

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT 065-372
SD HIGHWAY 65
CORSON COUNTY

PIPE CULVERT REPAIR
PCN i29j

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	065-372	1	12

INDEX OF SHEETS

SHEET 1 Title Sheet
SHEET 2-3 Estimate of Quantities and Notes
SHEET 4 Layout For Repairs To 72" CMP
SHEET 5 Typical section
SHEET 6-12 Standard Plates



MRM 203.95

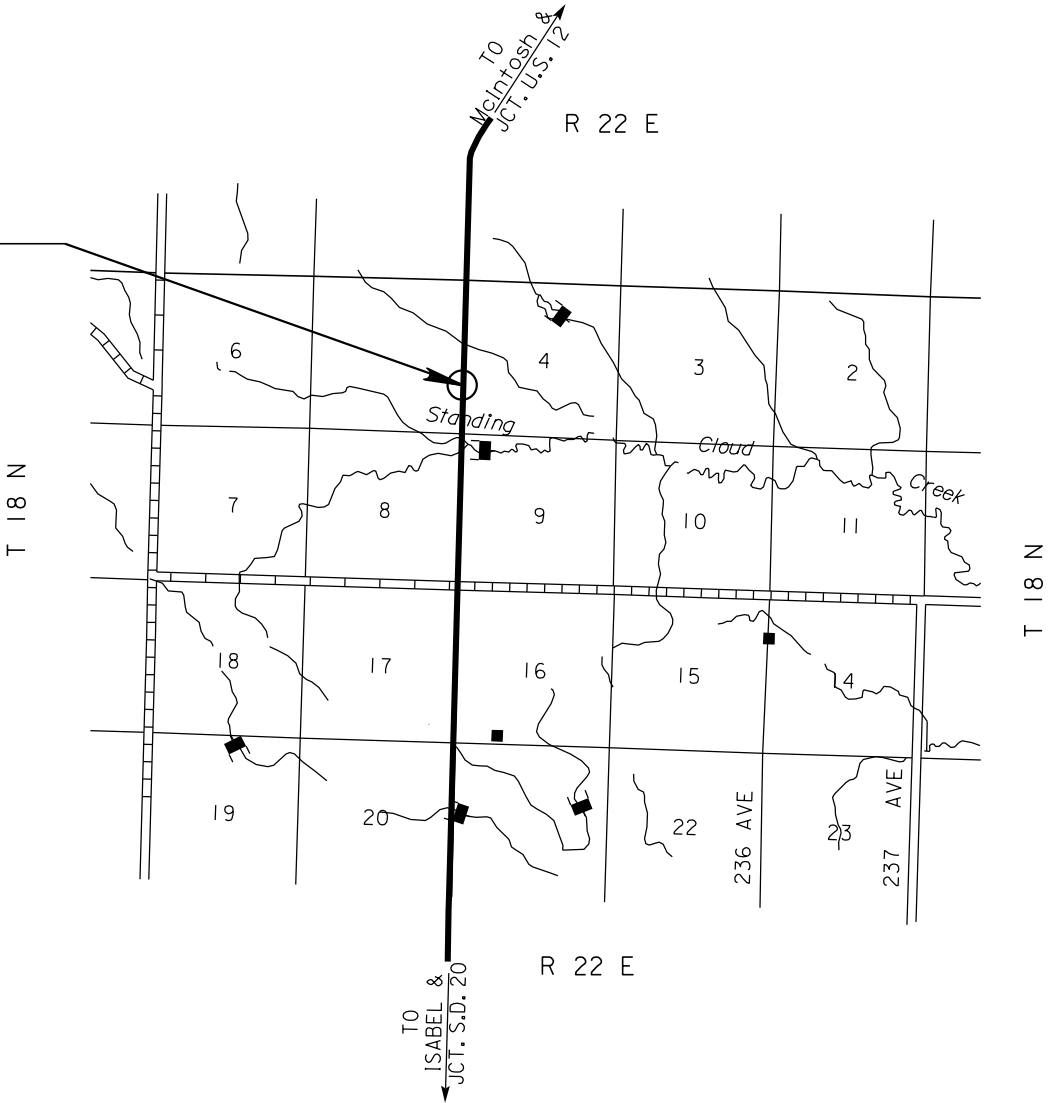
Twin 72" CMP 45° skew LHF
Station 90+60 on S7092(4)
Approximately 1660 feet
North of the SE corner of
Section 5 - T 18N- R 22E

DESIGN DESIGNATION

ADT (2011)	202
ADT (2031)	233
DHV	31.7
D	50%
T DHV	15.9
T ADT	35.0
V	65 mph

STORM WATER PERMIT

None required



ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0500	Remove Pipe Culvert	42	Ft
110E7802	Remove Fence for Reset	150	Ft
120E0600	Contractor Furnished Borrow	500	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
450E4847	72" CMP 10 Gauge, Furnish	50	Ft
450E4850	72" CMP, Install	50	Ft
450E5247	72" CMP Flared End, Furnish	2	Each
450E5248	72" CMP Flared End, Install	2	Each
620E0510	Type 1 Temporary Fence	200	Ft
620E1020	2 Post Panel	4	Each
620E4100	Reset Fence	150	Ft
634E0010	Flagging	20	Hour
634E0100	Traffic Control	306	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
730E0204	Type C Permanent Seed Mixture	7	Lb
732E0100	Mulching	0.8	Ton
734E0102	Type 2 Erosion Control Blanket	180	SqYd
734E0510	Shaping for Erosion Control Blanket	64	Ft
734E0604	High Flow Silt Fence	100	Ft

SPECIFICATIONS

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

SCOPE OF WORK

The site work consists of removing the damaged ends of the existing twin 72” CMP as shown on the Plan layout sheet and installing new 72” CMP extensions and 72” CMP Flared Ends on the west side on the highway as shown in the plan.

The eroded inslope shall be filled in with Contractor Furnished Borrow and shall be shaped to conform to the flared ends as directed by the Engineer. Payment for shaping the inslope shall be incidental to the contract unit price per cubic yard for “Contractor Furnished Borrow”. All disturbed areas will be seeded and mulched.

