

STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION  
PLANS FOR PROPOSED

PROJECT	SECTION	SHEET
034-451	Non	1/11

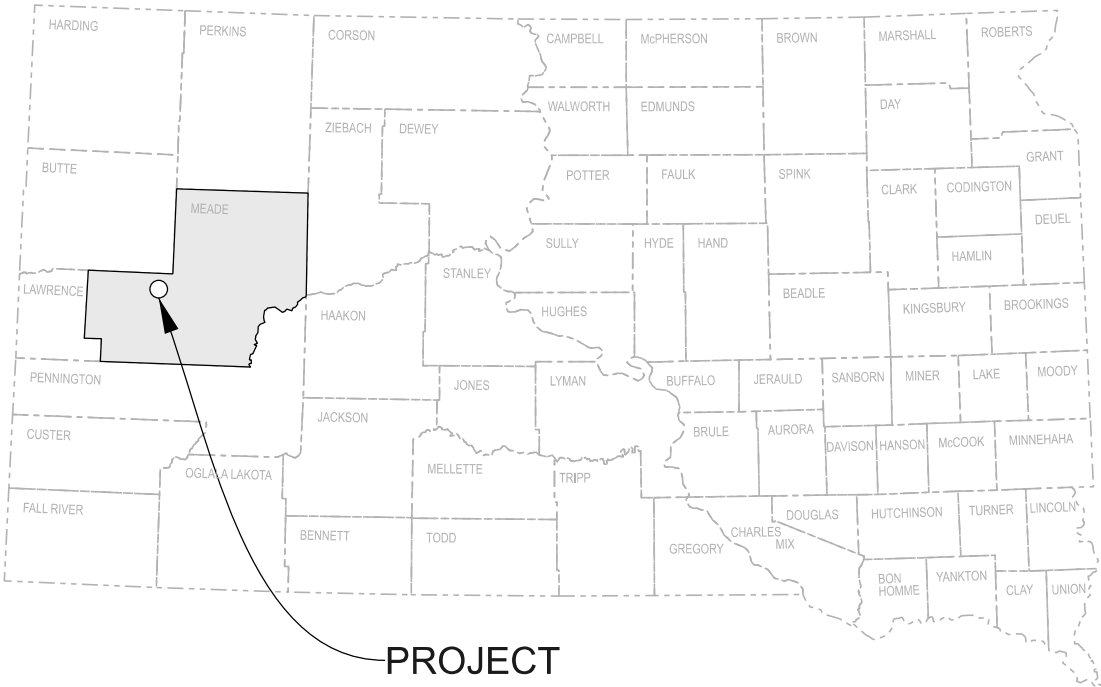
Plotting Date: 03/06/2024

PROJECT 034-451  
SD HIGHWAY 34  
MEADE COUNTY

PIPE REPAIR  
PCN i7EN

INDEX OF SHEETS

- 1 General Layout with Index
- 2-4 Estimate With General Notes & Tables
- 5 Legend
- 6 Plan Sheet
- 7 Pipe Sections
- 8-11 Standard Plates



