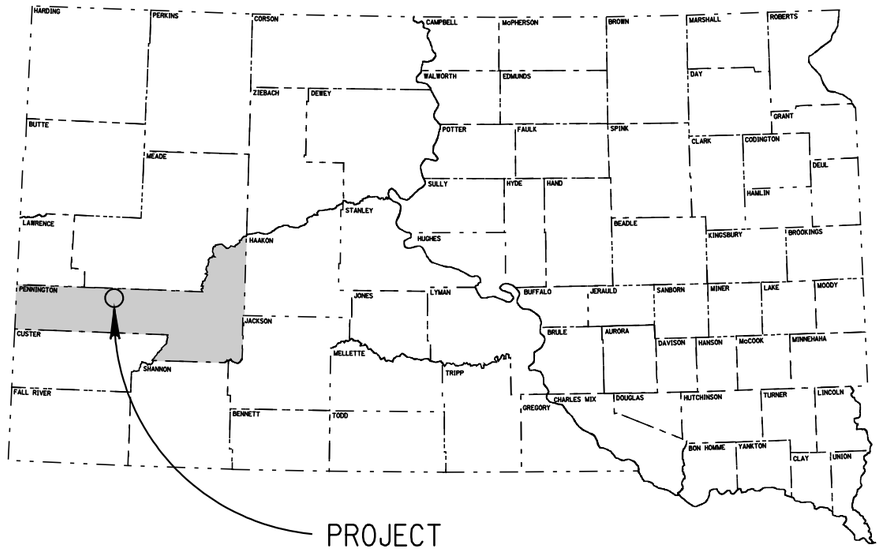

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT 410D322
R.C. MAINTENANCE YARD
PENNINGTON COUNTY

SOUTH OF RAPID CITY ALONG SD 79, MRM 73.41
ASPHALT SURFACING AND DRAINAGE IMPROVEMENTS
PCN 12DV

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	410D322	01	27

Plotting Date: 28-NOV-2011

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2-5 Estimate of Quantities and Plan Notes
6-7 Plan and Profile Sheets
8-9 Signing and Delineator Details
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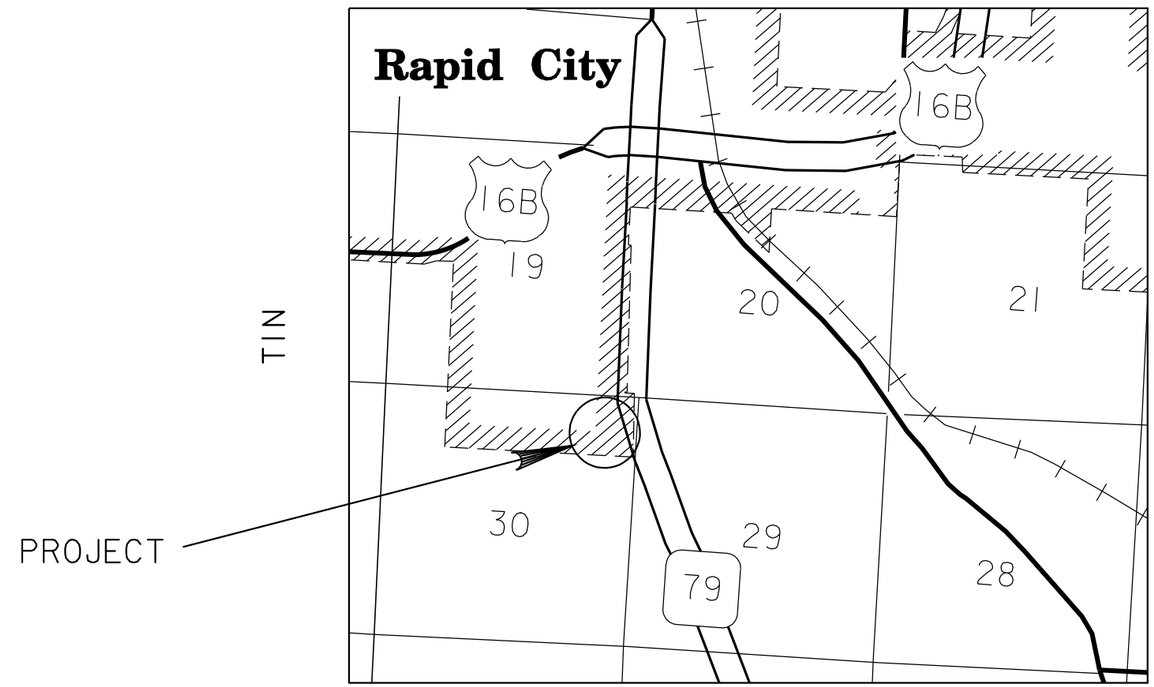
R8E



ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0510	Remove Pipe End Section	2	Each
110E0605	Remove Chain Link Fence	40	Ft
110E1010	Remove Asphalt Concrete Pavement	758.0	SqYd
110E5010	Salvage Delineator	6	Each
110E7152	Remove Delineator for Reset	2	Each
110E7800	Remove Chain Link Fence for Reset	20	Ft
120E0010	Unclassified Excavation	1,762	CuYd
120E0100	Unclassified Excavation, Digouts	150	CuYd
120E6200	Water for Granular Material	20.0	MGal
210E1005	Surface Preparation	0.100	Mile
230E0020	Placing Contractor Furnished Topsoil	190	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
260E1010	Base Course	300.0	Ton
320E1200	Asphalt Concrete Composite	1,377.0	Ton
332E0010	Cold Milling Asphalt Concrete	1,748	SqYd
450E0142	24" RCP Class 2, Furnish	52	Ft
450E0150	24" RCP, Install	52	Ft
450E2200	24" RCP Sloped End, Furnish	1	Each
450E2201	24" RCP Sloped End, Install	1	Each
450E4809	48" CMP 16 Gauge, Furnish	34	Ft
450E4810	48" CMP, Install	34	Ft
450E5433	48" CMP Safety End with Bars, Furnish	2	Each
450E5435	48" CMP Safety End, Install	2	Each
462E0100	Class M6 Concrete	1.5	CuYd
480E0100	Reinforcing Steel	167	Lb
621E0430	Double Vehicular Swing Gate	1	Each
621E0520	Reset Chain Link Fence	20	Ft
632E2100	Reset Delineator	2	Each
632E3520	Remove, Salvage, Relocate, and Reset Traffic Sign	1	Each
670E2200	Type C Frame and Grate	1	Each
700E0310	Class C Riprap	260.0	Ton
720E1015	Bank and Channel Protection Gabion	4.5	CuYd
730E0210	Type F Permanent Seed Mixture	13	Lb
731E0100	Fertilizing	50	Lb
732E0250	Fiber Mulching	1,000	Lb
734E0154	12" Diameter Erosion Control Wattle	260	Ft
734E0604	High Flow Silt Fence	80	Ft
831E0110	Type B Drainage Fabric	420	SqYd

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:

1. Excavation for detention pond
2. Installation of Type C area drain, pipe for detention pond outlet and extension of approach pipe..
3. Cold Milling of existing asphalt.
4. Granular material bladed and compacted to the elevations provide on the cross sections.
5. Asphalt surfacing placed to the elevations provided on the cross sections.
6. Place contractor furnished topsoil and permanent seeding on the detention pond and approach slopes.

TRAFFIC CONTROL

Work activities during non-daylight hours are subject to prior approval. Daylight hours are considered to be ½ hour before sunrise until ½ hour after sunset.

All necessary traffic control shall be provided by DOT maintenance crews. A 48 hour advanced notice of work is required.

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.

UTILITIES

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

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.

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.

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.

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.

WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the DOT Environmental Office.

The DOT Environmental Office contact person is Ryan Huber, 605-773-3568. The WATER SOURCE plan note does not relieve the Contractor of his/her responsibility to obtain the necessary permits from other agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE).

UNCLASSIFIED EXCAVATION DIGOUTS

Provided in the Estimate of Quantities is 150 cubic yards of Unclassified Excavation-Digouts for the necessary removal of unstable base material. The Unclassified Excavation Digouts depth shall be 1 foot or as directed by the Engineer. Backfill shall be 12” of Base Course placed in 3” lifts.

All costs associated with removal and disposal of existing base material shall be incidental to the contract unit price per cubic yard “Unclassified Excavation Digouts”.

UNCLASSIFIED EXCAVATION (Detention Pond)

Included in the Estimate of Quantities is 1,762 cubic yards of Unclassified Excavation for the construction of the detention pond. This excavated material shall be used to widen the approach and provide backfill for the pipe extension work. Excess material shall be hauled away and disposed of in accordance with the Waste Disposal note provided in these plans. Plans quantity shall be the basis of payment and no additional field measurement will be required.

CONTROL DATA

The coordinates shown in these plans are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/96), Scale Factor 0.99977561, NAVD/88. The survey was completed using Rapid City base, benchmark S 431, N 628601.3135, E 1216769.7055, Elev. 3310.5282, PID, PU2141.

HORIZONTAL ALIGNMENT DATA (Valley Gutter)

TYPE	Station	Northing (Y)	Easting (X)
POB	0+00.00	629056.2008	1216265.6202
	TL= 108.6067	S 73°32'02" E	
PC	1+08.61	629025.4166	1216369.7727
PI	1+47.37	629014.4298	1216406.9443
	R= 200’ L	Delta= 21°56'12" L	
PT	1+85.18	629018.1252	1216445.5291
	TL= 181.0280	N 84°31'46" E	
POE	3+66.21	629035.3835	1216625.7325

HORIZONTAL ALIGNMENT DATA (Detention Pond)

TYPE	Station	Northing (Y)	Easting (X)
POB	0+00.00	628907.359	1216676.678
	TL=167.28	N 5°28'56" W	
POE	1+67.28	629073.871	1216660.696

CORRUGATED METAL PIPE

Corrugated metal pipes shall have 2 ⅔-inch X ½-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes shall have 3-inch X 1-inch or 5-inch X 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

PIPE CONNECTIONS

When it is not possible to use a normal pipe joint (male-female ends), connections to existing pipe shall be made by placing a 2’ wide by 6" thick M6 concrete collar around the outside of the connection. The concrete collar shall be reinforced with 6x6 W2.9 x W2.9 wire mesh.

All costs for constructing the concrete collars including materials and labor shall be incidental to the contract unit price per foot for the corresponding pipe bid item.

TABLE OF PIPE

Location Description	24" RCP Class 2	24" RCP Sloped End	48" CMP 16 Ga	48" CMP Safety End with Bars
	(Ft)	(Each)	(Ft)	(Each)
0+75, Detention Pond	52	1		
Approach			34	2
Totals	**52**	**1**	**34**	**2**

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

Location Description	Remove Asphalt Concrete Pavement
	(SqYd)
Detention Pond	718
Along entrance, north side, for placement of topsoil	40
TOTAL	**758**

SURFACING THICKNESS DIMENSIONS

Plan tonnage will be applied even though the thickness may vary from that shown in the plans. At those locations where material must be placed to achieve a required elevation, plans tonnages may be varied to achieve the required elevation.

ASPHALT CONCRETE COMPOSITE

The estimated square footage of Asphalt Concrete Composite as per these plans is 55,774 square feet.

Asphalt Concrete Composite shall be furnished by the Contractor.

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Standard Specifications for Class E, Type 1. The Asphalt Concrete Composite shall be placed in 2 – 2” lifts for a total thickness of 4”.

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

The asphalt binder used in the mixture shall be PG 58-28, PG 64-22, PG 64-28 or 64-34 Asphalt Binder.

Asphalt for Prime MC-70 shall be applied to the existing granular material prior to placement of the first lift at the rate of 0.30 gallons per square yard.

Blotting Sand for Prime shall be applied at the rate of 10 pounds per square yard.

SS-1h or CSS-1h Emulsified Asphalt for Tack shall be applied to the first lift at the rate of 0.05 gallons per square yard.

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal shall be applied to the second lift at the rate of 0.05 gallons per square yard.

Location and quantity shown in the plans are approximate. Exact locations are to be set by the Engineer. The Engineer reserves the right to adjust quantities and/or add location dependent on the condition of the yard at the time of the work.

SAWING IN EXISTING SURFACING

Where new asphalt is placed adjacent to existing asphalt concrete or where asphalt pavement will be removed, the existing asphalt concrete shall be sawed full depth to a true line with a vertical face. No separate payment shall be made for sawing.

COLD MILLING ASPHALT CONCRETE

This work consists of cold milling the existing asphalt concrete surface 4" deep and hauling to the locations where it is needed in accordance with the cross sections.

SURFACE PREPARATION

Provided in the Estimate of Quantities is the bid item "Surface Preparation" for shaping the existing granular material prior to placement of the asphalt surfacing material. All areas to be surfaced with Asphalt Concrete Composite will require "Surface Preparation". The Contractor shall cut, fill and shape the existing granular material to the elevations provided on the cross sections. Plans quantity shall be the basis of payment and no field measurement will be required.

CHAIN LINK FENCE GATE

The Contractor shall remove the existing chain link fence gate and hinge posts for the entrance to the maintenance yard. All costs associated with the removal of the existing gate and chain link fence for the installation of a new gate shall be incidental to the contract unit price per foot "Remove Chain Link Fence". A new 40' wide x 6' tall, double vehicular swing gate shall be installed. All costs associated with the installation of a new gate shall be incidental to the contract unit price per each "Double Vehicular Swing Gate".

REMOVE CHAIN LINK FENCE FOR RESET

Provided in the estimate of quantities are the bid items "Remove Chain Link Fence for Rest" and "Reset Chain Link Fence" for the installation of the new outlet pipe for the detention pond. All costs associated with this work shall be incidental to these contract bid items.

PLACING CONTRACTOR FURNISHED TOPSOIL

The Contractor will be required to furnish and place 4 inches of topsoil on the detention pond, approach and at areas determined by the Engineer during construction.

All costs to furnish and place the topsoil shall be incidental to the contract unit price per cubic yard for "Placing Contractor Furnished Topsoil".

REMOVE AND REPLACE TOPSOIL

Topsoil shall be salvaged and stockpiled prior to constructing the approach widening, pipe extension and culvert installation. Limits of this work, depth of salvage, and stockpile location will be directed by the Engineer. Following completion of construction, topsoil shall be spread evenly over the disturbed areas.

All costs associated with removing and replacing the topsoil shall be incidental to the lump sum price for "Remove and Replace Topsoil".

DRILLS

In addition to the drills specified in Section 730 of the Standard Specifications, other types of drills including no-till drills will be allowed as long as they have baffles, partitions, agitators, or augers which keep the seed distributed throughout the seed box and the seed is planted at a depth of ¼" to ½" .

PERMANENT SEEDING

All areas on the project receiving topsoil shall be seeded.

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 F Permanent Seed Mixture shall consist of the following:

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

FERTILIZING

A commercial fertilizer with a minimum guaranteed analysis of 18-46-0, 11-52-0, or an approved alternate fertilizer shall be applied to areas designated for permanent seeding. The application rate of fertilizer shall be 100 pounds per acre.

FIBER MULCHING

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

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

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.

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.matinc.biz
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

HIGH FLOW SILT FENCE

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

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

High flow silt fence shall be placed around the drop inlet, down stream from the excavation for the detention pond pipe and at the inlet of the approach pipe extension. There is 80' of "High Flow Silt Fence" provided on this project for performing this work. Refer to Standard Plate 734.05 for details.

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed near 0+00 (Valley Gutter) and 0+00 (Detention Pond) as shown in these plans. The estimated quantity for performing this work is 260 Ft.. The Engineer may adjust locations and quantities as needed on the project. 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
Aspen Excelsior Logs	Western Excelsior Corporation Mancos, CO Phone: 1-800-833-8573 www.westernexcelsior.com
Patriot Wood Fiber Logs	Patriot Environmental Products, Inc. Mesa, AZ Phone: 1-480-345-7293 www.digitaldesigncore.com/patriot/WattleSpecs.pdf

DROP INLETS

The plan shown quantities of the drop inlet components such as Class M6 Concrete, and Reinforcing Steel, will be the basis of payment for these items.

