

PLOT SCALE - 200,000000:1,000000

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
PROJECT 000I-452
INTERSTATE 90
PENNINGTON COUNTY

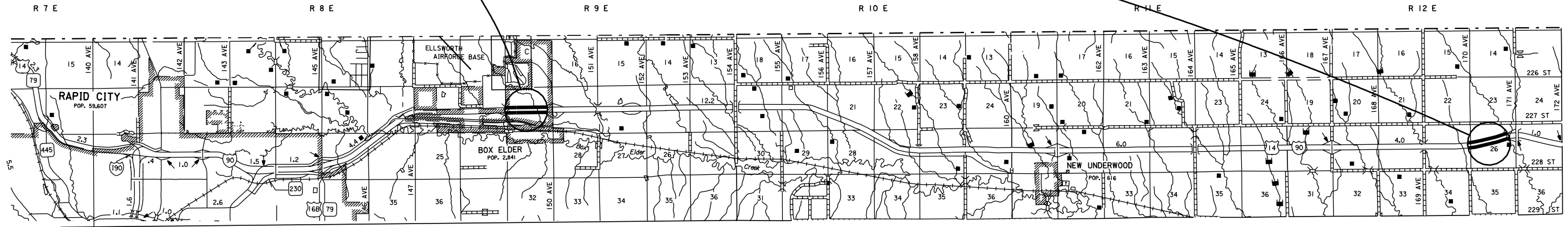
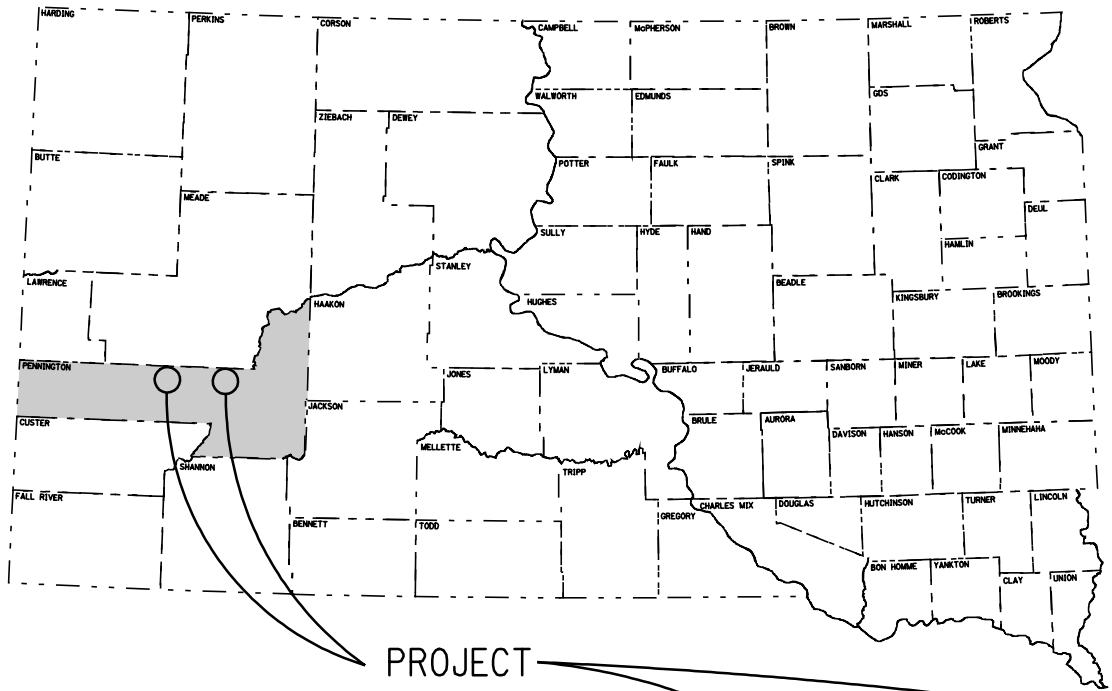
RELOCATE MAINTENANCE CROSSOVERS
PCN 11QW

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000I-452	1	9

Plotting Date: 26-APR-2010

INDEX OF SHEETS

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DESIGN DESIGNATION I-90 MRM 67

ADT (2000)	9220
ADT (2029)	17335
DHV	1875
D	50%
T DHV	9.6%
T ADT	21.2%
V	75 mph

DESIGN DESIGNATION I-90 MRM 88

ADT (2009)	7390
ADT (2029)	10695
DHV	1465
D	50%
T DHV	11.6%
T ADT	25.6%
V	75 mph

PLOTTED FROM - TRRC12508

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ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0500	Remove Pipe Culvert	92	Ft
110E0510	Remove Pipe End Section	2	Each
110E1010	Remove Asphalt Concrete Pavement	325.0	SqYd
110E7150	Remove Sign for Reset	2	Each
120E0600	Contractor Furnished Borrow	600	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
260E1010	Base Course	140.0	Ton
320E1200	Asphalt Concrete Composite	72.0	Ton
632E3500	Reset Sign	2	Each
634E0010	Flagging	10	Hour
634E0100	Traffic Control	964	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	2	Each
732E0250	Fiber Mulching	460	Lb
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	240	Ft

SPECIFICATIONS

Standard Specifications for Roads & Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

WORK DESCRIPTION

Work on this project will consist of the following:

Remove Surfacing from specified in-place maintenance crossovers.

Excavate crossovers and restore ditches to match adjacent.

Construct new maintenance crossovers at specified locations.

Surface new maintenance crossovers.