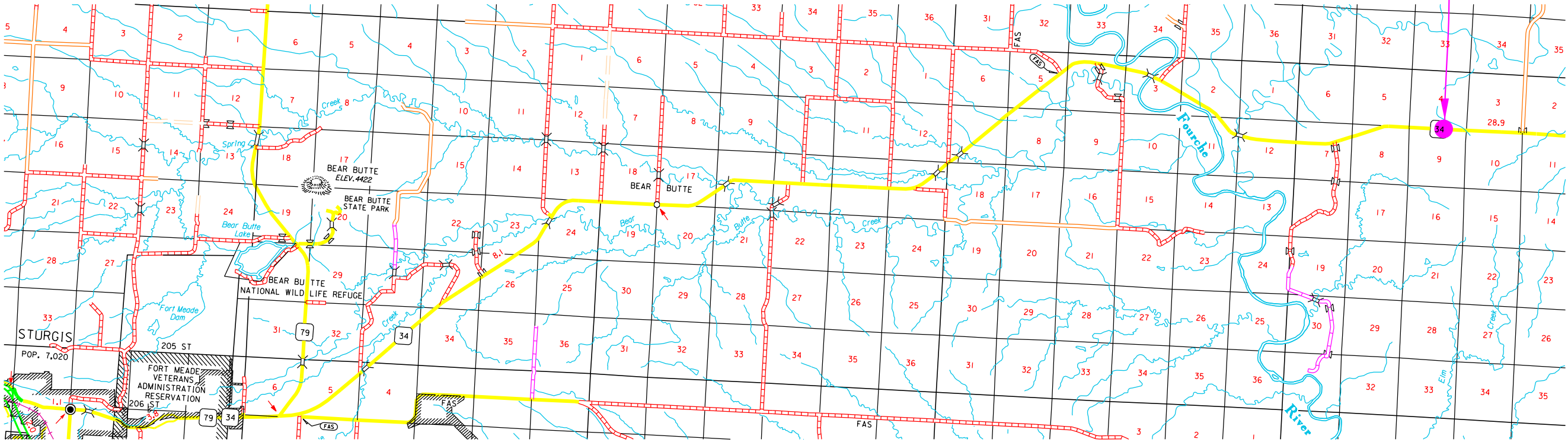
PROJECT

PROJECT 034-451  
SD Highway 34  
MRM 61.96



DESIGN DESIGNATION

ADT (2023)	847
ADT (2043)	1350
DHV	152
D	50%
T DHV	8.4%
T ADT	18.4%
V	65 mph



ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0510	Remove Pipe End Section	6	Each
110E1693	Remove Erosion Control Wattle	100	Ft
450E5219	30" CMP Flared End, Furnish	6	Each
450E5220	30" CMP Flared End, Install	6	Each
450E8910	Cleanout for Culvert Treatment	3	Each
450E9526	30" Cured in Place Pipe	246	Ft
634E0010	Flagging	100.0	Hour
634E0110	Traffic Control Signs	137.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	100	Ft

SPECIFICATIONS

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

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 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.

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:  
<https://sdleastwanted.sd.gov/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.

COORDINATION WITH OTHER PROJECTS

The pipe repair project NH-P 0041(169), PCN 06UR is scheduled for the construction season of 2024. The location of this project is SD34 from MRM 57.0+0.476 to 75.12+0.568. The Contractor on this project will coordinate with the Contractor on the pipe repair project, so that work activities do not conflict. The Contractor for the project is Simon Contractors, Inc., 605-394-3300. All costs associated with this coordination will be incidental to the various bid items on the project.

CORRUGATED METAL PIPE

Metal pipe end sections connected will be aluminum-coated (Type 2) in accordance with AASHTO M36 as specified in the Table of Pipe Quantities. All costs associated for gauge, coating, and connections will be incidental to the corresponding CMP End Section contract items.

CLEANOUT FOR CULVERT TREATEMENT

Cleanout of pipe culvert will be done in advance of the culvert linings.

Material in existing pipe culvert will be cleaned out by water flushing or other approved methods.

Material removed from the pipe culvert will become property of the Contractor for disposal.

The Contractor will implement appropriate sediment control measures prior to water flushing to prevent discharges from the project boundaries.

The pipe culvert will be cleaned to the satisfaction of the Engineer.

All costs to dewater, clean pipe, and dispose of removed materials will be incidental to the contract unit price per each for “Cleanout for Culvert Treatment”.

CURED-IN-PLACE PIPE (CIPP)

This work consists of rehabilitating existing drainage culverts by furnishing and installing Glass Reinforced thermosetting Plastic (GRP) Cured-in-Place Pipe (CIPP) liners using Ultraviolet (UV) cure methods. See Special Provision for specifications related to this work.

TABLE OF PIPE QUANTITIES

	Remove Pipe End Section	Corrugated Metal	CIPP Liner	Cleanout for Culvert Treatment
		#Circular Flared End 30"	30"	
Station	Each	Each	Ft	Each
0+35	2	2	82	1
0+42	2	2	82	1
0+48	2	2	82	1
TOTAL:	6	6	246	3

(#) Aluminum Coated (Type 2) in accordance with AASHTO M36. See notes for additional information.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	034-451	Non	2/11

SEQUENCE OF OPERATIONS

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

GENERAL TRAFFIC CONTROL

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

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

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.

