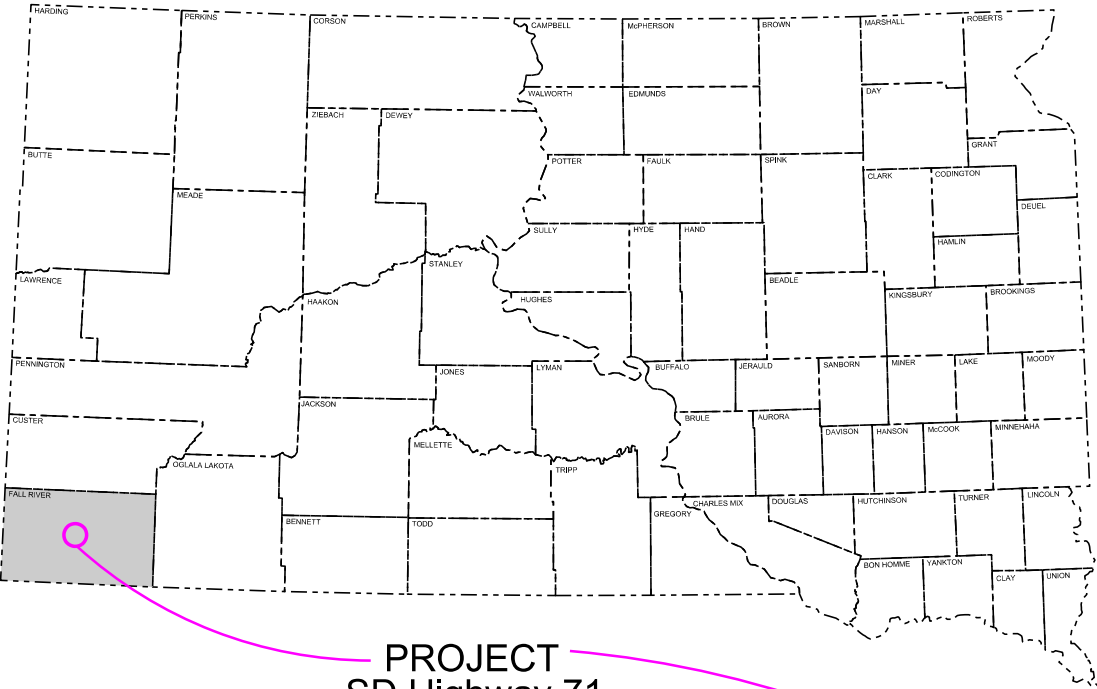


Plot Scale - 1:200

irc12608

Plotted From -



PROJECT
SD Highway 71
MRM 26+0.894

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT 071-492
SD HIGHWAY 71
FALL RIVER COUNTY

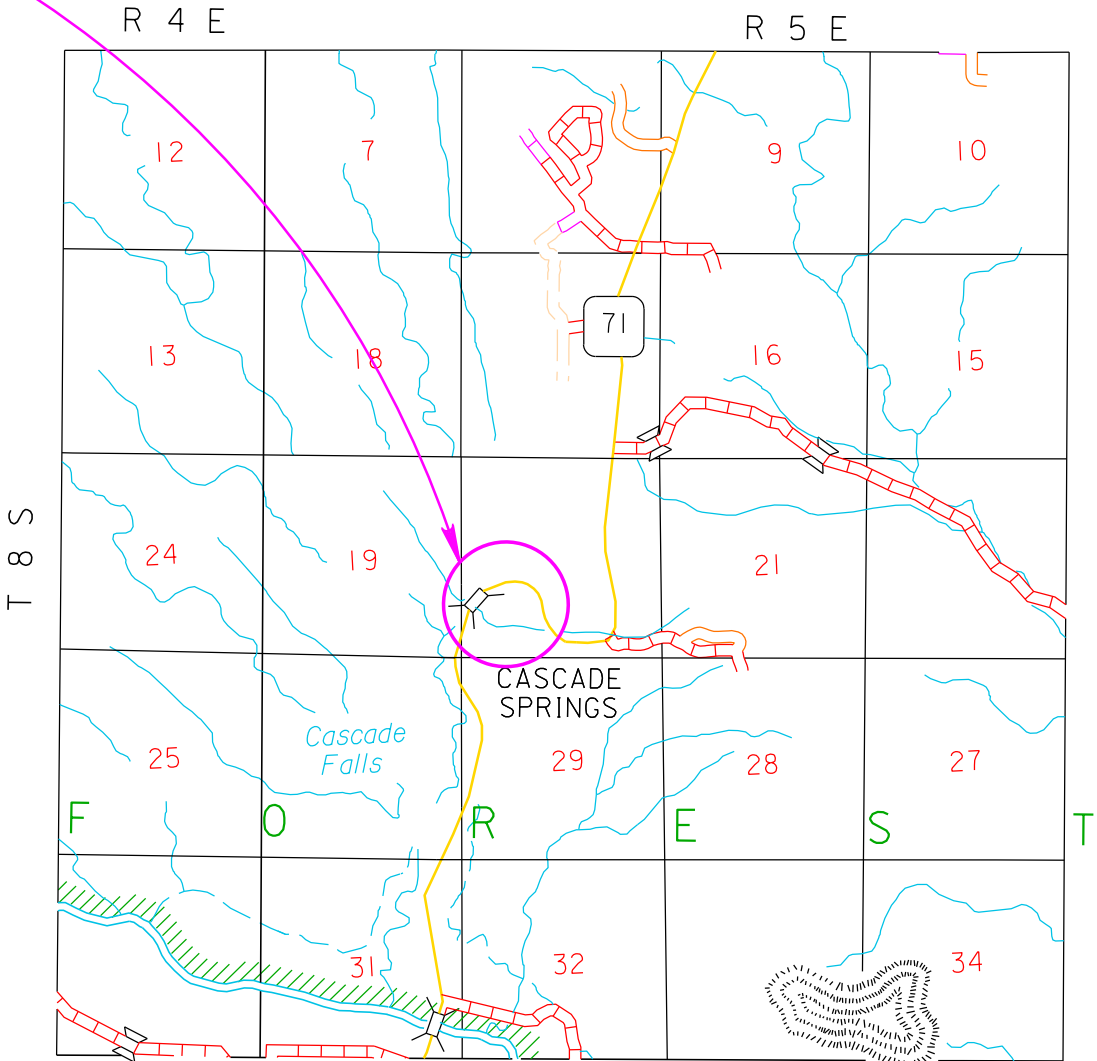
ASPHALT AND CURB & GUTTER REPAIR
PCN i6c8

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|-----------------------------|---------|-------|-----------------|
| | 071-492 | 1 | 15 |

Plotting Date: 02/23/2021

INDEX OF SHEETS

| | |
|-------|--------------------------------------|
| 1 | General Layout with Index |
| 2-7 | Estimate with General Notes & Tables |
| 8 | Typical Section |
| 9 | Plan Sheet |
| 10 | Special Details |
| 11-15 | Standard Plates |



DESIGN DESIGNATION

| | |
|-------------|--------|
| AADT (2019) | 391 |
| AADT (2039) | 495 |
| DHV | 95 |
| D | 51% |
| DHV T% | 1.9% |
| AADT T% | 4.2% |
| V | 40 mph |

