



# PAVEMENT REMOVAL LAYOUT

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 37 | 53 |
| Plotting Date: 03/31/2021 | | | |



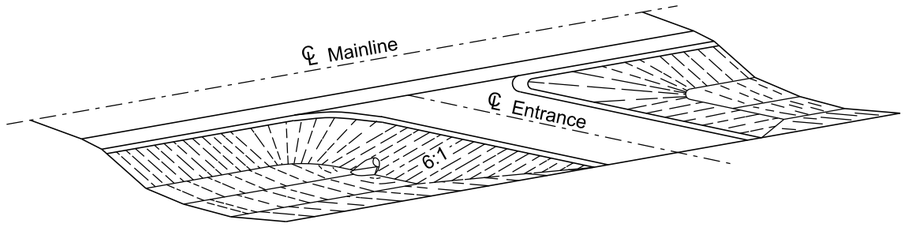

PLOT SCALE - 1:140.289

PLOT NAME - 1

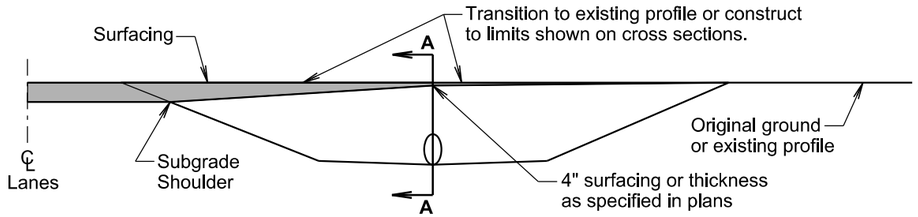
FILE - ...\PAVEMENTREMOVALLAYOUT.DGN

PLOTTED FROM - TRWAINT16

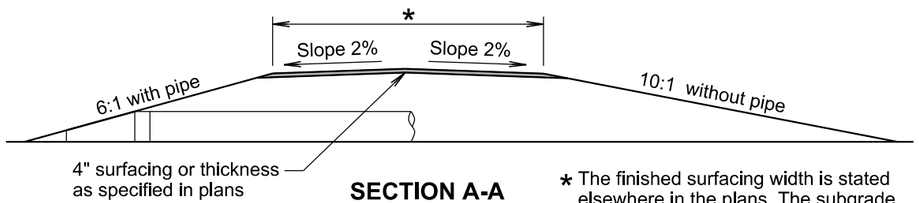
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(070)360 | 38 | 53 |




**PERSPECTIVE OF ENTRANCE**




**ELEVATION VIEW**
(Entrance)




**SECTION A-A**
(Entrance)

* The finished surfacing width is stated elsewhere in the plans. The subgrade width is 4' wider than the finished surfacing width unless stated otherwise in the plans.

**GENERAL NOTES:**

The ditch section shown above in the perspective and elevation view is only for illustrative purpose.

A 6:1 inslope will be constructed for an entrance when a pipe is required. A 10:1 inslope will be constructed when a pipe is not required.

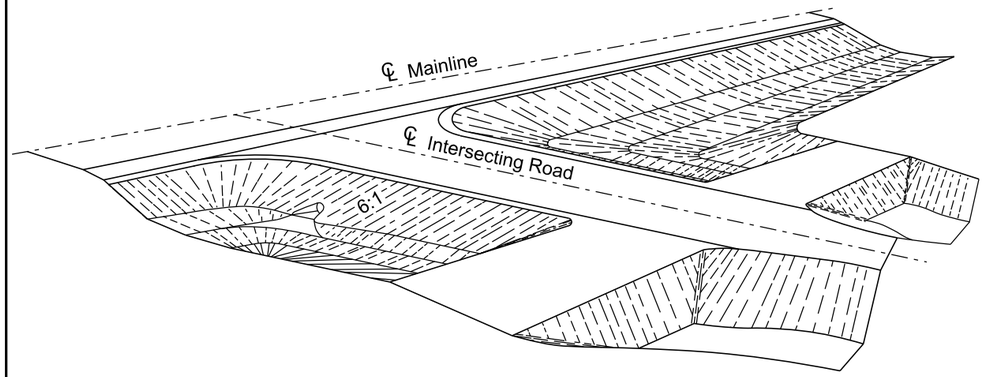
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

The transition area between the mainline inslope and the approach inslope for entrances will be rounded to eliminate an abrupt transition.

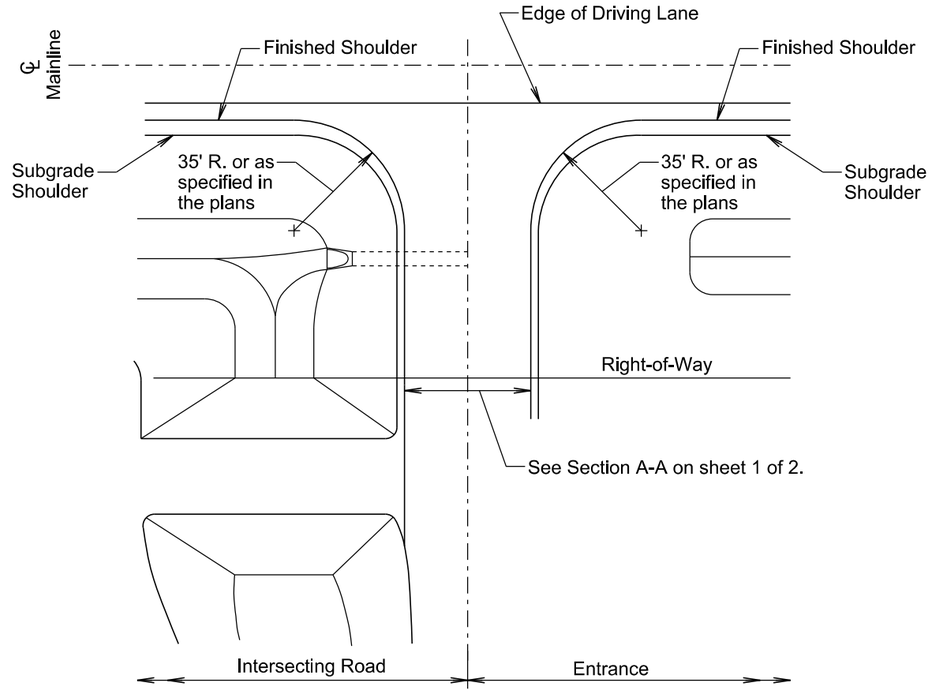
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

September 14, 2018

| Published Date: 4th Qtr. 2021 | SDDOT | INTERSECTING ROADS AND ENTRANCES | PLATE NUMBER 120.01 |
|---|---|---|---|
| | | | Sheet 1 of 2 |




**PERSPECTIVE OF INTERSECTING ROAD**



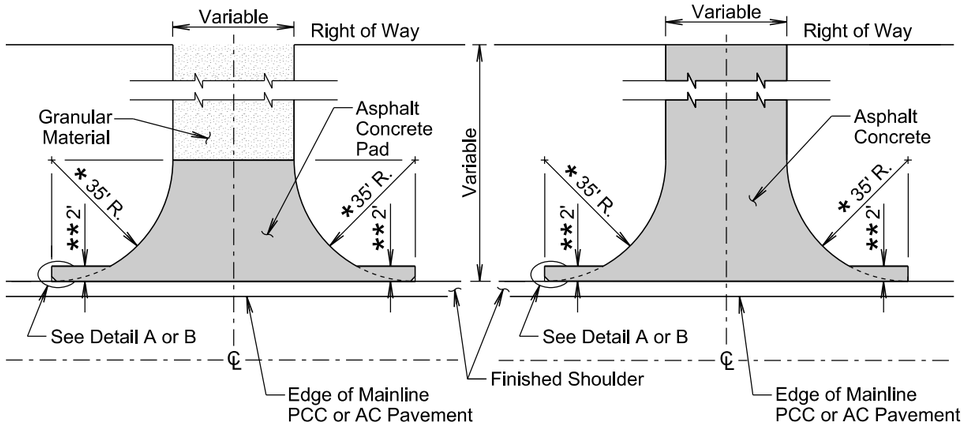

**PLAN VIEW**

September 14, 2018

| Published Date: 4th Qtr. 2021 | SDDOT | INTERSECTING ROADS AND ENTRANCES | PLATE NUMBER 120.01 |
|---|---|---|---|
| | | | Sheet 2 of 2 |

PLOTTED FROM - TRAB17882

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(070)360 | 39 | 53 |




**PLAN VIEW**
(Intersecting Road)
(No Asphalt Concrete Surfacing Beyond Right of Way)

**PLAN VIEW**
(Intersecting Road)
(Asphalt Concrete Surfacing Beyond Right of Way)

**GENERAL NOTES:**

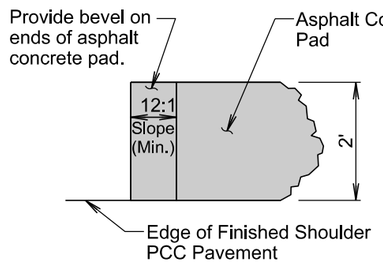
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

* For new construction, 35' radius typical or as specified in the plans. For resurfacing projects, radius is variable depending on existing conditions.

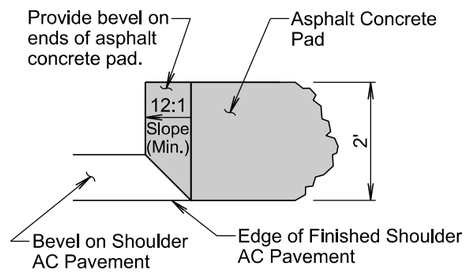
** The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete pads if the Engineer, in the Engineer's sole discretion, determines the pads are infeasible to construct due to site specific reasons including, but not limited to; existing inslope configuration, borrow and material availability, and right-of-way constraints.

August 27, 2020

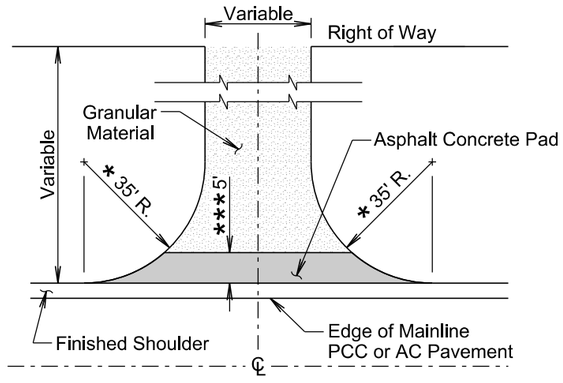
| | | | |
|---|---|---|---|
| Published Date: 4th Qtr. 2021 | SDDOT | SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT) | PLATE NUMBER 320.04<br>Sheet 1 of 2 |