Dewatering may be necessary to complete the work. If dewatering is necessary, it shall be incidental to other contract items.

GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. 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.

GENERAL MAINTENANCE OF TRAFFIC (Cont.)

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.

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

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 Engineer to determine modifications that will be necessary to avoid utility impacts.

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 the DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3268). 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

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

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

WASTE DISPOSAL SITE (Cont.)

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:

- 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”.
- 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.

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) shall be incidental to the various contract items.

PIPE NOTES

The Contractor is responsible for verifying the size of each pipe prior to ordering any pipe.

Pipe culverts that are removed shall become the property of the Contractor. Pipe culverts shall be disposed of as per the waste disposal site notes and shall not be in view from the project upon completion of the project.

When it is necessary to remove damaged CMP it may be cut with a torch. If the pipe is cut with a torch, it shall be painted with a galvanizing paint approved by the Engineer.

INCIDENTAL WORK, GRADING

This bid item is included for the excavation to expose the pipe for removal of the damaged corrugated metal pipe. An estimated 2,220 cubic yards of excavation is estimated for exposing the pipe and benching the existing slopes.

REMOVE FENCE FOR RESET AND RESET FENCE

These bid items are included to remove and reset the existing ROW fence as necessary to complete the construction.

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.

The density requirement for the Contractor Furnished Borrow shall be to the satisfaction of the Engineer.

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

EROSION CONTROL

All disturbed areas within the right-of-way shall be seeded and mulched. The estimated area at this location is 0.4 acre.

PERMANENT SEEDING

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.

Type C Permanent Seed Mixture shall consist of the following:

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

MULCHING (GRASS HAY OR STRAW)

Bales with noxious weed contamination will be rejected and the Contractor will be required to remove the contaminated bales from the project.

EROSION CONTROL BLANKET

Erosion control blanket shall be installed 16 feet wide at the locations noted in the table and at locations determined by the Engineer during construction.

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

<http://apps.sd.gov/Applications/HC54ApprovedProducts/main.asp>

The Contractor shall install erosion control blanket according to the manufacturer's installation instructions.

SHAPING FOR EROSION CONTROL BLANKET

The ditches shall be shaped for the erosion control blanket as specified on Standard Plate 734.01.

All costs for shaping the ditches for erosion control blanket including labor and equipment shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

TABLE OF EROSION CONTROL BLANKET

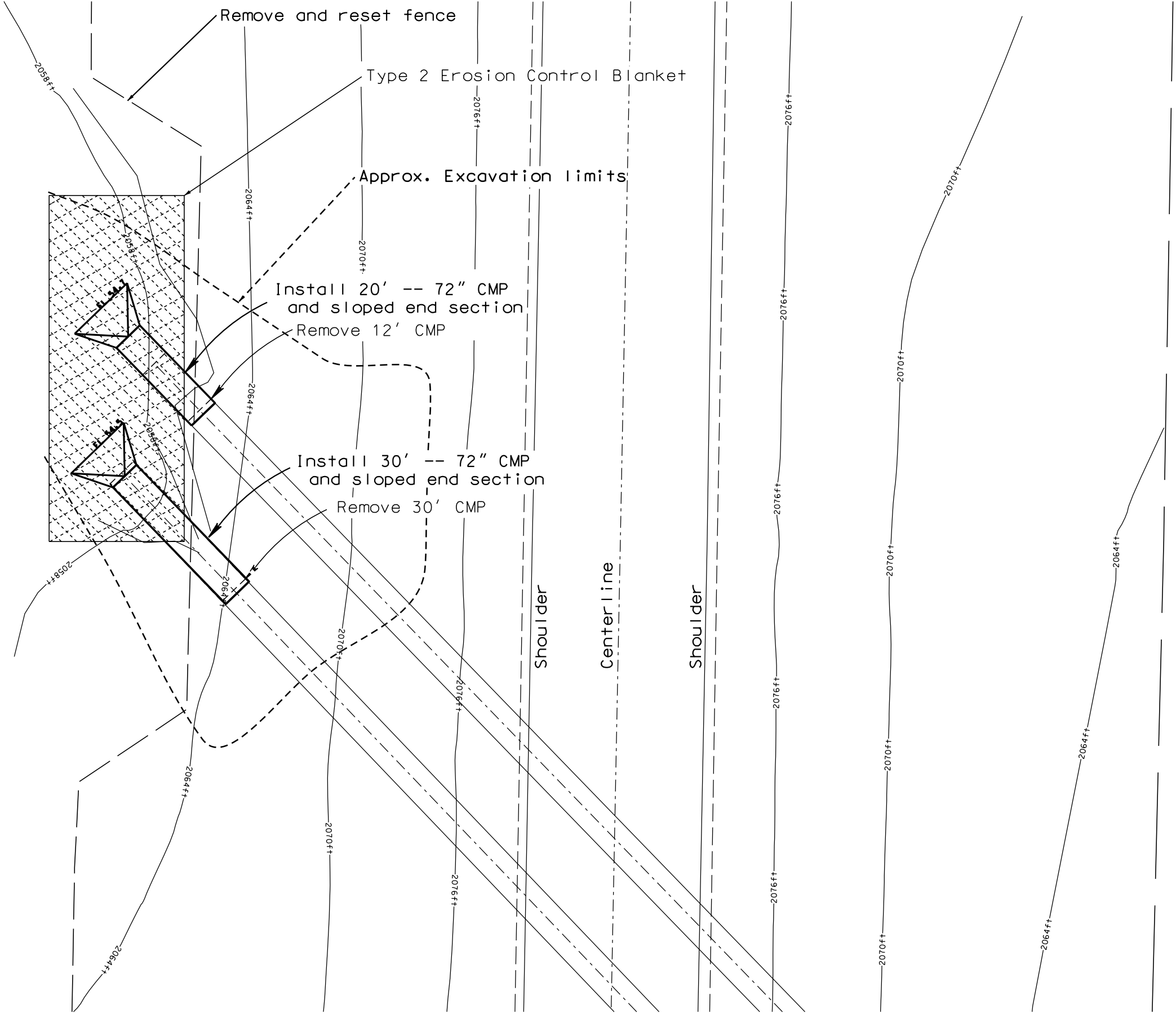
Station to	Station	L/R	Location	Type	Quantity (SqYd)
		L	Inslope around pipe inlets	2	180