STORM WATER PERMIT

None Required

ESTIMATE OF QUANTITIES

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|--------------------|---|----------|------|
| 009E0010 | Mobilization | Lump Sum | LS |
| 110E0300 | Remove Concrete Curb and/or Gutter | 100 | Ft |
| 110E1010 | Remove Asphalt Concrete Pavement | 200.0 | SqYd |
| 120E0100 | Unclassified Excavation, Digouts | 70 | CuYd |
| 120E0600 | Contractor Furnished Borrow Excavation | 6 | CuYd |
| 230E0100 | Remove and Replace Topsoil | Lump Sum | LS |
| 260E1010 | Base Course | 160.0 | Ton |
| 320E1200 | Asphalt Concrete Composite | 45.0 | Ton |
| 464E0100 | Controlled Density Fill | 5.0 | CuYd |
| 633E1220 | High Build Waterborne Pavement Marking Paint, 4" White | 100 | Ft |
| 633E1222 | High Build Waterborne Pavement Marking Paint, 4" Yellow | 100 | Ft |
| 634E0010 | Flagging | 80.0 | Hour |
| 634E0110 | Traffic Control Signs | 163.4 | SqFt |
| 634E0120 | Traffic Control, Miscellaneous | Lump Sum | LS |
| 634E0275 | Type 3 Barricade | 1 | Each |
| 634E0600 | 4" Temporary Pavement Marking Tape Type I | 144 | Ft |
| 634E0640 | Temporary Pavement Marking | 2,400 | Ft |
| 650E0360 | Type BL66 Concrete Curb and Gutter | 100 | Ft |
| 734E0010 | Erosion Control | Lump Sum | LS |
| 734E0154 | 12" Diameter Erosion Control Wattle | 50 | Ft |
| 831E0300 | Reinforcement Fabric (MSE) | 200 | SqYd |

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

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

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the

Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary. Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

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

COMMITMENT 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 shall 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.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Environment and Natural Resources (DENR) 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](https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04) >

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the 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 shall be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

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

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

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

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

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

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

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

COMMITMENT S: FIRE PREVENTION IN THE BLACK HILLS AREA

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

Action Taken/Required:

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

| Table of Material Quantities | | | | | | | | | | | | | | | | | |
|------------------------------|--------------------|-------------------|--|---|--|----------------------------|---|--|-------------------------------|----------------|----------------------------------|---|----------------------------------|---------------------|---|---|--|
| MRM | Length (Repair) | Width (Repair) | Remove Concrete Curb and/or Gutter | Type BL66 Concrete Curb and Gutter | Contractor Furnished Borrow, Excavation | Controlled Density Fill | Remove Asphalt Concrete Pavement | Unclassified Excavation, Digouts | Reinforcement Fabric (MSE) | Base Course | Asphalt Concrete Composite | 12" Diameter Erosion Control Wattle | Temporary Pavement Marking | Type 3 Barricade | 4" Temporary Pavement Marking Tape Type I | High Build Waterborne Pavement Marking Paint, 4" White | High Build Waterborne Pavement Marking Paint, 4" Yellow |
| | (Ft) | (Ft) | (Ft) | (Ft) | (CuYd) | (CuYd) | (SqYd) | (CuYd) | (SqYd) | (Ton) | (Ton) | (Ft) | (Ft) | (Each) | (Ft) | (Ft) | (Ft) |
| 26+0.894 | 100.0 | 18.0 | 100.0 | 100.0 | 6.0 | 5.0 | 200.0 | 70.0 | 200.0 | 160.0 | 45.0 | 50.0 | 2400.0 | 1 | 144.0 | 100.0 | 100.0 |

UTILITIES

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

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.

CONTRACTOR FURNISHED BORROW EXCAVATION

Contractor Furnished Borrow, Excavation will be used to fill the erosional slump in the inslope behind the Curb and Gutter replacement.

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. The plans quantity for Contractor Furnished Borrow Excavation as shown in the Estimate of Quantities will be the basis of payment for this item.

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

CONTROLLED DENSITY FILL FOR PIPE

Controlled Density Fill is provided for filling potential subsurface void spaces encountered on this project.

Controlled density fill will be in conformance with Section 464 of the Specifications.

TYPE BL66 CONCRETE CURB AND GUTTER

The inside face of the BL66 Concrete Curb and Gutter will be formed against the existing asphalt.

WATER FOR GRANULAR MATERIAL

Water for compaction will be to the satisfaction of the Engineer. All costs for Water for Granular Material for compaction will be incidental to the unit price per Ton for Base Course.

SURFACING THICKNESS DIMENSIONS

At those locations where material must be placed to achieve a required elevation, the depth/quantity may be varied to achieve the required elevation.

UNCLASSIFIED EXCAVATION, DIGOUTS

Included in the Estimate of Quantities are quantities for Unclassified Excavation, Digouts and Remove Asphalt Concrete Pavement for the removal of asphalt and base material.

The Contactor will saw cut the in-place asphalt concrete to a vertical face prior to removal.

Care will be taken by the Contractor to not damage the underlying box culvert.

Any damage caused to the box culvert by the Contractor will be repaired by the Contractor at no additional expense to the State.

SUBGRADE REPAIR

Subgrade material will be removed to the top of the underlying box culvert.

The Reinforcement Fabric (MSE) will be placed on the bottom and the sides of the excavated subgrade.

Backfill will be Base Course.

The Reinforcement Fabric (MSE) will be in conformance with Section 831 of the Specifications. The Reinforcement Fabric (MSE) will be on the Approved Products List for this material or will be certified by the supplier to meet this specification prior to installation.

The Reinforcement Fabric (MSE) should be kept as taut as possible prior to placing.

Equipment will not be allowed on the Reinforcement Fabric (MSE) until the first lift of granular material is in place.

All seams in the Reinforcement Fabric (MSE) will be overlapped at least 2' and shingled.

ASPHALT CONCRETE COMPOSITE

Asphalt for tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.09 gallons per square yard on existing pavement or milled asphalt concrete surfaces and at a rate of 0.06 gallons per square yard on primed base course or new asphalt concrete pavement. The Asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

FLUSH SEAL

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

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 18' wide in each lane, leaving 12" on center line and 6" on each edge line free of sand.

REMOVE AND REPLACE TOPSOIL

Prior to beginning grading operations, a 4" depth of topsoil will be removed or bladed to the perimeter of the work area. Following completion of construction, topsoil will be spread evenly over the disturbed areas.

All costs associated with removing and replacing the topsoil along areas to be resurfaced will be incidental to the contract lump sum price for Remove and Replace Topsoil.

MYCORRHIZAL INOCULUM

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%
25%
25%
25%
- Glomus intraradices*
Glomus aggregatum or deserticola
Glomus mosseae
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 unit price per pound for the corresponding permanent seed mixture.

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

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

EROSION CONTROL

All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, permanent seeding, fertilizing, and fiber mulching will be incidental to the contract lump sum price for Erosion Control.

The limits of erosion control work will be for all locations disturbed during construction. These limits will be determined by the Engineer during construction.

Type F Permanent Seed Mixture will consist of the following:

| Grass Species | Variety | Pure Live Seed (PLS) (Pounds/Acre) |
|---|---|---------------------------------------|
| Western Wheatgrass | Arriba, Flintlock, Rodan, Rosana, Walsh | 7 |
| Green Needlegrass | Lodorm, AC Mallard Ecovar | 4 |
| Sideoats Grama | Butte, Pierre | 3 |
| Blue Grama | Bad River | 2 |
| Oats or Spring Wheat: April through May; Winter Wheat: August through November | | 10 |
| Total: | | 26 |

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%
25%
25%
25%
- Glomus intraradices*
Glomus aggregatum or deserticola
Glomus mosseae
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. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com |
| AM 120 Multi Species Blend | Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 www.reforest.com |

The Contractor will apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer will be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer will have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer will also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The fertilizer will be applied at a rate of 1,500 pounds per acre in accordance with the manufacturer's recommended method of application.

The all-natural slow release fertilizer will be as shown below or an approved equal:

| Product | Manufacturer |
|---------------|--|
| Sustane | Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 www.sustane.com |
| Perfect Blend | Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 www.perfect-blend.com |

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.

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials will be incidental to the contract lump sum price for Erosion Control.

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>

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment will be installed at locations noted in the table and 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://apps.sd.gov/HC60ApprovedProducts/main.aspx>

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting.

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.

GENERAL TRAFFIC CONTROL

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

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

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

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

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

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

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

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

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 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.