Prior to nightfall, all traffic control will be removed from the roadway.

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.

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”.

INVENTORY OF TRAFFIC CONTROL SIGNS

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS			
		SQFT			
		137.0			

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	034-451	Non	3/11

EROSION CONTROL

All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding and fertilizing 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 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 a minimum 25% the fungal species *Rhizophagus intraradices*. The remaining 75% may include other endomycorrhizal fungal species.

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 <a href="http://www.mycorrhizae.com">www.mycorrhizae.com</a>
AM 120 Multi Species Blend	Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 <a href="http://www.reforest.com">www.reforest.com</a>
LALRISE Prime and Max WP	Lallemand Specialties Inc. Milwaukee, WI Phone: 1-844-590-7781 <a href="http://www.lallemandplantcare.com">www.lallemandplantcare.com</a>

Fertilizing

A commercial fertilizer with a minimum guaranteed analysis of 13-13-13, 18-46-0, 11-52-0, or an approved alternate fertilizer sold for use as a lawn starter fertilizer will be applied to all areas designated for permanent seeding.

The application rate of fertilizer will be 3 pounds per 1,000 square feet.

Permanent Seeding

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

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

Fiber Mulching

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://apps.sd.gov/HC60ApprovedProducts/main.aspx>

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	034-451	Non	4/11

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 until vegetation has been established and then they will be removed in accordance with the Engineer.

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>

TABLE OF EROSION CONTROL WATTLE

MRM	L/R	Diameter (Inch)	Location	Quantity (Ft)
61.96	R	12	Inlet Protection	100
Total:				100




LEGEND

Remove CMP Flared Ends  
at the following locations:  
0+36 L & R  
0+42 L & R  
0+48 L & R