SEQUENCE OF OPERATIONS - GENERAL

The intent of the plan sequence of operations is to have the least amount of impact on the traveling public and adjacent landowners. Requests to deviate from the sequence of operations shall 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 shall be submitted for review a minimum of two week prior to potential implementation.

All Contractors' vehicles or equipment entering or leaving a closed work area shall display a flashing amber light.

SEQUENCE OF OPERATIONS – GENERAL (CONTINUED)

The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

Non-applicable signing will be covered or removed and reset during periods of inactivity. All costs to do this work shall be incidental to Traffic Control, Miscellaneous.

Construction signing that remains in the same location for more than 3 days shall be mounted on fixed supports, unless approved by the Engineer.

The quantity of signs paid for will be for the most installations per sign in place at any one time regardless of the number of set-ups at this project site.

The Contractor or designated traffic control subcontractor shall make night (after dark) inspections at the initial set up of traffic control and every week thereafter to ensure the adequacy, legibility and reflectivity of each sign and device. A written summary of each inspection shall be given to the Engineer within 24 hours after completion of the inspection. The cost for the nighttime inspection work shall be incidental to the related contract items.

At the end of each days work, all traffic control devices shall be pulled off the roadway and taken down and traffic shall be opened to two lanes. Applicable signing shall remain in place, i.e. "Road Work Ahead" etc.

The Contractor shall be required to have a person available 24 hour/day, 7 days/week to maintain traffic control devices. The name and cellular telephone number of this individual shall be given to the Engineer at the preconstruction meeting.

Work activities shall only be during daylight hours. Daylight hours are considered to be ½ hour before sunrise until ½ hour after sunset.

SEQUENCE OF OPERATIONS:

1. Set up traffic control.
2. Remove topsoil at specified crossovers.
3. Remove surfacing and excavate specified crossovers.
4. Restore ditches to match adjacent and place topsoil.
5. Seed and mulch excavated area.
6. Place erosion control.
7. Remove topsoil from new crossover locations.
8. Construct and surface new crossovers.
9. Place topsoil on new crossovers.
10. Seed and mulch new crossover areas.
11. Place erosion control.
12. Remove traffic control.

GENERAL MAINTENANCE OF TRAFFIC

Traffic control shall be in accordance with MUTCD Standards, the Standard Specifications and the layouts contained in these plans.

The Contractor shall at all times, keep the portion of the project being used by public traffic in a condition that will adequately and safely accommodate traffic.

Storage of vehicles, materials, and equipment shall be not closer than 30' from the edge of the driving lane. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators, and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

STURGIS RALLY

No work will be allowed during the Sturgis Rally from August 6th, 2010 through August 15th, 2010.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000I-452	3	9

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 shall contact the project engineer to determine modifications that will be necessary to avoid utility impacts.

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 6 MGal. No separate payment will be made for the Water for Embankment and all costs associated shall be incidental to the contract unit price per cubic yard of "Contractor Furnished Borrow".

HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain State Historical Preservation Office (SHPO) clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. In lieu of a cultural resources survey, the Contractor could request a records search from Jim Donohue, State Archaeological Research Center (SARC). Provide SARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that no artifacts have been found on the site. The Contractor shall arrange and pay for the cultural resource survey and/or records search.

If any earth disturbing activities occur within the current geographical or historic boundaries of any South Dakota reservation, the Contractor shall obtain Tribal Historical Preservation Office (THPO) clearance. If no THPO exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.

To facilitate SHPO or THPO responses, the Contractor should submit a records search or cultural resources survey report to Tom Lehmkuhl, DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO/THPO approval. The Contractor is responsible for obtaining all required permits and clearances for staging areas, borrow sites, waste disposal sites, and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

WASTE DISPOSAL SITE

Construction/demolition debris may not be disposed of within the State ROW.

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

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

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

1. Construction/demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction/demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.
3. 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.
4. 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.
5. All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

MAINTENANCE CROSSOVERS

Maintenance crossovers shall be constructed as shown in the plans. The maintenance crossover subgrade shall be constructed to conform to the details on Standard Plate 120.04 except as noted below.

The maintenance crossover at MRM 66.588 shall be reshaped into a ditch block after the removal of the surfacing.

The maintenance crossover at MRM 88.0 shall be completely removed including the associated pipe and graded to match the adjacent ditch contours.

The areas where both maintenance crossovers have been removed shall be covered with topsoil, seeded, mulched, and provided with erosion control measures.

New crossovers shall be constructed at MRM 66.338 and MRM 87.481 as directed by the Engineer. The Contractor may use earthen material excavated from the in-place crossovers that are being removed to construct the new crossovers. It is anticipated that additional material in the form of Contractor Furnished Borrow will be required for the construction of the new crossovers.

The new crossovers will be surfaced with Base Course to a depth of 8 inches and Asphalt Concrete Composite to a depth of 4 inches.

The remainder of the disturbed areas will be covered with topsoil, seeded, mulched, and provided with erosion control measures.

Signs associated with the current crossovers shall be removed from the current crossovers and reset at the new crossovers. Cost associated with moving of the signs shall be incidental to the contract unit price per each for "Remove Sign for Reset" and "Reset Sign".

CONTRACTOR FURNISHED BORROW

The Contractor shall provide a suitable site for Contractor furnished borrow material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material shall be approved by the Engineer. The plans quantity for "Contractor Furnished Borrow" as shown in the Estimate of Quantities will be the basis of payment for this item.

Restoration of the Contractor furnished borrow site shall be the responsibility of the Contractor.

SURFACING THICKNESS DIMENSIONS

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

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

INCIDENTAL WORK

Included in this item are the following

1. Restoration of any areas damaged by the Contractor during construction.
2. Reshape maintenance crossover at MRM 66.588 into a ditch block.
3. Remove maintenance crossover at MRM 88.0.