If additions or reductions to the number of drop inlets are ordered by the Engineer, payment for the components required to construct the drop inlets will be made at the contract unit prices for the components of the drop inlets.

The Contractor shall construct three, 6 inch diameter weep holes on each wall of the drop inlet at the elevation provided on the cross sections. The wall with the pipe outlet will not require a weep hole. The weep holes shall be constructed with 6" PVC pipe. All costs associated with constructing the 6 inch diameter weep holes shall be incidental to the contract unit prices for the components of the drop inlets.

TABLE OF DROP INLETS AND QUANTITIES

Station	L / R	Drop Inlet Size	Drop Inlet Type	Class M6 Concrete (CuYd)	Reinf. Steel (Lb)	Frame and Grate/Lid Type
0+75(DetentionPond)	L	3'x4'	C	1.53	167	C
Total Type C Frame and Grate				1		

RIPRAP

Class C Riprap shall be placed in the detention pond where drainage runs down the slope into the detention pond. The riprap shall be constructed into a channel as per the typical section in these plans. Type B Drainage Fabric shall be placed underneath the riprap.

REMOVE, SALVAGE, RELOCATE & RESET TRAFFIC SIGN

The Contractor shall remove the sign located along the south side of the approach prior to starting any embankment work necessary for widening the approach. The signs, posts, bases and hardware shall be removed for reset. All costs associated with this work shall be incidental to the contract unit price per each for "Remove, Salvage, Relocate and Reset Traffic Sign".

SALVAGE OR RESET DELINEATOR

The existing delineators shall be salvaged and neatly stockpiled at the DOT south maintenance yard. The Contractor shall reset two delineators as per the details in these plans. The Contractor shall furnish new 4" x 8" back to back delineators to place on the reset posts. All costs associated with this work shall be incidental to the contract unit price per each "Reset Delineator".

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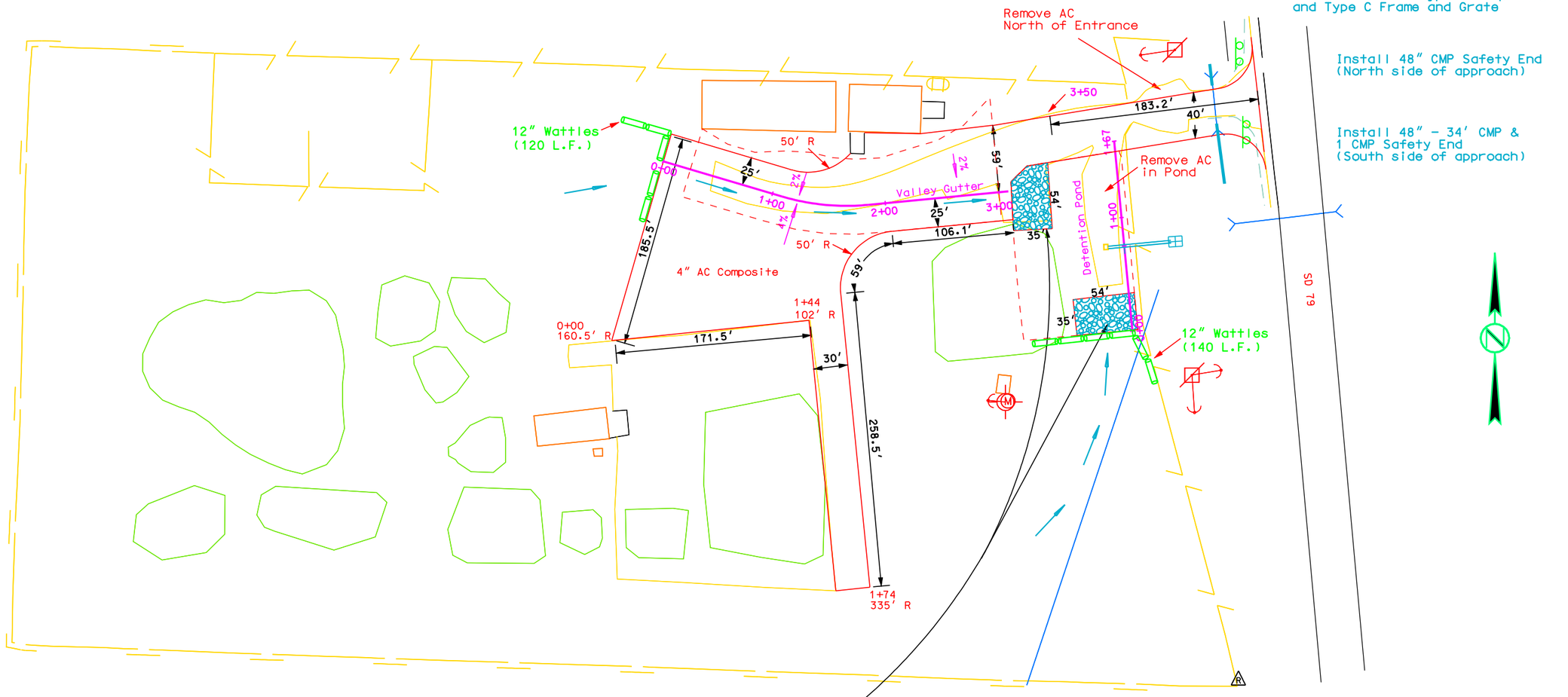
DRAINAGE & PAVING LAYOUT
SOUTH RAPID CITY MAINTENANCE YARD
SD 79, MRM 73.41

0+75 (Detention Pond)
Install 24"- 52' RCP
& 1 RCP Sloped End
(From Drop Inlet to Outlet)

0+75 R (Detention Pond)
Install Bank and Channel
Protection Gabions
(4.5 CY)

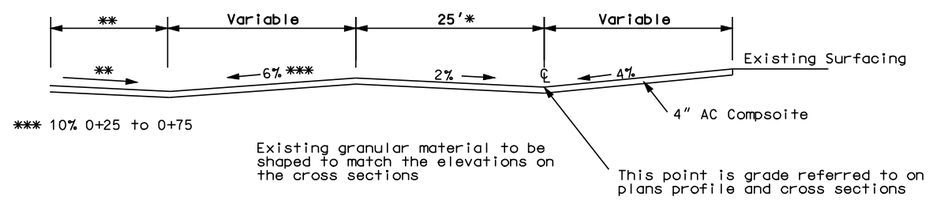
0+75 - 20' L (Detention Pond)
Install 3' x 4' Type C Drop Inlet
and Type C Frame and Grate



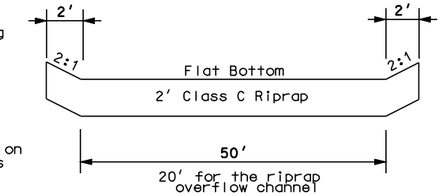
** Maintain positive drainage
away from structure
1+75 to 2+50

Valley Gutter Typical Section
0+00 to 3+00 (Valley Gutter)

* Transition from 25' at 2+00 to 59' at 3+00

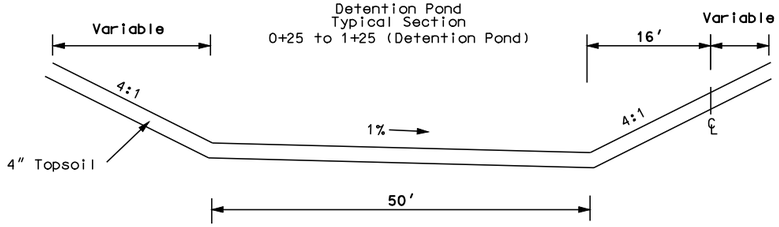


Class C Riprap Channel
Typical Section
(down slopes of detention pond)



Transitions to match existing: 0+00 to 0+25
1+25 to 1+50

Detention Pond
Typical Section
0+25 to 1+25 (Detention Pond)



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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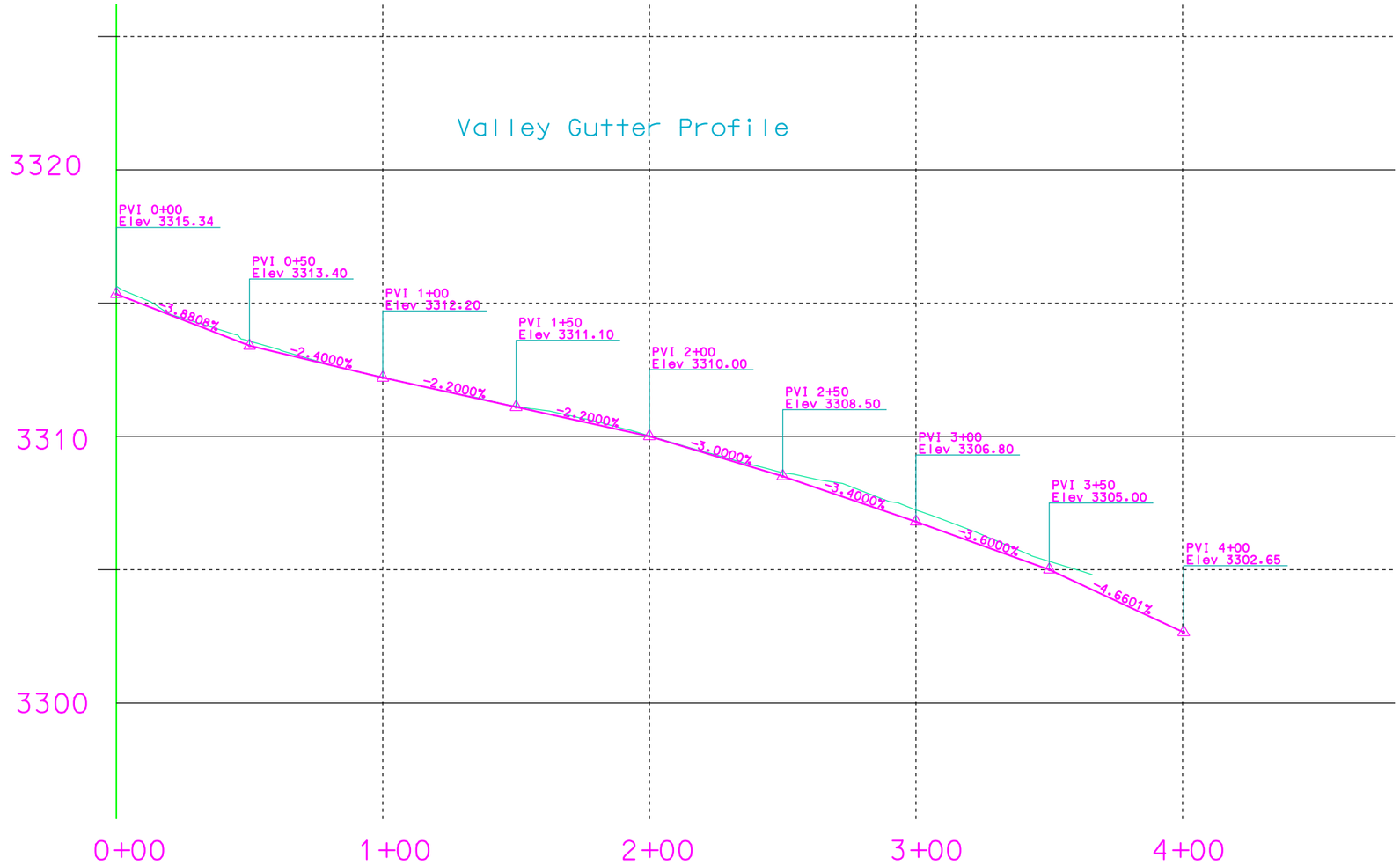

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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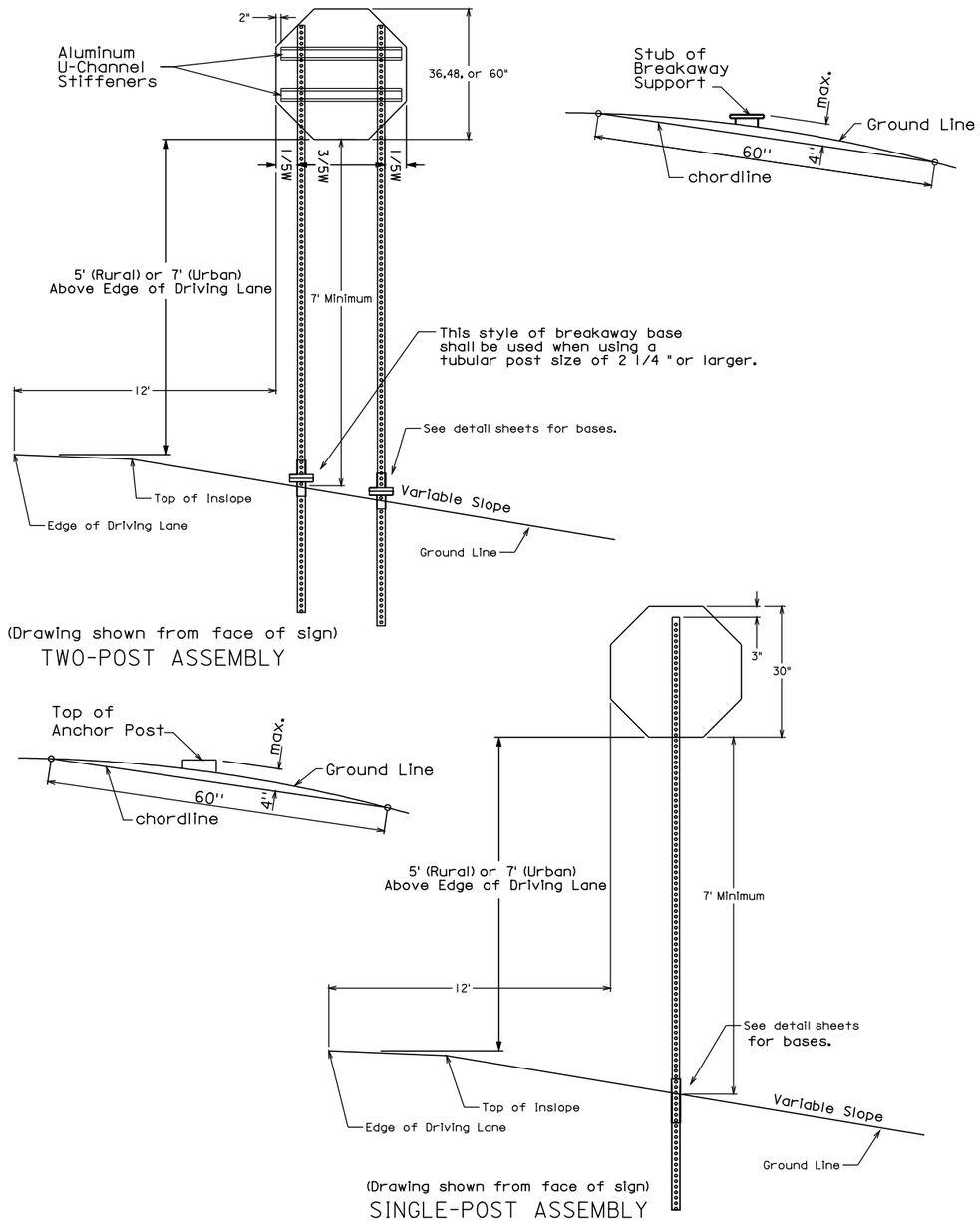
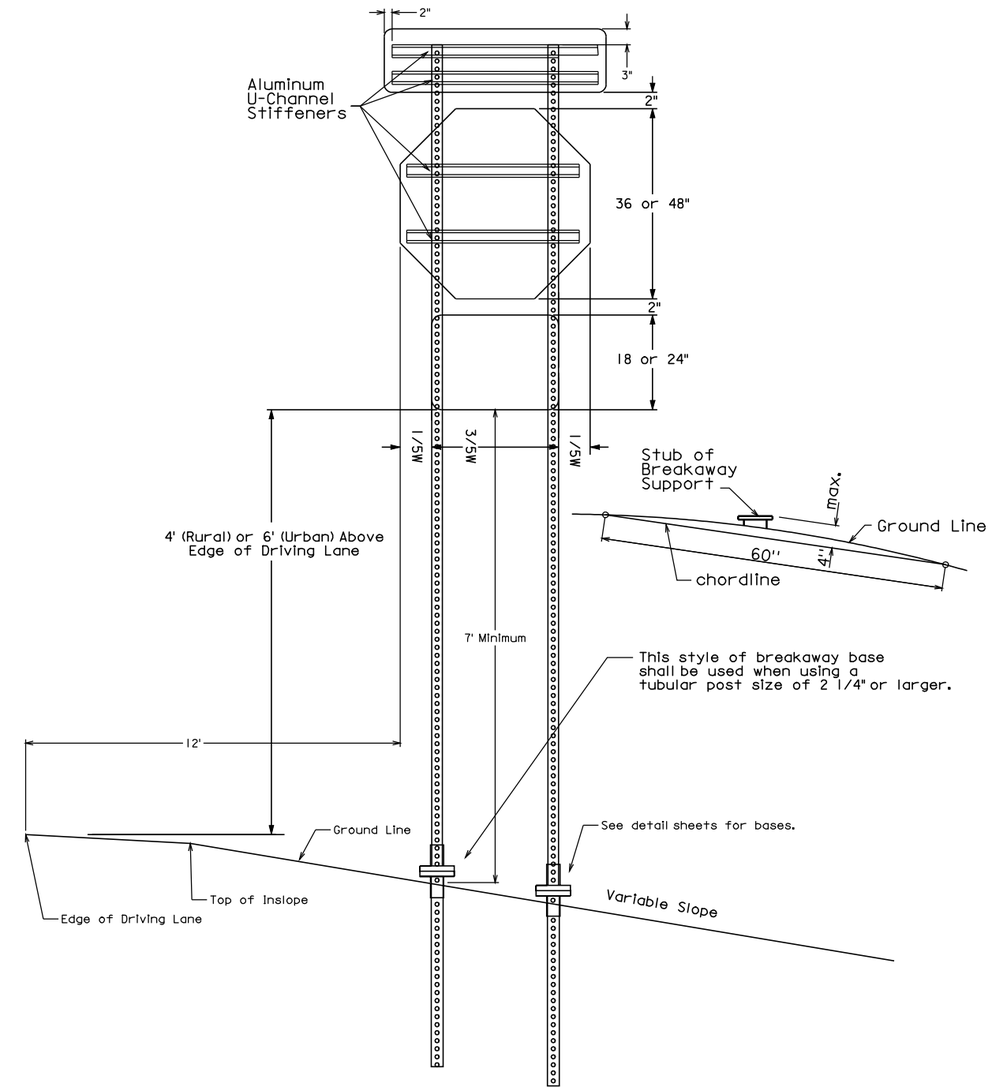