0+36  
Install 30"-82' CIPP Liner  
& 30" CMP Flared Ends L & R

0+42  
Install 30"-82' CIPP Liner  
& 30" CMP Flared Ends L & R

0+48  
Install 30"-82' CIPP Liner  
& 30" CMP Flared Ends L & R

	PROJECT	SECTION	SHEET
	034-451	Non	6/11

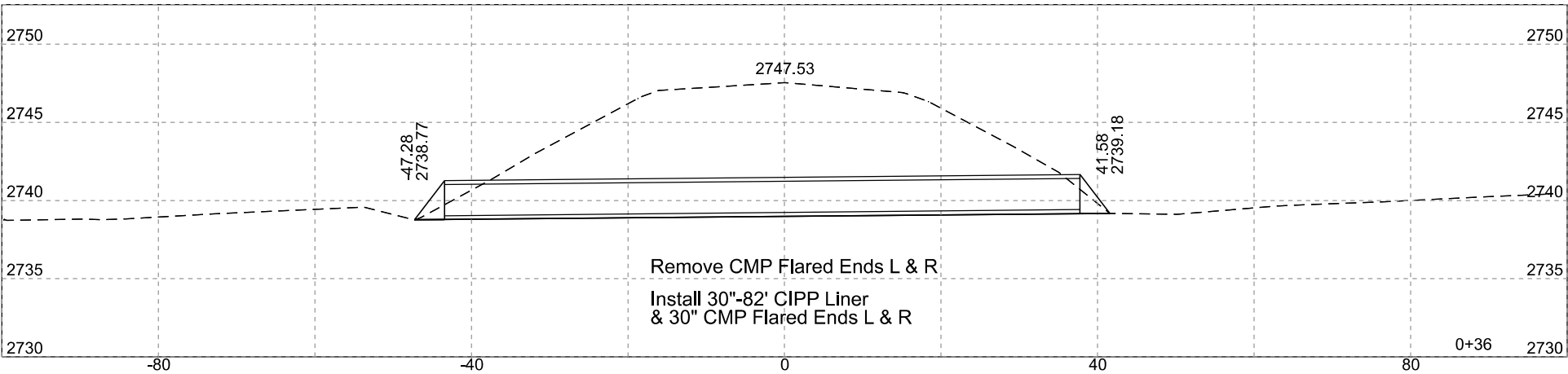
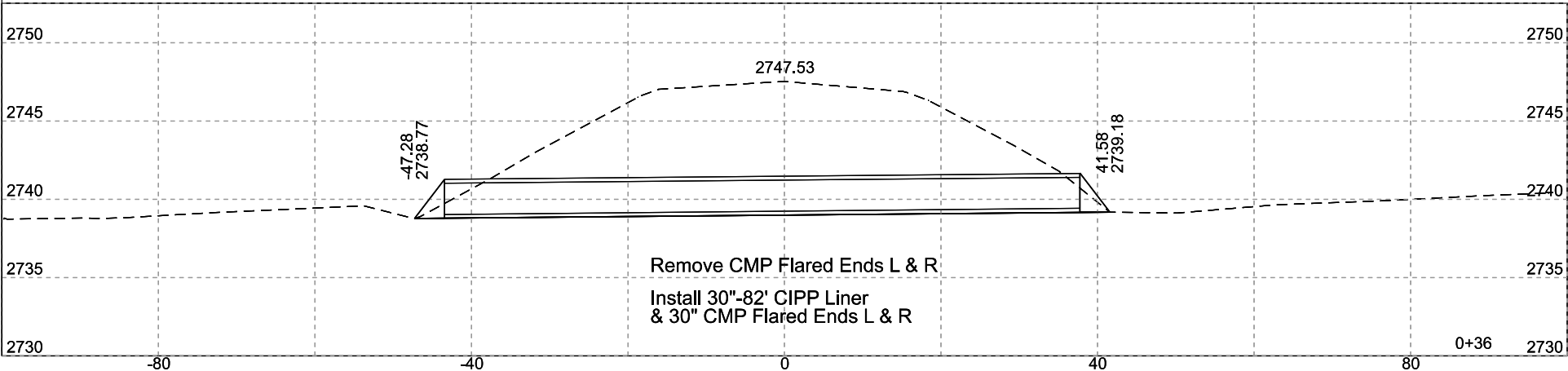
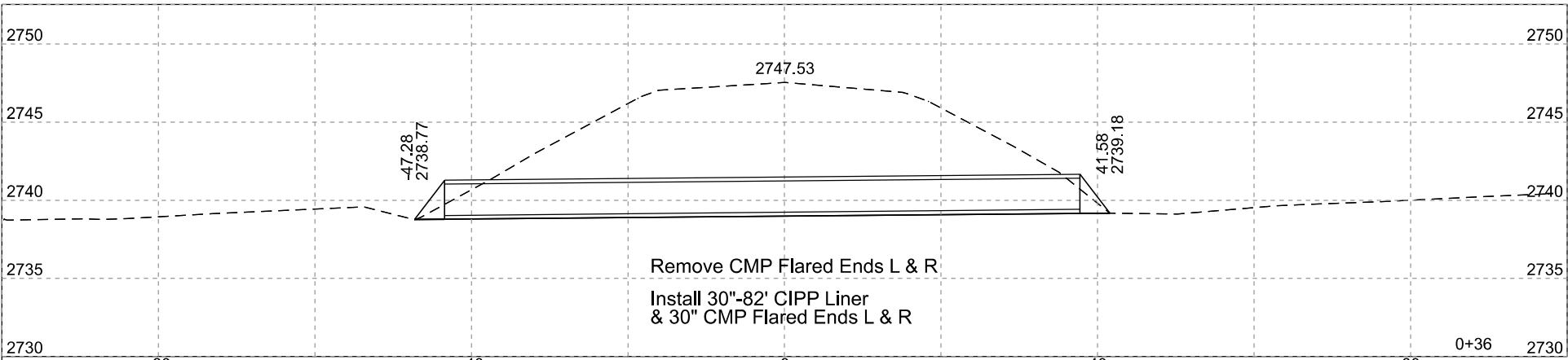
Plotting Date: 02/26/2024