ASPHALT CONCRETE COMPOSITE

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Standard Specifications for Class E, Type 1.

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

The asphalt binder used in the mixture shall be PG 64-22, PG 64-28 or PG 64-34 Asphalt Binder.

REMOVE AND REPLACE TOPSOIL

All cost associated with removing and replacing the topsoil on all grading areas shall be incidental to the lump sum price for "Remove and Replace Topsoil".

PERMANENT SEEDING

The areas to be seeded comprise of all newly graded areas within the project limits except for the top of roadways, temporary easements under cultivation, and areas designated to be sod.

All permanent seed shall be planted in the topsoil at a depth of ¼" to ½".

All seed broadcast must be raked or dragged in (incorporated) within the top ¼" to ½" of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

It is estimated that 10,000 SqFt of area will require seeding.

Seeding shall be incidental to the contract lump sum price for "Erosion Control".

It is the responsibility of the Contractor to verify the estimated area requiring seeding. No adjustment in quantity will be allowed unless additional work is ordered by the Engineer.

Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/1000 SqFt)
Western Wheatgrass	Flintlock, Rodan, Rosana	1.95
Green Needlegrass	Lodorm	1.10
Sideoats Grama	Butte, Killdeer, Pierre, Trailway	0.85
Blue Grama	Bad River, Willis	0.55
Canada Wildrye	Mandan	0.55
Total:		5.00

FIBER MULCHING

Fiber mulch shall be applied in a separate operation following seeding. Fiber mulch shall be premixed with a guar gum tackifier or synthetic tackifier. The products shown below include 3% guar gum or synthetic tackifier. An additional 2% of tackifier shall be added to the fiber mulch. If the product selected has guar gum tackifier included, then the additional 2% tackifier shall be guar gum. If the product selected has synthetic tackifier included, then the additional 2% tackifier shall be synthetic. The additional 2% of tackifier shall be applied at the rate of 40 pounds per acre. Fiber mulch shall be applied at the rate of 2000 pounds per acre.

The Contractor shall 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.

FIBER MULCHING (CONTINUED)

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials shall be incidental to the contract unit price per pound for "Fiber Mulching".

The fiber mulch used on this project shall be one from the list below:

Product	Manufacturer
Mat-Fiber Plus	Mat, Inc. Floodwood, MN Phone: 1-888-477-3028 www.soilguard.com
Conwed Hydro Mulch 2000	Profile Products LLC Buffalo Grove, IL Phone: 1-800-366-1180 www.conwedfibers.com
EcoFibre Plus Tackifier	Profile Products LLC Buffalo Grove, IL Phone: 1-800-366-1180 www.profile-eco.com
Terra-Mulch Wood with Tacking Agent 3	Profile Products LLC Buffalo Grove, IL Phone: 1-800-726-6371 www.terra-mulch.com
Excel Fiber Mulch II with Tackifier	American Excelsior Co. Arlington, TX Phone: 1-800-777-7645 www.curlex.com

TABLE OF FIBER MULCHING

MRM	Quantity (Pounds)
66.338	115
66.588	115
87.481	115
88.000	115
Total	460

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall 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 shall provide certification that the erosion control wattles do not contain noxious weed seeds.

The erosion control wattle provided shall be from the list shown below:

Product	Manufacturer
Curlex Sediment Log	American Excelsior Company Arlington, TX Phone: 1-800-777-7645 www.amerexcel.com
Amber Waves Straw Wattles	Limpert Environmental Litchfield, MN Phone: 1-320-693-2565 www.limpertenvironmental.com
Bio Logs	Flaxtech, LLC Rock Lake, ND Phone: 1-866-444-3529
Winters Wattles	Winters Excelsior Company Birmingham, AL Phone: 1-800-248-7237 www.wintersexcelsior.com
Patriot Wood Fiber Logs and Patriot Straw Wattles	Patriot Environmental Products, Inc. Mesa, AZ Phone: 1-480-345-7293 www.digitaldesigncore.com/patriot/WattleSpecs.pdf