TYPICAL ERECTION DETAILS FOR STOP SIGNS



STOP SIGN WITH DIVIDED HIGHWAY SIGN AND ONE WAY SIGNS
(Drawing shown from face of sign)

TYPICAL ERECTION DETAILS FOR STOP SIGNS ON DIVIDED HIGHWAYS

Delineator Erection Details

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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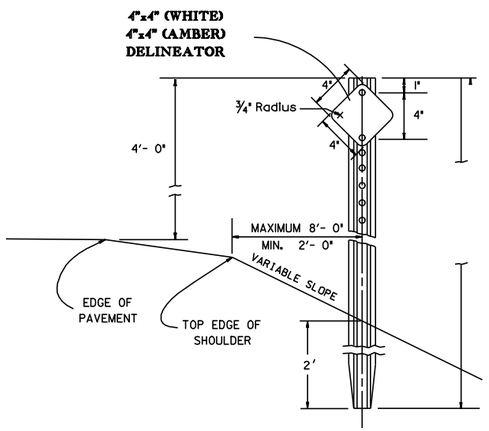
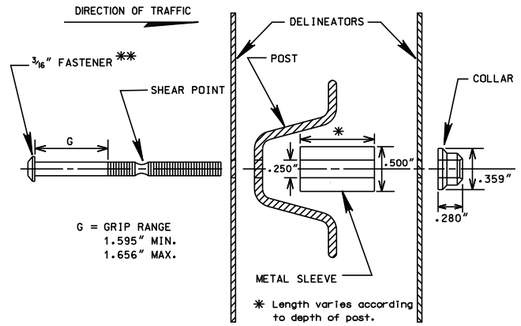
4"x4" DELINEATORS
with Diamond Grade reflective sheeting



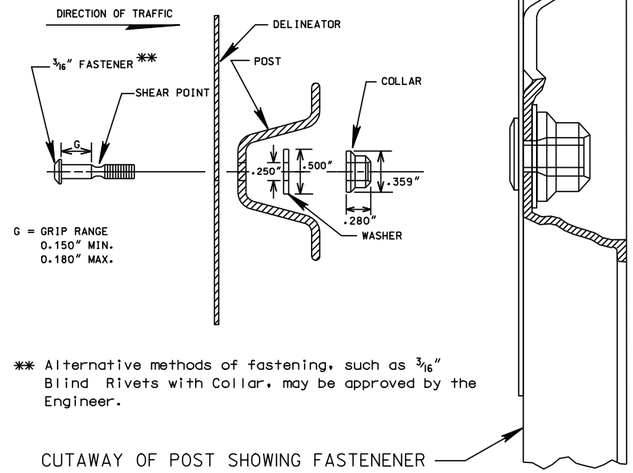
Mounting Holes in all Delineators to be ¼" diameter

DETAIL FOR MOUNTING 4"x4" DELINEATORS BACK TO BACK ON POST



** Alternative methods of fastening, such as ¾"- 7/8" Twin Rivets, may be approved by the Engineer.

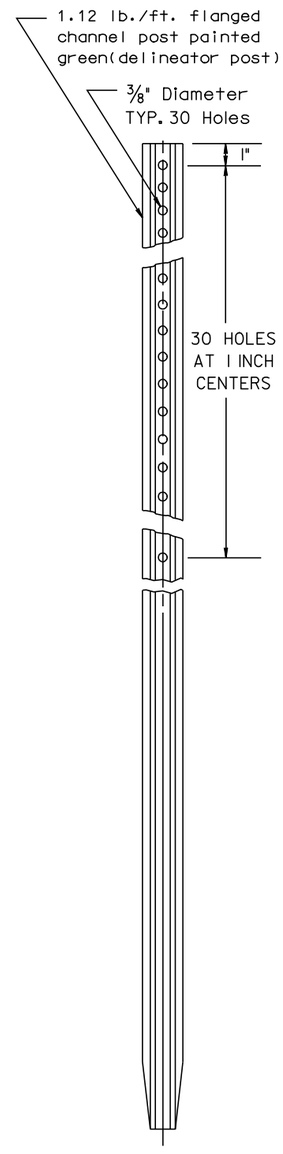
DETAIL FOR SINGLE MOUNTING DELINEATORS ON POST



** Alternative methods of fastening, such as 3/16" Blind Rivets with Collar, may be approved by the Engineer.

CUTAWAY OF POST SHOWING FASTENENER

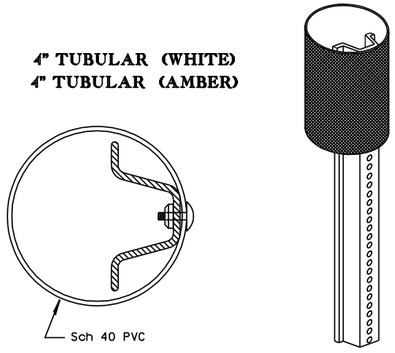
POST DETAIL

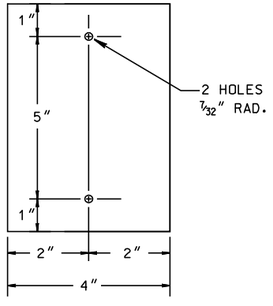


(TYPICAL)

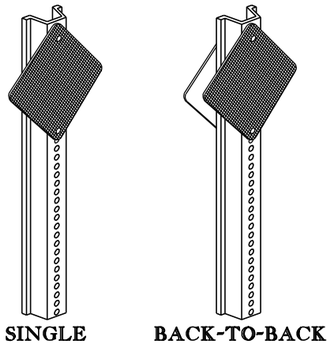
4" TUBULAR DELINEATORS
with Diamond Grade reflective sheeting

4" TUBULAR (WHITE)
4" TUBULAR (AMBER)

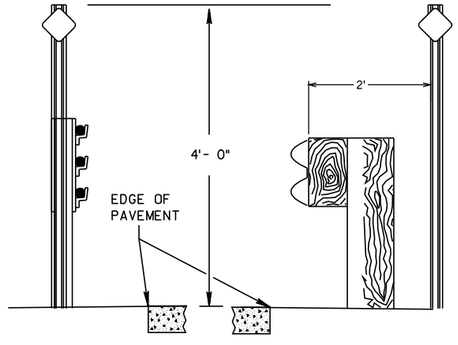




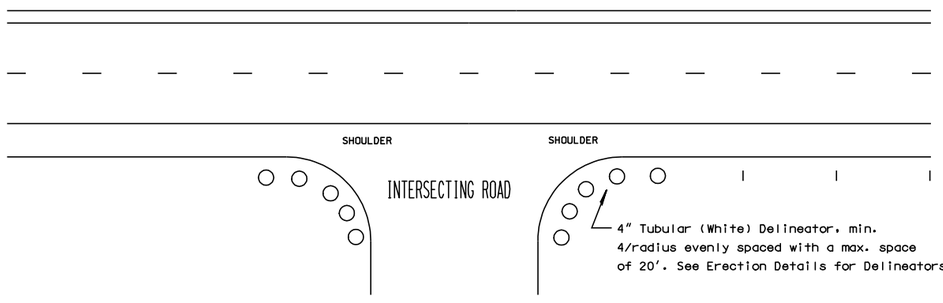
4"x4" DELINEATORS

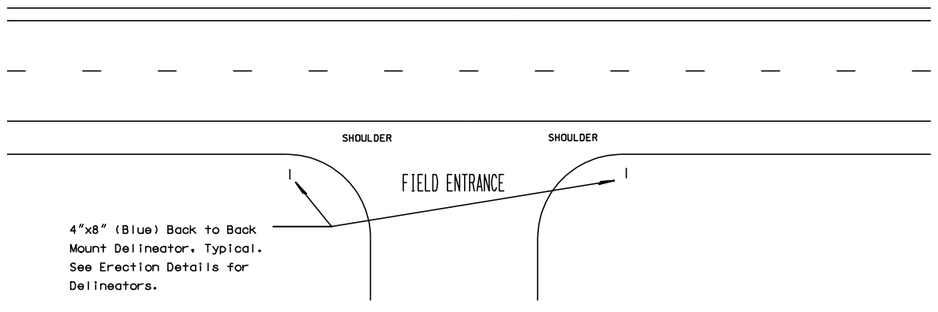


PLACEMENT BEHIND GUARDRAIL



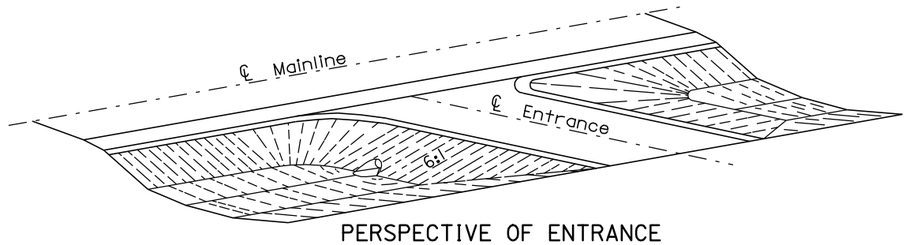
LOCATION DETAILS



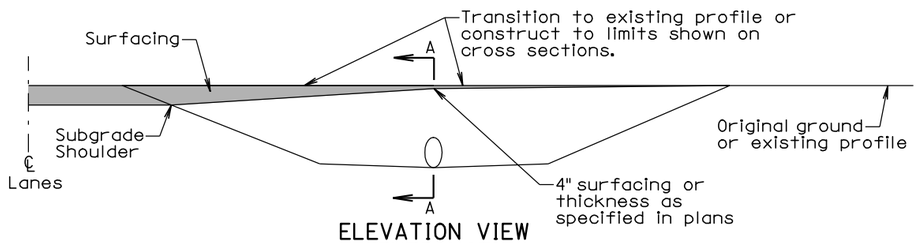


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	410D322	10	27

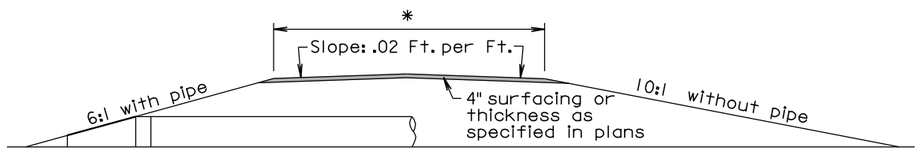
Plotting Date: 28-NOV-2011



PERSPECTIVE OF ENTRANCE



ELEVATION VIEW (ENTRANCE)



SECTION A-A (ENTRANCE)

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

GENERAL NOTES:

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

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

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

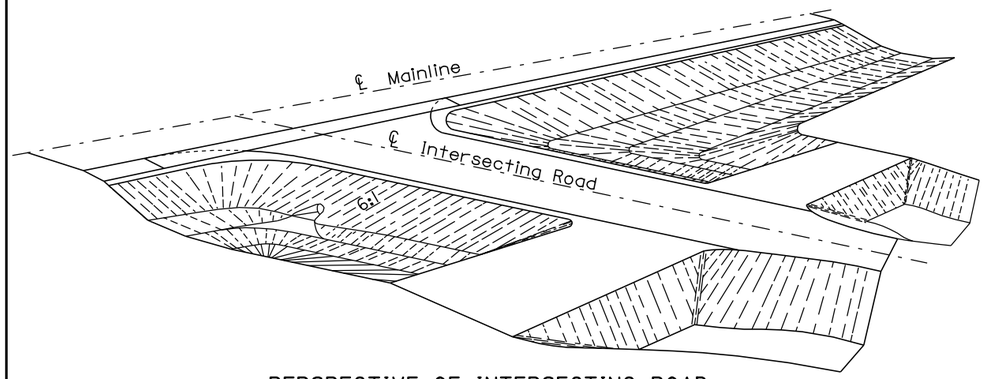
The transition area between the mainline inslope and the approach inslope for entrances shall be rounded to eliminate an abrupt transition.

For entrances other than intersecting roads, the radii shall be 15' unless stated otherwise in the plans.