ITEMIZED LIST OF TRAFFIC CONTROL DEVICES

| | | CONVENTIONAL ROAD | | | |
|-----------|-----------------------|---|-----------|---------------|-------|
| SIGN CODE | SIGN DESCRIPTION | NUMBER | SIGN SIZE | SQFT PER SIGN | SQFT |
| R1-1 | STOP | 2 | 30" | 5.2 | 10.4 |
| W1-3 | REVERSE TURN (L or R) | 1 | 48" x 48" | 16.0 | 16.0 |
| W3-1 | STOP AHEAD (symbol) | 2 | 48" x 48" | 16.0 | 32.0 |
| W20-1 | ROAD WORK AHEAD | 2 | 48" x 48" | 16.0 | 32.0 |
| W20-4 | ONE LANE ROAD AHEAD | 2 | 48" x 48" | 16.0 | 32.0 |
| W20-7 | FLAGGER (symbol) | 2 | 48" x 48" | 16.0 | 32.0 |
| G20-2 | END ROAD WORK | 2 | 36" x 18" | 4.5 | 9.0 |
| | | CONVENTIONAL ROAD DETOUR AND RESTRICTION SIGNING SQFT | | | 163.4 |

FLAGGING

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

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

TEMPORARY PAVEMENT MARKING

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

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.

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

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

Temporary pavement marking for stop bars will consist of 4” temporary pavement marking tape type I. Placement of each 24” white stop bar will be accomplished by placing six pieces of 4” x 12’ tape adjacent to one another. Each workspace requires two stop bars which is an equivalent of approximately 144’ of 4” tape (1 workspaces at 144’ = 144’).

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 for Temporary Pavement Marking will be made because of a variation in quantities.

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 will consist of glass beads.

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

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

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

TYPICAL SECTIONS

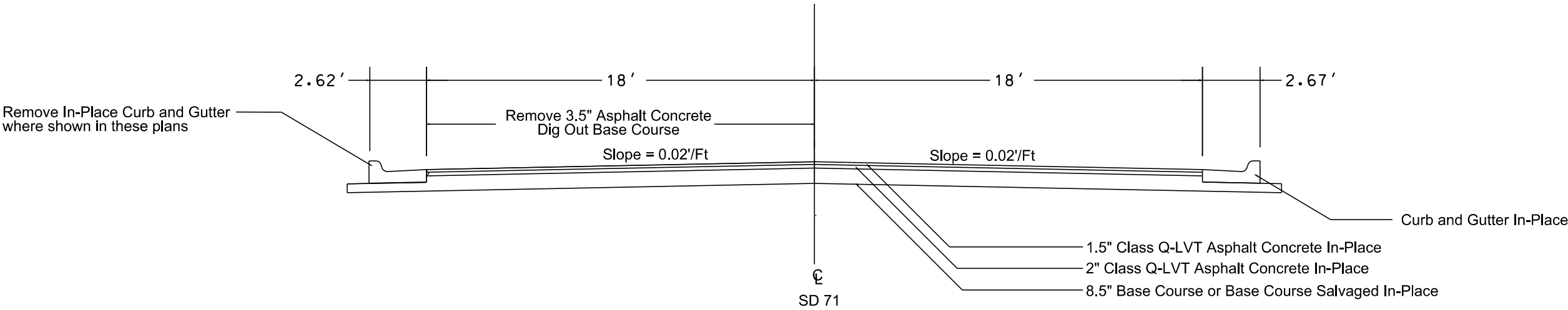
| | | | |
|-----------------------------|---------|-------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | 071-492 | 8 | 15 |

Plotting Date: 02/23/2021

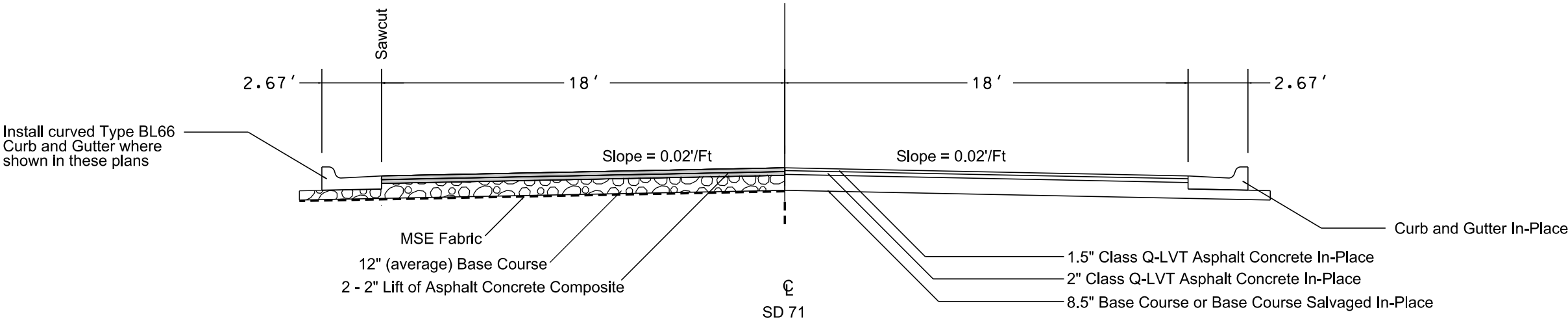
Plot Scale - 1:5.56

Plotted From - trc12808

In-Place and Removal Section



Asphalt Concrete Overlay Section



Plot Scale - 1:10,2366

Plotted From - trrc12608

- Remove topsoil.
- Reconstruct inslope behind curb and gutter with borrow material.
- Replace topsoil.
- Seed, fertilize, and mulch.

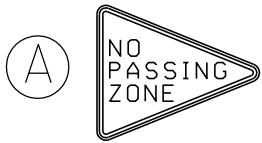
TYPICAL PAVEMENT MARKING LAYOUT

| | | | |
|-----------------------------|---------|--------------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | 071-492 | 10 | 15 |