**DETAIL A**
(Typ. for Projects with PCC Pavement on Shoulder)




**DETAIL B**
(Typ. for Projects with AC Pavement on Shoulder)



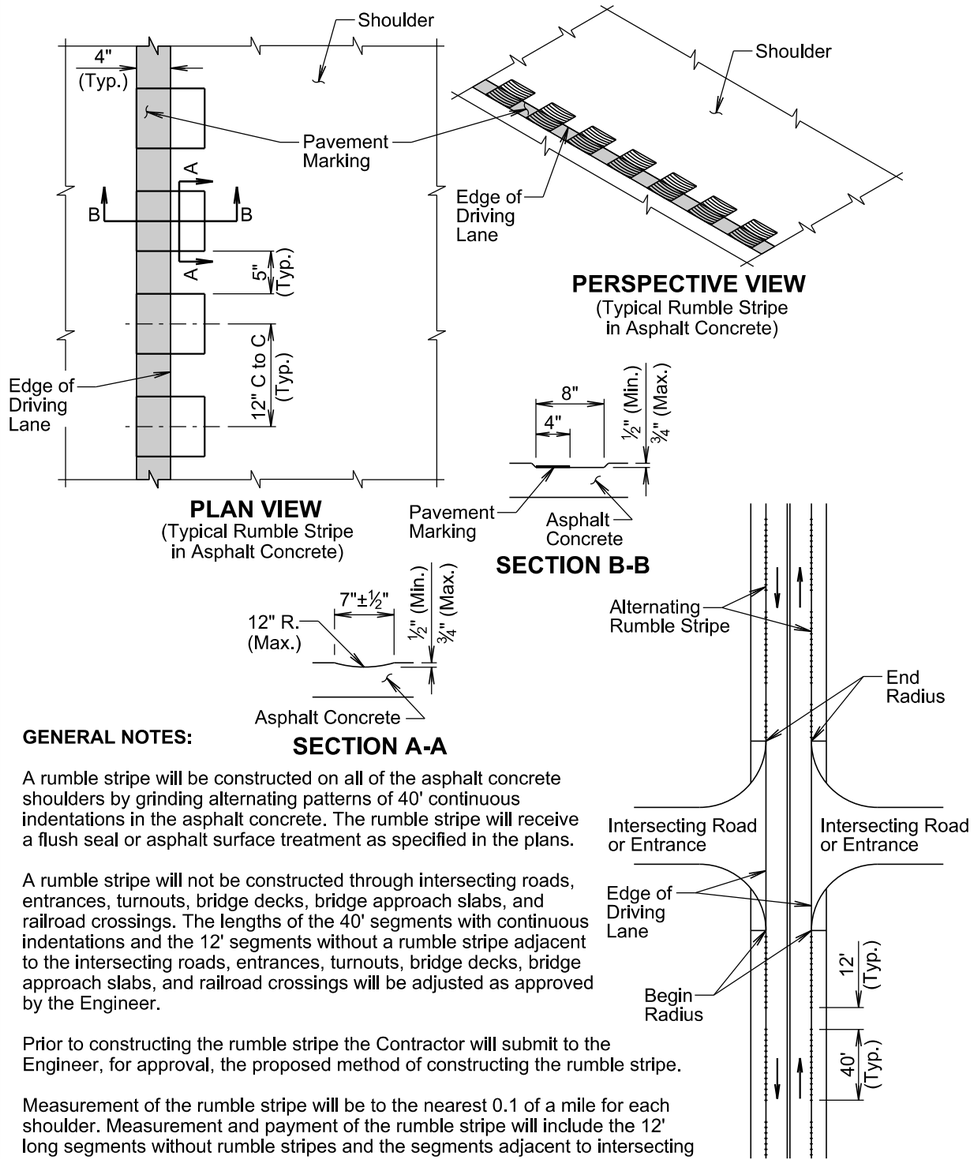

**PLAN VIEW**
(Entrance)

*** Not required if finished shoulder width is 4' or greater.

August 27, 2020

| | | | |
|---|---|---|---|
| Published Date: 4th Qtr. 2021 | SDDOT | SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT) | PLATE NUMBER 320.04<br>Sheet 2 of 2 |

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(070)360 | 40 | 53 |




**PERSPECTIVE VIEW**
(Typical Rumble Stripe in Asphalt Concrete)

**PLAN VIEW**
(Typical Rumble Stripe in Asphalt Concrete)




**SECTION B-B**




**SECTION A-A**




**PLAN VIEW**

**GENERAL NOTES:**

A rumble stripe will be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble stripe will receive a flush seal or asphalt surface treatment as specified in the plans.

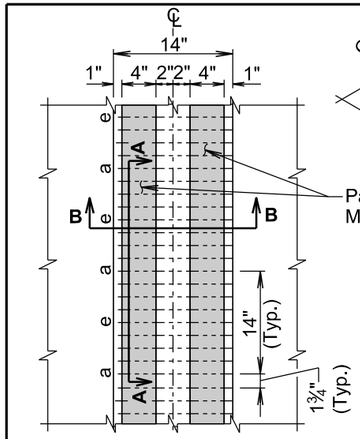
A rumble stripe will not be constructed through intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble stripe adjacent to the intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the Engineer.

Prior to constructing the rumble stripe the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

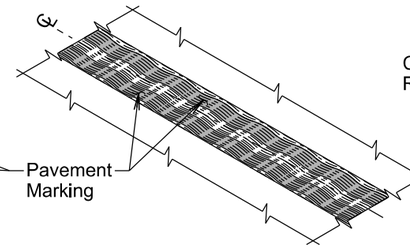
Measurement of the rumble stripe will be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble stripe will include the 12' long segments without rumble stripes and the segments adjacent to intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings without rumble stripes. Payment for constructing the rumble stripe will be at the contract unit price per mile for "Grind 8" Rumble Strip or Stripe in Asphalt Concrete".

September 14, 2019

| Published Date: 4th Qtr. 2021 | SDDOT | 8" RUMBLE STRIPE IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS | PLATE NUMBER 320.20 |
|---|---|---|---|
| | | | Sheet 1 of 1 |

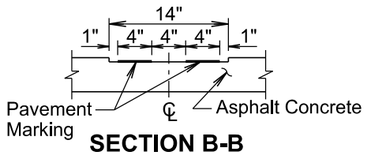



**PLAN VIEW**
(Typical Rumble Strip in Asphalt Concrete)

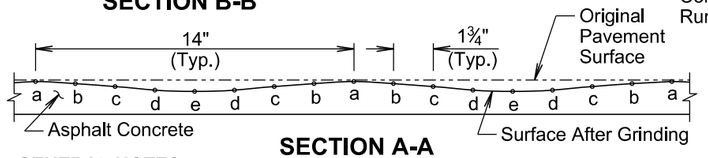



**PERSPECTIVE VIEW**
(Typical Rumble Strip in Asphalt Concrete)

| SINUSOIDAL GRINDING | |
|---|---|
| Location | * Depth (In.) |
| a | 1/16 |
| b | 5/32 |
| c | 9/32 |
| d | 7/16 |
| e | ½ |




**SECTION B-B**




**SECTION A-A**

**GENERAL NOTES:**

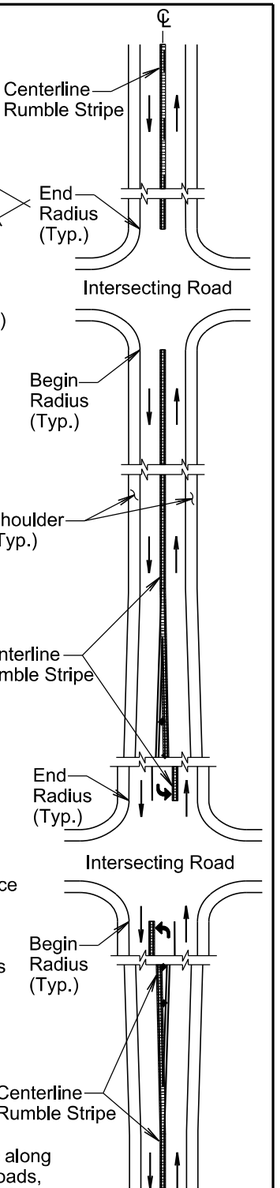
A rumble stripe will be constructed by grinding continuous sinusoidal indentations in the asphalt concrete. The rumble stripe will receive a flush seal or asphalt surface treatment as specified in the plans.

A rumble stripe will not be constructed through intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. The beginning and ending locations of the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the Engineer.

Prior to constructing the rumble stripe the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

* The sinusoidal rumble stripe construction grinding tolerance will be ± 1/16 inch.

Measurement and payment of the rumble stripe will be to the nearest 0.1 of a mile along the centerline and will include segments without the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. Payment for constructing the rumble stripe will be at the contract unit price per mile for "Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete".

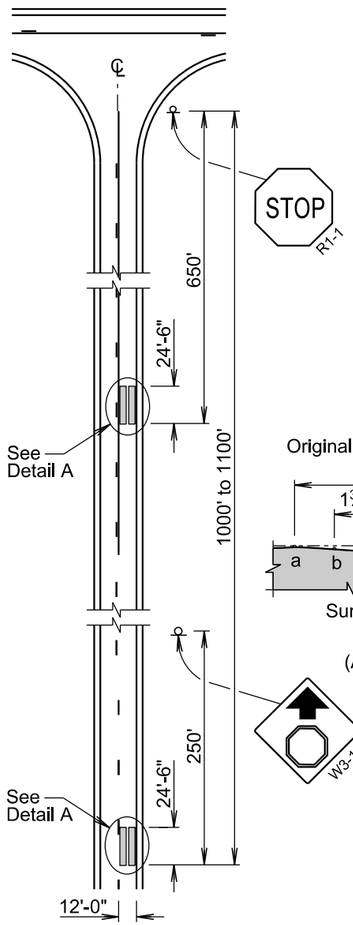



**PLAN VIEW**

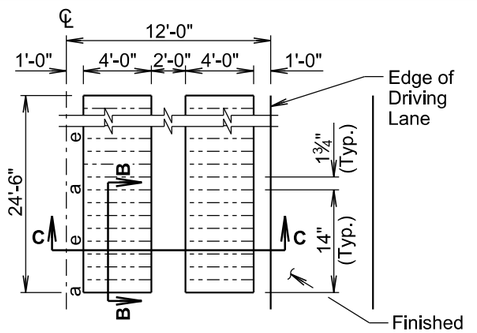
September 14, 2019

| Published Date: 4th Qtr. 2021 | SDDOT | SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE | PLATE NUMBER 320.40 |
|---|---|---|---|
| | | | Sheet 1 of 1 |

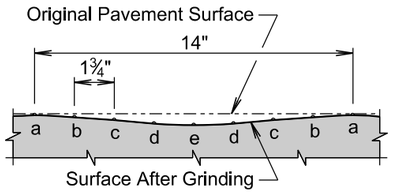
PLOTTED FROM - TRA817882




PLAN VIEW

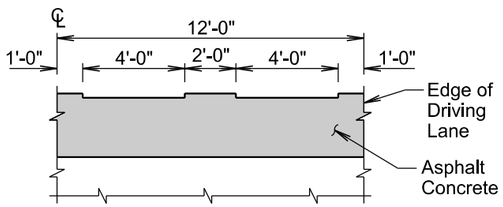



**DETAIL A**
**PLAN VIEW**
(Not to Scale)




**SECTION B-B**
(All dimensions are typical.)

| SINUSOIDAL GRINDING | |
|---|---|
| Location | ⧄ Depth (In.) |
| a | 1/16 |
| b | 5/32 |
| c | 9/32 |
| d | 7/16 |
| e | ½ |




**SECTION C-C**
(All dimensions are typical.)

**GENERAL NOTES:**

Transverse rumble strips will be constructed by grinding continuous sinusoidal indentations in the asphalt concrete pavement as approved by the Engineer. The transverse rumble strips will receive a flush seal or fog seal as specified in the plans.

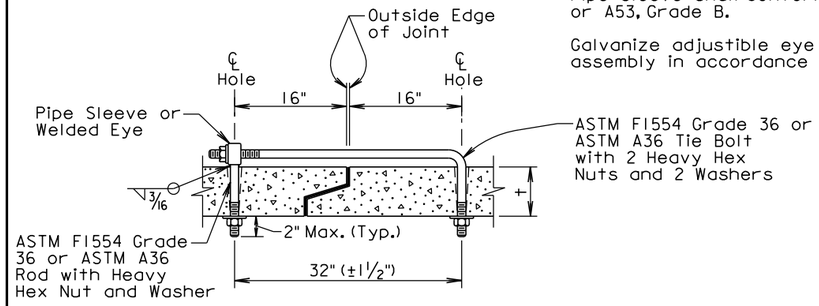
⧄ The sinusoidal transverse rumble strips construction grinding tolerance will be ± 1/16 inch.

Measurement of the sinusoidal transverse rumble strips will be to the nearest square foot. Payment for constructing the sinusoidal transverse rumble strips will be at the contract unit price per square foot for "Grind Sinusoidal Transverse Rumble Strip in Asphalt Concrete Pavement".