TRAFFIC CONTROL

SIGN CODE	SIGN SIZE			DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36"	x	18"	END ROAD WORK	2	17	34
W20-1	48"	x	48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-4	48"	x	48"	ONE LANE ROAD ##### FT. OR AHEAD	2	34	68
W20-7a	48"	x	48"	FLAGGER	2	34	68
W21-5	48"	x	48"	SHOULDER WORK	2	34	68
TOTAL UNITS					306		

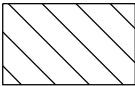
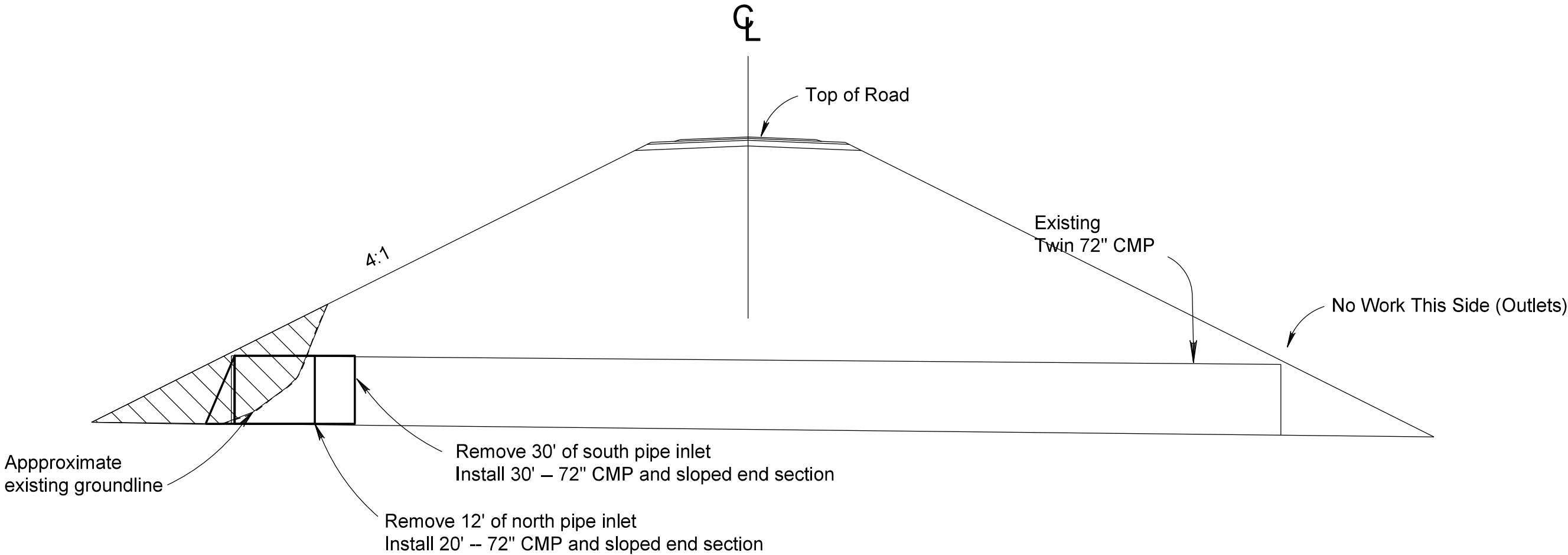
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	065-372	4	12