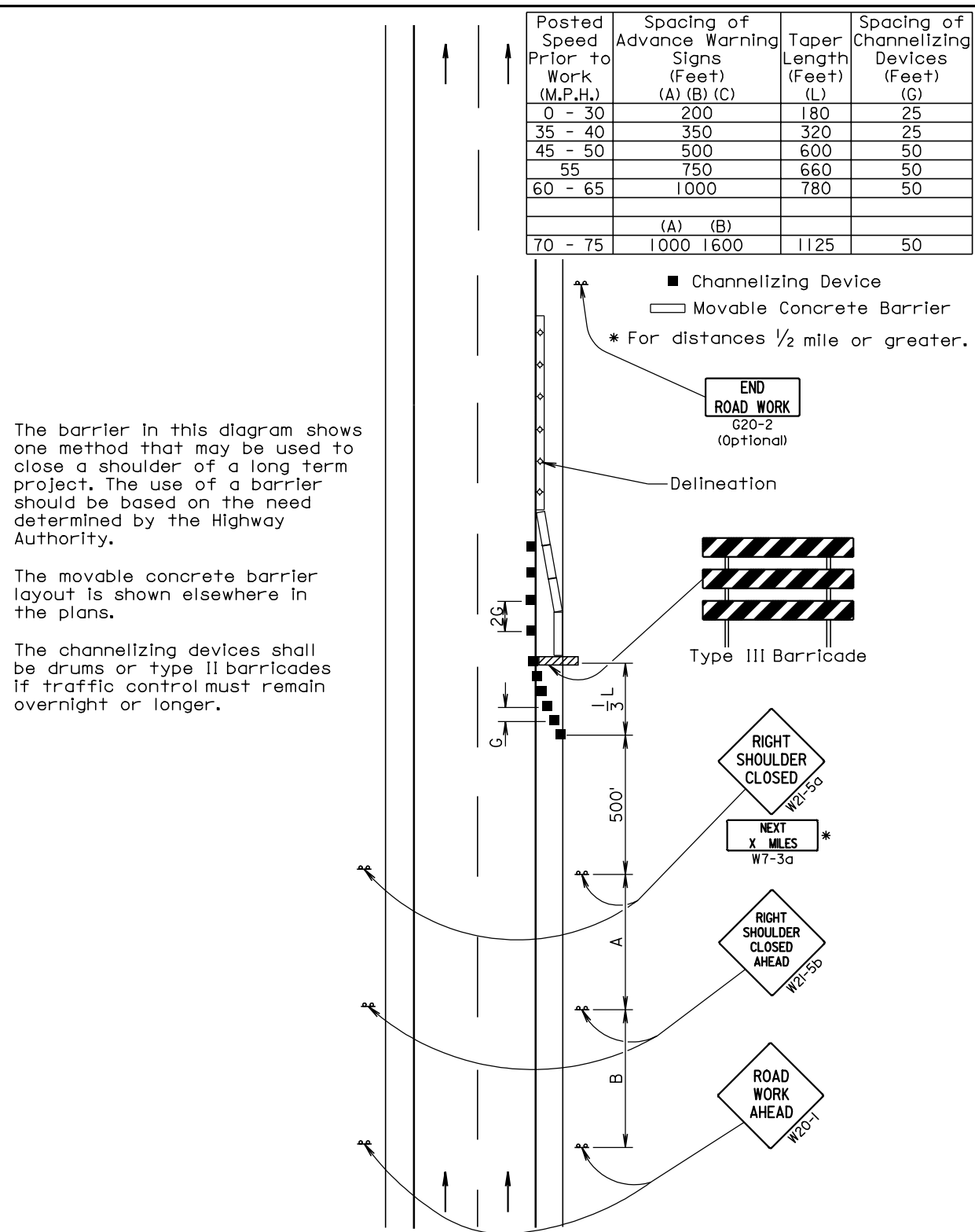
TABLE OF EROSION CONTROL WATTLE

MRM	Diameter (Inch)	Quantity (Ft)
66.338	12	60
66.588	12	60
87.481	12	60
88.000	12	60
		240

INVENTORY OF TRAFFIC CONTROL DEVICES

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	4	17	68
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	4	34	136
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	4	34	136
W21-5a	48" x 48"	SHOULDER CLOSED	4	34	136
W21-5b	48" x 48"	RIGHT SHOULDER CLOSED AHEAD	4	34	136
*****	*****	TYPE III BARRICADE - 8 FT. SINGLE SIDED	2	40	80
TOTAL UNITS				964	