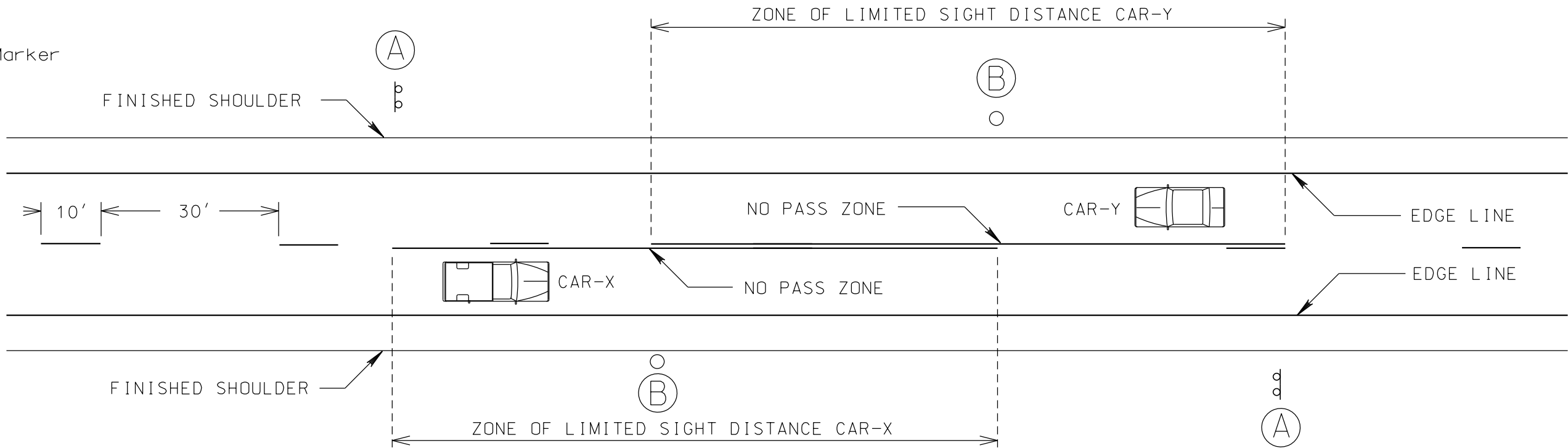
Plotting Date: 02/23/2021

Plot Scale - 1:20

Plotted From - trc12808



(B) End of Zone Marker



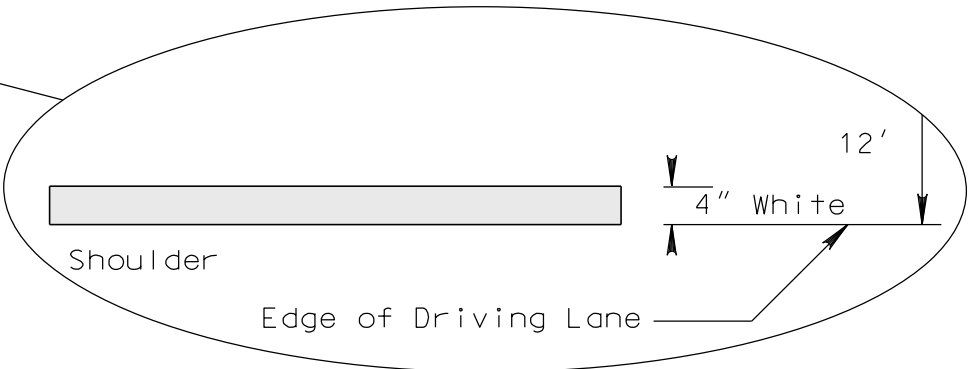
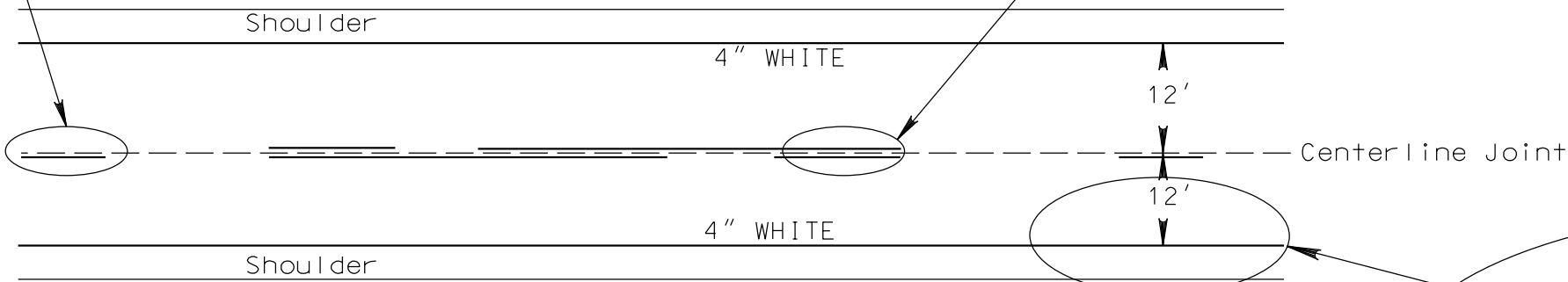
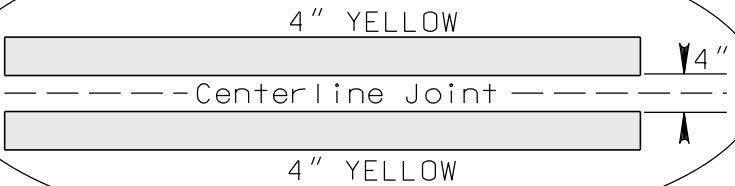
Centerline Detail



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

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

Centerline Detail



| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|-----------------------------|---------|-------|-----------------|
| | 071-492 | 11 | 15 |

Plotting Date: 02/23/2021

*In situations where multiple work locations in a limited distance make it practical to place stationary signs, the distance between the advance warning sign and the work should not exceed 5 miles.

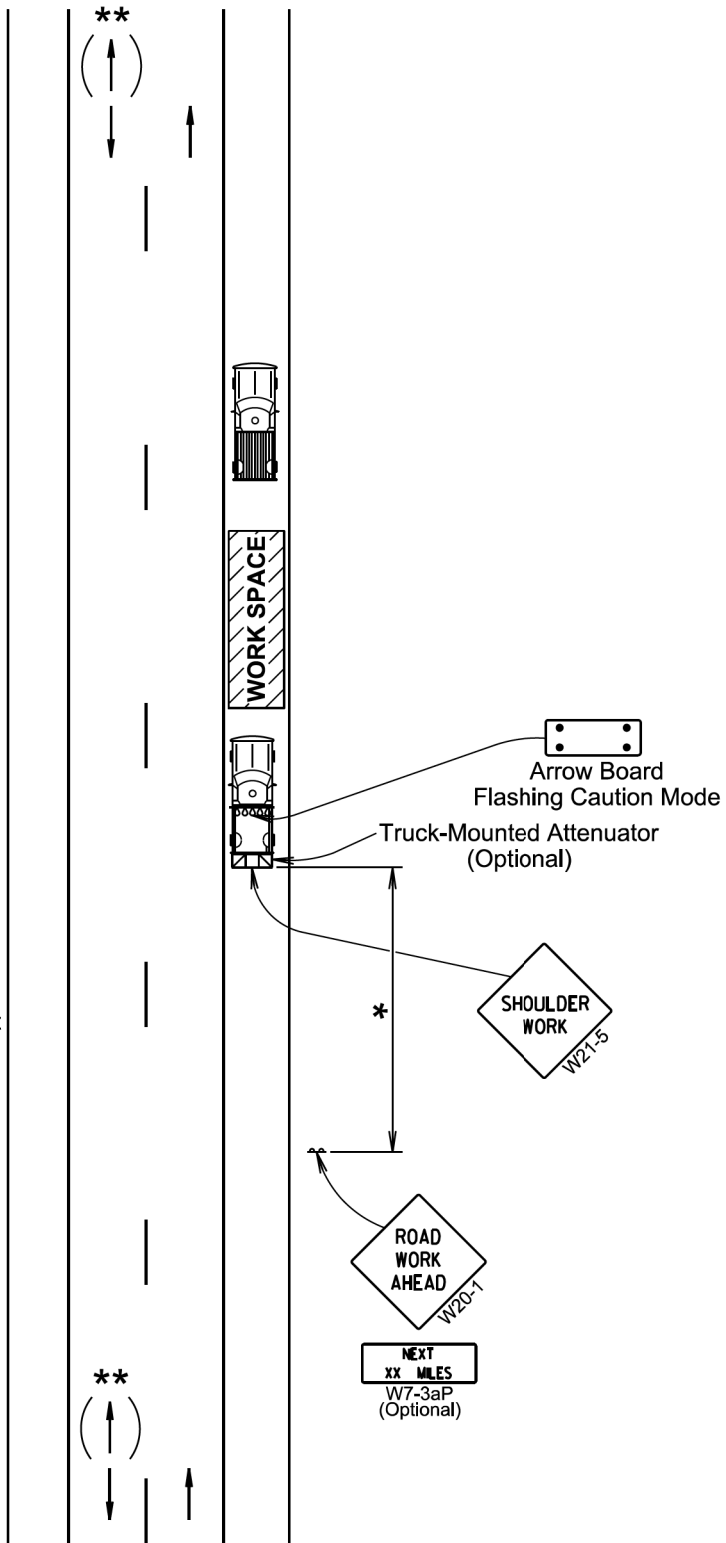
The ROAD WORK NEXT xx MILES sign may be used instead of the ROAD WORK AHEAD sign if the work locations occur over a distance of more than 2 miles.

Arrow board is required for intermittently and continuously moving mobile operations when work exceeds 1 hour.

**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.

In situations where the distance between the advance warning signs and the work is 2 miles to 5 miles, a Supplemental Distance plaque should be used with the ROAD WORK AHEAD sign.

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".