*January 22, 2021*

| | | | |
|---|---|---|---|
| *Published Date: 4th Qtr. 2021* | SDDOT | *SINUSOIDAL TRANSVERSE RUMBLE STRIP IN ASPHALT CONCRETE HIGHWAY ADJACENT TO STOP CONTROLLED INTERSECTION* | *PLATE NUMBER* 320.46<br>*Sheet 1 of 1* |

| Wall "t" (in.) | Rod Dia. (in.) | Pipe Sleeve Dia. (nominal) |
|---|---|---|
| ≤ 3¼ | ⅝ | ¾ |
| 3½-6½ | ¾ | 1 |
| ≥ 7 | 1 | 1¼ |




ADJUSTABLE EYE BOLT TIE

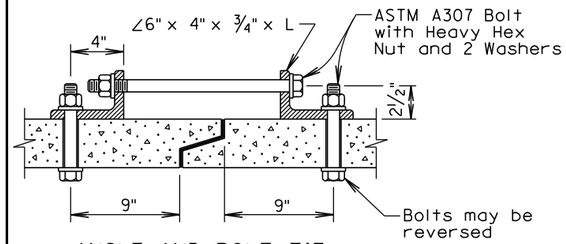
**GENERAL NOTES:**

Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustible eye bolt tie assembly in accordance with ASTM A153.

| Pipe Dia. (in.) | "L" (in.) | Bolt Dia. (in.) |
|---|---|---|
| ≤ 48 | 4 | ¾ |
| > 48 | 6 | 1 |



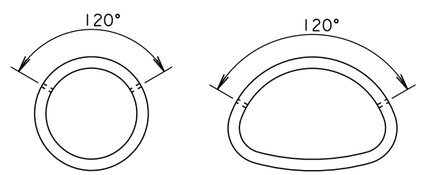

ANGLE AND BOLT TIE

**GENERAL NOTES:**

Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.




END VIEW "CIRCULAR"

END VIEW "ARCH"

**GENERAL NOTES:**

In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

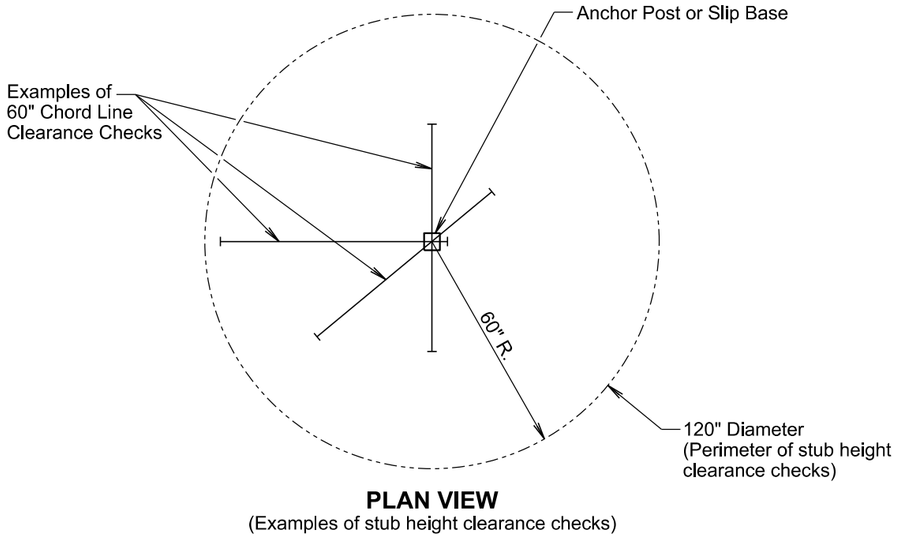
All pipe sections of R.C.P. and R.C.P. Arch shall be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manhole, and junction boxes shall be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

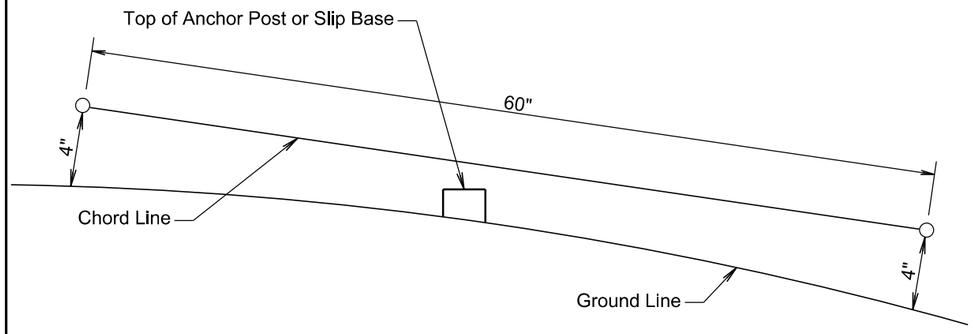
*February 28, 2013*

| | | | |
|---|---|---|---|
| *Published Date: 1st Qtr. 2022* | SDDOT | *TIE BOLTS FOR R.C.P. AND R.C.P. ARCH* | *PLATE NUMBER* 450.18<br>*Sheet 1 of 1* |

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(070)360 | 42 | 53 |




**PLAN VIEW**
(Examples of stub height clearance checks)




**ELEVATION VIEW**

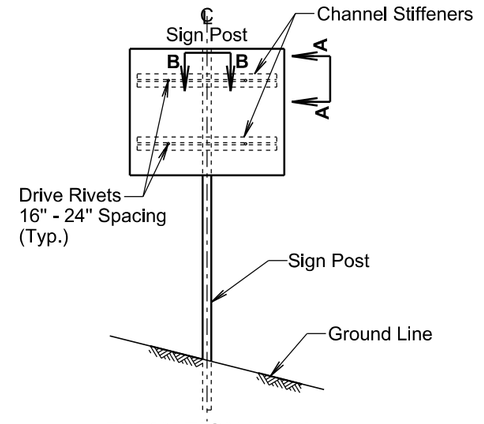
**GENERAL NOTES:**

The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

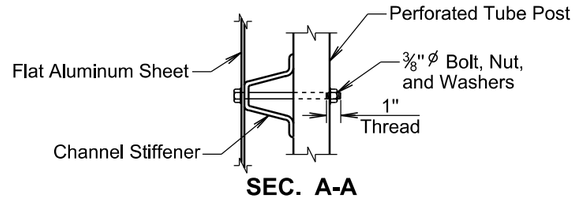
At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

January 22, 2021

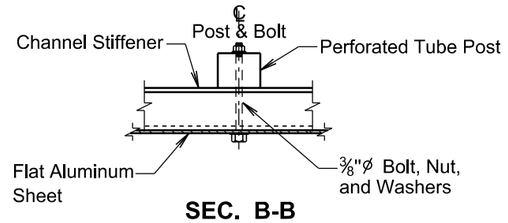
| Published Date: 1st Qtr. 2022 | SDDOT | BREAKAWAY SUPPORT STUB CLEARANCE | PLATE NUMBER 632.18 |
|---|---|---|---|
| | | | Sheet 1 of 1 |




**ELEVATION VIEW**
(One post breakaway sign supports.)




**SEC. A-A**



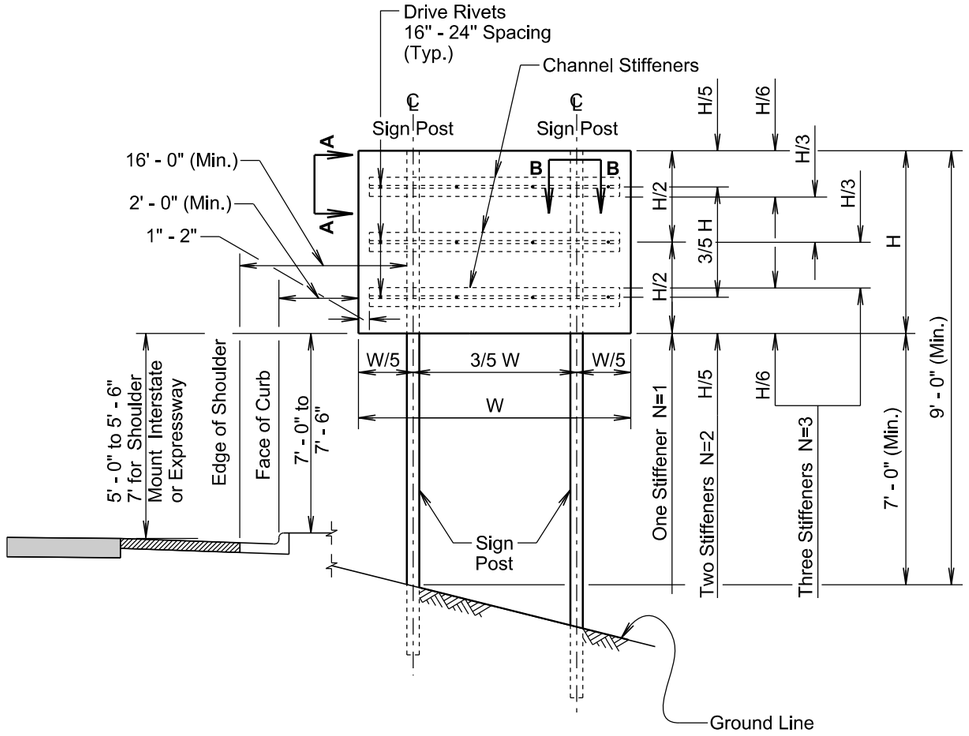

**SEC. B-B**
(Typical sign and stiffener details.)

ø A plastic washer, as recommended by the sheeting manufacturer, will be installed between the sign face and the metal washer shown.

November 19, 2020

| Published Date: 4th Qtr. 2021 | SDDOT | SIGN STIFFENER DETAILS | PLATE NUMBER 632.60 |
|---|---|---|---|
| | | | Sheet 1 of 2 |

PLOTTED FROM - TRAB17882




**TWO POST BREAKAWAY SIGN SUPPORTS**

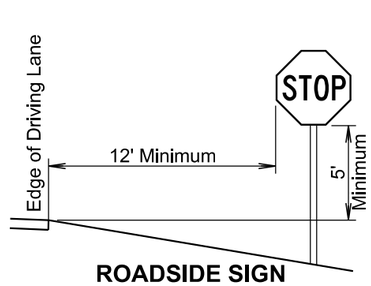
**GENERAL NOTES:**

The number of stiffeners used (N) will be as follows:
If H < = 2' - 0" then N = 1
if 2' - 0" < H < = 8' - 0" then N = 2
if 8' - 0" < H < = 15' - 0" then N = 3
where H is the vertical dimension of the sign.

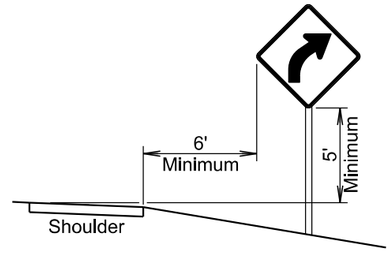
A minimum of two bolts will be required to fasten the sign to each post.

November 19, 2020

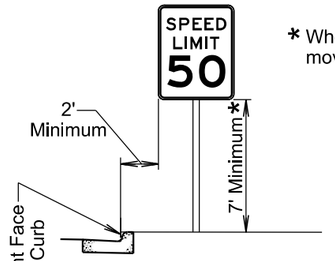
| Published Date: 4th Qtr. 2021 | SDDOT | SIGN STIFFENER DETAILS | PLATE NUMBER 632.60 |
|---|---|---|---|
| | | | Sheet 2 of 2 |




**ROADSIDE SIGN IN RURAL AREA**

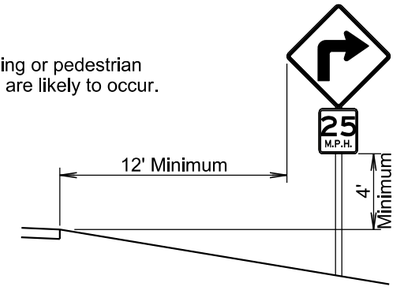



**ROADSIDE SIGN IN RURAL AREA**
(If shoulder width is greater than 6 foot)

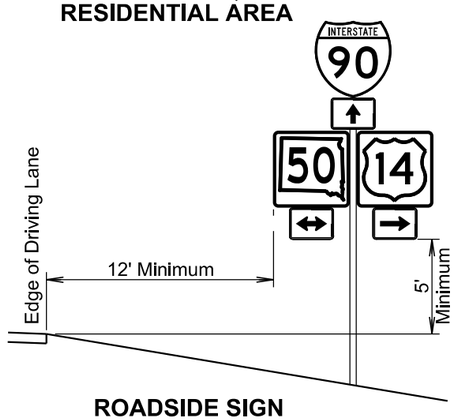



**ROADSIDE SIGN IN BUSINESS, COMMERCIAL, OR RESIDENTIAL AREA**

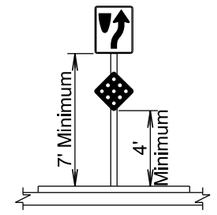
* Where parking or pedestrian movements are likely to occur.