LAYOUT FOR REPAIRS TO 72" CMP

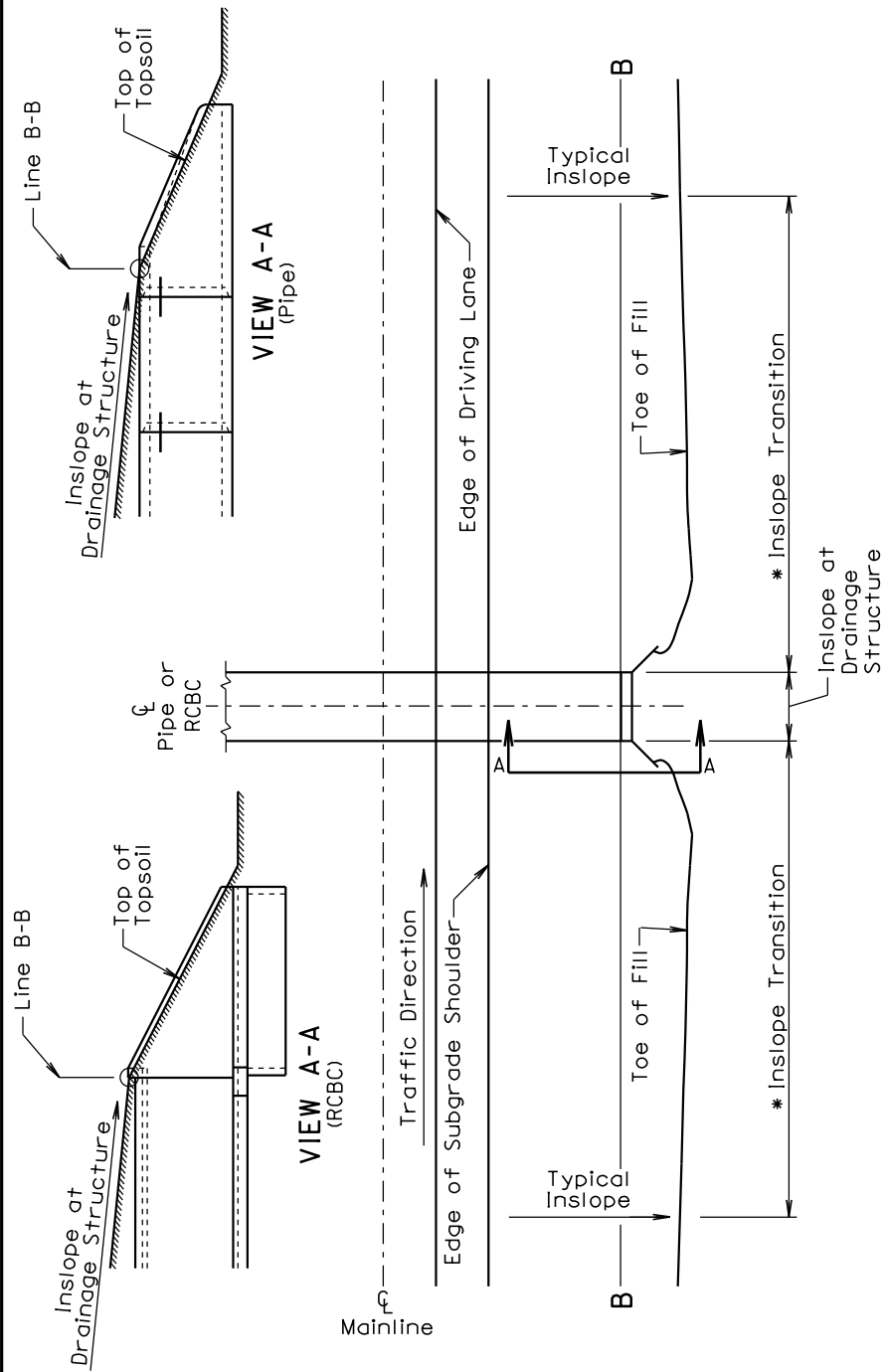


LAYOUT FOR REPAIRS TO 72" CMP
TYPICAL SECTION

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	065-372	5	12



Contractor Furnished Borrow



TYPE 1 INSLOPE TRANSITION

GENERAL NOTES:

This Type 1 Inslope Transition is used when the specified inslope at the drainage structure is flatter than the typical inslope and the inslope at the drainage structure is between a 4:1 slope and 6:1 slope. Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from the typical inslope to the inslope at the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned gradually to the slope necessary adjacent to the RCBC wing wall or pipe culvert end section within the transition length necessary for the transition within the clear zone.

February 14, 2011

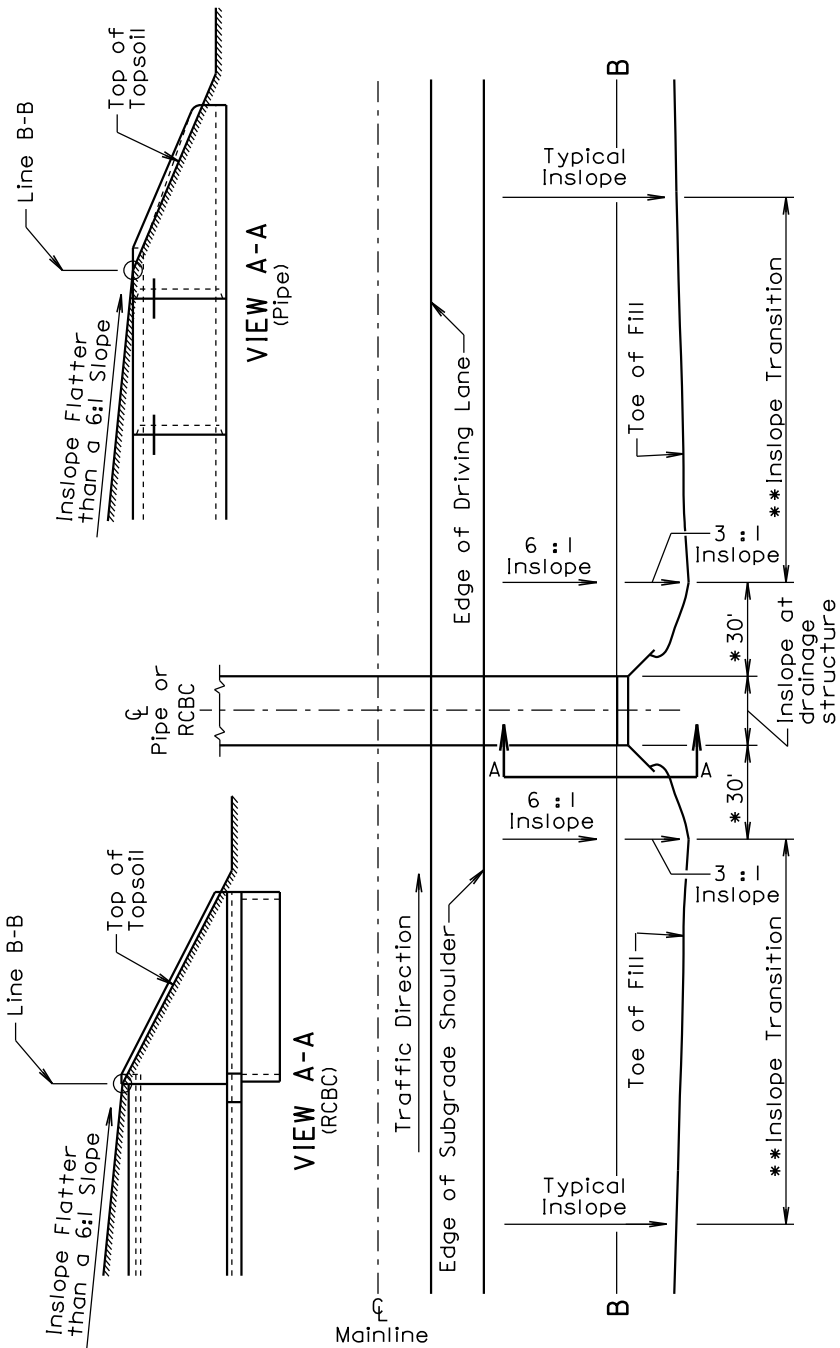
Published Date: 2nd Qtr. 2012

SDOT

INSLOPE TRANSITIONS AT PIPE CULVERTS
OR REINFORCED CONCRETE BOX CULVERTS

PLATE NUMBER
120.05

Sheet 1 of 2



TYPE 2 INSLOPE TRANSITION

GENERAL NOTES:

This Type 2 Inslope Transition is used when the specified inslope at the pipe or RCBC is flatter than a 6:1 slope.

Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from inslope at drainage structure to a 6:1 inslope and 3:1 inslope.

** Transition from typical inslope to the inslopes adjacent to the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned to a 3:1 inslope within the transition length necessary for the transition within the clear zone.

February 14, 2011

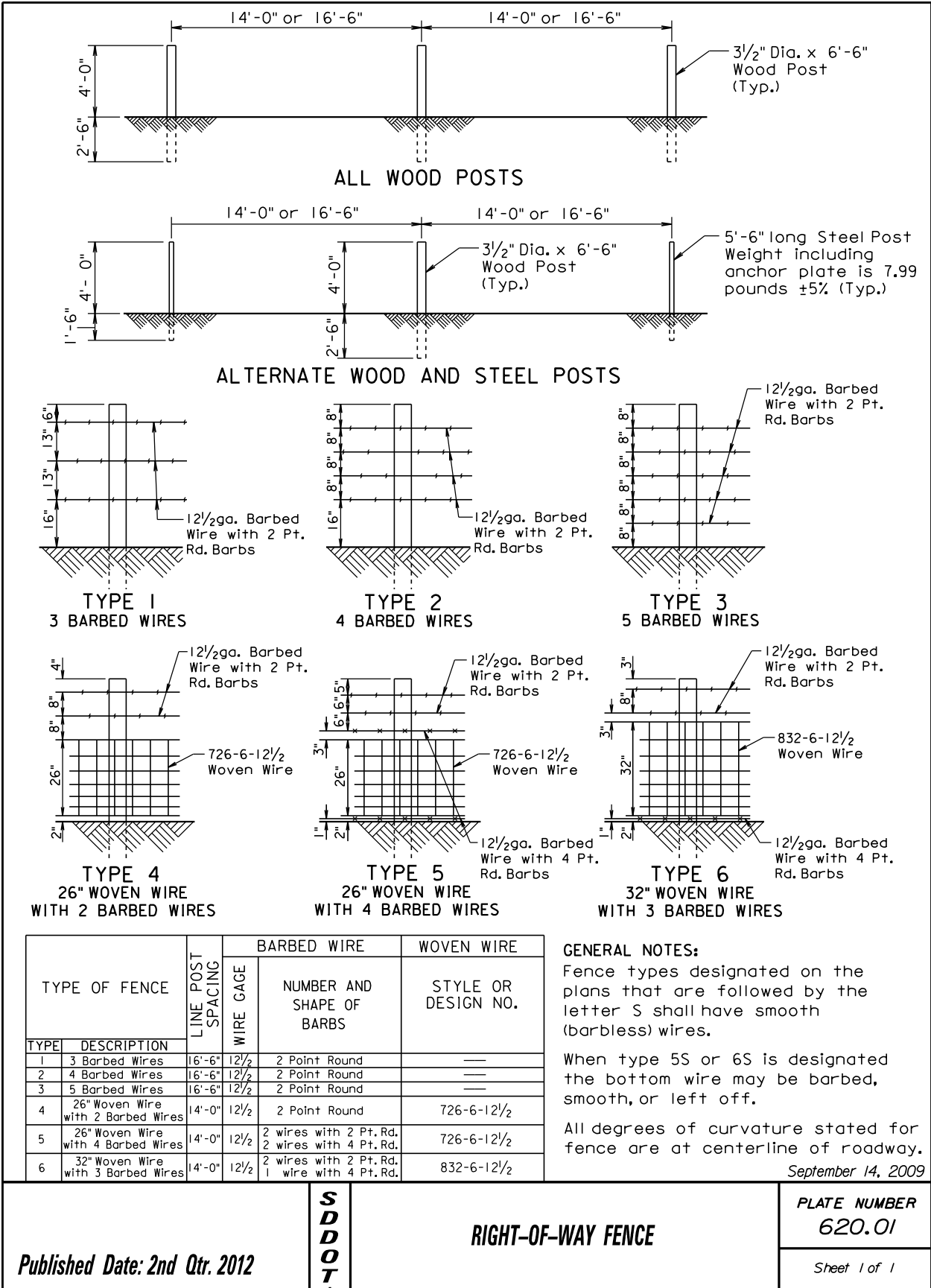
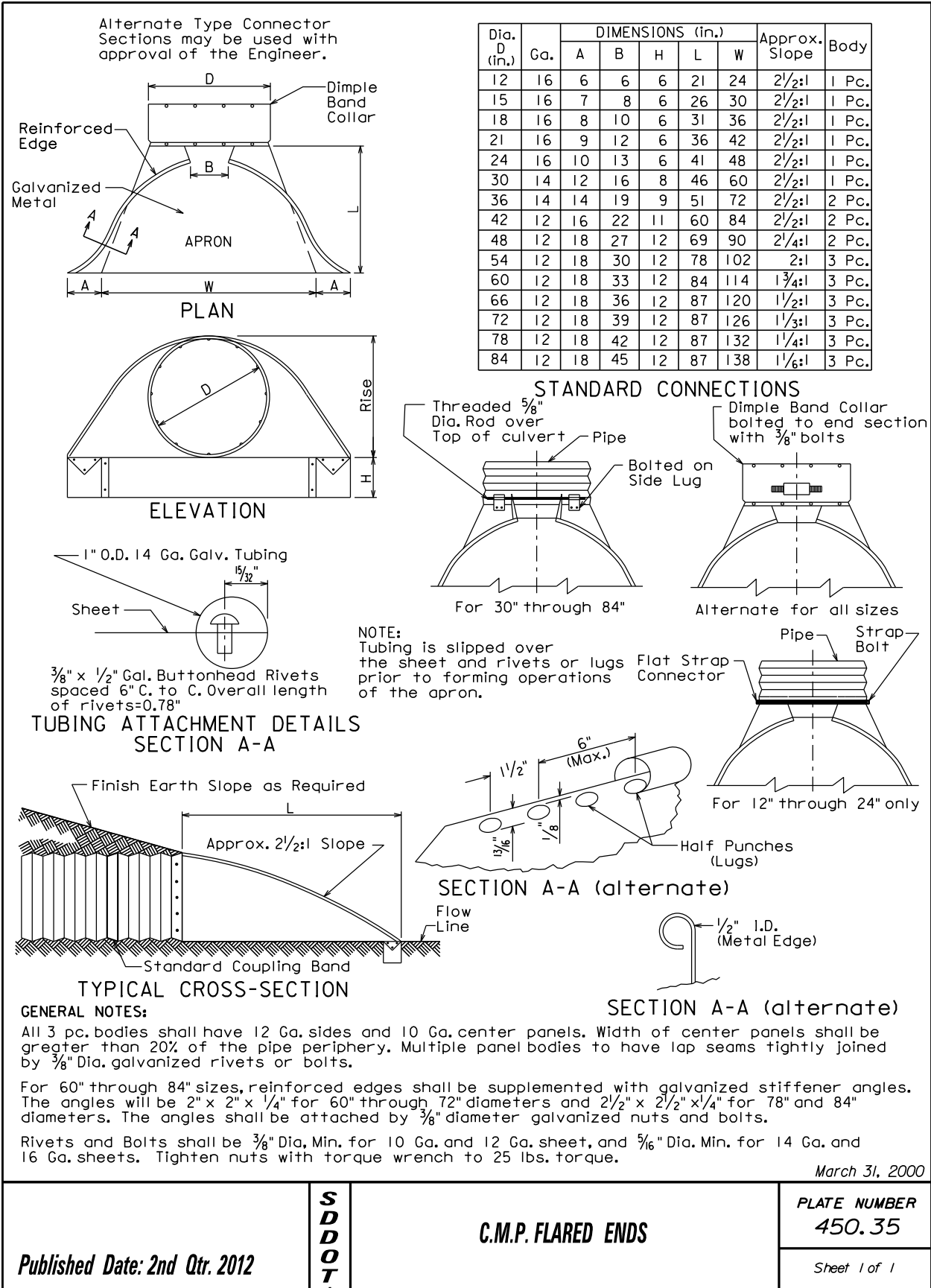
Published Date: 2nd Qtr. 2012