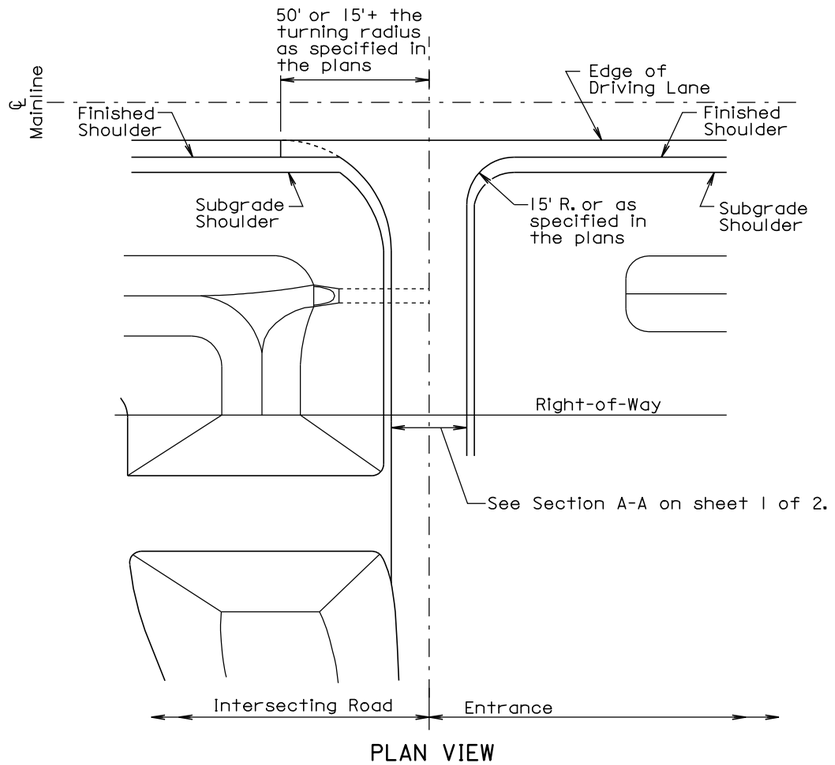
The turning radii shall be 35' for intersecting roads unless stated otherwise in the plans.

December 23, 2010

Published Date: 4th Qtr. 2011	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD

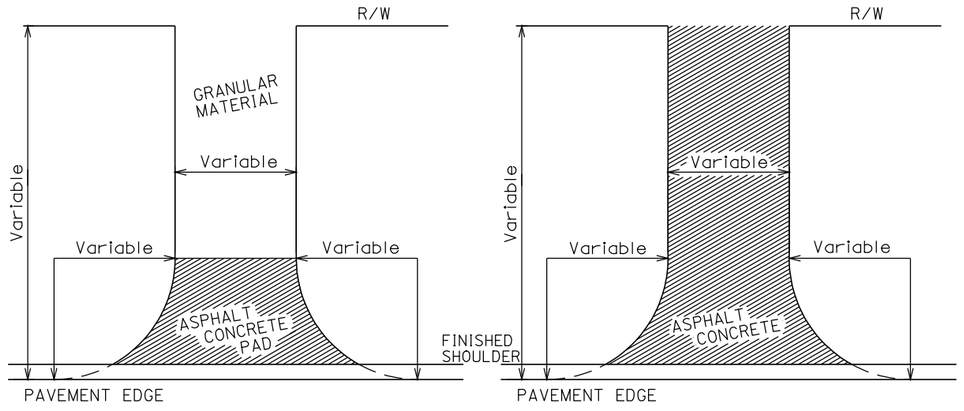


PLAN VIEW

December 23, 2010

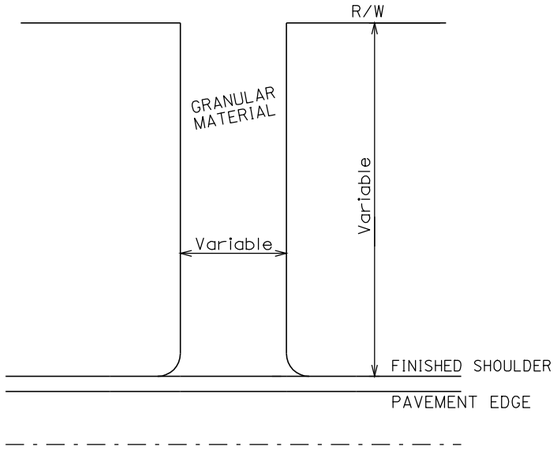
Published Date: 4th Qtr. 2011	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2

Username - trrcil951



INTERSECTING ROAD
NO ASPHALT CONCRETE SURFACING
BEYOND R/W

INTERSECTING ROAD
ASPHALT CONCRETE SURFACING
BEYOND R/W



ENTRANCE

The surfacing details shown on this sheet are provided as a guide for surfacing these facilities. The precise construction limits for situations other than the standards shown will be determined by the Engineer, at the time of construction.

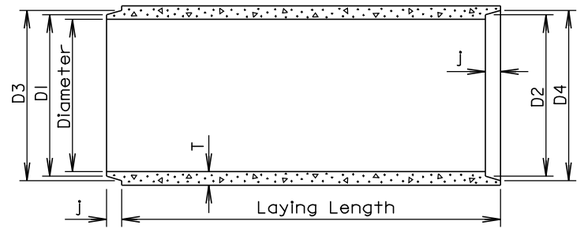
ROADWAY WITH SHOULDER

March 31, 2000

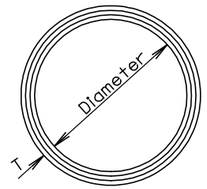
Published Date: 4th Qtr. 2011	SDDOT	RESURFACING OF INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 320.11
			Sheet 1 of 1

TOLERANCES IN DIMENSIONS

Diameter: ±1.5% for 24" Dia. or less and ±1% or 3/8" whichever is more for 27" Dia. or greater.
Diameters at Joints: ±3/16" for 30" Dia. or less and ±1/4" for 36" or greater.
Length of joint (J): ±1/4".
Wall thickness (T): not less than design T by more than 5% or 3/16", whichever is greater.
Laying length: shall not underrun by more than 1/2".



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

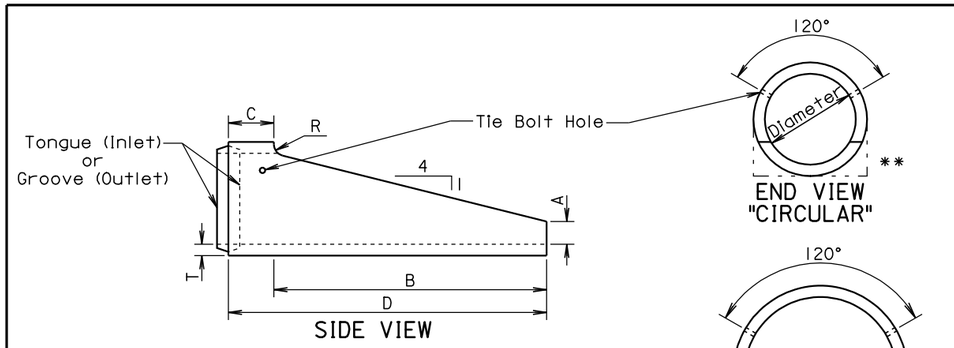
Construction of R.C.P. shall conform to the requirements of Section 990 of the Standard Specifications for Roads and Bridges.

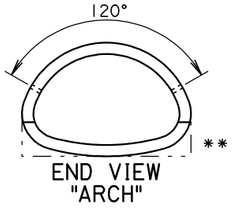
Not more than 2 four foot sections shall be permitted near the ends of any culvert. Four foot lengths shall be used only to secure the required length of culvert.

Diam. (In.)	Approx. Wt. /Ft. (lb.)	T (In.)	J (In.)	D1 (In.)	D2 (In.)	D3 (In.)	D4 (In.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	3 1/4	3	29 1/4	29 5/8	30 1/4	30 5/8
30	384	3 1/2	3 1/4	32 3/8	32 3/4	33 1/2	33 7/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 1/8	45 5/8	46 1/2	47
48	867	5	4 1/2	51 1/2	52	53	53 1/2
54	1070	5 1/2	4 1/2	57 7/8	58 3/8	59 3/8	59 7/8
60	1296	6	5	64 1/4	64 3/4	66	66 1/2
66	1542	6 1/2	5 1/2	70 5/8	71 1/8	72 1/2	73
72	1810	7	6	77	77 1/2	79	79 1/2
78	2098	7 1/2	6 1/2	83 3/8	83 7/8	85 5/8	86 1/8
84	2410	8	7	89 3/4	90 1/4	92 1/8	92 5/8
90	2740	8 1/2	7	95 3/4	96 1/4	98 1/8	98 5/8
96	2950	9	7	102 1/8	102 5/8	104 1/2	105
102	3075	9 1/2	7 1/2	109	109 1/2	111 1/2	112
108	3870	10	7 1/2	115 1/2	116	118	118 1/2

March 31, 2000

Published Date: 4th Qtr. 2011	SDDOT	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
			Sheet 1 of 1





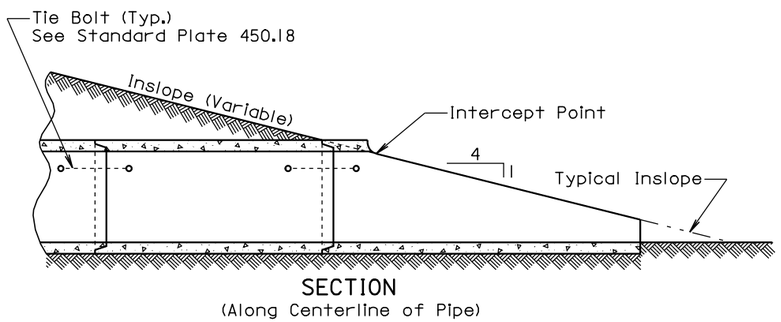
Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	6	72	12	84	3
30	3½	7½	90	12	102	3½
FOR ARCH PIPE						
* 24	3	6	48	12	60	3
* 30	3½	7½	60	12	72	3½
* 36	4½	8⅝	66	30	96	0
* 42	4½	10	77¼	18¾	96	0

ALTERNATE

Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	9	72	12	84	0
30	3½	11	90	12	102	0
FOR ARCH PIPE						
* 24	3	9	48	12	60	0
* 30	3½	11	60	12	72	0

* Equivalent Diameter of Circular R.C.P.

** Acceptable Flat Bottom Alternate.



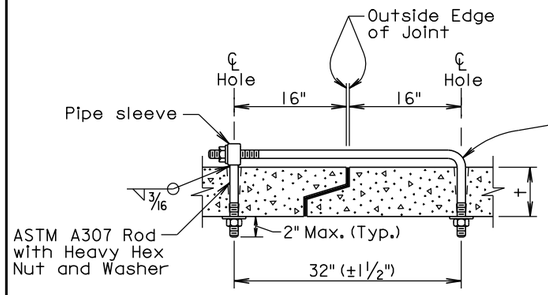
GENERAL NOTE:

The length of concrete pipe shown in the construction plans is between sloped ends.

September 22, 2006

Published Date: 4th Qtr. 2011	SDDOT	R. C. P. SLOPED ENDS	PLATE NUMBER 450.13
			Sheet 1 of 1

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



ADJUSTABLE EYE BOLT TIE

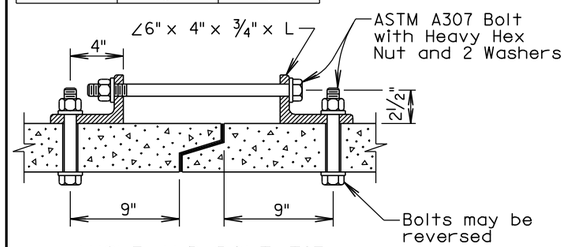
GENERAL NOTES:

Tie bolts shall conform to ASTM A307, Grade C. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

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

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

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



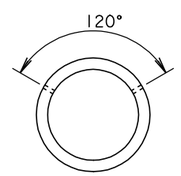
ANGLE AND BOLT TIE

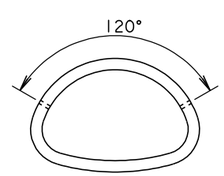
GENERAL NOTES:

Angles shall conform to ASTM A36.

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

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





GENERAL NOTES:

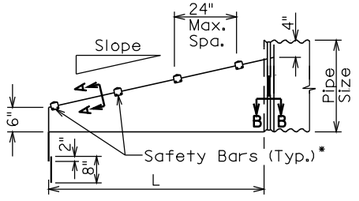
In lieu of tie bolts detailed above, tecktonius fasteners or other type tie bolt connections may be installed if approved by the Engineer.

The first three sections (both inlet and outlet) of R.C.P. and R.C.P. Arch up to and including the 78" diameter or equivalent pipe shall be tied with tie bolts. Pipe sizes larger than 78" diameter or equivalent diameter shall have all sections tied. Each end section is considered as one section.

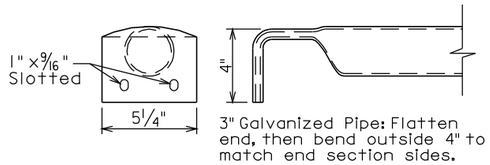
There will be no separate measurement or payment for tie bolts. The cost of the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

September 14, 2011

Published Date: 4th Qtr. 2011	SDDOT	TIE BOLTS FOR R.C.P. END SECTIONS	PLATE NUMBER 450.18
			Sheet 1 of 1

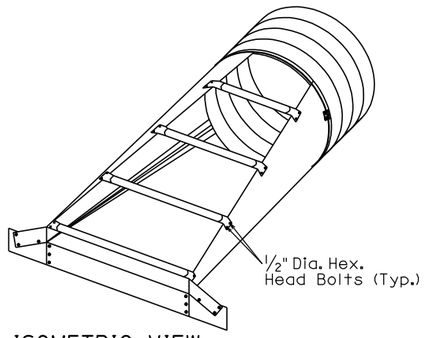


SIDE ELEVATION

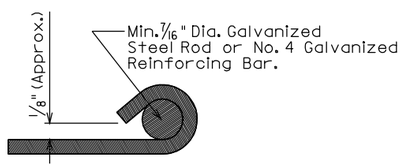


DETAIL OF SAFETY BARS

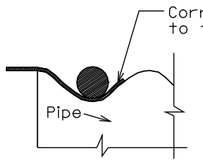
* Number of bars required will vary depending on the length of the End Section.



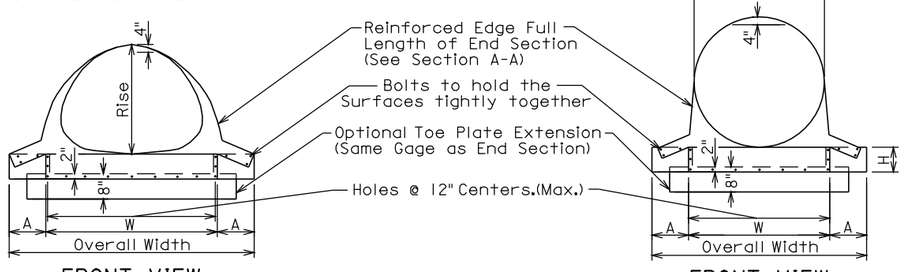
ISOMETRIC VIEW



SECTION A-A

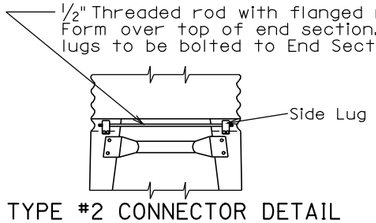


SECTION B-B

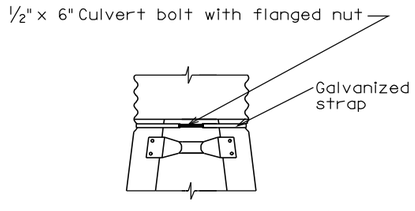


FRONT VIEW

FRONT VIEW



TYPE #2 CONNECTOR DETAIL
For 30" and Larger
21" x 15" and Larger



TYPE #1 CONNECTOR DETAIL
15" Through 24"

March 31, 2000

Published Date: 4th Qtr. 2011	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 1 of 2

ARCH C.M.P. SAFETY ENDS

Equv. Dia. (In.)	(Inches) Span	Rise	Min. Thick. In.	Gage	Dimensions (Inches) A	H	W	Overall Width	L Dimensions Slope	Length (In.)
18	21	15	.064	16	8	6	27	43	6:1	30
21	24	18	.064	16	8	6	30	46	6:1	48
24	28	20	.064	16	8	6	34	50	6:1	60
30	35	24	.079	14	12	9	41	65	6:1	84
36	42	29	.109	12	12	9	48	72	6:1	114
42	49	33	.109	12	16	12	55	87	6:1	138
48	57	38	.109	12	16	12	63	95	6:1	168
54	64	43	.109	12	16	12	70	102	6:1	198
60	71	47	.109	12	16	12	77	109	6:1	222
72	83	57	.109	12	16	12	89	121	6:1	282

CIRCULAR C.M.P. SAFETY ENDS

Pipe Dia. (In.)	Min. Thick. In.	Gage	Dimensions (Inches) A	H	W	Overall Width	L Dimensions Slope	Length (In.)
15	.064	16	8	6	21	37	6:1	30
18	.064	16	8	6	24	40	6:1	48
21	.064	16	8	6	27	43	6:1	66
24	.064	16	8	6	30	46	6:1	84
30	.109	12	12	9	36	60	6:1	120
36	.109	12	12	9	42	66	6:1	156
42	.109	12	16	12	48	80	6:1	192
48	.109	12	16	12	54	86	6:1	228
54	.109	12	16	12	60	92	6:1	264
60	.109	12	16	12	66	98	6:1	300

GENERAL NOTES:

Safety bars shall be attached to safety ends over 24" in diameter only.