Sec. 4 - T6N - R9E



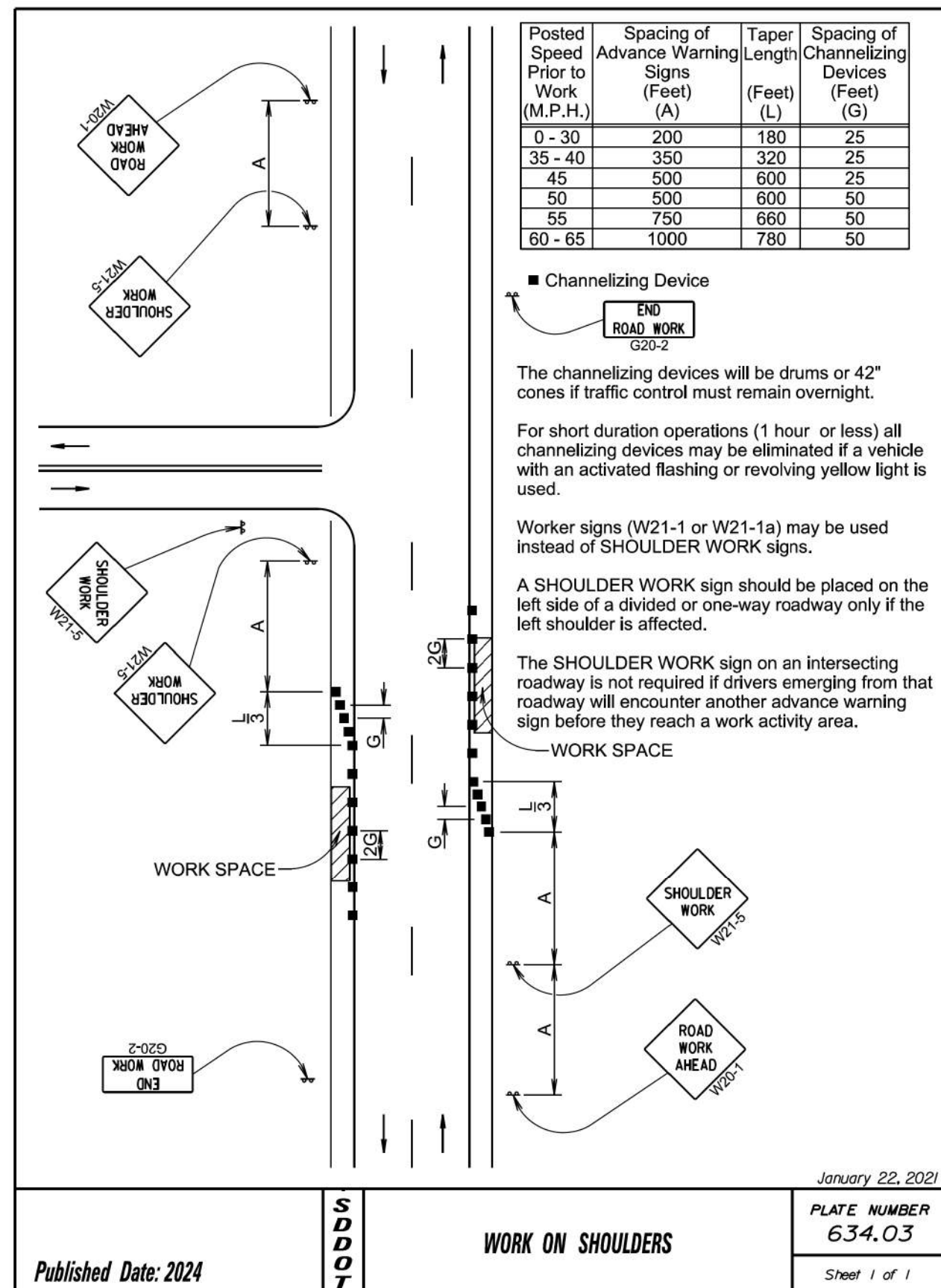
Sec. 9 - T6N - R9E











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.