August 27, 2020

| | | | |
|-------------------------------|-----------------------|--|------------------------|
| Published Date: 1st Qtr. 2021 | S D D O T | GUIDES FOR TRAFFIC CONTROL DEVICES MOBILE OPERATIONS ON SHOULDERS | PLATE NUMBER 634.04 |
| | | | Sheet 1 of 1 |
| | | | |

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

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

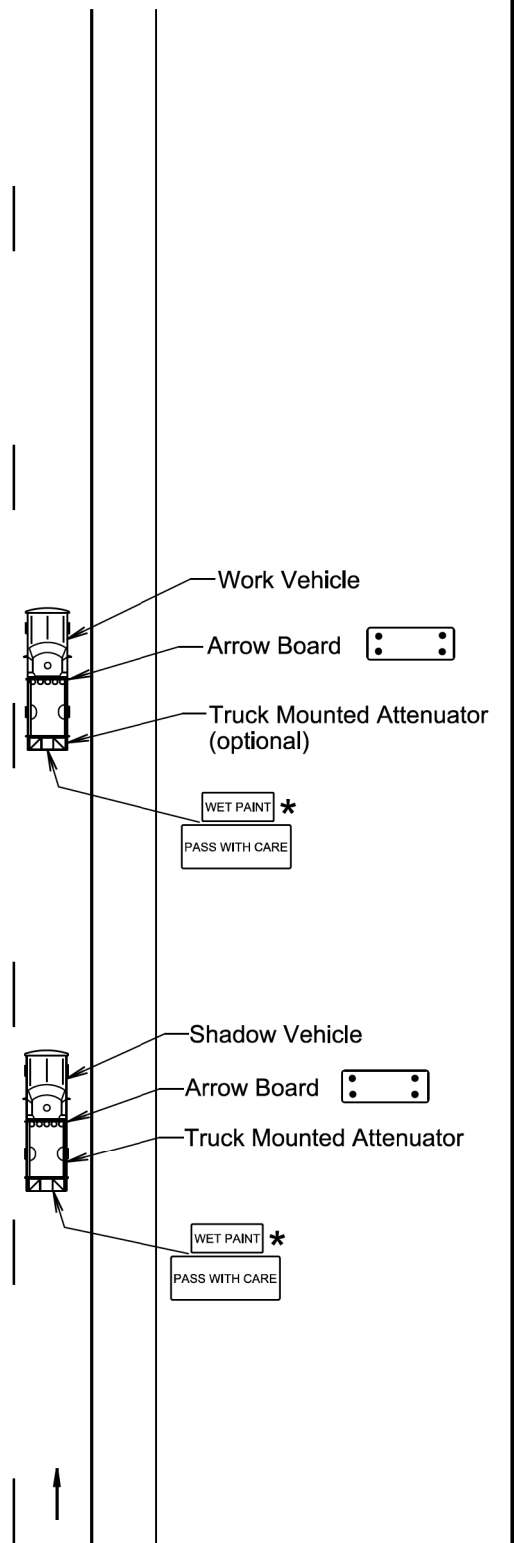
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

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

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

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

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



May 9, 2020

| | | | |
|-------------------------------|-----------------------|--|------------------------|
| Published Date: 1st Qtr. 2021 | S D D O T | GUIDES FOR TRAFFIC CONTROL DEVICES 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) | Spacing of Channelizing Devices (Feet) (G) |
|-------------------------------------|---|--|
| 0 - 30 | 200 | 25 |
| 35 - 40 | 350 | 25 |
| 45 | 500 | 25 |
| 50 | 500 | 50 |
| 55 | 750 | 50 |
| 60 - 65 | 1000 | 50 |

- Flagger
- Channelizing Device

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

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

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

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

The channelizing devices shall be drums or 42" cones.

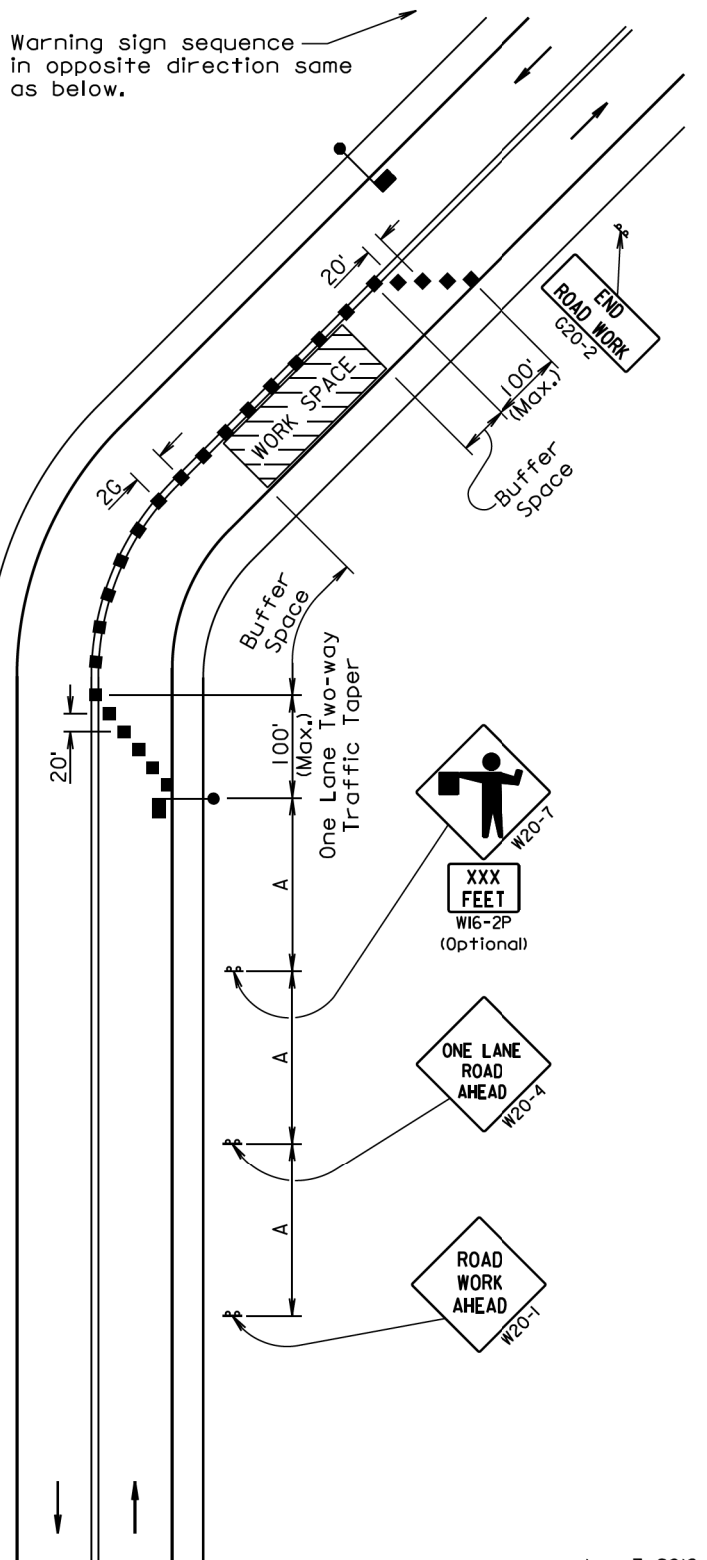
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