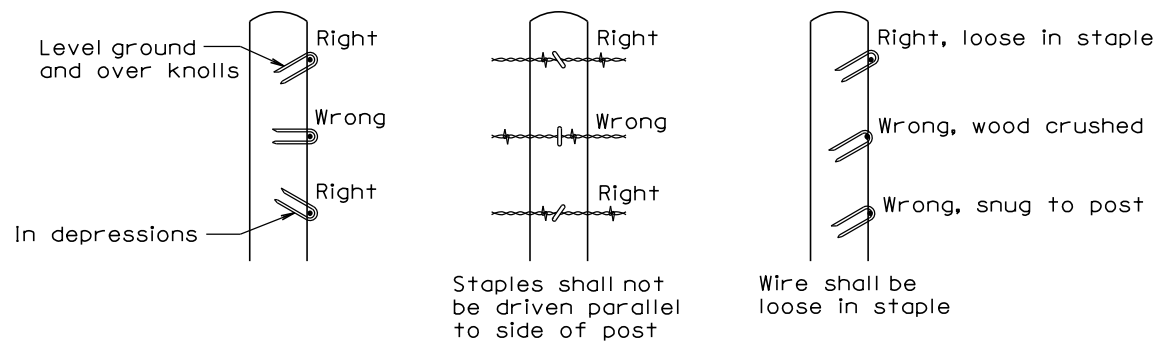
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INSLOPE TRANSITIONS AT PIPE CULVERTS
OR REINFORCED CONCRETE BOX CULVERTS

PLATE NUMBER
120.05

Sheet 2 of 2





STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence shall consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire shall be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts shall be used for brace panels. Gates shall be of the type designated in the plans or as otherwise directed by the Engineer. Fence shall be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects shall be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Right-of-Way fence other than on Interstate Projects shall be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs shall be fabricated from zinc coated 14 ga. wire. Two point barbs shall be wrapped twice around one main strand at 4" spacings and the four point barbs shall be interlocked and wrapped around both main strands at 5" spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts shall be as stated in AASHTO M281. Woven wire shall conform to design and specifications of ASTM A116 and barbed wire shall conform to ASTM A121.

December 23, 2004

Published Date: 2nd Qtr. 2012

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STAPLE INSTALLATION AND GENERAL
RIGHT-OF-WAY FENCE NOTES

PLATE NUMBER
620.02

Sheet 1 of 1

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

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

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

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

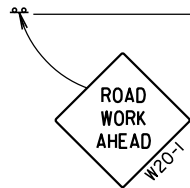
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



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



A



July 1, 2005

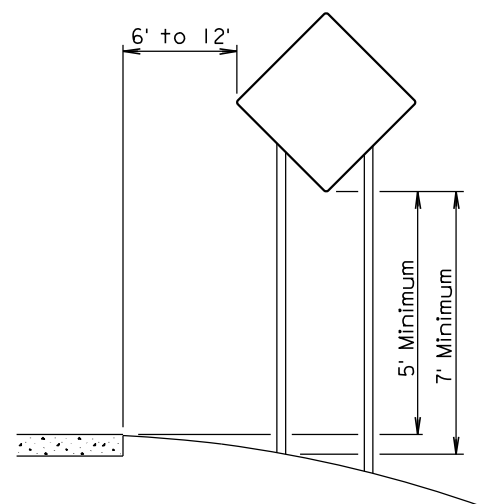
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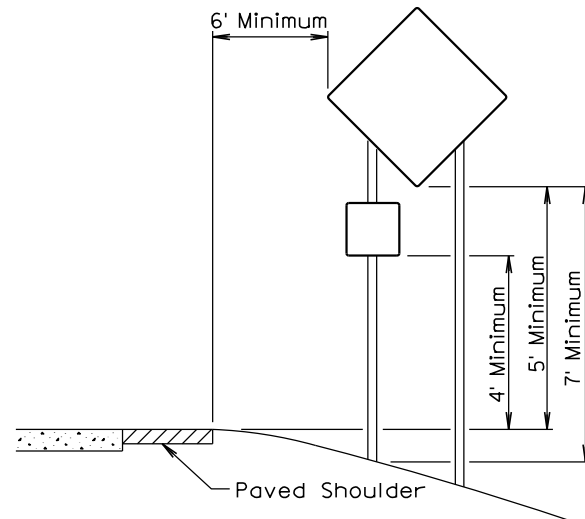
GUIDES FOR TRAFFIC CONTROL DEVICES
WORK BEYOND THE SHOULDER