**WARNING SIGN ADVISORY SPEED PLAQUE IN RURAL AREA**




**ROADSIDE SIGN IN RURAL AREA**

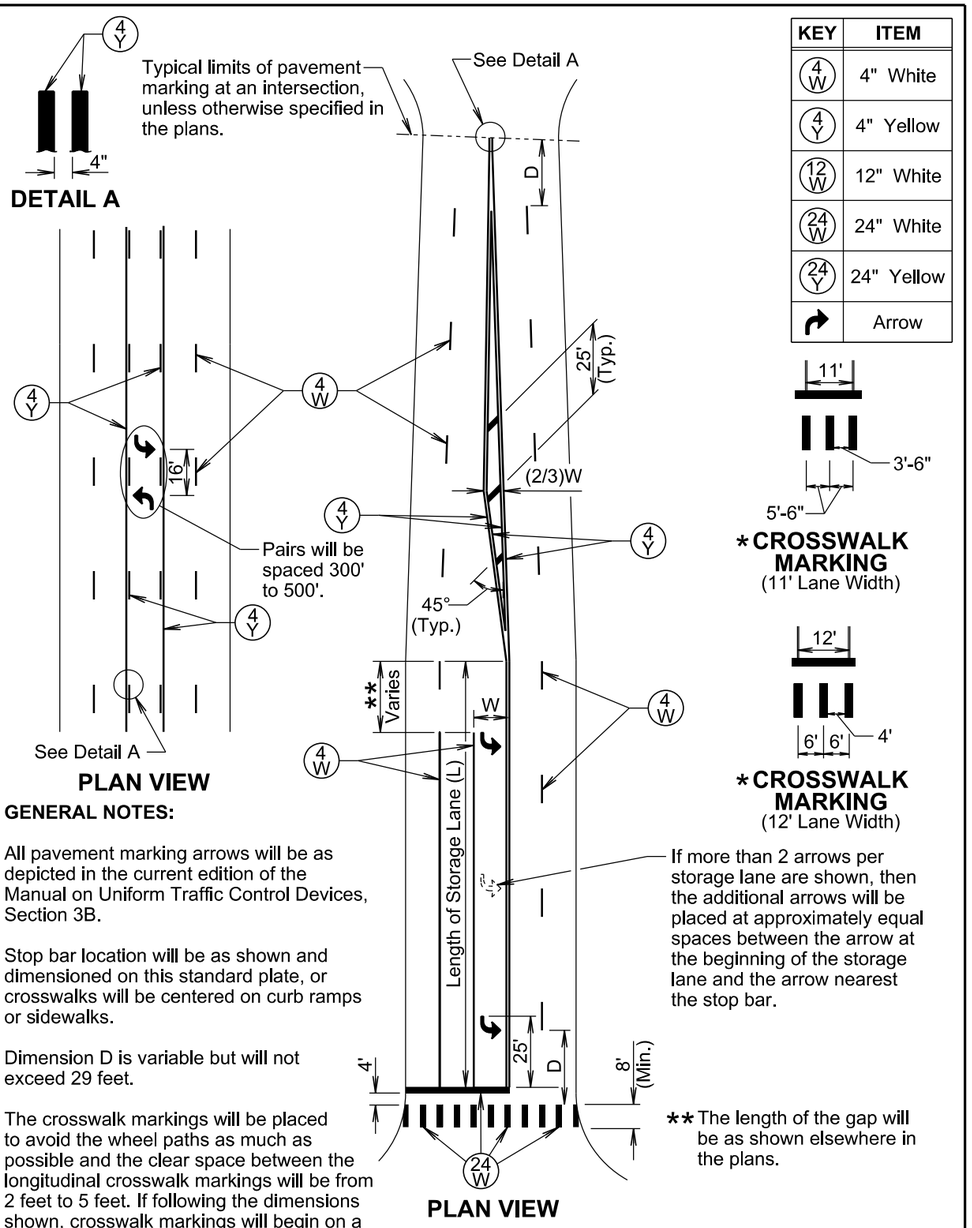



**SIGN ON NOSE OF MEDIAN**

November 19, 2020

| Published Date: 4th Qtr. 2021 | SDDOT | OFFSETS FOR SIGN INSTALLATION | PLATE NUMBER 632.90 |
|---|---|---|---|
| | | | Sheet 1 of 1 |

PLOTTED FROM - TRAB17882




| KEY | ITEM |
|---|---|
| 4W | 4" White |
| 4Y | 4" Yellow |
| 12W | 12" White |
| 24W | 24" White |
| 24Y | 24" Yellow |
| | Arrow |




***CROSSWALK MARKING**
(11' Lane Width)




***CROSSWALK MARKING**
(12' Lane Width)

**GENERAL NOTES:**

All pavement marking arrows will be as depicted in the current edition of the Manual on Uniform Traffic Control Devices, Section 3B.

Stop bar location will be as shown and dimensioned on this standard plate, or crosswalks will be centered on curb ramps or sidewalks.

Dimension D is variable but will not exceed 29 feet.

* The crosswalk markings will be placed to avoid the wheel paths as much as possible and the clear space between the longitudinal crosswalk markings will be from 2 feet to 5 feet. If following the dimensions shown, crosswalk markings will begin on a lane line or centerline.

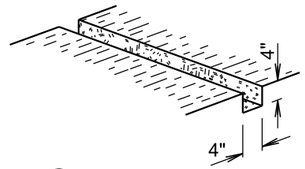
If more than 2 arrows per storage lane are shown, then the additional arrows will be placed at approximately equal spaces between the arrow at the beginning of the storage lane and the arrow nearest the stop bar.

** The length of the gap will be as shown elsewhere in the plans.

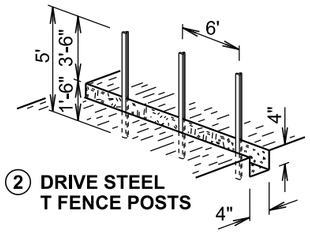
September 22, 2021

| Published Date: 4th Qtr. 2021 | SDDOT | PAVEMENT MARKINGS FOR ADJACENT INTERSECTIONS AND CENTER TURN LANE | PLATE NUMBER 633.01 |
|---|---|---|---|
| | | | Sheet 1 of 1 |

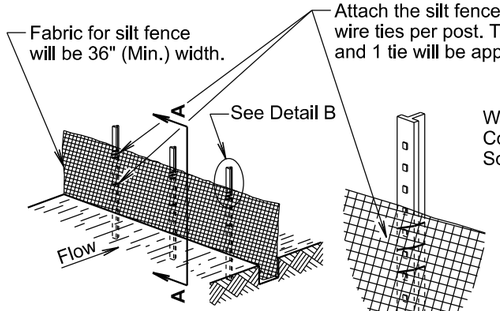
## MANUAL HIGH FLOW SILT FENCE INSTALLATION



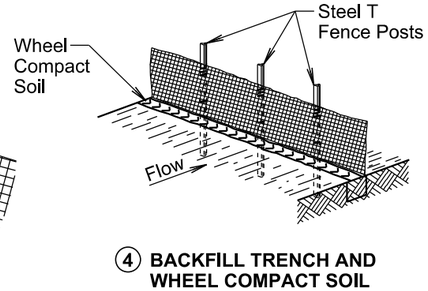

1 EXCAVATE TRENCH




2 DRIVE STEEL T FENCE POSTS

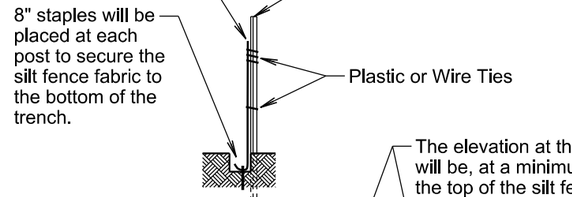



3 ATTACH SILT FENCE FABRIC

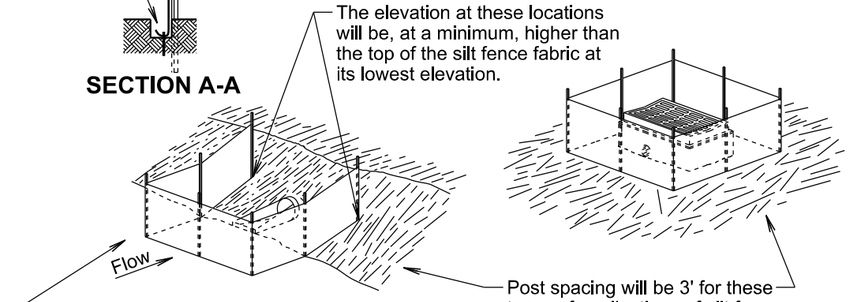



4 BACKFILL TRENCH AND WHEEL COMPACT SOIL

**DETAIL B**




**SECTION A-A**

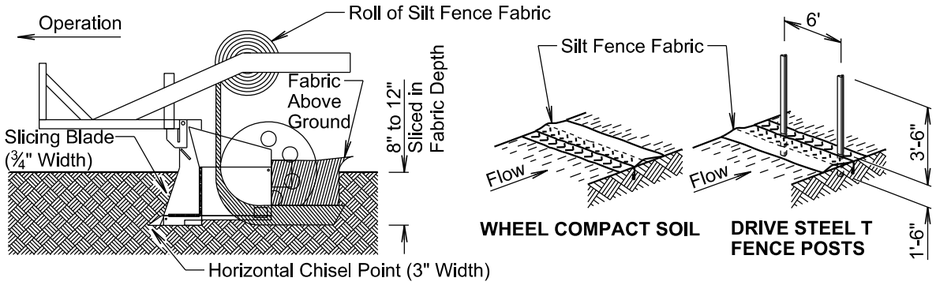



February 14, 2020

| Published Date: 4th Qtr. 2021 | SDDOT | HIGH FLOW SILT FENCE | PLATE NUMBER 734.05 |
|---|---|---|---|
| | | | Sheet 1 of 2 |