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

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

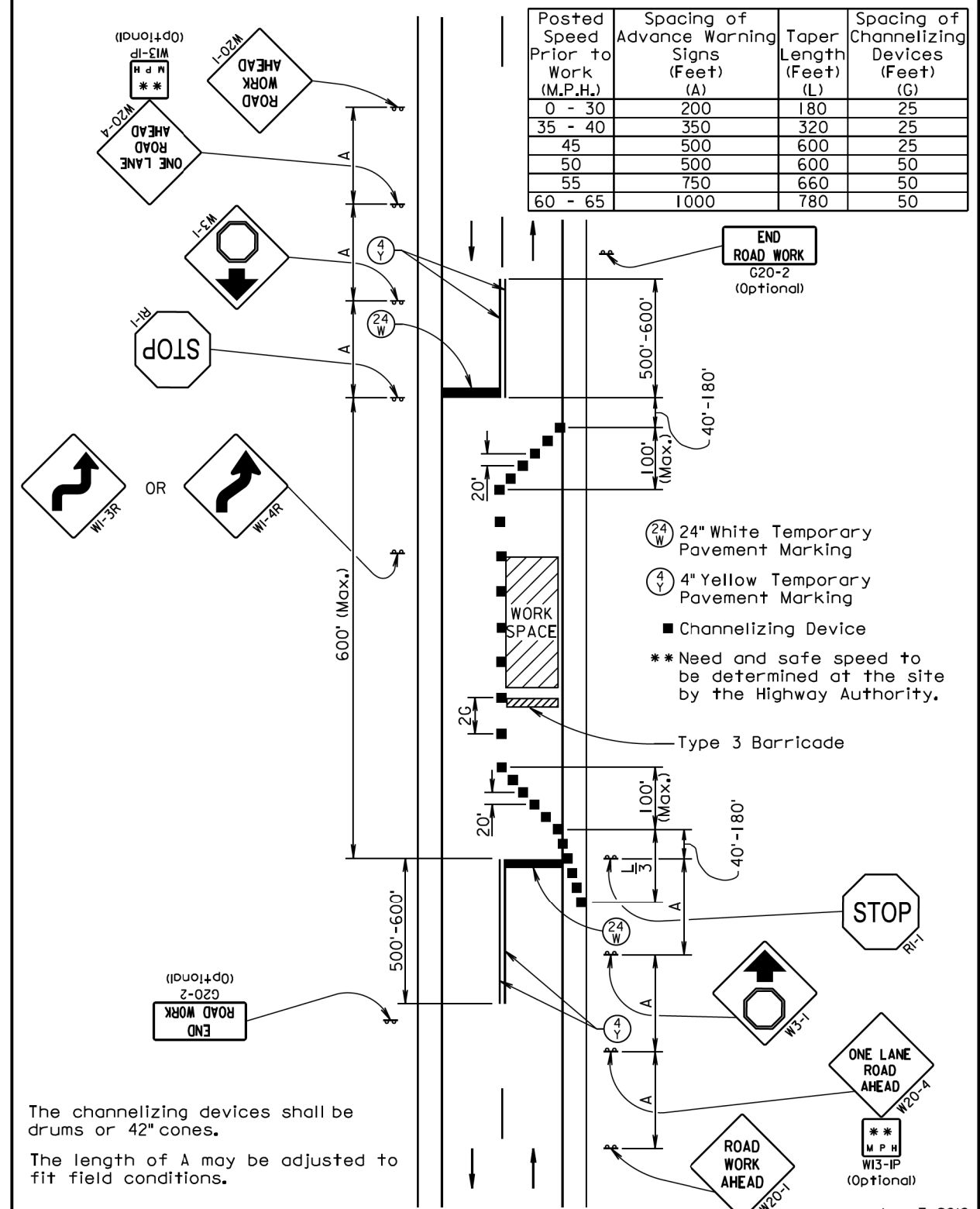
The length of A may be adjusted to fit field conditions.

Warning sign sequence in opposite direction same as below.



June 3, 2016

| | | | |
|--------------------------------------|----------------------------------|--|--------------------------------------|
| <i>Published Date: 1st Qtr. 2021</i> | S D D O T | GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED | PLATE NUMBER 634.23 |
| | | | <i>Sheet 1 of 1</i> |

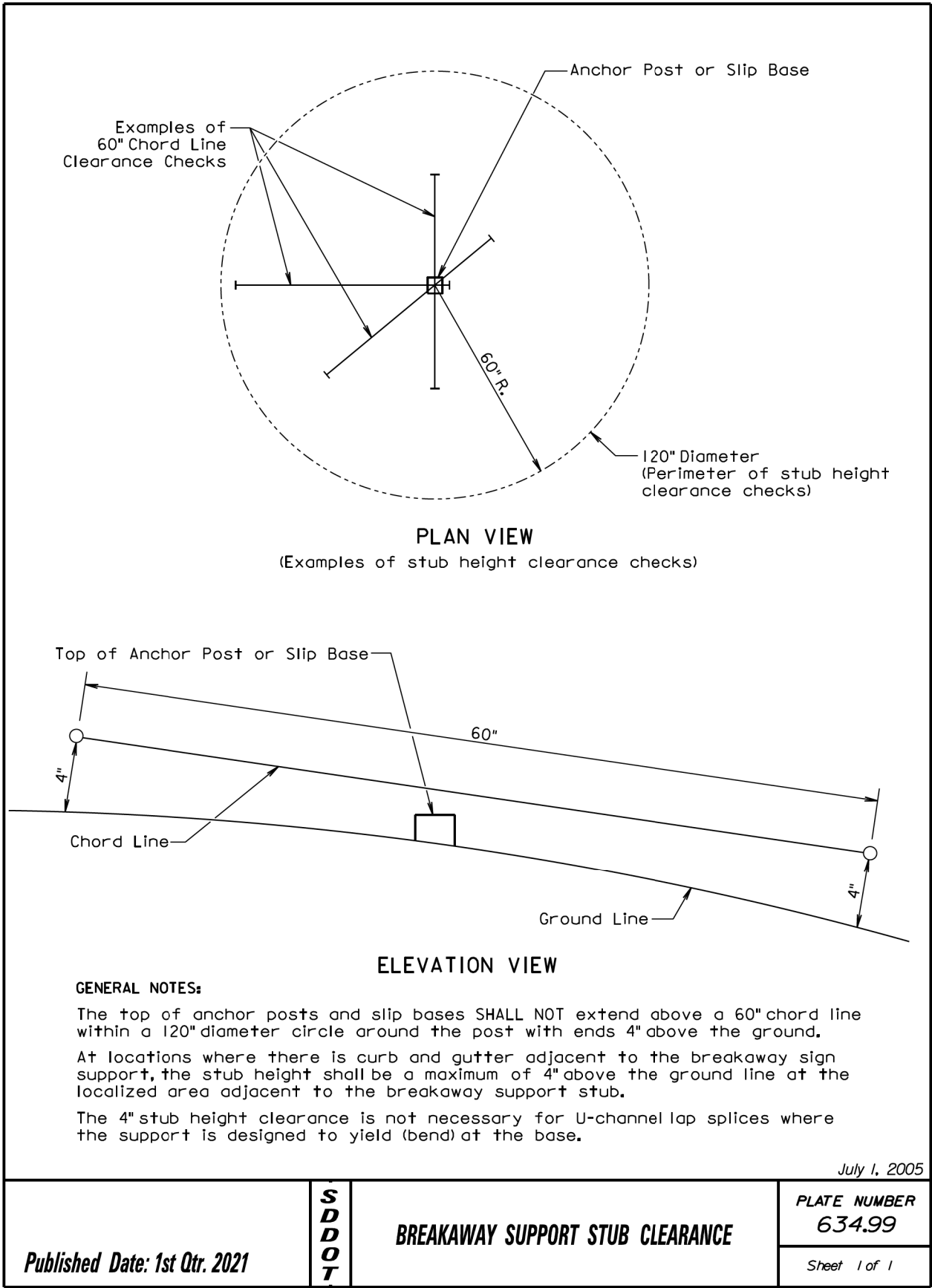
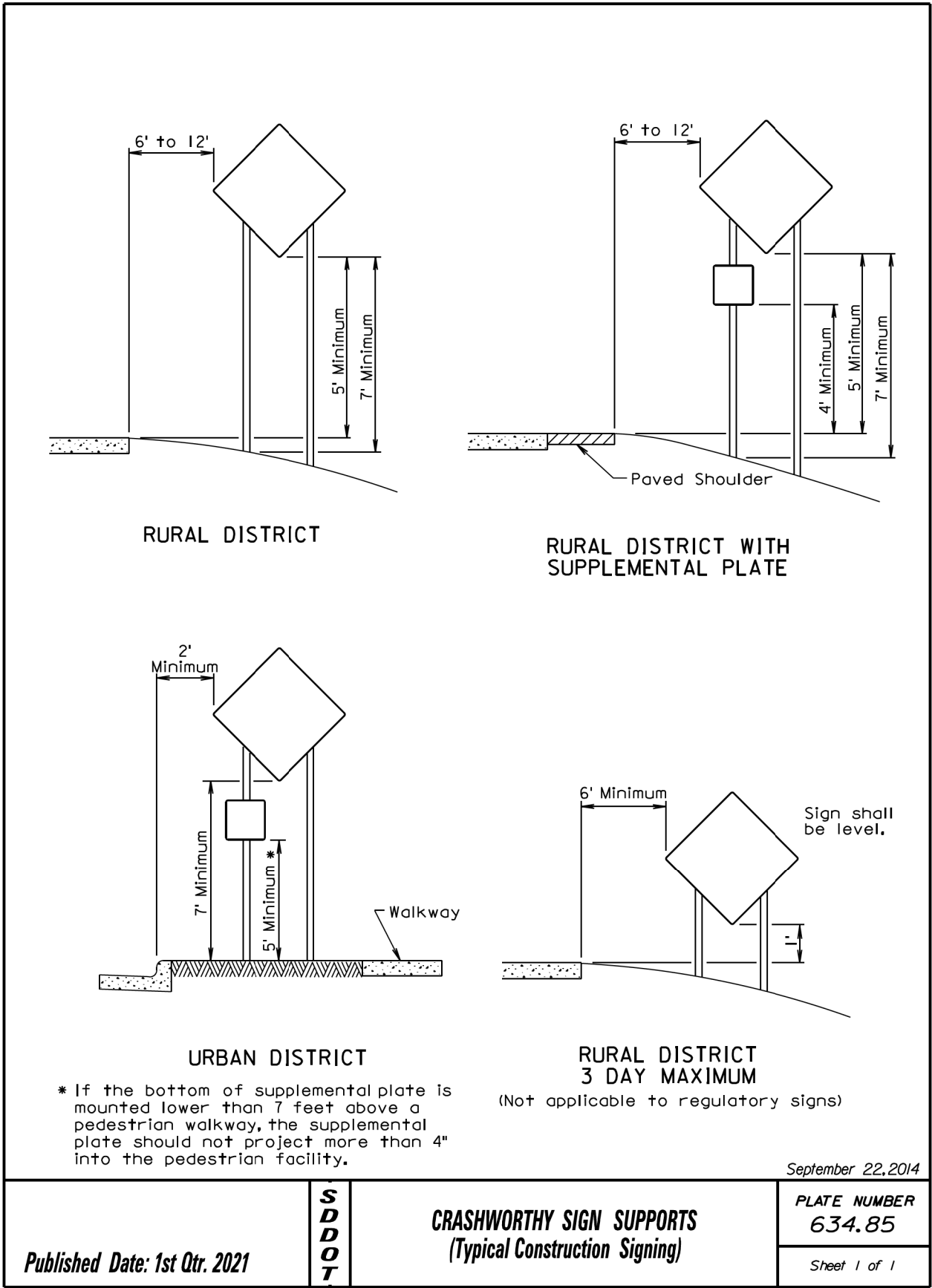