Safety ends shall be fabricated from galvanized steel conforming to the requirements of the Standard Specifications.

Safety bars shall be fabricated from steel pipe conforming to the requirements of ASTM A-53 Schedule 40 Specifications.

Slotted holes for safety bar attachment shall be provided for all end sections.

Attachment to circular pipes 15" through 24" diameter shall be made with Type #1 straps. All other sizes shall be attached with Type #2 rods and lugs.

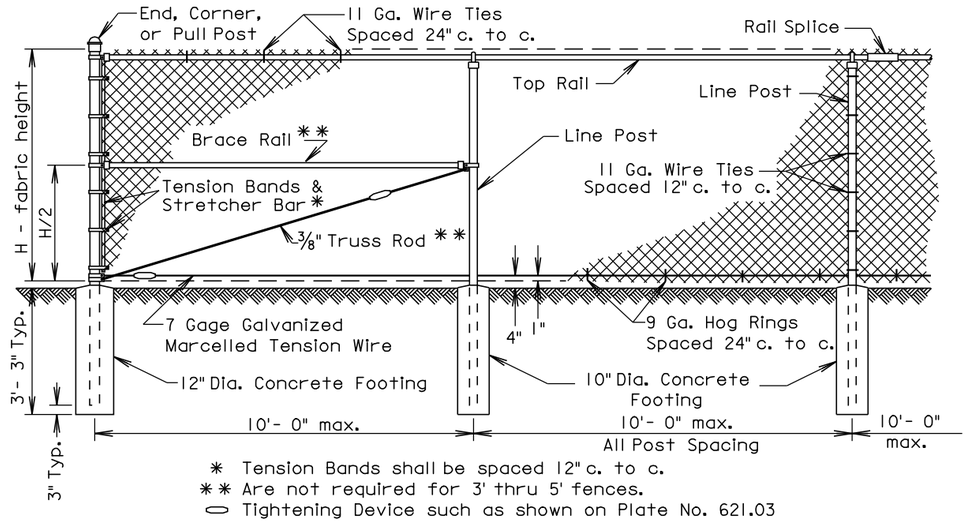
When stated in the plans, optional toe plate extension shall be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section. Dimensions shall be overall width less 6" by 8" high.

Installation shall be performed in accordance with the Standard Specifications.

All work and materials required for fabrication and installation of safety ends shall be incidental to the bid items for the various sizes of safety ends.

March 31, 2000

Published Date: 4th Qtr. 2011	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 2 Of 2



* Tension Bands shall be spaced 12" c. to c.
** Are not required for 3' thru 5' fences.
⬭ Tightening Device such as shown on Plate No. 621.03

Component	End, Corner & Pull Post		Line Post			Top & Brace Rail	
Type of Fabrication	Round Pipe Nominal	Roll Formed Steel	Round Pipe Nominal	"C" Section	H-Beam Steel	Round Pipe Nominal	Roll Formed Steel
Size	3.00" O. D.	3.5" x 3.5"	2.50" O. D.	1.875"x1.625"	2.25"x1.70"	1.625" O. D.	1.625"x1.25"
Weight (lb. / ft.)	5.79 or 4.64	5.14	3.65 or 3.12	2.34	3.43	2.27 or 1.84	1.35

GENERAL NOTES:

Specific details of manufacture of component parts of the complete fence construction shall be subject to the approval of the Engineer. Commercially available items produced specifically for the use intended shall be used wherever possible in the construction of the fence.

"H" (Height of Fabric) shall be as shown on the Plans. Fabric is available in the the following heights; 36", 42", 48", 60", 72", 84", 96", 108", 120", & 144". Fabric heights 60 inches and under shall be knuckled at both selvages. Fabric heights 72 inches and over shall be knuckled at one selvage and twisted at the other selvage.

Chain Link Fabric shall be 2" mesh, No. 9 gage galvanized wire securely fastened to Tension Wire, Line Post, Rails, Braces and Stretcher Bars spaced as shown hereon.

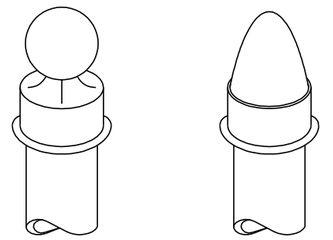
Fence may be constructed with either Round Pipe, "C" Section, "H" Beam, or roll Formed Steel components as shown in the table above. Line post may be Round Pipe, "C" Section, or "H" Beam. The Corner Post and Rails shall be either Round Pipe or Roll Formed Steel. The type of components used shall have prior approval by the Engineer before construction.

Where fence must cross small bodies of water (such as drainage areas or ponds) that could freeze during the winter, use 11 gage Hog Rings. Provide only two ties per Tension Wire and Top Rail between line posts.

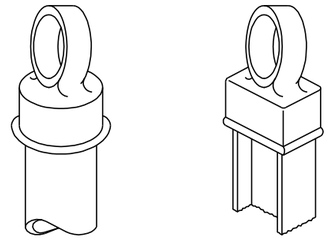
A suitable method of rail splicing shall be used to allow for expansion and contraction while maintaining proper position of the Top Rail.

March 31, 2000

Published Date: 4th Qtr. 2011	SDDOT	CHAIN LINK FENCE WITH TOP RAIL	PLATE NUMBER 621.01
			Sheet 1 of 1

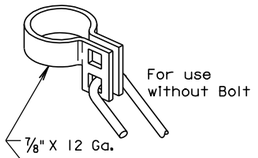


For End, Corner and Pull Posts

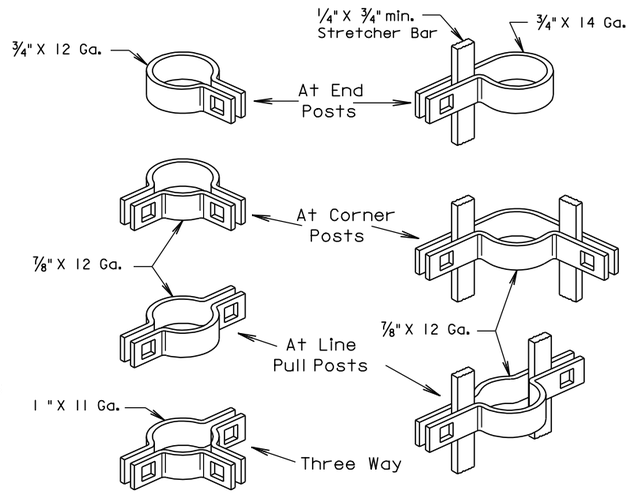


For Line Posts

Typical Post Tops
(Shown for example only)

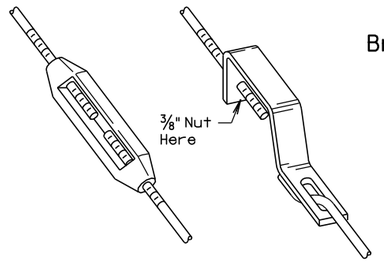


Brace & Truss Bands



Brace Bands Tension Bands

NOTE: Bands shall be rectangular for "C" Section and "H" Beam Posts.



3/8" Turnbuckle 11 Ga. Tightener

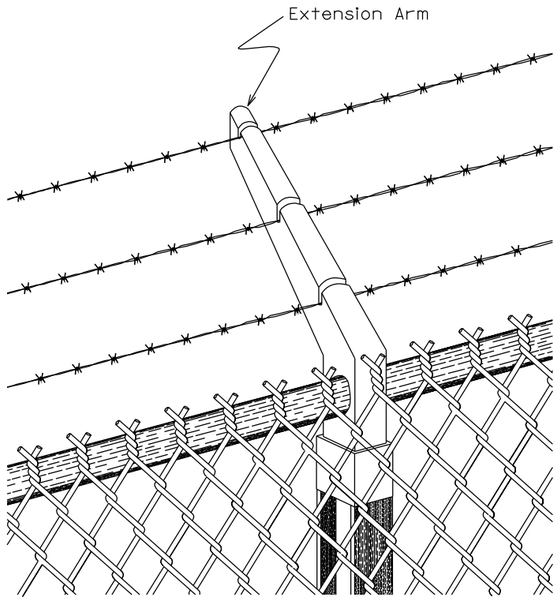
Tightening Devices

Straight Tip Offset Tip

Rail Ends

March 31, 2000

Published Date: 4th Qtr. 2011	SDDOT	HARDWARE FOR CHAIN LINK FENCE	PLATE NUMBER 621.03
			Sheet 1 of 1



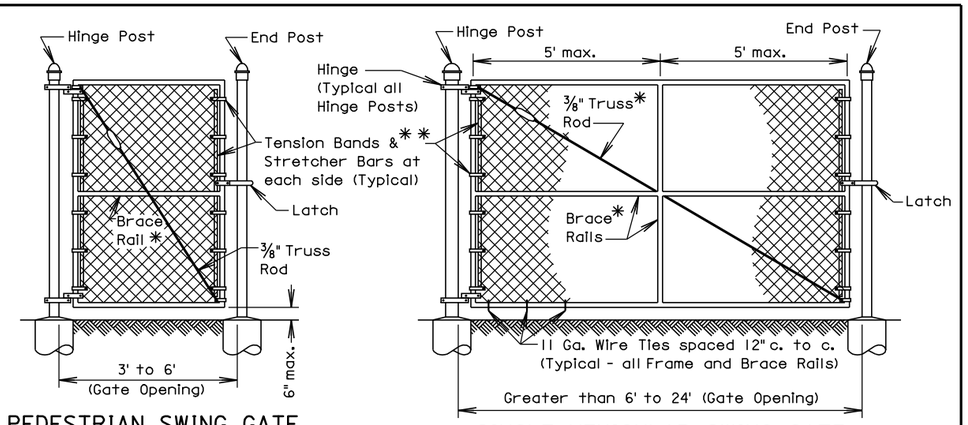
GENERAL NOTES:

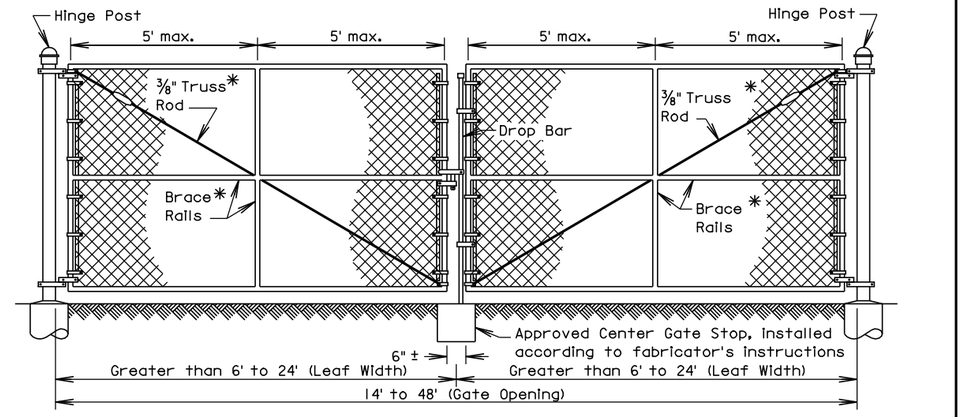
Extension arms shall be hot dipped galvanized. End and corner arms shall be malleable iron. Intermediate arms may be pressed steel. Arms shall have sealed caps and three slots to accommodate the barbed wires. The top wire shall be 12 inches above the fabric and 12 inches out from the fence line at an angle of approximately 45°. Adjustable arms may be used. Barbed wire shall be two strand 12½ gauge wire with four point round barbs spaced on 5 inch centers.

Extra payment will not be made for extension arms with barbed wire. Extension arms with barbed wire shall be incidental to the respective "Chain Link Fence" bid item. When extension arms with barbed wire are attached to gates, the payment for the extension arms with barbed wire shall be incidental to the respective "Gate" bid item.

March 31, 2000

Published Date: 4th Qtr. 2011	SDDOT	BARBED WIRE TOP FOR CHAIN LINK FENCE	PLATE NUMBER 621.04
			Sheet 1 of 1





DOUBLE VEHICULAR SWING GATE

Gate Opening		Frame Pipe Nominal	Brace Rail - Pipe Nominal
Width [1]	Height [2]		
3' to 8'	3' to 6'	1.50"	1.50"
>8' to 23'	6'	1.90"	1.50"
>8' to 23'	> 6' to 12'	1.90"	1.90"

Gate Opening Width [1]	Hinge Post		Concrete Footing	
	Round Pipe Nominal	Roll Formed Steel	Depth	Diameter
3' to 6'	3.00"	3.50"X3.50"	36"	12"
> 6' to 13'	4.00"	—	42"	12"
> 13' to 18'	6.625"	—	48"	18"
> 18' to 23'	8.625"	—	48"	24"

NOTE: Gate frames may be constructed of bent or welded steel tubing installed according to fabricator's instructions and subject to the Engineer's approval.

* Are not required for gates 3' to 5' height or 5' or less in width.

** Tension Bands shall be spaced 12" c. to c.

⬭ Tightening Device such as shown on standard plate 621.03

1 Leaf width for Double Vehicular Swing Gate

2 Shall coincide with fence height

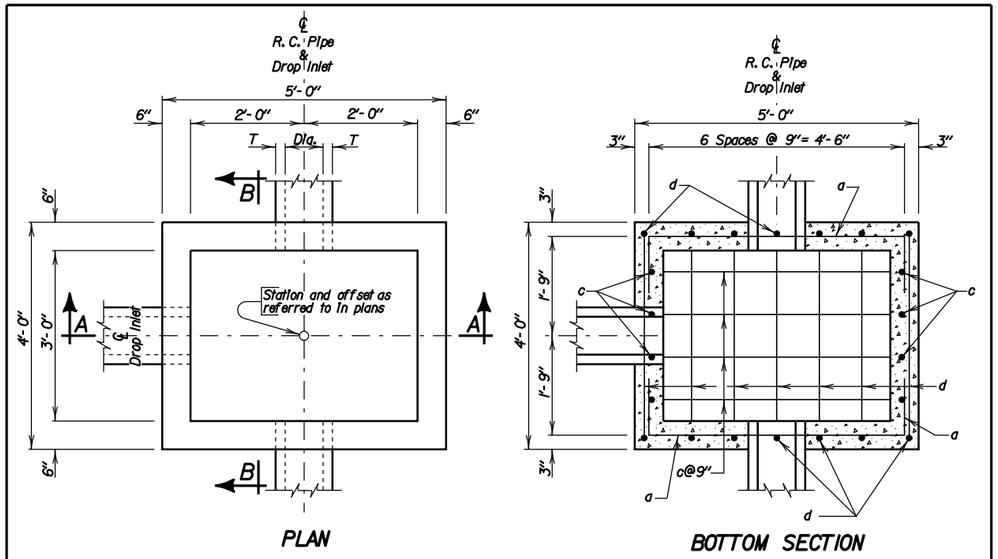
September 14, 2001

Published Date: 4th Qtr. 2011	SDDOT	SWING GATES FOR CHAIN LINK FENCE	PLATE NUMBER 621.10
			Sheet 1 of 1

Username - trrcll951

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	410D322	16	27

Plotting Date: 28-NOV-2011



PIPE DISPLACEMENT REDUCTIONS		
R.C. Pipe Diameter Inches	T Inches	Class M6 Concrete Cu'd
12	2	0.03
15	2 1/4	0.04
18	2 1/2	0.05
24	3	0.09
30	3 1/2	0.14
36	4	0.20

ESTIMATED QUANTITIES			
ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
⚹ Class M6 Concrete	Cu'd	0.43	0.29H
Reinforcing Steel	Lb	57	26.72H
Frame and Grate	Each	1	———

DROP INLETS FOR 12" TO 36" DIAMETER PIPE

GENERAL NOTES:

⚹ Reduce total quantities of concrete by the amount of concrete displaced by the pipe. The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.