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(070)360 | 45 | 53 |

## MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION

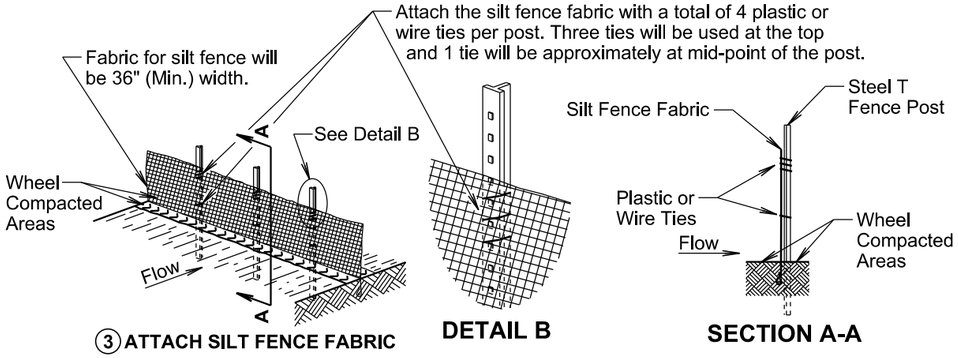




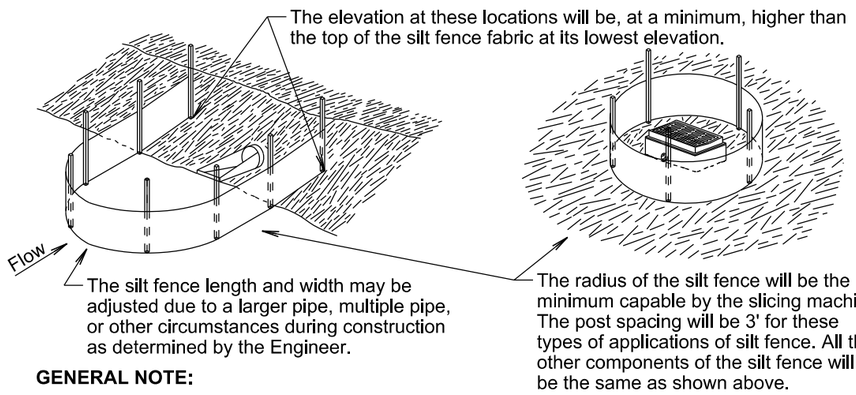


① **INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.**

② **WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.**




③ **ATTACH SILT FENCE FABRIC**

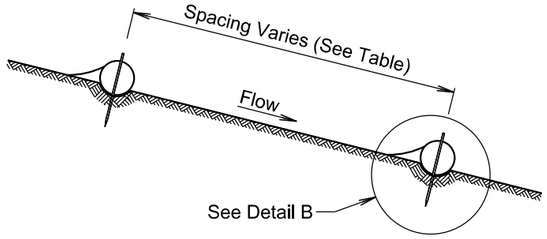



**GENERAL NOTE:**

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end will be provided on top of the extra length of silt fence fabric to prevent underflow.

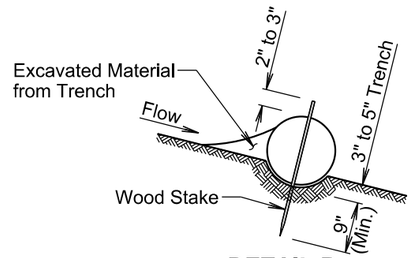
*February 14, 2020*

| Published Date: 4th Qtr. 2021 | SDDOT | HIGH FLOW SILT FENCE | PLATE NUMBER 734.05 |
|---|---|---|---|
| | | | Sheet 2 of 2 |

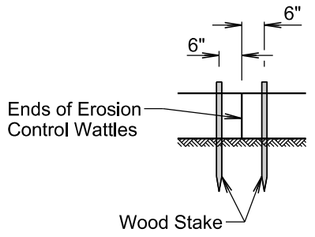



**ELEVATION VIEW**
(Cut or Fill Slope Installation)

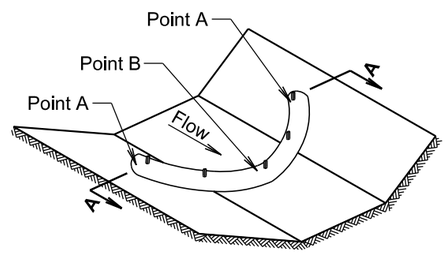
| CUT OR FILL SLOPE INSTALLATION | |
|---|---|
| Slope | Spacing (Ft.) |
| 1:1 | 10 |
| 2:1 | 20 |
| 3:1 | 30 |
| 4:1 | 40 |



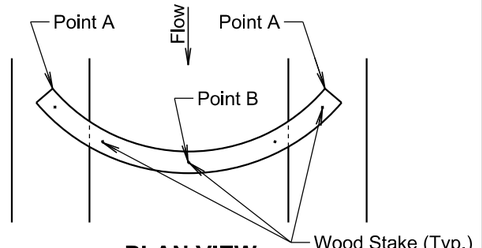

**DETAIL B**
(Typical of All Installations)




**DETAIL C**
(See General Notes)

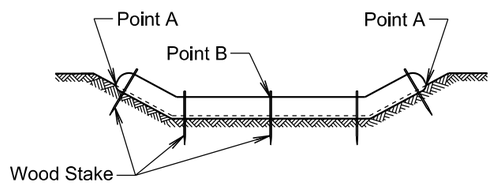



**ISOMETRIC VIEW**
(Ditch Installation)




**PLAN VIEW**
(Ditch Installation)

| DITCH INSTALLATION | |
|---|---|
| Grade | Spacing (Ft.) |
| 2% | 150 |
| 3% | 100 |
| 4% | 75 |
| 5% | 50 |




**SECTION A-A**

*February 14, 2020*

| Published Date: 4th Qtr. 2021 | SDDOT | EROSION CONTROL WATTLE | PLATE NUMBER 734.06 |
|---|---|---|---|
| | | | Sheet 1 of 2 |

PLOTTED FROM - TRAB17882

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(070)360 | 46 | 53 |

**GENERAL NOTES:**

At cut or fill slope installations, wattles will be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor will dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes will be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes will be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles will be 3' to 4'.

Where installing running lengths of wattles, the Contractor will butt the second wattle tightly against the first and will not overlap the ends. See Detail C.

The Contractor and Engineer will inspect the erosion control wattles in accordance with the storm water permit. The Contractor will remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

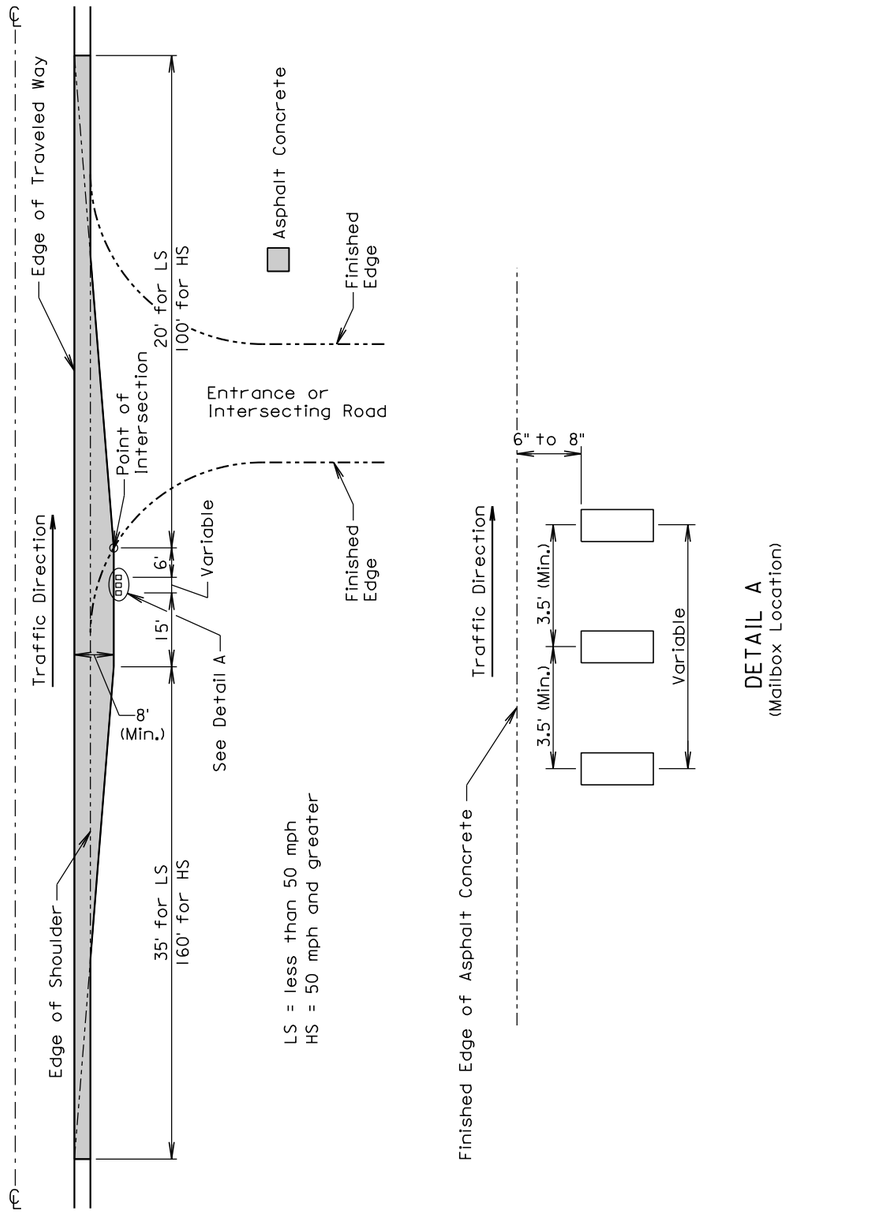
Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping will be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials will be incidental to the contract unit price per foot for the corresponding erosion control wattle contract item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials will be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

February 14, 2020

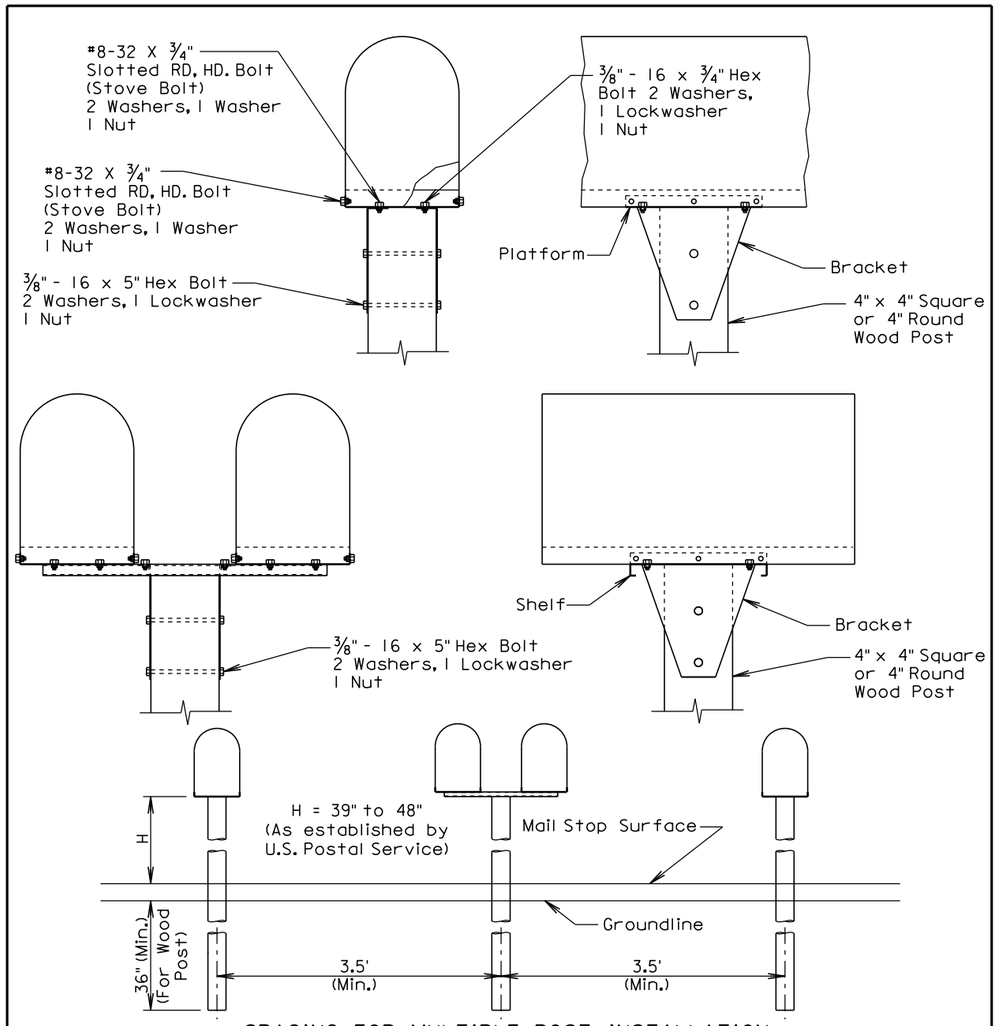
| Published Date: 4th Qtr. 2021 | SDDOT | EROSION CONTROL WATTLE | PLATE NUMBER 734.06 |
|---|---|---|---|
| | | | Sheet 2 of 2 |




September 6, 2015

| Published Date: 1st Qtr. 2022 | SDDOT | MAILBOX TURNOUT | PLATE NUMBER 900.01 |
|---|---|---|---|
| | | | Sheet 1 of 1 |

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(070)360 | 47 | 53 |




SPACING FOR MULTIPLE POST INSTALLATION

GENERAL NOTES:

The post support assemblies provided should be consistant throughout the project.