June 3, 2016

| | | | |
|-------------------------------|-----------------------|---|------------------------|
| Published Date: 1st Qtr. 2021 | S D D O T | GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE USING STOP SIGNS | PLATE NUMBER 634.25 |
| | | | Sheet 1 of 1 |

| | | | |
|-----------------------------|---------|-------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | 071-492 | 13 | 15 |

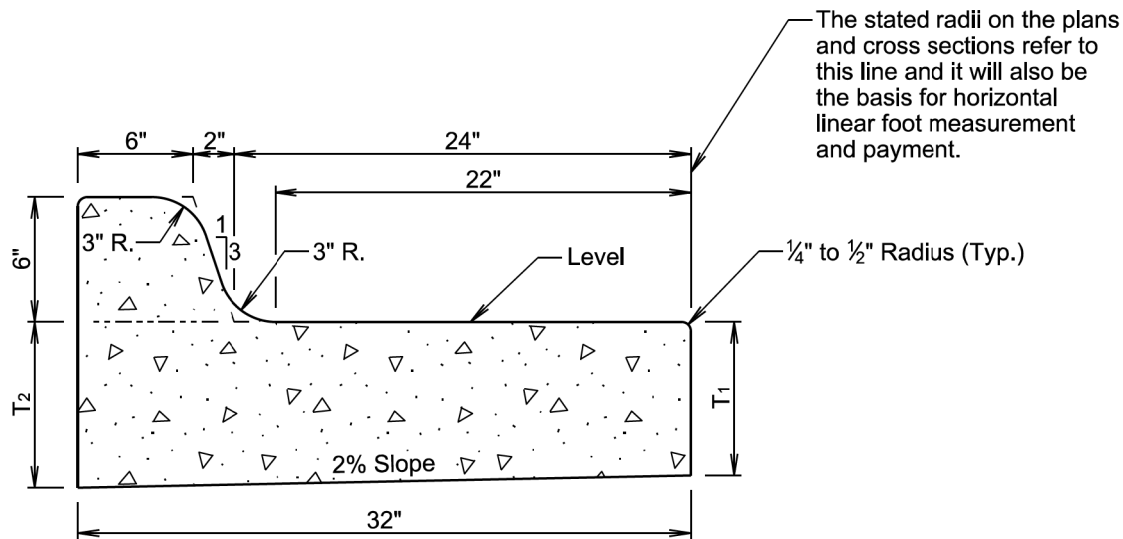
Plotting Date: 02/23/2021



1:200
Plot Scale -
- Plotted From -
trc12808

| | | | |
|-----------------------------|---------|-------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | 071-492 | 14 | 15 |

Plotting Date: 02/23/2021



| TYPE BL CONCRETE CURB AND GUTTER | | | | |
|----------------------------------|----------------------------|--------------------------------|----------------------------|----------------------------|
| Type | T ₁ (Inches) | T ₂ (Inches) | Cu. Yd. Per Lin. Ft. | Lin. Ft. Per Cu. Yd. |
| BL66 | 6 | 6 ⁵ / ₈ | 0.063 | 15.9 |
| BL67 | 7 | 7 ⁵ / ₈ | 0.071 | 14.1 |
| BL68 | 8 | 8 ⁵ / ₈ | 0.080 | 12.5 |
| BL68.5 | 8.5 | 9 ¹ / ₈ | 0.084 | 11.9 |
| BL69 | 9 | 9 ⁵ / ₈ | 0.088 | 11.4 |
| BL69.5 | 9.5 | 10 ¹ / ₈ | 0.092 | 10.9 |
| BL610 | 10 | 10 ⁵ / ₈ | 0.096 | 10.4 |
| BL610.5 | 10.5 | 11 ¹ / ₈ | 0.100 | 10.0 |
| BL611 | 11 | 11 ⁵ / ₈ | 0.104 | 9.6 |
| BL611.5 | 11.5 | 12 ¹ / ₈ | 0.108 | 9.3 |
| BL612 | 12 | 12 ⁵ / ₈ | 0.112 | 8.9 |