Drop inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts.

Reinforcing steel shall conform to ASTM A615 Grade 60. The b bars shall be lapped 12 inches. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.

Pipe shall not enter through a corner of the drop inlet.

Use 2" clear cover on all reinforcing steel unless otherwise noted.

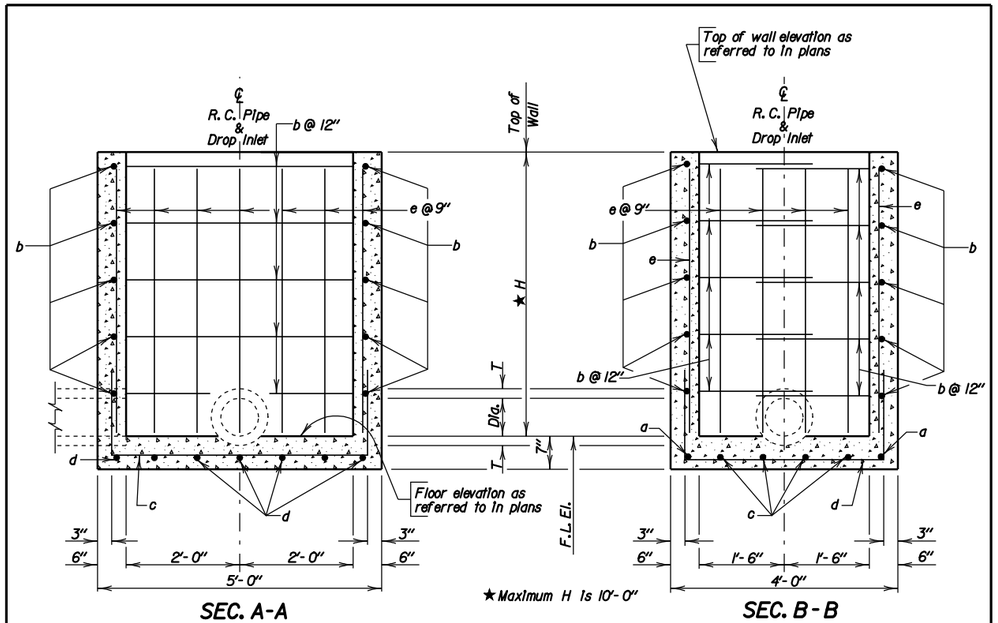
Precasting of reinforced drop inlets will be permissible. Prior to precasting, the Contractor shall submit details to the Engineer for approval.

Maximum pipe diameter shall not exceed 27 inches on the 4 foot wide side and shall not exceed 36 inches on the 5 foot wide side of the drop inlet.

The dimension of H is in feet.

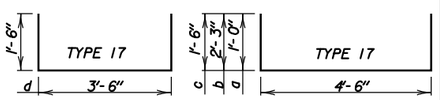
December 23, 2009

Published Date: 4th Qtr. 2011	SDDOT	3'X 4' TYPE C REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.10
			Sheet 1 of 2



DROP INLETS FOR 12" TO 36" DIAMETER PIPE

REINFORCING SCHEDULE					
Mk.	No.	Size	Length	Type	Bending Details
a	2	4	6'-6"	17	
b	2H	4	9'-0"	17	
c	4	4	7'-6"	17	
d	7	4	6'-6"	17	
e	22	4	H - 2"	Str.	

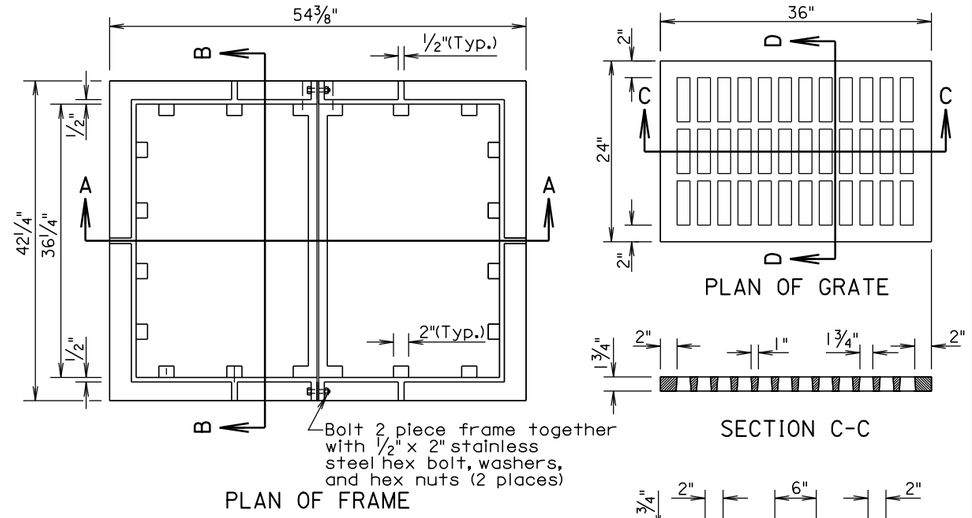


NOTE: All dimensions are out to out of bars.

December 23, 2009

Published Date: 4th Qtr. 2011	SDDOT	3'X 4' TYPE C REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.10
			Sheet 2 of 2

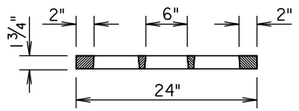
Username - trrcll951



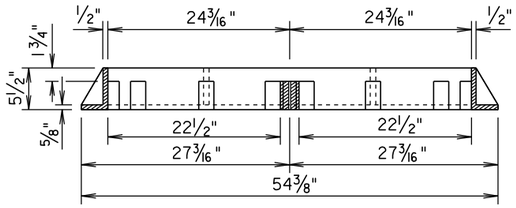
PLAN OF FRAME

PLAN OF GRATE

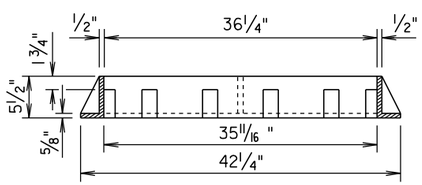
SECTION C-C



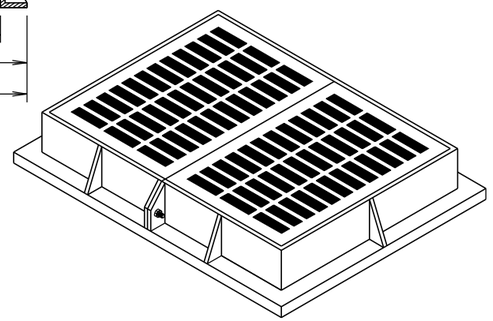
SECTION D-D



SECTION A-A



SECTION B-B



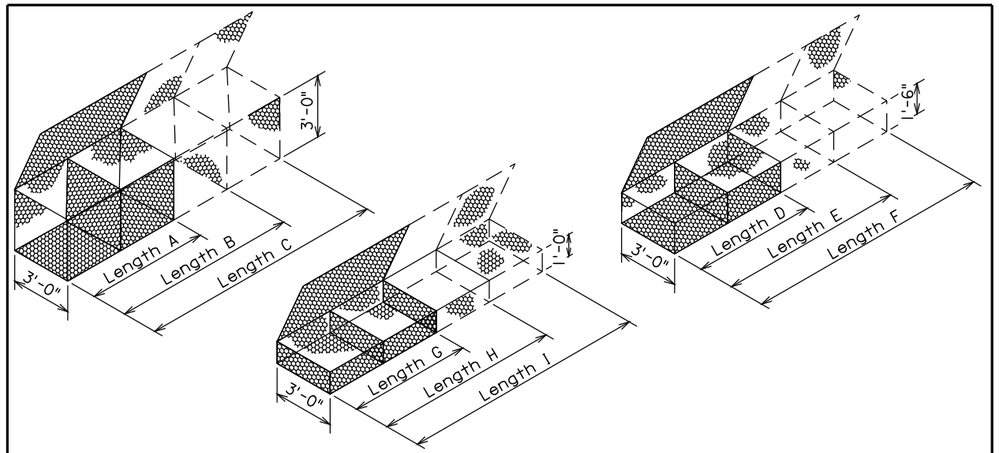
ASSEMBLED VIEW

GENERAL NOTE:

The total weight of the frame and grate shall be 850 pounds minimum.

March 31, 2000

Published Date: 4th Qtr. 2011	SDDOT	TYPE C FRAME AND GRATE	PLATE NUMBER 670.82
			Sheet 1 of 1



GABION DETAILS

STANDARD SIZES

SIZE	LENGTH	WIDTH	HEIGHT	NUMBER OF CELLS	CAPACITY, Cu. Yd.
A	6'-0"	3'-0"	3'-0"	2	2.0
B	9'-0"	3'-0"	3'-0"	3	3.0
C	12'-0"	3'-0"	3'-0"	4	4.0
D	6'-0"	3'-0"	1'-6"	2	1.0
E	9'-0"	3'-0"	1'-6"	3	1.5
F	12'-0"	3'-0"	1'-6"	4	2.0
G	6'-0"	3'-0"	1'-0"	2	0.7
H	9'-0"	3'-0"	1'-0"	3	1.0
I	12'-0"	3'-0"	1'-0"	4	1.3

Above Dimensions subject to mill tolerances.

GENERAL NOTES:

Lacing and internal connecting wire shall be 0.0866 inch diameter steel wire ASTM A641 Class 3 soft temper measured after galvanizing and for PVC coated gabions shall be 0.0866 inch diameter steel wire measured after galvanizing but before PVC coating.

The lacing procedure is as follows:
1. Cut a length of lacing wire approximately 1 ½ times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

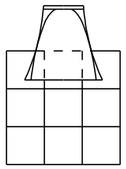
Wire lacing or interlocking type fasteners shall be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions shall be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing shall conform to ASTM A641-92 Class 3 coating. Fasteners shall also be in accordance with ASTM A764, Class II, Type III.

Interlocking fasteners for PVC coated gabions shall be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class 1. The spacing of the interlocking fasteners during all phases of assembly and construction shall not exceed 6 inches. All fasteners shall be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

June 26, 2001

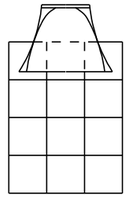
Published Date: 4th Qtr. 2011	SDDOT	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01
			Sheet 1 of 1

12", 18", & 24" RCP & CMP
12", 18", & 24" RCP Arch & CMP Arch



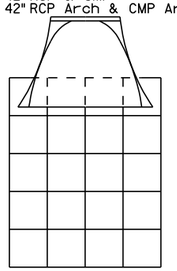
4.5 Cu. Yds.

30" & 36" RCP & CMP
30" & 36" RCP Arch & CMP Arch



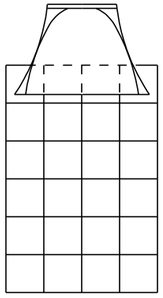
6.0 Cu. Yds.

42" RCP & CMP
42" RCP Arch & CMP Arch



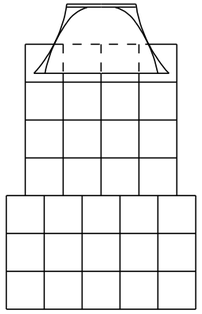
10.0 Cu. Yds.

48" & 54" RCP & CMP
48" & 54" RCP Arch & CMP Arch



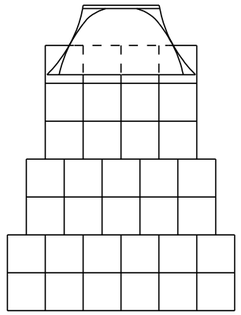
12.0 Cu. Yds.

60" RCP & CMP
60" RCP Arch & CMP Arch



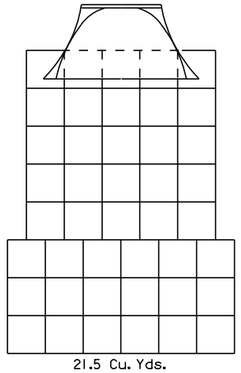
15.5 Cu. Yds.

66" RCP & CMP



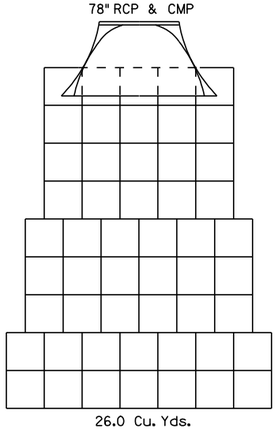
17.0 Cu. Yds.

72" RCP & CMP
72" RCP Arch & CMP Arch



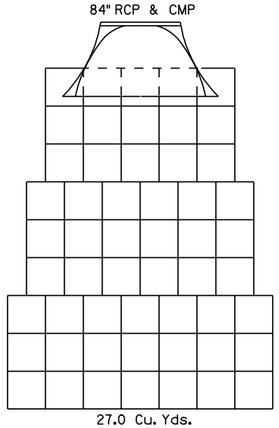
21.5 Cu. Yds.

78" RCP & CMP



26.0 Cu. Yds.

84" RCP & CMP



27.0 Cu. Yds.

GENERAL NOTES:

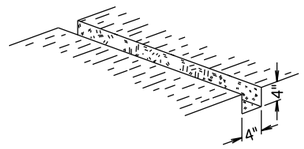
Gabions at outlets of C. M. pipe and R. C. pipe shall be placed under the end section a distance of 2' from the outlet end of the section. For C. M. pipe end section installations, the upper fabric of the gabions shall be modified to accommodate the metal end section in a manner approved by the Engineer.

Quantities shown on this standard plate are based on standard gabion sizes D, E, and F (See Standard Plate 720.01).