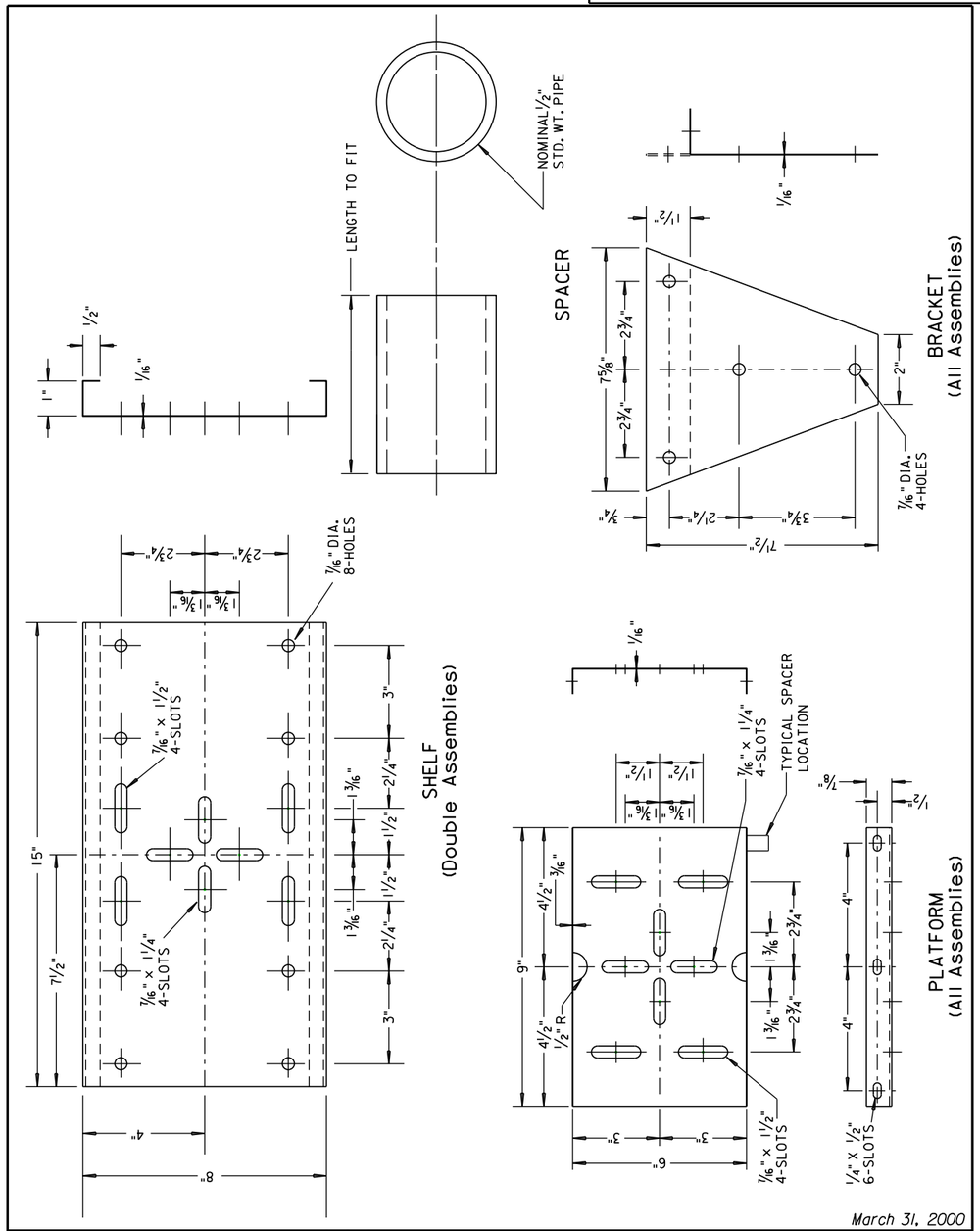
Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

*September 6, 2013*

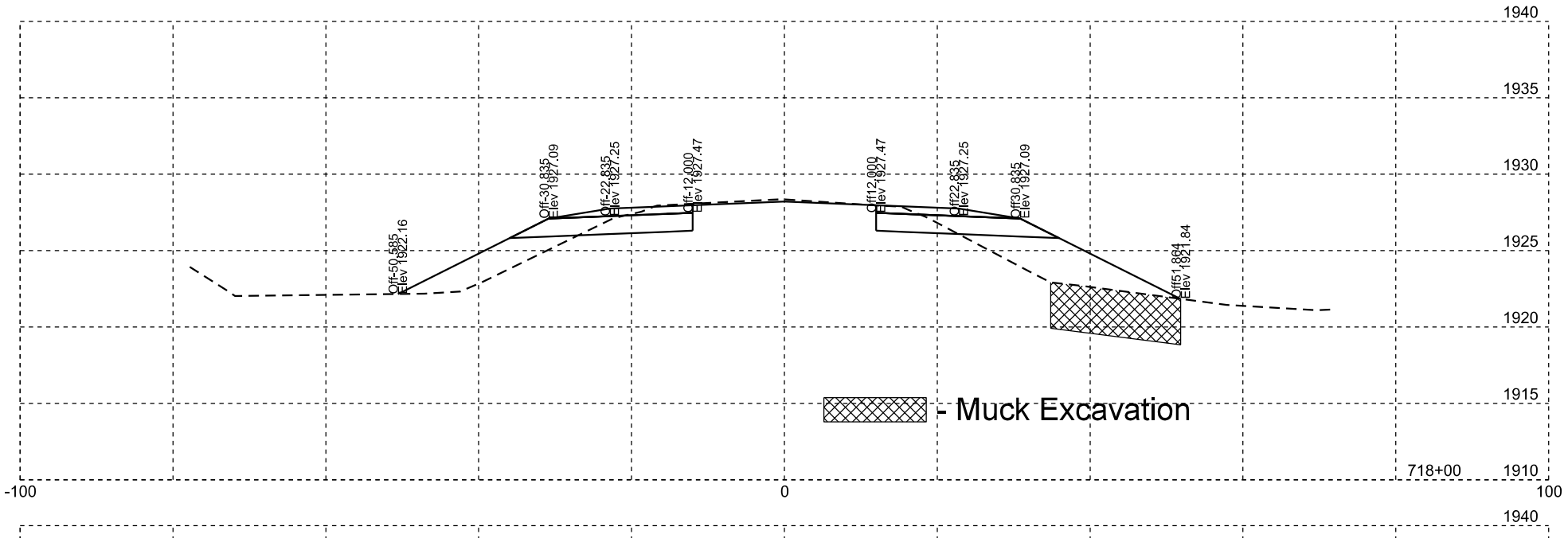
| | | | |
|---|---|---|---|
| ***Published Date: 4th Qtr. 2021*** | SDDOT | **SINGLE AND DOUBLE MAILBOX ASSEMBLIES** | PLATE NUMBER 900.02<br>Sheet 1 of 1 |