PLATE NUMBER
634.01

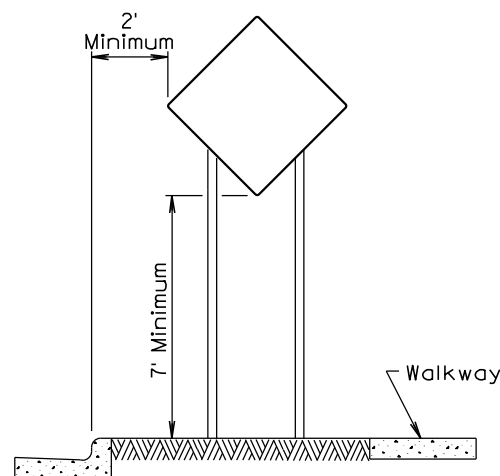
Sheet 1 of 1



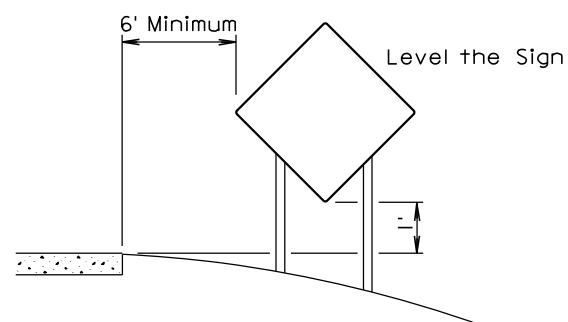
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



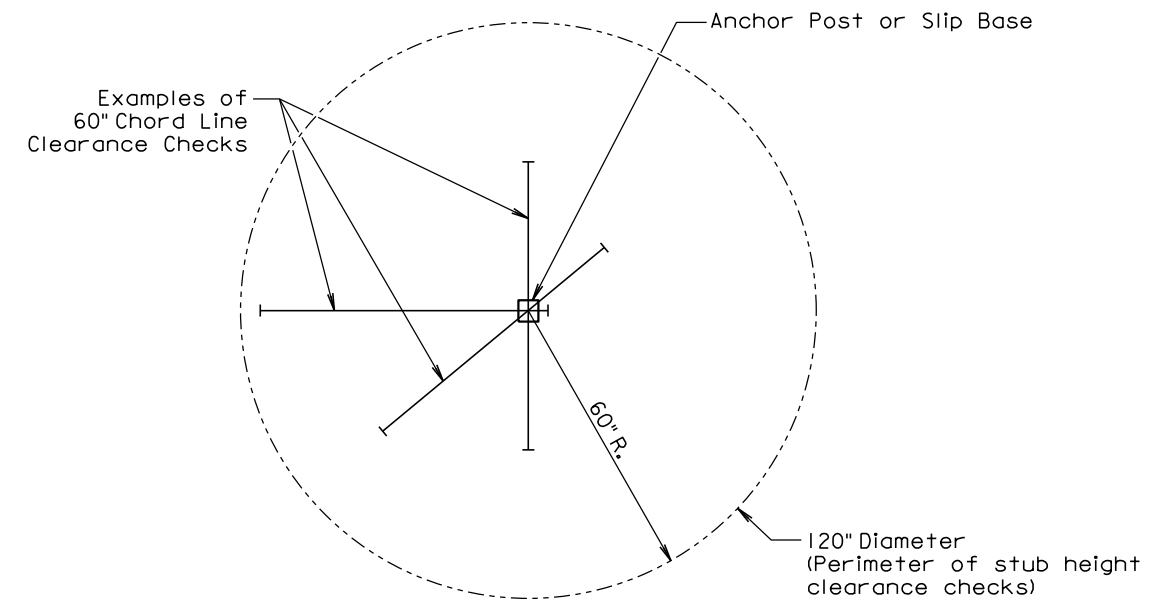
URBAN DISTRICT



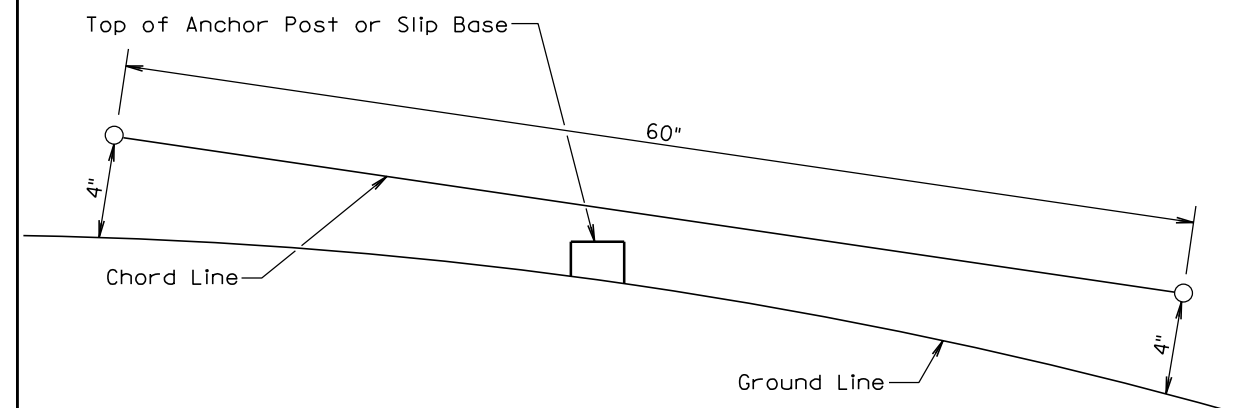
RURAL DISTRICT
3 DAY MAXIMUM

February 14, 2011

Published Date: 2nd Qtr. 2012	S D D O T	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 SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