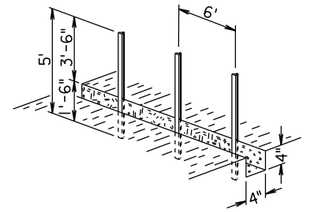
June 26, 2001

Published Date: 4th Qtr. 2011	SDDOT	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03
			Sheet 1 of 1

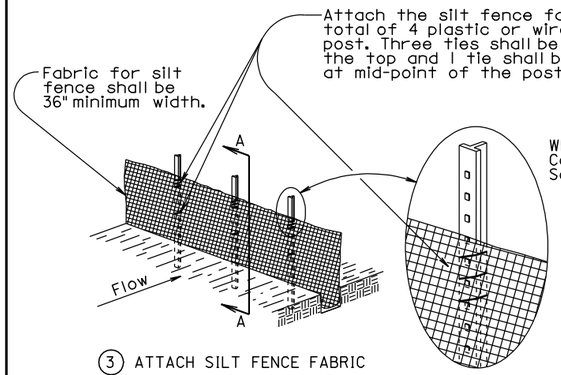
MANUAL HIGH FLOW SILT FENCE INSTALLATION



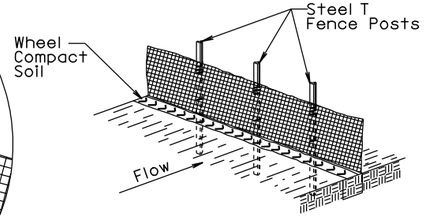
(1) EXCAVATE TRENCH



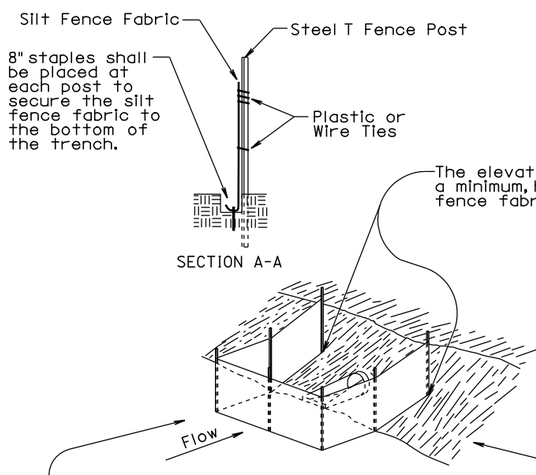
(2) DRIVE STEEL T FENCE POSTS



(3) ATTACH SILT FENCE FABRIC



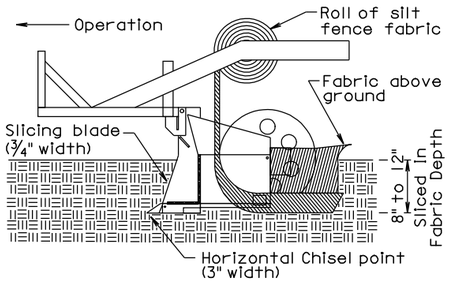
(4) BACKFILL TRENCH AND WHEEL COMPACT SOIL



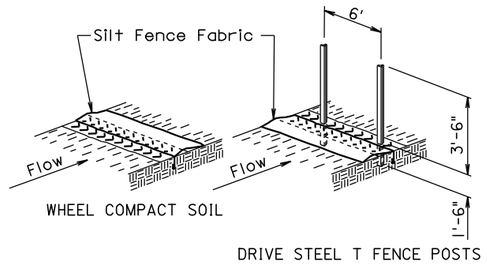
December 23, 2003

Published Date: 4th Qtr. 2011	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 1 of 2

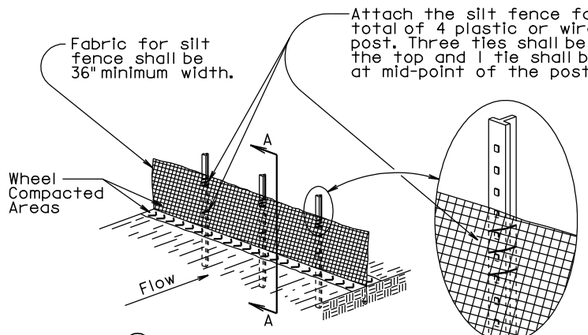
MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



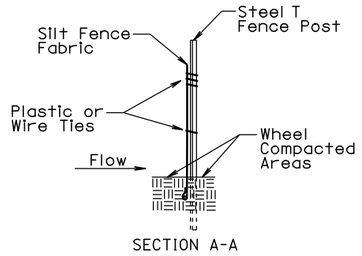
(1) INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



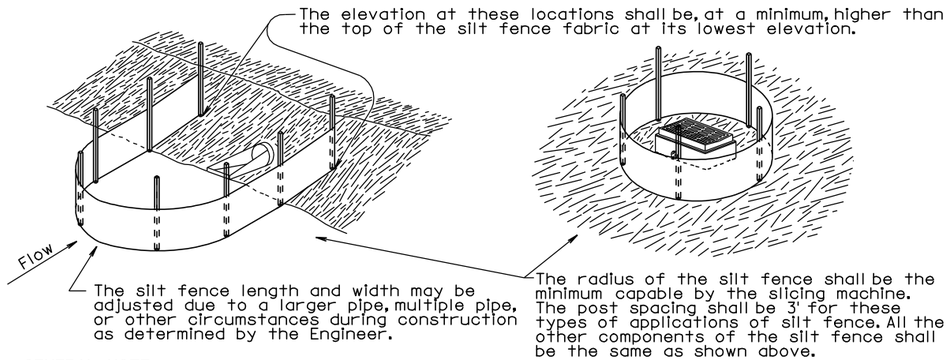
(2) WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.



(3) ATTACH SILT FENCE FABRIC



SECTION A-A

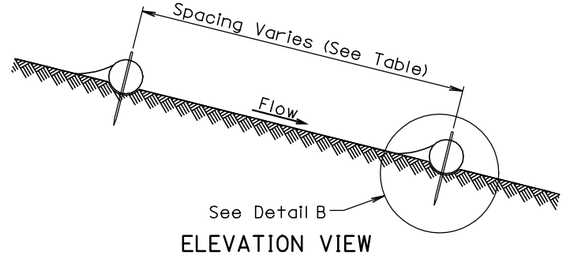


GENERAL NOTE:

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.

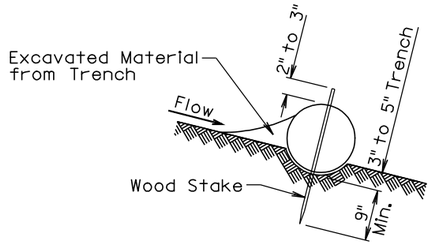
December 23, 2003

Published Date: 4th Qtr. 2011	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 2 of 2

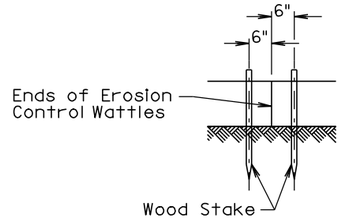


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

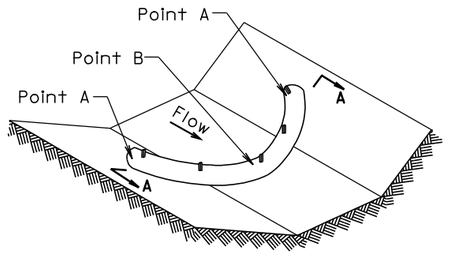
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



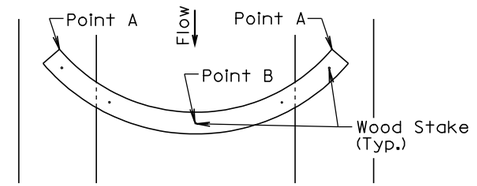
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

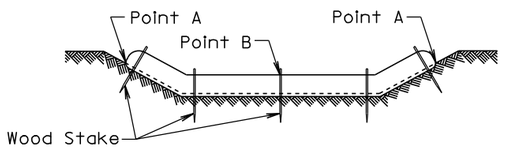


ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION

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



SECTION A-A

December 23, 2004

Published Date: 4th Qtr. 2011	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

Username - trrcil951

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 $\frac{1}{2}$". 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

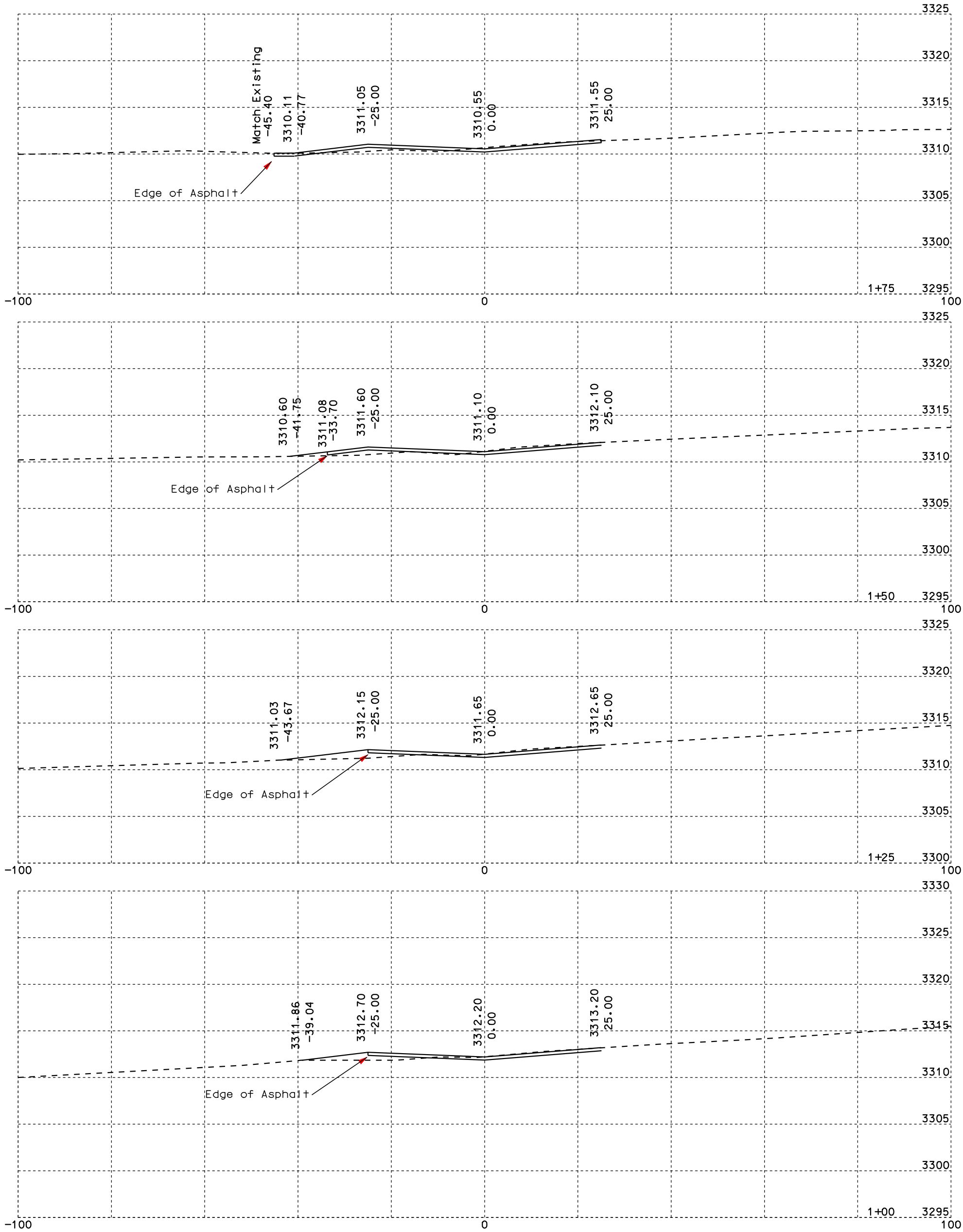
Published Date: 4th Qtr. 2011	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