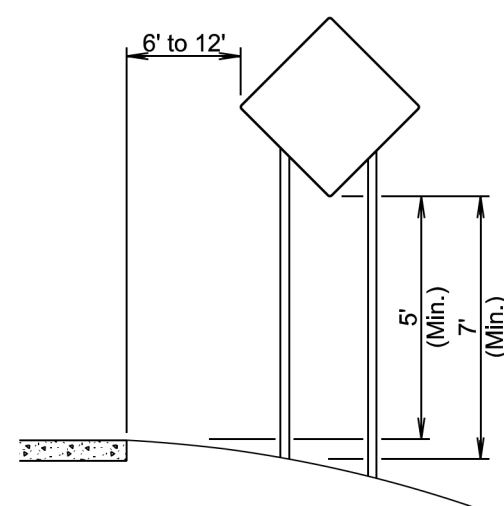
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

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

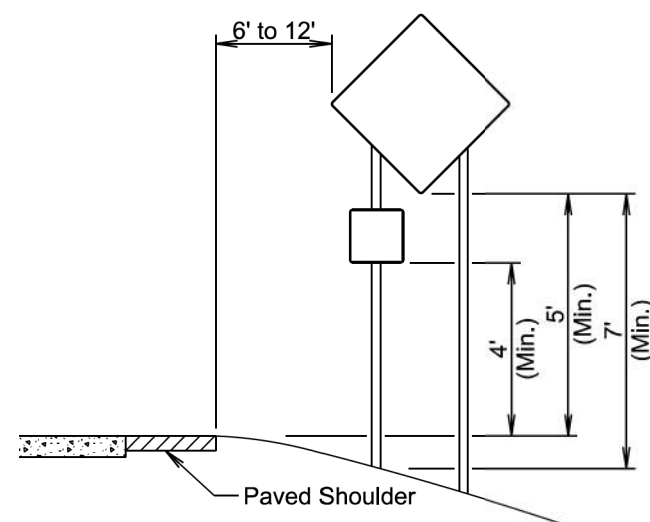
The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

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

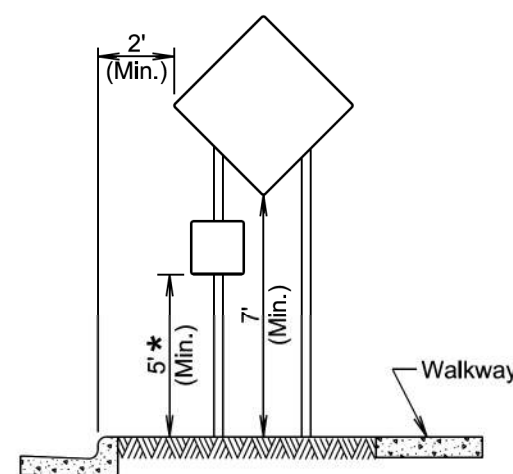
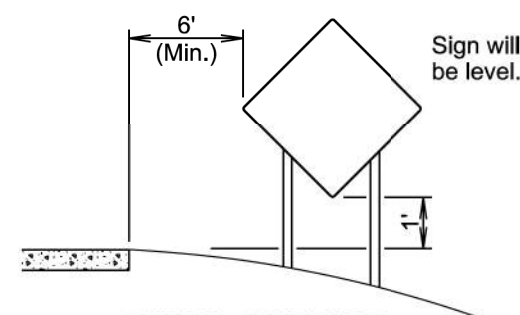