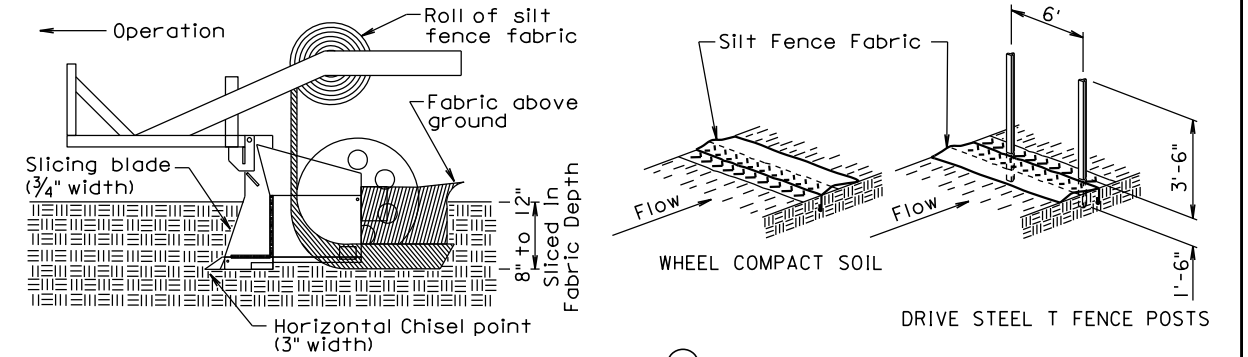
At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

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

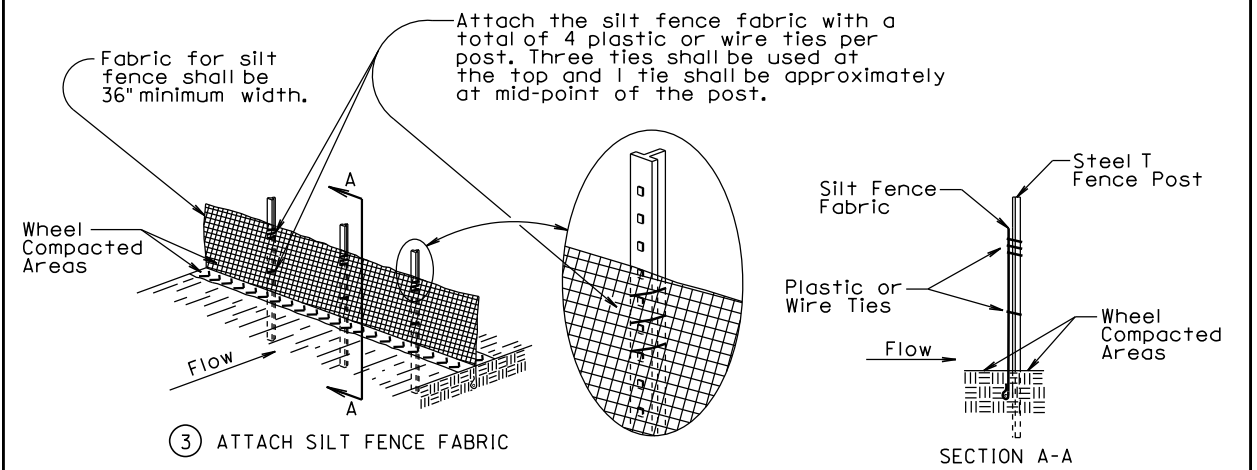
July 1, 2005

Published Date: 2nd Qtr. 2012	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

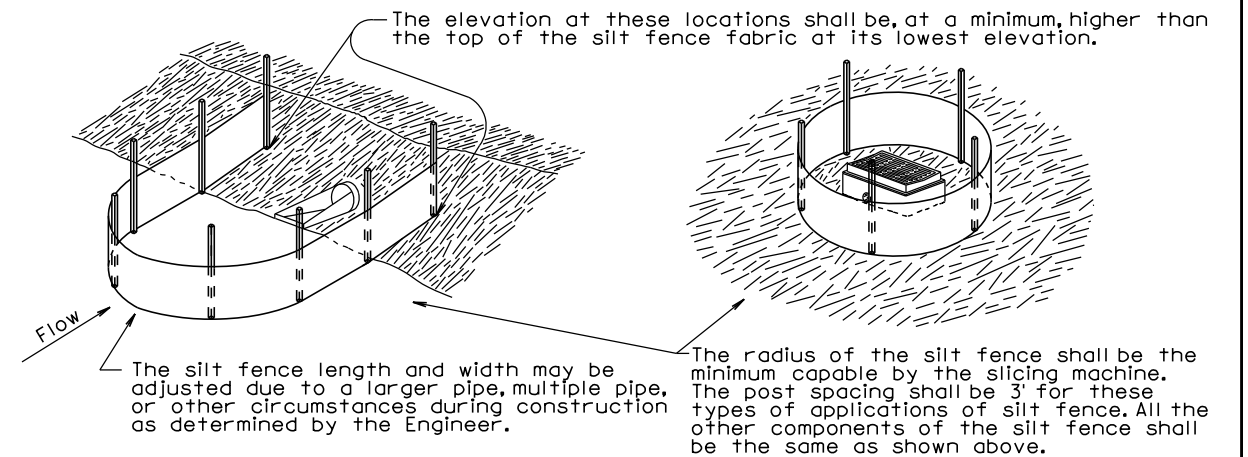
MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



- ① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.
- ② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.



- ③ ATTACH SILT FENCE FABRIC



GENERAL NOTE:

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

December 23, 2003

Published Date: 2nd Qtr. 2012

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HIGH FLOW SILT FENCE

**PLATE NUMBER
734.05**

Sheet 2 of 2