Valley Gutter Paving Elevations

Plotting Date: 28-NOV-2011

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410D322	21	27

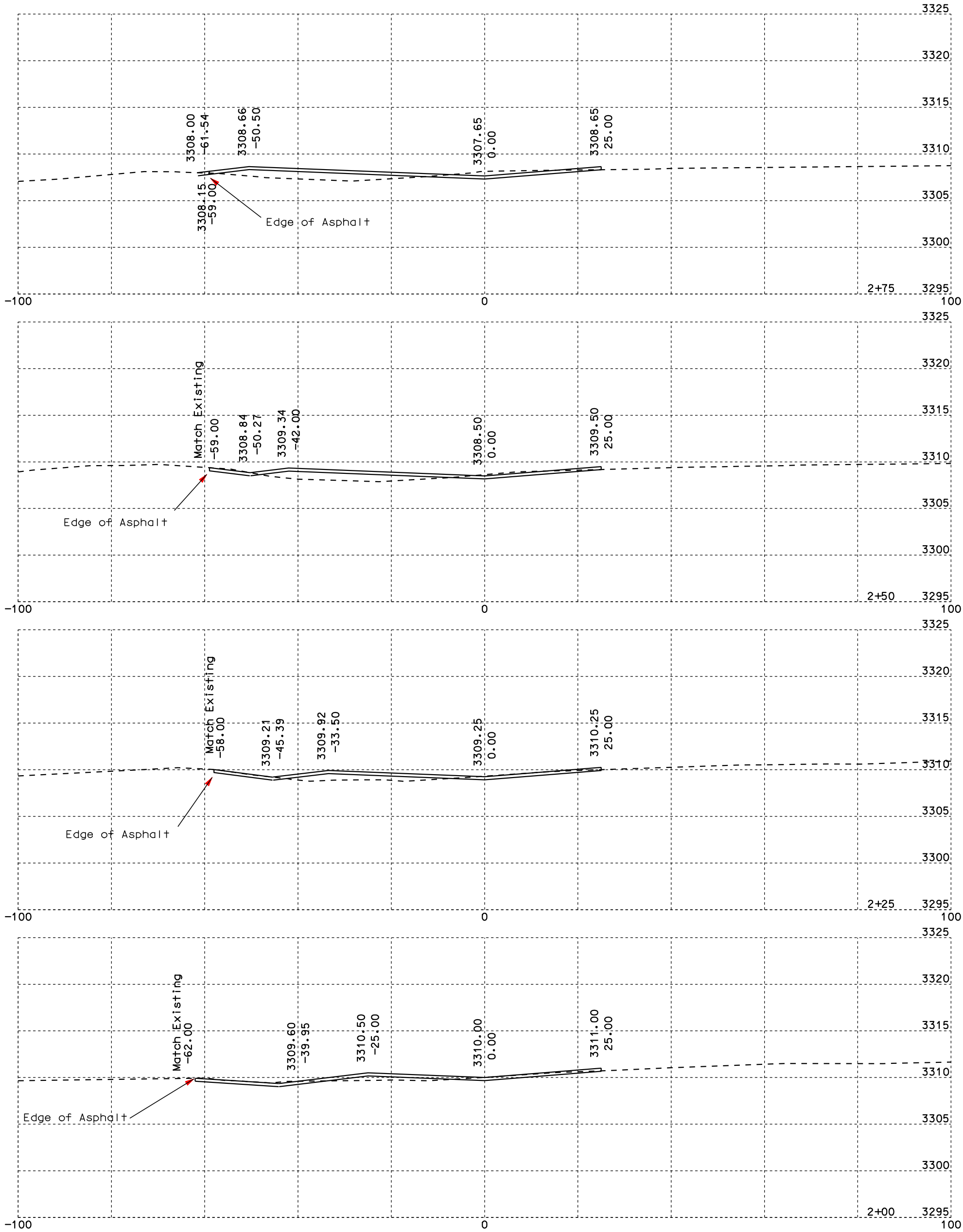
Valley Gutter Paving Elevations



Plotting Date: 28-NOV-2011

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410D322	22	27

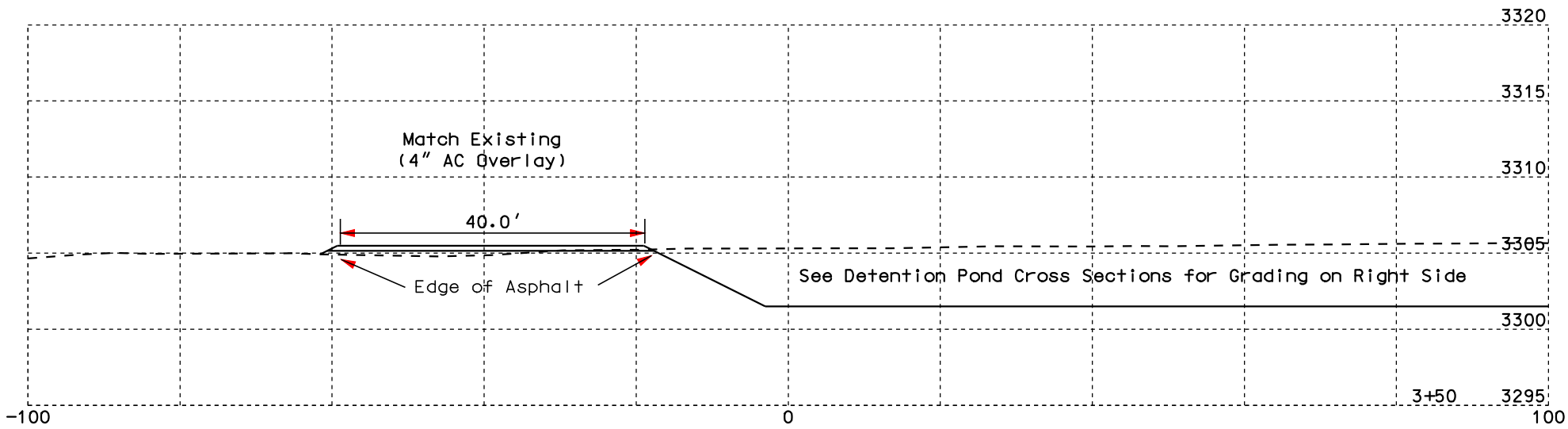
Valley Gutter Paving Elevations

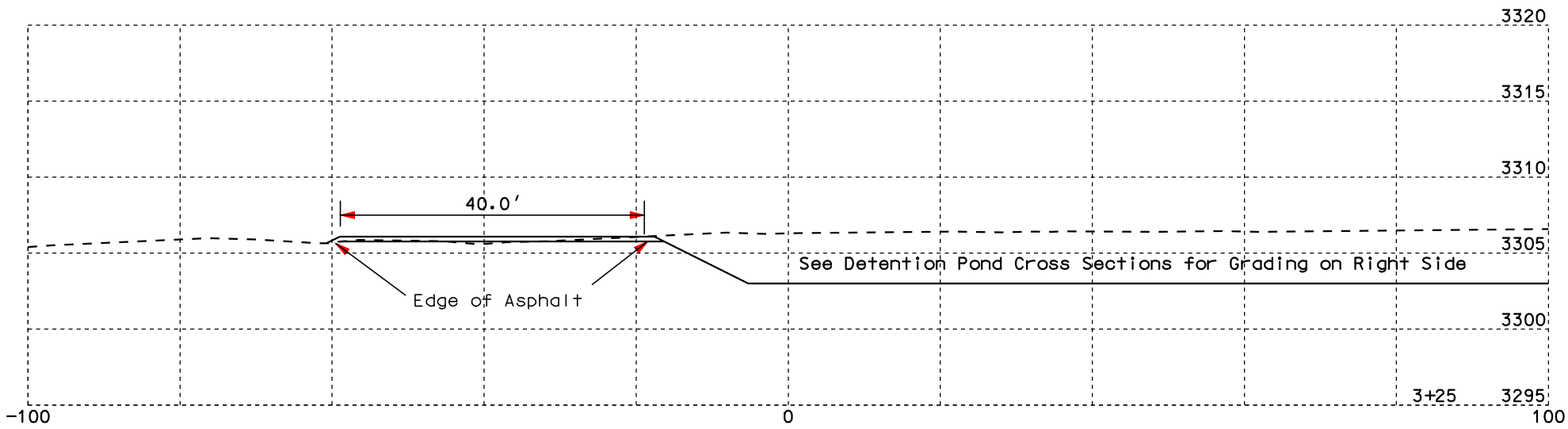


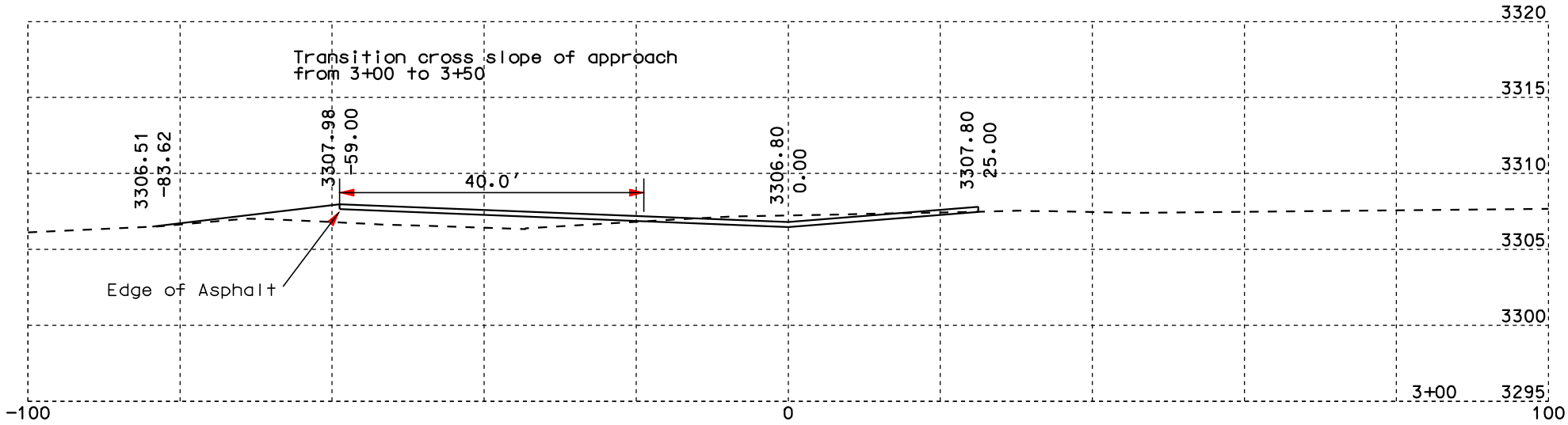
Plotting Date: 28-NOV-2011

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410D322	23	27

Valley Gutter Paving Elevations



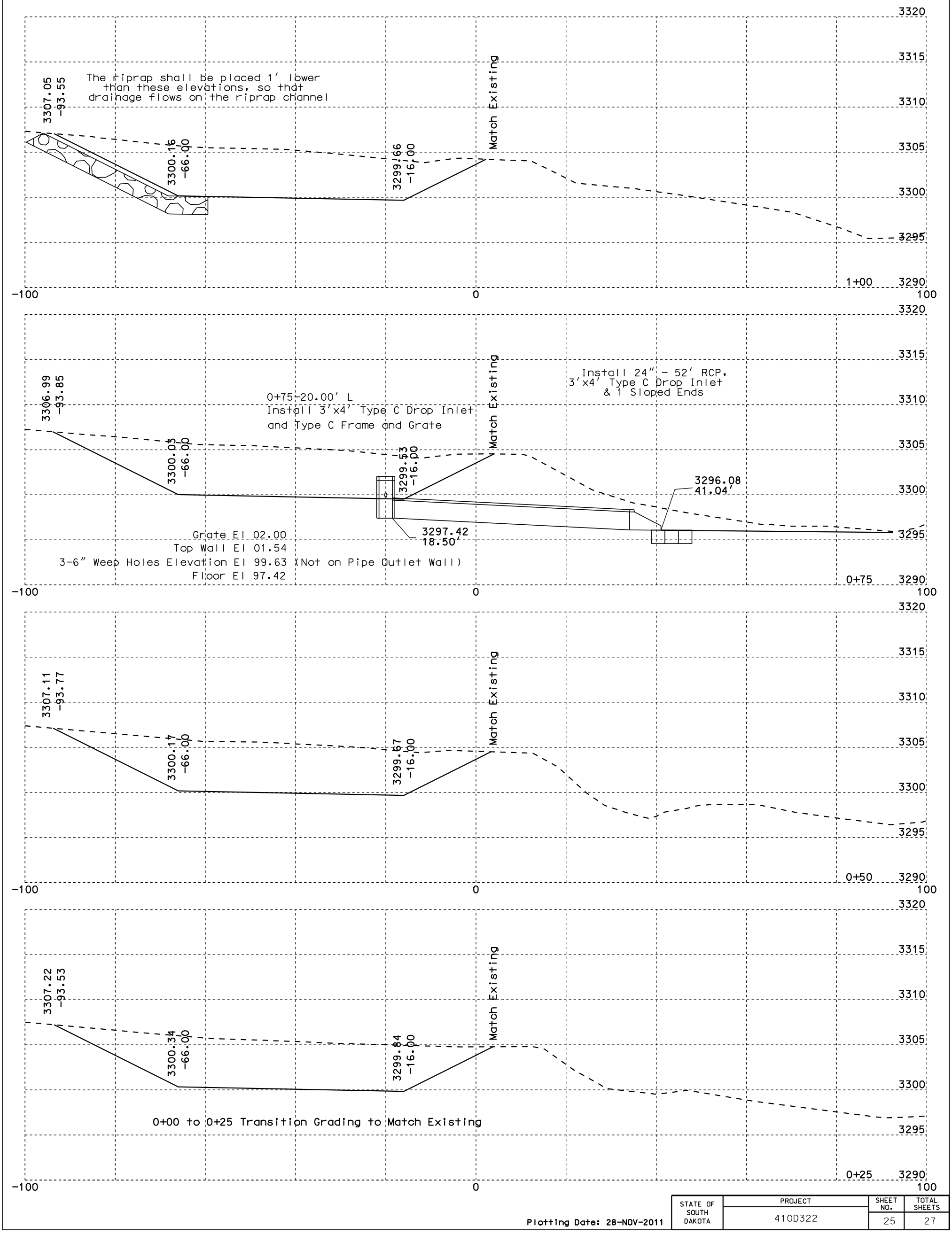




Plotting Date: 28-NOV-2011

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410D322	24	27

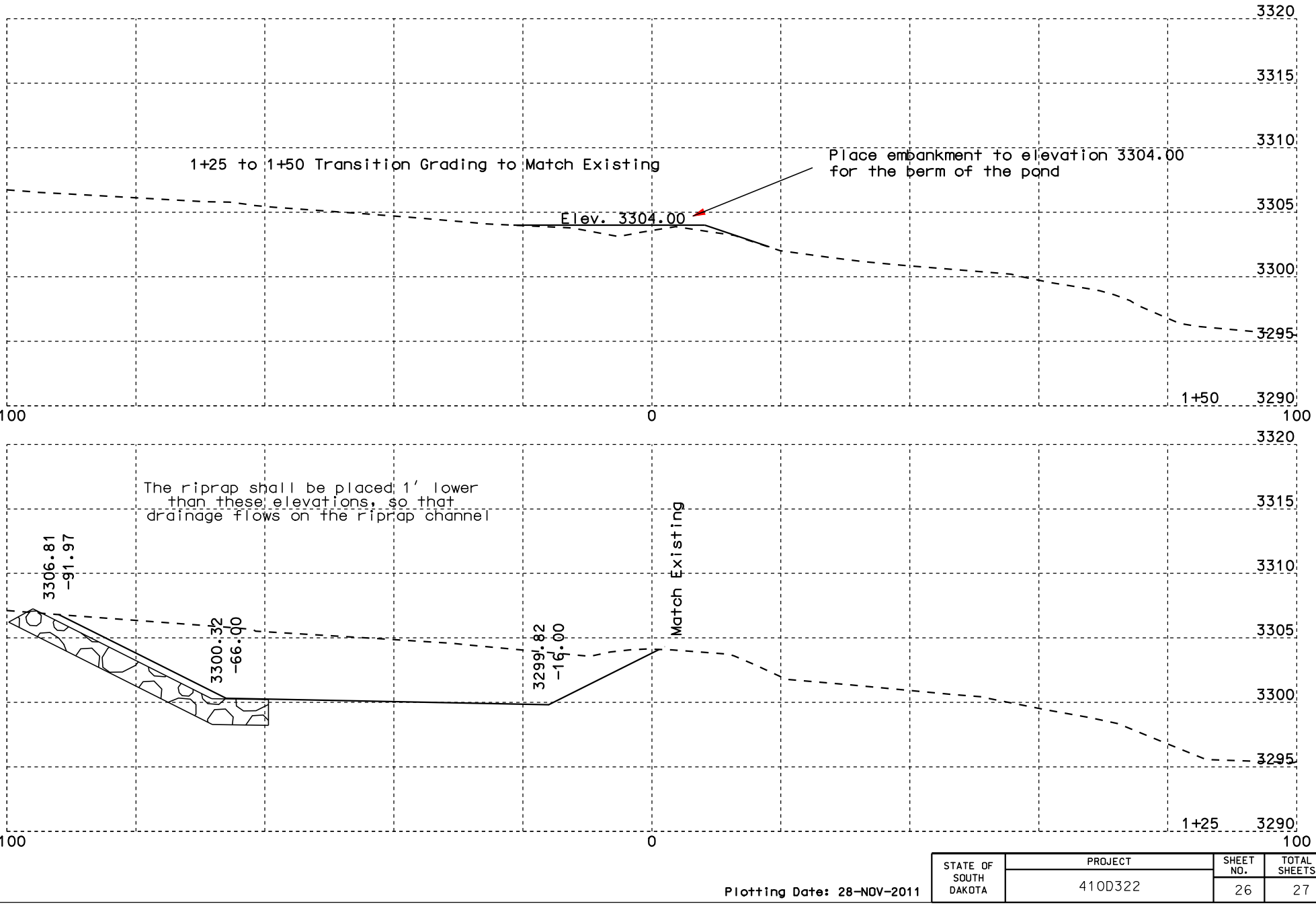
Detention Pond



Plotting Date: 28-NOV-2011

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410D322	25	27

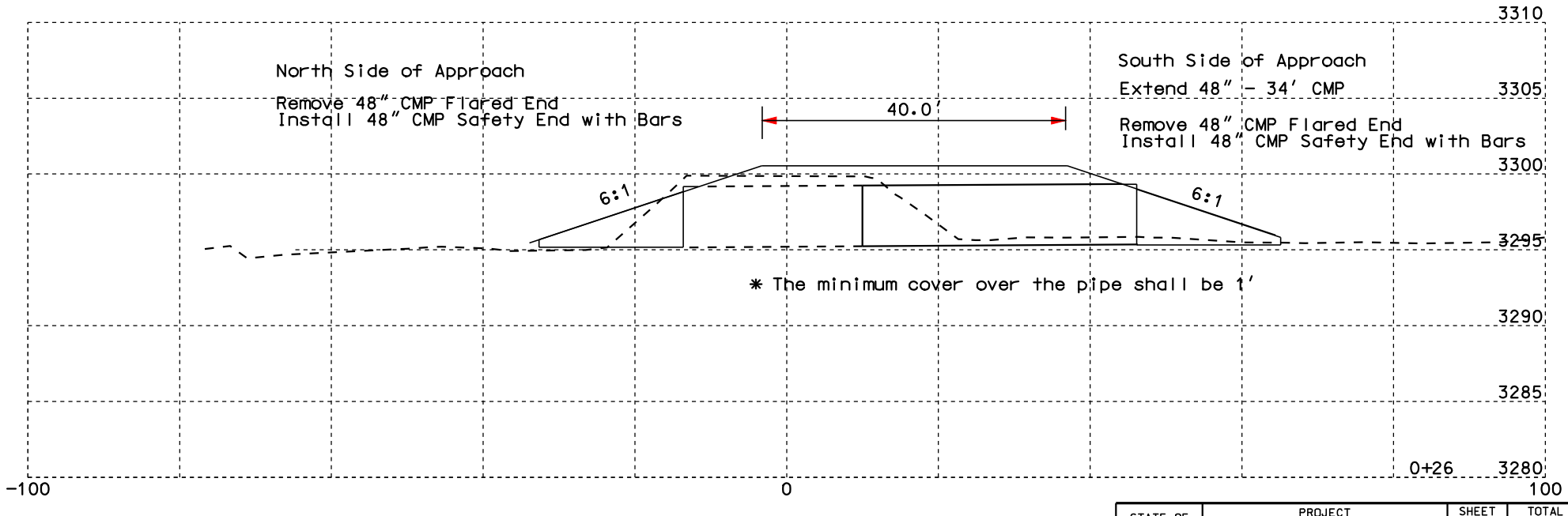
Detention Pond



Plotting Date: 28-NOV-2011

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410D322	26	27

Approach Pipe Extension



Plotting Date: 28-NOV-2011

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410D322	27	27