## RURAL DISTRICT



### 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

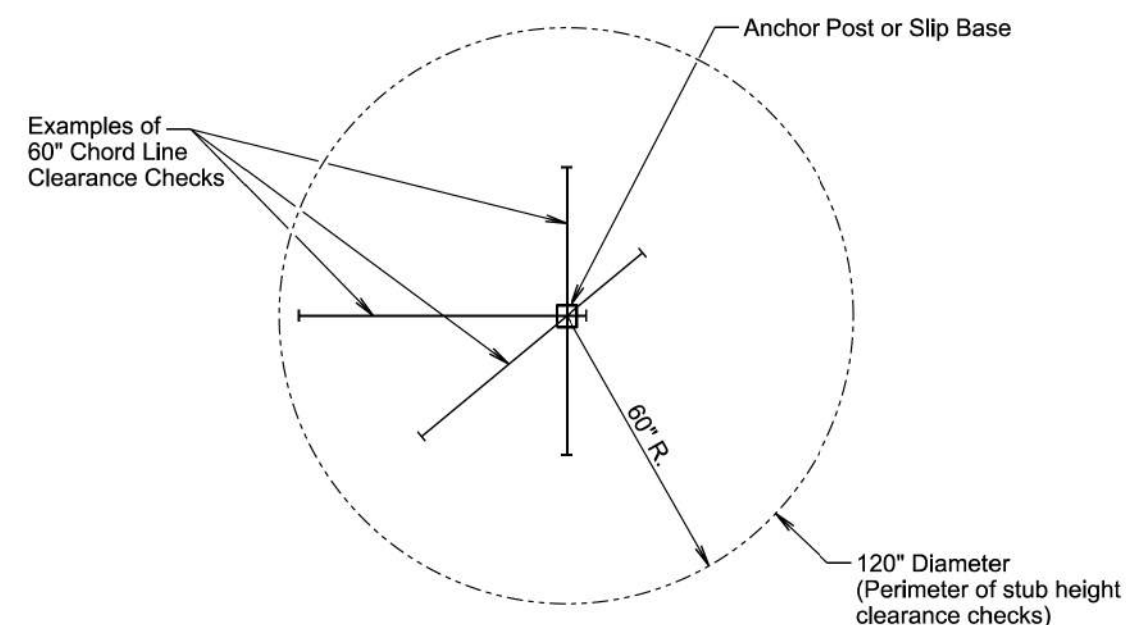
**Published Date: 2024**

***SDDOT***

**CRASHWORTHY SIGN SUPPORTS**  
(Typical Construction Signing)

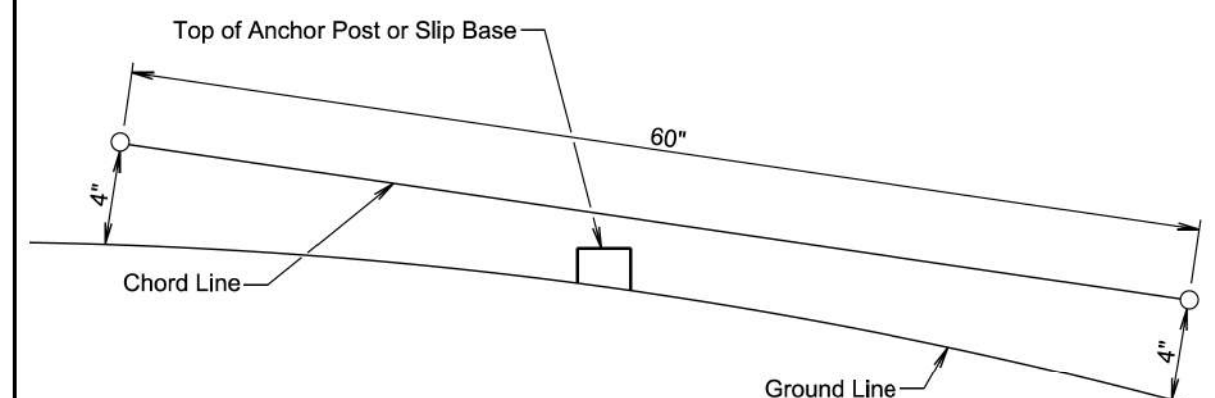
PLATE NUMBER  
634.85

Sheet 1 of 1



### PLAN VIEW

(Examples of stub height clearance checks)



### ELEVATION VIEW

**GENERAL NOTES:**

The top of anchor posts and slip bases 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: 2024**