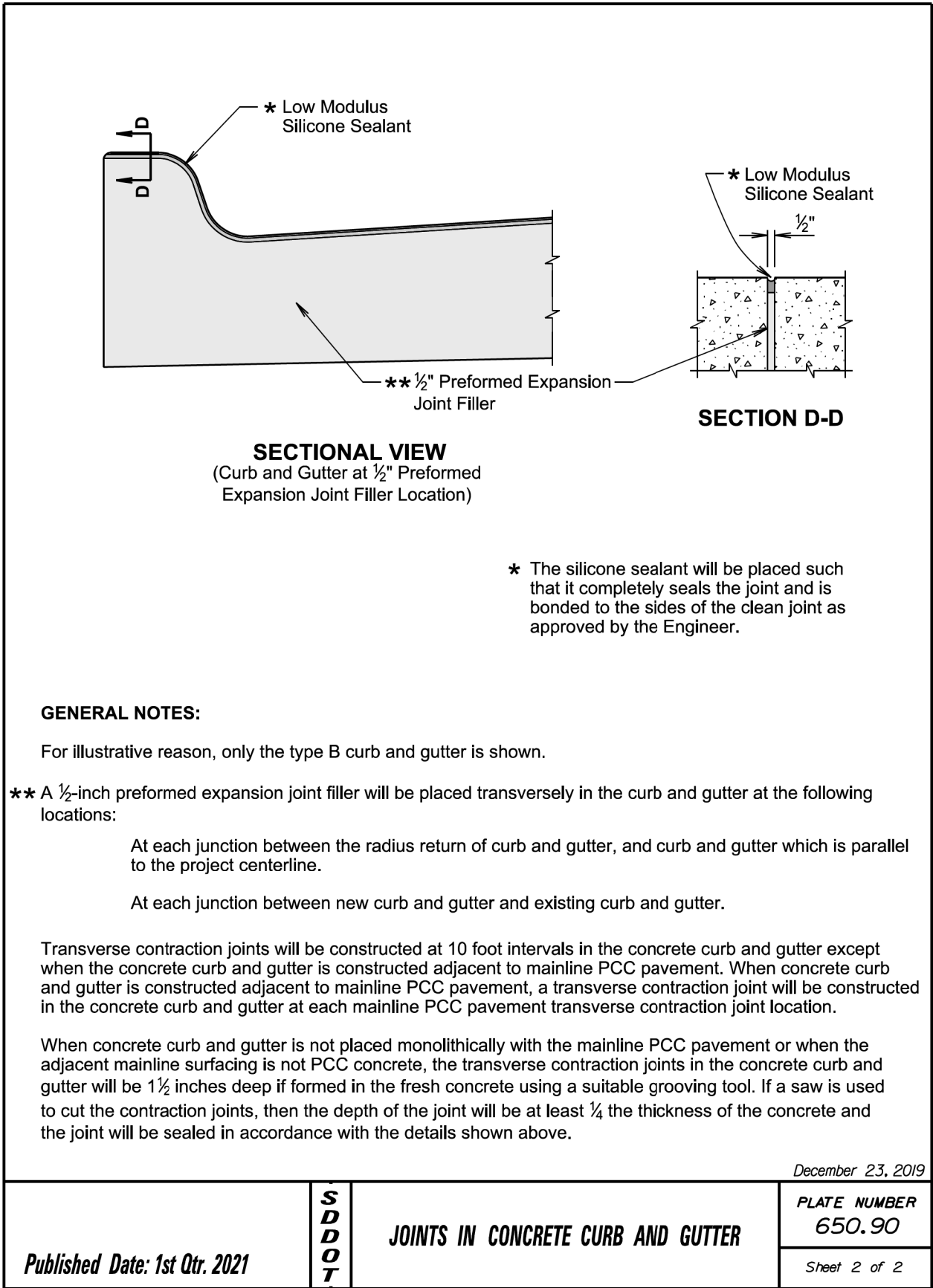
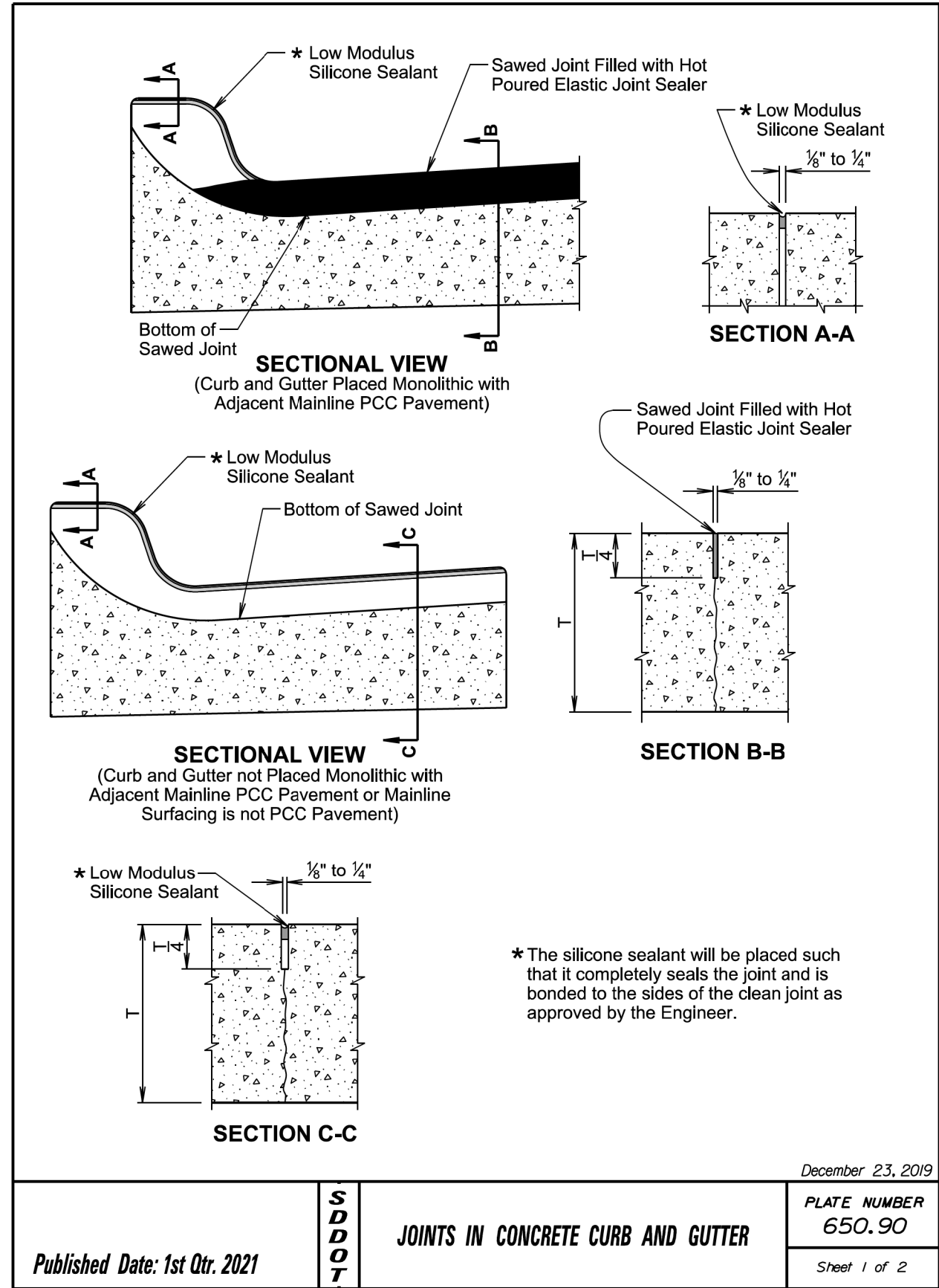
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment will be by one of the methods shown on standard plate 380.11.

See standard plate 650.90 for expansion and contraction joints in the curb and gutter.

December 23, 2019

| | | | |
|-------------------------------|------------------|----------------------------------|------------------------|
| Published Date: 1st Qtr. 2021 | S D O T | TYPE BL CONCRETE CURB AND GUTTER | PLATE NUMBER 650.05 |
| | | | Sheet 1 of 1 |



GENERAL NOTES:

For illustrative reason, only the type B curb and gutter is shown.

****** A 1/2-inch preformed expansion joint filler will be placed transversely in the curb and gutter at the following locations:

At each junction between the radius return of curb and gutter, and curb and gutter which is parallel to the project centerline.

At each junction between new curb and gutter and existing curb and gutter.

Transverse contraction joints will be constructed at 10 foot intervals in the concrete curb and gutter except when the concrete curb and gutter is constructed adjacent to mainline PCC pavement. When concrete curb and gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint will be constructed in the concrete curb and gutter at each mainline PCC pavement transverse contraction joint location.

When concrete curb and gutter is not placed monolithically with the mainline PCC pavement or when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete curb and gutter will be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint will be at least 1/4 the thickness of the concrete and the joint will be sealed in accordance with the details shown above.