Plotting Date: 26-APR-2010

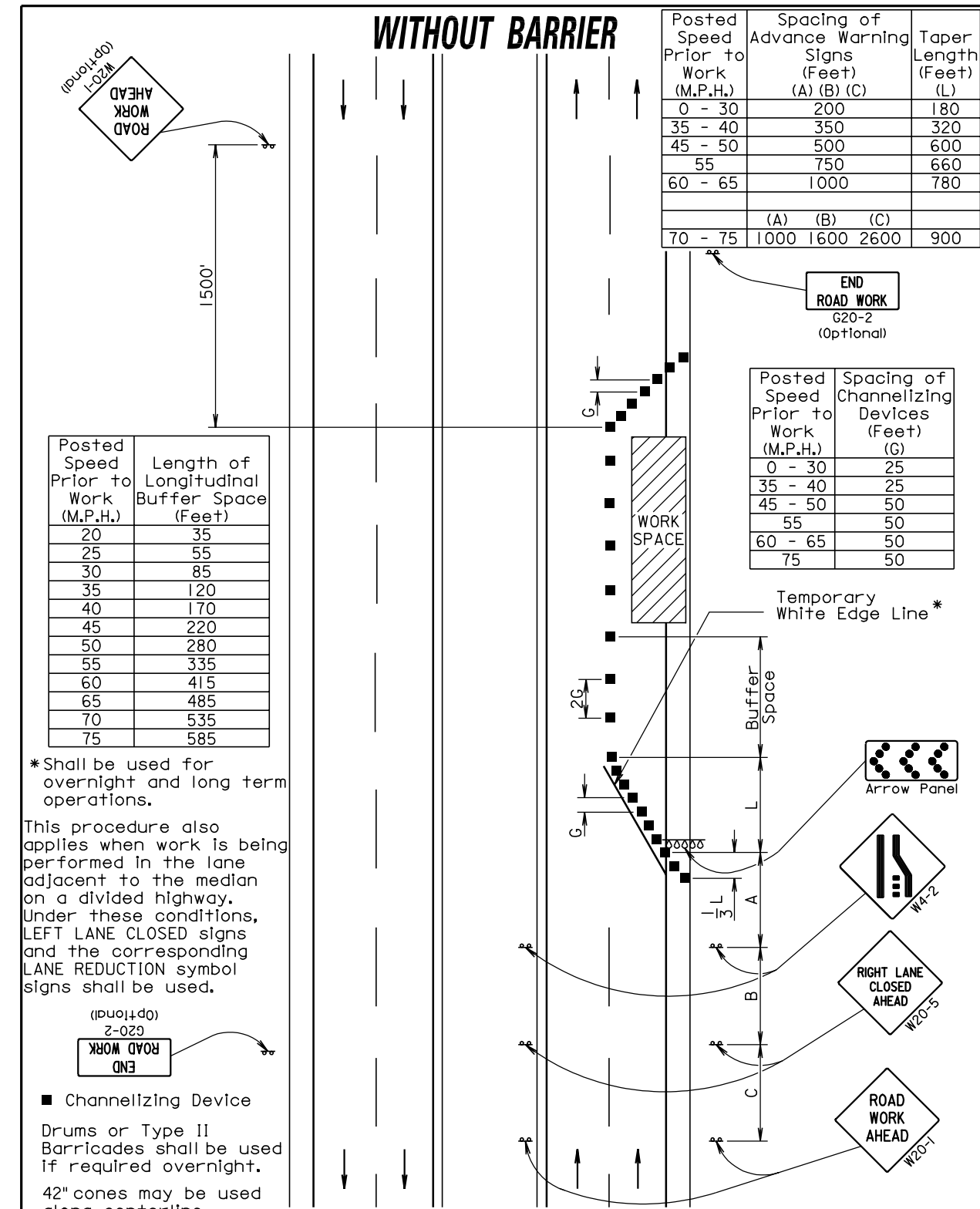


The barrier in this diagram shows one method that may be used to close a shoulder of a long term project. The use of a barrier should be based on the need determined by the Highway Authority.

The movable concrete barrier layout is shown elsewhere in the plans.

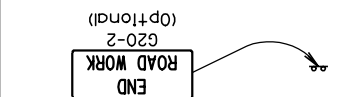
The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer.

December 23, 2008



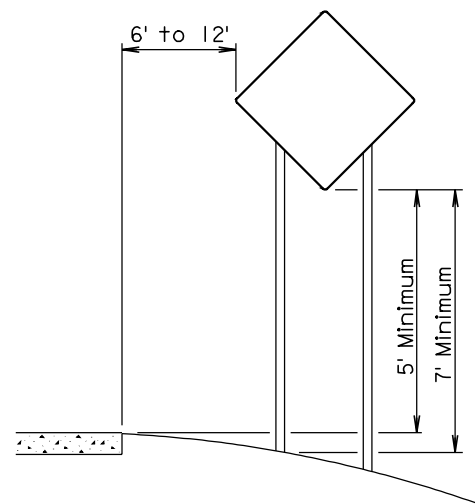
* Shall be used for overnight and long term operations.

This procedure also applies when work is being performed in the lane adjacent to the median on a divided highway. Under these conditions, LEFT LANE CLOSED signs and the corresponding LANE REDUCTION symbol signs shall be used.

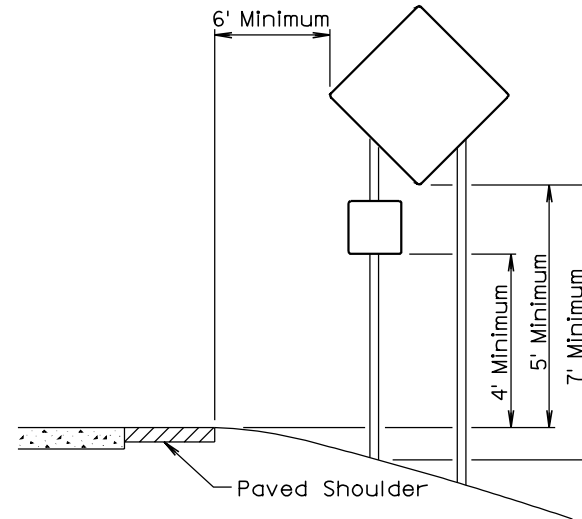


Drums or Type II Barricades shall be used if required overnight.
42" cones may be used along centerline

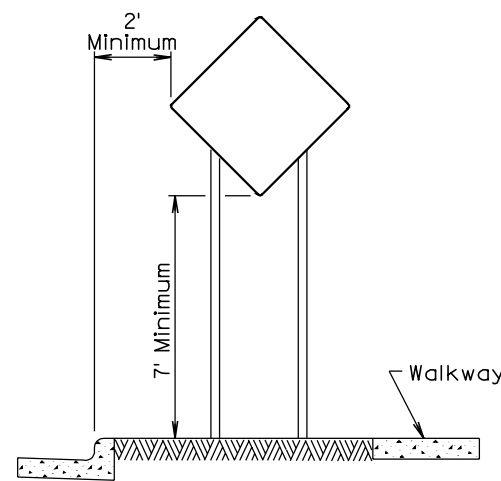
April 1, 2008



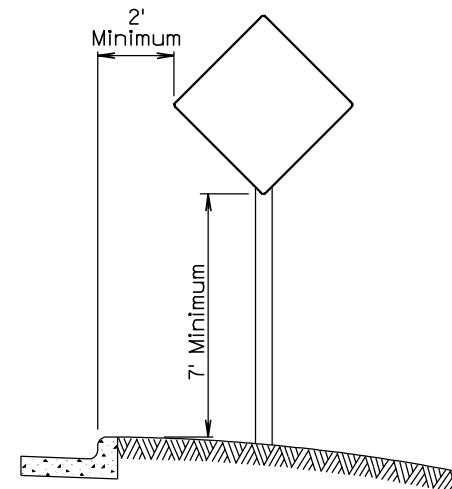
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT



URBAN DISTRICT

December 23, 2003

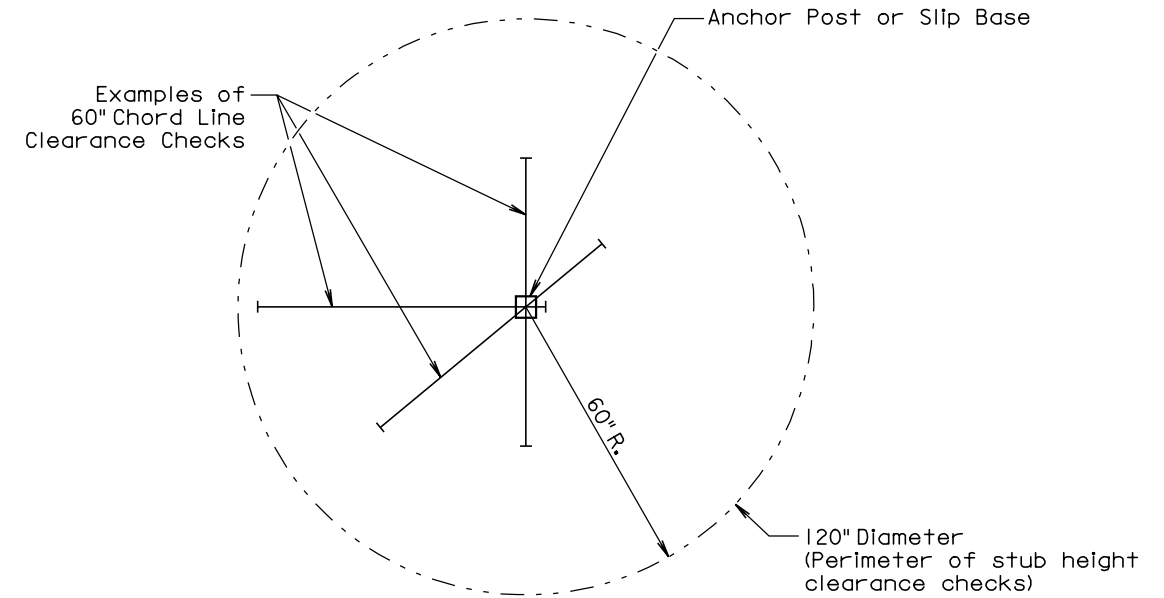
Published Date: 1st Qtr. 2010

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BREAKAWAY SIGN SUPPORTS
(Typical Construction Signing)

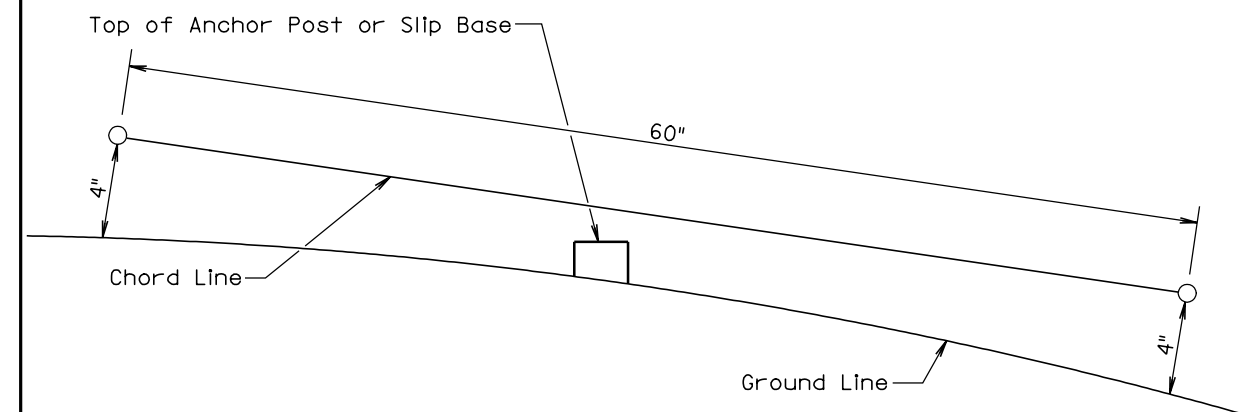
PLATE NUMBER
634.85

Sheet 1 of 1



PLAN VIEW

(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

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

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

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 1st Qtr. 2010

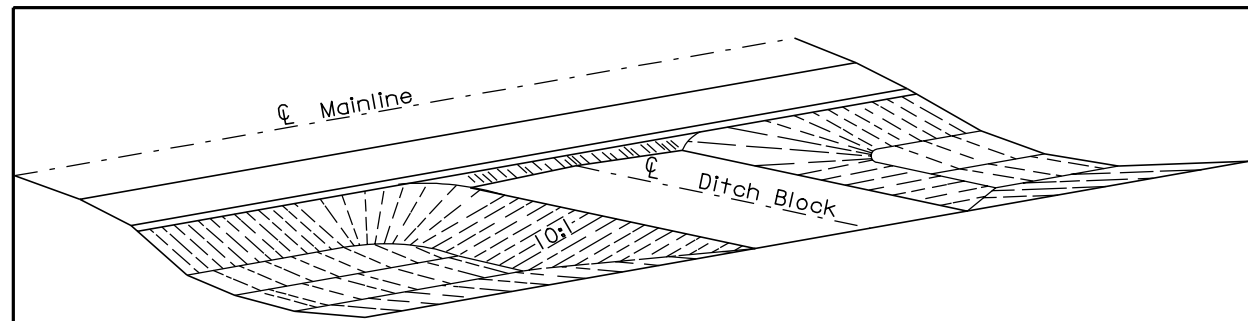
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BREAKAWAY SUPPORT STUB CLEARANCE