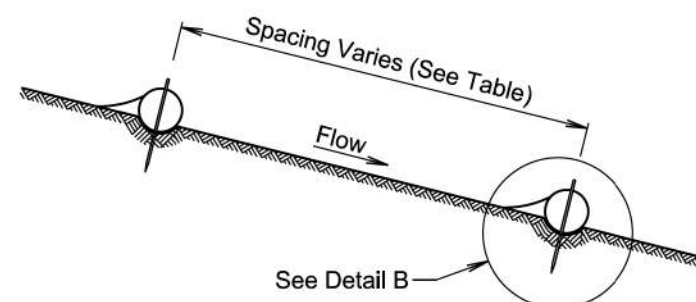
**S  
D  
D  
O  
T**

### BREAKAWAY SUPPORT STUB CLEARANCE

PLATE NUMBER  
634.99

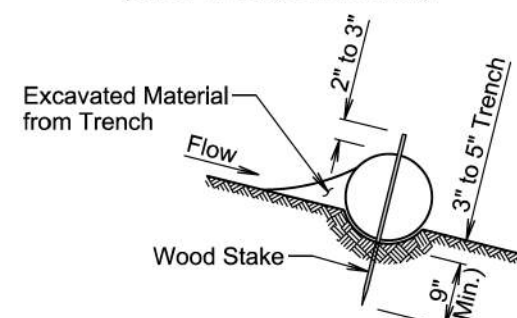
Sheet 1 of 1



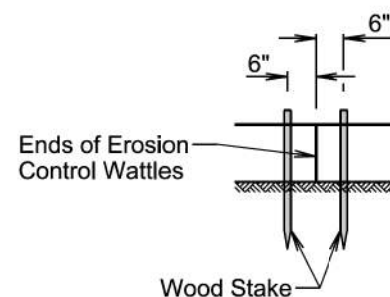


**ELEVATION VIEW**  
(Cut or Fill Slope Installation)

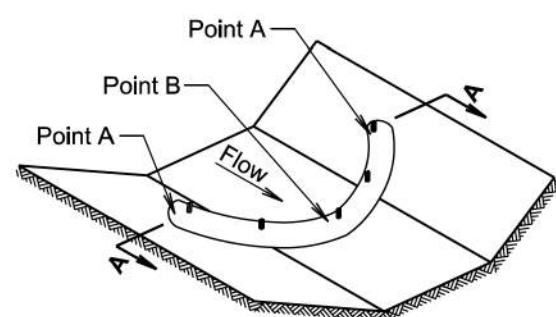
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



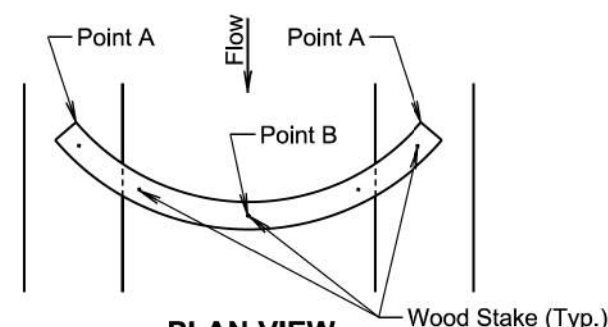
**DETAIL B**  
(Typical of All Installations)



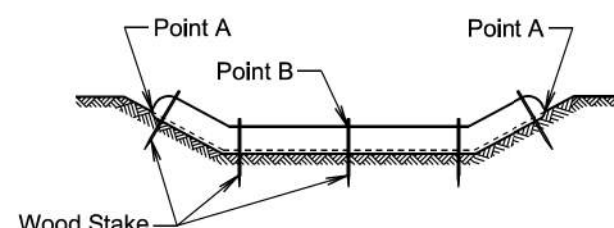
**DETAIL C**  
(See General Notes)



**ISOMETRIC VIEW**  
(Ditch Installation)



### PLAN VIEW (Ditch Installation)



**SECTION A-A**

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

February 14, 2020

**Published Date:** 2024

SD  
D  
O  
T**EROSION CONTROL WATTLE**

PLATE NUMBER  
734.06

Sheet 1 of 2

**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: 2024**

**S  
L  
O  
T**

### **EROSION CONTROL WATTLE**

PLATE NUMBER  
734.06

Sheet 2 of 2