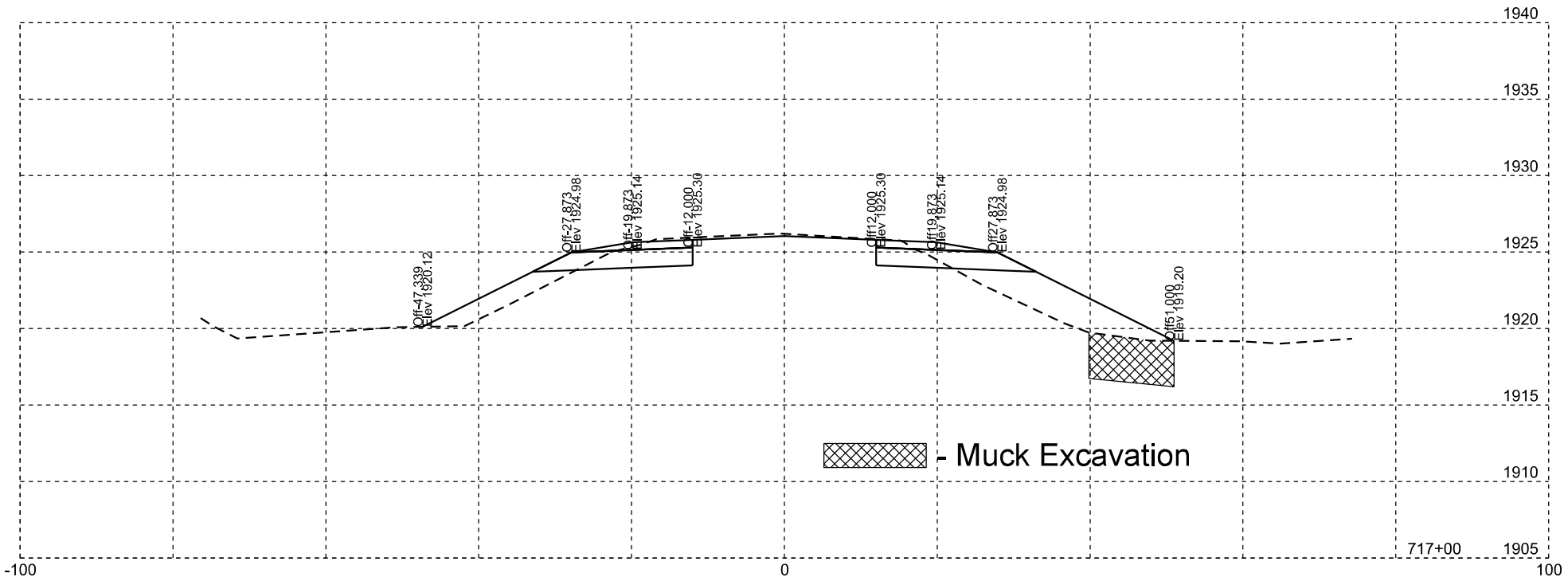


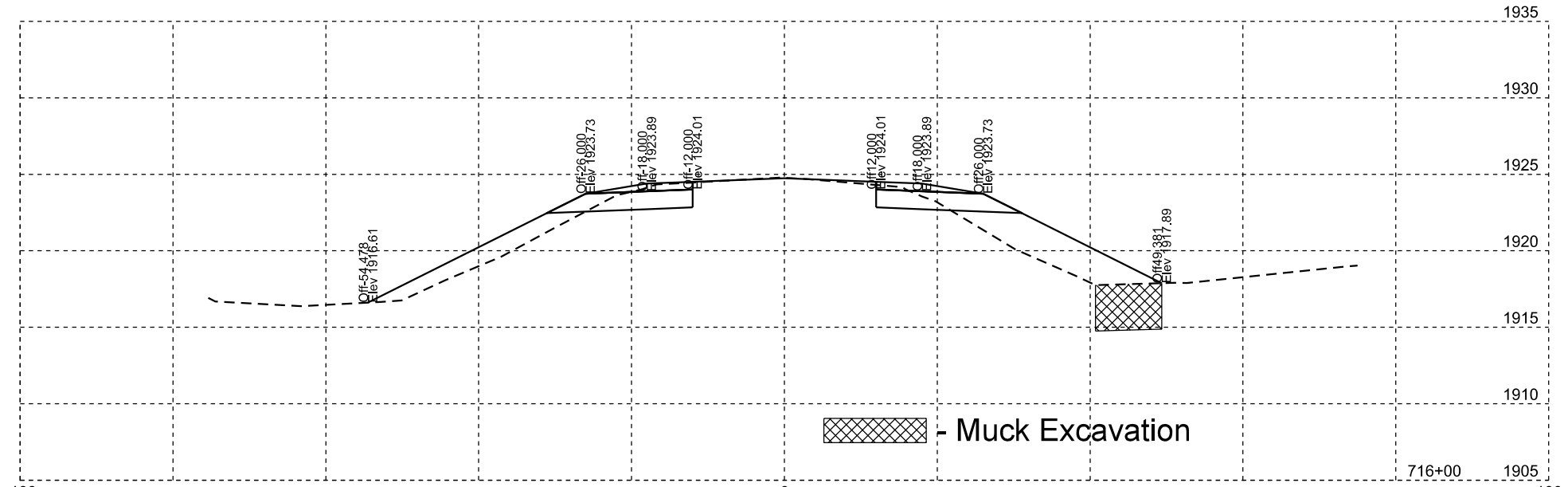

*March 31, 2000*

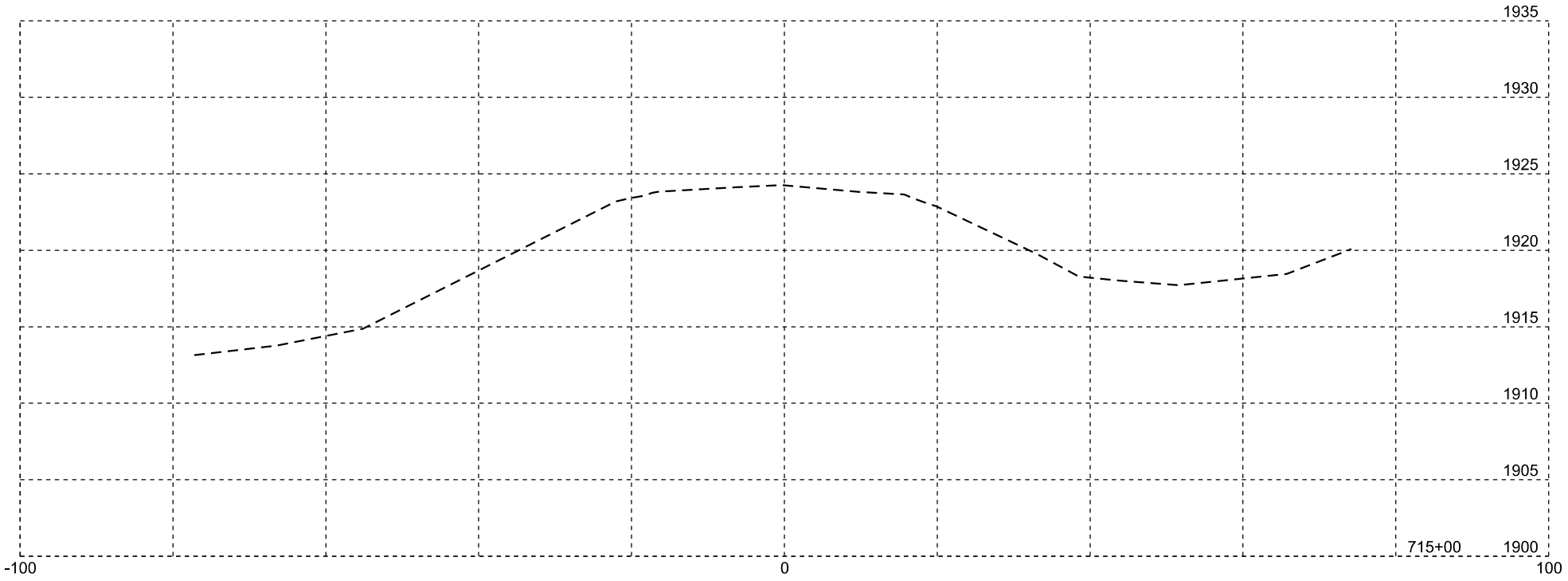
| | | | |
|---|---|---|---|
| ***Published Date: 4th Qtr. 2021*** | SDDOT | **MAILBOX SUPPORT HARDWARE** | PLATE NUMBER 900.03<br>Sheet 1 of 1 |