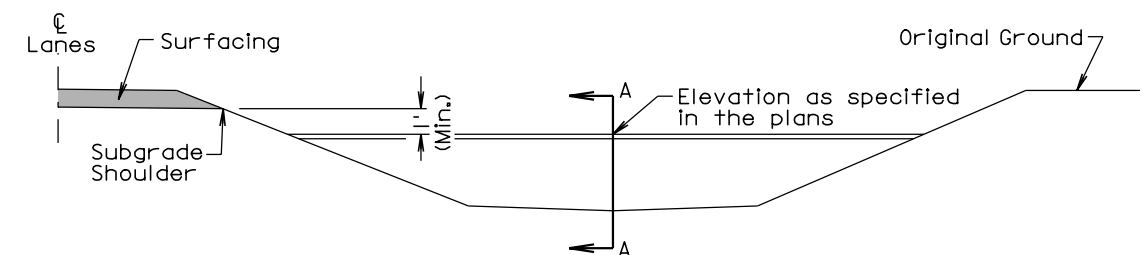
PLATE NUMBER
634.99

Sheet 1 of 1

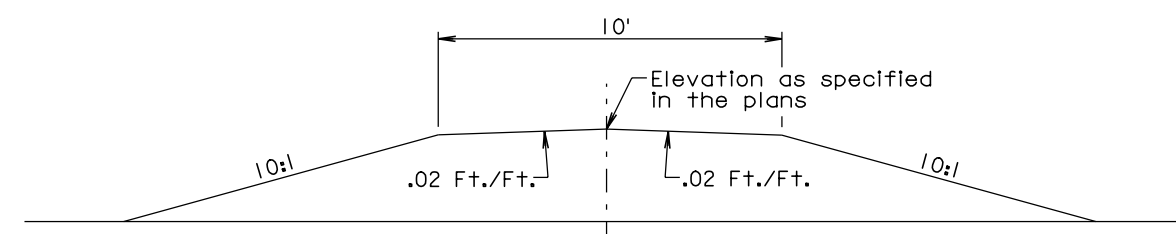
Plotting Date: 26-APR-2010



PERSPECTIVE OF DITCH BLOCK



ELEVATION VIEW



SECTION A-A

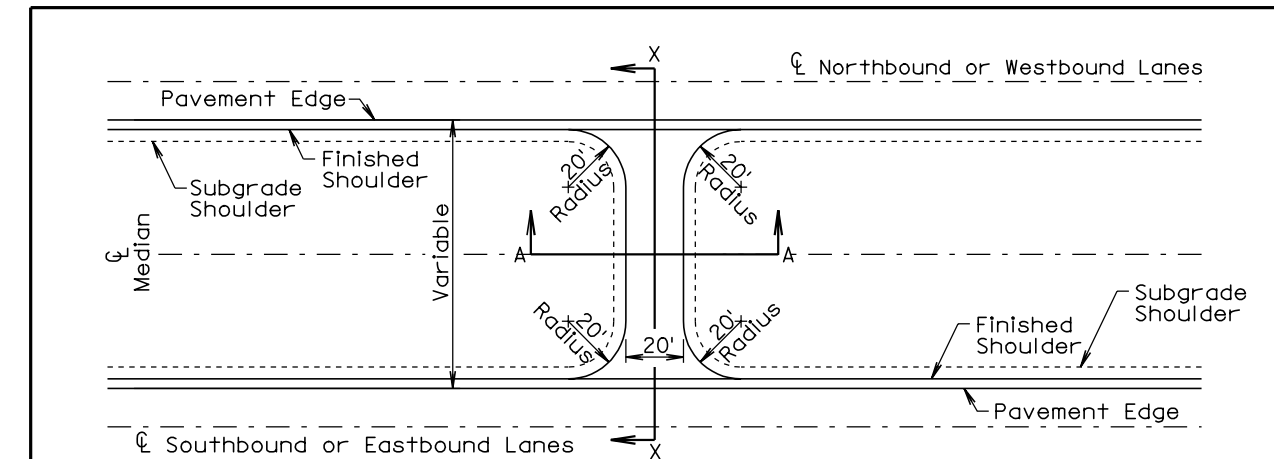
GENERAL NOTES:

The ditch section shown above in the perspective and elevation view is only for illustrative purposes.
 The inslopes of the ditch block shall be 10:1 slopes unless otherwise specified in the plans.
 The transition area between the mainline inslope and the ditch block inslope shall be rounded to eliminate an abrupt transition.