PLOTTED FROM - TRAB17882



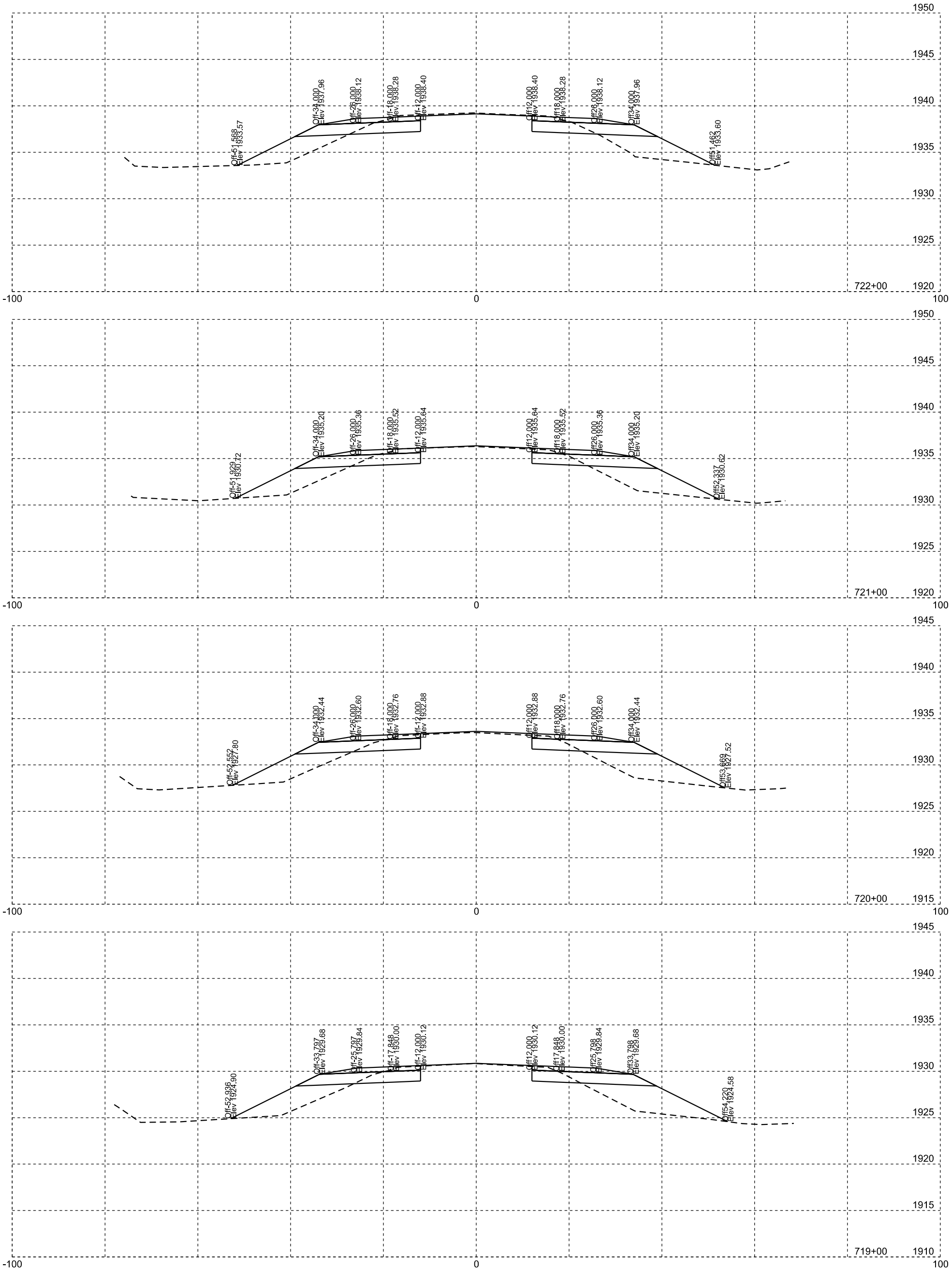




Plotting Date: 01/27/2022

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 48 | 53 |

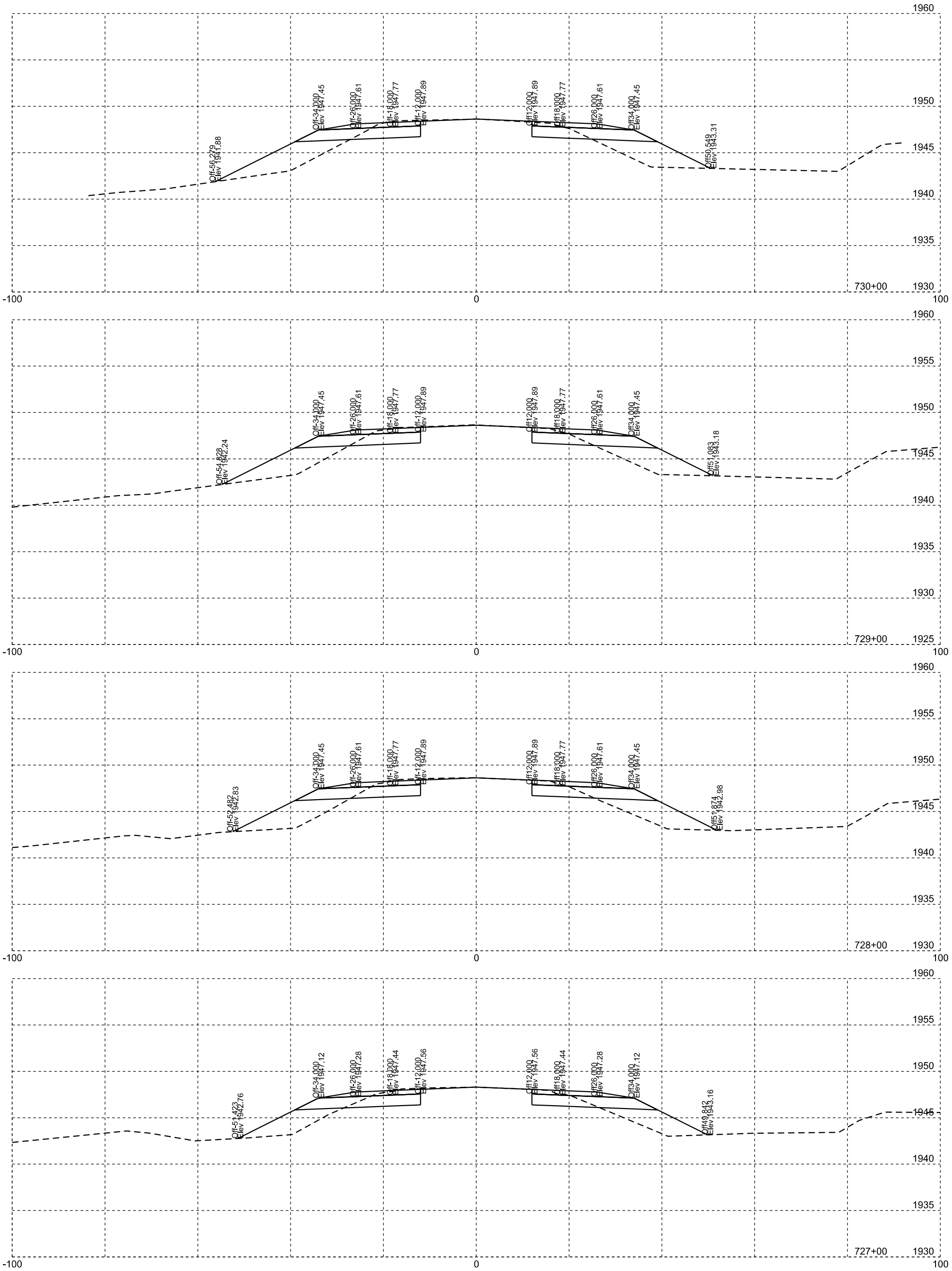



Plotting Date: 01/27/2022

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 49 | 53 |

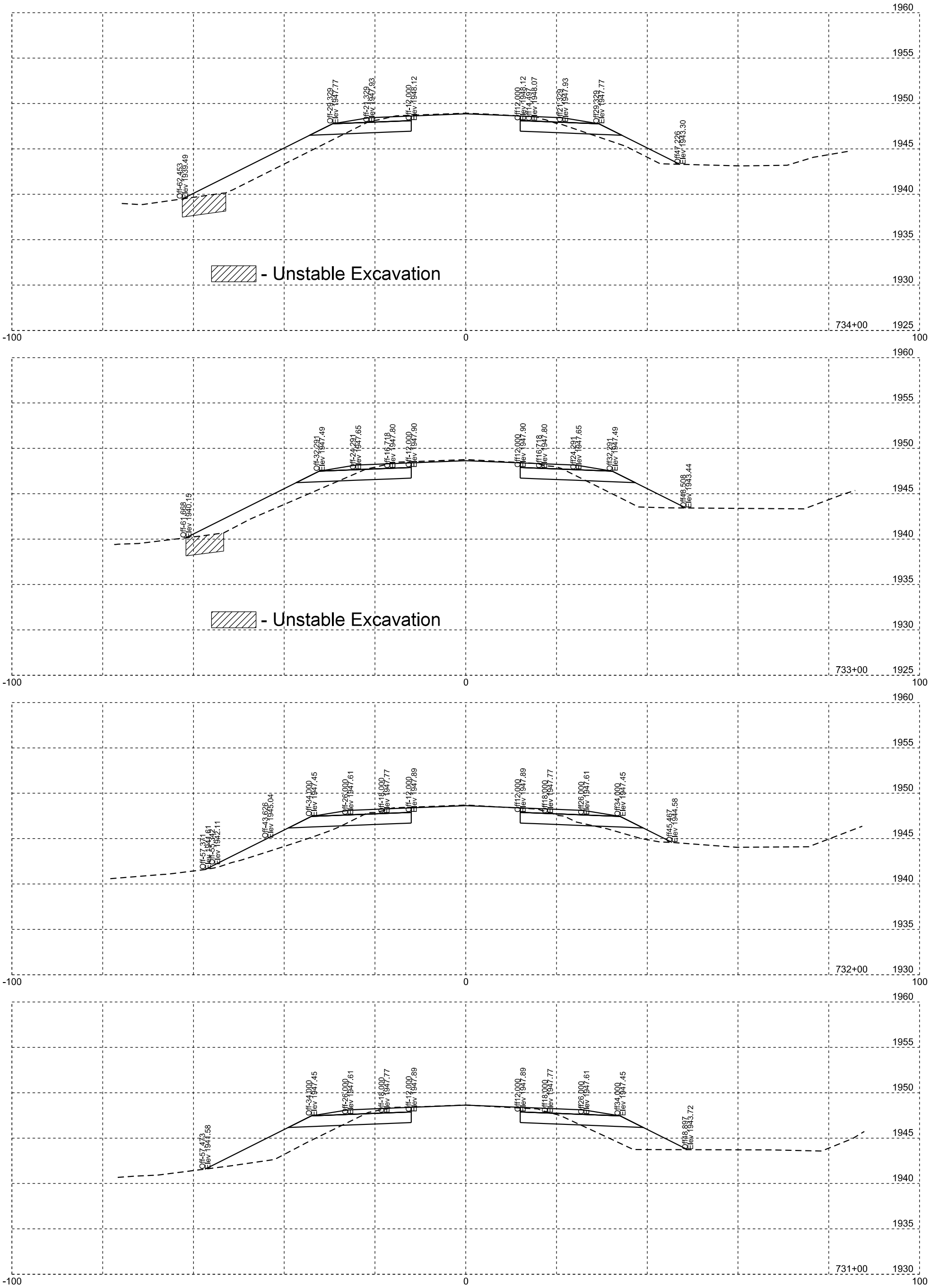
Plotting Date: 01/27/2022

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 50 | 53 |



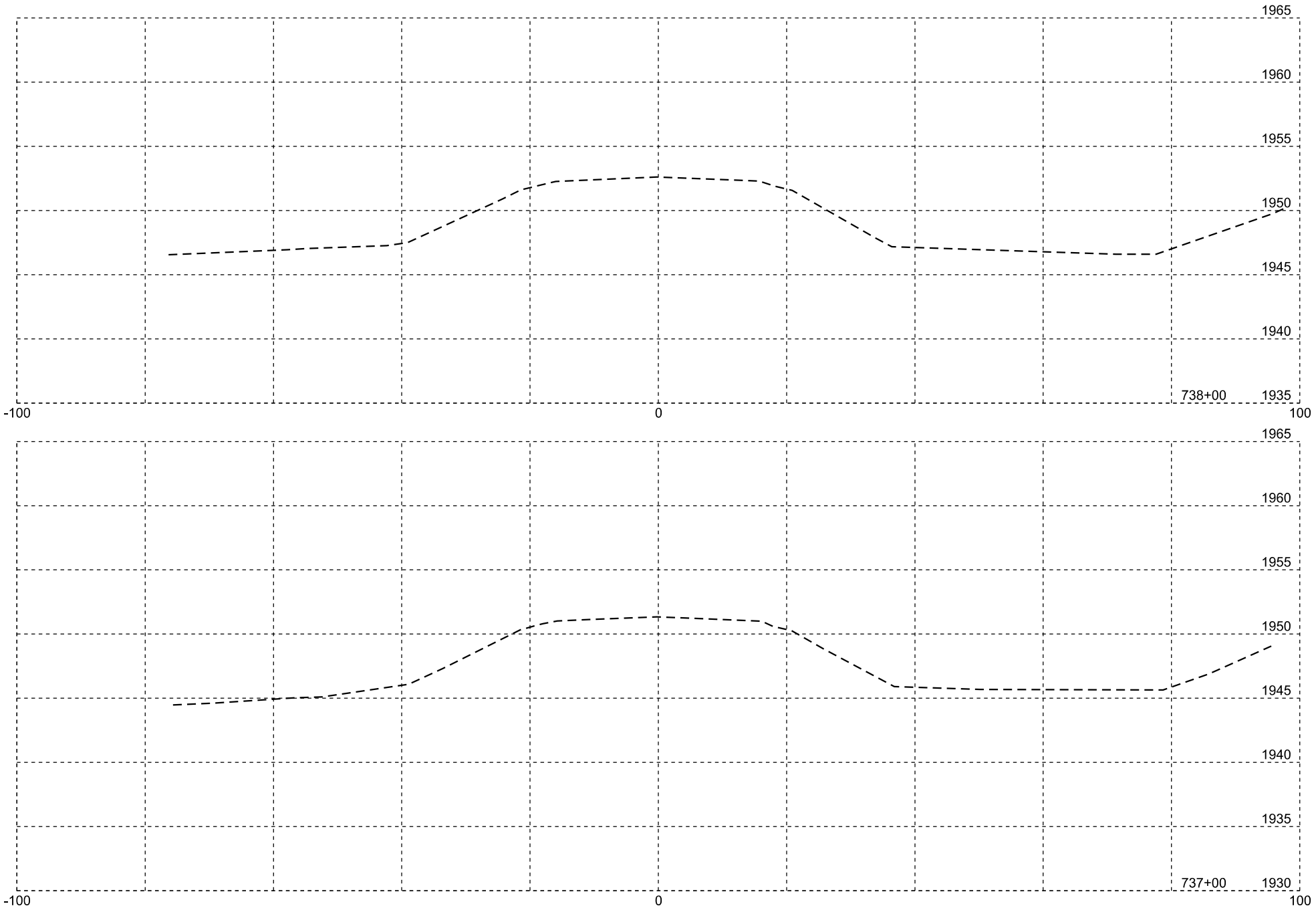

Plotting Date: 01/27/2022

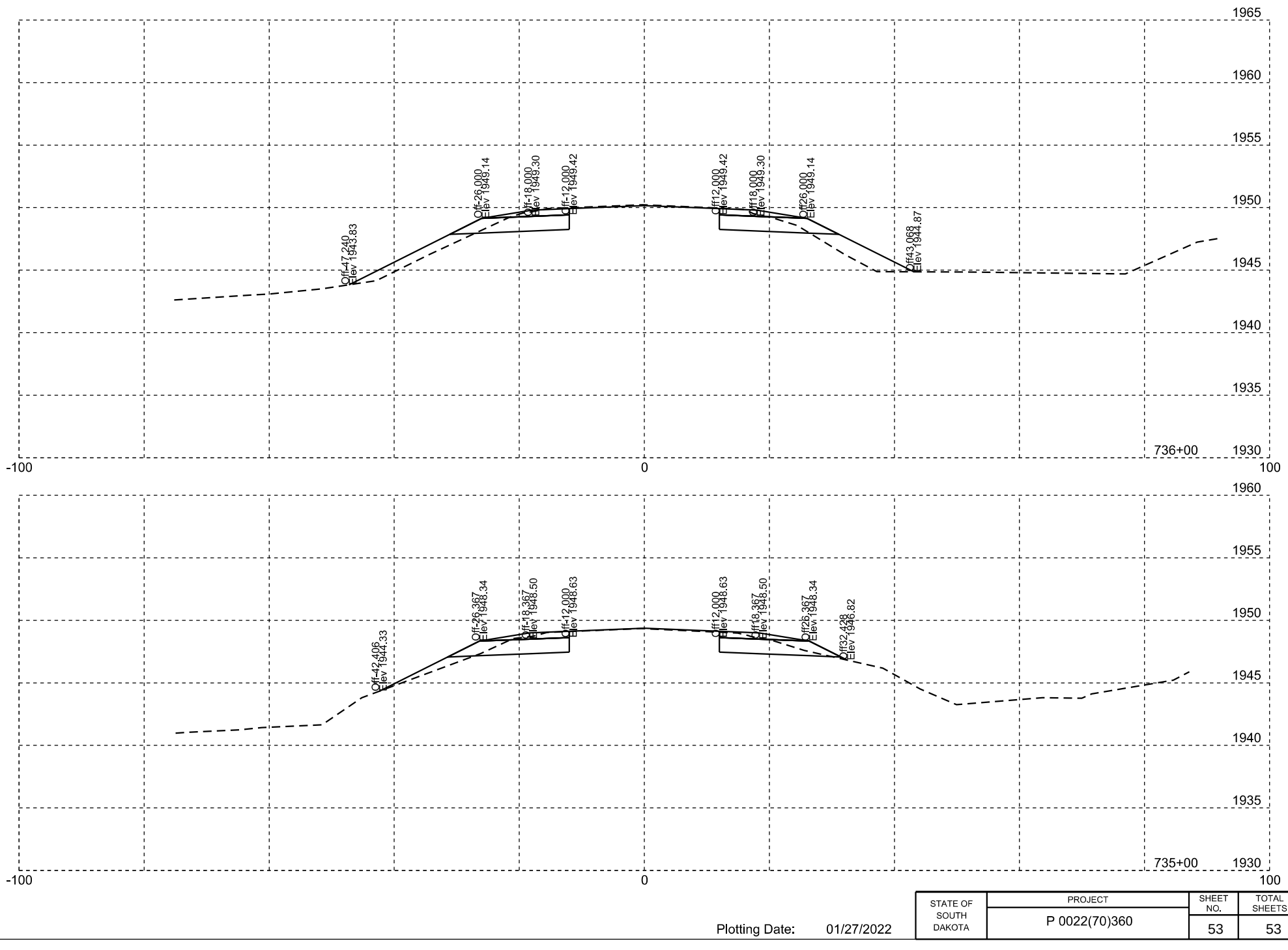
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 51 | 53 |




Plotting Date: 01/27/2022

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 52 | 53 |




Plotting Date: 01/27/2022

| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| | P 0022(70)360 | 53 | 53 |