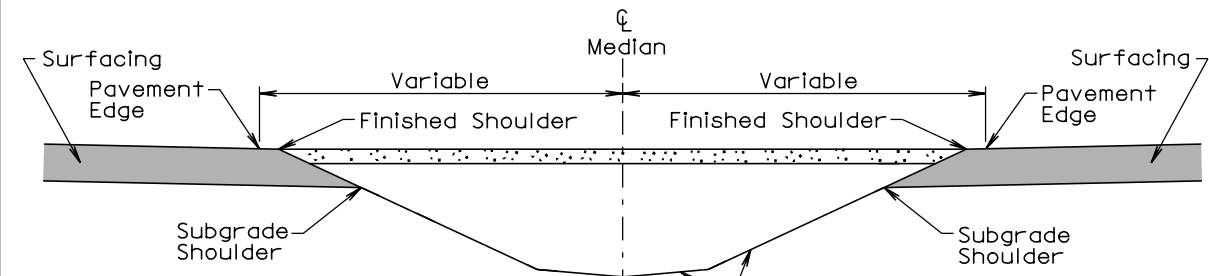
March 28, 2001

S D D O T	DITCH BLOCK	PLATE NUMBER 120.02
		Sheet 1 of 1

Published Date: 1st Qtr. 2010

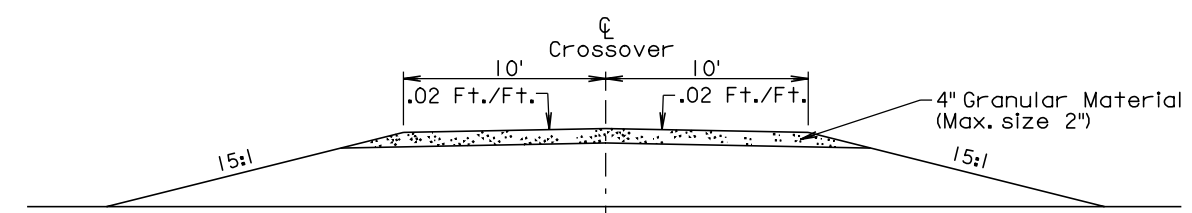


PLAN VIEW



SECTION X-X

The ditch section shown is only for illustrative purposes



SECTION A-A

GENERAL NOTE:

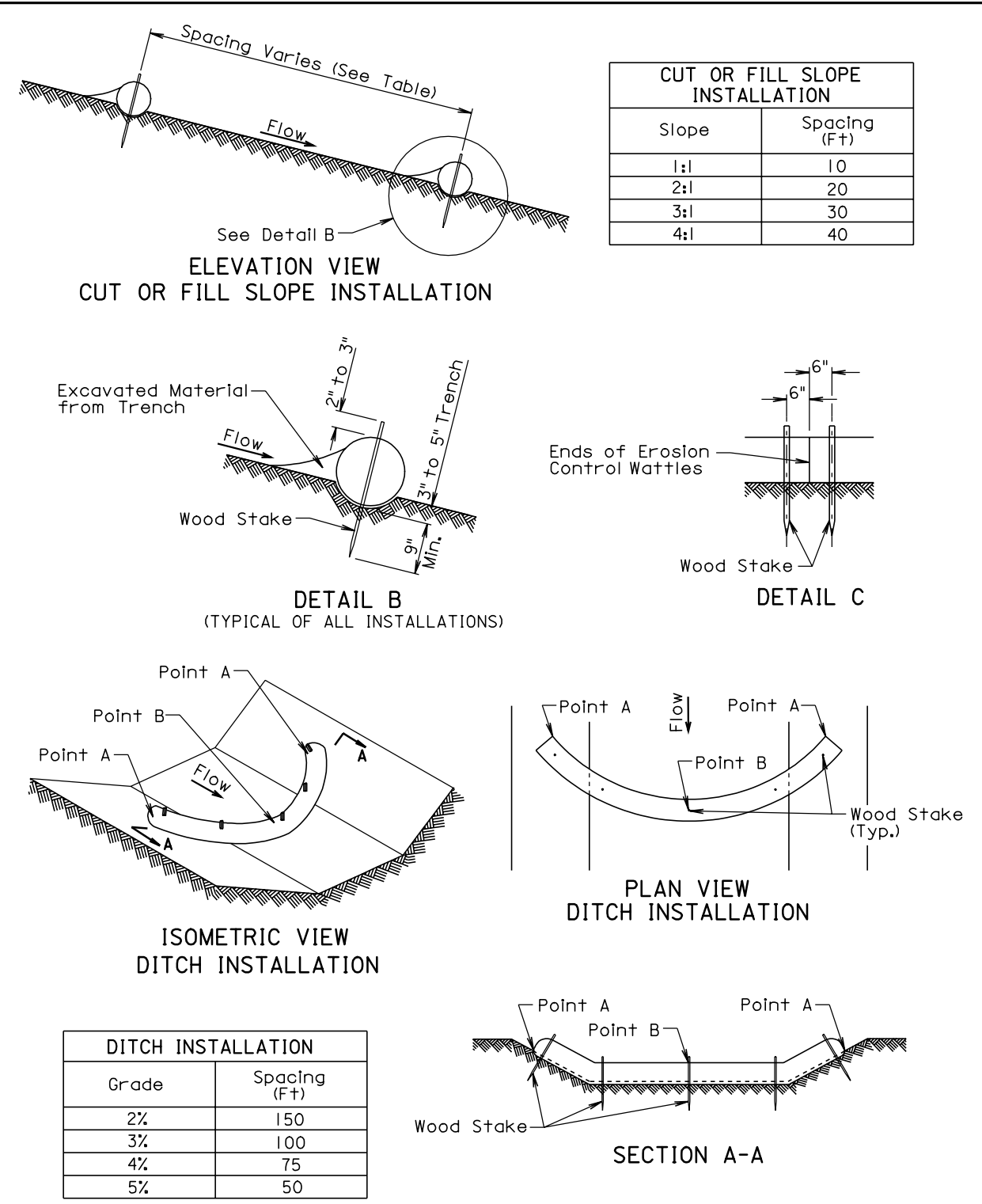
The quantities of materials necessary for construction of the maintenance crossovers are as provided in the plans and shall be paid for at their respective contract unit prices for the various materials used.

March 28, 2001

S D D O T	STANDARD MAINTENANCE CROSSOVER FOR INTERSTATE HIGHWAYS	PLATE NUMBER 120.04
		Sheet 1 of 1

Published Date: 1st Qtr. 2010

User name - trrc12608



December 23, 2004

S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
		Sheet 1 of 2

Published Date: 1st Qtr. 2010

GENERAL NOTES:

At cut or fill slope installations, wattles shall 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 shall 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 shall 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 shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

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

The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than 1/2". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall 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 shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

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

December 23, 2004

S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
		Sheet 2 of 2

Published Date: 1st Qtr. 2010

User name - trrc12608